The International Seismological Summary.

1945 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 1945 contains 96 epicentres, 47 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

July	1d. 3h.	38·8°N.	0·6°W.	Suggested Deep.
	9d. 16h.	1·9N.	76·9W.	0·010
	15d. 5h.	17·8N.	146·3E.	0·015
Aug.	1d. 11h.	9·5S.	70·0W.	0·080
	14d. 8h.	Undetermined shock.		Suggested Deep.
	19d. 4h.	36·3N.	142·8E.	,, ,,
	21d. 10h.	41·5N.	130·5E.	0·080
	21d. 16h.	10·5S.	74·9W.	0·015
	27d. 7h.	22·5N.	143·5E.	0·005
Sept.	2d. 11h.	34·4N.	28·9E.	0·010
	3d. 19h.	33·0S.	71·5W.	Suggested Deep.
	5d. 21h.	5·2S.	152·4E.	0·005
	6d. 1h.	5·2S.	152·4E.	0·005
	6d. 14h.	5·2S.	152·4E.	0·005
	7d. 15h.	45·7N.	26·8E.	Base of Superficial Layers.
	9d. 12h.	14·0S.	75·0W.	0·005
	10d. 13h.	38·6N.	69·3E.	Suggested Deep.
	10d. 15h.	38·6N.	69·3E.	,, ,,
	10d. 16h.	38·6N.	69·3E.	,, ,,

			°	°	
Sept.	11d.	19h.	22·7S.	179·4E.	0·080
	13d.	11h.	33·8S.	70·5W.	Base of Superficial Layers.
	19d.	12h.	42·5N.	144·4E.	0·005
	24d.	12h.	7·2S.	155·3E.	0·020
	29d.	4h.	6·0S.	77·0W.	0·005

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,
May, 1954. SURREY.

1945 JULY, AUGUST, SEPTEMBER.

July 1d. 3h. 18m. 2s. Epicentre 38°·8N. 0°·6W.

Intensity VII, at Onteniente; VI at Albaida; V at Villena; IV at Jijona, Gandia, Alberique, and Enguera. Epicentre 38°48′N., 0°34′W. Radius of macroseismic area = 65km. Malaga suggests focal depth 25km.

A. Rey Pastor.
Estudio Sismotectónico de la Región Sureste de España, Madrid, 1951, macroseismic chart, figure 2.

$A = +·7814$, $B = -·0082$, $C = +·6240$; $\delta = +3$; $h = -1$;
$D = -·010$, $E = -1·000$; $G = +·624$, $H = -·007$, $K = -·781$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Alicante		0·4	170	0 11	− 2	—	—	—	—	—
Tortosa		2·2	23	e 0 37	− 1	1 7	+ 1	0 44	P_g	—
Almeria		2·4	217	0 44	P*	—	—	—	—	—
Granada		2·9	236	0 58	P_g	1 38	S_g	—	—	—
Toledo		2·9	294	i 0 30	−18	1 34	S_g	—	—	—
Malaga		3·7	237	e 1 0	0	i 1 44	− 1	1 3	P*	—
San Fernando	E.	5·0	244	—	—	e 2 35	S*	e 2 55	S_g	—
Coimbra		6·2	285	e 1 38	+ 3	e 2 44	− 4	3 3	S*	4·7
Clermont-Ferrand		7·5	21	e 1 54	+ 1	i 4 20	S_g	—	—	e 4·9
Uccle		12·5	13	—	—	e 6 10?	+47	—	—	e 7·1

Additional readings :—
Tortosa P_gS_gN = 0m.58s.
Malaga iP_g = 1m.15s., iS = 1m.56s.
Coimbra i = 3m.25s.
Long waves were also recorded at De Bilt.

July 1d. Readings also at 1h. (Kew), 3h. (Collmberg, Prague, Triest, Strasbourg, Zürich, Basle, San Fernando, near Malaga (4), Tortosa (2), Barcelona, and Alicante (4)), 6h. (Balboa Heights), 9h. (Collmberg, Sofia, Bucharest, Ksara, and near Yalta), 10h. (Triest, Bogota, and Balboa Heights), 12h. 14h, and 15h,(2) (near Collmberg and Jena), 18h. (Tucson, La Paz, and La Plata), 20h. (near Andijan), 21h. (near Branner and Lick, and near Bogota), 23h. (St. Louis).

July 2d. 8h. 30m. 37s. Epicentre 18°·2N. 110°·0W.

$A = -·3251$, $B = -·8933$, $C = +·3104$; $\delta = +2$; $h = +5$;
$D = -·940$, $E = +·342$; $G = -·106$, $H = -·292$, $K = -·951$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	N.	10·3	82	i 2 52?	+20	e 5 5?	+35	—	—	i 5·7
Tucson		14·0	357	i 3 16	− 6	e 5 47	−12	i 3 33	pP	e 6·4
La Jolla		16·0	337	e 3 45	− 3	—	—	—	—	—
Palomar		16·3	339	e 3 49	− 3	—	—	—	—	—
Riverside		17·1	339	i 4 5	+ 3	—	—	—	—	—
Mount Wilson	Z.	17·5	339	e 4 7	0	—	—	—	—	—
Pasadena		17·5	339	e 4 6	− 1	e 7 19	− 2	—	—	—
Boulder City		18·2	348	i 4 14	− 2	e 7 40	+ 3	—	—	e 9·4
Pierce Ferry		18·2	350	i 4 13	− 3	—	—	—	—	—
Santa Barbara	Z.	18·4	335	e 4 21	+ 3	—	—	—	—	—
Overton		18·7	349	i 4 20	− 2	—	—	—	—	—
Haiwee		19·2	341	e 4 29	+ 1	—	—	—	—	—
Tinemaha	Z.	20·2	341	i 4 34	− 5	—	—	—	—	—
Santa Clara		21·8	334	e 5 4	+ 8	e 9 3	+11	—	—	—
Berkeley		22·4	334	i 5 7	+ 5	i 9 11	+ 7	—	—	e 11·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Logan		23·5	357	e 4 57	−15	e 8 51	−32	e 9 8	sS	e 11·2
Ukiah		23·8	335	e 5 38	+23	(e 9 39)	+11	—	—	e 9·6
Shasta Dam		24·8	338	e 5 30	+ 5	—	—	—	—	—
Rapid City		26·4	12	5 42	+ 2	e 10 8	− 4	—	—	e 13·3
Florissant	E.	26·7	36	—	—	e 10 3	−14	e 11 44	SS	e 13·2
St. Louis		26·7	36	e 5 41	− 2	e 10 18	+ 1	e 11 14	SS	e 13·2
Bozeman		27·4	358	e 6 31	PP	e 10 9	−19	e 11 51	SS	e 13·0
Butte		27·8	356	—	—	e 10 31	− 4	—	—	e 15·4
Chicago		30·3	33	—	—	e 11 6	− 9	—	—	e 14·7
Philadelphia		37·0	47	—	—	e 12 49	−10	—	—	e 14·9
Ottawa		39·3	38	—	—	e 11 33	?	—	—	15·4
San Juan		41·6	82	e 7 58	+ 7	e 13 58	−10	—	—	e 18·9
Honolulu		45·0	282	—	—	e 17 29	?	—	—	e 21·0

Additional readings :—
Tucson i = 3m.53s.
Palomar iZ = 4m.3s. and 4m.10s.
Pasadena iNZ = 4m.17s., i = 4m.24s.
Boulder City i = 4m.57s.
Pierce Ferry i = 4m.55s.
Overton i = 4m.34s., e = 5m.46s.
Logan e = 5m.34s.
Florissant eSN = 10m.16s., eN = 11m.2s.
St. Louis eS?E = 10m.2s.
San Juan e = 8m.56s.
Long waves were also recorded at Sitka, Huancayo, La Paz, De Bilt, and Kew.

July 2d. 8h. 51m. 36s. Epicentre 18°·2N. 110°·0W. (as at 18h. 30m.).

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Tucson		14·0	357	i 3 17	− 5	—	—	i 6·5
Palomar	Z.	16·3	339	e 3 51	− 1	—	—	—
Riverside	Z.	17·1	339	i 4 6	+ 4	—	—	—
Mount Wilson	Z.	17·5	339	e 4 12	+ 5	—	—	—
Pasadena		17·5	339	e 4 12	+ 5	—	—	—
Boulder City		18·2	348	i 4 15	− 1	i 7 27	−10	i 12·4
Pierce Ferry		18·2	350	i 4 13	− 3	i 7 26	−11	—
Overton		18·7	349	i 4 21	− 1	e 7 31	−17	e 12·8
Triest	E.	98·6	36	—	—	e 26 51	PS	—

Long waves were also recorded at Huancayo and San Juan.

July 2d. Readings also at 3h. (near Bogota), 5h. (San Juan and Tucson), 8h. (Mount Wilson, Palomar, Tucson, and Riverside), 9h. (Mount Wilson, Palomar, Riverside, Tucson, and St. Louis), 11h. (near Tashkent, Andijan, and near Mizusawa), 12h. (near Andijan and Tashkent), 13h. (near Ottawa and Shawinigan Falls), 15h. (near La Paz), 16h. (Collmberg), 17h. (Harvard), 18h. (La Paz and La Plata), 19h. (near Tashkent), 22h. (near Tucson), 23h. (near Berkeley and San Francisco).

July 3d. 4h. 10m. 30s. (I)
4h. 55m. 3s. (II)
5h. 10m. 7s. (III)
} Epicentre 26°·8N. 111°·2W. (as on 1945, June 27d.).

$A = -·3232$, $B = -·8333$, $C = +·4485$; $\delta = 0$; $h = +3$;
$D = -·932$, $E = +·362$; $G = -·162$, $H = -·418$, $K = -·894$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
I	Tucson	5·4	4	i 1 20	− 4	i 2 1	−27	i 2·8
II		5·4	4	i 1 20	− 4	i 2 33	+ 5	i 2·9
III		5·4	4	i 1 19	− 5	i 2 29	+ 1	i 3·0
I	Palomar	8·2	324	i 2 3	0	—	—	—
II	Z.	8·2	324	i 2 13	+10	—	—	—

Continued on next page.

			△	Az.	P.	O−C.	S.	O−C.	L.
			°	°	m. s.	s.	m. s.	s.	m.
I	Riverside	Z.	8·9	325	e 2 14	+ 2	—	—	—
II		Z.	8·9	325	i 2 13	+ 1	—	—	—
III		Z.	8·9	325	i 2 13	+ 1	—	—	—
I	Mount Wilson	Z.	9·5	323	i 2 20	0	—	—	—
II		Z.	9·5	323	i 2 20	0	—	—	—
III		Z.	9·5	323	i 2 22	+ 2	—	—	—
I	Pasadena		9·5	322	i 2 20	0	—	—	e 4·3
II			9·5	322	i 2 20	0	—	—	e 4·8
III			9·5	322	i 2 25	+ 5	—	—	e 4·6
I	Pierce Ferry		9·6	347	i 2 20	− 1	—	—	—
II			9·6	347	i 2 14	− 7	i 4 45	S*	e 5·0
III			9·6	347	i 2 13	− 8	—	—	—
I	Boulder City		9·7	342	i 2 23	+ 1	e 5 3	S*	e 5·5
II			9·7	342	i 2 20	− 2	—	—	i 5·1
III			9·7	342	i 2 23	+ 1	—	—	e 5·2
I	Overton		10·1	345	i 2 28	0	—	—	—
II			10·1	345	i 2 27	− 1	—	—	i 5·5
III			10·1	345	i 2 29	+ 1	e 5 12	L	(e 5·2)
II	Santa Barbara	Z.	10·6	318	e 2 30	− 6	—	—	—
I	Haiwee	N.	10·9	320	e 2 42	+ 2	—	—	—
II			10·9	330	e 2 41	+ 1	—	—	—
III			10·9	330	e 2 43	+ 3	—	—	—
I	Tinemaha		11·9	332	i 2 55	+ 1	—	—	—
II			11·9	332	i 2 54	0	—	—	—
III			11·9	332	i 2 54	0	—	—	—
I	Shasta Dam		16·7	329	i 3 58	+ 1	—	—	—
II			16·7	329	e 3 57	0	—	—	—
I	Rapid City		18·4	19	—	—	e 7 46	+ 5	e 10·1
I	Bozeman		18·8	0	e 4 24	+ 1	e 8 6	+16	e 10·3
I	Butte		19·2	357	e 4 36	+ 8	e 8 12	+13	e 12·0
I	Florissant		21·2	50	e 4 45	− 4	e 8 40	− 1	—
III		E.	21·2	50	—	—	• e 8 39	− 2	e 11·0
I	St. Louis		21·2	50	e 4 45	− 4	e 8 39	− 2	i 10·0
II			21·2	50	e 4 42	− 7	e 8 37	− 4	e 11·0
III			21·2	50	e 4 40	− 9	e 8 41	0	e 11·0
I	Chicago		24·5	45	—	—	e 9 40	0	e 12·8
I	Saskatoon		25·5	6	—	—	e 10 18	+21	14·5
I	Columbia		26·9	66	—	—	e 9 58	−22	e 13·9
III			26·9	66	—	—	e 10 21	+ 1	e 14·4
I	Ottawa		33·8	47	e 6 51	+ 5	e 14 30?	SSS	17·5

Additional readings :—
Tucson I i = 1m.39s. and 1m.47s., II i = 1m.43s., III i = 1m.42s. and 2m.49s.
Pierce Ferry II i = 2m.20s., III i = 2m.19s.
Overton II i = 2m.41s. and 2m.47s., III i = 2m.34s.
Long waves for one or more of these shocks were also recorded at Tacubaya, Honolulu, San Juan, Bermuda, Kew, Uccle, and other American stations.

July 3d. Readings also at 1h. (near Lick), 11h. (Branner, Sitka, and near College), 13h. (Auckland and Collmberg), 14h. (Mount Wilson, Pasadena, Palomar, Riverside, and near Tucson), 15h. (Kew, Jena, Collmberg, St. Louis, Tucson, Mount Wilson, Riverside, Tashkent, and near Andijan), 16h. (Tashkent and near Stalinabad), 17h. (Arapuni, Christchurch, Wellington, Riverview, New Delhi, Bucharest, Collmberg, De Bilt, Uccle, Kew, La Paz, Pasadena, Tucson, Sverdlovsk, Tashkent, Andijan, and Irkutsk), 20h. (Collmberg, De Bilt, Uccle, Kew, Clermont-Ferrand, near Basle, and Zürich), 21h. (near Tashkent, Andijan, and Stalinabad, near Apia, and near Tucson), 22h. (Collmberg, De Bilt, Uccle, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, Boulder City, Pierce Ferry, St. Louis, near Harvard, and near Mizusawa).

July 4d. Readings at 9h. (St. Louis and Tucson), 10h. (Boulder City, Overton, Pierce Ferry, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and St. Louis), 11h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Alicante), 12h. (La Paz, near Berkeley, Branner, and Lick), 15h. (Ksara), 16h. (Philadelphia), 18h. (Collmberg and Ksara), 22h. (Collmberg and near Coimbra).

July 5d. 12h. Panama.

Balboa Heights iP = 2m.56s., e = 12m.24s.
Bogota iP = 4m.30s., i = 5m.13s., 6m.28s., and 7m.6s.
San Juan iP = 6m.33s., i = 6m.47s., eL = 17m.0s.
St. Louis eP?N = 9m.0s., eN = 9m.42s., eSN = 13m.46s., eN = 14m.14s.
Tucson iP = 9m.33s., i = 9m.45s., ePP = 11m.1s., ePcP = 12m.2s., eL = 17m.35s.
Boulder City eP = 10m.14s., e = 10m.24s.
Palomar ePEN = 10m.21s.
Mount Wilson ePZ = 10m.24s., iZ = 10m.37s.
Chicago ePP = 10m.24s., eS = 14m.26s., eL = 16m.32s.
Riverside iPZ = 10m.32s.
Tinemaha ePZ = 10m.39s.
Malaga iPZ = 14m.6s., eLZ = 48m.
Collmberg iZ = 15m.7s.
Seven Falls e = 16m., L = 23m.
Long waves were also recorded at Pasadena, Kew, and Uccle.

July 5d. Readings also at 2h. (Collmberg and near Mizusawa), 10h. (Ksara), 13h. (Collmberg and Ksara), 15h. (near Bogota), 19h. (Collmberg), 21h. (near Tucson), 22h. (near Berkeley, Branner, and Lick).

July 6d. Readings at 0h. (De Bilt and near Bucharest), 2h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, St. Louis, Boulder City, Balboa Heights, San Juan, Huancayo (2), and La Paz (2)), 5h. (La Paz), 6h. (near Andijan, Tashkent, and Stalinabad), 12h. (Mount Wilson, Palomar, Tucson, and St. Louis), 13h. (near La Paz), 15h. (near Christchurch), 16h. (Tucson), 17h. (near Andijan and near Seven Falls), 20h. (near Ottawa), 21h. (Riverview), 22h. (near La Paz), 23h. (Zürich).

July 7d. Readings at 0h. (Berkeley, Belgrade, Triest, Collmberg, Bucharest, Sofia, Copenhagen, and near Lick), 4h. (near Andijan), 5h. (Apia), 11h. (Mount Wilson, Pasadena, and Riverside), 14h. (near Johannesburg), 18h. (Berkeley), 20h. (San Juan), 21h. (Columbia and near Tucson), 23h. (Ksara, near Berkeley, Branner, Fresno, and San Francisco).

July 8d. Readings at 6h. (Auckland), 11h. (near Andijan), 15h. (La Paz), 18h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Boulder City, Shasta Dam, and Collmberg), 19h. (near Tacubaya and near Bogota), 20h. (near Berkeley, Branner, Lick, and San Francisco), 21h. (near Berkeley), 22h. (Columbia).

July 9d. 11h. 56m. 44s. Epicentre 6°·7N. 78°·9W.

A = +·1912, B = −·9745, C = +·1176; δ = +4; h = +7;
D = −·981, E = −·193; G = +·023, H = −·115. K = −·993.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		2·2	344	i 0 38	0	i 1 9	+ 3	—	—	—
Bogota		5·3	113	e 1 18	− 4	i 2 48	S*	i 1 41	P_g	—
San Juan		17·0	46	e 4 3	+ 2	i 7 19	+ 9	—	—	—
Huancayo		19·0	170	e 4 24	− 2	e 8 1	+ 6	—	—	e 11·3
La Paz	z.	25·5	156	5 33	+ 1	—	—	—	—	15·7
St. Louis	z.	33·3	344	e 6 38	− 3	—	—	—	—	—
Tucson		39·0	316	i 7 30	0	—	—	i 7 37	?	e 23·7
Pierce Ferry		43·4	318	i 8 5	− 1	—	—	i 8 17	?	—
Boulder City		43·9	317	i 8 9	− 1	—	—	—	—	—
Palomar		44·0	313	i 8 11	0	—	—	—	—	—
Riverside	z.	44·7	313	e 8 16	0	—	—	i 8 26	?	—
Mount Wilson	z.	45·3	313	e 8 22	+ 1	—	—	i 8 26	?	—
Pasadena		45·3	313	i 8 20	− 1	—	—	i 8 27	?	—
Tinemaha		46·8	316	i 8 35	+ 2	—	—	—	—	—
Collmberg	z.	85·9	39	e 12 41	− 2	—	—	—	—	—

Tucson gives also i = 8m.4s.
Long waves were also recorded at Columbia.

July 9d. 16h. 42m. 8s. Epicentre 1°·9N. 76°·9W. Depth of focus 0·010.

Felt at C. Putamayo in Columbia. Intensity approx. IV.
Epicentre 0°·8N. 76°·9W.
Mapa sísmico y tectónico de Colombia (Banco de la República, Bol. gráfico 7, febrero de 1947).

$A = +·2265$, $B = -·9735$, $C = +·0330$; $\delta = +9$; $h = +7$;
$D = -·974$, $E = -·227$; $G = +·007$, $H = -·032$, $K = -·999$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		3·9	47	i 0 58	− 1	—	—	—	—	—
Balboa Heights		7·5	340	i 1 52	+ 4	i 3 15	+ 3	—	—	—
Huancayo		13·9	174	i 3 17	+ 3	i 5 54	+ 8	i 3 32	pP	i 6·4
San Juan		19·5	30	i 4 21	− 1	i 7 52	0	—	—	i 8·5
Fort de France		20·1	50	i 4 27	− 1	i 8 3	− 1	8 17	SS	—
La Paz		20·2	155	i 4 28a	− 1	8 15	+10	5 13	PPP	10·2
Columbia		32·2	352	e 7 46	PPP	—	—	—	—	e 13·2
Bermuda		32·4	18	—	—	e 11 25	− 4	—	—	e 15·0
Georgetown		36·8	359	i 7 0	0	i 12 37	+ 1	—	—	—
Cape Girardeau	E.	37·1	342	e 7 2	− 1	e 12 34	− 7	—	—	—
Philadelphia		37·9	2	i 7 10	+ 1	e 12 48	− 5	e 8 37	PP	e 15·8
Pittsburgh		38·5	355	i 7 14	0	i 13 1	− 1	e 9 38	PcP	—
St. Louis		38·5	342	i 7 13	− 1	e 13 1	− 1	i 9 25	PcP	—
Florissant		38·7	342	i 7 14	− 2	i 12 57	− 8	i 8 51	PP	—
Fordham		38·9	3	i 7 17	− 1	e 13 5	− 3	e 14 1	sS	—
Harvard		40·7	6	i 7 32	0	—	—	—	—	—
Chicago		40·9	346	e 7 31	− 3	e 13 20	−18	e 8 22	?	e 16·5
Ottawa		43·3	0	7 54	0	14 10	− 3	17 52?	SSS	22·9
Tucson		43·9	316	i 8 0	+ 1	e 14 16	− 6	i 8 10	pP	e 17·8
Shawinigan Falls		44·6	4	8 4	0	14 30	− 2	—	—	—
Seven Falls		45·3	5	8 8	− 2	14 42	0	—	—	18·9
Rapid City		48·0	334	i 8 29	− 2	e 15 14	− 6	e 11 3	PPP	e 18·7
Pierce Ferry		48·3	319	i 8 34	+ 1	—	—	i 8 52	pP	—
Boulder City		48·8	318	i 8 37	0	e 15 31	− 1	i 10 0	PcP	—
La Jolla		48·8	313	e 8 40	+ 3	—	—	i 10 2	PcP	—
Palomar		48·8	314	i 8 38k	+ 1	—	—	i 10 1	PcP	—
Riverside		49·5	314	i 8 46k	+ 4	—	—	i 10 6	PcP	—
Mount Wilson		50·1	314	i 8 47k	0	—	—	i 9 0	pP	—
Pasadena		50·1	314	i 8 47k	0	e 15 50	0	i 8 59	pP	e 19·6
Haiwee		51·0	317	i 8 49	− 5	—	—	i 9 14	pP	—
Santa Barbara		51·3	313	i 8 58	+ 2	—	—	i 10 10	PcP	—
Tinemaha		51·7	317	i 9 0	+ 1	—	—	i 9 21	pP	—
Fresno	N.	52·6	317	e 9 5	− 1	—	—	e 9 27	pP	—
Berkeley		54·8	316	i 9 22	0	e 16 56	+ 2	i 10 12	PcP	e 27·9
Shasta Dam		56·3	319	i 9 28	− 5	—	—	i 9 51	pP	—
Grand Coulee		58·5	328	e 9 45	− 3	—	—	i 10 32	PcP	—
Sitka		71·9	331	e 11 8	− 6	e 20 4	−22	e 21 22	PPS	e 25·4
Granada		75·6	52	11 53a	pP	i 21 7	− 1	—	—	e 42·0
Kew	Z.	80·2	38	i 12 10k	+ 9	e 22 6?	+ 9	i 12 39	pP	e 36·9
Clermont-Ferrand		81·7	44	i 12 9	0	—	—	i 12 48	pP	—
De Bilt		83·6	37	i 12 20k	+ 1	i 22 29	− 2	—	—	—
Basle		84·9	42	e 12 24	− 1	—	—	—	—	—
Zürich		85·5	42	e 12 28k	0	e 22 45	[+ 4]	e 13 2	pP	—
Chur		86·2	43	e 12 31k	− 1	—	—	—	—	—
Jena		87·6	39	e 12 23	−15	—	—	—	—	—
Copenhagen		88·1	33	i 12 40	− 1	i 23 13	− 2	24 13	PS	—
Collmberg		88·5	39	e 12 42	− 1	e 23 13	− 5	e 13 20	pP	—

Additional readings :—
Huancayo iPP = 3m.52s., i = 4m.40s., 5m.5s., and 6m.7s.
San Juan e = 5m.6s. and 6m.2s.
Fort de France SSS = 8m.23s.
Philadelphia e = 11m.55s.
St. Louis eS_cPE = 13m.39s., iSSS?E = 16m.1s.
Florissant iPZ = 7m.17s., iZ = 8m.3s., eZ = 9m.18s., iZ = 9m.34s., eN = 13m.14s. and 13m.57s., iN = 16m.11s., eE = 17m.13s., and 18m.12s.
Ottawa eE = 15m.6s.

Continued on next page.

Tucson iPP = 9m.43s., e = 10m.30s.
Rapid City e = 9m.21s.
Pierce Ferry e = 9m.45s. and 9m.58s.
Boulder City i = 9m.21s.
Palomar iZ = 9m.13s. and 10m.38s.
Riverside iZ = 9m.36s.
Mount Wilson iNZ = 10m.5s.
Pasadena iZ = 9m.19s., iEZ = 9m.37s., iP_cPZ = 10m.5s., iZ = 16m.5s.
Haiwee iZ = 10m.8s.
Tinemaha i = 10m.11s.
Shasta Dam iP_cP = 10m.11s.
Sitka e = 12m.2s., eS_cS = 22m.0s.
Kew ePPZ = 15m.4s., ePSZ = 22m.36s.?
Copenhagen 22m.58s.
Collmberg i = 12m.45s., e = 16m.10s., eS? = 22m.56s.

July 9d. 20h. 22m. 34s. Epicentre 37°·9N. 121°·7W. (as on 1941 September 18d.).

Epicentre 37°56′N. 121°47′W. (Berkeley).

A = −·4157, B = −·6731, C = +·6117; δ = +5; h = −1;
D = −·851, E = +·526; G = −·321, H = −·520, K = −·791.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		0·5	266	i 0 19	+ 5	e 0 33	+10	e 0 32	?	
Branner		0·6	218	e 0 13	− 2	—	—	i 0 18	S_g	
Lick		0·6	176	e 0 8	− 7	i 0 14	−12	—	—	
San Francisco		0·6	258	e 0 18	+ 3	e 0 32	+ 6	—	—	
Santa Clara		0·6	203	e 0 10	− 5	i 0 17	− 9	—	—	
Fresno	N.	1·9	127	e 0 42	+ 8	i 0 51	− 8	e 2 31	?	

July 9d. Readings also at 1h. (near Lick, Branner, San Francisco, and Berkeley), 10h. (near Collmberg, Jena, and near Tacubaya), 13h. (Tucson, near Pierce Ferry, and Boulder City), 17h. (Collmberg), 19h. (near Malaga, Toledo, and Almeria), 20h. (Collmberg and near Mizusawa), 21h. (near Tucson), 23h. (Clermont-Ferrand, Paris, near Barcelona, and Tortosa).

July 10d. Readings at 3h. (Riverview), 7h. (Balboa Heights and near Mizusawa), 8h. (Balboa Heights), 12h. (near Tananarive), 16h. (La Paz), 19h. (near Mizusawa), 20h. (San Juan and Columbia).

July 11d. 0h. 30m. 34s. Epicentre 59°·2N. 152°·4W.

A = −·4560, B = −·2384, C = +·8574; δ = −9; h = −9;
D = −·463, E = +·886; G = −·760, H = −·397, K = −·515.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		6·1	19	i 1 35	+ 1	i 2 56	+11	—	—	i 3·0
Sitka		9·1	88	i 2 14	0	i 3 52	− 8	i 2 22	pP	e 4·3
Victoria		20·0	108	4 37	0	8 31	+14	—	—	—
Grand Coulee		22·6	104	i 5 3	0	e 8 46	−21	—	—	—
Saskatoon		26·3	85	6 26?	+47	11 26?	+75	—	—	16·4
Shasta Dam		26·4	120	i 5 40	0	e 10 10	− 2	—	—	i 16·5
Butte		27·1	99	e 6 0	+14	e 10 10	−14	—	—	e 16·1
Bozeman		28·1	99	e 6 2	+ 7	e 10 8	−32	e 6 40	PP	e 14·0
Berkeley		28·8	123	e 6 1	− 1	e 10 47	− 4	i 6 15	pP	—
Santa Clara		29·4	123	e 6 2	− 5	e 10 41	−20	—	—	—
Logan		30·5	105	e 6 13	− 4	e 11 47	+29	—	—	e 15·6
Fresno	N.	30·8	120	e 5 38	−42	e 10 38	−45	—	—	—
Salt Lake City		31·2	106	e 6 38	+15	—	—	—	—	e 15·6
Tinemaha		31·2	119	6 24	+ 1	e 11 31	+ 2	i 9 41	P_cP	—
Haiwee		32·1	119	i 6 30	− 1	—	—	i 9 36	P_cP	—
Santa Barbara	Z.	32·8	123	i 6 37	0	—	—	—	—	—
Rapid City		33·2	94	e 6 42	+ 2	e 12 6	+ 6	—	—	e 18·2
Overton		33·4	114	i 6 42	0	—	—	—	—	—
Boulder City		33·7	115	i 6 44	− 1	e 12 4	− 4	i 6 58	pP	e 14·7
Mount Wilson		33·7	121	i 6 44	− 1	e 12 6	− 2	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		33·7	121	i 6 44	− 1	e 12 4	− 4	i 9 40	PcP	e 14·7
Pierce Ferry		33·9	114	i 6 47	0	—	—	e 7 47	PP	—
Riverside		34·2	121	i 6 47	− 2	e 12 37	+21	—	—	—
Palomar		35·0	120	i 6 55	− 1	e 12 23	− 5	—	—	—
La Jolla		35·2	122	i 6 37	−21	—	—	—	—	—
Honolulu		38·1	187	—	—	e 13 11	− 5	—	—	i 18·6
Tucson		38·6	115	i 7 27	+ 1	e 13 21	− 2	i 7 42	pP	e 18·1
Chicago		42·9	84	e 8 14	+12	e 14 20	− 7	e 9 47	PP	e 23·6
Florissant		43·6	88	e 8 6	− 2	e 14 31	− 7	i 8 20	pP	e 22·6
St. Louis		43·8	88	e 8 8	− 1	e 14 33	− 7	i 8 22	pP	e 22·6
Cape Girardeau	E.	45·2	89	e 8 33	+13	e 18 35	SS	e 10 19	PP	—
Ottawa		46·2	71	8 28	0	15 8	− 7	10 26	PP	22·4
Cincinnati		46·4	83	i 8 43	+13	e 15 11	− 7	i 10 36	PP	e 21·8
Shawinigan Falls		46·8	67	8 32	− 1	15 23	− 1	—	—	23·4
Seven Falls		47·3	66	8 49	+12	15 51	+20	19 16	SSS	23·4
Pittsburgh		47·7	78	i 8 39	− 1	e 15 42	+ 6	e 10 46	PP	e 25·3
Harvard		50·4	71	e 9 9	+ 8	—	—	—	—	e 25·4
Fordham		50·5	74	e 9 0	− 2	e 16 14	− 2	—	—	—
Philadelphia		50·5	75	i 9 16	+14	e 15 54	−22	e 11 12	PP	e 23·1
Weston		50·6	71	i 9 2	0	e 16 36	+19	i 9 17	pP	—
Columbia		52·1	85	—	—	e 16 32	− 6	e 11 36	PP	e 27·6
Halifax		52·6	63	—	—	e 15 47	−57	—	—	27·4
Irkutsk		52·9	311	9 19	− 1	e 16 35	−13	—	—	—
Bergen		59·5	12	e 10 22	+15	e 18 16	0	—	—	—
Upsala	N.	61·0	6	e 10 32	+14	e 18 28	− 7	—	—	e 23·4
Sverdlovsk		61·4	340	i 10 19	− 1	i 18 35	− 5	—	—	—
Bermuda		61·7	73	e 10 36	+14	e 18 36	− 8	e 14 28	PPP	e 25·7
Copenhagen		64·8	9	e 10 45	+ 2	i 19 22	− 1	—	—	—
Moscow		65·1	353	e 10 43	− 2	19 24	− 3	10 59	pP	—
Kew		67·4	18	e 11 15a	+16	e 19 51	− 4	e 13 43?	PP	e 29·4
De Bilt		67·6	14	e 11 6	+ 5	i 19 57	0	e 13 36	PP	e 32·4
Uccle		68·7	16	e 11 4	− 3	e 20 10	0	—	—	e 34·4
Collmberg		69·2	9	e 11 10	0	e 20 11	− 5	e 13 18	PP	e 39·2
Jena		69·5	10	e 10 57	−15	—	—	—	—	—
Prague		70·6	8	(e 11 42)	+23	(e 20 33)	0	(e 14 26)	PP	33·4
Strasbourg		71·4	13	e 11 41	+17	e 20 42	0	e 14 26	PP	—
Basle		72·4	13	e 11 30	0	—	—	—	—	—
San Juan		72·5	83	e 11 51	+21	e 21 4	+10	—	—	i 29·9
Zürich		72·7	13	e 11 33	+ 1	—	—	—	—	—
Neuchatel		72·8	14	e 11 34	+ 2	—	—	—	—	—
Clermont-Ferrand		73·5	17	e 11 39?	+ 3	—	—	e 14 26?	PP	e 39·4
Andijan		73·7	325	e 11 40	+ 2	—	—	—	—	—
Tashkent		74·1	328	e 11 26	−14	e 21 10	− 2	21 28	PS	—
Triest	E.	74·9	10	e 12 5	+21	e 21 16	− 6	e 26 8	SS	—
Yalta		76·5	355	e 12 6	+12	—	—	—	—	—
Toledo		77·8	24	e 12 1	0	22 20	ScS	—	—	—
Tortosa	E.	77·8	20	—	—	e 22 48	PS	—	—	—
Granada		80·5	25	i 12 5k	−10	i 21 53	−29	—	—	37·3
Malaga	Z.	80·8	25	i 12 20a	+ 3	e 22 26	+ 1	12 35	pP	—

Additional readings and notes :—
College i = 1m.47s., 2m.32s., and 2m.44s.
Sitka e = 2m.38s.
Grand Coulee i = 5m.16s. and 6m.23s.
Shasta Dam i = 5m.54s., e = 10m.26s.
Butte e = 7m.51s.
Bozeman i = 6m.11s., e = 10m.39s., i = 11m.2s.
Berkeley eZ = 12m.16s., iSSEN = 12m.31s.
Logan i = 6m.26s.
Fresno eN = 8m.17s.
Tinemaha iZ = 6m.39s. and 6m.45s.
Haiwee i = 6m.45s.
Santa Barbara i = 7m.13s.
Rapid City i = 6m.55s.
Overton i = 6m.47s. and 6m.56s.
Mount Wilson iZ = 6m.57s.
Pasadena iZ = 6m.51s., i = 6m.58s., iLZ = 7m.4s., iNZ = 8m.8s.

Continued on next page.

Pierce Ferry i = 7m.1s. and 7m.8s.
Riverside i = 7m.2s., iEZ = 7m.8s.
Palomar iEZ = 7m.9s., iZ = 7m.16s.
La Jolla i = 7m.11s. and 7m.19s.
Tucson iPP = 9m.0s., e = 9m.11s.
Chicago eS_eS = 17m.33s.
Florissant iZ = 8m.28s., ePPZ = 10m.2s., eSSN = 17m.48s., isSSN = 18m.8s.
St. Louis iZ = 8m.30s., iPPZ = 10m.5s., iZ = 10m.9s., ipPPZ = 10m.17s., iPPP?Z = 10m.35s., eN = 14m.44s., esSN = 15m.1s., eN = 15m.10s., eSSE = 17m.52s., isSSN = 18m.12s.
Ottawa SS = 18m.26s.
Cincinnati e = 9m.31s. and 18m.50s.
Pittsburgh eSS = 18m.58s.
Fordham i = 9m.16s. and 16m.38s.
Philadelphia eS_eS = 18m.45s., eSS = 20m.21s.
Copenhagen i = 10m.58s. and 20m.26s.
Moscow esS = 19m.54s.
Kew eP_eS?Z = 15m.43s.?, eZ = 19m.35s., ePPS?EN = 20m.12s., eZ = 20m.31s., eSS = 23m.53s.?
Collmberg e = 11m.21s., i = 11m.26s., 11m.29s., 11m.32s., and 11m.41s., e = 12m.6s. and 14m.4s., eZ = 16m.37s., e = 20m.38s., 21m.29s., 22m.38s., and 23m.47s.
Jena eEN = 11m.12s.
Prague ePKP = 7m.50s., eSS? = 26m.26s.; phases are wrongly identified, P is given as PP, PP as PPP, and S as PS.
Basle e = 11m.47s.
San Juan iS = 21m.13s.
Clermont-Ferrand e = 11m.51s.?
Tortosa S_eSE = 23m.19s.
Malaga ePPZ = 15m.40s.

July 11d. 15h. Asia Minor.

Ksara eP = 13m.7s., eS? = 14m.32s.
Yalta eP = 13m.13s.
Sofia eP?EN = 13m.24s., iS_eEN = 15m.10s.
Helwan eE = 13m.40s. and 14m.55s.
Bucharest eEN = 13m.54s., eE = 14m.21s., eN = 14m.29s., LEN = 15m.25s.
Collmberg eZ = 15m.36s., e = 16m.48s.
Moscow eP = 15m.47s., S = 19m.22s.
Copenhagen iP = 16m.16s., iS = 20m.13s., L = 21·8m.
Belgrade e = 16m.32s., 17m.0s., 17m.23s., and 19m.15s.
Tashkent eP = 17m.18s., eS = 22m.22s.
Triest eP?E = 18m.3s., eS?N = 19m.4s., eQ?N = 19m.51s.
Prague e = 18m.23s., 20m.26s., and 20m.48s.
Upsala eE = 21m. and 27m.
Kew eNZ = 21m.36s.?, eLNZ = 25m.30s.
Long waves were also recorded at De Bilt and Uccle.

July 11d. 16h. 12m. 54s. Epicentre 35°·7N. 121°·2W.

Suggested by Berkeley.

A = −·4217, B = −·6962, C = +·5810; δ = +9; h = 0;
D = −·855, E = +·518; G = −·301, H = −·497, K = −·814.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Fresno		1·5	48	e 0 31	+ 3	i 0 47	− 2	—	—
Lick		1·7	348	e 0 30	− 1	e 0 48	− 6	i 0 53	S*
Santa Clara		1·7	340	e 0 33	+ 2	e 0 56	+ 2	—	—
Branner		1·9	335	e 0 32	− 2	i 0 58	− 1	i 0 35	S*
Berkeley		2·3	338	e 0 36	− 4	e 1 9	0	—	—
San Francisco	E.	2·3	334	e 0 41	+ 1	e 1 9	0	—	—
Boulder City		5·2	85	e 1 26	+ 5	i 2 0	−22	—	—
Overton		5·5	79	e 1 50	P_g	i 2 18	−12	—	—
Pierce Ferry		5·9	84	e 1 35	+ 4	—	—	e 1 57	P_g
Clermont-Ferrand		84·6	35	—	—	—	—	28 25?	SS

Additional readings:—
Fresno iN = 34s., eN = 2m.40s. and 3m.17s.
Berkeley eZ = 39s.
Overton e = 1m.57s.
Pierce Ferry i = 2m.8s.

July 11d. Readings also at 1h. (Mount Wilson, Pasadena, Palomar, Riverside, and Shasta Dam), 2h. (La Paz and near Lick), 3h. (Collmberg, De Bilt, and Kew), 6h. (Ksara and Sverdlovsk), 7h. (Riverview), 12h. (Lick and near Berkeley), 13h. (Basle, Collmberg, Jena, Clermont-Ferrand, Boulder City, Overton, Pierce Ferry, Shasta Dam, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, and Tinemaha), 17h. (Copenhagen), 19h. (Collmberg and Copenhagen), 21h. (near Mizusawa), 23h. (Moscow, Yalta, Bucharest, Sofia, Collmberg (2), Triest, and De Bilt).

July 12d. 9h. 11m. 54s. Epicentre 7°·2S. 74°·0W.

$A = +\cdot2735$, $B = -\cdot9538$, $C = -\cdot1245$; $\delta = +4$; $h = +7$;
$D = -\cdot961$, $E = -\cdot276$; $G = -\cdot034$, $H = +\cdot120$, $K = -\cdot992$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		5·0	196	i 1 17	− 1	i 1 53	−25	i 1 35	P_g	i 2·0
La Paz		10·9	149	2 40	0	4 36	− 8	—	—	5·8
Balboa Heights		17·0	342	e 4 15	+14	—	—	—	—	—
St. Louis	z.	48·0	343	e 8 34	0	—	—	—	—	—
Tucson		52·6	320	i 9 19	+ 1	—	—	—	—	—
La Jolla		57·2	316	i 9 51	0	—	—	—	—	—
Pierce Ferry		57·2	322	i 9 51	0	—	—	—	—	—
Palomar		57·3	317	i 9 52k	0	—	—	—	—	—
Boulder City		57·6	321	i 9 53	− 1	—	—	—	—	—
Overton		57·7	322	i 9 55	0	—	—	—	—	—
Riverside		58·0	317	i 9 56	− 1	—	—	—	—	—
Mount Wilson	z.	58·6	317	i 10 0	− 1	—	—	—	—	—
Pasadena		58·6	317	i 10 1	0	—	—	—	—	—
Haiwee	z.	59·7	319	i 10 7	− 2	—	—	—	—	—
Tinemaha		60·4	320	i 10 13	0	—	—	—	—	—
Berkeley	E.	63·5	318	e 10 33	− 1	—	—	—	—	—
Shasta Dam		65·2	321	i 10 42	− 3	—	—	—	—	—
Malaga	z.	78·2	50	i 12 3k	0	—	—	i 12 41	pP	—
Toledo		79·5	47	i 12 10	0	23 11	PS	—	—	—
Tortosa		83·1	48	i 12 35	+ 6	e 22 32	−16	12 45	P_cP	—
Collmberg	z.	93·7	39	e 13 18	− 2	—	—	—	—	—

Additional readings :—
St. Louis e = 8m.55s.
Tucson e = 9m.47s.
Pierce Ferry i = 10m.24s.
Palomar iZ = 10m.6s.
Riverside iZ = 10m.31s.
Mount Wilson iZ = 10m.35s.
Pasadena iZ = 10m.12s., 10m.38s., and 10m.41s.
Tinemaha iZ = 10m.48s.
Shasta Dam i = 11m.18s.
Malaga eZ = 14m.5s., iZ = 14m.21s.
Tortosa S_eSN = 22m.56s., PSE? = 24m.14s., SSN? = 28m.34s.
Long waves were also recorded at Jena.

July 12d. Readings also at 0h. (near Balboa Heights), 1h. (Riverview), 2h. (St. Louis), 4h. (near Bogota), 9h. (Bogota and Collmberg), 10h. (Boulder City, Overton, Pierce Ferry, and near Collmberg (3)), 11h. (Kew and Collmberg), 13h. (near Andijan), 14h. (near Mizusawa), 18h. (near San Juan and near Tucson), 20h. (St. Louis), 23h. (La Plata).

July 13d. Readings at 1h. (near College), 2h. (Boulder City, Tucson, Palomar, and Oaxaca), 7h. (Bucharest and near Sofia), 9h. (La Paz), 10h. (Triest and Kew), 15h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and Shasta Dam), 16h. (Boulder City and Tucson), 18h. (Kew and near Tucson), 19h. (Kew, Balboa Heights and near Ottawa), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Overton, Shasta Dam, Bermuda, near San Juan, and Fort de France), 21h. (Riverside, near Pasadena, Palomar, and Tucson (2)), 22h. (near Tucson).

July 14d. Readings at 0h. (near Berkeley, Branner, and Lick), 2h. (Boulder City, Overton, Pierce Ferry, near Berkeley, Branner, Lick, and Fresno), 6h. (Triest), 10h. (Jena and near Collmberg), 13h. (Almeria and Toledo), 14h. (La Paz), 17h. (near Mizusawa), 23h. (Palomar and Tucson).

July 15d. 5h. 35m. 14s. Epicentre 17°·8N. 146°·3E. Depth of focus 0·015.

$A = -\cdot7927$, $B = +\cdot5286$, $C = +\cdot3038$; $\delta = +9$; $h = +5$;
$D = +\cdot555$, $E = +\cdot832$; $G = -\cdot253$, $H = +\cdot169$, $K = -\cdot953$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mera		18·0	344	4 3	0	7 17	+ 1	—	—	—
Owase		18·5	333	4 7	− 2	7 24	− 3	—	—	—
Yokohama		18·5	344	(4 15)	+ 6	(7 25)	− 2	—	—	—
Tokyo		18·7	344	4 11	0	7 37	+ 6	—	—	—
Kôti		19·4	326	e 4 20	+ 2	7 50	+ 4	—	—	—
Hukusima		20·5	348	i 4 24	− 6	8 4	− 3	—	—	—
Hukuoka		21·2	321	4 41	+ 4	9 7	sS	—	—	11·1
Mizusawa	E.	21·7	350	i 4 43	+ 1	8 32	+ 4	—	—	—
Morioka		22·3	350	e 4 50	+ 3	9 3	sS	—	—	—
Mori		24·7	351	5 3	− 7	9 12	− 8	—	—	—
Sapporo		25·5	353	5 18	0	9 41	+ 8	e 7 56	?	—
Pehpei		38·2	296	7 7	− 2	12 46	− 6	i 7 46	pP	—
Brisbane	N.	45·5	172	i 8 12	+ 4	i 14 39	0	i 18 17	SS	—
Irkutsk		47·6	327	8 21	− 4	15 4	− 5	—	—	—
Riverview		51·5	175	i 8 54a	0	i 16 4	+ 1	i 9 25	pP	—
Honolulu		52·5	76	i 9 5	+ 3	i 16 25	+ 8	e 9 28	pP	e 22·2
Calcutta	N.	54·3	285	e 9 20	+ 5	i 16 40	− 1	i 17 46	sS	—
Perth		57·4	210	i 9 44	pP	i 17 26	sS	i 24 34	?	—
Auckland		60·7	154	10 56?	pP	18 11	+ 6	i 19 13	sS	—
New Delhi		63·7	294	i 10 22	+ 2	i 18 36	− 6	19 33	sS	—
College		63·8	25	e 10 19	− 2	e 18 42	− 2	e 19 42	sS	e 26·3
Hyderabad	E.	64·3	281	10 19	− 5	18 49	− 1	10 55	PcP	30·9
Wellington		64·4	157	10 25	0	18 51	0	—	—	—
Colombo	E.	65·5	269	10 35	+ 3	19 9	+ 5	—	—	—
Christchurch		65·6	159	10 32	0	19 6	0	11 24	PcP	30·4
Andijan		66·6	307	e 10 36	− 3	e 19 16	− 2	—	—	—
Sitka		68·9	35	e 10 53	0	i 19 49	+ 4	i 11 30	pP	e 27·4
Bombay	E.	69·3	284	i 10 53	− 2	i 19 52	+ 2	i 13 29	PP	30·8
Sverdlovsk		72·9	325	i 11 13	− 4	i 20 23?	− 8	i 21 5	sS	—
Victoria		77·1	43	11 48	+ 7	21 22	+ 4	—	—	26·8
Ukiah		79·4	53	e 12 18	pP	i 21 46	+ 4	—	—	—
Shasta Dam		79·6	51	i 11 56	+ 2	i 21 45	+ 1	e 22 18	sS	—
Grand Coulee		80·1	43	i 11 58	+ 1	i 21 48	− 1	i 12 35	pP	—
Berkeley		80·4	54	e 12 0	+ 1	21 55	+ 2	12 34	pP	—
Santa Clara		80·8	54	e 12 5	+ 4	e 22 1	+ 4	e 12 42	pP	—
Fresno	N.	82·6	54	e 12 16	+ 6	(e 22 20)	+ 5	e 12 52	pP	e 22·3
Santa Barbara		83·3	56	i 12 16	+ 2	i 22 21	− 1	i 12 51	pP	—
Tinemaha		83·7	53	e 12 19	+ 3	e 22 29	+ 3	—	—	—
Haiwee		84·2	54	i 12 21	+ 3	e 22 31	0	i 12 58	pP	—
Pasadena		84·6	56	i 12 22k	+ 2	i 22 27	[− 1]	i 12 52	pP	e 34·7
Mount Wilson		84·7	56	i 12 23	+ 2	i 22 31	[+ 2]	i 12 57	pP	—
Butte		84·9	43	12 24	+ 2	e 22 30	[− 1]	e 13 0	pP	e 31·2
Riverside		85·3	56	i 12 25	+ 1	e 22 36	[+ 3]	i 13 3	pP	—
Moscow		85·5	328	i 12 22	− 3	i 22 31	[− 4]	i 12 56	pP	—
La Jolla		85·8	57	i 12 27	+ 1	e 22 38	[+ 1]	i 13 2	pP	—
Palomar		85·9	56	i 12 29	+ 2	i 22 41	[+ 4]	i 13 4	pP	—
Bozeman		86·0	54	e 12 28	+ 1	i 22 38	[0]	e 13 6	pP	e 35·3
Saskatoon		86·2	37	12 31	+ 3	22 40	[+ 1]	—	—	37·8
Boulder City		86·6	53	i 12 32	+ 2	i 22 44	[+ 2]	i 13 8	pP	—
Overton		86·8	53	i 12 33	+ 2	i 29 13	SS	i 13 7	pP	—
Logan		86·9	47	i 12 32	+ 1	i 22 44	[+ 1]	i 13 9	pP	e 35·8
Pierce Ferry		87·2	53	i 12 35	+ 2	i 22 49	[+ 4]	i 13 3	pP	i 38·3
Salt Lake City		87·2	48	e 12 41	+ 8	i 22 53	[+ 8]	e 13 18	pP	e 37·0
Tucson		91·1	56	i 12 55	+ 4	i 23 43	+ 8	i 13 30	pP	e 36·9
Rapid City		91·7	43	e 12 56	+ 2	i 23 38	− 3	e 17 6	pPP	e 38·6
Upsala		92·2	336	e 12 45?	−11	e 23 9	[− 6]	e 16 15	PP	—
Bergen		96·0	341	13 14	0	24 13	− 5	e 16 46?	PP	41·8
Ksara		96·2	307	e 13 18	+ 3	e 24 20	+ 1	—	—	—
Copenhagen		97·1	335	i 13 15	− 4	24 22	− 5	17 2	PP	—
Bucharest		97·6	321	14 46?	?	—	—	—	—	44·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Collmberg		100·0	332	e 13 28	− 4	e 24 52	+ 1	e 14 20	pP		—
Prague		100·2	330	e 15 4	?	e 27 10	PS	e 32 40	SS		e 45·8
Aberdeen		100·8	342	i 17 34	PP	i 25 0	+ 2	i 26 53	PS		e 45·5
Jena		100·9	331	e 13 18	−18	—	—	e 17 32	PP		—
Helwan	E.	101·5	306	e 13 40	+ 1	24 7	[+ 3]	e 17 52	PP		—
Chicago		102·6	38	e 14 55	?	e 25 10	− 3	e 17 54	PP		e 42·1
De Bilt		102·6	336	e 13 43a	0	e 24 12	[+ 3]	e 17 56	PP		e 48·8
Florissant		102·7	42	e 13 41	− 3	e 25 12	− 2	i 14 21	pP		—
St. Louis		102·9	42	e 13 44	− 1	i 25 14	− 2	e 14 33	pP		—
Tananarive		103·6	254	—	—	e 24 20	[+ 6]	27 5	PS		—
Triest		103·6	327	e 17 11	?	i 24 14	[0]	e 27 59	PPS		—
Uccle		104·0	336	e 18 3k	PP	e 25 5	−20	e 18 55	pPP		e 47·8
Cape Girardeau	E.	104·1	43	e 18 39	pPP	e 24 14	[− 2]	—	—		—
Strasbourg		104·3	332	e 18 10	PP	e 26 57	SP	e 18 27	pPP		e 51·8
Chur		104·8	330	e 18 14	PP	—	—	—	—		—
Zürich		104·9	331	e 17 19	?	—	—	e 18 10	PP		—
Kew		105·1	338	e 13 51a	− 3	e 25 33?	− 1	e 18 7	PP		e 47·8
Basle		105·2	332	e 13 53	− 1	—	—	—	—		—
Cincinnati		106·1	38	e 13 58	P	i 24 24	[− 1]	i 27 24	SP		—
Paris		106·3	335	e 18 16	PP	e 25 46?	S	e 29 46?	?		e 51·8
Ottawa		106·5	29	14 10	P	24 25	[− 2]	18 14	PP		48·8
Shawinigan Falls		106·9	26	e 18 28	PP	e 24 26	[− 3]	—	—		—
Seven Falls		107·3	25	e 17 58	PKP	e 24 27	[− 4]	e 33 23	SS		45·8
Pittsburgh		107·8	35	e 19 5	pPP	i 24 34	[+ 1]	—	—		—
Clermont-Ferrand		108·5	333	i 18 43?	PP	i 26 7	S	i 29 7	PPS		e 49·8
Georgetown		110·5	34	e 14 5	P	e 24 49	[+ 5]	e 25 47	sSKS		—
Fordham		110·7	31	e 14 20	P	i 24 50	[+ 5]	e 18 12	PKP		52·8
Philadelphia		110·8	32	e 17 2	?	i 24 45	[0]	e 34 7	SS		—
Halifax		111·7	22	—	—	24 46?	[− 3]	—	—		33·8
Tortosa		113·6	331	e 19 2	PP	26 5	SKKS	21 31	PPP		e 40·8
Toledo		116·3	334	i 18 32	[+ 3]	29 26	PS	—	—		47·8
Coimbra		117·7	337	e 19 44	PP	e 29 24	PS	36 6	SS		50·1
Granada		118·4	332	e 18 45	[+12]	29 33	PS	i 19 55	pPKP		57·5
Malaga		119·1	332	e 19 4	pPKP	e 28 58	?	i 19 58	PP		44·8
San Fernando	E.	120·1	334	e 20 5	PP	—	—	—	—		59·8
Bermuda		122·0	30	e 20 52	pPP	e 25 32	[+ 5]	e 29 47	SP		e 57·1
Balboa Heights		127·5	63	e 18 46	[− 4]	—	—	—	—		—
San Juan		131·9	42	e 19 3	[+ 5]	e 26 14	[+19]	i 22 12	pPP		e 55·2
Bogota		134·4	65	e 18 56	[− 7]	—	—	e 22 22	pPP		—
Huancayo		139·4	88	e 19 27	[+15]	e 28 30	SKKS	e 22 37	pPP		e 58·2
La Paz		147·1	93	19 34	[+ 8]	i 29 38	SKKS	20 44	pPKP		71·3
La Plata		152·5	133	19 40	[+ 6]	29 58	SKKS	20 40	pPKP		

Additional readings :—
Yokohama readings increased by 1½ minutes.
Riverview iNZ = 9m.47s., iPcPEN = 9m.59s., isSE = 16m.54s., iScSE = 18m.34s., iSSE = 19m.32s., iE = 21m.54s.
Honolulu iPP = 11m.11s., e = 12m.54s. and 13m.55s., iScS = 18m.40s., e = 21m.21s.
Calcutta iN = 13m.6s.
Auckland i = 19m.51s. and 20m.49s.
New Delhi PcPN = 11m.7s., i = 17m.5s., iN = 19m.20s., iE = 19m.23s., SS = 22m.43s., sSS = 23m.33s., SSS = 25m.13s., SSSS = 26m.52s.
College e = 10m.29s., 11m.0s., and 22m.56s.
Hyderabad PPE = 12m.38s., PSE = 19m.22s., ScSE = 19m.44s., SSE = 23m.9s.
Christchurch SS = 23m.14s.
Sitka isS = 20m.45s., i = 22m.9s.
Bombay iSN = 19m.46s., iEN = 20m.52s.
Shasta Dam i = 12m.3s., 12m.43s., and 20m.55s.
Grand Coulee esS = 22m.45s.
Berkeley iPZ = 12m.5s., iPSEZ = 22m.55s.
Fresno ePPN = 15m.32s., pP given as PP, PP given as S., S given as L.
Pasadena iZ = 13m.0s. and 13m.15s., iPPZ = 15m.40s., iZ = 17m.50s., iSPZ = 23m.35s., ePKP,PKPZ = 38m.40s., eSKP,PKPZ = 41m.42s., ePKP,PKP,PKPZ = 58m.58s.
Mount Wilson ePKP,PKPZ = 38m.34s., eSKP,PKPZ = 41m.34s., ePKP,PKP,PKPZ = 58m.2s.
Butte isS = 23m.30s.
Riverside iPPZ = 15m.47s.
Moscow sS = 23m.23s.

Continued on next page.

Palomar iPPZ = 15m.53s., eZ = 31m.52s., ePKP,PKPZ = 38m.40s., iZ = 39m.9s., PKP,PKP,PKPZ = 59m.22s.
Bozeman e = 12m.38s., ePP = 16m.12s., e = 16m.53s. and 23m.38s., i = 23m.43s., e = 25m.32s., eSS = 28m.31s.
Boulder City isP = 13m.25s., i = 35m.10s., iPKP,PKP = 38m.24s., i = 38m.39s., ePKP, PKP,PKP = 59m.15s.
Overton i = 12m.38s.
Logan e = 12m.39s. and 14m.48s., i = 23m.44s., eSS = 28m.33s.
Pierce Ferry i = 12m.47s. and 23m.0s.
Salt Lake City e = 13m.58s., i = 23m.13s., e = 27m.16s.
Tucson iPP = 16m.30s., iSKS = 23m.15s., esS = 24m.17s., e = 28m.13s., eSS = 29m.58s., iPKKP = 30m.59s., eSSS = 33m.26s., ePKP,PKP = 38m.12s., ePKP,PKP,PKP = 59m.9s.
Rapid City i = 13m.3s., iSKS = 23m.12s., i = 24m.43s.
Bergen SSN = 30m.48s., eE = 31m.16s.
Copenhagen 17m.16s. and 18m.6s., SKS = 23m.39s., 26m.46s., and 31m.58s.
Collmberg iPP = 17m.29s., ePPP = 19m.46s., eSKS = 23m.53s., ePS = 26m.18s., ePPS = 27m.15s., ePKKP = 29m.50s., eSS = 31m.53s., and numerous other readings without phase.
Prague ePP? = 17m.40s.
Aberdeen iE = 31m.51s.
Jena eN = 16m.21s. and 17m.24s., e = 18m.4s., eN = 20m.4s.
Chicago e = 18m.26s., iSKS = 24m.10s., e = 26m.3s., iPS = 27m.2s., eSS = 32m.22s., eSSS = 36m.11s.
De Bilt eZ = 18m.46s., ePPP = 20m.10s.
Florissant iSKSN = 24m.10s., esSN = 26m.16s.
St. Louis eZ = 17m.22s. and 18m.3s., iPPZ = 18m.37s., ipPPZ = 19m.6s., iSKSN = 24m.11s., iN = 24m.16s., eSKKSE = 24m.49s., isSN = 26m.16s., iE = 26m.54s. and 28m.14s., iN = 32m.28s.
Tananarive PSEN = 26m.8s., eN = 29m.45s., SSN = 31m.20s., eE = 38m.32s.
Triest eSS?E = 38m.2s., eSSS?E = 42m.20s.
Uccle ePPN = 18m.59s., eSN = 26m.24s., eE = 32m.39s.
Strasbourg i = 21m.27s., iPPS = 28m.15s., iSS = 33m.33s.
Zürich e = 21m.32s.
Kew iPP?EZ = 18m.11s., i = 19m.6s.. ePPPZ = 20m.3s.?, ePSZ = 27m.11s., ePPS = 27m.59s., eSSN = 32m.43s.?
Cincinnati e = 16m.52s. and 17m.50s., iS = 25m.15s., i = 28m.39s.
Ottawa SKKS = 25m.10s., SS = 33m.10s.
Seven Falls e = 25m.57s.
Fordham i = 19m.7s., 28m.11s., and 34m.20s.
Philadelphia eSKKS = 25m.31s., eS = 26m.21s., e = 26m.48s. and 27m.22s.
Tortosa iPPN = 19m.14s., PPSE = 30m.0s., SSE = 34m.54s.
Coimbra S = 31m.36s.
Malaga i = 21m.4s.
Bermuda e = 27m.7s., eSS = 36m.55s.
San Juan i = 23m.21s., iSKKS = 27m.42s., e = 31m.8s., ePPPS = 33m.1s., iSS = 38m.46s., e = 40m.58s.
Bogota i = 19m.4s. and 19m.10s., e = 23m.6s.
Huancayo e = 33m.11s., eSS = 40m.50s.
La Paz iPKP$_2$ = 19m.54s., iE = 21m.21s., sPKPE = 21m.44s., SKPE = 23m.13s., PP = 23m.35s., PSKS = 33m.1s., SSE = 42m.19s.
La Plata Z = 19m.45s., N = 20m.46s., E = 20m.52s., N = 20m.58s. and 25m.16s., N = 30m.58s., L?E = 32m.40s.
Long waves were also recorded at Columbia and Seattle.

July 15d. 19h. Undetermined shock.

Irkutsk P = 25m.56s., S = 33m.57s.
Andijan eP = 26m.47s., iS = 35m.39s.
Tashkent eP = 26m.54s.
Sverdlovsk iP = 28m.3s., iS = 38m.1s.
Riverview eE = 30m.18s.
Tucson ePKP? = 34m.29s., i = 35m.40s.
Mount Wilson iZ = 34m.43s.
Riverside iZ = 34m.58s.
Palomar eZ = 35m.2s.
Florissant iPZ = 37m.58s.
St. Louis iPZ = 37m.59s.
Moscow eS = 39m.22s.
Long waves were recorded at De Bilt.

July 15d. Readings also at 6h. (Toledo), 10h. (near Harvard, Seven Falls, Shawinigan Falls, and Ottawa), 12h. (near Triest), 15h. (Kew and near Triest), 17h. 20h. and 21h. (Collmberg), 22h. (Palomar, Tucson, Riverside, and Mount Wilson).

July 16d. Readings at 0h. (Berkeley), 4h. (Irkutsk, Toledo, Mount Wilson, Pasadena, Riverside, Tucson, St. Louis, San Juan, Bogota, Huancayo, and near La Paz, these readings and those at 5h. appear to appertain to several shocks none of which is widely recorded), 5h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Boulder City, Shasta Dam, Florissant, St. Louis, Arapuni, Wellington, Riverview, and Triest), 6h. (Copenhagen and La Plata), 8h. (near Tananarive), 10h. (Collmberg and Jena), 11h. (Tananarive), 12h. (Bogota, Huancayo, La Paz (2), San Juan, Tucson, Mount Wilson, Palomar, Riverside, Collmberg (2), and near Ksara), 16h. (Collmberg), 18h. (Auckland, Christchurch, Brisbane, Riverview, and Tashkent), 20h. (Collmberg (2)), 23h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and near Balboa Heights).

July 17d. 6h. 47m. 10s. Epicentre 14°·4N. 93°·7W. (as on 1941, July 23d.).

$A = -\cdot0625$, $B = -\cdot9670$, $C = +\cdot2471$; $\delta = +5$; $h = +6$;
$D = -\cdot998$, $E = +\cdot065$; $G = -\cdot016$, $H = -\cdot247$, $K = -\cdot969$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	3·9	312	(e 1 2)	0	—	—	—	—	—
Tacubaya		7·2	314	e 1 56	+ 7	—	—	i 2 6	P*	e 3·8
Bogota		21·6	114	i 4 51	− 3	—	—	—	—	—
Columbia		22·6	27	e 5 4	+ 1	e 9 10	+ 3	—	—	e 14·4
Tucson		23·7	322	i 5 15	+ 1	e 9 42	+15	i 6 2	PP	e 14·2
St. Louis		24·3	7	e 5 23	+ 3	i 9 53	+16	—	—	e 13·1
Florissant		24·5	7	e 5 17	− 5	e 9 47	+ 7	—	—	—
San Juan		26·7	76	e 5 54	+11	e 10 55	+38	—	—	e 16·2
Palomar	Z.	28·2	316	i 5 56	0	—	—	—	—	—
Pierce Ferry		28·2	324	e 5 56	0	—	—	—	—	—
Boulder City		28·6	323	e 5 59	− 1	—	—	—	—	—
Riverside	Z.	29·0	316	e 6 0	− 4	—	—	—	—	—
Mount Wilson	Z.	29·6	316	e 6 9	0	—	—	—	—	—
Pasadena	Z.	29·6	316	e 6 32	+23	—	—	—	—	—
Philadelphia		30·2	29	e 7 8	PP	e 11 12	− 1	—	—	e 16·6
Kew		81·0	39	e 12 15	− 3	—	—	—	—	e 36·8
Copenhagen		87·1	33	—	—	23 25	− 3	—	—	—

Additional readings and note :—
Oaxaca iN = (1m.5s.); readings being increased by 6m.
Tucson i = 6m.8s., e = 12m.36s.
St. Louis iPZ = 5m.26s.
Palomar iZ = 6m.16s.
Long waves were also recorded at Salt Lake City, Weston, and Bermuda.

July 17d. Readings also at 1h. (near Mizusawa), 9h. (near Andijan), 10h. (near Barcelona and near College), 11h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and St. Louis), 15h. (near San Juan), 16h. (Alicante), 17h. (near Tucson), 19h. (Branner), 21h. (near Tucson).

July 18d. Readings at 1h. (Andijan), 6h. (Bogota and near La Paz), 13h. (Tananarive), 19h. (La Paz).

July 19d. Readings at 0h. (near Mizusawa), 1h. (Upsala), 4h. (Mount Wilson, Pasadena, and Riverside), 5h. (Tucson), 8h. (Collmberg (2), and Moscow), 10h. (Collmberg (2)), 11h. (Collmberg and Jena), 12h. (Collmberg), 14h. (Apia, Auckland, Christchurch, Honolulu, Mount Wilson (2), Pasadena (2), Palomar (2), Tucson (2), Florissant, St. Louis (2), San Juan, and Collmberg), 15h. (Collmberg and near Andijan), 16h. (near Andijan (2) and Tashkent (2)), 20h. and 23h. (Tananarive).

July 20d. Readings at 5h. (near Tananarive), 9h. (near Tashkent), 20h. (Granada and near Ottawa), 22h. (Bogota).

July 21d. 1h. 33m. 21s. Epicentre 37°·5N. 45°·0E.

Rough.

A = +·5624, B = +·5624, C = +·6062; δ = +7; h = −1;
D = +·707, E = −·707; G = +429, H = +·429, K = −·795.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan		2·7	352	e 0 49	+ 4	1 24	S*	—	—	—
Leninakan		3·4	344	0 56	+ 1	1 35	− 2	—	—	—
Ksara		8·3	246	e 2 10	+ 6	e 3 44	+ 4	4 38	S_g	—
Bucharest		15·8	302	3 39	− 6	—	—	—	—	—
Sofia		17·3	295	e 4 2	− 2	—	—	—	—	e 8·6
Moscow		18·9	348	4 20	− 4	7 41	−12	—	—	—
Triest		24·6	300	e 4 28	−55	e 9 34	− 8	—	—	—
Collmberg		26·5	311	e 5 39	− 2	e 7 45	?	—	—	—
New Delhi	N.	28·3	99	—	—	i 12 6	Q	—	—	i 18·5
Upsala		28·4	330	e 6 11	+13	e 10 33	−12	—	—	e 12·6
Copenhagen		28·4	321	e 5 59	+ 1	10 36	− 9	—	—	—
Zürich		28·4	302	e 5 54	− 4	—	—	—	—	—

Long waves also recorded at De Bilt and Kew.

July 21d. Readings also at 0h. (Tucson, Palomar, and near Berkeley), 1h. (Leninakan and near Erevan), 2h. (Branner, Ksara, Leninakan, and near Erevan), 3h. (Sverdlovsk), 5h. (near Andijan), 7h. (near Berkeley and near Tananarive), 12h. (Triest), 13h. (Riverview and Tashkent), 14h. (Mount Wilson (2), Pasadena, Palomar (2), Riverside, Tinemaha, Tucson (2), and Kew), 15h. (Kew and Auckland), 18h. (Ksara (2), near Erevan, and Leninakan), 22h. (Arapuni, Auckland, Christchurch, Wellington, Brisbane, Riverview, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tucson, Santa Clara, Boulder City, Overton, Pierce Ferry, Shasta Dam, Victoria, Salt Lake City, St. Louis (2), Chicago, Philadelphia, San Juan, and Collmberg), 23h. (De Bilt, Uccle, Clermont-Ferrand, and Granada).

July 22d. 10h. 39m. 52s. Epicentre 4°·5N. 95°·5E.

A = −·0956, B = +·9924, C = +·0779; δ = +7; h = +7;
D = +·995, E = +·096; G = −·007, H = +078, K = −·997.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo	E.	15·7	279	i 3 47	+ 3	9 43	L	—	—	(9·7)
Calcutta	N.	19·2	340	e 3 21	−67	e 8 3	+ 4	1 9 15	SS	e 10·9
Hyderabad	E.	21·1	310	4 50	+ 2	8 40	+ 1	9 15	SS	—
Bombay		26·4	305	e 5 40	0	i 10 34	+22	—	—	14·2
New Delhi		29·6	327	e 6 17	+ 8	i 10 56	− 8	i 11 19	SS	13·7
Dehra Dun	N.	30·5	330	—	—	e 11 50	+32	—	—	i 15·7
Andijan		41·7	333	e 7 51	− 1	14 8	− 2	—	—	—
Tashkent		43·5	332	i 7 54	−13	i 14 32?	− 4	—	—	—
Irkutsk		48·2	7	8 45	+ 1	15 43	0	—	—	—
Ksara		62·4	306	e 10 29	+ 2	e 18 57	+ 4	—	—	—
Helwan	E.	65·4	301	e 10 44	− 3	19 28	− 2	—	—	—
Moscow		68·6	330	11 1	− 6	i 19 59	−10	—	—	—
Bucharest		72·2	316	e 11 32	+ 3	e 20 42	− 9	—	—	34·1
Upsala		80·0	330	—	—	e 22 7?	−10	—	—	e 38·1
Prague		80·8	320	e 12 17	0	e 24 4?	?	—	—	e 45·1
Triest		81·0	316	e 12 21	+ 3	e 22 28	+ 1	e 23 55	PPS	—
Collmberg		81·8	321	e 12 20	− 2	e 22 30	− 5	e 15 36	PP	56·1
Copenhagen		82·4	326	e 12 30	+ 5	e 22 35	− 6	15 18	PP	—
Strasbourg		85·2	319	e 13 24	?	e 23 15	+ 6	—	—	—
De Bilt		86·7	322	e 12 51	+ 4	e 23 33	+ 9	—	—	e 42·1
Uccle		87·3	321	e 12 53	+ 3	—	—	—	—	e 46·1
Clermont-Ferrand		88·1	316	e 12 53?	− 1	—	—	—	—	e 50·1
Kew		90·1	322	e 13 7?	+ 4	—	—	—	—	e 50·1
Aberdeen	E.	90·4	327	—	—	e 23 28	[− 7]	—	—	e 47·6
	N.	90·4	327	—	—	e 23 48	−10	—	—	e 42·5
Toledo		94·4	311	e 13 21	− 2	—	—	—	—	59·3
Granada		94·5	308	e 14 4s	+41	23 37	[−21]	—	—	—
Malaga		95·3	308	e 14 24	+57	e 23 58	[− 5]	17 27	PP	—
College		96·9	23	—	—	—	—	e 31 22	SS	e 38·8
Coimbra		97·7	312	e 13 6	−32	e 27 8	PPS	—	—	e 53·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		105·9	26	—	—	e 29 0	PPS	—	—	e 47·3
Tinemaha	z.	128·0	35	e 19 4	[− 4]	—	—	—	—	—
Haiwee	z.	128·9	35	i 19 11	[+ 1]	—	—	—	—	—
Mount Wilson	z.	130·1	37	e 19 12	[0]	—	—	—	—	—
Pasadena		130·1	37	i 19 12	[0]	—	—	—	—	e 60·8
Overton		130·5	32	e 19 11	[− 2]	—	—	—	—	—
Boulder City		130·7	33	e 19 13	[0]	—	—	—	—	—
Riverside	z.	130·7	37	i 19 12	[− 1]	—	—	—	—	—
Pierce Ferry		131·1	32	e 19 16	[+ 2]	—	—	—	—	—
Palomar	z.	131·5	37	e 19 20	[+ 5]	—	—	—	—	—
Harvard		131·8	347	e 22 36	PP	—	—	—	—	—
Philadelphia		134·9	350	e 22 32	PP	e 44 46	SSS	—	—	e 54·7
Tucson		135·7	33	i 19 26	[+ 3]	—	—	e 22 48	PP	e 66·5
Fort de France		150·0	309	e 19 47	[0]	—	—	—	—	—
San Juan		150·9	322	e 20 23	[+34]	—	—	e 42 51	SS	e 72·6
La Paz	z.	160·0	311	20 21	[+20]	—	—	—	—	81·1
Huancayo		168·2	230	—	—	—	—	e 45 39	SS	e 84·0

Additional readings and notes :—
Bombay iSN = 10m.39s.
Bucharest eN = 11m.40s.
Triest eS = 22m.55s. (?PS), eSS = 28m.55s. ; true S is recorded as eSKS.
Collmberg i = 12m.48s., 13m.6s., 13m.16s., and 13m.28s., e = 15m.19s., 17m.12s., 17m.38s., 22m.44s., and 23m.10s., ePPS = 23m.49s., e = 24m.38s. and 25m.26s.
Copenhagen 23m.30s.
Philadelphia e = 35m.14s.
Long waves were also recorded at Brisbane, Riverview, Arapuni, Auckland, Christchurch, Wellington, San Fernando, Bozeman, Salt Lake City, and Chicago.

July 22d. Readings also at 0h. (Auckland and near Balboa Heights), 1h. (near Tacubaya), 3h. (near San Juan), 6h. (Puebla, Haiwee, Mount Wilson, Palomar, Riverside, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, and near Tananarive), 7h. (Bucharest and Wellington), 8h. (Alicante), 11h. (Riverview, Huancayo, and near Andijan), 12h. (Haiwee, Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, and near Tacubaya), 14h. (Kew), 16h. (Zürich and near Neuchatel), 18h. (near Erevan), 20h. (Huancayo, La Paz, Boulder City, Shasta Dam, Pasadena, Tucson, Mount Wilson, Palomar, Riverside, and Tinemaha), 21h. (near Erevan and Leninakan), 22h. (Ksara).

July 23d. 3h. 54m. 53s. Epicentre 4°·5N. 95°·5E. (as on 22d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo	E.	15·7	279	3 47	+ 3	7 11	+32	—	—	9·4
Calcutta	N.	19·2	340	i 4 20	− 8	i 7 55	− 4	—	—	—
Hyderabad	E.	21·1	310	4 45	− 3	8 41	+ 2	4 55	PP	—
Bombay		26·4	305	i 5 45	+ 5	i 10 13	+ 1	—	—	14·5
Pehpei		27·2	22	e 7 7	PPP	12 37	SSS	—	—	15·4
New Delhi		29·6	327	i 6 24	+15	i 10 20	−44	6 49	PP	12·2
Perth		41·1	153	i 7 52	+ 5	14 21	+20	i 10 7	PPP	—
Andijan		41·7	333	e 7 48	− 4	e 14 1	− 9	—	—	—
Stalinabad		41·7	329	e 7 48	− 4	e 14 0	−10	—	—	—
Tashkent		43·5	332	i 8 3	− 4	—	—	—	—	—
Irkutsk		48·2	7	e 8 40	− 4	15 19	−24	—	—	—
Vladivostok		50·2	35	e 9 9	+ 9	e 16 2	− 9	—	—	—
Tananarive		52·6	243	13 7?	PPP	16 58	+14	18 42	SS	e 22·1
Mizusawa	N.	53·8	44	—	—	16 55	− 6	—	—	—
Erevan		57·9	316	e 9 55	− 1	e 18 2	+ 7	—	—	—
Ksara		62·4	306	e 10 29	+ 2	e 19 2	+ 9	—	—	—
Brisbane		63·9	124	e 11 33	+56	i 19 8	− 4	i 22 53	SS	i 28·8
Riverview		64·8	131	e 10 45	+ 2	i 19 25	+ 2	i 11 12	P_cP	e 30·0
Helwan	N.	65·4	301	e 10 43	− 4	19 25	− 5	e 12 31	PP	—
Yalta		66·6	317	e 10 52	− 2	e 19 34	−11	—	—	—
Moscow		68·6	330	i 11 5	− 2	i 19 55	−14	—	—	—
Bucharest		72·2	316	e 11 29	0	e 20 42	− 9	—	—	33·1
Sofia		73·9	313	e 11 36	− 3	e 21 2	− 8	—	—	e 35·1
Upsala	E.	80·0	330	—	—	e 22 14	− 3	38 7?	Q	e 40·8
Prague		80·8	320	e 12 41?	+24	e 22 29	+ 4	e 23 17	PPS	e 41·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		81·0	316	e 12 17	− 1	e 22 24	− 3	e 22 42	SKS	—
Collmberg		81·8	321	e 12 19	− 3	e 22 37	+ 2	i 15 37	PP	e 50·1
Copenhagen		82·4	326	e 12 29	+ 4	e 22 33	− 8	—	—	—
Jena		82·7	321	e 12 14	−13	e 22 36	− 8	—	—	—
Christchurch		83·8	135	12 33	+ 1	22 55	0	28 49	SS	39·2
Auckland		84·1	128	—	—	23 7?	+ 9	28 37	SS	37·1
Zürich		84·6	317	e 12 35	− 1	e 22 53	−10	—	—	—
Wellington		84·9	132	12 22	−16	23 17	+11	37 7?	Q	41·1
Arapuni		85·0	129	i 18 49	?	23 37	+30	35 7?	Q	42·1
Strasbourg		85·2	319	e 12 42	+ 3	e 23 7	− 2	—	—	e 43·1
Basle		85·3	317	e 12 40	0	—	—	—	—	—
Neuchatel		85·8	317	e 12 41	− 1	e 23 4	−11	—	—	—
Bergen	E.	86·2	331	e 17 14	PP	e 23 11	− 8	e 24 55	PS	33·9
De Bilt		86·7	322	i 12 49	+ 2	e 23 17	− 7	—	—	e 40·1
Uccle		87·3	321	e 12 51	+ 1	i 23 46	+17	e 30 4	SS	e 45·1
Clermont-Ferrand		88·1	316	e 12 48	− 6	e 23 7?	[−14]	—	—	e 45·1
Paris		88·6	319	e 13 7?	+11	e 22 7?	?	—	—	e 39·1
Kew		90·1	322	e 13 2	− 1	e 23 27	[− 6]	e 25 15	PS	e 45·1
Aberdeen		90·4	327	e 13 7	+ 3	i 24 1	+ 3	e 17 7	PP	41·4
Tortosa	E.	90·9	311	e 13 10	+ 3	23 59	− 4	16 39	PP	e 42·1
Edinburgh		91·2	326	—	—	23 33	[− 7]	24 41	PS	—
Toledo		94·4	311	i 13 24	+ 1	i 24 39	+ 6	—	—	45·1
Granada		94·5	308	e 13 43	+20	i 24 33	− 1	—	—	e 50·6
Malaga		95·3	308	e 12 49	−38	e 22 59	[−64]	e 16 23	PP	e 51·1
College		96·9	23	—	—	e 24 20	{−12}	e 17 23	PP	e 46·3
Coimbra		97·7	312	e 13 53	+15	e 24 3	[−12]	18 33	PPP	e 54·6
Lisbon		98·6	310	—	—	32 56	SS	—	—	44·0
Sitka		105·9	26	e 19 17	PP	e 24 54	[− 1]	e 32 45	SS	e 46·7
Victoria		117·2	28	e 21 1	?	e 29 1	PS	—	—	51·1
Shasta Dam		123·2	34	e 18 56	[− 3]	—	—	—	—	—
Butte		123·9	23	e 20 13	PP	e 31 37	PS	e 37 31	SS	e 60·4
Bozeman		124·7	23	e 20 47	PP	e 28 52	?	e 37 40	SS	e 60·6
Seven Falls		127·2	347	e 21 31	PP	e 37 55	SS	—	—	52·1
Tinemaha		128·0	35	i 19 7	[− 1]	—	—	—	—	—
Salt Lake City		128·5	27	e 22 31	PP	e 38 27	SS	—	—	e 56·6
Santa Barbara	z.	129·0	38	e 19 6	[− 4]	—	—	—	—	—
Ottawa		129·7	352	e 19 10	[− 1]	e 28 15	{− 3}	e 38 37?	SS	49·1
Mount Wilson	z.	130·1	37	i 19 13	[+ 1]	—	—	i 22 45	PKS	—
Pasadena		130·1	37	i 19 12	[0]	e 38 55	SS	e 24 43	PPP	e 54·4
Overton		130·5	32	e 19 14	[+ 1]	—	—	—	—	—
Boulder City		130·7	33	e 19 13	[0]	—	—	e 22 28	PKS	—
Riverside	z.	130·7	37	i 19 16	[+ 3]	—	—	—	—	—
Pierce Ferry		131·1	32	e 19 15	[+ 1]	—	—	—	—	—
Palomar	z.	131·5	37	e 19 16	[+ 1]	—	—	i 22 37	PKS	—
Harvard		131·8	347	e 19 13	[− 2]	—	—	e 21 36	PP	—
Chicago		133·8	4	e 22 44	PKS	—	—	e 24 24	PPP	e 58·2
Fordham		133·8	349	e 19 24	[+ 5]	—	—	e 22 48	PKS	—
Philadelphia		134·9	350	e 21 37	PP	e 29 25	{+35}	e 22 43	PKS	e 53·6
Pittsburgh		135·1	355	e 22 52	PKS	—	—	—	—	—
Tucson		135·7	33	e 19 21	[− 2]	e 40 7	SS	i 22 51	PKS	e 56·1
Cincinnati		136·6	0	e 19 23	[− 1]	i 23 3	PKS	e 22 23	PP	—
Florissant		136·6	7	e 19 27	[+ 3]	e 34 9	PPS	e 22 0	PP	—
St. Louis		136·8	7	e 19 23	[− 2]	e 31 39	PS	e 22 49	PKS	—
Bermuda		138·8	334	—	—	e 42 17	SSP	—	—	e 71·3
Columbia		141·6	355	—	—	e 43 43	SSP	—	—	e 66·4
Fort de France		150·0	309	e 19 50	[+ 3]	—	—	—	—	—
San Juan		150·9	322	e 19 52	[+ 3]	e 42 28	SS	e 36 54	PPS	e 60·5
La Paz		160·0	232	i 20 7	[+ 6]	27 2	[− 3]	25 0	PP	78·1
Bogota		166·2	311	e 20 6	[− 1]	—	—	—	—	—
Huancayo		168·2	230	e 26 9	?	e 44 44	SS	e 29 37	PPP	e 71·5

Additional readings :—
Hyderabad P_ePE =8m.30s., SSE =9m.10s.
Bombay iE =10m.31s.
New Delhi SS =11m.1s.
Riverview eQE =27m.55s.
Helwan eN =20m.43s.

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Triest iPS =23m.49s., eSSS =32m.10s.
Collmberg ePPP? =17m.21s., ePS =23m.13s., ePPS =23m.50s., eSS =28m.13s., and many other unidentified phases.
Copenhagen 14m.39s. and 22m.41s.
Jena eN =12m.17s.
Christchurch S_eS =23m.24s.
Auckland S? =23m.43s.
Wellington iZ =13m.39s.
Uccle eSKS?N =23m.17s., iSKKS?N =23m.26s.
Aberdeen iE =23m.23s. and 31m.13s., iN =36m.42s., iE =37m.1s.
Tortosa S_eSE =23m.32s., PSE =25m.18s., SS?E =29m.23s.
Malaga ePS =23m.51s.
College e =25m.24s., ePS =27m.23s.
Coimbra eP =12m.3s., SS =32m.37s.
Sitka e =28m.57s.
Ottawa e =22m.7s.
Boulder City e =19m.53s.
Pierce Ferry e =19m.21s. and 19m.50s.
Chicago e =23m.19s., eSS? =41m.7s., e =42m.17s.
Philadelphia eSS =39m.36s., eSSS =44m.25s.
Tucson e =23m.50s., ePPP =24m.36s., eSSS =44m.53s.
Florissant ePPPS?N =35m.36s.
St. Louis iZ =19m.28s., 22m.54s., and 23m.2s., ePSKS?E =33m.37s., ePPP?E =34m.17s.
San Juan i =20m.27s., e =30m.35s.
La Paz iZ =30m.30s., iPSKS =36m.1s., PSS? =43m.16s.
Huancayo e =36m.7s. and 46m.15s.
Long waves were also recorded at Ukiah.

July 23d. Readings also at 1h. (Collmberg), 2h. (Ksara), 4h. (Boulder City and Tucson), 9h. (Balboa Heights), 10h. (Collmberg and near La Paz), 15h. (Auckland), 17h. (Berkeley, near Branner, Lick, and near Andijan).

July 24d. Readings at 1h. (near Ottawa), 6h. (Brisbane and Tucson), 9h. (near Florissant, St. Louis, and Cape Girardeau), 11h. (near Mizusawa), 13h. (Berkeley (2) and near Andijan), 16h. (Balboa Heights), 23h. (Lick (2)).

July 25d. Readings at 0h. (near Fresno), 5h. (Kew), 6h. (Tinemaha, Tucson, Riverside, Palomar, Haiwee, Mount Wilson, Pasadena, Christchurch, Wellington, and Riverview), 7h. (Pasadena, Mount Wilson, Palomar, Riverside, Haiwee, Tinemaha, Shasta Dam, and Tucson), 10h. (Collmberg), 11h. (De Bilt and Kew), 12h. (Wellington and Riverview), 15h. (near Ottawa), 18h. (Collmberg), 20h. (near Tucson).

July 26d. 10h. 32m. 15s. Epicentre 34°·3N. 81°·4W. (as given by U.S.C.G.S.).

Intensity IV at Abbeville, Charleston, Columbia, Greenville, Ashville, and Charlottesville ; III at Lancaster, Langley, and Summerville.
Macroseismic area 25,000 square miles.
United States Earthquakes, 1945.
U.S. Coast and Geodetic Survey, Washington, 1947, p. 6.

$A = +\cdot1238$, $B = -\cdot8185$, $C = +\cdot5609$; $\delta = -12$; $h = 0$;
$D = -\cdot989$, $E = -\cdot150$; $G = +\cdot084$, $H = -\cdot555$, $K = -\cdot828$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Columbia		0·4	135	i 0 8	− 5	i 0 14	− 7	—		—	—
Cincinnati		5·5	334	—	—	e 2 36	+ 6	i 3 4		S_g	i 3·1
Georgetown		5·8	36	—	—	2 34	− 4	—		—	e 3·6
Pittsburgh		6·3	12	i 2 1	P_g	i 3 28	S_g	—		—	—
Mobile		6·7	240	—	—	i 3 26	S*	—		—	—
Cape Girardeau	E.	7·3	297	—	—	e 3 33	+18	e 3 47		S*	e 4·4
Philadelphia		7·5	40	—	—	e 3 31	+11	e 3 48		S*	i 4·0
St. Louis	E.	8·4	304	e 2 6	0	e 3 38	− 5	e 4 27		S_g	—
Fordham		8·9	40	i 2 13	+ 1	i 3 54	− 1	i 4 40		S*	—
Harvard		11·3	41	e 2 46	0	i 4 42	−12	i 3 12		PPP	i 6·2
Ottawa		11·9	19	2 59	+ 5	3 22	PPP	—		—	—
Tucson		24·7	274	i 5 24	0	—	—	—		—	e 14·2

Additional readings :—
Philadelphia e =3m.40s. and 3m.57s.
Fordham iS =4m.9s.
Harvard i =4m.16s.
Long waves were also recorded at Rapid City.

July 26d. Readings also at 2h. (La Paz, Bogota, and Fort de France), 3h. (near Tashkent), 14h. (Collmberg), 15h. (La Paz and near Huancayo), 18h. (Riverview and Brisbane), 20h. (near Ottawa), 21h. (Collmberg and near La Paz), 22h. (Collmberg (2), La Paz, and near Mizusawa).

July 27d. Readings at 1h. (Collmberg), 4h. (near Granada), 6h. (Palomar, Riverside, Tinemaha, Pasadena, Mount Wilson, and near Apia), 9h. and 12h. (Collmberg), 14h. (Palomar and Tucson), 17h. (Pierce Ferry, Overton, Boulder City, Tinemaha, Haiwee, Santa Barbara, Mount Wilson, Pasadena, Riverside, Palomar, Tucson, and near Andijan), 18h. (Copenhagen, Collmberg, New Delhi, near Andijan, and Stalinabad), 20h. (Brisbane, Riverview, and Christchurch), 21h. (Tucson, Palomar, Riverside, Mount Wilson, Tinemaha, and Kew).

July 28d. Readings at 0h. (Auckland), 1h. (Granada), 2h. (Paris, Uccle, and Huancayo), 4h. (La Paz), 8h. (Collmberg), 10h. (near Mizusawa), 11h. (Paris and Balboa Heights) 13h. (Balboa Heights and near Irkutsk), 14h. (Collmberg), 15h. (Paris), 23h. (Fresno).

July 29d. 0h. Local shock.

Berkeley iPNZ = 37m.15s., eSEN = 37m.24s.
San Francisco eN = 37m.20s., eSN = 37m.30s.
Branner ePEN = 37m.23s., iSEN = 37m.38s.
Lick ePEN = 37m.29s., eSEN = 37m.41s.
Palomar eZ = 37m.58s., iNZ = 38m.15s.
Fresno eN = 38m.0s.
Mount Wilson eZ = 38m.6s.
Riverside eZ = 38m.8s.
Tucson iP = 38m.32s.
St. Louis ePZ = 39m.42s.

July 29d. 8h. 56m. 49s. Epicentre 38°·0N. 43°·0E. (as on 1940 March 17d.). Rough.

$A = +\cdot5778$, $B = +\cdot5388$, $C = +\cdot6131$; $\delta = +5$; $h = -1$;
$D = +\cdot682$, $E = -\cdot731$; $G = +\cdot448$, $H = +\cdot418$, $K = -\cdot790$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Leninakan	2·9	13	e 0 43	− 5	1 51	S_g	—	—
Ksara	7·1	237	e 2 3	P*	4 22	S_g	—	—
Moscow	18·1	351	e 4 8	− 6	e 7 29	− 6	—	—
Tashkent	20·5	73	e 4 40	− 2	e 8 21	− 6	—	—
Andijan	22·8	75	e 5 13	+ 8	—	—	—	—
Triest	23·0	300	i 5 12	+ 5	e 9 27	+13	i 5 35	PP
Collmberg	24·9	311	e 5 26	0	—	—	—	—

July 29d. 18h. Off West Coast of Mexico ?

Tucson iP = 49m.8s., i = 49m.29s. and 50m.8s., iS = 50m.38s., i = 50m.44s., iL = 50m.46s.
Palomar ePZ = 49m.51s., eSN = 52m.8s.
Riverside ePZ = 50m.3s., eS = 52m.39s.
Mount Wilson iPZ = 50m.10s., eSZ = 53m.6s.
Pasadena iPZ = 50m.10s., iSE = 53m.8s.
Boulder City iP = 50m.13s., eL = 53m.3s.
Overton iP = 50m.20s., i = 50m.30s. and 50m.43s.
Haiwee eP = 50m.31s.
Santa Barbara ePZ = 50m.31s.
Tinemaha iP = 50m.43s.
St. Louis ePZ = 52m.35s., eSE = 56m.28s., eLN = 58m.49s.
Florissant eSE = 56m.34s., eLE = 58m.54s.
Chicago e = 60m.8s., eL = 61m.6s.
Long waves were also recorded at Cape Girardeau and Philadelphia.

July 29d. Readings also at 3h. and 6h. (Collmberg), 7h. (near Andijan), 8h. (Mount Wilson, Palomar (2), Riverside (2), Tucson, St. Louis, Collmberg, and near Mizusawa), 9h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson), 13h. (near Berkeley, Branner, Lick, and San Francisco), 17h. (near Erevan), 18h. (Calcutta), 20h. (near Basle and Zürich), 21h. (Edinburgh, La Paz, Tashkent, and near Andijan).

July 30d. 15h. 15m. 42s. Epicentre 23°·5S. 71°·0W.

$A = +\cdot2989$, $B = -\cdot8680$, $C = -\cdot3965$; $\delta = -2$; $h = +4$;
$D = -\cdot946$, $E = -\cdot326$; $G = -\cdot129$, $H = +\cdot375$, $K = -\cdot918$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·2	66	e 0 39?	+ 1	i 1 7?	+ 1	—	—	e 1·4
La Paz	z.	7·5	22	e 1 54	+ 1	i 3 22	+ 2	i 1 58	?	4·5
San Juan		41·9	7	—	—	e 13 33	−40	—	—	e 17·0
Tucson		67·1	324	i 10 57	0	—	—	i 11 17	P_cP	—
La Jolla		71·3	320	e 11 22	− 1	—	—	—	—	—
Palomar		71·5	320	i 11 24	0	—	—	e 11 38	P_cP	—
Riverside	z.	72·2	320	i 11 28	− 1	—	—	—	—	—
Mount Wilson		72·8	320	i 11 31	− 1	—	—	—	—	—
Pasadena		72·8	320	i 11 32	0	—	—	i 12 17	?	—
Santa Barbara	z.	73·9	319	i 11 38	− 1	—	—	—	—	—
Haiwee		74·1	322	i 11 40	0	—	—	—	—	—
Tinemaha		74·9	323	i 11 44	0	—	—	—	—	—

Tucson gives also i = 12m.8s. and 12m.33s.

July 30d. Readings also at 0h. (Riverview), 1h. (Riverview and Kew), 6h. (Tucson, Overton, Boulder City, Branner, Berkeley, Lick, and near Fresno), 5h. (Palomar and Tucson), 8h. (Ksara), 12h. (Reykjavik), 16h. (Palomar, Mount Wilson, Tucson, and La Paz), 18h. (near Tananarive).

July 31d. 4h. Far South Atlantic.

La Paz iPZ = 57m.50s., iSZ = 65m.47s., LZ = 75m.0s.
Bogota eP = 60m.11s., e = 62m.39s.
Fort de France eP? = 60m.38s.
San Juan e = 61m.32s. and 70m.28s., eL = 89m.45s.
Tucson iP = 67m.17s., e = 72m.37s., eL = 107m.10s.
Riverside iPZ = 67m.25s.
La Jolla ePNZ = 67m.26s.
Palomar iPNZ = 67m.26s.
Pasadena iPNZ = 67m.27s.
Boulder City eP = 67m.27s.
Mount Wilson iP = 67m.28s.
Haiwee iPZ = 67m.31s.
Santa Barbara iPZ = 67m.31s.
Tinemaha iPZ = 67m.34s.
Berkeley ePZ = 67m.37s., eSZ = 68m.38s.
Shasta Dam iP = 67m.40s.
St. Louis ePZ = 67m.44s., eN = 73m.40s. and 77m.1s.
Grand Coulee eP = 67m.50s.
Helwan eN = 74m.12s.
Paris e = 77m., eL = 101m.
Kew eL = 77m. (not L, see Paris).
The American readings are all PKP for a distant shock.
Long waves were also recorded at Huancayo, Riverview, and other European and New Zealand stations.

July 31d. Readings also at 2h. (Mizusawa), 3h. (Branner), 6h. (near Mizusawa), 18h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Shasta Dam, Sitka, and St. Louis), 23h. (Sverdlovsk).

Aug. 1d. 11h. 47m. 25s. Epicentre 9°·5S. 70°·0W. Depth of focus 0·080.

A = +·3374, B = −·9270, C = −·1640 ; δ = +6 ; h = +7 ;
D = −·940, E = −·342 ; G = −·056, H = +·154, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		5·8	243	i 1 38	+ 1	i 2 49	− 5	—	—	e 3·3
La Paz	z.	7·2	165	i 1 50	0	i 3 12	− 6	—	—	3·6
Bogota		14·6	344	i 3 19	+14	—	—	i 5 28	pP	e 8·6
St. Louis		51·5	340	i 8 18	+ 1	i 14 55	− 2	i 9 19	pP	—
Florissant	z.	51·7	340	i 8 21	+ 2	i 14 58	− 2	e 9 21	pP	—
Tucson		56·9	319	i 8 54	− 1	e 16 3	− 5	i 10 54	pP	—
La Jolla	z.	61·6	316	e 9 25	− 2	—	—	e 11 28	pP	—
Palomar		61·7	317	e 9 27k	0	—	—	i 11 28	pP	—
Boulder City		61·9	320	i 9 28	− 1	e 17 8	− 2	i 11 29	pP	—
Overton		62·0	321	i 9 30	+ 1	—	—	—	—	—
Riverside	z.	62·4	317	i 9 30	− 2	—	—	e 11 33	pP	—
Mount Wilson	z.	63·0	317	i 9 34k	− 2	—	—	i 11 37	pP	—
Pasadena		63·0	317	i 9 34	− 2	i 17 20	− 4	i 11 36	pP	—
Haiwee		64·0	319	i 9 41	− 1	i 17 35	− 1	—	—	—
Santa Barbara	z.	64·2	316	i 9 41	− 2	—	—	—	—	—
Tinemaha		64·7	319	i 9 45	− 1	e 17 42	− 2	i 11 49	pP	—
Shasta Dam		69·4	320	i 10 13	− 2	—	—	—	—	—
Grand Coulee		71·7	328	i 10 28	− 1	i 19 3	− 2	i 12 35	pP	—
Tashkent		132·2	42	e 18 13	[+ 1]	e 23 0	?	—	—	—

Additional readings :—
Huancayo i = 2m.37s.
La Paz iZ = 2m.12s.
St. Louis eZ = 14m.48s., esS?N = 17m.2s.
Tucson e = 9m.28s., iP_cP = 9m.39s., e = 10m.38s.
La Jolla eZ = 9m.59s.
Palomar iZ = 9m.59s.
Overton i = 9m.43s., e = 9m.51s.
Riverside iZ = 10m.0s. and 12m.17s.
Mount Wilson iZ = 9m.55s.
Pasadena iZ = 9m.55s., i = 10m.3s., iZ = 12m.19s., iEN = 18m.23s.
Haiwee iZ = 10m.8s., eZ = 10m.23s.
Santa Barbara eZ = 10m.7s.
Tinemaha iZ = 10m.6s.

Aug. 1d. 22h. 23m. 15s. Epicentre 23°·9N. 121°·7E. (as on 1942 Sept. 24d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pehpei		14·9	297	c 3 2	−32	i 6 33	+13	—	—	8·6
Mizusawa	E.	22·4	42	c 5 3	+ 1	9 43	+39	—	—	14·1
	N.	22·4	42	4 44	−18	9 40	+36	—	—	13·9
Calcutta	N.	30·7	275	e 6 26	+ 7	e 11 34	+13	i 13 6	SS	15·2
Irkutsk		31·3	340	6 21	− 3	11 32	+ 1	—	—	—
New Delhi		40·0	287	e 7 39	+ 1	i 13 44	0	16 43	SS	18·8
Hyderabad	N.	40·9	270	7 44	− 2	e 13 54	− 4	17 18	SS	—
Colombo	E.	43·5	255	8 10	+ 3	14 40	+ 4	—	—	24·8
Kodaikanal	E.	44·2	261	i 9 22	+70	i 15 52	+66	10 52	PP	22·0
Andijan		44·4	305	e 8 16	+ 2	—	—	—	—	—
Bombay		45·6	274	i 8 22	− 2	e 15 2	− 4	—	—	24·3
Tashkent		46·7	306	i 8 32	0	i 15 27	+ 5	—	—	—
Riverview	z.	63·9	153	i 10 42	+ 5	—	—	—	—	—
Erevan		65·5	305	e 10 54	+ 7	—	—	—	—	—
Leninakan		65·9	307	e 10 51	+ 1	—	—	—	—	—
Moscow		67·3	323	e 10 54	− 5	19 43	−11	—	—	—
College		68·8	27	e 11 8	0	e 20 15	+ 4	e 21 31	S_cS	e 33·5
Yalta		72·0	312	e 11 23	− 5	—	—	28 34	SSS	—
Honolulu		73·3	73	e 11 40	+ 5	e 21 17	+13	e 21 47	PS	e 35·4
Ksara		73·8	300	e 11 40	+ 2	e 21 23	+14	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		76·4	331	e 19 29	?	e 21 36	− 2	—	—	e 37·4
Sitka		77·0	33	e 11 54	− 2	e 21 49	+ 4	e 14 52	PP	e 34·3
Bucharest		77·5	313	e 12 2	+ 3	e 21 58	+ 8	—	—	34·8
Auckland		78·5	139	12 5?	+ 1	22 30	PS	e 27 33	SS	—
Helwan		78·8	298	e 12 6	0	22 11	+ 7	—	—	—
Sofia		79·6	312	e 12 14	+ 4	e 22 26	+14	—	—	e 39·8
Arapuni		79·8	140	e 10 45?	?	22 45?	PS	—	—	—
Copenhagen		80·7	328	i 12 15	− 1	22 22	− 2	15 16	PP	40·8
Belgrade		81·0	315	e 12 27a	+ 9	e 23 5	PS	e 15 28	PP	e 40·4
Wellington		81·4	143	12 20	0	22 45?	+14	15 39	PP	40·8
Bergen		81·5	334	e 12 17	− 4	e 22 22	−10	e 15 38	PP	38·8
Christchurch		81·8	146	12 23	+ 1	22 33	− 2	27 51	SS	40·8
Prague		82·1	322	e 12 25	+ 1	e 23 1	PS	—	—	e 42·8
Jena	z.	83·5	323	e 12 26	− 5	—	—	e 15 3	PP	—
Tananarive		83·9	247	e 12 2	−31	22 15	−41	—	—	42·2
Triest		84·9	318	i 12 34	− 4	e 23 24	+18	i 12 52	pP	—
De Bilt		86·3	327	i 12 44a	− 1	e 23 25	+ 5	i 16 5	PP	e 46·8
Aberdeen		86·5	333	i 12 52	+ 6	i 23 20	− 2	i 15 56	PP	—
Chur		86·7	322	e 12 46	− 1	e 23 24	0	—	—	e 47·5
Strasbourg		86·9	323	e 12 48	0	e 23 48	+22	16 19	PP	e 45·8
Zürich		87·1	322	e 12 47	− 2	e 23 32	+ 4	e 16 4	PP	—
Uccle		87·4	327	i 12 49a	− 1	e 23 26	− 4	i 16 13	PP	e 45·8
Edinburgh		87·8	333	—	—	e 23 15	[− 4]	—	—	—
Neuchatel		88·2	322	i 12 41	−13	—	—	—	—	—
Kew		89·4	328	i 12 59a	− 1	e 23 57?	+ 8	i 16 28	PP	e 42·8
Paris		89·6	325	i 12 59	− 2	e 24 54	PS	i 16 29	PP	e 53·8
Grand Coulee		90·2	37	i 13 4	0	e 23 48	− 8	e 24 18	S_cS	—
Clermont-Ferrand		91·2	322	e 13 9	+ 1	—	—	e 16 43	PP	e 49·8
Shasta Dam		92·4	43	i 13 13	− 1	—	—	16 6	PP	—
Tinemaha		97·2	44	i 13 36	0	—	—	—	—	—
Toledo		98·9	320	e 16 30	PP	e 26 40	PS	—	—	46·2
Mount Wilson	z.	99·0	47	e 13 43	− 1	—	—	—	—	—
Pasadena	z.	99·0	47	e 13 45	+ 1	—	—	i 17 20	PP	e 46·2
Riverside	z.	99·6	47	e 13 49	+ 3	—	—	—	—	—
Overton		99·9	42	e 13 57	+ 9	—	—	—	—	—
Boulder City		100·0	43	e 13 50	+ 2	—	—	e 17 46	PP	—
Palomar	z.	100·3	42	e 13 51	+ 1	—	—	e 17 35	PP	—
Granada		100·4	319	e 15 43a	?	26 21	PS	36 30	SSS	i 54·8
Rapid City		100·8	31	—	—	e 25 47	+20	—	—	e 56·9
Coimbra		101·1	323	e 19 53	PPP	29 40	?	32 13	SS	e 53·1
Malaga	z.	101·2	319	i 17 57e	PP	e 28 18	PPS	—	—	55·0
San Fernando	E.	102·4	320	e 17 10	?	—	—	—	—	56·8
Tucson		104·9	44	e 14 13	+ 3	e 27 51	PS	e 18 20	PP	e 50·5
Seven Falls		108·4	9	—	—	e 26 39	S	—	—	51·8
Ottawa		109·2	13	—	—	e 25 45	{−14}	—	—	56·8
St. Louis		111·0	26	e 19 8	PP	e 28 51	PS	e 35 11	SS	e 51·4
Cincinnati		112·7	21	e 19 20	PP	e 29 7	PS	e 30 5	PPS	e 60·8
Fordham		114·0	13	e 19 40	PP	e 29 10	PS	—	—	—
Philadelphia		114·6	14	e 19 34	PP	e 25 53	[+23]	e 28 56	PS	e 47·1
Columbia		118·5	22	e 19 17	[+27]	e 29 41	PS	e 37 18	SS	e 60·9
Bermuda		123·7	6	e 20 41	PP	—	—	—	—	e 62·0
San Juan		137·3	11	e 22 6	PP	—	—	—	—	e 62·4
Bogota		147·7	29	e 19 45	[+ 1]	—	—	—	—	—
La Paz	z.	168·2	53	i 20 12	[+ 4]	i 29 45	PPP	—	—	—

Additional readings :—
Pehpei eP =3m.29s., i =7m.10s., 7m.25s., and 7m.40s., S =8m.2s., i =8m.5s.
Calcutta ?N =9m.39s.
New Delhi SSSN =17m.24s.
Hyderabad SN =14m.4s.
Kodaikanal P_cPE =11m.52s., SSE =18m.32s., S_cSE =20m.17s.
Upsala eS?N =21m.41s., eE =26m.27s. and 30m.33s., eN =30m.45s.?
Sitka iP =11m.57s., ePPS =22m.33s., eSS? =27m.9s.
Auckland PS? =23m.45s.
Helwan eN =22m.3s.
Copenhagen i =12m.22s., 22m.34s., 23m.0s., 24m.8s., 27m.30s., 31m.57s., and 37m.15s.

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Wellington iZ =12m.45s., PSZ =23m.33s.
Christchurch QEN =34m.10s.
Tananarive SKSE =21m.49s., PSE =23m.10s.
Triest ePPZ =15m.49s., iPPPZ =17m.48s., eSKS =22m.47s.
Aberdeen iPPE =16m.5s., iEN =34m.10s.
Kew ePPPZ =18m.27s.?, ePSZ =25m.19s.,eSSE =30m.11s.?, eSSSEN =33m.45s., eQ = 38m.45s.
Grand Coulee i =13m.19s.
Coimbra S =31m.9s., ? =40m.9s.
Malaga eSZ =29m.12s.
Tucson ePKP? =17m.50s.
St. Louis eN =30m.37s.
Columbia eSSS? =41m.28s., e =43m.0s.
Long waves were also recorded at Barcelona, Lisbon, Tortosa, and Ivigtut.

Aug. 1d. Readings also at 3h. (Branner, near Berkeley (2), Lick (2), and San Francisco), 5h. (near Berkeley, Branner, and Lick), 7h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Kew, Paris, De Bilt, and Uccle), 11h. (Auckland, Christchurch, Wellington, and Brisbane), 12h. (near Erevan), 13h. (Tashkent, near Belgrade, Campulung, Bucharest, and Sofia), 14h. (Bucharest, Belgrade, and near Sofia), 17h. (near Tucson), 18h. (near Tananarive), 23h. (La Paz).

Aug. 2d. 17h. 52m. 7s. Epicentre 20°·4N. 120°·4E.

$A = -\cdot4747$, $B = +\cdot8090$, $C = +\cdot3465$; $\delta = -12$; $h = +5$;
$D = +\cdot863$, $E = +\cdot506$; $G = -\cdot175$, $H = +\cdot299$, $K = -\cdot938$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pehpei		15·8	309	(i 3 35)	−10	—	—	(i 3 55)	PP	—
Hukuoka		15·9	32	3 54	+ 7	7 3	+19	—	—	—
Tokyo		22·8	45	e 5 21	+16	8 29	−42	—	—	—
Sendai		25·1	42	e 5 33	+ 5	9 53	+ 2	—	—	—
Mizusawa		25·8	40	e 5 33	− 1	e 10 7	+ 5	e 5 36	?	—
Calcutta	N.	29·9	280	e 6 23	+11	i 11 7	− 2	—	—	e 15·1
Irkutsk		34·2	343	6 52	+ 3	12 25	+ 9	—	—	—
Hyderabad	N.	39·7	273	i 9 26	PP	e 13 42	+ 2	—	—	—
New Delhi	N.	40·0	291	e 7 39	+ 1	e 13 30	−14	9 41	PcP	—
Colombo	E.	41·5	257	7 48	− 3	14 6	− 1	—	—	—
Kodaikanal	E.	42·5	264	(e 8 23)	+24	(e 14 48)	+26	(9 54)	PP	(20·7)
Bombay	E.	44·7	277	i 8 14	− 2	i 15 2	+ 8	—	—	21·7
Andijan		45·4	307	e 8 26	+ 4	15 15	+11	—	—	—
Tashkent		47·8	308	i 8 44	+ 3	i 15 48	+10	—	—	—
Erevan		66·6	306	e 10 56	+ 2	—	—	—	—	—
Moscow		69·4	324	e 11 11	− 1	20 17	− 1	—	—	—
College		72·5	27	e 11 28	− 2	e 20 54	0	—	—	e 30·6
Ksara		74·5	300	e 11 45	+ 3	e 21 34	+17	—	—	—
Upsala		78·8	330	—	—	e 22 5	+ 1	—	—	e 40·9
Bucharest	E.	79·0	314	e 12 10	+ 3	e 22 12	+ 6	—	—	37·9
	N.	79·0	314	e 12 14	+ 7	e 22 22	+16	—	—	37·9
Helwan		79·3	298	e 12 10	+ 1	22 23	+14	—	—	—
Sitka		80·4	33	e 12 11	− 4	e 22 21	0	e 27 41	SS	e 35·1
Copenhagen		83·0	328	e 12 28	0	22 50	+ 3	—	—	—
Bergen		84·1	334	12 32	− 2	23 23	+25	i 12 43	PcP	41·3
Prague		84·3	322	e 11 40	−55	e 22 11	−49	—	—	e 41·9
Triest		86·7	318	i 12 45	− 2	e 23 17	− 7	i 13 10	pP	—
De Bilt		88·5	327	e 12 57	+ 1	e 23 17	[− 7]	e 16 28	PP	e 45·9
Chur		88·7	321	e 12 55	− 2	e 23 42	− 1	—	—	—
Strasbourg		88·9	323	e 12 56	− 2	—	—	—	—	—
Zürich		89·0	321	e 13 6	+ 8	—	—	e 14 33	?	—
Aberdeen		89·1	333	i 16 31	PP	i 24 0	+14	—	—	e 48·2
Basle		89·5	322	e 12 58	− 2	e 23 56	+ 6	—	—	—
Uccle		89·6	325	i 12 59	− 2	e 23 43	− 8	i 16 35	PP	e 45·9
Kew		91·7	328	e 13 9k	− 1	e 24 5?	− 5	i 16 49	PP	e 39·9
Paris		91·7	324	i 13 10	0	e 25 26	PS	e 16 51	PP	e 50·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Clermont-Ferrand		93·1	321	e 13 8	− 9	—	—	e 17 6	PP	e 52·9
Grand Coulee		93·7	35	e 13 15	− 5	—	—	e 13 19	PcP	—
Shasta Dam		95·8	43	i 13 29	0	—	—	e 17 1	PP	—
Saskatoon		97·0	27	—	—	e 24 59	+ 4	—	—	54·9
Tortosa	E.	97·4	318	e 16 40	?	—	—	—	—	e 53·9
Tinemaha	Z.	100·5	44	e 13 50	− 1	—	—	—	—	—
Toledo		100·8	319	17 3	?	—	—	33 38	?	—
Granada		102·1	317	e 16 26	?	24 50	[+13]	e 28 53	?	—
Pasadena	Z.	102·2	46	e 13 56	− 2	—	—	—	—	e 47·3
Mount Wilson	Z.	102·3	46	e 13 59	0	—	—	—	—	—
Riverside	Z.	102·9	46	e 13 59	− 2	—	—	—	—	—
Coimbra		103·2	322	e 18 13	PP	28 14	PPS	e 22 8	PKS	55·4
Palomar	Z.	103·6	46	i 14 9	+ 5	—	—	—	—	—
Tucson		108·3	44	e 14 30	P	—	—	e 18 34	PKP	—
Florissant	Z.	114·4	26	e 19 38	PP	e 28 43	PS	—	—	—
St. Louis		114·6	26	e 18 10	[−32]	e 26 32	{− 5}	e 19 41	PP	—
Fordham		117·6	12	e 20 4	PP	e 29 43	PS	—	—	—
San Juan		140·9	9	e 20 9	[+37]	e 29 51	{+25}	e 23 10	PP	e 54·1

Additional readings :—
Pehpei i =(8m.36s.) and (8m.44s), readings increased by 4m.
Kodaikanal P_cPE =(10m.44s.), SSE =(17m.19s.), readings increased by 2m.
Triest ePPE =16m.11s., esSE =23m.59s., eSSE =29m.5s.
De Bilt ePS? =24m.23s.
Uccle ePPP =18m.30s., ePS?N =24m.4s.
Kew ePPPZ =18m.55s.?, iPSNZ =25m.20s., eSSSN =30m.25s.?, eQE =37·9m.
St. Louis eSE =27m.26s., ePSE =29m.10s., eSSE =35m.37s.
Long waves were also recorded at Belgrade and Malaga.

Aug. 2d. 20h. 44m. 49s. Epicentre 53°·9N. 132°·1W.

A = −·3968, B = −·4391, C = +·8061 ; δ = +6 ; h = −7 ;
D = −·742, E = +·670 ; G = −·540, H = −·598, K = −·592.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		4·1	334	i 0 44	−21	i 1 20	−35	—	—	i 1·7
Victoria		7·7	131	2 0	+ 4	3 41	+16	—	—	5·2
Seattle		8·8	131	e 2 27	+16	e 3 37	−16	—	—	e 4·2
Ground Coulee		10·2	121	i 2 31	0	i 4 6	−21	e 4 50	SSS	e 5·3
College		13·5	330	e 3 4	−11	e 5 42	− 5	—	—	e 7·0
Ferndale	N.	14·3	155	—	—	e 6 41	+35	—	—	—
Shasta Dam		14·7	150	e 3 29	− 2	—	—	—	—	e 7·7
Butte		14·8	114	i 3 36	+ 4	e 6 29	+11	—	—	i 7·7
Saskatoon		15·4	86	3 42	+ 2	6 41	+ 9	—	—	8·2
Bozeman		15·8	113	e 3 45	0	6 45	+ 3	e 4 59	?	e 7·6
Ukiah		15·9	154	e 3 47	0	e 6 59	+15	e 4 39	?	e 8·6
Berkeley		17·4	153	e 4 4	− 2	e 7 28	+ 9	i 7 41	SS	—
Branner	N.	17·8	153	e 4 15	+ 4	e 7 59	SS	—	—	e 10·9
Santa Clara		18·0	153	i 4 14	+ 1	e 7 51	+19	—	—	e 11·7
Lick	E.	18·1	153	e 4 16	+ 2	e 7 46	+11	—	—	e 11·9
Logan		18·2	123	e 4 21	+ 5	e 7 53	+16	e 5 11	?	e 9·5
Salt Lake City		18·9	125	e 4 28	+ 4	e 8 7	+14	—	—	e 8·9
Fresno	N.	19·2	148	e 4 29	+ 1	e 8 30	+31	—	—	—
Tinemaha		19·3	145	i 4 28	− 1	—	—	i 4 31	?	—
Haiwee		20·3	145	i 4 37	− 3	e 8 48	+25	i 5 3	PP	—
Overton		21·2	137	e 5 20	PPP	—	—	e 5 32	?	—
Rapid City		21·2	105	i 4 49	0	i 9 2	+21	—	—	e 11·0
Santa Barbara		21·3	149	i 4 50	0	—	—	i 5 13	PP	—
Boulder City		21·6	138	e 4 51	− 3	e 9 7	+18	—	—	—
Mount Wilson	Z.	22·0	147	i 4 55	− 3	—	—	—	—	—
Pasadena		22·1	147	i 4 55k	− 4	i 9 11	+13	i 5 26	pP	e 10·0
Riverside		22·5	147	i 5 0	− 2	e 9 21	+16	i 5 20	pP	—
Palomar	Z.	23·2	145	i 5 7	− 2	—	—	i 5 59	PPP	—
La Jolla		23·5	146	i 5 14	+ 2	—	—	—	—	—
Tucson		26·4	136	i 5 37	− 3	e 10 29	+17	e 6 30	PPP	e 13·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		31·7	94	e 6 29	+ 2	e 11 40	+ 3	e 7 26	PP	e 12·9
Florissant		32·0	101	e 6 30	0	i 11 52	+10	e 7 34	PP	i 15·6
St. Louis		32·2	101	e 6 29	− 3	e 11 48	+ 3	i 7 38	PP	i 15·7
Cape Girardeau	E.	33·5	102	e 7 53	PP	—	—	—	—	e 16·0
Cincinnati		35·2	94	i 6 56	− 2	e 15 3	SS	e 8 11	PP	i 17·7
Ottawa		36·6	79	7 9	− 1	12 59	+ 6	—	—	18·2
Shawinigan Falls		37·7	75	7 22	+ 3	—	—	—	—	18·2
Honolulu		38·0	221	e 7 23	+ 2	e 13 18	+ 4	e 8 37	PP	e 15·4
Pennsylvania		38·1	87	—	—	e 16 13	SSS	—	—	—
Seven Falls		38·5	74	7 27	+ 1	13 32	+10	—	—	19·2
Georgetown		39·7	88	e 7 33	− 3	e 13 47	+ 7	e 16 43	SSS	e 19·6
Philadelphia		40·2	86	e 7 52	+12	e 13 48	0	e 9 15	PP	e 17·0
Fordham		40·4	84	e 7 45	+ 4	i 14 1	+11	e 17 5	SSS	i 21·3
Columbia		40·7	98	e 9 27	PP	e 14 2	+ 7	—	—	e 16·8
Harvard		40·7	80	e 7 44	0	—	—	e 20 51	?	e 21·2
Ivigtut		42·6	46	—	—	17 17	SS	—	—	21·2
Bermuda		51·5	86	—	—	e 16 40	+11	e 20 46	?	e 21·5
Bergen		61·1	23	—	—	23 9	SS	e 29 45	Q	e 32·1
San Juan		61·2	98	—	—	e 18 40	+ 2	—	—	e 29·3
Irkutsk		64·2	326	e 10 11	−28	e 19 5	−11	—	—	—
Copenhagen		67·0	21	—	—	i 19 54	+ 4	e 24 11	SS	29·2
Kew		67·5	31	i 10 58k	− 2	e 20 1	+ 5	e 24 13?	SS	e 29·7
De Bilt		68·5	27	e 11 7	+ 1	e 20 11	+ 3	e 24 41	SS	e 33·2
Uccle		69·5	29	e 11 10	− 2	e 20 21	+ 1	—	—	31·2
Moscow		70·4	6	e 11 11	− 7	20 27	− 3	—	—	—
Paris		70·7	30	e 11 18	− 2	—	—	—	—	e 34·2
Strasbourg		72·4	27	e 14 29	PP	e 21 23	+30	—	—	—
Zürich		73·7	27	e 11 13	−25	—	—	—	—	—
Coimbra		74·5	41	e 8 31	?	21 1	−16	e 24 31	?	33·2
Toledo		76·5	39	e 11 49	− 5	e 21 38	− 1	—	—	31·9
Triest		76·7	24	i 11 55	0	e 21 39	− 2	i 12 12	pP	—
Granada		79·0	40	e 12 11a	+ 4	e 22 8	+ 2	—	—	37·2
Malaga	Z.	79·1	41	i 12 10	+ 2	22 43	+36	i 12 32	pP	39·2
Tashkent		83·4	344	e 11 47	−43	e 22 48	− 3	—	—	—
La Paz		88·8	121	e 12 18	−39	e 24 50	PS	e 16 32	PP	42·4
New Delhi	N.	94·0	335	e 13 56	+35	—	—	—	—	e 53·2

Additional readings :—
Grand Coulee i =3m.5s.
Berkeley iP =4m.7s.
Fresno eN =5m.25s. and 6m.58s.
Pasadena i =5m.0s., isP?EZ =5m.47s. eZ =8m.57s.
Tucson i =5m.42s.
Florissant iE =12m.33s., eSSN =13m.36s.
St. Louis iSN =11m.59s., iSSE =13m.44s.
Honolulu e =14m.0s.
Bergen eE =27m.19s.
Copenhagen e =27m.41s.
Kew eSSSE =27m.11s.?
Triest esSE =22m.5s.
Malaga ePPZ =15m.48s., iPPPZ =17m.39s.
La Paz PZ =13m.22s., PPP =18m.30s., SS =29m.48s.
New Delhi iN =15m.28s.
Long waves were also recorded at Vera Cruz, Tacubaya, and at other European stations.

August 2d. Readings also at 2h. (New Delhi, Tashkent, and Pehpei), 3h. (Kew and De Bilt), 4h. (near Sofia), 7h. (Bogota), 8h. (Pehpei, Tashkent, Moscow, Mount Wilson (2), Pasadena (2), Riverside (2), Palomar (2), Shasta Dam, Boulder City, Overton, Tucson (2), and Bogota), 9h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, St. Louis, Bogota, La Paz, and Huancayo), 10h. (La Plata), 12h. (Mount Wilson, Riverside, Tucson, Palomar, and near Andijan), 13h. (Tucson, Tinemaha, Berkeley, near Shasta Dam, and near Andijan), 15h. (Tucson and Auckland), 16h. (near Tucson), 18m. (Coimbra and near Zürich), 20h. (Tucson).

Aug. 3d. 4h. 11m. 30s. Epicentre 5°·9N. 82°·2W.

$A = +\cdot1350$, $B = -\cdot9856$, $C = +\cdot1021$; $\delta = +6$; $h = +7$;
$D = -\cdot991$, $E = -\cdot136$; $G = +\cdot014$, $H = -\cdot101$, $K = -\cdot995$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		4·0	40	i 1 4	0	i 1 54	+ 2	—	—	—
Bogota		8·2	98	i 1 48	−15	—	—	—	—	—
Oaxaca		18·0	313	e 4 19	+ 6	—	—	—	—	e 9·1
Vera Cruz		19·0	317	i 4 10	−16	—	—	i 4 43	PP	i 9·7
Huancayo		19·1	159	i 4 28	+ 1	i 8 3	+ 6	i 5 21	PP	e 9·4
San Juan		20·0	49	e 4 38	+ 1	i 8 28	+11	i 5 15	PP	e 9·1
Tacubaya		21·3	312	e 4 48?	− 2	e 9 9?	+26	—	—	—
Fort de France		22·5	66	i 5 2	0	e 9 15	+10	—	—	—
La Paz		26·2	147	i 5 39a	+ 1	i 10 17	+ 8	i 6 16	PP	13·4
Columbia		28·0	2	e 5 54	− 1	e 10 43	+ 5	—	—	e 12·0
Bermuda		31·0	30	e 8 31	?	e 11 31	+ 5	—	—	e 13·2
Cape Girardeau	E.	32·0	349	e 6 26	− 4	—	—	—	—	—
Cincinnati		33·2	357	i 6 39	− 1	—	—	—	—	—
Georgetown		33·2	8	i 6 39	− 1	e 12 5	+ 5	—	—	16·5
St. Louis		33·4	349	i 6 39	− 3	i 12 2	− 1	e 8 30	PP	i 14·9
Florissant		33·6	349	i 6 40	− 4	e 12 4	− 2	e 15 0	SS	—
Philadelphia		34·5	11	i 6 51	− 1	e 12 27	+ 7	e 8 5	PP	e 15·4
Pennsylvania		35·0	7	e 6 59	+ 3	e 12 40	+12	e 8 46	PP	e 14·5
Fordham		35·6	12	i 7 1	0	i 12 41	+ 3	—	—	—
Chicago		36·1	353	e 6 59	− 6	e 12 39	− 6	e 8 25	PP	e 15·0
Tucson		37·4	319	i 7 15	− 1	e 12 55	−10	i 8 43	PP	e 16·0
Ottawa		39·7	8	7 35	− 1	13 41	+ 1	9 8	PP	19·5
La Jolla		42·2	315	i 7 55	− 1	—	—	—	—	—
Palomar		42·2	316	i 7 56a	0	—	—	—	—	—
Seven Falls		42·2	12	8 1	+ 5	14 24	+ 7	—	—	17·5
Boulder City		42·3	320	i 7 57	0	—	—	—	—	—
Rapid City		42·3	338	i 7 55	− 2	e 14 19	0	i 9 36	PP	e 18·6
Overton		42·4	321	e 7 58	0	—	—	—	—	—
Riverside		42·9	316	i 8 1a	− 1	—	—	—	—	—
Mount Wilson		43·5	316	i 8 5a	− 2	—	—	—	—	—
Pasadena		43·6	316	i 8 6a	− 2	i 14 39	+ 1	i 9 53	PP	e 18·1
Salt Lake City		43·7	328	e 8 13	+ 5	e 14 48	+ 9	—	—	e 21·9
Logan		44·4	329	e 8 16	+ 2	e 14 49	0	e 8 56	PP	e 18·6
Haiwee		44·5	319	e 7 53	−22	—	—	—	—	—
Santa Barbara	Z.	44·8	315	i 8 15	− 2	—	—	—	—	—
La Plata	N.	46·6	152	—	—	15 18	− 3	18 30	SS	25·2
Bozeman		46·9	333	e 8 33	− 1	e 15 30	+ 5	—	—	e 21·6
Berkeley		48·3	317	e 8 44	− 1	e 15 44	− 1	—	—	e 22·0
Ukiah		49·6	318	—	—	e 14 10	?	e 20 2	SS	e 22·7
Shasta Dam		49·9	320	8 53	− 4	—	—	—	—	—
Saskatoon		50·3	341	9 6	+ 6	16 15	+ 2	—	—	22·5
Grand Coulee		52·3	330	e 9 13	− 2	—	—	—	—	—
Victoria		55·0	328	9 37	+ 2	17 24	+ 7	—	—	26·5
Ivigtut		60·8	19	i 10 15s	− 1	—	—	21 12	?	25·5
Sitka		65·9	332	e 10 42	− 8	e 19 40	+ 3	e 24 15	SS	e 28·5
Coimbra		73·8	50	e 11 41	+ 3	21 13	+ 4	14 49	PP	34·8
College		74·5	337	e 13 15	?	e 21 12	− 5	—	—	e 32·5
Honolulu		74·5	291	—	—	e 21 32	+15	—	—	e 31·8
Malaga		76·7	54	e 11 46	− 9	e 21 52	+11	—	—	36·5
Toledo		77·2	51	i 12 0	+ 3	i 21 55	+ 8	—	—	36·0
Granada		77·4	54	12 0k	+ 2	i 21 57	+ 8	—	—	—
Kew		80·4	39	i 12 17k	+ 2	e 22 24?	+ 3	e 27 32?	SS	e 38·0
Paris		82·1	42	e 12 23?	− 1	e 22 30?	− 8	—	—	e 36·5
Clermont-Ferrand		82·5	45	e 12 28	+ 2	e 22 30?	−12	—	—	—
Uccle		83·3	40	e 12 31k	+ 1	e 22 52	+ 2	e 28 26	SS	e 38·5
De Bilt		83·8	38	i 12 35	+ 3	i 22 56	+ 1	e 28 38	SS	e 38·5
Neuchatel		85·2	43	e 12 39	0	—	—	—	—	—
Basle		85·6	43	e 12 40	− 1	—	—	—	—	—
Strasbourg		85·6	42	e 12 51	+10	—	—	—	—	—
Zürich		86·2	43	e 12 44	0	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		87·8	34	—	—	23 26	− 8	29 24	SS	—
Triest		90·0	44	i 13 5	+ 2	e 23 33	[0]	i 13 28	pP	e 42·2
Christchurch		105·0	227	—	—	—	—	e 45 10	Q	49·0
Helwan	N.	107·1	57	—	—	e 26 30	+10	—	—	—
Riverview		123·4	233	—	—	—	—	e 38 4	SS	e 58·6

Additional readings :—
Vera Cruz iE = 5m.14s.
San Juan iP = 4m.41s.
Tacubaya eSN = 9m.12s.?
La Paz iPPP = 6m.31s., iSS = 11m.21s.
Philadelphia i = 7m.8s., ePPP = 8m.27s.
Chicago e = 8m.56s.
Ottawa SSS = 16m.30s.?
Palomar iZ = 8m.1s. and 8m.16s., eZ = 9m.38s. and 13m.43s.
Rapid City i = 8m.15s.
Overton iP = 8m.4s.
Pasadena iZ = 8m.11s. and 8m.25s., eZ = 14m.12s.
La Plata E = 15m.24s. and 19m.0s.
Sitka eS.S = 20m.43s.
Kew ePPS?E = 23m.22s.?, eQ = 33m.30s.?.
Uccle ePSE = 23m.49s.
Triest esS?E = 24m.1s.
Long waves were also recorded at San Fernando, Arapuni, Wellington, and Tananarive.

Aug. 3d. 6h. 34m. 40s. I
6h. 43m. 55s. II
Epicentre 5°·9N. 82°·2W. (as at 4h).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	Balboa Heights	4·0	40	e 1 4	0	i 1 55	+ 3	—	—	—
II		4·0	40	e 1 7	+ 3	i 1 58	+ 6	—	—	—
I	Bogota	8·2	98	i 2 4	+ 1	—	—	—	—	—
I	Vera Cruz	19·0	317	e 4 32	+ 6	—	—	—	—	e 10·2
I	Huancayo	19·1	159	i 4 26	− 1	i 7 53	− 4	i 5 0	PP	e 8·2
II		19·1	159	i 4 24	− 3	e 7 55	− 2	—	—	e 9·4
I	San Juan	20·0	49	e 4 38	+ 1	i 8 31	+14	—	—	e 10·1
II		20·0	49	i 4 41	+ 4	e 8 29	+12	—	—	e 9·8
I	Tacubaya N.	21·3	312	4 48	− 2	e 8 56	+13	—	—	—
I	La Paz	26·2	147	i 5 39	+ 1	10 14	+ 5	—	—	14·6
II		26·2	147	i 5 38	0	11 26	SS	i 6 13	PP	14·1
I	Columbia	28·0	2	—	—	e 10 27	−11	—	—	e 14·1
I	Bermuda	31·0	30	—	—	e 11 32	+ 6	(e 13 21)	SS	e 13·4
II		31·0	30	—	—	e 11 36	+10	—	—	e 12·6
I	Cincinnati	33·2	357	i 6 41	+ 1	e 12 3	+ 3	—	—	—
I	St. Louis	33·4	349	i 6 39	− 3	e 12 2	− 1	—	—	—
I	Florissant	33·6	349	e 6 41	− 3	e 12 3	− 3	—	—	—
I	Philadelphia	34·5	11	e 6 50	− 2	i 12 25	+ 5	—	—	—
I	Fordham	35·6	12	e 7 2	+ 1	i 12 44	+ 6	—	—	—
I	Chicago	36·1	353	e 7 7	+ 2	—	—	e 8 20	PP	e 15·2
I	Tucson	37·4	319	i 7 17	+ 1	e 12 38	−27	e 8 42	PP	e 16·6
II		37·4	319	e 7 13	− 3	—	—	—	—	—
I	Ottawa	39·7	8	7 37	+ 1	13 42	+ 2	9 10	PP	19·3
I	La Jolla z.	42·2	315	e 7 50	− 6	—	—	—	—	—
II		42·2	315	e 7 55	− 1	—	—	—	—	—
I	Palomar z.	42·2	316	i 7 58	+ 2	—	—	—	—	—
II	z.	42·2	316	i 7 58	+ 2	—	—	—	—	—
I	Seven Falls	42·2	12	—	—	e 14 22	+ 5	—	—	22·3
I	Boulder City	42·3	320	e 7 51	− 6	—	—	—	—	—
II		42·3	320	i 7 58	+ 1	—	—	—	—	—
I	Rapid City	42·3	338	e 7 58	+ 1	—	—	—	—	e 17·2
II		42·3	338	e 7 59	+ 2	e 14 22	+ 3	—	—	e 17·4
I	Overton	42·4	321	e 8 9	+11	—	—	—	—	—
I	Riverside z.	42·9	316	e 8 2	0	—	—	—	—	—
II	z.	42·9	316	i 8 2	0	—	—	—	—	—
I	Mount Wilson z.	43·5	316	e 8 6	− 1	—	—	—	—	—
II	z.	43·5	316	e 8 6	− 1	—	—	—	—	—
I	Pasadena	43·6	316	e 8 6	− 2	—	—	—	—	e 21·4
II		43·6	316	i 8 8	0	—	—	—	—	e 20·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Salt Lake City		43·7	328	e 9 44	PP	e 14 50	+11	—	—	e 24·1
II La Plata		46·6	152	—	—	15 17	− 4	—	—	21·2
I Victoria		55·0	328	—	—	e 17 20	+ 3	e 26 41	?	32·3
I Sitka		65·9	332	e 11 4	+14	e 19 26	−11	—	—	e 28·6
II College		74·5	337	—	—	e 21 57	PS	—	—	e 30·6
I Kew		80·4	39	e 12 22?	+ 7	—	—	e 31 37?	SSS	e 36·3
I Paris		82·1	42	e 12 20?	− 4	—	—	—	—	e 38·3
II Copenhagen		87·8	34	—	—	23 40	+ 6	—	—	—
II Prague		89·8	40	e 17 41	PP	e 30 23	SS	—	—	e 42·1
I Triest	E.	90·0	44	—	—	e 24 0?	+ 6	—	—	—
II	E.	90·0	44	—	—	e 23 37	[+ 4]	—	—	—

Additional readings :—
Vera Cruz I ePE =4m.36s.
San Juan I iP =4m.41s.
La Paz II iPPP =6m.28s.
Chicago I ePPP =8m.49s.
Tucson I i =7m.38s.
Boulder City I e =7m.55s. and 16m.52s.
Long waves were also recorded at Oaxaca, Ukiah, Bozeman, Logan, De Bilt, and Uccle.

Aug. 3d. Readings also at 1h. (near Stalinabad), 2h. (near Oaxaca, Tacubaya, and Vera Cruz), 3h. (Bombay, Colombo, Hyderabad, Kodaikanal, near Oaxaca, Tacubaya (2), and Vera Cruz), 4h. (New Delhi, Tucson, and near Mizusawa), 6h. (Balboa Heights), 7h. (Tucson, Palomar, and near Granada), 9h. (Balboa Heights), 10h. (Balboa Heights, Mount Wilson, Palomar (2), and Tucson (2)), 19h. (Collmberg).

Aug. 4d. 14h. 48m. 23s. Epicentre 37·2N. 16°·4E.

Felt in Malta.
Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, tome X, 1951, p.13. Epicentre as adopted.

$A = +\cdot7660$, $B = +\cdot2254$, $C = +\cdot6020$; $\delta = -3$; $h = -1$;
$D = +\cdot282$, $E = -\cdot959$; $G = +\cdot577$, $H = +\cdot170$, $K = -\cdot798$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		7·6	42	e 1 57	+ 2	e 3 16	− 7	—	—	—
Belgrade		8·2	21	e 2 4a	+ 1	i 4 12	S*	e 2 34	P_g	—
Triest		8·7	348	i 2 7	− 3	i 3 47	− 3	i 2 14	PP	i 5·2
Bucharest		10·3	43	e 2 31	− 1	e 4 28	− 2	—	—	5·1
Campulung		10·3	36	1 37?	?	—	—	—	—	—
Chur		10·9	334	e 2 43k	+ 3	—	—	—	—	—
Zürich		11·7	333	e 2 52	+ 1	e 5 17	+13	—	—	—
Neuchatel		12·0	327	e 2 57	+ 2	—	—	—	—	—
Basle		12·2	330	e 2 59	+ 1	e 5 28	+12	—	—	—
Prague		12·9	354	e 2 56?	−11	e 5 1	−32	—	—	e 7·1
Tortosa		12·9	291	e 3 4	− 3	i 5 46	+13	3 34	PPP	6·2
Strasbourg		13·0	334	e 3 10	+ 1	e 5 43	+ 8	—	—	8·6
Clermont-Ferrand		13·1	315	i 3 12	+ 2	i 5 51	+13	—	—	e 6·8
Jena		14·2	347	e 3 18	− 6	e 6 43	+39	—	—	e 8·4
Collmberg		14·3	351	e 3 26	0	i 6 22	+16	i 3 47	PP	i 8·9
Helwan	E.	14·4	116	3 18	− 9	3 51	?	—	—	—
Yalta		15·3	56	3 13	−26	—	—	—	—	—
Paris		15·4	323	i 3 41	+ 1	i 6 37	+ 5	i 4 33	PP	e 7·6
Granada		15·9	276	3 55	+ 8	6 50	+ 6	—	—	9·2
Uccle		16·1	331	i 3 49k	0	e 6 49	0	i 7 16	SS	e 8·0
Ksara		16·2	96	e 3 45?	− 5	e 7 1	+10	—	—	—
Toledo		16·2	286	i 3 52	+ 2	i 6 57	+ 6	—	—	—
Malaga		16·6	275	e 3 59	+ 3	i 7 4	+ 4	—	—	9·1
De Bilt		16·9	335	i 4 3k	+ 4	e 7 23	+16	—	—	e 8·6
San Fernando	E.	18·1	275	e 4 9	− 5	i 7 41	+ 6	8 45	SS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew		18·6	327	i 4 18k	− 3	i 7 52	+ 6	i 5 15	PP	e 9·6
Copenhagen		18·7	354	e 4 19	− 3	7 53	+ 5	—	—	9·2
Coimbra		19·6	288	4 32	0	i 8 21	+13	i 4 56	PP	10·9
Lisbon		20·2	284	4 44k	+ 5	i 8 23	+ 2	4 51	PP	8·8
Erevan		22·1	74	e 4 59	0	—	—	—	—	—
Upsala		22·7	2	e 5 2	− 2	i 9 10	+ 1	9 37	SS	e 13·2
Edinburgh		22·9	332	e 5 0	− 6	9 7	− 6	e 5 30	PP	—
Aberdeen		23·5	335	i 5 59	+47	i 9 23	0	—	—	i 12·7
Moscow		23·5	32	i 5 12	0	i 9 23	0	—	—	—
Bergen		24·3	348	e 6 12	+52	e 9 40	+ 3	—	—	e 14·4
Tashkent		40·6	68	i 7 43	0	—	—	—	—	—
New Delhi	N.	51·0	81	—	—	i 16 19	− 3	—	—	—
Bombay		52·3	95	e 9 16	+ 1	e 16 38	− 2	—	—	—
Hyderabad	N.	57·6	93	e 13 31	PPP	17 46	− 5	—	—	—
Irkutsk		60·5	45	e 10 13	− 1	—	—	—	—	—
Ottawa		66·0	310	e 10 48	− 2	e 19 37	− 1	—	—	29·6
San Juan		73·3	282	—	—	e 20 48	−16	—	—	e 33·3
Florissant		78·7	311	e 12 6	0	e 22 0	− 3	e 22 21	SKS	—
St. Louis		78·7	311	i 12 4	− 2	e 22 0	− 3	e 22 20	SKS	—
Grand Coulee		86·4	333	i 12 45	0	—	—	—	—	—
Victoria		87·5	335	e 12 55	+ 4	23 40	+ 9	—	—	44·6
Tucson		95·1	318	i 13 27	+ 1	e 26 31	PPS	e 32 4	SS	e 46·2
La Paz	z.	95·6	254	e 12 52	−36	—	—	—	—	51·3
Riverside	z.	97·1	324	i 13 35	0	—	—	—	—	—
Palomar	z.	97·4	322	i 13 37	0	—	—	—	—	—

Additional readings :—
Belgrade e =3m.10s., i =3m.23s., 3m.36s., and 5m.19s.
Bucharest iE =4m.32s.
Basle e =4m.2s.
Prague e =5m,43s.
Tortosa SSN =6m.0s.
Jena ePN =3m.21s., eN =3m.47s.
Collmberg iPPP =3m.53s., iS =7m.9s., iSS =7m.57s., with many unidentified "i" readings.
Helwan PPE =3m.28s., PPPE =3m.36s.
Paris i =6m.4s.
Uccle iSE =6m.53s., iSN =6m.57s.
Kew i =4m.33s., eSSEN =9m.7s.
Copenhagen 4m.36s.
Lisbon iSE =8m.26s.
Edinburgh SS =9m.51s., S_eS =16m.14s.
Bergen eE =7m.7s., 10m.7s., and 12m.37s.?
New Delhi iN =17m.2s., eN =17m.45s. and 20m.16s.
Hyderabad PPN =13m.53s., phases wrongly identified.
Florissant eSKKSN =22m.35s., ePSE =22m.50s.
St. Louis eSKKSN =22m.35s., ePSN =22m.52s.
Long waves were also recorded at Barcelona.

Aug. 4d. Readings also at 1h. (near Branner, Lick, and near Andijan), 2h. (near La Paz), 6h. (Bozeman, Boulder City, Overton, Shasta Dam, Grand Coulee, Berkeley, Tucson (2), Haiwee, La Jolla, Mount Wilson (2), Pasadena, Palomar, Riverside (2), Santa Barbara, Tinemaha, Apia, and Collmberg), 7h. (Jena), 10h. (Bucharest and Sofia), 12h. (La Paz), 16h. (Mount Wilson (2), Palomar (2), Riverside (2), Tucson, and Collmberg), 19h. (near Bogota), 20h. (Ksara, Bombay, and near New Delhi), 21h. (near Balboa Heights and Bogota), 22h. (Bergen and near Berkeley).

Aug. 5d. Readings at 1h. (Bogota, Huancayo, and La Paz), 4h. (Riverview), 9h. (near Tananarive), 13h. (near Andijan), 14h. (Collmberg), 18h. (Kew), 20h. (Collmberg and Tucson), 21h. (Grand Coulee).

Aug. 6d. 23h. 2m. 0s. Epicentre 6°·0S. 77°·0W.

Intensity V-VI over a region of 700 sq. km. including Moyobamba, Calzada, Habana, Soritor, Yantalo, and Iepelacio. Depth suggested 30 km. Total macroseismic area about 40,000 sq. km.

E. Silgado.
"Datos sismologicos del Peru, 1944-1945."
Instituto geologico del Peru, Bol. 3, Lima 1946, p. 19.
"El tremblor destructivo de Moyobamba."
Loc. Cit. pp. 29-46 with 15 photographs and isoseismal chart p. 31

$A = +\cdot2237$, $B = -\cdot9691$, $C = -\cdot1038$; $\delta = -3$; $h = +7$;
$D = -\cdot974$, $E = -\cdot225$; $G = -\cdot023$, $H = +\cdot101$, $K = -\cdot995$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		6·3	164	i 1 40	+ 4	i 2 54	+ 4	i 2 14	P_g	i 5·3
Bogota		11·0	16	e 2 39	− 3	i 5 35	+48	i 2 42	pP	—
La Paz	z.	13·6	141	i 3 20	+ 3	i 5 50	0	—	—	7·1
Fort de France		25·9	39	e 5 29	− 6	—	—	—	—	—
San Juan		26·5	25	i 5 37	− 4	e 9 54	−20	e 7 51	?	e 10·9
La Plata	E.	33·7	150	5 48	−57	11 6	−62	—	—	16·5
	N.	33·7	150	5 46	−59	11 12	−56	8 24	P_cP	16·2
Philadelphia		45·8	3	i 8 24	− 1	e 14 57	−12	e 10 19	PP	e 20·9
Pittsburgh		46·3	358	e 8 28	− 1	15 11	− 5	e 18 15	SS	—
Fordham		46·7	4	e 8 31	− 1	e 15 23	+ 1	—	—	e 23·5
Tucson		49·8	322	i 8 57	+ 1	—	—	e 10 49	PP	e 26·7
Ottawa		51·2	2	9 5	− 2	16 12	−13	—	—	23·0
Seven Falls		53·2	2	—	—	16 54	+ 2	—	—	23·0
Palomar	z.	54·4	319	i 9 32	+ 1	—	—	—	—	—
Pierce Ferry		54·4	324	i 9 31	0	—	—	—	—	—
Boulder City		54·8	323	e 9 34	0	—	—	—	—	—
Riverside	z.	55·1	319	i 9 37	+ 1	—	—	—	—	—
Mount Wilson		55·7	319	i 9 42	+ 2	—	—	i 12 6	PP	—
Pasadena		55·7	319	i 9 41	+ 1	—	—	i 11 39	PP	—
Haiwee	z.	56·8	321	i 10 4	+16	—	—	—	—	—
Tinemaha		57·6	321	i 9 54	0	—	—	—	—	—
Shasta Dam		62·4	323	i 10 24	− 3	—	—	—	—	—
Malaga	z.	79·8	311	i 12 11k	− 1	i 23 22	PPS	—	—	45·9
Granada		80·5	51	e 11 19	−56	—	—	i 20 49	?	48·1
Collmberg		94·6	39	e 13 21	− 3	—	—	e 17 6	PP	—
Copenhagen		94·6	34	—	—	24 14	{− 1}	—	—	43·0
Helwan		108·9	61	e 33 18	SS	—	—	—	—	e 52·6

Additional Readings :—
Bogota i = 5m.43s.
Philadelphia eP_cS? = 13m.56s., eSS = 18m.29s.
Tucson i = 9m.6s., ePPP = 11m.59s.
Mount Wilson iZ = 9m.50s.
Pasadena i = 10m.10s., iNZ = 11m.19s., iEZ = 12m.2s., i = 13m.21s.
Malaga PPPZ = 18m.22s., iSS = 23m.56s., iPSZ = 24m.50s., SSZ = 29m.45s., iPKP,PKPZ = 37m.15s.
Long waves were also recorded at Riverview and other European stations.

Aug. 6d. Readings also at 0h. (Berkeley), 1h. (near Zürich, Basle, and Neuchatel), 2h. (Collmberg, Bombay, Hyderabad, Calcutta, and Tashkent), 3h. (Pehpei), 8h. (near Tacubaya), 9h. (Tananarive), 13h. (Collmberg), 14h. (Ksara), 19h. and 21h. (near Tucson) 23h. (Collmberg, near Florissant, St. Louis, and Cape Girardeau).

Aug. 7d. 22h. 7m. 39s. Epicentre 30°·4N. 141°·8E. (as on 1939 May 7d.).

A = −·6790, B = +·5343, C = +·5035; δ = +3; h = +2;
D = +·618, E = +·786; G = −·396, H = +·311, K = −·864.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		8·7	357	e 2 7	− 3	e 3 36	−14	—	—	—
Irkutsk		35·1	320	6 56	− 1	—	—	—	—	—
Honolulu.		54·5	84	—	—	e 17 10	0	—	—	e 23·1
New Delhi	N.	55·6	286	—	—	i 19 25	S_cS	—	—	i 32·4
Tashkent		58·2	303	i 9 59	+ 1	i 18 6	+ 7	—	—	—
Brisbane		58·5	168	e 10 2	+ 2	i 18 2	− 1	i 21 58	SS	—
Hyderabad	N.	58·7	273	—	—	19 52	S_cS	—	—	—
Sitka		61·3	38	e 10 39	+19	e 18 36	− 3	e 20 7	S_cS	e 28·7
Bombay	E.	62·9	277	i 10 34	+ 4	—	—	—	—	—
Riverview		64·5	172	e 10 43	+ 2	i 19 20	+ 1	i 19 24	?	e 29·3
Victoria		70·8	45	—	—	20 36	+ 1	—	—	32·4
Moscow		72·8	325	11 30	− 2	20 54	− 4	—	—	—
Shasta Dam		74·9	52	e 11 41	− 3	—	—	—	—	—
Erevan		76·1	309	e 11 54	+ 3	e 21 52	+17	—	—	—
Leninakan		76·3	310	11 59	+ 7	—	—	—	—	—
Saskatoon		78·4	36	—	—	21 59	− 1	—	—	36·4
Butte		78·5	43	—	—	e 21 58	− 3	—	—	e 37·5
Tinemaha		79·4	54	i 12 10	+ 1	—	—	—	—	—
Bozeman		79·6	43	—	—	e 22 7	− 5	e 30 50	SSS	e 43·7
Santa Barbara		79·7	57	e 12 9	− 2	—	—	—	—	—
Haiwee	E.	80·1	54	e 12 14	+ 1	—	—	—	—	—
Mount Wilson	Z.	81·0	56	i 12 17	− 1	—	—	—	—	—
Pasadena		81·0	56	i 12 16	− 2	e 22 18	− 9	i 12 20	PcP	e 35·4
Logan		81·3	47	e 12 19	− 1	e 22 25	− 5	e 27 56	SS	e 37·0
Riverside	Z.	81·6	56	i 12 18	− 3	—	—	—	—	—
Salt Lake City		81·8	48	—	—	e 23 31	PS	—	—	e 36·1
Palomar	Z.	82·3	57	i 12 24	− 1	—	—	—	—	—
Pierce Ferry		82·9	53	e 12 29	+ 1	—	—	—	—	—
Copenhagen		84·0	334	i 12 33	− 1	i 22 56	− 1	28 27	SS	—
Rapid City		85·1	41	e 12 39	0	e 23 1	− 7	—	—	e 41·8
Collmberg		87·0	331	e 12 42	− 6	e 23 45	+18	i 13 0	PcP	—
Tucson		87·2	55	e 12 47	− 2	e 23 18	[+ 3]	e 13 45	?	e 39·9
Prague		87·3	330	e 12 21?	−29	e 23 21	[+ 5]	—	—	e 27·4
Belgrade		88·1	323	—	—	e 23 37	0	—	—	e 48·9
Ivigtut		88·4	5	—	—	23 39	− 1	—	—	—
De Bilt		89·5	335	i 13 3k	+ 3	e 23 31	[+ 1]	e 16 33	PP	e 46·4
Uccle		90·1	335	e 12 21?	−42	e 23 21?	[−12]	e 16 21?	PP	e 35·4
Helwan		90·7	305	e 13 9	+ 3	24 3	+ 2	16 41	PP	—
Kew		91·9	338	i 13 12	+ 1	i 24 7	− 4	i 16 48	PP	e 45·4
Paris		93·2	335	e 13 18?	+ 1	e 25 37	PS	e 16 58	PP	e 51·4
Clermont-Ferrand		95·4	332	e 17 20	PP	—	—	—	—	e 55·4
Florissant		95·7	39	e 17 56	PP	e 24 5	[0]	e 24 40	S	e 46·4
St. Louis	E.	95·9	39	—	—	e 24 5	[− 1]	e 24 41	S	e 47·1
Ottawa		97·2	26	—	—	24 9	[− 4]	e 31 33	SS	44·4
Seven Falls		97·4	22	—	—	24 27	[+13]	—	SS	49·4
Philadelphia		102·0	28	—	—	e 25 4	[− 5]	e 32 42	SS	e 45·5
San Fernando	E.	107·0	334	—	—	e 24 0	[−59]	—	—	58·4
San Juan		124·5	33	e 21 37	?	—	—	e 41 9	?	e 61·5
La Paz	Z.	149·4	69	19 51	[+ 5]	—	—	—	—	79·9

Additional readings :—
Brisbane eSE =18m.8s.
Logan e =12m.50s.
Collmberg i =13m.15s., e =13m.30s., 16m.5s., and 28m.39s.
Helwan PPSN =25m.9s.
Kew iSKSEN =23m.43s., ePSE =25m.3s., iPPSZ =25m.27s., eSSE =30m.23s.?
Florissant eE =33m.3s.
Long waves were also recorded at Ukiah, Upsala, Toledo, and Malaga.

Aug. 7d. Readings also at 0h. (Bogota), 1h. (near Branner), 2h. (Collmberg and Almeria), 3h. (Christchurch and near Bogota (2)), 4h. (near San Francisco, Berkeley, Branner, and Lick), 5h. (Alicante and Bogota), 6h. (Bogota, La Paz, and near Huancayo), 7h. (Tananarive, San Juan, Bogota, and near La Paz), 10h. (near Erevan and Leninakan), 11h. (La Paz), 17h. (near Tucson), 18h. (Shasta Dam, Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, Palomar, Tucson, San Juan, Montezuma, and near La Paz), 21h. (near Tashkent and Andijan), 22h. (Collmberg and Mizusawa), 23h. (near San Francisco, Berkeley, Branner, and Lick).

Aug. 8d. 9h. 53m. 38s. Epicentre 11°·0N. 92°·0E. (as on 1941 Sept. 21d.).

$A = -\cdot0343$, $B = +\cdot9813$, $C = +\cdot1896$; $\delta = +7$; $h = +6$;
$D = +\cdot999$, $E = +\cdot035$; $G = -\cdot007$, $H = +\cdot189$, $K = -\cdot982$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Calcutta	N.	12·0	343	i 3 9a	+14	i 5 37	+26	i 3 17 PP	—
Colombo	E.	12·6	254	i 3 9	+ 6	—	—	— —	6·9
Kodaikanal	E.	14·3	269	i 6 33	S	(i 6 33)	+27	— —	i 10·6
Hyderabad	N.	14·6	298	e 3 26	− 4	6 5	− 8	— —	—
Bombay		20·1	295	i 4 41	+ 3	i 8 41	+22	— —	11·0
New Delhi		22·3	324	i 4 59	− 2	e 8 59	− 3	5 22 PP	—
Pehpei		23·1	33	4 51	−17	8 57	−19	— —	—
Andijan		34·3	334	6 50	0	—	—	— —	—
Tashkent		36·2	331	e 6 55	−11	i 12 44	− 3	— —	—
Hukuoka		41·7	51	7 49	− 3	13 57	−13	— —	—
Irkutsk		42·4	10	7 54	− 4	—	—	— —	—
Kôti		44·1	52	e 7 48	−24	14 18	−27	— —	—
Hikone		46·8	51	8 31	− 2	15 12	−12	— —	—
Nagano		48·8	50	e 8 54	+ 5	—	—	— —	—
Erevan		50·9	313	e 10 25	PP	—	—	— —	—
Sendai		51·3	49	9 3	− 5	16 18	− 8	— —	—
Mizusawa	E.	51·8	48	9 8	− 4	e 16 25	− 8	— —	—
Tananarive		53·0	236	e 14 38	?	17 5	+15	— —	—
Sapporo		53·3	43	9 21	− 2	16 46	− 8	— —	—
Ksara		55·9	303	e 9 49?	+ 7	e 17 32	+ 3	— —	—
Helwan		59·2	298	e 10 5	0	e 18 13	+ 1	13 45 PPP	—
Yalta		59·6	315	e 10 10	+ 2	e 18 11	− 6	— —	—
Moscow		61·3	329	i 10 17	− 3	i 18 34	− 5	— —	—
Bucharest		65·2	314	e 10 52	+ 7	e 19 26	− 2	i 20 39 PPS	35·4
Belgrade		69·2	313	11 31a	P_cP	e 20 13	− 3	e 15 20 PPP	e 41·9
Brisbane		70·4	124	i 11 20	+ 2	i 20 28	− 2	i 20 44 PS	e 28·6
Riverview		71·7	131	i 11 24	− 2	i 20 46	+ 1	i 21 21 PS	e 33·4
Upsala		72·7	330	e 11 30	− 2	i 20 52	− 5	e 14 24? PP	e 37·4
Prague		73·7	319	i 11 47	+ 9	e 20 58	−10	— —	e 38·4
Collmberg		74·6	320	i 11 39	− 4	e 21 40	+22	e 14 44 PP	e 47·4
Copenhagen		75·1	325	e 11 46	0	i 21 21	− 3	14 45 PP	—
Jena		75·5	319	e 11 47	− 1	e 21 22	− 6	— —	—
Chur		76·9	315	e 11 57	+ 1	—	—	e 16 39 PPP	—
Zürich		77·6	316	e 12 0	0	e 21 48	− 3	— —	—
Strasbourg		78·0	318	e 12 2	0	—	—	— —	e 46·4
Basle		78·2	317	e 12 4	+ 1	e 21 52	− 5	— —	—
Neuchatel		78·7	317	e 12 6	0	e 21 58	− 5	— —	—
Bergen		78·9	330	—	—	e 21 57	− 8	— —	39·6
De Bilt		79·5	322	i 12 11	+ 1	i 22 8	− 3	e 15 18 PP	e 42·4
Uccle		80·1	320	e 12 22a	+ 9	e 22 16	− 2	e 27 46 SS	e 42·4
Clermont-Ferrand		81·5	315	e 12 30	+ 9	e 22 30	− 2	e 16 0 PP	e 44·4
Paris		81·5	318	e 12 20	− 1	i 22 31	− 1	i 15 39 PP	e 41·4
Kew		82·9	321	e 12 28	0	e 22 41	− 5	i 15 50 PP	e 40·9
Aberdeen		83·1	327	—	—	i 22 44	− 4	— —	e 41·7
Edinburgh		83·9	326	e 12 30	− 3	22 49	− 7	12 36 P_cP	—
Tortosa	E.	84·0	310	e 18 49	?	e 22 53	− 4	— —	—
Toledo		87·6	310	e 12 53	+ 2	i 23 18	[0]	— —	47·4
Granada		87·8	307	e 11 27a	?	23 33	− 1	— —	51·4
Malaga		88·6	307	e 12 59	+ 3	i 23 49	+ 7	20 22 ?	—
San Fernando	E.	90·0	307	e 13 15	+12	i 23 55	{+13}	16 43 PP	48·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Coimbra		90·8	311	12 17	−49	23 32	[− 6]	30 2	SS	e 50·4
Christchurch		90·8	135	—	—	—	—	e 42 22?	Q	48·0
College		92·3	22	e 13 12	− 1	e 23 37	[− 9]	e 16 51	PP	e 43·6
Ivigtut		101·5	342	—	—	25 27	− 6	—	—	48·4
Sitka		101·5	24	e 18 4	PP	e 24 33	[− 1]	e 25 32	S	e 48·8
Victoria		113·0	25	e 19 29	PP	e 29 4	PS	—	—	61·4
Saskatoon		115·1	13	—	—	e 27 22	{+41}	—	—	60·4
Butte		119·1	20	e 20 9	PP	e 30 6	PS	e 36 21	SS	e 56·6
Shasta Dam		119·5	30	e 18 53	[+ 1]	—	—	e 20 11	PP	—
Bozeman		119·9	19	e 20 15	PP	e 25 51	[+ 1]	e 30 15	PS	e 52·6
Seven Falls		120·1	346	—	—	e 28 10	?	e 36 41	SS	50·4
Ottawa		122·8	350	—	—	30 22?	PS	e 37 22?	SS	49·4
Logan		123·1	21	e 19 23	[+24]	—	—	—	—	e 60·8
Rapid City		123·5	13	—	—	e 30 35	PS	e 36 57	SS	e 59·1
Salt Lake City		124·0	22	e 21 40	PP	e 26 58	[+55]	e 38 32	SSP	e 66·0
Tinemaha		124·4	30	i 19 3	[+ 2]	—	—	—	—	—
Haiwee		125·3	30	i 19 5	[+ 2]	—	—	—	—	—
Mount Wilson		126·7	32	i 19 9	[+ 3]	—	—	i 21 5	PP	—
Pasadena		126·7	32	i 19 8	[+ 2]	—	—	i 21 4	PP	e70·1
Pierce Ferry		127·1	27	i 19 10	[+ 4]	—	—	—	—	—
Riverside	Z.	127·3	32	i 19 8	[+ 1]	—	—	e 21 7	PP	—
Chicago		127·5	1	e 21 3	PP	e 28 9	{+ 5}	e 38 9	SS	e 51·7
Philadelphia		127·9	347	e 21 5	PP	e 37 41	SS	e 22 29	PKS	e 53·1
Palomar		128·0	31	e 19 9	[+ 1]	—	—	i 21 11	PP	—
La Jolla		128·2	32	e 19 11	[+ 3]	—	—	—	—	—
Cincinnati		130·0	356	e 19 8	[− 4]	—	—	e 21 20	PP	66·4
Florissant		130·4	3	e 19 14	[+ 1]	e 26 12	[− 9]	e 21 21	PP	—
St. Louis		130·6	3	e 19 14	[+ 1]	e 26 19	[− 2]	e 21 25	PP	e 50·7
Bermuda		131·4	333	e 21 48	PP	—	—	e 38 49	SS	e 75·5
Tucson		131·8	26	i 19 18	[+ 3]	i 26 58	[+34]	e 21 32	PP	e 58·6
Cape Girardeau	E.	131·9	2	—	—	—	—	e 22 39	PKS	—
Columbia		134·8	353	e 22 2	PP	—	—	e 39 42	SS	e 58·8
San Juan		143·7	324	e 19 38	[+ 1]	e 26 52	[+ 7]	e 41 27	SS	e 68·9
La Paz	Z.	160·0	253	20 9	[+ 8]	44 54	SS	i 24 40	PP	76·4
Huancayo		167·6	264	e 25 23	PP	e 31 56	{+ 5}	e 45 56	SS	e 84·0

Additional readings :—
Calcutta iSSN = 6m.7s.
Kodaikanal eE = 7m.5s.
Hyderabad PN = 3m.31s., SSN = 6m.15s.
New Delhi SSN = 9m.52s.
Pehpei P = 4m.57s.
Mizusawa eSN = 16m.29s.
Helwan iEZ = 10m.16s.
Belgrade e = 16m.51s.
Riverview iP_cPZ = 11m.41s., isS = 21m.1s., eN = 29m.5s.
Upsala PS?E = 21m.5s., eSS?E = 25m.24s.?, SSN = 25m.43s., eE = 27m.29s., eSSSN = 28m.35s.
Collmberg i = 11m.43s., 11m.57s., 12m.25s., and 13m.32s., e = 14m.34s. and 15m.50s., ePPP = 16m.47s., e = 21m.55s., ePS = 22m.26s., e = 22m.39s., ePPS = 22m.48s., e = 24m.28s., eSS = 27m.2s., i = 44m.15s.
Copenhagen 11m.55s., 22m.4s.
Jena ePN = 11m.52s.
Bergen eN = 25m.7s., eE = 30m.57s., eN = 32m.37s.
De Bilt iP = 12m.20s.s, eSS = 27m.22s.?
Paris iP = 12m.30s., i = 12m.51s. and 33m.45s.
Kew iP_cPEZ = 12m.37s., eEZ = 13m.0s.?, ePPPZ = 17m.34s.?, iS_cSN = 22m.56s., ePS = 23m.30s., eSSS = 28m.14s.?, eQEN = 35·4m.
Edinburgh S_cS = 23m.2s., PS = 23m.41s.
San Fernando SKSE = 23m.19s., PSE = 24m.39s., PPSE = 25m.13s., SSE = 29m.59s.
Coimbra i = 26m.22s.
College eS = 24m.6s., ePS = 25m.29s., eSS = 30m.19s.
Sitka ePS = 27m.14s., eSS = 32m.32s.
Butte e = 32m.21s., eSSS? = 41m.13s.
Bozeman eSS = 36m.34s., eSSS = 41m.8s.
Logan e = 19m.37s.
Rapid City e = 40m.50s.
Pasadena eZ = 63m.16s.
Chicago ePPS = 33m.14s.
Palomar iZ = 19m.32s.

Continued on next page.

Florissant eZ = 21m.32s., eSKPZ = 22m.33s., eSE = 29m.30s., ePSE = 31m.44s., ePPSN = 33m.34s., eSSE = 38m.39s., eE = 40m.59s.
St. Louis eSKPNZ = 22m.34s., iN = 22m.44s., eZ = 22m.54s., eSKKSN = 28m.29s., eSE = 29m.31s., ePSN = 31m.46s., ePPSN = 33m.28s., eSS?E = 38m.22s., eSSE = 38m.45s., eE = 41m.7s., ePPPP?E = 41m.33s.
Tucson i = 22m.40s., eSKKS = 28m.21s., e = 31m.32s.
Columbia e = 40m.47s.
San Juan e = 42m.49s.
La Paz iPKPZ = 20m.14s., $iPKP_3$ = 21m.0s.
Huancayo e = 36m.5s., eSSS = 51m.29s.
Long waves were also recorded at Arapuni, Wellington, and Ukiah.

Aug. 8d. Readings also at 0h. (San Juan and Tucson), 5h. (2) and 6h. (near Tucson), 10h. (near Coimbra), 11h. (Brisbane, Mount Wilson, Tucson, and Collmberg), 14h. (near Mizusawa), 20h. (Pierce Ferry).

Aug. 9d. 3h. 13m. 25s. Epicentre 6°·0S. 77°·0W. (as on 6d.).

A = +·2237, B = −·9691, C = −·1038; δ = −3; h = +7.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		6·3	164	i 1 38	+ 2	i 2 51	+ 1	e 2 12	P_g	e 3·2
Bogota		11·0	16	i 2 34	− 8	i 5 35	+48	i 2 37	pP	—
La Paz		13·6	141	e 3 23	+ 6	7 2	+72	—	—	9·1
San Juan		26·5	25	e 5 47	+ 6	e 10 7	− 7	—	—	e 11·3
Tucson		49·8	322	i 8 54	− 2	—	—	—	—	—
Palomar	z.	54·4	319	i 9 28	− 3	—	—	—	—	—
Riverside	z.	55·1	319	i 9 34	− 2	—	—	—	—	—
Mount Wilson	z.	55·7	319	i 9 39	− 1	—	—	—	—	—
Pasadena	z.	55·7	319	i 9 38	− 2	—	—	—	—	—
Tinemaha	z.	57·6	321	i 9 51	− 3	—	—	—	—	—

Additional readings :—
Huancayo e = 2m.43s.
Bogota i = 4m.57s., S_cP? = 6m.41s.
Tucson i = 9m.5s. and 9m.36s.

Aug. 9d. 21h. 50m. 10s. Epicentre 20°·4N. 120°·4E. (as on 2d.).

A = −·4747, B = +·8090, C = +·3465; δ = −12; h = +5.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		25·8	40	5 36	+ 2	10 8	+ 6	10 18	?	—
Irkutsk		34·2	343	6 53	+ 4	e 12 29	+13	—	—	—
Hyderabad	N.	39·7	273	14 4	S	(14 4)	+24	—	—	—
Bombay	E.	44·7	277	e 8 14	− 2	—	—	—	—	—
Tashkent		47·8	308	e 8 43	+ 2	15 54	+16	—	—	—
Brisbane	z.	57·1	145	e 9 41	− 9	—	—	—	—	—
Riverview	z.	61·4	152	e 10 17	− 3	—	—	—	—	—
Moscow		69·4	324	11 11	− 1	e 20 19	+ 1	—	—	—
Upsala		78·8	330	—	—	e 22 5	+ 1	—	—	e 42·8
Helwan	z.	79·3	298	i 12 11	+ 2	—	—	e 12 41	?	—
Copenhagen		83·0	328	—	—	22 26	−21	25 32	?	40·8
Collmberg		84·6	323	e 12 35	− 1	—	—	e 12 53	pP	—
Paris		91·7	324	e 11 50	?	—	—	—	—	—
Florissant	E.	114·4	26	—	—	e 35 34	SS	—	—	—
St. Louis		114·6	26	—	—	e 27 25	{+48}	e 35 40	SS	—

Copenhagen gives also 29m.8s.
Long waves were also recorded at Calcutta, and at other European stations.

Aug. 9d. Readings also at 2h. (Riverview, Christchurch, Tucson, and near La Paz), 7h. (near Andijan), 8h. (near Tananarive), 9h. (near Erevan and Leninakan), 12h. (Collmberg, Sofia, Ksara, Bucharest, and near Yalta), 13h. (De Bilt, Kew, and Belgrade), 14h. (near Andijan and Stalinabad), 16h. (De Bilt, Uccle, Kew, Collmberg, Belgrade, Sofia, Bucharest, and Helwan), 18h. (Collmberg, Boulder City, Pierce Ferry, Tucson, Palomar, Riverside, Pasadena, Mount Wilson, and Tinemaha), 21h. (Collmberg, Tinemaha, Mount Wilson, Pasadena, Riverside, Palomar, and Tucson).

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August 10d. 11h. 20m. 15s. Epicentre 15°·5N. 88°·8W.

Felt at Chiquimula, Zacapa, and Izabel. Serious damage at Quirigua.
Epicentre 15°·4N. 88°·8W. (U.S.C.G.S.).
Annales de l'Institut de Physique du Globe de Strasbourg, 2ème partie, Séismologie, Tome X, Strasbourg, 1951, p.31.

$A = +·0202$, $B = -·9639$, $C = +·2656$; $\delta = +5$; $h = +6$;
$D = -1·000$, $E = -·021$; $G = +·006$, $H = -·266$, $K = -·964$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	E.	10·6	293	2 38	+ 2	i 4 53	+16	—	—	—
	N.	10·6	293	e 2 41	+ 5	i 4 55	+18	i 5 9	SSS	—
Balboa Heights		11·1	124	e 2 43	0	—	—	—	—	e 5·5
Bogota		18·1	126	i 4 18	+ 4	i 7 43	+ 8	—	—	—
Columbia		19·7	19	e 4 33	− 1	e 8 30	+20	—	—	e 11·7
Cape Girardeau	E.	21·8	359	e 4 55	− 1	e 8 41	−11	e 9 1	sS	—
San Juan		21·9	79	e 4 57	0	e 8 53	− 1	e 6 0	PPP	e 11·3
St. Louis		23·1	357	i 5 9	+ 1	e 9 21	+ 5	i 5 18	pP	e 12·0
Florissant		23·3	357	i 5 10	0	i 9 31	+11	i 5 19	pP	—
Cincinnati		23·9	9	i 5 16	0	e 9 29	− 1	5 53	PP	—
Georgetown		25·5	23	i 5 34	+ 2	e 10 9	+12	e 6 3	PP	13·0
Pittsburgh		26·0	16	e 5 38	+ 2	e 10 17	+11	—	—	—
Tucson		26·1	315	i 5 35	− 2	e 10 9	+ 2	i 6 13	PP	e 14·6
Chicago		26·2	1	i 5 36	− 2	i 10 17	+ 8	e 8 28	?	e 11·8
Fort de France		26·7	89	e 5 40	− 3	—	—	—	—	—
Philadelphia		27·1	24	i 5 47	+ 1	e 10 17	− 7	e 6 22	PP	e 12·5
Bermuda		27·6	48	e 5 50	− 1	—	—	—	—	e 10·8
Fordham		28·4	24	i 5 55	− 3	—	—	—	—	—
Huancayo		30·4	153	e 6 16	0	e 11 28	+12	—	—	e 13·4
Pierce Ferry		30·4	318	i 6 15	− 1	—	—	—	—	—
Harvard		30·7	26	i 6 18k	− 1	e 11 26	+ 5	—	—	—
Boulder City		30·9	317	e 6 20	0	—	—	—	—	e 13·0
La Jolla		31·0	310	e 6 20	− 1	—	—	e 9 20	PcP	—
Overton		31·0	318	e 6 9	−12	—	—	—	—	—
Palomar		31·0	311	i 6 20	− 1	—	—	i 9 16	PcP	—
Rapid City		31·0	341	i 6 22	+ 1	e 11 31	+ 5	—	—	e 12·4
Riverside	Z.	31·6	312	i 6 26	0	—	—	i 9 16	PcP	—
Ottawa		31·8	18	6 27	− 1	11 43	+ 5	7 45	PP	13·8
Salt Lake City		32·2	328	e 6 29	− 3	e 11 47	+ 2	e 7 48	PP	e 12·9
Mount Wilson	Z.	32·3	312	i 6 32	− 1	—	—	i 9 18	PcP	—
Pasadena		32·3	312	i 6 34	+ 1	e 11 48	+ 2	i 9 19	PcP	—
Haiwee		33·1	315	e 6 40	0	—	—	i 9 21	PcP	—
Santa Barbara	Z.	33·6	310	e 6 41	− 3	—	—	i 9 22	PcP	—
Shawinigan Falls		33·7	21	6 45	0	12 10	+ 2	—	—	15·8
Tinemaha		33·8	316	i 6 46	0	—	—	i 9 24	PcP	—
Fresno	N.	34·7	315	e 6 57	+ 3	—	—	e 8 19	PP	—
Seven Falls		34·9	22	6 54	− 1	12 30	+ 3	—	—	18·8
Bozeman		35·4	334	e 6 58	− 2	e 12 34	0	e 8 19	PP	e 16·5
Butte		36·3	333	e 7 6	− 1	e 13 4	+16	e 8 33	PPP	e 15·9
Santa Clara	Z.	36·5	313	e 7 11	+ 2	e 15 44	SSS	—	—	—
Berkeley		37·0	313	7 14	+ 1	13 2	+ 3	8 44	PP	19·8
La Paz	Z.	37·8	146	i 7 17k	− 3	—	—	8 45	PP	19·3
Shasta Dam		38·5	318	e 7 22	− 4	—	—	e 8 58	PP	—
Saskatoon		39·2	343	7 35	+ 4	13 33	+ 1	—	—	e 18·8
Grand Coulee		40·8	329	e 7 49	+ 4	—	—	i 9 22	PP	—
Victoria		43·5	327	e 7 21	−46	—	—	—	—	19·8
Ivigtut		54·1	23	9 26	− 3	17 11	+ 6	—	—	27·8
Sitka		54·4	331	e 9 27	− 4	e 17 10	+ 1	e 12 52	PPP	e 26·4
College		63·1	336	—	—	e 19 5	+ 3	e 22 59	SS	e 26·0
Coimbra		72·9	52	11 17	−16	21 32	PS	16 37	PP	e 39·6
Toledo		76·3	52	i 11 51	− 1	21 47	+10	—	—	35·4
Malaga		76·5	55	i 11 57	+ 3	e 21 32	− 7	—	—	36·8
Granada		77·0	55	i 12 11k	+15	e 22 0	+15	—	—	—
Kew		77·1	40	i 11 53k	− 4	—	—	e 16 27?	PPP	e 34·8
Paris		79·3	42	e 12 7	− 2	e 22 45?	PS	e 15 15	PP	e 38·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tortosa	N.	79·5	51	e 12 13	+ 3	e 22 52	PS	23 17	PPS	—
Copenhagen		83·5	34	i 12 31	0	e 23 1	+ 9	i 15 43	PP	—
Collmberg		85·2	38	i 12 36	− 3	—	—	e 15 55	PP	—
Helwan	Z.	106·8	51	12 12	?	e 37 38	SSS	e 18 39	PP	—
Riverview	Z.	123·3	239	—	—	e 24 39	?	e 30 9	PS	—

Additional Readings :—
San Juan e = 6m.20s. and 9m.10s.
St.Louis iPPN = 5m.36s., iSN = 9m.28s., isSN = 9m.39s.
Florissant isSN = 9m.45s.
Cincinnati i = 6m.9s., iS = 9m.43s.
Tucson i = 9m.4s.
Palomar iZ = 6m.46s.
Mount Wilson eZ = 6m.54s., iZ = 7m.18s.
Pasadena eS_cPNZ = 13m.3s., iS_cSEN = 17m.5s.
Tinemaha iZ = 7m.34s.
Fresno eN = 9m.33s.
Bozeman eP_cP = 9m.34s.
Berkeley SS = 15m.49s.
La Paz PPP = 9m.19s.
Shasta Dam iP_cP? = 9m.35s.
Sitka eS_cS = 19m.13s.
Tortosa PPN = 15m.54s., PSE = 24m.8s., PPSE = 24m.45s.
Collmberg e = 13m.9s.
Helwan eZ = 20m.57s.
Long waves were also recorded at De Bilt.

August 10d. 14h. 9m. 4s. Epicentre 15°·5N. 88°·8W. (as at 11h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		7·8	282	e 2 55	+57	i 3 33	+ 5	i 3 38	?	—
Tacubaya	E.	10·6	293	e 2 48	+12	e 4 49	+12	i 5 4	SSS	—
	N.	10·6	293	e 2 50	+14	e 4 46	+ 9	i 5 7	SSS	—
Balboa Heights		11·1	124	e 2 43	0	—	—	—	—	—
San Juan		21·9	79	e 4 58	+ 1	e 9 6	+12	—	—	e 10·5
St. Louis		23·1	357	e 5 7	− 1	e 9 22	+ 6	i 9 41	sS	e 12·2
Florissant		23·2	357	e 5 9	0	e 9 20	+ 2	—	—	—
Pittsburgh		26·0	16	—	—	e 10 21	+15	—	—	—
Tucson		26·1	315	e 5 35	− 2	e 10 10	+ 3	e 6 17	PP	e 14·3
Chicago		26·2	1	—	—	e 10 24	+15	—	—	e 13·7
Palomar	Z.	31·0	311	e 6 18	− 3	—	—	i 9 15	P_cP	—
Riverside	Z.	31·6	312	e 6 26	0	—	—	i 9 16	P_cP	—
Mount Wilson	Z.	32·3	312	i 6 33	0	—	—	—	—	—
Pasadena	Z.	32·3	312	i 6 33	0	—	—	—	—	—
Collmberg	Z.	85·2	38	e12 35	− 4	—	—	—	—	—

Additional Readings :—
St. Louis iSN = 9m.27s.
Tucson iP_cP? = 9m.2s.
Long waves were also recorded at Sitka, Philadelphia, and Kew.

August 10d. Readings also at 0h. (College, Tucson, Philadelphia, Palomar, Riverside, Mount Wilson, and Collmberg), 1h. (Christchurch, near Tacubaya and Oaxaca), 4h. (Pasadena, Mount Wilson, Riverside, Palomar, St. Louis, Tucson, Bogota, La Paz, and near Huancayo), 6h. (Tacubaya, near Bogota, and near Andijan, Tashkent, and Stalinabad), 7h. (Auckland), 9h. and 10h. (Collmberg), 11h. (La Paz), 13h. (Tacubaya), 15h. (Reykjavik, Tucson, Palomar, Mount Wilson, and near Mizusawa), 16h. (near Andijan), 17h. (Tucson), 18h. (near Stalinabad), 19h. (Tucson, Palomar, Pasadena, Mount Wilson), 21h. (Balboa Heights, Berkeley, and Malaga), 23h. (La Plata).

August 11d. 0h. 33m. 49s. Epicentre 7°·1N. 82°·4W. (as on 1945 Feb. 18d.).

$A = +·1313$, $B = -·9839$, $C = +·1214$; $\delta = +4$; $h = +7$;
$D = -·991$, $E = -·132$; $G = +·016$, $H = -·120$, $K = -·993$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		3·4	55	e 0 52	− 3	i 1 36	− 1	—	—	—
Bogota		8·6	104	e 2 7	− 2	—	—	—	—	—
Oaxaca	N.	17·2	310	e 3 41	−22	—	—	—	—	—
San Juan		19·5	53	e 4 26	− 5	i 8 14	+ 8	—	—	e 9·0
Huancayo		20·2	161	i 4 41	+ 2	e 8 14	− 7	—	—	e 9·4
Tacubaya		20·4	309	i 4 47	+ 6	e 8 53	+28	—	—	—
Fort de France		22·2	69	e 4 55	− 5	e 9 9	+ 9	—	—	—
Columbia		26·9	2	e 5 37	− 8	e 10 27	+ 7	—	—	e 12·5
La Paz		27·3	148	5 53	+ 5	e 10 33	+ 6	—	—	14·2
Bermuda		30·1	31	e 6 15	+ 2	e 11 18	+ 6	—	—	e 12·7
Cape Girardeau	E.	30·9	349	e 6 19	− 1	e 11 30	+ 6	—	—	—
Cincinnati		32·0	357	i 6 30	0	i 11 45	+ 3	e 7 30	PP	—
Georgetown		32·1	9	e 6 33	+ 2	i 11 48	+ 5	—	—	13·2
St. Louis		32·3	349	i 6 31	− 2	i 11 56	+10	e 7 55	PP	—
Florissant		32·5	349	e 6 33	− 1	i 11 59	+10	e 7 39	PP	—
Pittsburgh		33·3	4	e 6 46	+ 5	e 12 7	+ 5	e 13 52	SS	—
Pennsylvania		33·9	7	—	—	e 12 19	+ 8	—	—	—
Fordham		34·5	12	e 6 54	+ 2	i 12 23	+ 3	i 14 54	SS	17·8
Chicago		34·9	353	e 6 56	+ 1	e 12 24	− 3	e 8 11	PP	e 15·1
Tucson		36·5	317	i 7 6	− 3	e 12 56	+ 5	e 8 36	PP	e 17·8
Ottawa		38·7	8	7 26	− 1	13 26	+ 1	9 5	PPP	e 20·2
Shawinigan Falls		40·3	11	e 7 42	+ 2	—	—	—	—	16·2
Halifax		40·9	21	—	—	e 13 53	− 5	—	—	17·2
Pierce Ferry		40·9	320	i 7 44	− 2	—	—	—	—	—
Rapid City		41·2	337	i 7 50	+ 2	e 14 1	− 1	i 9 27	PP	e 17·0
Seven Falls		41·2	12	7 55	+ 7	14 4	+ 2	17 23	SS	20·2
La Jolla	Z.	41·3	313	e 7 44	− 5	—	—	e 9 33	PP	—
Palomar		41·3	314	e 7 45	− 4	—	—	—	—	—
Boulder City		41·4	319	e 7 48	− 2	e 14 16	+11	—	—	—
Riverside		42·0	314	i 7 54	0	—	—	—	—	—
Mount Wilson	Z.	42·6	314	i 7 57	− 2	—	—	i 9 42	PP	—
Pasadena		42·6	314	i 8 3	+ 4	i 14 30	+ 7	i 9 44	PP	e 19·0
Salt Lake City		42·6	327	e 8 2	+ 3	e 14 30	+ 7	e 10 0	PP	e 22·2
Logan		43·3	328	e 8 9	+ 4	e 14 34	+ 1	e 10 4	PP	e 17·8
Haiwee		43·5	317	i 8 10	+ 3	—	—	—	—	—
Santa Barbara		43·9	313	i 8 12	+ 2	—	—	—	—	—
Fresno	N.	45·1	317	e 8 23	+ 3	—	—	—	—	—
Bozeman		45·8	332	—	—	e 15 17	+ 8	e 18 23	SS	e 19·6
Butte		46·7	332	e 8 31	− 1	e 15 26	+ 4	e 10 31	PP	e 20·6
Berkeley		47·3	316	8 41	+ 4	15 42	+11	10 35	PP	21·5
Saskatoon		49·2	341	—	—	e 16 0	+ 2	—	—	27·2
Grand Coulee		51·3	330	e 9 7	− 1	—	—	—	—	—
Victoria		53·9	327	e 8 59	−28	e 17 11	+ 9	—	—	30·2
Sitka		64·9	331	e 10 45	+ 2	e 19 28	+ 4	e 14 44	PPP	e 29·8
Coimbra		73·3	50	11 1	−34	21 1	− 3	14 21	PP	33·5
Honolulu		73·9	290	—	—	—	—	21 57	PPS	31·7
Malaga	Z.	76·2	53	i 11 55	+ 3	e 21 28	− 8	i 14 48	PP	—
Toledo		76·6	51	e 11 54	0	i 21 46	+ 6	—	—	35·6
Granada		76·9	53	11 50a	− 6	i 22 5	+22	—	—	36·4
Kew		79·6	39	e 12 13?	+ 3	e 22 15?	+ 3	e 23 13?	PPS	e 33·2
Tortosa	N.	80·1	50	—	—	22 19	+ 1	—	—	e 33·2
Paris		81·4	42	e 12 11?	− 9	e 22 11?	−20	—	—	e 38·2
Clermont-Ferrand		81·9	45	e 12 32?	+ 9	e 22 43	+ 7	—	—	e 38·2
Uccle		82·6	39	e 12 47a	+21	—	—	—	—	e 36·2
Bergen		82·8	29	—	—	e 22 7	−38	—	—	35·2
De Bilt		83·0	38	—	—	i 22 53	+ 6	—	—	e 36·2
Copenhagen		87·0	34	e 12 59	+11	e 23 17	[+ 3]	e 16 55	PP	—
Collmberg		87·9	39	e 12 49	− 4	—	—	e 16 29	PP	—
Upsala		89·0	30	—	—	e 23 43	− 2	—	—	e 37·2

For Notes see next page.

NOTES TO AUGUST 11d. 0h. 33m. 49s.

Additional readings :—
Bogota e = 2m.13s.
Oaxaca eE = 3m.44s.
San Juan iP = 4m.31s., e = 5m.27s., i = 5m.33s.
Huancayo i = 5m.38s.
Cape Girardeau eE = 6m.32s.
St. Louis iZ = 6m.34s., eN = 10m.20s.
Tucson i = 7m.11s.
Ottawa SSS = 16m.41s.
Pierce Ferry i = 7m.49s. and 8m.47s.
Boulder City iP = 7m.52s.
Logan e = 8m.21s.
Butte e = 8m.52s., eSS = 18m.39s.
Berkeley SS = 19m.12s.
Sitka e = 23m.23s.
Coimbra SS = 26m.0s.
Malaga PPPZ = 16m.39s.
Copenhagen i = 23m.35s.
Collmberg i = 12m.58s.
Long waves were also recorded at Auckland, Riverview, New Delhi, Ukiah, and Ivigtut.

August 11d. 1h. Local Japanese shock. Seismo. Bull. Cent. Met. Obs., Japan, 1945. Epicentre suggested approx. 38°N. 138°E.

Hukusima P = 10m.39s., S = 10m.47s.
Sendai P = 10m.39s., S = 11m.8s.
Wazima P = 10m.50s., S = 11m.3s.
Mizusawa PE = 10m.52s., SEN = 11m.22s.
Utunomiya P = 10m.52s.
Hunatu P = 10m.55s., S = 11m.28s.
Omaesaki P = 11m.5s., S = 11m.57s.
Tokyo P = 11m.7s., S = 11m.42s.
Yokohama P = 11m.8s., S = 11m.43s.
Miyako P = 11m.14s., S = 11m.50s.
Misima P = 11m.17s., S = 11m.58s.
Mera P = 11m.29s., S = 12m.14s.
Collmberg eZ = 22m.17s.
Mount Wilson iPZ = 22m.19s.
Palomar ePZ = 22m.24s.
Tucson iP = 22m.50s.

August 11d. Readings also at 0h. (Christchurch, Andijan, Tashkent, and near Stalinabad), 3h. (Balboa Heights), 4h. (Collmberg and near Balboa Heights (2)), 8h. (Balboa Heights), 9h. (Collmberg near Erevan and Leninakan), 11h. (Tucson, Boulder City, Overton, near Fresno and Pierce Ferry), 12h. (St. Louis), 13h. (Mount Wilson, Palomar, and Riverside), 14h. (Apia, La Paz, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and Collmberg), 15h. (Copenhagen and Collmberg), 16h. (Palomar and Tucson), 17h. (Uccle), 22h. (De Bilt, Belgrade, Bucharest, and near Sofia).

Aug. 12d. 8h. 33m. 3s. Epicentre 29°·0N. 142°·0E. (as on 1944, Nov. 17d.).

$A = -\cdot6903$, $B = +\cdot5393$, $C = +\cdot4823$; $\delta = -3$; $h = +2$;
$D = +\cdot616$, $E = +\cdot788$; $G = -\cdot380$, $H = +\cdot297$, $K = -\cdot876$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	10·1	357	e 2 25	− 3	4 3	−22	—	—	—
Irkutsk		36·3	320	e 7 8?	+ 1	e 12 48?	0	—	—	—
New Delhi	N.	56·1	287	—	—	e 19 28	?	—	—	e 32·4
Andijan		57·0	302	e 9 50	0	e 17 45	+ 2	—	—	—
Tashkent		59·1	303	i 10 5	+ 1	e 18 9	− 2	—	—	—
Moscow		74·1	326	e 11 39	− 1	e 21 8	− 4	—	—	—
Grand Coulee		74·7	44	e 11 57	+14	—	—	—	—	—
Shasta Dam		75·6	52	i 11 49	+ 1	—	—	—	—	—
Tinemaha		80·1	54	i 12 14	+ 1	—	—	—	—	—
Santa Barbara	Z.	80·4	56	e 12 14	− 1	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee	z.	80·8	54	e 12 17	0	—	—	—	—	—
Pasadena		81·6	56	i 12 21	0	e 22 30	− 3	—	—	e 38·0
Mount Wilson	z.	81·7	56	i 12 22	0	—	—	—	—	—
Riverside	z.	82·3	56	i 12 25	0	—	—	—	—	—
La Jolla		82·9	57	e 12 33	+ 5	—	—	—	—	—
Palomar		83·0	56	i 12 30	+ 2	—	—	—	—	—
Copenhagen		85·3	334	—	—	23 7	− 3	—	—	—
Ksara		86·3	306	e 12 47	+ 2	e 23 30	+10	—	—	—
Tucson		87·9	54	i 12 54	+ 1	—	—	—	—	e 41·5
St. Louis		96·9	39	e 13 35	+ 1	e 24 9	[− 2]	e 31 23	SS	e 44·4
La Paz	z.	149·6	72	e 20 1	[+14]	—	—	—	—	—

Additional readings :—
Tinemaha iZ =12m.24s.
Pasadena eNZ =12m.32s., i =12m.44s.
Mount Wilson iZ =12m.35s.
Tucson e =13m.13s. and 13m.43s.
St. Louis eSKKSN =24m.49s., eSN =25m.9s.
Long waves were also recorded at Riverview, Sitka, Paris, Uccle, Kew, and De Bilt.

Aug. 12d. 14h. Indian Ocean.

Tananarive iP =44m.19s., iSSS =46m.19s., i =46m.28s.
Helwan PZ =49m.17s., PPPZ =50m.57s., SEN =55m.18s.
Tashkent eP =51m.13s., eS =58m.53s.
Collmberg iZ =52m.21s., eZ =52m.39s. and 53m.43s.
Tinemaha iPZ =61m.28s.
Haiwee iPZ =61m.29s.
Palomar iPNZ =61m.32s.
Pasadena iP =61m.32s., iNZ =62m.18s. and 62m.35s.
Mount Wilson iPZ =61m.33s.
La Jolla ePNZ =61m.34s.
Riverside ePZ =61m.36s., iZ =62m.35s.
Long waves were also recorded at La Paz and Kew.

Aug. 12d. Readings also at 0h. (Almeria), 2h. (Collmberg and near Andijan), 3h. (Belgrade, Collmberg, Copenhagen, Bucharest, and near Sofia), 4h. (Collmberg), 5h. (near Mizusawa), 9h. (Collmberg), 10h. (La Paz), 12h. (Christchurch, Wellington, and De Bilt), 18h. (Berkeley (2)), 19h. (Collmberg), 20h. (Auckland and Berkeley), 23h. (Collmberg).

Aug. 13d. 3h. Alaska.

College eP =24m.33s., eS? =24m.43s., eL =25m.19s.
Grand Coulee eP? =29m.1s., eL =36m.19s.
Shasta Dam iP =29m.43s.
Tinemaha iPEZ =30m.24s.
Haiwee iP =30m.34s.
Santa Barbara ePZ =30m.44s.
Mount Wilson iPNZ =30m.47s.
Pasadena iP =30m.47s., i =30m.57s.
Pierce Ferry iP =30m.47s.
Riverside iPNZ =30m.50s.
Palomar iP =30m.58s.
La Jolla iPNZ =31m.0s.
Tucson iP =31m.26s., i =31m.35s.
St. Louis ePZ =31m.54s., eLE =46m.53s.
Ottawa eZ =32m.5s., L =45m.
Collmberg eZ =34m.32s.
Long waves were also recorded at Sitka, Butte, and Philadelphia.

Aug. 13d. Readings also at 2h. (Collmberg, Uccle, and La Paz (2)), 3h. (College and near Andijan), 4h. (near Tashkent), 6h. (near Tucson), 9h. (Palomar and Tucson), 12h. (Riverview), 14h. (Auckland), 15h. (near Mizusawa), 17h. (La Paz), 19h. (San Francisco, near Berkeley, Branner, and Lick), 21h. (La Paz and near Tucson), 23h. (Alicante).

Aug. 14d. 8h. Pasadena suggests Java Sea, depth of focus 600km.

Mizusawa PN =3m.47s., PE =4m.1s., SN =7m.52s., SE =7m.55s.
Brisbane iPZ =3m.48s., eSN =10m.9s.
Riverview iPEZ =4m.14s.a, iEZ =7m.33s., iN =10m.47s.
Shasta Dam iPKP =13m.34s., e =14m.22s., i =14m.34s.
Grand Coulee iPKP =13m.36s.
Santa Barbara iPNZ =13m.42s.
Pasadena iP =13m.44s.k, iEZ =13m.53s. and 14m.1s., ipPEZ =15m.6s., isPZ =16m.18s., iZ =17m.15s.
Riverside iPZ =13m.44s., iZ =14m.6s., ipPZ =15m.8s., iZ =15m.17s., isPZ =16m.19s.
Mount Wilson iP =13m.44s.k, ipPZ =15m.7s., isPZ =16m.18s.
Tinemaha iP =13m.44s.a, epPZ =15m.10s.
Haiwee iP =13m.45s.a.
La Jolla iP =13m.47s.
Palomar iP =13m.47s.k, ipPZ =15m.12s., isPZ =16m.21s.
Pierce Ferry iPKP =13m.51s.
Tucson iPKP =13m.57s., i =14m.16s., ipPKP =16m.9s., i =23m.48s.
St. Louis iPKP?Z =14m.9s., iPP?Z =16m.50s., eZ =17m.16s. and 17m.36s.
Harvard i =14m.26s.
Bogota i =15m.0s. and 15m.55s.
La Paz PKPZ =15m.9s.

Aug. 14d. 12h. 10m. 44s. Epicentre 26°·3N. 129°·0E.

A = −·5649, B = +·6976, C = +·4407; δ = −3; h = +3;
D = +·777, E = +·629; G = −·277, H = +·342, K = −·898.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		16·3	35	3 45	− 7	7 28	+35	—	—	—
Vladivostok		17·0	7	e 3 21	−40	e 6 15	−55	—	—	—
Pehpei		20·2	286	4 39	0	8 21	0	—	—	—
Irkutsk		31·9	331	e 6 28	− 1	e 11 53	+13	—	—	—
Dehra Dun	N.	44·7	288	—	—	e 14 34	−20	—	—	e 24·7
New Delhi	E.	45·7	285	e 8 31	+ 7	e 15 9	+ 1	e 18 23	S_eS	—
	N.	45·7	285	e 8 34	+10	i 15 13	+ 5	18 39	S_eS	21·8
Hyderabad	N.	47·5	270	9 11	+33	15 43	+ 9	10 50	PP	23·0
Andijan		48·6	302	e 8 51	+ 4	—	—	—	—	—
Colombo	E.	50·5	256	9 6	+ 4	17 2	+46	—	—	—
Tashkent		50·9	303	i 9 0	− 5	e 16 32	+11	—	—	—
Bombay	E.	52·1	274	e 9 19	+ 5	—	—	—	—	—
Sverdlovsk		56·6	322	i 9 47	0	e 17 47	+ 9	—	—	—
Brisbane		58·3	155	i 9 59	0	e 18 1	0	—	—	—
Riverview		63·4	159	10 45	+11	e 19 11	+ 5	—	—	—
College		63·6	28	e 10.35	0	e 19 2	− 6	e 23 33	SS	e 28·8
Honolulu		66·3	77	—	—	e 19 43	+ 1	—	—	e 26·9
Moscow		69·4	323	i 11 12	0	20 22	+ 4	—	—	—
Erevan		69·6	305	e 11 12?	− 1	e 20 47?	+26	—	—	—
Leninakin		69·9	307	e 11 14	− 1	e 20 32	+ 8	—	—	—
Sitka		71·1	35	e 13 59	PP	e 20 36	− 2	e 21 45	S_eS	e 35·6
Yalta		75·3	312	e 11 36	−11	e 21 27	+ 1	—	—	—
Auckland		76·2	144	—	—	21 49	+13	e 26 34	SS	37·3
Arapuni		77·5	144	—	—	19 16?	?	—	—	34·3
Upsala	E.	77·6	331	e 12 4	+ 4	e 21 49	− 2	e 27 2	SS	e 34·3
	N.	77·6	331	e 12 0	0	e 22 5	+14	e 29 52	SSS	e 35·5
Ksara		78·3	302	e 12 8	+ 5	e 22 8	+ 9	—	—	—
Wellington		79·5	147	12 33	+23	22 16	+ 5	12 50	P_eP	38·3
Christchurch		80·2	149	12 25	+11	22 24	+ 5	27 39	SS	38·8
Bucharest		80·6	315	e 12 18	+ 2	e 22 24	+ 1	e 22 39	S_eS	32·3
Victoria		81·4	39	e 12 28	+ 8	e 21 52	−39	—	—	36·3
Bergen		82·2	336	e 12 47	+23	e 22 43	+ 4	—	—	e 32·4
Copenhagen		82·2	329	i 12 25	+ 1	i 22 45	+ 6	28 27	SS	37·3
Sofia		83·2	314	e 12 33	+ 4	e 22 55	+ 6	e 18 45	PPP	e 41·3
Helwan		83·4	300	i 12 34	+ 4	22 58	+ 7	16 16	PP	—
Belgrade		83·9	317	e 12 48	+15	e 23 9	+13	—	—	e 46·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grand Coulee		84·3	38	i 12 34	− 1	—	—	13 15	?	—
Collmberg		84·5	325	i 12 37	+ 1	e 22 19	−43	e 15 32	PP	e 47·6
Jena		85·4	325	e 12 39	− 1	e 23 15	+ 4	—	—	—
Cheb		85·5	325	e 14 16?	?	e 24 16?	PS	e 34 16?	?	e 46·3
Shasta Dam		86·1	46	i 12 43	− 1	—	—	—	—	—
Aberdeen		87·2	335	—	—	i 23 31	+ 3	—	—	46·4
Triest		87·4	320	i 12 53?	+ 3	i 23 32	+ 2	i 13 20	pP	—
Berkeley		87·6	48	e 12 50	− 1	e 23 34	+ 2	—	—	e 35·8
De Bilt		87·8	329	i 12 54k	+ 2	e 23 36	+ 2	e 16 16	PP	e 44·3
Saskatoon		88·0	31	—	—	e 23 36	0	—	—	37·3
Edinburgh		88·6	335	e 12 59	+ 3	23 42	0	23 27	SKS	—
Strasbourg		88·8	325	e 13 1	+ 4	e 23 49	+ 5	e 16 47	PP	46·3
Butte		89·0	38	e 13 1	+ 3	e 23 40	− 5	—	—	e 40·6
Chur		89·0	323	e 12 58	0	e 23 52	+ 7	—	—	e 47·3
Uccle		89·0	329	e 12 59k	+ 1	e 23 43	− 2	e 16 30	PP	e 46·3
Zürich		89·2	324	e 13 0	+ 1	e 23 49	+ 2	—	—	—
Basle		89·6	324	e 13 0	− 1	e 23 58	+ 7	—	—	—
Neuchatel		90·3	324	e 12 55	− 9	e 23 56	− 1	—	—	—
Kew		90·7	331	e 13 4	− 2	e 23 48	[+11]	i 24 54	PS	e 46·3
Tinemaha		90·7	48	i 13 8	+ 2	—	—	—	—	—
Santa Barbara	Z.	91·2	50	i 13 12	+ 4	—	—	—	—	—
Paris		91·3	328	i 13 9	0	e 23 32	[− 8]	e 16 41	PP	—
Haiwee		91·5	48	e 13 10	0	—	—	—	—	—
Pasadena		92·4	50	i 13 12	− 2	e 24 2	{+ 3}	i 17 17	PP	e 38·4
Mount Wilson		92·5	50	i 13 13	− 1	—	—	—	—	—
Salt Lake City		92·6	41	—	—	e 24 20	+ 2	—	—	e 53·5
Clermont-Ferrand		93·1	325	e 13 21	+ 4	—	—	e 17 3	PP	e 45·3
Riverside		93·1	50	i 13 16	− 1	—	—	—	—	—
La Jolla	Z.	93·8	49	e 13 21	+ 1	—	—	—	—	—
Palomar		93·8	50	i 13 20k	0	—	—	—	—	—
Pierce Ferry		94·1	46	i 13 22	0	—	—	—	—	—
Rapid City		95·2	34	e 13 29	+ 2	e 24 4	[+ 2]	—	—	e 48·1
Tortosa	N.	97·9	323	e 15 7	?	e 24 47	−16	26 34	PS	50·7
Tucson		98·5	48	e 13 42	0	e 26 50	PS	e 17 42	PP	e 43·3
Toledo		101·0	325	e 13 39	−14	24 50	{−11}	—	—	—
Granada		102·7	323	13 58a	− 2	e 31 20	SS	e 20 21	PPP	54·0
Coimbra		102·9	328	e 14 37	+36	26 53	PS	33 53	SS	54·3
San Fernando	E.	104·6	324	—	—	e 25 2	[+13]	—	—	56·3
Seven Falls		104·8	14	—	—	e 33 40	SSP	—	—	48·3
Florissant	Z.	105·5	31	e 18 32	PP	—	—	e 27 31	PS	e 45·4
St. Louis		105·7	31	e 18 22	PP	e 24 52	[− 2]	e 27 42	PS	—
Pittsburgh		108·3	23	e 19 4	PP	—	—	—	—	—
Philadelphia		110·3	19	e 19 18	PP	—	—	e 28 21	PS	e 44·3
Bermuda		120·2	13	e 20 27	PP	—	—	e 30 17	PS	e 62·1
San Juan		133·2	20	e 21 59	PP	e 22 43	PKS	e 44 29	SSS	e 63·1
Huancayo		153·1	63	e 20 3	[+11]	—	—	—	—	e 32·2
La Paz		161·3	61	i 20 11k	[+ 9]	27 1	[− 5]	i 24 45	PP	78·3

Additional readings :—
Mizusawa PE =4m.4s.
Brisbane eS?N =10m.24s.
Riverview iZ =11m.7s., iN =19m.24s.
Sitka e =16m.8s.
Upsala eSSS?E =30m.54s.
Wellington PSZ =23m.4s., iZ =23m.17s.
Copenhagen 21m.58s., 23m.51s., and 32m.28s.
Sofia eN =37m.23s.
Collmberg ePPP =17m.21s., ePPS =23m.16s., eSS =27m.58s., and many other unidentified readings.
Jena ePN =12m.43s., eSN =23m.19s.
Triest eSSSN =33m.3s.
Berkeley e =22m.31s., 22m.51s., and 23m.46s.
Edinburgh ePS =24m.46s.
Butte e =27m.55s., 34m.41s.
Uccle eSKKSN =23m.34s.
Kew eSSS?N =36m.16s.?, eQN =42·3m.
Santa Barbara eZ =13m.32s.
Paris e =20m.29s., ePS? =25m.18s.

Continued on next page.

Haiwee eE =13m.37s.
Pasadena iNZ =13m.34s., eZ =29m.3s.
Mount Wilson iZ =13m.18s. and 13m.34s.
Clermont-Ferrand ePPS? =25m.45s.
Riverside iZ =13m.36s.
Palomar iZ =13m.41s.
Pierce Ferry i =13m.49s.
Rapid City e =15m.36s.
Tortosa SSN? =32m.39s.
Tucson e =14m.2s., ePPP =19m.48s.
Coimbra ? =17m.46s. and 20m.16s., PS =28m.29s., ? =30m.46s., and 41m.6s.
St. Louis eZ =19m.16s., eS?E =26m.42s., ePPSN =28m.54s., eN =32m.14s.
Long waves were also recorded at Barcelona, Lisbon, Malaga, Prague, Tananarive, and Ukiah.

Aug. 14d. Readings also at 2h. (Boulder City, Overton, Pierce Ferry, and near Tucson (2)), 6h. (San Juan (3)), 7h. and 8h. (Brisbane), 9h., 10h., and 12h. (Collmberg), 13h. (Alicante), 15h. (Collmberg (2)), 16h. (Collmberg (2) and Stalinabad (4)), 17h. (Tucson and St. Louis), 18h. (Collmberg), 19h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Pierce Ferry), 20h. (Collmberg, Boulder City, Pierce Ferry, Grand Coulee, near Andijan and Stalinabad), 21h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Shasta Dam, and Mizusawa), 22h. (near Andijan), 23h.(Copenhagen, Cheb, and Collmberg).

Aug. 15d. 14h. 15m. 56s. Epicentre 30°·4N. 141°·8E. (as at 7d.).

$A = -\cdot6790$. $B = +\cdot5343$, $C = +\cdot5035$; $\delta = +3$; $h = +2$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		8·7	357	2 9	− 1	3 38	−12	3 43	?	—
Irkutsk		35·1	320	6 58	+ 1	e 12 30	0	—	—	—
New Delhi	N.	55·6	286	—	—	e 19 25	ScS	—	—	e 36·7
Andijan		56·1	301	e 9 44	+ 1	—	—	—	—	—
Tashkent		58·2	303	i 10 0	+ 2	e 18 1	+ 2	—	—	—
Sverdlovsk		60·4	322	i 10 11	− 2	—	—	—	—	—
Moscow		72·8	325	e 11 33	+ 1	—	—	—	—	—
Shasta Dam		74·9	52	e 11 42	− 2	—	—	—	—	—
Erevan		76·1	309	e 12 4	+13	—	—	—	—	—
Leninakan		76·3	310	e 11 54	+ 2	—	—	—	—	—
Santa Clara	N.	76·7	55	e 30 33	SSS	—	—	—	—	e 34·5
Tinemaha		79·4	54	i 12 10	+ 1	—	—	i 12 23	PcP	—
Santa Barbara	Z.	79·7	57	i 12 14	+ 3	—	—	—	—	—
Haiwee	Z.	80·1	54	i 12 13	0	—	—	i 12 27	PcP	—
Mount Wilson	Z.	81·0	56	i 12 18	0	—	—	i 12 31	PcP	—
Pasadena	Z.	81·0	56	i 12 18	0	—	—	i 12 27	PcP	e 38·7
Riverside	Z.	81·6	56	i 12 22	+ 1	—	—	i 12 31	PcP	—
Palomar	Z.	82·3	57	i 12 25	0	—	—	i 12 33	PcP	—
Pierce Ferry		82·9	53	i 12 28	0	—	—	i 12 42	PcP	—
Copenhagen		84·0	334	e 12 34	+ 1	i 22 56	− 1	—	—	44·1
Ksara		85·3	306	e 12 49	+ 9	e 23 19	+ 9	—	—	—
Collmberg		87·0	331	e 12 48	0	e 23 28	+ 1	e 12 59	PcP	—
St. Louis		95·9	39	—	—	e 24 8	[+ 2]	e 26 19	PS	e 41·1

Additional readings :—
Mount Wilson eZ =12m.41s.
Pasadena iZ =12m.57s., eZ =17m.57s.
Riverside iZ =12m.36s. and 12m.48s.
Palomar iZ =12m.39s. and 12m.46s.
Collmberg e =16m.10s. and 21m.28s.
St. Louis eSKKSN =24m.38s., eSSN =31m.5s.
Long waves were also recorded at Honolulu and other European stations.

Aug. 15d. 17h. 56m. 22s. Epicentre 33°·1N. 116°·1W. (as on 1943 Nov. 2d.).

Intensity VI at Borego Valley, Fall Brook, Mecca, Fullerton, and San Jacinto; V at Brawley, Palm Springs, and San Diego; III at Los Angeles, Riverside, and Santa Ana.
Epicentre 33°13′N, 116°8′W. Macroseismic area 15000sq. m.
United States Earthquakes, 1945.
U.S. Coast and Geodetic Survey, Washington, 1947, p. 14.

$A = -\cdot3693$, $B = -\cdot7538$, $C = +\cdot5435$; $\delta = -1$; $h = +1$;
$D = -\cdot898$, $E = +\cdot440$; $G = -\cdot239$, $H = -\cdot488$, $K = -\cdot839$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		0·7	291	i 0 16	− 1	—	—	—	—	—
La Jolla		1·0	256	i 0 22	+ 1	—	—	—	—	—
Riverside		1·4	277	i 0 26	− 1	i 0 44	− 2	—	—	—
Mount Wilson		2·0	305	i 0 35a	0	i 1 3	+ 1	—	—	—
Pasadena		2·0	301	i 0 34a	− 1	i 1 4	+ 2	—	—	—
Boulder City		3·0	19	i 0 49	− 1	i 1 24	− 3	i 0 58	P_g	—
Santa Barbara	Z.	3·2	294	i 0 53	+ 1	—	—	—	—	—
Haiwee		3·4	333	i 0 54	− 1	i 1 38	+ 1	—	—	—
Pierce Ferry		3·5	30	i 0 54	− 3	—	—	—	—	—
Overton		3·7	21	i 0 58	− 2	—	—	i 1 11	P_g	—
Tinemaha		4·4	336	i 1 7	− 3	—	—	—	—	—
Tucson		4·5	100	i 1 10	− 1	i 2 4	− 1	i 1 21	P*	i 2·5
Fresno	N.	4·8	321	i 1 21	+ 6	i 1 27	P*	—	—	—
Lick		6·2	313	e 1 43	+ 8	i 3 20	S_g	i 1 51	P*	—
Santa Clara		6·4	313	e 2 1	P_g	i 3 20	S*	—	—	—
Branner		6·6	312	e 1 33	− 8	—	—	e 1 50	P*	—
Berkeley		6·9	315	i 1 47	+ 2	e 3 19	+14	e 1 53	P*	—
San Francisco		7·0	314	e 1 50	+ 4	e 3 32	S*	e 3 48	S_g	—
Ukiah		8·3	319	—	—	e 4 10	S*	—	—	e 4·7
Shasta Dam		9·1	328	e 2 17	+ 3	e 4 10	+10	e 4 30	S*	—
Ferndale		9·9	321	—	—	e 5 0	S*	e 5 20	S_g	—
Bozeman		13·2	16	—	—	e 5 48	+ 8	—	—	e 6·8
Butte		13·2	12	—	—	e 5 22	−18	—	—	e 5·8
Rapid City		14·9	39	e 4 12	+38	e 6 28	+ 8	—	—	e 7·3
Grand Coulee		15·0	352	e 3 45	+10	—	—	—	—	e 7·9
Victoria		16·4	342	e 3 14	−39	—	—	—	—	8·6
Saskatoon		20·2	17	—	—	e 8 32	+11	—	—	10·6
Florissant		21·6	69	e 4 57	+ 3	e 9 1	+12	i 9 12	SS	i 11·4
St. Louis		21·7	69	e 4 55	0	e 9 6	+15	i 4 58	?	e 11·3
Cape Girardeau	E.	22·1	72	e 5 1	+ 2	—	—	—	—	e 11·6
Chicago		24·2	62	—	—	e 9 47	+12	—	—	e 12·4
Cincinnati		26·1	69	—	—	e 10 31	+24	—	—	i 13·7
Sitka		27·8	339	—	—	e 10 58	+23	—	—	e 13·5
Collmberg	Z.	84·8	31	e 12 38	+ 1	—	—	—	—	—

Additional readings :—
Boulder City i = 1m.32s.
Tucson i = 1m.29s., 1m.49s., and 2m.23s.
Branner eN = 2m.20s.
Berkeley iE = 3m,37s., iN = 3m,42s.
Shasta Dam e = 2m.20s., i = 2m.24s.
Long waves were also recorded at Philadelphia, Honolulu, and at other European stations.

August 15d. Readings also at 0h. (Uccle, De Bilt, Kew, and Paris). 5h. (Bogota). 7h. (near Andijan), 8h. (Collmberg), 9h. (Collmberg and near Mizusawa), 10h. (Collmberg, Christchurch, Tucson, Riverside, Palomar, Mount Wilson, and near Andijan), 11h. Tucson, Palomar, Mount Wilson, and Collmberg), 12h. (Collmberg), 13h. (Collmberg (2), near Irkutsk, and near Tananarive), 14h. (Collmberg (3) and near Mizusawa), 15h. (Collmberg and Tucson), 17h. (Collmberg), 18h. (near Tucson, Pierce Ferry, and Boulder City), 19h. (Pierce Ferry and near Tananarive), 21h. (Tucson).

August 16d. 0h. Undetermined shock.

Tashkent eP =22m.29s., eS =33m.0s.
Hyderabad PPN =22m.35s., SN =28m.17s.
Tananarive eN =23m.51s., eLN =27m.31s.
Riverview eS?E =25m.57s., eZ =26m.2s., eLN =31·7m.
Colombo PE =26m.3s., S?E =35m.49s.
Christchurch P =28m.14s., S =33m.29s., SS =35m.2s., Q =35m.21s., R =37m.6s.
Bombay eEN =28m.51s.
Collmberg eZ =29m.24s.
Riverside ePZ =30m.3s., iZ =30m.30s., and 30m.45s.
Tucson ePKP =30m.10s., ePP =34m.35s., eL =89m.48s.
Shasta Dam ePKP =30m.11s.
Mount Wilson ePZ =30m.13s., iZ =31m.20s.
Palomar eZ =30m.14s., iZ =30m.30s.
Helwan eN =33m.42s.
St. Louis eN =42m.1s., 42m.30s., 42m.50s., and 43m.1s., eL?N =58m.
Triest eSE =44m.18s., eLE =56n.27s.
Copenhagen 46m.0s. and 50m.18s.
San Juan eSS =52m.20s., eL =70m.55s.
Long waves were also recorded at Wellington, Pasadena, College, Bermuda, and other European stations.

August 16d. 1h. Undetermined Shock.

La Plata PN =41m.12s., PE =41m.24s., E =44m.36s., N =44m.54s., EN =50m.36s.
La Paz iPZ =43m.0s.a, iZ =43m.22s., PPZ =44m.40s., iZ =45m.47s., iSNZ =50m.0s., iZ =53m.52s., LZ =61m.0s.
Huancayo eP =43m.54s., eS =51m.49s., eL =60m.45s.
Bogota e =45m.21s. and 45m.42s.
San Juan eP? =46m.36s., eS =56m.11s., e =57m.15s., eSSS =65m.8s., eL =72m.45s.
Helwan PZ =51m.48s., eN =58m.12s.
Tucson iPKP =52m.38s., eSKS =59m.15s.
Riverside iPZ =52m.43s., iZ =53m.?9s., eZ =54m.10s.
Palomar iPZ = =52m.45s., eZ =53m.59s., iZ =54m.5s.
Mount Wilson iPNZ =52m.46s., iZ =53m.1s., eZ =54m.15s.
Pasadena iPZ =52m.46s., iZ =53m.59s.
Tinemaha iPZ =52m.52s., eZ =53m.13s.
Triest ePP?N =52m.52s., eS?N =58m.49s.
Collmberg eZ =52m.54s.
Shasta Dam ePKP =52m.57s., ePP =54m.47s.
Grand Coulee ePKP =53m.12s.
St. Louis ePZ =53m.12s.
Copenhagen 53m.36s., 59m.22s., and 60m.41s., i =63m.28s.
Bermuda eSKS =57m.41s., eS? =58m.22s., eL =71m.47s.
Long waves were also recorded at Riverview, Clermont-Ferrand, Paris, and Sitka.

August 16d. 19h. Undetermined shock.

Mizusawa PE =24m.45s., SE =26m.8s.
Irkutsk eP =31m.38s., eS =39m.0s.
Tashkent eP =32m.8s., eS =40m.10s.
Andijan eP =32m.18s.
Shasta Dam iP? =33m.40s.
Tinemaha eP =33m.43s.
Haiwee ePNZ =33m.53s.
Santa Barbara iPZ =33m.48s.
Mount Wilson iPZ =33m.53s.
Pasadena iP =33m.53s.
Riverside ePZ =33m.56s.
Palomar iP =34m.2s.
Tucson iP =34m.30s.
Collmberg eZ =34m.37s.
St. Louis iPZ =35m.4s.

August 16d. 23h. Undetermined shock.

Auckland P? =59m.18s.?, i =63m.15s., S =65m.28s., L =69m.28s.
Wellington P =60m.45s., sP =61m.10s., iZ =61m.45s., PP?Z =62m.1s., pP_cPZ = 63m.30s., i =64m.45s., SZ =66m.25s., R =69m.
Christchurch P =60m.56s., S =65m.25s., L =68m.
Riverview iPN =61m.7s., i =61m.17s., iN =61m.46s., iSN =64m.54s., iSEZ =64m.57s., iP_cP?EN =65m.9s., iSS?Z =65m.25s., eRZ =66·3m.
Arapuni e =63m.30s., i =64m.18s., S =65m.24s.
Pasadena iPZ =69m.23s., iNZ =70m.5s.
Mount Wilson iPZ =69m.24s., iZ =69m.34s.
Shasta Dam iP =69m.25s., i =69m.45s.
Palomar iP =69m.27s., iZ =69m.49s.
Riverside iP =69m.27s., iZ =69m.36s.
Tinemaha iPEZ =69m.30s., iEN =69m.34s.
Haiwee iPEZ =69m.31s.
Tucson iP =69m.48s., i =69m.57s.
Collmberg iZ =76m.11s., 76m.21s., and 76m.34s., eZ =78m.18s., 79m.34s., 83m.30s., and 84m.12s.
St. Louis eE =84m.39s.
Long waves were also recorded at Kew.

August 16d. Readings also at 0h. (Pierce Ferry, New Delhi, and near Triest), 1h. and 2h. (Collmberg), 3h. (Copenhagen and near Andijan), 5h. (near Tashkent and Andijan), 6h. (Copenhagen), 7h. (near Mizusawa), 8h. (Copenhagen), 13h. (Tucson, Palomar, Riverside, Pasadena, Mount Wilson, Tinemaha and near Apia), 14h. (Riverview and Collmberg), 15h. and 17h. (Collmberg), 23h. (Collmberg, Tucson, Tinemaha, Riverside, Palomar, Mount Wilson, Pasadena, Shasta Dam, Christchurch, and Riverview).

August 17d. 19h. 5m. 33s. Epicentre 60°·2N. 148°·9W. (as on 1943 July 28d.).

$A = -·4277$, $B = -·2580$, $C = +·8663$; $\delta = -3$; $h = -9$;
$D = -·517$, $E = +·856$; $G = -·742$, $H = -·447$, $K = -·500$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		4·7	6	e 1 56	+42	e 1 45	−25	—	—	e 2·3
Sitka		7·7	107	e 2 2	+ 6	i 3 31	+ 6	—	—	e 5·0
Victoria		18·9	118	e 4 49	+25	e 8 21	+28	—	—	—
Grand Coulee		21·2	113	i 4 53	+ 4	—	—	i 5 3	PP	—
Shasta Dam		25·5	129	i 5 32	0	—	—	—	—	—
Berkeley	z.	28·0	131	e 5 54	− 1	—	—	—	—	—
Tinemaha		30·3	127	i 6 16	+ 1	—	—	i 9 9	P_cP	—
Haiwee		31·2	127	e 6 23	0	—	—	—	—	—
Santa Barbara		32·0	130	i 6 30	0	—	—	—	—	—
Overton		32·3	122	e 6 34	+ 1	—	—	—	—	—
Boulder City		32·6	123	e 6 36	+ 1	—	—	—	—	—
Mount Wilson		32·8	128	i 6 37	0	—	—	—	—	—
Pierce Ferry		32·8	122	i 6 38	+ 1	—	—	e 6 51	?	—
Pasadena		32·9	128	i 6 36	− 2	—	—	i 9 33	P_cP	e 16·2
Riverside		33·3	128	i 6 39	− 2	—	—	e 9 32	P_cP	—
Palomar		34·1	127	i 6 47k	− 1	—	—	i 7 0	?	—
La Jolla		34·3	128	i 6 50	0	—	—	—	—	—
Tucson		37·5	121	i 7 18	+ 1	e 13 9	+ 2	i 9 31	P_cP	e 19·3
St. Louis		42·1	94	e 7 55	0	e 17 47	SSS	e 8 7	pP	e 23·7

Additional readings :—
Tinemaha iZ =9m.23s.
Mount Wilson iZ =6m.49s. and 7m.25s.
Pasadena iNZ =6m.48s., iZ =8m.14s.
Riverside iZ =6m.52s., 7m.17s., and 9m.16s.
Tucson i =7m.41s.
St. Louis ePPZ =9m.51s.

August 17d. 20h. 21m. 12s. Epicentre 37°·5N. 118°·5W. (as on 1940 July 8d.).

Epicentre 37°25′N. 118°35′W (Pasadena).

$A = -·3795$, $B = -·6989$, $C = +·6062$; $\delta = -4$; $h = -1$;
$D = -·879$, $E = +·477$; $G = -·289$, $H = -·533$, $K = -·795$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	1·3	233	i 0 24	− 1	i 0 39	− 5	—	—	—
Lick		2·5	266	e 0 43	0	e 1 19	+ 5	—	—	—
Branner		2·9	268	e 0 50	+ 2	—	—	e 0 57	P_g	—
Berkeley	Z.	3·0	277	e 0 48	− 2	—	—	—	—	—
San Francisco		3·2	275	e 0 54	+ 2	e 1 37	+ 5	—	—	—
Boulder City		3·3	117	e 0 57	+ 4	e 1 43	S*	e 1 2	P*	—
Overton		3·4	106	e 0 55	0	i 1 48	S*	e 1 0	P*	—
Pierce Ferry		3·9	110	e 1 2	0	i 2 3	S*	i 1 12	P*	—
Shasta Dam		4·4	318	e 1 16	+ 6	i 2 22	S_g	i 1 19	P*	—
Tucson		8·2	128	e 2 42	P_g	—	—	—	—	e 4·0

Additional readings :—
Overton i = 1m.6s.
Pierce Ferry e = 1m.5s.

August 17d. Readings also at 0h. (near Stalinabad and near Granada), 1h. (near Jena and Collmberg), 2h. (Colmberg), 4h. (Stalinabad), 11h. (Kew), 12h. (near Stalinabad), 14h. (near Andijan, Stalinabad and near La Paz), 15h. (Tucson, Shasta Dam, Auckland, and Brisbane), 17h. (Tucson, Tinemaha, Haiwee, Riverside, Palomar, Pasadena, and Mount Wilson), 18h. (Tinemaha, Mount Wilson, Palomar, Pasadena, Riverside, Tucson, and St. Louis), 19h. (Shasta Dam, Grand Coulee, Santa Barbara, Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and Tucson), 21h. (near Lick, Branner, Berkeley, and San Francisco), 22h. (Tucson), 23h. (Palomar, Tinemaha, Riverside, Mount Wilson, Auckland, and Riverview).

August 18d. Readings at 0h. (Mount Wilson, Riverside, Tucson, and near La Paz), 2h. (Auckland and near Bogota), 7h. (Christchurch), 11h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, St. Louis, Mizusawa, and Collmberg), 15h. (near Andijan and Stalinabad), 21h. (near La Paz).

August 19d. 4h. 5m. 18s. Epicentre 36°·3N. 142°·8E.

Scale IV at Hukusima; II-III at Onahama, Tukubasan, and Utunomiya. Depth of focus suggested, 60 km. Epicentre as adopted. Seismo. Bull. Cent. Met. Obs., Japan, 1945, Tokyo 1951, p. 39, with chart of Intensity.

$A = -·6435$, $B = +·4884$, $C = +·5894$; $\delta = +2$; $h = 0$;
$D = +·605$, $E = +·797$; $G = -·469$, $H = +·356$, $K = -·808$.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Onahama		1·7	293	0 28	− 3	0 42	−12
Tukubasan		2·2	268	0 31 a	− 7	0 43	P_g
Hukusima		2·3	308	0 37 a	− 3	1 5	− 4
Sendai		2·5	322	0 45	+ 2	1 15	+ 1
Mizusawa	E.	3·1	335	0 55	+ 4	1 35	+ 6
Hunatu		3·4	258	0 52	− 3	1 47	S*
Misima		3·4	250	0 47	− 8	1 19	−18
Miyako		3·4	350	0 58	+ 3	1 39	+ 2
Shizuoka		3·8	251	0 58	− 3	1 48	+ 1
Toyama		4·5	277	1 10	− 1	2 39	S_g
Wazima		4·9	285	1 11	− 6	2 5	−10
Kameyama		5·3	256	1 32	P*	2 43	S*
Hikone		5·4	261	1 19	− 5	2 26	− 2
Owase		5·8	249	1 38	P*	2 54	S*
Kyoto		5·9	259	1 34	+ 3	2 52	S*

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Sapporo		6·8	352	2 6	P•	4 1	S_E
Hukuoka		10·5	259	2 30	− 5	5 13	S•
Irkutsk		31·4	313	e 6 23	− 2	e 11 4	−28
Mount Wilson	z.	77·1	57	i 12 15	+18	—	—
Riverside	z.	77·7	57	i 12 7	+ 7	—	—
Palomar	z.	78·4	57	i 12 21	+17	—	—
Collmberg	z.	82·3	331	e 12 30	+ 5	—	—
Tucson		83·1	55	i 12 37	+ 8	—	—
St. Louis	z.	90·8	39	e 13 22	+16	—	—

Additional readings :—
Mount Wilson iZ = 12m.36s.
Riverside iZ = 12m.18s.
Tucson i = 12m.48s.
Long waves were recorded at a few European stations.

Aug. 19d. 5h. 30m. 25s. Epicentre 10°·5S. 74°·9W.

Foreshock of 21d. 16h.

A = +·2562, B = −·9495, C = −·1811 ; δ = −1 ; h = +6 ;
D = −·965, E = −·261 ; G = −·047, H = +·175, K = −·983.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Huancayo		1·6	195	i 0 24	− 6	i 0 43	− 8	e 1·0
La Paz		8·9	133	2 38	+26	4 29	+34	5·5
Bogota		15·0	3	i 4 44	+69	—	—	e 7·7
St. Louis	z.	50·9	345	e 9 5	0	—	—	—
Tucson		54·6	322	i 9 32	0	—	—	—
Riverside	z.	59·9	320	e 10 11	+ 1	—	—	—
Mount Wilson	z.	60·5	320	i 10 15	+ 1	—	—	—
Victoria		72·7	328	—	—	e 28 23?	SSS	e 33·5

Aug. 19d. Readings also at 1h. (Sofia (2)), 2h. (near Fort de France), 5h. (Vladivostok), 6h. (Bogota), 7h. (Balboa Heights, Bogota, San Juan, St. Louis, Boulder City, Tucson (2), Riverside, and Palomar), 10h. (Haiwee, Mount Wilson, Palomar, Riverside, Pasadena, Santa Barbara, Tucson, Boulder City, Shasta Dam, Grand Coulee, Overton, Pierce Ferry, St. Louis, San Juan, and Collmberg), 11h. (Mount Wilson, Palomar, Tucson, and near Tacubaya), 13h. (Tucson), 17h. (Shasta Dam), 19h. (Mount Wilson, Riverside (2), Palomar, and Tucson), 22h. (Boulder City, Overton, Pierce Ferry, Mount Wilson, Pasadena, Riverside, Palomar, Riverview, and Collmberg).

Aug. 20d. Readings at 2h. (Collmberg and La Paz), 9h. (near Mizusawa), 10h. (Bucharest and La Paz), 11h. (Collmberg), 13h. (near Tucson), 14h. and 21h. (near Balboa Heights).

Aug. 21d. 10h. 7m. 7s. Epicentre 41°·5N. 130°·5E. Depth of focus 0·080.

A = −·4879, B = +·5712, C = +·6601 ; δ = +5 ; h = −2 ;
D = +·760, E = +·649 ; G = −·429, H = +·502, K = −·751.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	N.	8·4	102	i 2 6	+ 4	3 40	0	—	—
Irkutsk		20·8	310	—	—	5 58	pP	—	—
Andijan		43·1	289	7 18	+ 4	13 3	+ 2	—	—
Tashkent		45·0	291	—	—	13 25	− 3	16 23	?
Stalinabad		46·5	288	e 7 41	+ 1	13 48	− 1	—	—
Moscow		58·5	319	9 3	− 3	16 19	− 9	—	—
Grand Coulee		71·8	42	e 10 26	− 3	—	—	i 13 12	PP
Collmberg		72·8	325	i 10 35	0	e 19 36	+19	e 12 29	pP
Shasta Dam		74·9	49	i 10 46	− 1	e 19 59	+19	i 12 44	pP
Berkeley	z.	76·9	51	i 10 57	− 1	—	—	i 12 56	pP

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		79·7	49	i 11 12a	− 1	e 20 35	+ 4	i 13 13	pP	—
Haiwee		80·5	49	i 11 16a	− 1	e 20 43	+ 4	i 13 18	pP	—
Santa Barbara		80·7	52	i 11 17a	− 1	—	—	—	—	—
Mount Wilson		81·8	51	i 11 23a	0	—	—	i 13 24	pP	—
Pasadena		81·8	51	i 11 23a	0	i 20 50	− 2	i 13 24	pP	—
Rapid City		82·1	36	e 11 27	+ 2	e 20 56	+ 1	—	—	e 38·3
Overton		82·2	47	i 11 27	+ 2	—	—	i 12 15	?	—
Boulder City		82·4	48	i 11 27	+ 1	i 20 54	− 4	i 13 29	pP	—
Riverside		82·4	51	i 11 26a	0	—	—	i 13 28	pP	—
Pierce Ferry		82·8	47	i 11 29	+ 1	—	—	i 12 25	?	—
Palomar		83·1	51	i 11 30a	0	i 21 0	− 4	i 13 31	pP	—
La Jolla		83·3	52	i 11 30	− 1	—	—	—	—	—
Tucson		87·4	48	i 11 51	0	—	—	e 13 55	pP	—
Florissant		91·8	31	e 12 10	− 1	e 22 21	− 3	e 25 59	sS	—
St. Louis		92·0	31	i 13 11	+59	e 22 24	− 2	e 26 0	sS	—
Cape Girardeau	E.	93·4	31	—	—	e 21 54	[− 6]	—	—	—

Additional readings :—
Mizusawa SE =3m.44s.
Collmberg e =13m.26s. and 20m.9s.
Shasta Dam isP =13m.43s., e =22m.20s.
Tinemaha iZ =11m.41s., isPZ =14m.26s.
Haiwee esPZ =14m.3s.
Mount Wilson isPZ =14m.39s.
Pasadena iP_cP?Z =11m.42s., iEN =12m.10s., isPNZ =14m.43s.
Boulder City i =11m.45s. and 12m.1s., isP? =14m.40s.
Riverside iZ =11m.44s., eZ =13m.50s., isPZ =14m.48s.
Palomar iP_cPZ =11m.36s., esPZ =14m.45s.
Tucson i =12m.19s., iPP =15m.25s., e =26m.39s.
Florissant eS?E =21m.45s.
St. Louis eZ =15m.52s.

Aug. 21d. 16h. 29m. 39s. Epicentre 10°·5S. 74°·9W. Depth of focus 0·015.
(as on 19d.).
Intensity V at Cerro de Pasco and San Ramon. Macroseismic epicentre near 10°·5S. 76°·0W. Depth 120km. Macroseismic area 210,000sq.m.

E. Silgado.
Datos sismológicos del Perú, 1944-1945.
Instituto geológico del Perú, Bol. 3, Lima 1946, p. 20.

A = +·2562, B = −·9495, C = −·1811 ; $\delta = -1$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		1·6	195	i 0 29	− 1	i 0 46	− 6	—	—	—
La Paz		8·9	133	i 2 5a	− 2	i 3 49	+ 3	—	—	4·9
Bogota		15·0	3	i 3 31	+ 5	i 6 30	+21	i 3 38	PP	—
Balboa Heights		19·9	348	e 4 25	+ 2	—	—	—	—	—
Fort de France		28·5	30	e 5 38	− 7	—	—	—	—	—
La Plata	E.	28·8	150	5 46	− 2	11 9	+42	13 50	?	17·0
	N.	28·8	150	i 5 47	− 1	11 21	+54	—	—	17·9
	Z.	28·8	150	i 5 47	− 1	—	—	7 9	PPP	—
San Juan		30·0	17	e 6 0	+ 1	i 10 45	− 1	i 6 33	pP	e 11·8
Bermuda		43·7	13	e 7 56	+ 2	e 14 35	+21	e 8 30	pP	e 17·9
Cape Girardeau	E.	49·5	345	e 8 38	− 1	—	—	e 9 5	pP	—
Cincinnati		50·2	351	i 8 43	− 2	e 15 51	+ 6	i 9 12	pP	—
Philadelphia		50·2	0	i 8 45	0	e 15 46	+ 1	e 16 31	sS	e 26·0
Pittsburgh		50·9	355	i 7 51	−59	i 14 59	−56	i 15 58	sS	—
St. Louis		50·9	345	i 8 46	− 4	i 15 52	− 3	i 9 14	pP	—
Florissant		51·1	345	i 8 50	− 1	e 15 55	− 3	i 9 19	pP	—
Fordham		51·1	2	i 8 52	+ 1	i 16 3	+ 5	i 9 1	pP	—
Pennsylvania		51·1	358	i 8 46	− 5	—	—	—	—	—
Harvard		52·8	4	i 9 4	0	—	—	—	—	—
Chicago		53·3	348	e 9 6	− 2	e 16 25	− 3	e 9 36	pP	e 26·1

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tucson	54·6	322	i 9 17	0	e 16 51	+ 6	i 9 46 pP	e 26·1
Ottawa	55·6	359	9 24	− 1	17 3	+ 5	i 9 53 pP	24·4
Shawinigan Falls	56·8	3	9 33	0	17 19	+ 5	— —	—
Seven Falls	57·5	4	9 37	− 1	17 23	0	— —	26·4
La Jolla	59·1	319	i 9 49	0	—	—	i 10 18 pP	—
Palomar	59·1	320	i 9 50k	+ 1	e 18 29	PPS	i 10 20 pP	—
Pierce Ferry	59·2	324	i 9 50	0	e 17 51	+ 5	i 10 21 pP	—
Boulder City	59·6	323	i 9 52	− 1	e 17 57	+ 6	i 10 23 pP	—
Overton	59·8	324	i 9 55	+ 1	—	—	— —	—
Riverside	59·9	320	i 9 55k	0	—	—	i 10 23 pP	—
Rapid City	60·1	337	i 9 57	+ 1	i 18 3	+ 6	i 10 27 pP	e 19·9
Mount Wilson	60·5	320	i 9 59k	0	—	—	i 10 29 pP	—
Pasadena	60·5	320	i 9 59k	0	—	—	i 10 29 pP	—
Haiwee	61·6	321	i 10 6	0	e 18 24	+ 8	i 10 37 pP	—
Santa Barbara	61·7	319	i 10 6	− 1	—	—	i 10 36 pP	—
Tinemaha	62·4	322	i 10 12k	+ 1	e 18 32	+ 6	i 10 40 pP	—
Shasta Dam	67·2	323	i 10 41	− 1	e 19 27	+ 2	i 11 11 pP	—
Grand Coulee	70·1	331	i 11 0	0	—	—	i 11 30 pP	—
Ivigtut	74·5	13	i 11 25k	− 1	20 51	+ 2	21 42 sS	—
Coimbra	79·4	46	e 11 33	−20	13 23	?	(14 31) PP	14·5
San Fernando	79·6	50	i 11 53	− 1	e 21 45	+ 1	17 46 pPPP	—
Malaga	81·0	50	i 11 59	− 3	e 22 1	+ 2	i 12 29 pP	—
Granada	81·8	50	i 12 10a	+ 4	i 22 17	+10	— —	—
Toledo	82·4	47	i 12 11	+ 2	e 21 33	−40	— —	—
Tortosa	86·0	48	12 34	+ 7	22 57	+ 9	13 18 pP	—
Clermont-Ferrand	89·2	43	e 12 42	0	—	—	— —	—
Paris	89·7	40	e 13 14	pP	—	—	— —	—
Neuchatel	92·1	42	e 12 56	0	—	—	e 13 27 pP	—
Basle	92·6	42	e 12 58	0	—	—	e 13 30 pP	—
Zürich	93·3	42	e 13 1k	0	e 23 58	+ 3	e 13 32 pP	—
Chur	93·8	43	e 13 4	0	—	—	— —	—
Cheb	96·2	39	—	—	e 24 21	+ 2	— —	—
Triest	96·5	45	i 13 17	+ 1	e 24 26	+ 4	i 13 45 pP	—
Collmberg	96·8	39	i 13 18	+ 1	—	—	i 13 49 pP	—
Copenhagen	97·7	34	e 13 20	− 1	i 24 34	+ 2	i 13 51 pP	—
Moscow	111·3	33	e 14 22	P	e 25 44	sS	19 7 PP	—
Tashkent	136·0	39	e 19 0	[− 6]	—	—	e 22 29 PP	—
Andijan	138·3	37	e 19 13	[+ 2]	—	—	— —	—

Additional readings :—
La Plata Z = 6m.27s.
San Juan eS = 10m.42s.
Bermuda esP = 8m.36s., e = 13m.37s.
Cape Girardeau eE = 13m.54s. and 14m.27s.
Cincinnati i = 9m.25s.
Philadelphia ePP = 10m.44s., e = 11m.19s., eS_cS = 18m.11s., eSS = 19m.35s.
Pittsburgh iZ = 8m.3s.
St. Louis iZ = 9m.2s. and 9m.43s., esS?E = 16m.37s., eN = 21m.6s.
Florissant esSE = 16m.46s.
Fordham i = 16m.27s.
Tucson iP_cP = 10m.18s., i = 10m.32s., iPPP = 12m.26s., esS = 17m.41s., e = 19m.53s.
Ottawa iE = 17m.51s.
La Jolla iN = 10m.50s.
Palomar iZ = 10m.5s., isPZ = 10m.34s., iZ = 11m.33s., 12m.0s., and 22m.49s., iPKP, PKPZ = 39m.29s.
Boulder City esS = 18m.49s., e = 19m.12s.
Riverside iZ = 11m.9s., 11m.41s., ePKP,PKPZ = 39m.9s.
Rapid City iP_cP? = 10m.55s., e = 12m.58s., iSS = 18m.54s.
Mount Wilson iZ = 11m.14s., ePKP,PKPZ = 39m.8s.
Pasadena isPNZ = 10m.42s., iEZ = 11m.0s., iNZ = 11m.14s., iPKP,PKPZ = 39m.0s., iZ = 39m.27s.
Haiwee eZ = 10m.45s.
Santa Barbara eNZ = 10m.20s.
Tinemaha iZ = 10m.51s., iZ = 22m.10s., ePKP,PKPZ = 39m.19s.
San Fernando PSE = 22m.27s., SSE = 26m.53s.
Malaga i = 12m.56s., 13m.11s., and 13m.52s.
Tortosa P_cPN? = 13m.8s., sPE = 13m.36s., PSN = 22m.39s., S_cSE = 22m.44s., SKKSE? = 23m.5s.
Triest eSKSE = 23m.42s.
Collmberg e = 15m.59s., 16m.46s., 17m.5s., and 17m.51s.
Copenhagen 17m.55s., SKS = 23m.49s., 25m.21s., and 32m.21s.
Moscow epPP = 19m.37s.?, eS = 26m.33s., SP = 28m.18s.
Long waves were also recorded at De Bilt.

Aug. 21d. 20h. 2m. 42s. Epicentre 18°·0S. 167°·7E. (as on 1944 Dec. 10d.).

$A = -\cdot9299$, $B = +\cdot2027$, $C = -\cdot3071$; $\delta = +11$; $h = +5$;
$D = +\cdot213$, $E = +\cdot977$; $G = +\cdot300$, $H = -\cdot065$, $K = -\cdot952$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		19·8	162	4 38	+ 3	8 34	+21	4 53	pP	9·4
Riverview		21·6	219	i 4 54k	0	i 8 58	+ 9	5 24	PP	e 10·5
Wellington		24·0	167	5 18	+ 1	9 53	+21	5 36	pP	12·2
Christchurch		25·8	171	5 37	+ 3	9 58	− 4	11 38	SSS	12·8
Perth		48·6	242	—	—	i 16 15	+26	i 19 52	SS	i 26·1
Honolulu		51·6	43	e 15 39	?	e 16 22	− 9	e 16 50	PPS	e 21·5
Ukiah		85·9	47	—	—	e 23 8	[+ 1]	—	—	e 38·9
Berkeley		86·0	48	i 12 43	0	i 23 5	[− 3]	29 29	SS	e 39·3
Santa Clara		86·0	48	e 12 32	−11	e 23 23	+ 6	—	—	e 47·1
Shasta Dam		87·2	45	e 12 45	− 4	—	—	—	—	—
Pasadena		87·5	53	e 12 33	−18	e 23 13	[− 4]	i 12 52	P	e 35·9
Mount Wilson	Z.	87·6	53	i 12 49	− 2	—	—	—	—	—
Riverside	Z.	88·0	53	e 12 49	− 4	—	—	—	—	—
Palomar		88·1	54	i 12 50	− 4	—	—	—	—	—
Halwee	Z.	88·4	51	e 12 54	− 1	—	—	—	—	—
Tinemaha	Z.	88·6	50	i 12 56	0	—	—	—	—	—
Sitka		88·8	27	e 12 50	− 7	e 23 24	[− 2]	e 18 49	PPP	e 36·1
Irkutsk		88·9	326	12 53	− 5	23 27	[+ 1]	—	—	—
College		89·3	17	e 12 54	− 5	e 23 50	+ 2	e 23 28	SKS	e 36·5
Boulder City		90·7	52	e 13 2	− 4	e 23 33	[− 4]	i 13 6	P	—
Overton		91·2	52	e 13 14	+ 6	—	—	e 13 50	?	—
Pierce Ferry		91·4	52	e 13 5	− 4	—	—	e 16 57	PP	—
Tucson		92·5	56	e 13 11	− 3	e 25 27	PS	e 13 21	PcP	e 42·2
Hyderabad	N.	94·6	286	—	—	23 59	[0]	24 31	S	—
Salt Lake City		94·6	48	e 17 6	PP	e 24 1	[+ 2]	e 27 19	?	e 40·8
Bozeman		96·8	44	—	—	e 24 10	[− 1]	e 24 56	S	e 40·6
New Delhi	N.	98·8	297	—	—	i 24 19	[− 2]	i 25 11	S	—
Bombay		100·1	286	e 16 24	?	e 24 24	[− 3]	—	—	—
Saskatoon		101·4	39	—	—	e 24 42	[+ 8]	—	—	50·3
Rapid City		101·7	47	—	—	e 24 30	[− 5]	e 27 7	PS	e 49·6
Tashkent		107·9	308	e 18 13	[−16]	25 6	[+ 3]	34 7	SSP	—
Florissant		110·2	54	e 19 7	PP	e 25 13	[0]	e 26 11	SKKS	—
St. Louis	E.	110·3	54	e 19 5	PP	e 25 7	[− 6]	e 26 15	SKKS	—
Chicago		112·6	51	e 19 19	PP	e 28 57	PS	e 35 42	SSP	e 49·8
Cincinnati		114·8	55	e 14 48	P	e 25 32	[+ 1]	—	—	e 53·3
La Paz	Z.	115·2	119	e 19 58	PP	30 28	PPS	—	—	53·8
Columbia		117·2	60	e 17 51	[−56]	e 25 38	[− 2]	e 29 49	PS	e 47·7
Ottawa		121·2	46	e 18 52	[− 3]	e 25 48	[− 6]	e 29 18?	?	49·3
Philadelphia		122·0	53	e 15 5	P	e 25 41	[−16]	e 20 24	PP	e 50·7
Seven Falls		124·3	45	e 20 42	PP	e 30 12	PS	(37 18?)	SS	37·3
Moscow		126·9	327	e 19 5	[− 1]	—	—	i 20 55	PP	—
San Juan		129·0	80	e 19 11	[+ 1]	e 43 22	SSS	e 21 25	PP	e 60·5
Ivigtut		130·0	22	—	—	22 33	PKS	—	—	—
Bermuda		130·8	62	e 21 24	PP	e 33 21	PPS	e 39 19	SS	e 66·0
Upsala		133·0	340	e 21 55	PP	e 39 18?	SS	e 22 44	PKS	e 61·3
Bergen		135·8	347	22 56	PKS	e 28 6	{−50}	38 18?	?	—
Copenhagen		138·0	340	i 19 24	[− 3]	i 23 4	PKS	22 18	PP	—
Bucharest		138·5	318	22 18?	PP	32 18?	PS	—	—	—
Helwan		138·6	295	e 19 33	[+ 5]	e 40 24	SS	e 22 24	PP	—
Aberdeen	N.	140·2	251	i 22 28	PP	i 23 8	PKS	i 35 49	?	e 75·7
Collmberg	Z.	141·2	334	e 19 27	[− 6]	e 23 10	PKS	e 22 33	PP	—
Cheb		142·4	334	e 23 18	PP	e 33 18	PS	e 42 18	SSP	e 72·3
De Bilt		143·3	342	e 19 18?	[−18]	e 41 33	SS	—	—	—
Uccle		144·7	343	e 19 38k	[− 1]	e 41 36	SS	e 32 27?	PSKS	e 67·3
Triest		145·0	328	i 19 45	[+ 6]	e 32 29	PSKS	i 19 53	pPKP	—
Chur		146·1	334	e 19 42	[+ 1]	—	—	—	—	—
Basle		146·3	335	e 19 35	[− 6]	—	—	—	—	—
Strasbourg		146·4	337	e 19 48	[+ 6]	—	—	—	—	—
Paris		147·0	342	e 19 43	[0]	—	—	e 22 55	PP	—
Tortosa	N.	154·7	336	—	—	e 34 52	?	—	—	e 93·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toledo		157·1	343	e 19 33	[−24]	—	—	—	—	55·3
Coimbra		157·6	351	e 55 6	?	65 39	?	70 59	?	e 87·5
Granada		159·4	340	19 53$_3$	[− 7]	33 59	PSKS	e 24 17	PP	—
Malaga	z.	160·1	341	i 20 3	[+ 2]	i 27 10	[+ 5]	i 20 45	PKP$_2$	64·1
San Fernando		160·8	345	e 19 50	[−12]	—	—	e 20 43	PKP$_2$	—

Additional readings :—
Auckland i = 5m.48s.
Riverview iEZ = 4m.59s., iZ = 9m.6s., iN = 9m.21s., iE = 9m.25s., iSSN = 9m.43s., iE = 9m.47s.
Wellington iZ = 5m.24s., PP = 6m.8s., P$_c$PZ = 8m.43s., i = 9m.41s., sS? = 10m.33s.
Berkeley e = 35m.7s.
Sitka ePS? = 24m.48s., e = 32m.22s.
Tucson ePP = 16m.51s., eSS? = 31m.52s.
Bozeman ePS = 26m.11s., eSS = 30m.53s.
New Delhi eN = 33m.16s.
Tashkent PPS = 28m.54s.
Florissant ePSE = 28m.32s.
St. Louis eSE = 26m.54s., ePSE = 28m.39s., SSE = 34m.18s.?.
Cincinnati e = 22m.48s. and 24m.22s.
Philadelphia e = 27m.20s., ePS = 29m.39s., e = 32m.32s., and 37m.18s.
San Juan e = 22m.28s. and 32m.34s.
Bermuda e = 22m.34s.
Copenhagen 25m.28s., 30m.6s., 34m.54s., and 41m.10s.
Helwan eN = 43m.24s.
Collmberg eZ = 19m.36s.
Triest ePPZ = 22m.38s., eSSE = 41m.50s.
Paris e = 25m.7s.
Granada SS = 43m.35s.
Malaga iPPZ = 24m.25s., PPP?Z = 27m.45s., SKKSZ = 31m.45s., SKSPZ = 33m.51s., PPSZ = 37m.22s., SKS,SKSZ = 45m.4s.
Long waves were also recorded at Arapuni and Tananarive.

Aug. 21d. Readings also at 1h. (Collmberg, Tucson, Tinemaha, Haiwee, Palomar, Riverside, Mount Wilson, and Pasadena), 4h. (Riverside, Palomar, and near Tucson), 7h. (Collmberg, near Neuchatel, Strasbourg, Zürich, and Basle), 8h. (near Tashkent, Andijan, and Stalinabad), 9h. (Collmberg), 10h. (near Andijan and Stalinabad), 12h. (Collmberg and near Mizusawa), 13h. (Collmberg), 15h. (Collmberg), 16h. (Tucson, Pierce Ferry, Boulder City, Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, Santa Barbara, Shasta Dam, Grand Coulee, St. Louis, Collmberg, and Coimbra), 19h. (near Stalinabad and Andijan), 21h. (Toledo).

Aug. 22d. 5h. Widely recorded shocks from an epicentre in the Pacific. No determination is made.

I.
Riverview ePZ = 8m.54s., iSE = 12m.39s., iZ = 12m.44s., iP$_c$P?Z = 13m.1s., eQN = 13·1m., eRZ = 14·2m.
Arapuni P = 13m.0s.?, L = 23·5m.
Auckland P = 13m.2s., e = 16m.30s., S = 24m.53s., S$_c$S = 28m.38s., Q = 34·5m., R = 35·5m.
Wellington P?Z = 13m.40s., iZ = 17m.13s., S? = 19m.27s., iZ = 20m.57s., S$_c$S? = 23m.50s., R = 24m.
Christchurch SEN = 14m.27s., QEN = 16m.27s., RZ = 19m.20s.
Palomar iPZ = 16m.25s.
Riverside ePZ = 16m.25s.
Mount Wilson ePZ = 16m.28s.
Tucson eP = 16m.48s.

II.
Riverview iPZ = 19m.22s.k, iSN = 23m.9s., iE = 23m.14s., iZ = 23m.18s., eLN = 24·4m.
Berkeley eP = 26m.30s., eSKSN = 37m.30s., eSE = 38m.31s., eN = 43m.37s., eSSE = 44m.6s., eL = 54m.30s.
Santa Clara ePZ = 26m.53s., ePPPSE = 38m.54s.
Shasta Dam eP = 26m.56s.
Pasadena iPZ = 26m.58s., eZ = 38m.24s., eLN = 49·7m.
Mount Wilson iPZ = 27m.0s.
Riverside ePZ = 27m.1s.
Palomar iPZ = 27m.3s., iZ = 27m.14s., iPKP,PKPZ = 50m.59s.
Tinemaha iP = 27m.9s.
Haiwee ePEZ = 27m.11s.
Boulder City eP = 27m.14s.
College eP = 27m.15s., eSKS = 37m.41s., eL = 59m.24s.
Pierce Ferry eP = 27m.17s.

Continued on next page.

Overton eP =27m.22s., e =27m.34s.
Tucson eP = =27m.22s., ePP =31m.13s., e =38m.36s., ePS =39m.47s., eSS =44m.49s., eL =52m.4s.
Rapid City eP =28m.12s., eSKS =38m.46s., ePS =41m.18s., eL =62m.25s.
Tashkent eP =28m.41s., SKS =39m.16s., PS =41m.53s., PPS =42m.32s.
Honolulu eS =30m.30s., eL =35m.41s.
St. Louis eE =31m.13s., 32m.18s., 42m.44s., and 47m.28s.
Ottawa eZ =33m.0s., eE =44m.18s., eN =50m., L =67m.
Copenhagen iP =33m.39s., 37m.11s., 46m.17s., and 48m.24s.
Helwan eZ =33m.42s. and 36m.45s.
Collmberg iZ =33m.43s., eZ =37m.0s.
Zürich eP =33m.44s.
De Bilt iZ =33m.47s. and 33m.59s., eL =85m.
Uccle ePN =33m.47s.a, e =37m.18s., eL =57m.
Triest iPZ =33m.50s.?, ipPZ =34m.9s., eSSE =57m.19s.
Strasbourg PKP =33m.51s.
Chur eP =33m.52s.
Basle eP =33m.53s.
Neuchatel e =33m.56s.
Paris PKP =33m.57s., i =34m.58s., e =41m., eL =92m.
Clermont-Ferrand e =34m.0s. and 37m.36s.
Seven Falls e =34m.54s. and 44m.54s., L =74m.
San Juan ePP =35m.28s., e =36m.43s., ePS =45m.26s., ePPS =47m.9s., eL =75m.11s.
Sitka e =36m.35s., eSKS =37m.36s., ePS =39m.6s., eL =49m.52s.
Bermuda e =36m.48s., ePKS =47m.35s., eL =75m.31s.
Cheb e =37m.0s.
Salt Lake City eSKS? =38m.11s., ePS =40m.7s., eL =55m.18s.
Ukiah e =38m.32s., eL =53m.22s.
Florissant eE =38m.47s. and 42m.45s.
Saskatoon e =41m., L =64m.
Huancayo ePS =43m.2s., eSS? =49m.38s., eL =63m.30s.
Philadelphia e =44m.26s. and 47m.16s., eSS =49m.30s., e =51m.43s., eL =64m.30s.
Long waves were also recorded at Columbia, San Fernando, and Ivigtut.

Aug. 22d. Readings also at 0h. (Ksara), 2h. (La Paz), 8h. (Auckland, Christchurch, Riverview, Mount Wilson, Palomar, Riverside, Tucson, Sitka, near Berkeley, Branner, and Lick), 9h. (Auckland), 12h. (near Granada), 13h. (2) and 14h. (Collmberg), 16h. (Copenhagen, Collmberg, and near Malaga (2)), 20h. (San Juan), 22h. (near La Paz).

Aug. 23d. Readings at 1h. (near Andijan), 5h. (Bogota, La Paz, and near Mizusawa), 6h. (near La Paz), 7h. (Arapuni, Auckland, Christchurch, Wellington, and Riverview), 10h. (near Andijan), 13h. and 15h. (Collmberg), 17h. (near Andijan, Stalinabad, Tashkent, near Berkeley, Branner, Fresno, Lick, and San Francisco), 19h. (Bucharest and near Tucson), 21h. (Bucharest and Collmberg).

Aug. 24d. Readings at 0h. (Branner), 4h. (Alicante), 5h. (near Bogota), 7h. (Alicante and near Stalinabad), 9h. (Boulder City, Mount Wilson (2), Palomar (2), Tinemaha (2), Tucson (2), St. Louis (2), Tacubaya (2), San Juan, Collmberg (2), Copenhagen, Zürich, Belgrade, near Bucharest, and Sofia), 12h. (Huancayo), 13h. (Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and Tacubaya), 14h. (near Andijan and Stalinabad), 17h. (Collmberg and near Tucson), 18h. (San Juan and near Tucson), 20h. (near La Paz, near Mizusawa, and near Tucson), 22h. (Berkeley), 23h. (San Juan).

Aug. 25d. Readings at 1h. (near Berkeley, Branner (2), Santa Clara, and San Francisco), 3h. (near Branner), 7h. (Mizusawa and Collmberg), 12h. (Auckland and Collmberg), 13h. (Collmberg), 14h. (Collmberg and Ksara), 17h. (near Lick), 21h. (Apia, Triest, and near Tucson (2)), 22h. (near Berkeley, Lick, and Fresno).

Aug. 26d. Readings at 0h. (Bucharest), 1h. (Kew), 2h. (Kew, Triest, and Uccle), 3h. (Calcutta), 7h. (near Mizusawa), 9h. (San Fernando), 10h. (La Paz), 19h. (San Juan), 21h. and 22h. (Collmberg), 23h. (near Tacubaya (3)).

Aug. 27d. 1h. 17m. 26s. Epicentre 51°·3S. 163°·6E. (as on 1940 March 6d.).

Very doubtful.

A = −·6023, B = +·1773, C = −·7783; δ = −5; h = −6;
D = +·282, E = +·959; G = +·747, H = −·220, K = −·628.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		9·9	41	2 23	− 2	i 4 20	0	—	—	4·8
Kaimata		10·3	34	2 29	− 3	3 54	?	—	—	5·0
Wellington		12·6	42	3 4	+ 1	6 9	+43	7 29	PcP	6·9
Arapuni		15·7	37	(4 34?)	+50	4 34	P	—	—	7·3
Auckland		16·5	33	3 10	−44	—	—	—	—	—
Riverview		19·7	328	i 4 37a	+ 3	7 59	−11	i 9 11	PcP	8·9
Brisbane		25·1	338	i 5 30	+ 2	i 9 53	+ 2	—	—	—
St. Louis		128·4	73	—	—	e 41 43	SSS	—	—	e 47·4
San Juan		129·0	111	22 46	PP	—	—	—	—	e 64·8
Collmberg	Δ.	161·6	280	e 21 6	PKP_2	—	—	—	—	—
Granada		163·2	218	e 31 47	SKKS	—	—	—	—	—
Paris		167·6	268	e 25 34?	PP	—	—	—	—	—

Additional readings :—
Christchurch S? = 3m.46s., i = 4m.33s.
Kaimata i = 4m.12s.
Wellington iZ = 6m.29s., Q = 6m.39s.
Riverview iZ = 5m.46s., iE = 8m.12s.
Brisbane iPN = 5m.34s., iN = 10m.25s.
Long waves were also recorded at Honolulu, Sitka, Tucson, De Bilt, and Clermont-Ferrand.

Aug. 27d. 7h. 34m. 41s. Epicentre 22°·5N. 143°·5E. Depth of focus 0·005.

A = −·7434, B = +·5501, C = +·3805; δ = +3; h = +4;
D = +·595, E = +·804; G = −·306, H = +·226, K = −·925.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	N.	16·7	354	3 47	− 4	6 41	−12	—	—	—
Zi-ka-wei	E.	21·5	300	5 15	+30	—	—	—	—	—
Irkutsk		42·2	326	7 48	0	i 14 1	− 2	—	—	—
Brisbane	Z.	50·5	169	i 8 57	+ 3	—	—	—	—	—
Calcutta	N.	50·7	282	e 9 5	+10	i 16 8	+ 4	—	—	—
Honolulu		54·2	80	e 9 25	+ 4	e 16 49	− 3	—	—	e 22·6
Riverview		56·5	173	i 9 38a	0	i 17 26	+ 4	—	—	e 28·0
New Delhi	N.	59·5	292	—	—	i 17 54	− 8	—	—	e 30·3
College		60·8	27	e 10 22	+14	e 18 14	− 4	e 12 33	PP	e 26·8
Hyderabad	N.	60·9	278	e 9 56	−12	18 19	− 1	—	—	30·6
Andijan		61·7	305	e 10 13	− 1	i 18 31	+ 1	—	—	—
Tashkent		63·9	307	e 10 21?	− 7	i 18 56	− 1	—	—	—
Kodaikanal	E.	64·1	272	e 8 12	?	—	—	—	—	—
Stalinabad		64·7	304	e 10 32	− 1	i 19 4	− 3	—	—	—
Bombay		65·7	282	—	—	i 19 17	− 2	—	—	—
Auckland		66·0	153	—	—	11 44?	pP	—	—	32·3
Sitka		66·6	37	—	—	e 19 33	+ 3	i 11 2	pP	e 27·5
Sverdlovsk		67·6	325	—	—	i 19 33	− 9	—	—	—
Grand Coulee		78·4	43	i 11 54	− 1	e 22 1	sS	i 12 12	pP	—
Shasta Dam		78·7	51	i 11 56	− 1	e 21 45	− 3	i 12 15	pP	—
Berkeley		79·7	54	e 12 2	0	e 21 56	− 2	—	—	35·6
Santa Clara		80·1	54	e 12 6	+ 2	e 22 19	+17	—	—	40·2
Moscow		80·2	327	12 2	− 3	21 59	− 4	—	—	—
Erevan		82·3	310	—	—	e 22 23	− 2	—	—	—
Leninakan		82·6	311	e 12 20	+ 3	22 28	0	—	—	—
Santa Barbara		82·9	56	i 12 19	0	—	—	i 12 37	pP	—
Tinemaha		83·0	53	i 12 20	0	e 22 32	0	i 12 39	pP	—
Haiwee		83·6	54	i 12 20	− 3	—	—	i 12 42	pP	—
Saskatoon		83·9	36	—	—	e 22 19?	−22	—	—	38·3
Mount Wilson		84·2	56	i 12 25	− 1	—	—	i 12 44	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		84·2	56	i 12 26a	0	i 22 43	− 1	i 12 44	pP	—
Bozeman		84·4	43	e 12 27	0	e 22 43	− 3	e 12 46	pP	e 36·5
Riverside	N.	84·8	56	e 12 30	+ 1	—	—	—	—	—
La Jolla		85·4	57	e 12 32	0	—	—	e 12 50	pP	—
Palomar		85·5	56	i 12 33	+ 1	e 23 16	pS	i 12 51	pP	—
Boulder City		85·9	53	i 12 34	0	e 22 54	− 7	i 12 53	pP	—
Overton		86·0	53	i 12 35	0	—	—	i 13 1	pP	—
Pierce Ferry		86·5	53	i 12 37	0	—	—	i 12 51	pP	—
Upsala		86·8	336	e 16 19	PP	e 22 49	[− 8]	—	—	e 45·3
Yalta		87·3	318	12 51?	+10	23 1	[+ 1]	—	—	—
Tucson		90·5	55	i 12 56	0	e 23 45	+ 2	i 13 17	pP	e 41·0
Bergen		90·7	341	e 13 19	+22	23 42	− 3	29 45	SS	42·3
Copenhagen		91·7	334	e 16 41	PP	e 23 42	−12	i 24 58	PS	40·3
Collmberg		94·6	331	i 13 12	− 3	e 25 37	PS	i 13 22	pP	—
Jena		95·5	331	e 13 35?	+16	—	—	e 17 16	PP	—
Ivigtut		96·1	6	—	—	23 43	[− 9]	24 25	S	—
Helwan		96·6	306	e 13 25	+ 1	23 52	[− 2]	17 9	PP	—
De Bilt		97·3	335	—	—	i 23 55	[− 2]	e 26 2	PS	e 47·3
Triest		98·3	327	e 13 47	+15	i 23 57	[− 5]	i 31 45	SS	—
Uccle		98·6	335	e 13 40	+ 7	i 23 52	[−12]	i 26 5	PS	e 46·3
Chur		99·4	330	e 17 26	PP	—	—	—	—	—
Zürich		99·5	331	e 17 43	PP	—	—	—	—	—
Basle		99·8	331	e 18 2	PP	—	—	—	—	—
Kew		99·8	338	e 13 33?	− 5	e 24 7	[− 3]	e 17 43?	PP	e 47·3
Paris		100·9	334	e 18 7	PP	26 39	PS	—	—	e 49·3
Florissant		100·9	40	e 21 3	?	e 24 12	[− 3]	e 24 49	sSKS	—
St. Louis		101·1	40	e 14 13	pP	i 24 31	[+15]	i 25 7	sSKS	—
Clermont-Ferrand		103·1	332	e 18 9	PP	—	—	—	—	—
Ottawa		103·6	27	e 14 22	pP	e 24 25	[− 3]	e 17 43	PP	48·3
Seven Falls		104·1	23	—	—	e 24 25	[− 5]	—	—	50·3
Fordham		108·0	29	e 19 3	PP	e 24 46	[− 2]	—	—	—
Toledo		110·9	333	e 18 7	[−19]	—	—	19 22	PP	60·3
Granada		113·0	332	19 20k	PP	28 19	PS	—	—	—
San Fernando	z.	114·7	333	e 18 53	[+20]	e 25 38	SKKS	—	—	—
Bermuda		119·1	27	—	—	e 29 32	PS	—	—	e 56·0
San Juan		130·1	37	e 19 51	[+48]	e 22 39	PKS	c 22 2	?	e 60·6
Bogota		134·4	58	i 19 15	[+ 4]	—	—	i 23 10	PKS	—
La Paz	z.	149·6	84	i 19 39a	[+ 1]	i 23 17	PP	i 20 19	pPKP	73·8

Additional readings :—
Mizusawa SE =6m.36s.
Zi-ka-wei iE =5m.53s., 9m.5s., and 9m.13s.
Riverview iN =18m.13s., iE =19m.58s.
New Delhi iN =18m.29s. and 19m.36s.
College epPP =12m.53s., eS$_c$S? =19m.44s., eSS =22m.24s.
Sitka e =15m.3s., eSS =19m.59s., e =20m.35s.
Grand Coulee i =12m.17s., ePS =22m.34s.
Shasta Dam isP =12m.22s., e =15m.21s., ePS =22m.36s.
Santa Barbara isPNZ =12m.44s., iNZ =12m.54s.
Tinemaha isPNZ =12m.44s.
Haiwee isPZ =12m.48s.
Mount Wilson isPZ =12m.51s.
Pasadena isPZ =12m.51s., iN =23m.15s.
Bozeman e =28m.47s.
Palomar isPZ =12m.59s.
Boulder City isP? =13m.1s., esS =23m.28s.
Pierce Ferry i =12m.43s.
Upsala eS?N =22m.52s.
Tucson isP =13m.31s., e =14m.23s., and 14m.45s., eSKS? =23m.27s., e =24m.25s., ePS =24m.50s., ePKP,PKP =38m.49s.
Bergen eSKS?EN =23m.19s.
Copenhagen 23m.23s., SS =29m.47s.
Collmberg i =13m.31s., 13m.38s., and 13m.54s., e =16m.54s., i =17m.2s., e =20m.38s.
Jena eN =13m.46s. and 14m.40s., eE =17m.21s., eEN =17m.32s.
Helwan iZ =13m.42s., 14m.4s., and 17m.46s., PSZ =25m.58s.
Triest ePPZ =17m.27s.
Kew ePS? =26m.29s., eSS?E =31m.43s.?
Florissant eSN =25m.14s., eE =25m.40s., eSSN =31m.47s.
St. Louis eZ =18m.22s., eSN =25m.29s., esSN =26m.4s., eSSN =32m.9s.
Long waves were also recorded at Arapuni, Christchurch, Weston, and Cheb.

Aug. 27d. 9h. 13m. 2s. Epicentre 37°·3N, 121°·7W. (as on 1943 Oct. 26d.).

Scale VI at Mt. Hamilton and San Jose; V at Alma, Hollister, San Francisco, and San Martin; IV at Santa Cruz, Berkeley, and San Carlos.
Macroseismic area, 13000sq.m.
"United States Earthquakes, 1945." U.S.C.G.S. Washington, 1947, p.14.

$A = -·4190$, $B = -·6784$, $C = +·6034$; $\delta = -12$; $h = -1$;
$D = -·851$, $E = +·525$; $G = -·317$, $H = -·513$, $K = -·797$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lick		0·0	—	i 0 4	− 3	—	—	—	—	—
Santa Clara		0·2	284	i 0 8	− 2	—	—	—	—	—
Branner		0·4	287	i 0 10	− 3	i 0 14	− 7	—	—	—
Berkeley		0·7	321	i 0 15	− 2	i 0 25	− 3	—	—	—
San Francisco	N.	0·7	308	e 0 15	− 2	i 0 26	− 2	—	—	—
Fresno	N.	1·6	110	e 0 31	+ 1	i 0 52	+ 1	—	—	—
Ukiah		2·2	327	e 0 40	+ 2	e 1 2	− 4	i 1 11	S_g	i 1·4
Tinemaha		2·7	94	i 0 50	+ 5	i 1 27	+ 8	—	—	—
Haiwee		3·2	111	i 0 55	+ 3	i 1 45	S_g	—	—	—
Santa Barbara		3·3	151	i 0 54	+ 1	—	—	—	—	—
Shasta Dam		3·4	351	e 0 53	− 2	e 1 37	0	i 1 0	P*	—
Mount Wilson	z.	4·2	136	i 1 8	+ 1	—	—	—	—	—
Pasadena		4·2	137	i 1 8	+ 1	i 1 59	+ 2	—	—	—
Riverside		4·9	133	e 1 15	− 2	—	—	—	—	—
Palomar	z.	5·6	133	i 1 26	− 1	—	—	—	—	—
Boulder City		5·7	102	i 1 30	+ 2	e 2 43	+ 8	i 1 48	P_g	e 3·0
Overton		5·9	96	i 1 34	+ 3	—	—	i 1 44	P*	i 3·1
Pierce Ferry		6·3	99	i 1 39	+ 3	—	—	i 1 59	P_g	i 3·3
Salt Lake City		8·4	63	—	—	e 4 29	S_g	—	—	e 4·8
Logan		8·8	57	e 3 15	?	e 4 12	+19	—	—	e 4·7
Tucson		10·3	117	e 2 29	− 3	i 4 30	0	—	—	e 5·4
Grand Coulee		10·8	10	e 3 28	?	—	—	—	—	e 5·6
St. Louis		24·8	77	e 5 48	+23	—	—	—	—	i 13·8

Additional readings:—
Lick iE = 37s., iN = 50s., iE = 1m.16s., iEN = 1m.32s.
Shasta Dam e = 1m.53s.
Boulder City i = 1m.40s.
Overton i = 2m.16s.
Pierce Ferry i = 2m.41s.
Tucson iP = 2m.34s., i = 3m.24s., e = 4m.51s.
Long waves were also recorded at Bozeman and Florissant.

Aug. 27d. 16h. 26m. 43s. Epicentre 35°·9N. 26°·0E.

$A = +·7297$, $B = +·3559$, $C = +·5838$; $\delta = -5$; $h = 0$;
$D = +·438$, $E = -·899$; $G = +·525$, $H = +·256$, $K = -·812$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	7·1	344	e 1 53	+ 5	i 3 12	+ 2	—	—	—
Ksara	8·4	101	e 2 5	− 1	e 3 35	− 8	—	—	—
Bucharest	8·6	1	2 10	+ 1	—	—	—	—	5·1
Triest	13·4	320	i 3 16	+ 2	e 5 46	+ 1	i 3 23	PP	—
Chur	16·5	317	e 3 56	+ 2	e 6 50	− 8	—	—	—
Zürich	17·3	316	e 4 3k	− 1	e 7 15	− 1	e 4 39	PP	—
Basle	18·0	316	i 4 12	− 1	—	—	—	—	—
Neuchatel	18·0	314	e 4 13	0	e 7 33	+ 1	—	—	—
Collmberg	18·0	331	e 4 11	− 2	—	—	—	—	—
Jena	18·3	329	i 4 20	+ 3	e 7 40	+ 1	—	—	e 8·3
Strasbourg	18·5	320	e 4 21	+ 2	e 7 51	+ 7	—	—	—
Clermont-Ferrand	19·9	306	e 4 32	− 4	e 8 19	+ 4	—	—	—
Tortosa	20·6	292	i 4 42	− 1	8 26	− 3	5 9	PP	—
Paris	21·5	314	e 4 50	− 2	e 9 17	SS	—	—	—
Uccle	21·6	320	e 4 41k	−13	e 8 34	−15	e 9 8	SS	e 11·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		21·9	339	i 4 52	− 5	e 9 19	+25	—	—	11·7
De Bilt		21·9	325	i 4 55	− 2	i 8 50	− 4	—	—	—
Granada		23·8	283	5 23a	+ 8	9 38	+10	5 43	PP	—
Toledo		24·0	288	i 5 16	− 1	e 9 35	+ 3	—	—	—
Kew	z.	24·4	318	e 5 31	+10	—	—	—	—	e 6·3
San Fernando	z.	25·9	280	e 5 33	− 2	e 10 14	+10	e 6 11	PP	—
St. Louis		85·3	315	i 12 36	− 4	e 22 58	−12	e 24 7	PS	—

Additional readings :—
Collmberg i = 4m.30s., 5m.4s., 5m.27s., and 5m.53s., e = 6m.51s., 8m.0s., 8m.37s., 10m.15s., and 10m.34s.
Jena eN = 4m.37s., eE = 4m.40s.
Tortosa PPPN = 5m.14s., SS?N = 8m.59s.
Granada PPP = 6m.5s.
St. Louis eZ = 13m.16s., 25m.16s., and 26m.0s.
Long waves were also recorded at Cheb.

Aug. 27d. 20h. Local Spanish shock.

Alicante P = 36m.16s.
Malaga iP = 36m.52s. and 36m.56s., iP_g = 37m.3s., SPP = 37m.9s., S = 37m.27s. and 37m.30s.
San Fernando ePZ = 37m.1s., ePPSZ = 37m.53s., eS_gZ = 38m.31s., eZ = 39m.12s. and 39m.38s.
Granada P_g = 37m.9s. and 37m.22s., P_gS_g = 37m.40s., S_g = 37m.55s. and 38m.20s.
Almeria P = 37m.10s.
Toledo ePZ = 37m.36s., eS_g = 38m.52s.
Tortosa iN = 39m.44s., eN = 39m.59s., eE = 40m.11s., iE = 40m.28s., iN = 40m.41s., iE = 42m.13s.
Collmberg eZ = 41m.0s.
Long waves are also recorded at Clermont-Ferrand, Paris, De Bilt, and Uccle.

Aug. 27d. Readings also at 1h. (Collmberg, Alicante, Toledo, and near Coimbra), 2h. (Auckland), 3h. (Riverside, Tinemaha, and Tucson), 4h. (Boulder City, Pierce Ferry, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Shasta Dam), 7h. (San Francisco, Santa Clara, near Berkeley, Branner, and Lick), 9h. (Santa Clara, Lick, near Berkeley, Branner, Fresno, and San Francisco), 10h. (Alicante and Collmberg (2)), 11h. (Tucson, near Boulder City, Overton, and Pierce Ferry), 12h. (Alicante and San Fernando), 13h. (Collmberg (2)), 14h. (near Tacubaya), 15h. (near La Paz), 16h. and 17h. (Collmberg), 20h. (near Tucson).

August 28d. 12h. 49m. 51s. Epicentre 11°·2S. 163°·9E. (as on 1940 Nov. 9d.).

A = −·9427, B = +·2721, C = −·1930 ; δ = −3 ; h = +6 ;
D = +·277, E = +·961 ; G = +·185, H = −·054, K = −·981.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		19·2	211	i 4 29	+ 1	i 8 11	+12	—	—	e 10·4
Riverview		25·4	204	i 5 31k	0	i 9 43	−13	i 5 56	pP	e 11·8
Auckland		27·4	161	5 45?	− 4	10 49	+21	11 55	PcS	14·2
Honolulu		49·6	49	e 8 57	+ 2	e 15 59	− 4	e 19 12	SS	e 20·6
Berkeley		84·4	49	i 12 33	− 3	e 23 1	0	e 28 33	SS	37·2
Santa Clara	z.	84·4	49	e 12 38	+ 2	—	—	—	—	—
Shasta Dam		85·2	47	e 12 37	− 2	—	—	—	—	—
Santa Barbara	z.	85·3	54	e 12 39	− 1	—	—	—	—	—
Pasadena	z.	86·4	54	e 12 42	− 3	—	—	e 16 0	PP	e 38·4
Mount Wilson	z.	86·5	54	i 12 42	− 4	—	—	—	—	—
La Jolla		86·8	55	e 12 45	− 2	—	—	—	—	—
Riverside	z.	87·0	54	i 12 44	− 4	—	—	—	—	—
Haiwee		87·1	52	e 12 49	0	—	—	—	—	—
Tinemaha		87·2	51	e 12 46	− 3	—	—	—	—	—
Victoria		87·2	39	—	—	e 23 45	+17	—	—	41·2
Palomar		87·3	55	i 12 46	− 4	—	—	—	—	—
Boulder City		89·5	53	e 12 57	− 3	—	—	—	—	—
Grand Coulee		89·8	41	e 13 1	− 1	—	—	—	—	—
Overton		90·0	53	e 13 4	+ 1	i 23 15	[−18]	—	—	—
Pierce Ferry		90·2	53	e 13 1	− 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Tucson		91·9	57	e 13 7	− 4	—	—	e 18 39	PPP		e 41·3
San Juan		132·0	275	e 21 22	PP	—	—	e 22 30	PKS		e 60·0
Helwan	z.	132·2	300	e 19 30	[+14]	e 23 51	PPP	e 22 17	PKS		—
Collmberg	z.	133·5	334	e 15 3	P	—	—	—	—		—
Paris		139·4	342	e 20 9?	[+40]	—	—	—	—		e 76·2
Clermont-Ferrand		141·9	339	e 19 59	[+25]	—	—	—	—		—

Additional readings :—
Brisbane ePE =4m.34s.
Riverview iEN =9m.54s., iN =10m.2s., iZ =10m.16s., isS?E =10m.22s., iN =10m.34s., iSS?E =10m.56s.
Berkeley eSSS =32m.37s.
Shasta Dam i =12m.41s.
Long waves were also recorded at Arapuni, Christchurch, Wellington, Ukiah and Kew.

August 28d. 19h. 20m. 12s. I
19h. 21m. 8s. II
Epicentre 33°·0N. 137°·8E.
(as on 1943 Nov. 17d.)

$A = -·6225$, $B = +·5644$, $C = +·5421$; $\delta = -7$; $h = +1$;
$D = +·672$, $E = +·741$; $G = -·402$, $H = +·364$, $K = -·840$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
I	Owase	1·7	309	0 46	?	—	—	—	—		—
II		1·7	309	—	—	0 35	P_g	—	—		—
I	Shizuoka	2·0	14	0 27	− 8	0 57	− 5	—	—		—
I	Kameyama	2·2	329	0 21	−17	0 44	−22	—	—		—
I	Misima	2·4	24	0 42k	+ 1	1 29	S_g	—	—		—
I	Mera	2·5	41	0 43k	0	1 3	−11	—	—		—
I	Hunatu	2·6	18	0 38a	− 6	1 24	P_g	—	—		—
I	Kyoto	2·7	320	0 54	P_g	—	—	—	—		—
II		2·7	320	—	—	1 12	− 7	—	—		—
I	Sumoto	2·8	299	1 2a	P_g	—	—	—	—		—
I	Tokyo	3·2	31	0 54	+ 2	—	—	—	—		—
II		3·2	31	—	—	1 23	− 9	—	—		—
I	Toyooka	3·5	316	1 7	P_g	2 20	S_g	—	—		—
I	Toyama	3·7	353	1 12	P_g	—	—	—	—		—
II		3·7	353	—	—	1 28	−17	—	—		—
I	Wazima	4·4	351	1 27	P_g	—	—	—	—		—
I	Hukusima	5·2	24	1 19	− 2	—	—	—	—		—
I	Sendai	5·8	25	1 37	P*	—	—	—	—		—
II	Mizusawa	6·7	23	1 27	−15	2 47	−13	—	—		—
II	Miyako	7·4	26	1 44	− 8	3 32	+14	—	—		—
I	Hatinohe	8·1	21	2 16	P*	—	—	—	—		—
II		8·1	21	—	—	3 29	− 6	—	—		—
I	Sapporo	10·5	14	2 35	0	4 17	−18	—	—		—
II	Irkutsk	30·9	319	e 6 20	0	11 24	0	—	—		—
II	Calcutta	N. 44·6	270	—	—	—	—	e 10 45	PPP		e 24·2
II	New Delhi	N. 51·6	282	e 11 13	P_cP	i 16 41	+10	19 39	S_cS		—
II	Andijan	51·8	298	e 9 7	− 5	—	—	—	—		—
II	Tashkent	54·0	300	e 9 28	0	e 17 7	+ 4	—	—		—
II	College	54·1	31	e 9 26	− 3	e 16 44	−21	e 11 24	PP		e 25·8
II	Hyderabad	N. 55·2	268	e 9 47	+10	17 23	+ 3	11 37	PP		27·4
II	Honolulu	57·7	84	e 13 10	PPP	e 17 55	+ 2	—	—		e 23·0
II	Bombay	59·3	273	e 10 11	+ 5	—	—	—	—		—
II	Sitka	61·2	39	e 10 20	+ 1	e 18 25	−13	—	—		e 25·4
II	Brisbane	61·9	164	i 10 27	+ 3	—	—	—	—		—
II	Riverview	67·7	168	e 11 10	+ 9	e 20 9	+11	e 24 55	SS		e 30·0
II	Moscow	68·8	323	e 11 27	+19	20 5	− 6	—	—		—
II	Victoria	71·4	45	e 11 34	+10	e 20 40	− 2	—	—		28·9
II	Grand Coulee	74·2	43	e 11 36	− 4	—	—	—	—		—
II	Upsala	75·2	333	—	—	21 15	−10	26 0	SS		e 36·9
I	Shasta Dam	75·9	51	e 11 55	+ 5	—	—	i 14 41	PP		—
II		75·9	51	i 11 46	− 4	—	—	—	—		—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
II Ukiah		76·2	52	—	—	e 21 32	− 4	—	—	e 31·4
II Berkeley		77·5	53	11 59	0	e 21 38	−12	—	—	30·9
I Santa Clara		78·0	53	e 12 2	0	—	—	—	—	e 37·1
II Saskatoon		78·3	35	—	—	e 22 10	+11	—	—	34·9
II Bergen		79·1	338	—	—	e 21 52	−15	—	—	39·9
I Bozeman		80·0	42	—	—	e 22 18	+ 1	e 24 5	PPS	e 42·3
I Copenhagen		80·1	332	e 12 21	+ 8	—	—	—	—	—
II		80·1	332	e 12 12	− 1	—	—	27 27	SS	—
II Ksara		81·0	304	e 12 24?	+ 6	e 22 35?	+ 8	—	—	—
II Santa Barbara		81·1	55	12 17	− 1	—	—	—	—	—
II Haiwee		81·3	53	12 18	− 2	—	—	—	—	—
II Logan		81·9	45	e 12 42	+19	e 23 7	PS	e 15 45	PP	e 35·7
I Mount Wilson	z.	82·3	54	i 12 30	+ 5	—	—	—	—	—
II	z.	82·3	54	i 12 21	− 4	—	—	—	—	—
II Pasadena		82·3	54	i 12 32	+ 7	—	—	e 15 32	PP	e 33·7
II Christchurch		82·5	155	—	—	22 52	+10	27 50	SS	39·9
I Riverside	z.	82·9	54	i 12 33	+ 5	—	—	—	—	—
II	z.	82·9	54	i 12 26	− 2	—	—	—	—	—
I Collmberg	z.	83·1	328	i 12 38	+ 9	—	—	—	—	—
II		83·1	328	i 12 28	− 1	e 23 4	+16	e 15 36	PP	e 47·9
I Boulder City		83·5	51	i 12 37	+ 6	—	—	—	—	—
II		83·5	51	i 12 29	− 2	—	—	—	—	—
II La Jolla	z.	83·7	55	e 12 31	− 1	—	—	—	—	—
II Sofia		83·7	317	e 13 0	+28	e 23 5	+11	—	—	e 43·4
II Belgrade		83·9	320	e 13 25a	PcP	e 23 23	+27	—	—	e 46·9
II Jena	N.	83·9	329	e 12 39	+ 6	—	—	e 14 52	PP	—
I Pierce Ferry		83·9	50	i 12 33	0	—	—	—	—	—
II		83·9	50	i 12 31	− 2	—	—	—	—	—
II Aberdeen	N.	84·0	340	e 15 32	PP	i 22 54	− 3	—	—	41·9
II Edinburgh		85·4	339	—	—	23 4	[+ 1]	23 10	S	—
II De Bilt		85·7	333	—	—	e 23 12	− 2	—	—	e 39·9
II Helwan		86·5	303	e 13 4	+18	e 23 21	− 1	—	—	—
II Triest		86·8	324	e 12 51	+ 4	e 23 29	+ 4	i 16 14	PP	—
II Uccle		87·0	333	e 12 50	+ 2	e 23 22	− 5	e 16 16	PP	e 40·9
II Strasbourg		87·3	329	e 13 28	+38	e 23 34	+ 5	e 16 22	PP	e 48·9
II Chur		87·9	327	e 12 33	−20	e 23 31	− 4	—	—	e 47·2
II Zürich		87·9	328	e 12 55	+ 2	e 23 29	− 6	—	—	—
II Basle		88·2	329	e 12 54	0	e 23 36	− 2	—	—	—
II Kew		88·2	335	e 12 56?	+ 2	e 23 36	− 2	e 23 21?	SKS	e 40·9
I Tucson		88·4	52	e 13 0	+ 5	—	—	—	—	—
II		88·4	52	e 12 53	− 2	e 24 42	PS	e 16 21	PP	e 36·2
II Neuchatel		88·9	329	e 12 57	− 1	—	—	—	—	—
II Paris		89·3	332	e 13 5	+ 6	e 23 46	− 2	—	—	e 43·9
II Clermont-Ferrand		91·5	330	e 13 14	+ 4	—	—	—	—	—
II Florissant		95·7	36	e 13 26	− 3	e 24 4	[− 1]	e 17 22	PP	—
II St. Louis		95·9	36	e 13 28	− 2	e 24 11	[+ 5]	e 25 7	S	e 36·1
II Seven Falls		96·2	19	—	—	e 24 40	− 8	—	—	46·9
II Ottawa		96·3	23	—	—	e 24 40	− 9	—	—	39·9
II Coimbra		100·7	334	e 27 9	PS	e 36 19	SSS	—	—	e 49·6
II Granada		101·4	329	e 27 50	PS	—	—	—	—	52·9
II Malaga	z.	102·2	330	e 18 15	PP	e 30 24	?	—	—	54·0
I San Juan		124·0	27	—	—	e 26 27	[+24]	—	—	e 54·9
II Huancayo		143·2	62	—	—	—	—	e 56 1	Q	e 68·3
II La Paz	z.	151·4	53	i 19 56k	[+ 7]	i 30 25	{− 1}	i 24 4	PP	75·9

Additional readings to shock II :—
Mizusawa II PE =1m.32s.
College II e =18m.8s.
Riverview II eZ =11m.58s.
Upsala II SS?N =26m.4s.
Berkeley II iSE =21m.46s.
Copenhagen II i =12m.15s.
Logan II e =24m.53s.
Pasadena II iZ =12m.41s.
Christchurch II SSSE =31m.30s., QEN =33m.37s.

Continued on next page.

Collmberg II i = 12m.36s., e = 13m.51s., and 14m.21s., i = 15m.47s., e = 16m.1s., and 16m.40s., ePPP = 17m.51s., e = 21m.28s., i = 32m.20s.
Jena II eN = 14m.56s.
Helwan II eZ = 13m.59s., eEZ = 24m.22s.
Triest II eSS = 29m.11s.
Kew II ePSEZ = 24m.12s., eSSEN = 29m.26s.?, eQ = 35m·9m.
Tucson II e = 14m.38s., e = 27m.3s.
Florissant II eSKKS?E = 24m.44s., eSSS?E = 31m.7s.
St. Louis II eZ = 13m.42s., eSKKSN = 24m.39s., ePS?N = 25m.52s.
Coimbra II PP = 31m.38s., ? = 37m.10s. and 42m.39s.
Long waves also recorded at Auckland, Wellington, Colombo, and other European stations.

August 28d. Readings also at 11h. (Collmberg and Sitka), 14h. (2) and 15h. (Collmberg), 19h.(Tacubaya), 20h. (St. Louis, Boulder City, Overton, Pierce Ferry, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Oaxaca and near Tacubaya), 21h. (near Tacabuya), 22h. (Mizusawa and near Tacubaya (2)), 23h. (Mount Wilson, Palomar, Riverside, Tucson, Boulder City, Pierce Ferry, Shasta Dam and Uccle).

August 29d. 10h. 22m. 35s. Epicentre 14°·3S. 167°·3E.

A = −·9457, B = +·2131, C = −·2454; δ = −2; h = +6;
D = +·220, E = +·976; G = +·239, H = −·054, K = −·969.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		18·7	224	i 4 24	+ 2	i 8 8	+20	—	—	—
Apia		20·3	92	e 4 40	0	—	—	—	—	e 9·0
Auckland		23·5	166	6 15	+63	9 46	+23	10 47	SSS	13·0
Riverview		24·3	215	i 5 28k	+ 8	i 9 48	+11	i 5 49	pP	e 10·9
Arapuni		24·8	166	5 43	+18	7 49	?	—	—	11·4
New Plymouth		25·4	169	6 6	PP	10 2	+ 6	i 6 12	PPP	13·9
Wellington		27·7	170	5 50	− 2	11 0	+27	6 11	pP	14·4
Kaimata		28·4	174	6 7	+ 9	10 44	− 1	i 10 50	?	—
Christchurch		29·5	173	6 9	+ 1	11 27	+25	i 6 28	?	15·3
Honolulu		49·2	45	e 8 53	+ 1	e 15 53	− 5	i 11 9	PP	e 20·5
Perth		50·0	241	9 23	+25	i 15 47	−22	i 11 10	PP	—
Mera		55·5	333	10 5	+26	18 14	+50	—	—	—
Shizuoka		56·1	332	9 46	+ 3	18 3	+31	—	—	—
Kôti		57·5	327	9 54	+ 1	17 53	+ 3	—	—	—
Sendai		57·8	336	9 53	− 2	17 58	+ 4	—	—	—
Mizusawa	E.	58·5	337	10 6	+ 6	17 50	−13	—	—	—
	N.	58·5	337	10 17	+17	e 18 2	− 1	—	—	24·9
Miyako		58·6	338	9 59	− 2	18 10	+ 6	—	—	—
Hukuoka		59·2	325	10 7	+ 2	—	—	—	—	—
Hamada		59·3	327	10 6	0	18 38	+24	—	—	—
Sapporo		61·9	340	e 10 35	+11	—	—	—	—	—
Ferndale		83·5	46	e 12 39	+ 8	e 23 15	+23	—	—	e 37·9
Branner		83·7	49	e 12 31	− 1	—	—	—	—	e 37·9
San Francisco		83·7	49	e 12 35	+ 3	—	—	e 12 40	PcP	e 37·9
Ukiah		83·7	47	e 12 29	− 3	e 22 45	− 9	e 16 3	PP	e 35·2
Berkeley		83·9	49	e 12 31	− 2	e 22 56	0	e 15 38	PP	e 39·2
Santa Clara		83·9	49	i 12 35	+ 2	e 23 30	+34	—	—	—
Lick		84·1	49	e 12 34	0	—	—	e 12 50	?	e 37·4
Santa Barbara	Z.	84·5	53	e 12 35	− 1	—	—	—	—	—
Shasta Dam		84·9	46	e 12 36	− 2	e 23 4	− 2	e 16 6	PP	—
Fresno	N.	85·3	50	e 12 42	+ 2	—	—	—	—	e 38·5
Calcutta	N.	85·5	295	e 13 10	+29	—	—	i 18 5	PPP	—
Irkutsk		85·6	327	e 12 39?	− 2	23 17	+ 4	15 57	PP	—
Pasadena		85·6	54	i 12 40a	− 1	i 23 13	0	i 16 3	PP	e 34·9
Mount Wilson		85·7	54	i 12 40a	− 2	—	—	i 12 53	?	—
Sitka		85·7	28	e 12 40	− 2	e 23 8	− 6	e 16 5	PP	e 36·0
La Jolla		85·8	55	i 12 42	0	e 23 36	+21	i 12 59	?	—
College		85·9	17	e 12 40	− 3	e 23 14	− 2	e 29 12	SS	e 35·3
Riverside		86·1	54	i 12 42a	− 2	—	—	—	—	—
Palomar		86·3	55	i 12 44	− 1	—	—	i 12 57	?	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Halwee		86·4	52	i 12 45	0	—	—	—	—	—
Victoria		87·4	39	13 1?	+11	24 9	+39	16 43	PP	40·4
Seattle		87·8	40	e 12 45	− 7	e 25 9	PPS	e 22 7	?	e 36·3
Boulder City		88·7	53	i 12 55	− 2	e 24 1	+18	e 25 8	PS	—
Colombo	E.	89·2	277	13 7	+ 8	23 57	+10	—	—	50·5
Overton		89·2	52	i 12 58	− 1	—	—	i 13 30	?	—
Pierce Ferry		89·4	53	i 12 59	− 1	—	—	i 14 2	?	—
Grand Coulee		90·1	40	i 13 4	+ 1	e 23 42	[+ 9]	i 16 56	PP	—
Tucson		90·8	57	i 13 6	0	e 24 8	+ 6	e 16 57	PP	e 40·9
Kodaikanal	E.	92·3	280	(i 12 55)	−18	(i 23 25)	[−21]	(15 55)	PP	(39·9)
Salt Lake City		92·4	49	e 13 17	+ 3	e 24 19	+ 3	e 25 49	PPS	e 38·2
Logan		92·7	48	e 13 18	+ 3	e 24 38	+20	i 17 16	PP	e 38·0
Hyderabad	N.	93·1	287	13 35	+18	24 42	+20	—	—	—
Bozeman		94·4	44	e 13 43	+20	e 24 49	+16	e 17 13	PP	e 38·8
Dehra Dun	N.	96·4	300	e 15 31	?	—	—	—	—	e 66·5
New Delhi		96·8	298	e 13 40	+ 6	i 24 51	− 3	17 43	PP	e 58·5
Tacubaya		97·9	72	e 13 36	− 3	i 24 27	[+10]	e 17 39	PP	e 45·7
Bombay		98·7	287	i 14 3	+21	24 32	[+11]	17 16	PP	41·9
Saskatoon		98·8	38	14 4	+21	26 47	PS	17 56	PP	45·4
Tashkent		105·3	310	e 14 24	P	e 24 47	[− 5]	e 18 46	PP	—
Florissant		108·4	54	e 14 25	P	i 28 21	PS	i 19 12	PP	—
St. Louis		108·4	54	e 14 28	P	i 26 39	S	i 19 7	PP	—
Mobile		109·5	62	19 49	?	29 19	PPS	—	—	—
Chicago		110·6	50	e 18 33	[− 1]	e 25 23	[+ 8]	i 19 27	PP	e 45·8
Tananarive		112·1	243	19 40	PP	25 7	[−14]	21 40	PPP	e 53·0
Huancayo		112·6	110	e 19 28	PP	e 29 23	PS	e 22 4	PPP	e 45·5
Cincinnati		112·9	53	i 15 1	P	—	—	e 18 45	PKP	e 53·4
La Plata		114·9	140	17 43	[−60]	29 19	PS	18 43	PKP	48·9
Columbia		115·7	58	e 20 5	PP	e 25 47	[+12]	e 29 22	PS	e 51·8
La Paz		117·3	117	18 35	[−12]	25 45	[+ 5]	i 19 53	PP	55·9
Pennsylvania		118·0	51	i 20 21	PP	e 30 4	PS	e 36 15	SS	—
Georgetown		118·7	53	e 15 32	P	e 25 55	[+10]	e 19 7	PKP	54·0
Bogota		118·9	92	e 18 56	[+ 5]	—	—	e 20 13	PP	—
Ottawa		119·0	45	18 51	[0]	25 55	[+ 8]	20 8	PP	e 55·4
Shawinigan Falls		120·8	43	19 7	[+13]	30 31	PS	20 43	PP	59·4
Fordham		121·0	51	e 20 21	PP	e 30 29	PS	—	—	—
Seven Falls		121·9	42	19 37	[+41]	25 55	[− 1]	20 40	PP	56·4
Harvard		122·4	48	e 18 56	[− 1]	—	—	e 20 50	PP	e 69·4
Moscow		123·5	329	15 51	P	e 28 15	{+37}	16 30	pP	—
Erevan		124·1	309	e 19 4	[+ 3]	—	—	—	—	—
Leninakan		124·5	310	e 19 11	[+10]	—	—	—	—	—
Ivigtut		126·7	21	19 19	[+13]	32 49	PPS	21 9	PP	52·4
Halifax		127·5	43	e 21 7	PP	—	—	e 31 22	PS	51·4
San Juan		128·7	77	e 19 10	[+ 1]	e 26 22	[+ 6]	i 21 35	PP	e 60·8
Upsala	E.	129·4	341	e 21 39	PP	e 27 17	{−59}	e 31 31	PS	e 56·4
	N.	129·4	341	e 21 32	PP	e 27 20	{−56}	e 38 13	SS	—
Bermuda		129·5	59	i 19 37	[+26]	e 33 16	PPS	e 21 41	PP	e 56·4
Yalta		130·2	317	e 19 20	[+ 8]	—	—	—	—	—
Bergen		132·1	348	e 14 27	?	e 43 59	SSS	e 19 17	PP	—
Ksara		132·1	302	e 19 26	[+10]	—	—	e 22 1	PP	—
Fort de France		133·2	83	e 19 20	[+ 2]	—	—	e 22 48	SKP	—
Copenhagen		134·4	341	i 19 21	[+ 1]	22 54	SKP	e 22 6	PP	—
Bucharest		135·4	320	e 18 37	[−45]	i23 15	SKP	e 21 53	PP	—
Aberdeen	N.	136·5	352	19 37	[+13]	i 40 41	SSP	i 22 22	PP	69·4
Helwan	Z.	136·6	298	19 25	[+ 1]	28 58	{− 3}	22 13	PP	—
Collmberg		137·7	336	e 19 17	[− 9]	e 26 41	[+ 6]	e 22 12	PP	e 79·4
Edinburgh		137·8	352	e 19 31	[+ 4]	e 26 39	[+ 3]	e 22 31	PP	—
Sofia		138·1	319	e 19 34	[+ 7]	e 40 43	SS	i 22 35	PP	e 68·4
Jena		138·5	336	e 19 34	[+ 6]	e 23 27	SKP	e 22 28	PP	e 63·6
Belgrade		138·6	323	e 19 27	[− 1]	e 29 18	{+ 5}	e 22 39	PP	e 72·8
De Bilt		139·7	343	e 19 29a	[− 1]	i 23 29	SKP	i 22 40	PP	e 67·4
Uccle		141·1	343	e 19 34a	[+ 2]	e 23 26	SKP	i 22 51	PP	e 67·4
Kew		141·6	347	e 19 35	[+ 2]	—	—	—	—	e 73·4
Triest		141·6	330	i 19 35a	[+ 2]	i 23 26	SKP	i 22 44	PP	—
Strasbourg		141·9	337	e 19 41	[+ 7]	e 26 41	[− 1]	22 36	PP	67·4
Chur		142·6	335	e 19 33	[− 2]	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Zürich	142·6	336	e 19 47	[+12]	—	—	e 23 2 PP	—
Basle	142·8	337	e 19 35	[0]	—	—	e 22 56 PP	—
Paris	143·4	343	19 31	[− 5]	i 23 29	SKP	e 41 29 SS	e 70·4
Neuchatel	143·5	337	e 19 34	[− 3]	—	—	e 23 2 PP	—
Clermont Ferrand	145·9	340	i 19 41	[0]	i 23 4	SKP	— —	—
Marseilles	147·2	335	e 20 31	[+48]	—	—	i 20 57 ?	e 84·4
Barcelona	150·1	338	e 20 0	[+12]	—	—	i 28 46 ?	e 75·5
Tortosa	151·2	338	i 19 54	[+ 5]	26 45	[−10]	20 42 pPKP	e 77·4
Toledo	153·4	345	i 19 56	[+ 4]	—	—	25 19 ?	75·8
Coimbra	153·9	352	20 10	[+17]	30 0	{−40}	44 10 SSP	e 63·9
Lisbon	155·5	353	19 58a	[+ 3]	—	—	i 20 40 PKP_2	73·7
Granada	155·8	342	20 10	[+14]	26 28	[−33]	20 55 pPKP	81·9
Malaga	156·5	343	e 20 2	[+ 5]	33 7	?	i 21 24 PKP_2	99·2
San Fernando	157·2	347	i 20 19	[+22]	i 27 19	[+17]	i 21 16 PKP_2	e 79·9

Additional readings :—
Auckland PP? =6m.46s., i =7m.57s. and 8m.37s., SS? =11m.35s.
Riverview iPPN =6m.12s., iPPPE =6m.24s., iN =6m.32s., iE =6m.35s., iN =7m.35s., iPcP?N =8m.48s., iN =10m.15s., iE =10m.19s., iScSE =16m.20s., iScSN =16m.25s.
Wellington PP? =6m.45s., PPP? =7m.13s., PcP =9m.0s., iZ =10m.5s., PcS? =12m.40s.
Honolulu i =9m.11s., 10m.33s., and 16m.19s., eSS =19m.32s.
Perth i =12m.38s. and 13m.17s.
Ferndale iEN =12m.59s., eE =23m.25s.
Branner ePEN =12m.36s., iE =12m.52s., eN =13m.1s. and 37m.9s.
Ukiah e =12m.51s., ePPS =24m.13s., eSS =28m.15s.
Berkeley iZ =13m.35s., iNZ =13m.49s., eEN =14m.1s., eSN =23m.13s.
Shasta Dam e =22m.4s.
Calcutta iN =13m.50s. and 14m.15s., e =21m.10s.
Irkutsk pPPP =18m.9s., sSS =28m.28s., SSS =31m.25s.
Pasadena i =12m.59s., iE =24m.34s.
Sitka i =12m.57s., eScS =23m.39s., eSS =28m.48s., e =33m.56s.
College e =12m.58s. and 14m.36s., eSSS =32m.29s.
Boulder City i =13m.13s., iPKKP =31m.1s.
Grand Coulee i =13m.17s., ePS =25m.2s.
Tucson i =13m.13s. and 13m.54s., e =14m.18s., 15m.51s. and 22m.33s., eSKS? =23m.51s., e =25m.57s., eSS? =30m.17s., e =32m.41s.
Kodaikanal SSE =(28m.35s.), readings increased by 2 minutes.
Salt Lake City e =18m.25s.
Logan i =13m.34s. and 18m.15s., e =21m.55s., eSKS =23m.28s., e =25m.54s. and 28m.13s.
Bozeman e =16m.41s. and 25m.5s., ePS? =25m.55s., eSS? =31m.25s., eSSS? =34m.57s.
New Delhi eE =19m.16s., iE =27m.42s., iN =35m.38s.
Tacubaya ePE =13m.46s., iPN =13m.50s., ePP?N =17m.14s., ePP?E =17m.42s., ePPP?E =19m.21s., 19m.29s., ePPP?N =19m.41s., eN =20m.33s. and 21m.26s., eSKS?N =24m.33s., iPS =26m.22s., ePPSE =26m.47s., eE =32m.17s.
Saskatoon e =23m.42s., SS =32m.13s., SSS =35m.55s.
Tashkent eS =25m.48s.
Florissant iZ =14m.44s., eZ =17m.13s., iPPPZ =21m.29s., eE =27m.12s.
St. Louis ePKPZ =17m.54s., ePPPZ =21m.31s., iE =26m.23s., eE =27m.12s., iPSE =28m.23s., iSSE =33m.48s.
Chicago e =23m.44s., iPS =28m.39s., eSS =34m.9s., eSSS =39m.23s., e =43m.44s.
Tananarive PSEN =29m.23s., iE =30m.41s., SSE =35m.15s., N =35m.21s., SSS =39m.40s., EN =41m.40s.
Huancayo i =19m.53s. and 20m.25s., eSS =35m.34s., eSSS =40m.10s.
Cincinnati iPPS =19m.46s.
La Plata PPPE =21m.43s., E =30m.37s., N =31m.43s., SSN =36m.13s., E =37m.31s.
Columbia eSS =35m.40s.
La Paz iZ =20m.23s., iPPP =22m.34s., SKKS =27m.15s., iSZ =27m.32s., iPSZ =29m.55s., iPPSZ =31m.7s., iSSZ =37m.9s., iSSS =41m.25s.
Pennsylvania i =20m.44s.
Georgetown ePP =20m.11s., ePS =29m.39s.
Ottawa e =20m.26s., PS =30m.10s., SS =36m.47s., SSSE =40m.55s., e =44m.7s.
Shawinigan Falls SS =36m.55s.?
Seven Falls PS =30m.34s., SS =37m.1s., e =46m.37s.
Harvard e =19m.51s.
Moscow ePKP =19m.19s., ePKP =20m.12s., sPP =21m.40s.
San Juan i =22m.32s., eSS? =39m.13s., e =44m.4s.
Upsala iSKP =22m.47s., eSKKS?E =29m.21s., eE =41m.20s.
Bermuda iPKS =22m.55s., iPPP =23m.51s., eSS =38m.9s.
Bergen eZ =21m.23s., PPPNZ =21m.57s., PPPE =22m.2s., e =22m.40s., SSN =35m.25s.?.
Ksara e =23m.9s.
Copenhagen i =19m.40s., eE =23m.12s., 23m.48s.

Continued on next page.

Aberdeen iN =55m.2s.
Helwan SKPZ =22m.57s.
Collmberg ePP =21m.51s., iPKS =23m.4s., eSKKS =28m.35s., eSKSP =32m.25s., PPS =34m.11s., eSS =39m.16s., eSSS =44m.19s.
Edinburgh PKS =23m.20s., ePS =32m.25s., SS =40m.40s.
Sofia iEN =19m.50s. and 23m.22s.
Jena eN =19m.43s., and 20m.50s., eE =22m.40s.
Belgrade e =20m.59s., iPKS =23m.23s., e =36m.58s., 46m.27s., and 51m.52s.
De Bilt iZ =19m.51s.
Uccle ePKP =19m.39s., eSSEN =40m.25s.?.
Kew iZ =19m.51s., eZ =20m.39s.
Triest iSSE =41m.30s.
Strasbourg e =23m.31s. and 28m.9s., ePPS? =34m.31s., eSS =41m.25s.
Paris i =19m.52s. and 20m.38s., iSKP? =22m.54s., i =27m51s.
Clermont-Ferrand i =19m.59s., e =25m.36s.
Tortosa PKP_2E =20m.21s., sPKPEN =21m.12s., PPN =24m.16s., PPPN =28m.25s., SKKSN =31m.36s., SKSPE =34m.36s., PPSE =36m.54s., SSE =42m.52s.
Coimbra PKP_2 =22m.4s., PP =25m.28s., ? =28m.30s., SKKS =32m.10s., PSKS =37m.10s.,
Lisbon eZ =20m.15s., PPZ =23m.59s?, PPE =24m.8s.
Granada PP =24m.43s., SKKS =30m.40s., SKSP =34m.46s.
Malaga PKS =23m.9s., SS =29m.29s., PPP =31m.33s., SKSP =35m.45s., Q =78m.47s.
San Fernando eSKPE =23m.27s., iPPE =24m.25s., iPPPE =29m.12s., eSKKSE =30m.55s., ePSKSE =37m.42s., eSSE =46m.58s.

August 29d. 12h. Undetermined shock.

Colombo eE =47m.
Tananarive N =48m.43s., EN =50m.41s., N =52m.39s. and 53m.45s., E =53m.51s., LEN =54m.15s.
Brisbane iPZ =50m.48s.
Helwan eZ =52m.34s. and 53m.15s.
Tashkent eP =52m.36s., eS =62m.23s.
Riverview iN =58m.29s.
Pasadena ePZ =60m.30s., eZ =61m.30s.
Riverside ePZ =60m.31s., iZ =61m.34s.
Mount Wilson ePZ =60m.32s., iZ =61m.32s.
Pierce Ferry ePKP =60m.33s., i =60m.42s.
Boulder City ePKP =60m.35s., i =61m.16s.
Tucson ePKP =60m.36s., i =61m.51s., ePP =65m.41s.
Shasta Dam ePKP? =61m.19s.
Palomar iP =61m.38s.
New Delhi eN =73m.3s.

August 29d. 15h. Undetermined shock.

Kodaikanal eE =8m.40s., 10m.20s., 15m.40s., 18m.40s., and 22m.40s.
Tananarive P?E =9m.45s., EN =11m.5s., SN =14m.36s., LE =16m.42s.
Brisbane iPZ =13m.17s.
Perth 1 =14m.32s., L =16m.
Helwan ePZ =15m.4s., iZ =15m.16s., eN =25m.10s.
Tashkent eP =15m.5s., iS =24m.59s.
Ksara e =15m.22s., and 25m.38s.
Colombo ePE =17m.37s.
Hyderabad SN =20m.0s.
Bombay eEN =20m.30s.
Riverview iP?EN =20m.54s., iZ =21m.2s., eLE =30·1m.
Triest iPZ =20m.56s.?, ipPZ =21m.19s., ePPP =28m.5s., ePS =35m.24s.
Clermont-Ferrand ePP =21m.37s.
Paris ePP? =22m.4s., ePPP? =24m.12s.
New Delhi iN =22m.21s. and 23m.34s., eN =35m.21s.
Pasadena ePZ =23m.0s., iZ =23m.8s. and 24m.0s., eLZ =76m.20s.
Riverside ePZ =23m.0s., eZ =23m7s.
Mount Wilson ePZ =32m.1s., iZ =23m.8s., 24m.1s., and 24m.6s.
Christchurch S =23m.3s., SS =27m.13s., SSSEN =30m.50s., QEN =31m.39s., R =35m.27s.
Saint Louis eZ =23m.3s., 23m.9s. and 24m.19s., eE =39m.5s., eL?E =49m.11s.
Tucson ePKP =23m.3s., i =23m.10s., ePP =28m.10s., e =33m.46s., eSS =49m.46s., eL =83m.28s.
Palomar ePZ =23m.10s., i =24m.5s., iZ =24m.10s., eZ =28m.7s.
La Jolla eZ =24m.2s. and 24m.8s.
Auckland S? =25m.6s., L =40m.
Copenhagen 28m.42s., L =54m.
Collmberg eZ =38m.31s.
Sitka eSS =45m.51s., eL =66m.24s.
La Paz eZ =62m.6s., LZ =72m.0s.
Long waves were also recorded at Wellington, Uccle, Granada, De Bilt, San Fernando, Honolulu, Bermuda, Bozeman, Salt Lake City, and San Juan.

August 29d. Readings also at 3h. (Brisbane, Tucson (2), near Fresno, Branner, Lick, and Berkeley), 4h. (Collmberg (2) and Bogota), 8h. (Collmberg), 10h. (Tucson, Palomar, Riverside, Mount Wilson and Mizusawa), 11h. (Logan and La Paz), 13h. (Riverview (4), Pasadena, Mount Wilson, Riverside, Palomar, Tucson, Bogota, La Paz, and Huancayo), 14h. (Riverview, New Delhi, Palomar (2), Riverside (2), Mount Wilson, and Pasadena), 15h. (Collmberg and Tananarive), 16h. (San Fernando, Collmberg, New Delhi, St. Louis, Tucson, Palomar, Riverside, Mount Wilson, Pasadena, and near Mineral), 17h. (near Pehpei and near Andijan), 18h. (near Pehpei), 19h. (near Fresno, Lick, Branner, San Francisco, and Berkeley), 22h. (near Tucson).

August 30d. 17h. 3m. 4s. Epicentre 26°·8N. 111°·2W. (as on 1945 July 3d.).

$A = -·3232$, $B = -·8333$, $C = +·4485$; $\delta = 0$; $h = +3$;
$D = -·932$, $E = +·362$; $G = -·162$, $H = -·418$, $K = -·894$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		5·4	4	i 1 19	− 5	e 2 21	− 7	i 1 25	P	e 2·8
Palomar		8·2	324	i 2 4	+ 1	e 4 18	S*	—	—	—
Riverside	z.	8·9	325	e 2 13	+ 1	e 4 49	S_e	—	—	—
Mount Wilson	z.	9·5	323	i 2 21	+ 1	i 5 11	S_e	—	—	—
Pasadena		9·5	322	i 2 19	− 1	—	—	—	—	e 4·7
Pierce Ferry		9·6	347	i 2 21	0	—	—	i 2 41	?	e 5·7
Boulder City		9·7	342	i 2 23	+ 1	—	—	—	—	e 5·0
Overton		10·1	345	i 2 30	+ 2	i 4 32	+ 7	—	—	e 5·8
Halwee		10·9	330	e 2 42	+ 2	—	—	—	—	—
Tinemaha		11·9	332	i 2 54	0	—	—	—	—	—
Florissant	E.	21·2	50	—	—	e 8 43	+ 2	—	—	e 11·4
St. Louis		21·2	50	e 4 43	− 6	e 8 42	+ 1	—	—	e 11·0

Tucson gives also e = 1m.33s. and 1m.48s., i = 2m.32s.
Long waves were also recorded at other American stations.

August 30d. 23h. 30m. 6s. Epicentre 18°·1S. 175°·2W. (as on 1944 September 23d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		20·7	204	2 51	?	8 35	+ 4	9 4	Q	9·7
Arapuni		21·5	201	e 4 54?	+ 2	8 54	+ 7	—	—	—
Wellington		24·7	200	3 7	?	8 44	−60	3 26	pP	11·9
Christchurch		27·4	200	5 40	− 9	10 14	−14	11 24	Q	13·7
Brisbane	E.	30·7	247	e 6 10	− 9	—	—	—	—	—
Riverview		33·9	237	e 6 45	− 2	i 12 1	−10	e 7 52	PP	e 14·7
Honolulu		42·7	24	e 8 3	+ 3	e 14 34	+10	—	—	e 17·5
Perth		63·1	243	18 51	S	(18 51)	−11	25 54	SSS	29·3
Santa Barbara	z.	74·2	45	e 11 47	+ 7	—	—	—	—	—
Santa Clara		74·5	41	e 11 46	+ 4	e 21 29	+12	—	—	e 34·1
Berkeley		74·6	41	11 45	+ 2	21 27	+ 9	31 15	Q	34·6
Ukiah		74·8	39	e 11 58	+14	e 21 30	+10	—	—	e 31·2
La Jolla	z.	75·0	47	e 11 54	+ 9	—	—	—	—	—
Pasadena		75·1	46	i 11 45	− 1	i 21 35	+11	i 11 54	P_cP	e 30·3
Mount Wilson	z.	75·2	46	i 11 47	+ 1	—	—	—	—	—
Palomar		75·6	47	e 11 49	+ 1	—	—	—	—	—
Riverside		75·6	46	i 11 48	0	—	—	i 11 58	P_cP	—
Shasta Dam		76·3	38	e 11 52	0	—	—	—	—	—
Halwee		76·4	44	e 11 54	+ 1	—	—	—	—	—
Tinemaha		76·7	43	e 11 46	− 9	—	—	i 11 57	P_cP	—
Boulder City		78·4	46	e 12 4	0	e 22 22	+22	—	—	—
Overton		79·0	46	e 12 13	+ 6	—	—	e 12 22	P_cP	—
Pierce Ferry		79·1	47	i 12 10	+ 2	—	—	e 12 47	P_cP	—
Tucson		79·4	50	i 12 10	+ 1	e 22 14	+ 4	e 23 3	PS	e 33·0
Sitka		82·3	21	e 12 23	− 2	e 22 34	− 6	e 15 32	PP	e 34·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grand Coulee		82·7	34	e 12 22	− 5	—	—	—	—	—
Salt Lake City		82·9	43	—	—	e 22 54	+ 8	—	—	e 34·9
Logan		83·5	42	e 12 55	+24	e 23 10	+18	e 23 41	PS	e 35·5
College		85·3	11	e 12 41	+ 1	e 23 6	− 4	e 24 1	PS	e 36·8
Bozeman		86·0	39	—	—	e 23 20	+ 3	e 25 30	?	e 36·2
Florissant	N.	97·2	52	—	—	e 25 12	+15	—	—	—
St. Louis	N.	97·3	52	—	—	e 25 11	+13	e 33 5	?	—
San Juan		113·1	77	e 19 26	PP	e 25 38	[+13]	e 29 0	PS	e 53·2
Bermuda		116·5	62	—	—	e 28 3	?	e 36 17	SS	e 61·5
Copenhagen		142·0	353	i 19 36	[+ 2]	23 18	SKP	—	—	—
De Bilt		146·1	359	i 19 43	[+ 2]	—	—	i 47 54	SSS	e 68·9
Collmberg		146·2	351	e 19 41	[0]	e 23 47	SKP	e 23 17	PP	—
Jena	N.	146·8	352	e 19 52	[+10]	—	—	—	—	—
Uccle		147·4	2	e 19 45?	[+ 2]	—	—	e 21 10?	?	e 68·9
Cheb		147·5	352	e 40 54?	?	—	—	—	—	e 71·9
Ksara		148·1	304	e 20 3	[+19]	—	—	e 22 42	PP	—
Bucharest		148·3	330	19 54?	[+ 9]	31 54?	?	—	—	—
Paris		149·3	3	i 19 49	[+ 3]	—	—	e 21 38	?	e 71·9
Strasbourg		149·5	356	e 19 59	[+12]	—	—	—	—	—
Zürich		150·6	356	e 19 42	[− 6]	—	—	—	—	—
Triest	N.	151·5	346	e 19 56	[+ 6]	—	—	—	—	—
Clermont-Ferrand		152·4	3	e 19 54	[+ 3]	—	—	—	—	e 70·9
Helwan	Z.	153·1	300	e 20 2	[+10]	—	—	e 23 48	PP	—
Coimbra		155·2	23	e 16 33	?	e 27 34	[+34]	e 20 23	PKP_2	74·6
Toledo	Z.	157·0	17	i 20 11	[+14]	—	—	—	—	—
San Fernando		159·3	26	e 20 4	[+ 4]	—	—	e 20 52	PKP_2	e 76·4
Granada		159·6	20	19 36	[−24]	—	—	20 48	PKP_2	81·3
Malaga		159·7	22	e 20 6	[+ 6]	i 26 23	[−41]	i 20 13	PKP	75·9

Additional readings :—
Auckland i =3m.39s. and 4m.14s., S =7m.5s.
Wellington sPP =5m.10s., sPcP =6m.5s., PcSZ =9m.49s., Q =10·9m.
Riverview iN =14m.29s.
Tuscon i =12m.23s., eSS =27m.40s.
Sitka e =18m.42s.
Logan ePPS =24m.2s., eSS =28m.13s.
College e =14m.43s., and 25m.19s.
Copenhagen 27m.45s. and 43m.6s.
Collmberg i =19m.46s. and 19m.50s., 19m.54s., and 20m.16s., e =21m.10s. and 25m.34s.
Helwan eZ =21m.26s. and 24m.54s.
Coimbra PP? =21m.37s., e =24m.34s., PPP? =25m.54s., e =33m.4s. and 35m.4s.
San Fernando eE =21m.44s.
Malaga iPPZ =24m.23s., PPPZ =28m.13s., iSSZ =30m.1s., SKKS =31m.14s., PPSZ =38m.7s.
Long waves were also recorded at La Paz, Chicago, Rapid City, Upsala, Aberdeen, and Ivigtut.

August 30d. Readings also at 1h. (La Paz), 2h. (Pierce Ferry, Boulder City, Palomar, Riverside, Pasadena, Mount Wilson, Haiwee and Shasta Dam), 5h. (Riverview), 6h. (New Delhi, Christchurch, Riverview, near Lick, Berkeley, and Branner), 7h. (Tinemaha, Riverside, Palomar, Tucson, Collmberg, and Tananarive), 8h. (Palomar, Tinemaha, Riverside, Mount Wilson, Tucson and Pasadena), 9h. (near Tananarive), 10h. (Riverview), 13h. (near Sofia and Belgrade), 14h. (Collmberg and La Paz), 15h. (Yalta), 16h. (near Andijan), 21h. (Tucson, Tinemaha, Palomar, Mount Wilson, Pasadena, and near Bogota).

August 31d. Readings at 3h. (Bucharest), 5h. (Irkutsk), 6h. (Haiwee, Mount Wilson, Palomar, Riverside, Tinemaha and Shasta Dam), 8h. (Collmberg), 9h. (Collmberg, Boulder City, Overton, Pierce Ferry, Grand Coulee, Tucson, Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Shasta Dam, Palomar, Auckland and near Apia), 10h. (Collmberg (2) and Riverview), 11h. (Collmberg, Boulder City, Overton, Pierce Ferry, Tucson, and Alicante). 13h. (Pasadena, Palomar, Tinemaha, Riverside, Tucson, Harvard and near San Juan), 15h. (St. Louis, Boulder City, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Shasta Dam, Grand Coulee, Sitka, and near College), 18h. (Angra do Heroismo, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Santa Barbara, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, and Grand Coulee), 19h. (Collmberg), 23h. (Christchurch, Colombo, Kodaikanal, New Delhi, Tananarive, Riverview, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Shasta Dam).

Sept. 1d. 22h. 44m. 8s. Epicentre 46°·8S. 165°·8E.

Intensity V in the South Island.

R. C. Hayes.
" Earthquakes in New Zealand during the year, 1945."
New Zealand Journal of Science and Technology, Vol. 27, No. 6, Sect. B, 1946. Wellington, 1947, p. 438. Map of Epicentres, p. 436.

$A = -\cdot6660$, $B = +\cdot1685$, $C = -\cdot7267$; $\delta = +4$; $h = -4$;
$D = +\cdot245$, $E = +\cdot969$; $G = +\cdot704$, $H = -\cdot178$, $K = -\cdot687$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Monowai		1·6	51	0 52?	?	1 11?	?	—	—	—
Christchurch		5·8	58	1 32	+ 3	—	—	—	—	—
Kaimata		5·9	45	1 30	− 1	2 25	−15	—	—	—
Wellington		8·5	53	2 7	0	3 39	− 6	—	—	—
Bunnythorp		9·6	51	—	—	4 31?	+19	—	—	—
New Plymouth		9·8	41	2 25	+ 1	4 16	− 1	—	—	—
Tuai		11·5	50	3 3?	+15	—	—	—	—	—
Auckland		12·0	37	2 54	− 1	—	—	—	—	—
Riverview		17·1	314	i 4 2k	0	i 7 14	+ 2	i 4 9	pP	8·2
Brisbane		21·8	330	i 4 55	− 1	9 16?	+24	—	—	—
Perth		40·7	275	7 42	− 2	13 54	− 1	9 20	PP	19·5
Honolulu		75·3	37	e 11 47	0	e 21 44	+18	e 14 22	PP	e 34·1
La Plata	E.	89·7	146	12 58	− 3	23 48	− 4	19 33	PPP	36·2
	N.	89·7	146	13 1	0	22 22	[− 9]	—	—	43·8
Tananarive		94·4	237	e 17 13	PP	23 57	[− 1]	24 19	SKKS	e 43·6
Kodaikanal	E.	96·2	279	12 59	−32	23 37	[−31]	24 22	SKKS	39·8
Calcutta	N.	98·0	295	e 19 48	PPP	i 24 20	[+ 3]	—	—	—
Huancayo		100·0	121	e 13 55	+ 7	e 24 27	[0]	e 17 54	PP	e 41·2
La Paz		100·5	129	i 13 56	+ 5	24 32	[+ 3]	i 17 50	PP	47·8
Hyderabad		100·7	284	14 0	+ 8	24 27	[− 4]	18 13	PP	—
Santa Barbara		104·9	57	e 18 30	PP	e 27 58	PS	—	—	—
Guadalajara		105·3	77	e 20 31	PPP	e 24 42	[−10]	e 25 32	SKKS	e 47·3
Bombay		105·5	281	e 17 21	?	i 24 55	[+ 2]	(33 38)	SS	33·6
Pasadena		105·6	58	i 14 12	− 1	e 24 53	[0]	e 18 31	PP	e 43·7
Mount Wilson	Z.	105·7	58	i 18 30	PP	—	—	i 30 18	PKKP	—
Branner	N.	105·7	53	e 28 0	PS	—	—	—	—	e 49·5
Palomar	Z.	105·8	59	i 14 14	0	—	—	i 18 32	PP	—
Santa Clara		105·8	53	e 14 17	+ 3	e 28 8	PS	i 18 38	PP	e 49·4
Riverside		105·9	58	i 14 15	+ 1	e 28 9	PS	e 18 44	PP	—
Berkeley		106·0	53	14 12	− 3	i 25 11	[+16]	18 40	PP	e 48·8
Ukiah		106·4	51	e 14 32	P	e 28 19	PS	e 18 41	PP	e 44·4
Fresno	N.	106·5	54	18 45	PP	28 4	PS	—	—	e 53·8
Ferndale	E.	106·9	49	e 20 28	?	e 29 10	PPS	—	—	e 47·9
Tacubaya		107·2	81	e 27 57	PS	e 28 21	PPS	—	—	e 50·6
Tinemaha		107·6	55	e 18 48	PP	e 28 19	PS	e 29 55	PKKP	—
Shasta Dam		108·0	50	e 18 13	[−16]	e 28 19	PS	e 18 53	PP	—
Tucson		108·6	63	e 14 25	P	e 25 2	[− 4]	e 18 52	PP	e 44·2
Boulder City		108·8	58	e 15 38	?	e 28 2	PS	e 18 57	PP	e 49·4
Vera Cruz		109·2	83	—	—	i 28 31	PS	i 29 16	PPS	51·3
New Delhi	N.	109·3	292	e 14 39	P	25 6	[− 3]	25 59	SKKS	—
Overton		109·4	57	e 14 2	P	—	—	—	—	—
Pierce Ferry		109·4	58	e 18 21	[−11]	—	—	e 19 9	PP	—
Irkutsk		111·8	324	19 24	PP	25 33	[+13]	28 45	PS	—
Seattle		113·0	45	e 29 22	PS	—	—	—	—	e 51·2
Victoria		113·1	43	19 44	PP	26 28	{+ 1}	29 31	PS	54·9
Salt Lake City		113·8	56	e 19 40	PP	e 25 16	[−11]	e 29 18	PS	e 46·8
Logan		114·5	55	e 18 45	[+ 3]	i 28 50	PS	e 34 56	SS	e 57·1
Grand Coulee		114·8	46	e 18 42	[− 1]	e 29 25	PS	e 19 32	PP	e 55·9
Sitka		114·9	31	e 14 49	P	i 26 56	{+17}	e 19 38	PP	e 46·9
Butte		116·8	51	e 19 48	PP	e 25 42	[+ 3]	i 29 55	PS	e 48·1

Continued on next page.

		△	Az.	P.		O−C.	S.		O−C.	Supp.			L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.		m.
College		117·0	20	e 19	54	PP	e 25	52	[+13]	e 29	46	PS	e 49·9
Bozeman		117·4	52	e 20	0	PP	e 25	46	[+ 5]	i 29	48	PS	e 46·3
Rapid City		120·8	57	e 20	23	PP	e 26	1	[+ 8]	e 30	25	PS	e 55.6
Mobile		122·2	78		20	46	PP	30	48	PS	—	—	—
Tashkent		122·5	298	i 20	36	PP	27	31	{ 0}	30	42	PS	—
Saskatoon		123·7	48		20	36	PP	30	47	PS	42	4	SSS	60·9
St. Louis		125·6	69	e 19	2	[− 2]	i 26	19	[+11]	i 20	54	PP	i 60·1
Florissant		125·6	69	e 19	0	[− 4]	e 26	18	[+10]	i 20	53	PP	i 60·5
Chicago		129·0	67	e 21	15	PP	e 28	23	{+10}	e 31	18	PS	e 54·6
Columbia		129·0	79	e 21	16	PP	e 26	24	[+ 7]	e 38	35	SS	e 58·4
San Juan		129·1	106	e 19	11	[+ 1]	e 25	58	[−20]	e 21	14	PP	e 54·0
Cincinnati		129·6	73	i 19	12	[+ 1]	i 22	31	PKS	i 21	19	PP	e 60·9
Fort de France		129·6	115	e 22	29	PKS	—		—	—		—	—
Georgetown		134·3	77	e 19	19	[− 1]	i 22	53	PKS	e 21	51	PP	—
Pennsylvania		134·8	74	e 21	54	PP	e 28	58	{+ 8}	i 22	49	PKS	—
Philadelphia		136·1	77	e 19	21	[− 2]	i 32	20	PS	e 21	55	PP	e 64·0
Fordham		137·4	76	e 19	15	[−11]	i 32	47	PS	i 22	15	PP	65·4
Erevan		137·8	284	e 19	34	[+ 7]	—		—	e 23	5	PKS	—
Ottawa		138·3	68		19	22	[− 5]	29	22	{+11}	22	12	PP	62·9
Bermuda		139·2	93	e 19	22	[− 7]	e 26	58	[+20]	e 22	31	PP	e 55·8
Harvard		139·7	75	e 19	50	[+20]	e 23	19	PKS	e 22	26	PP	e 72·9
Weston		139·9	75		19	16	[−14]	e 34	47	PPS	22	19	PP	—
Ksara		140·3	269	e 19	34	[+ 3]	—		—	e 22	40	PP	—
Shawinigan Falls		140·6	68	e 21	10	?	e 41	22	SS	e 22	31	PP	67·9
Helwan		141·1	261		19	27	[− 5]	29	37	{+ 9}	22	43	PP	—
Seven Falls		142·1	68		19	26	[− 8]	29	34	{ 0}	22	52	PKS	68·9
Halifax		145·9	75		19	44	[+ 3]	30	10	{+15}	23	16	PKS	68·9
Yalta		146·5	284	e 19	41	[− 1]	—		—	—		—	—	—
Moscow		147·1	306		19	40	[− 3]	26	48	[− 2]	22	49	PP	—
Bucharest		151·9	281	e 14	0	?	—		—	—		—	—	45·9
Sofia		153·2	276	e 20	4	[+12]	e 23	40	PKS	—		—	—	e 76·9
Ivigtut		155·7	41		19	49	[− 6]	26	34	[−26]	20	23	PKP$_2$	—
Belgrade		155·9	278	e 20	29$_a$	[+33]	e 30	55	{+ 5}	e 37	41	PPS	e 86·9
Upsala		157·2	316	e 20	13	[+16]	e 27	50?	[+48]	e 23	27	PP	e 67·9
Triest		160·7	277	e 20	1	[− 1]	i 31	14	{− 2}	e 24	28	PP	—
Prague		160·8	292	e 19	38	[−24]	e 27	10	[+ 5]	e 23	58	PP	e 67·9
Copenhagen		161·2	309	i 19	58	[− 4]		28	3	[+57]	e 24	21	PP	—
Collmberg		161·7	294	e 20	1	[− 1]	e 27	6	[0]	e 24	43	PP	e 91·9
Bergen		162·2	327	e 19	52?	[−11]	e 27	22	[+15]	e 24	35	PP	e 72·9
Jena	Z.	162·6	292	e 20	10	[+ 7]	e 28	40	PPP	—		—	—	—
Chur		163·8	279	e 20	16	[+11]	e 31	28	{− 4}	—		—	—
Zürich		164·5	280	e 20	4	[− 1]	e 24	52	PP	—		—	—
Strasbourg		165·1	285	e 20	51	[+45]	e 32	33	{+54}	e 24	52	PP	e 77·9
Basle		165·2	281	e 21	11	?	—		—	e 24	53	PP	—
Neuchatel		165·5	279	e 20	4	[− 2]	—		—	—		—	—
Marseilles		165·7	263	e 21	49	?	e 32	8	{+27}	e 25	30	PP	e 84·9
De Bilt		166·3	300	e 20	5$_a$	[− 2]	i 45	42	SS	i 25	6	PP	e 75·2
Barcelona		167·1	251	e 20	42	[+35]	e 30	59	{−49}	e 24	57	PP	83·0
Uccle		167·1	295	e 20	5$_a$	[− 2]	e 31	50	{+ 2}	e 25	11	PP	e 81·9
Aberdeen	N.	167·2	329	e 20	16	[+ 8]	i 31	33	{−16}	i 25	5	PP	79·2
Granada		167·6	223	i 20	1$_k$	[− 7]	i 31	44	{− 7}	i 20	32	pPKP	82·5
Malaga	Z.	167·6	219	i 20	4$_k$	[− 4]	i 27	5	[− 5]	i 25	0	PP	76·5
Tortosa	N.	167·8	246	i 20	12	[+ 4]		31	51	{− 1}	25	20	PP	e 73·9
Clermont-Ferrand		168·0	271	e 20	6	[− 2]	e 32	12	{+19}	i 25	9	PP	e 80·9
San Fernando	E.	168·1	213	i 20	0	[− 8]	e 26	14	[−56]	i 25	1	PP	78·6
Edinburgh		168·6	327	e 21	22	?		32	2	{+ 6}	29	7	PPP	—
Paris		168·6	286	i 20	4	[− 4]		27	2	[− 9]	i 25	17	PP	e 80·9
Kew		169·8	302	i 20	6$_a$	[− 3]	e 26	57?	[−14]	e 25	21?	PP	e 87·9
Toledo		169·9	231	e 20	6	[− 3]		46	20	SS	i 25	19	PP	78·9
Lisbon		171·1	206		20	9	[− 1]		31	58	{−10}	25	18	PP	76·7
Coimbra		172·2	214		20	26	[+15]		32	29	{+15}	26	44	PP	76·4

For Notes see next page.

NOTES TO SEPTEMBER 1d. 22h. 44m. 8s.

Additional readings :—
Riverview iPPEN =4m.19s., iPPPZ =4m.25s., iN =7m.0s., iE =7m.7s., iSSNZ =7m.32s.
Perth SS =16m.47s., SSS =17m.47s.
Honolulu eS_cS =22m.4s., eSSS =29m.28s.
La Plata PPS?Z =25m.28s., SSE =29m.46s., QN =36m.40s.
Tananarive PS =25m.57s., SS =31m.3s.
Kodaikanal PPE =16m.36s., SSE =28m.7s.
Huancayo eS =25m.37s., iPS =27m.5s., eSS =31m.37s.
La Paz iPPP =19m.22s., SZ =25m.57s., PSZ =26m.52s., PPS =27m.46s., iSSZ = 32m.32s., SSS =36m.37s., iZ =43m.16s.
Hyderabad SN =25m.27s., PSN =26m.58s., SSE =32m.8s.
Guadalajara eE =22m.2s.
Pasadena eZ =17m.7s., ePSEN =27m.53s., iPPS =28m.54s., eSS =33m.58s.
Branner ePSE =28m.10s.
Santa Clara eSS =33m.24s.
Riverside ePKKPZ =30m.10s., iZ =30m.16s.
Berkeley iPSEZ =28m.2s., iPSN =28m.12s., iPPS =28m.52s., iSSE =33m.58s., iSSN = 34m.4s., iSSE =34m.21s., eSSSSE =43m.26s., eSSSSN =43m.46s.
Ukiah ePPS =25m.12s., eSSS =34m.7s.
Tucson e =17m.47s., 20m.50s., and 26m.12s., iPS =28m.33s., e =29m.36s., PKKP = 29m.56s., eSS =33m.48s., eSSS =37m.48s.
Boulder City i =29m.47s.
Vera Cruz eN =40m.58s., eE =41m.1s.
New Delhi ePKPN =18m.50s., eN =21m.24s., 23m.24s., and 26m.21s., SKKSN = 27m.31s., eN =34m.7s., 38m.36s., and 41m.44s.
Overton e =19m.55s.
Irkutsk SS =34m.33s., SSS =38m.58s.
Salt Lake City eSS =35m.48s.
Logan e =21m.28s. and 28m.38s.
Sitka iPS =29m.24s., iPPS =30m.22s., eSS =35m.32s., e =38m.26s.
Butte eSS =36m.3s.
College eSS =35m.44s.
Bozeman eSS =35m.22s.
Rapid City e =27m.35s., ePPS =31m.45s., eSS =37m.46s., eSSS =41m.55s.
Tashkent eS =28m.25s., PPS =32m.7s., SS =37m.10s.
Saskatoon PPS =37m.4s.
St. Louis iZ =21m.6s., eSKPE =22m.15s., eE =25m.13s., iSKKSE =28m.5s., iPSE = 30m.54s., iE =38m.43s. 40m.54s., and 46m.33s.
Florissant ePP?Z =20m.43s., eSKP?E =22m.22s., iSKKSE =28m.6s., iPSE =30m.53s., iE =31m.8s.
Chicago e =22m.15s. and 37m.25s., eSS? =39m.35s., e =47m.36s.
Columbia e =22m.27s. and 31m.22s., ePPS =33m.24s., e =44m.27s.
San Juan i =28m.22s., ePS =32m.23s., iSS? =39m.17s., eSS =47m.52s.
Cincinnati eP =15m.58s., ePS =31m.28s.
Georgetown PS =33m.59s.
Pennsylvania e =32m.11s., 33m.54s., and 40m.14s.
Philadelphia ePPS =33m.55s., eSS =40m.7s., eSSS =45m.0s.
Fordham iPKP =19m.30s.
Ottawa SKP =25m.28s., PSKS =32m.22s., PPS =34m.52s.?, SS =41m.52s.?, SSS = 46m.28s.
Bermuda i =23m.6s., e =32m.33s., ePPS =34m.53s. eSS =41m.18s.
Weston eP =16m.52s., e =19m.45s.
Helwan eZ =25m.43s.
Seven Falls PSKS =32m.58s., PPS =35m.22s., SS =41m.11s.
Halifax S =33m.16s.
Moscow PKS =23m.10s., PPP =26m.13s., PS =33m.37s., SS =42m.10s.
Bucharest eN =14m.12s.
Sofia $ePKP_2E$ =20m.22s., eSSE =45m.52s.?, eE =49m.40s.
Ivigtut 23m.52s., 31m.5s., 33m.40s., 37m.16s., and 44m.52s.
Belgrade e =22m.6s.
Upsala ePKPN =20m.25s., ePKS?E =23m.39s., ePKSN =23m.50s.?, eSKKSN = 34m.23s., ePPSE =37m.31s., SSE =43m.47s., eSSN =43m.57s.
Triest $iPKP_2Z$ =20m.36s., iPSKSE =35m.26s., iSSN =44m.28s., eSSS =50m.37s.
Prague eP =18m.16s., eSKP =23m.16s., SKS =26m.28s., ePPP ($\Delta > 180°$) =31m.4s., ePS? =35m.52s.?, ePPS? =37m.46s., eSS =45m.22s., eSSS =50m.52s.
Copenhagen i =20m.45s., 30m.45s., 42m.52s., 45m.40s., and 52m.4s.
Collmberg iPP =21m.54s., eSKKS =28m.43s., eS =29m.55s. ePS =32m.22s., eSS = 39m.16s., and other unidentified readings.
Bergen PKPE =20m.51s., PKPZ =20m.54s., eN =35m.5s., eE =35m.12s., 38m.12s., and 42m.11s., eN =44m.56s., 45m.10s., and 50m.17s.
Jena eZ =21m.10s.
Chur e =32m.12s.
Zürich e =21m.11s.
Strasbourg i =22m.1s.
Marseilles ePSKS =36m.28s., eSS =45m.52s.
De Bilt $iPKP_2$ =21m.14s.
Uccle $ePKP_2$ =21m.16s., ePPPEN =29m.6s.? eN =36m.44s.

Continued on next page.

Aberdeen iN =21m.10s., eE =28m.2s., iN =38m.49s., 46m.2s., and 51m.54s.
Granada PKP_2 =21m.14s., PP =25m.16s., pPP =25m.52s., PPP =29m.29s., iSKSP = 35m.34s., SS =46m.5s., sSS =46m.53s., SSS =53m.17s.
Malaga $ePKP_2Z$ =21m.28s., iPPPZ =29m.44s., SKKSZ =32m.10s., SKKKSZ =33m.14s. SKSPZ =36m.8s., PPSZ =39m.2s., SKS.SKSZ =45m.46s., QZ =67m.18s.
Tortosa PKP_2N =21m.20s., SKPN =23m.35s., PPPN =29m.38s., SKSPN =35m.43s., PPSN =39m.41s., SSPN =47m.28s., SSN =49m.17s., SSSN =53m.13s.
Clermont-Ferrand e =21m.24s., ePPP? =29m.14s.
San Fernando iPKPE =21m.3s., PPPE =29m.0s., eSKKSE =31m.10s., SSSE = 52m.35s.
Edinburgh SS =46m.7s.
Paris i =21m.27s., SKKS? =31m.51s., PSKS =35m.46s., i =37m.26s., SS =45m.52s.?
Kew $ePKP_2$ =21m.25s.?, iZ =22m.51s., ePKS =23m.57s.?, iPPPEZ =29m.18s., ePPP?N ($\Delta > 180°$) =31m.19s., eSKKSEN =32m.23s., eSKSPE =35m.41s., eSSEN = 45m.52s.?, eQEN =81·9m.
Lisbon PKPE =20m.14s.?, N =22m.45s. and 31m.21s., E =35m.58s., N =36m.2s., SSN =46m.13s., SSE =46m.40s.
Coimbra ? =24m.38s. and 25m.40s., SKKS =33m.54s., ? =36m.28s., PSKS =37m.24s., ? =41m.24s., SS =47m.24s., SSS =55m.4s.
Long waves were also recorded at Lick.

Sept. 1d. Readings also at 0h. (Kew), 7h. (Tucson), 8h. (Auckland), 9h. (Mount Wilson, Riverside and Tucson), 10h. (near Samarkand), 15h. (Huancayo, La Paz and near Tucson), 16h. (near Shasta Dam), 22h. (near Tananarive).

Sept. 2d. 11h. 54m. 5s. Epicentre 34°·4N. 28°·9E. Depth of focus 0·010.

Felt at Cairo.
Epicentre 34°·0N. 28°·3E. Depth 70—100km. (B.C.I.S.).
Bulletin Météorologique et séismique de l'Observatorie d'Istanbul-Kandilli, Année 1945, Istanbul 1950, p. 112.

$A = +·7239$, $B = +·3996$, $C = +·5624$; $\delta = +1$; $h = 0$:
$D = +·483$, $E = -·875$: $G = +·492$, $H = +·272$, $K = -·827$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Helwan		5·0	155	1 10	− 4	2 7	− 4	1 19 PP	—
Ksara		5·8	94	i 1 21	− 4	i 2 28	− 3	— —	—
Sofia		9·4	334	i 2 12	− 2	i 3 54	− 5	— —	—
Bucharest	N.	10·2	349	e 2 24	− 1	i 4 26	+ 8	e 3 14 ?	5·4
Yalta		10·9	21	e 2 33?	− 1	—	—	— —	—
Campulung		11·2	346	e 2 37	− 1	e 4 13	−29	— —	—
Belgrade		12·3	331	e 2 49k	− 4	i 5 11	+ 3	e 3 5 PP	—
Erevan		13·7	60	3 13	+ 2	—	—	i 3 27 pP	—
Prague		18·9	331	4 12	− 3	7 40	+ 1	4 31 pP	e 8·4
Chur		19·2	315	i 4 15	− 4	e 7 47	+ 2	— —	—
Cheb		19·8	328	(4 40)	+15	(8 8)	+10	— —	(e 12·9)
Zürich		20·0	316	i 4 24k	− 3	e 8 0	− 2	— —	—
Marseilles		20·3	303	i 4 51	+21	e 8 29	+22	i 8 34 SS	—
Collmberg	Z.	20·5	330	i 4 29	− 3	i 8 17	+ 6	i 4 47 pP	i 11·4
Basle		20·7	317	e 4 32	− 2	e 8 11	− 4	— —	—
Jena		20·8	328	e 4 40	+ 5	i 8 25	+ 8	i 4 57 PP	—
Neuchatel		20·8	315	e 4 32	− 3	e 8 14	− 3	— —	—
Strasbourg		21·2	320	i 4 37	− 2	i 8 26	+ 2	i 9 16 SSS	—
Barcelona		22·2	298	e 4 47	− 2	8 44	+ 2	5 34 PPP	—
Moscow		22·2	13	4 49	0	8 47	+ 5	5 6 pP	—
Clermont-Ferrand		22·7	308	i 4 54	0	i 8 57	+ 6	— —	e 10·9
Tortosa		23·3	295	i 4 59	− 1	i 9 5	+ 3	5 22 pP	11·5
Copenhagen		24·1	337	i 5 6a	− 1	i 9 17	+ 2	i 5 35 pP	—
Uccle		24·2	320	e 5 8a	0	i 9 17	0	e 5 21? pP	e 10·9
Paris		24·3	314	i 5 8	− 1	i 9 17	− 1	i 5 20 pP	e 13·9
De Bilt		24·5	324	i 5 10a	− 1	i 9 25	+ 3	— —	e 12·9
Granada		26·4	268	i 5 35a	+ 6	i 9 59	+ 5	i 6 1 pP	—
Upsala		26·5	347	e 5 28	− 2	i 9 52	− 3	e 10 31 sS	—
Toledo		26·7	292	e 5 27	− 5	e 10 0	+ 2	— —	—
Kew		27·1	319	i 5 32	− 4	i 10 4	− 1	i 5 55 pP	—

Continued on next page.

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		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga		27·1	285	e 5 39	+ 3	i 10 13	+ 8	i 6 13	sP	13·8
San Fernando		28·6	284	e 5 50	+ 1	i 10 31	+ 2	i 6 30	PP	e 13·8
Bergen		30·2	337	6 1	− 2	10 53	− 1	—	—	—
Lisbon		30·7	290	6 8a	0	i 11 5	+ 3	—	—	12·8
Samarkand		30·7	69	(e 5 35)	−33	e 5 35	P	6 47	sP	—
Edinburgh		30·8	324	e 6 5	− 4	11 38	+34	7 5	PP	—
Sverdlovsk		31·1	34	i 6 11	0	e 11 14	+ 6	—	—	—
Tashkent		32·4	65	e 6 25	+ 3	11 35	+ 6	—	—	—
Andijan		34·7	67	e 6 45	+ 3	12 13	+ 9	—	—	—
New Delhi	N.	41·3	84	7 52	+15	i 13 48	+ 4	14 24	sS	—
Bombay		41·8	101	e 7 37	− 4	i 14 0	+ 8	—	—	—
Hyderabad	N.	47·2	98	8 25	0	15 11	+ 2	10 33	PP	—
Kodaikanal	E.	50·4	107	7 57	−52	i 14 51	−63	9 51	PP	22·6
Calcutta	N.	52·9	86	e 11 19	PP	—	—	—	—	—
Ivigtut		54·4	324	9 17a	− 2	16 50	+ 2	17 26	PS	—
Irkutsk		55·1	47	i 9 25	+ 1	i 17 6	+ 8	—	—	—
Shawinigan Falls		73·0	315	11 22	+ 1	20 44	+ 5	—	—	—
Weston		74·4	311	i 11 30	+ 1	e 21 0	+ 6	—	—	—
Harvard		74·5	311	i 11 30	0	—	—	—	—	—
Ottawa		75·4	315	11 34	− 1	21 21	+ 7	—	—	43·9
Fordham		76·8	310	i 11 42	− 1	i 21 26	+ 5	i 22 14	sS	—
Philadelphia		78·2	310	i 11 50	0	e 21 34	− 2	—	—	—
Pennsylvania		79·3	312	i 11 57	+ 1	i 21 52	+ 5	i 12 15	pP	—
Georgetown		80·0	310	i 12 1	+ 1	i 22 0	+ 5	e 27 9	SS	—
Pittsburgh		80·8	313	e 10 54	−70	e 20 56	−67	—	—	—
San Juan		83·8	288	e 12 19	− 1	e 22 33	0	e 23 12	sS	e 35·3
Chicago		84·4	318	e 12 19	− 4	e 22 33	− 6	e 12 33	pP	e 41·1
Cinncinati		84·4	314	i 12 22	− 1	i 22 37	− 2	i 12 39	pP	e 47·9
Saskatoon		85·5	335	12 33	+ 5	22 50	0	—	—	48·9
Florissant		88·0	317	i 12 40	0	e 23 16	+ 2	i 12 58	pP	—
St. Louis		88·0	317	i 12 40	0	i 23 17	+ 3	i 12 59	pP	—
Rapid City		90·6	328	i 12 56	+ 3	e 23 18	[+14]	i 13 12	pP	—
Mobile		92·2	310	—	—	23 27	[+ 5]	—	—	—
Grand Coulee		93·1	339	i 12 59	− 5	e 23 54	− 6	i 16 46	PP	—
Shasta Dam		100·7	338	i 13 38	− 1	—	—	—	—	—
Overton		101·6	330	e 13 45	+ 2	—	—	i 14 20	pP	—
Pierce Ferry		101·8	330	i 13 44	0	—	—	i 17 54	PP	—
Boulder City		102·2	330	i 13 46	+ 1	e 24 59	−17	e 17 50	PP	—
Tinemaha		102·6	333	e 13 52	+ 5	—	—	i 29 47	PKKP	—
Haiwee		103·3	333	e 13 52	+ 2	—	—	i 30 7	pPKKP	—
Tucson		103·7	326	i 13 52	0	e 25 10	−19	i 18 5	PP	e 51·4
La Paz		104·8	260	e 17 13	?	—	—	—	—	56·9
Mount Wilson		105·0	332	i 14 0	+ 2	e 27 27	PS	18 18	PP	—
Riverside	z.	105·0	332	e 13 59	+ 1	—	—	i 18 17	PP	—
Pasadena		105·2	332	i 13 57	− 1	i 27 22	PS	i 18 17	PP	e 50·2
Palomar		105·3	330	i 14 1	+ 2	i 27 28	PS	i 18 23	PP	—

Additional readings :—
Belgrade i = 2m.52s., ePP = 3m.43s., eSS = 6m.28s.
Cheb readings decreased by two minutes.
Collmberg i = 4m.32s. and 4m.42s., iPP = 4m.52s., iPPP = 4m.56s., i = 5m.44s., 6m.36s., and 8m.47s., iSS = 9m.3s., i = 9m.19s. and 10m.2s.
Jena eN = 4m.47s., iSEN = 8m.30s., iZ = 9m.2s., iN = 9m.8s., eN = 10m.15s.
Barcelona SS = 9m.22s.
Tortosa SSN = 10m.2s., SSSEN = 10m.29s.
Copenhagen 9m.24s., i = 9m.50s.
Uccle ePPEN = 6m.1s., iSE = 9m.20s., eSS = 10m.12s.
Paris i = 7m.55s. and 10m.59s.
Upsala ePPN = 6m.24s., iN = 10m.1s., eE = 12m.53s.?, eN = 18m.28s.
Kew iPP = 6m.20s., iPPP = 6m.44s., iP_cPZ = 8m.51s., iSS? = 10m.24s.
Malaga P_cP = 8m.31s., S_cP = 12m.15s.
San Fernando iPPPEZ = 6m.49s., iSSEZ = 11m.16s.
New Delhi iN = 8m.10s., P_cPN = 9m.29s., SSN = 17m.16s., iN = 17m.41s.
Hyderabad SSN = 18m.48s.
Kodaikanal SSE = 18m.7s.
Pennsylvania eSKS = 22m.5s., i = 22m.14s., ePS = 22m.28s., eSP = 22m.44s., eSS = 27m.21s.
Pittsburgh i = 11m.49s., ePP = 13m.34s., i = 17m.53s., eS = 20m.27s., e = 23m.0s.

Continued on next page.

San Juan eSSS =31m.3s.
Chicago eSS =23m.0s., e =27m.36s.
Cincinnati esS =23m.9s.
Florissant ePPZ =16m.6s., epPPZ =16m.26s., eSKSN =22m.59s.,e sSKSN =23m.52s., isS?Z =24m.19s., eZ =24m.53s., eN =29m.17s.
St. Louis iP_eP?Z =12m.52s., ipP_ePZ =13m.10s., iZ =14m.38s. and 14m.47s., ePPZ = 16m.6s., eZ =16m.11s., epPPZ =16m.26s., eSKSE =23m.1s., isSKSE =23m.54s., eE =24m.4s., esS?E =24m.19s., eSSE =30m.13s.
Rapid City e =15m.42s. and 24m.48s.
Grand Coulee iSKS =23m.33s.
Overton iPP =17m.21s., i =18m.21s.
Boulder City i =16m.52s., eSKS =24m.23s., i =29m.47s. and 30m.11s.
Tinemaha eZ =17m.3s., i =30m.10s.
Tucson ipPP =18m.25s., ePS =27m.7s., i =30m.5s., ePKP,PKP =38m.3s.
Mount Wilson eZ =17m.1s., iZ =17m.55s., ipPKKPZ =29m.59s. iPKP,PKPZ =38m.2s.
Riverside eZ =18m.8s., iPKKPZ =29m.41s., ipPKKPZ =29m.58s.
Pasadena eZ =17m.55s., iZ =28m.19s., iPKKPZ =29m.40s., ipPKKPZ =29m.57s.
Palomar eZ =17m.8s., iZ =18m.13s., iPKKPZ =29m.40s., i =29m.58s., iPKP,PKPZ = 37m.36s.
Long waves were also recorded at Riverview.

Sept. 2d. Readings also at 0h. (near Tananarive), 1h. (Bombay, Calcutta and Andijan), 2h. (La Paz), 3h. (Salt Lake City, Shasta Dam, Tinemaha, Riverside, Pasadena, Mount Wilson, Pierce Ferry, Boulder City, Palomar, Tucson, near Samarkand, Tashkent, Stalinabad, Andijan, and near Bogota), 4h. (near Mizusawa), 8h. (near Samarkand), 9h. (Pierce Ferry), 12h. (Collmberg), 13h. (San Juan), 14h. and 15h. (Collmberg), 17h. (Boulder City, Riverside, Pasadena, Tucson, Mount Wilson, and Tinemaha), 18h. (Collmberg), 22h. (near Andijan, Samarkand and Stalinabad), 23h. (near New Delhi).

Sept. 3d. 12h. 59m. 24s. Epicentre 0°·4S. 20°·5W.

$A = +·9366$ $B = -·3502$ $C = -·0070$; $\delta = -9$; $h = +7$;
$D = -·350$, $E = -·937$; $G = -007$, $H = +002$, $K = -1·000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga		39·9	21	e 7 32	− 5	e 14 40	+57	—	—	24·6
Granada		40·6	22	e 7 40a	− 3	14 17	+23	9 42	PP	23·5
Toledo		42·8	19	i 8 3	+ 2	e 15 6	+40	—	—	—
San Juan		48·6	295	e 9 6	+19	e 15 46	− 3	—	—	e 19·8
La Paz		49·6	249	i 8 54	− 1	—	—	—	—	25·0
Clermont-Ferrand		50·5	22	—	—	—	—	20 36?	SS	—
Bermuda		52·9	313	—	—	e 17 3	+15	e 20 0	SS	e 21·8
Paris		52·9	19	e 9 20	0	e 16 56?	+ 8	—	—	e 24·6
Basle		53·7	24	e 9 24	− 2	—	—	—	—	—
Chur		53·9	25	e 9 27	0	—	—	—	—	—
Zürich		53·9	24	e 9 28	+ 1	—	—	—	—	—
Strasbourg		54·6	23	e 9 36	+ 4	—	—	—	—	—
Triest		54·9	29	e 9 35	0	e 17 15	− 1	—	—	—
Uccle		55·2	19	e 17 36	PS	—	—	—	—	e 26·6
De Bilt		56·6	19	i 9 48	+ 1	i 17 44	+ 6	e 24 6	SSS	—
Helwan	z.	57·8	54	e 9 52	− 3	—	—	—	—	—
Jena	N.	57·9	24	e 10 4	+ 8	—	—	—	—	—
Collmberg	z.	58·8	24	e 10 0	− 2	—	—	—	—	e 29·0
Copenhagen		62·0	20	e 9 26?	−58	18 52	+ 4	25 36?	SS	—
Harvard		62·6	321	i 10 29	+ 1	—	—	—	—	—
Ottawa		66·6	321	e 10 54	0	—	—	—	—	27·6
St. Louis		74·5	310	i 11 40	− 2	e 21 32	+15	e 25 54	SS	—
Tucson		90·5	302	i 13 6	+ 1	—	—	—	—	—
Tinemaha	z.	96·4	307	e 13 31	− 1	—	—	e 17 27	PP	—

Additional readings:—
Copenhagen 23m.51s.
Long waves recorded at Huancayo.

Sept. 3d. 19h. 30m. 33s. Epicentre 33°·0S. 71°·5W.

Intensity V-VI on North-West Coast of Chile
Epicentre as adopted. Suggested depth 60km.

Frederico Greve.
Instituto Seismológico de la Universidad de Chile, 1945. "Lista de Sismos sensibles al Hombre recollectados por media del Servicio de Postales informativas" p. 12.
U.S.C.G.S. Seismo. Bull. M.S.I. 123, Washington, p. 42.

$A = +\cdot2666$, $B = -\cdot7969$, $C = -\cdot5421$; $\delta = 0$; $h = +1$;
$D = -\cdot948$, $E = -\cdot317$; $G = -\cdot172$, $H = +\cdot514$, $K = -\cdot840$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	11·4	103	i 2 37	−10	4 51	− 5	—	—	5·8
	N.	11·4	103	2 47	0	4 57	+ 1	—	—	5·4
	Z.	11·4	103	2 42	− 5	—	—	—	—	5·6
La Paz		16·7	11	i 4 3	+ 6	—	—	—	—	5·0
Huancayo		21·2	351	e 5 7	+18	e 8 43	+ 2	—	—	e 10·4
St. Louis		73·4	346	i 11 33	− 3	e 21 0	− 5	e 11 45	pP	—
Tucson		74·8	327	i 11 44	0	—	—	—	—	—
Palomar		78·6	323	i 12 5a	0	—	—	—	—	—
Pierce Ferry		79·4	327	i 12 10	+ 1	—	—	—	—	—
Riverside	Z.	79·4	323	i 12 9a	0	—	—	—	—	—
Boulder City		79·7	326	i 12 10	− 1	—	—	—	—	—
Mount Wilson		79·9	323	i 12 12a	0	—	—	—	—	—
Pasadena		79·9	323	i 12 12a	0	—	—	i 12 26	pP	—
Overton		80·0	327	i 12 13	0	—	—	—	—	—
Santa Barbara	Z.	80·9	322	i 12 19	+ 2	—	—	—	—	—
Haiwee		81·4	324	i 12 20	0	—	—	—	—	—
Tinemaha		82·3	324	i 12 24a	− 1	—	—	—	—	—
Shasta Dam		87·1	324	i 12 46	− 3	—	—	—	—	—

Additional readings :—
Huancayo e = 5m.53s.
St. Louis esSE = 21m.22s.
Tucson i = 12m.3s. and 13m.1s.
Riverside eZ = 12m.22s.
Mount Wilson iZ = 12m.25s.
Tinemaha eZ = 12m.39s., iNZ = 13m.9s.

Sept. 3d. Readings also at 1h. (Auckland), 3h. (La Paz, Boulder City, Overton, Pierce Ferry, Tucson (2), Mount Wilson, Riverside, and Tinemaha), 5h. and 7h. (Samarkand), 8h. (La Paz), 10h. (La Plata and Collmberg), 11h. (Samarkand), 13h. (Collmberg), 14h. (Collmberg and near Stalinabad), 16h. (La Paz, St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Shasta Dam), 18h. (College), 19h. (near La Paz), 22h. (near Bogota).

Sept. 4d. 11h. 14m. 0s. Epicentre 37°·3N. 118°·1W.

$A = -\cdot3756$, $B = -\cdot7034$, $C = +\cdot6034$; $\delta = -6$; $h = -1$;
$D = -\cdot882$, $E = +\cdot471$; $G = -\cdot284$, $H = -\cdot532$, $K = -\cdot797$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		0·2	211	i 0 0k	−10	i 0 2	−14	—	—	—
Haiwee		1·2	175	i 0 23k	− 1	i 0 39	− 2	—	—	—
Fresno	N.	1·5	247	i 0 27	− 1	i 0 34	−15	—	—	—
Lick		2·8	270	e 0 48	+ 1	e 1 23	+ 1	i 0 54	P_g	—
Boulder City		3·0	117	i 0 52	+ 2	e 1 27	0	i 0 57	P^*	—
Overton		3·0	105	i 0 52	+ 2	e 1 27	0	i 0 59	P_g	—
Santa Clara	E.	3·1	271	e 1 35	S*	—	—	—	—	—
Pasadena		3·2	181	i 0 52	0	i 1 38	S*	—	—	—
Berkeley		3·3	280	i 0 56	+ 3	e 1 37	+ 2	—	—	—
Branner		3·3	272	e 0 54	+ 1	e 1 34	− 1	i 1 4	P_g	—
Pierce Ferry		3·5	109	i 0 59	+ 2	i 1 48	S*	i 1 8	P_g	—
Shasta Dam		4·8	317	e 1 18	+ 3	e 2 19	+ 7	i 1 26	P^*	—
Tucson		7·8	128	e 2 0	+ 2	(e 3 35)	+ 7	i 2 33	P_g	e 3·6

Additional readings :—
Boulder City i = 1m.38s. and 1m. 44s.
Overton i = 1m.38s. and 1m.44s.
Shasta Dam e = 2m.29s.

Sept. 4d. 17h. 14m. 5s. Epicentre 46°·8S. 165°·8E. (as on Sept. 1d.).

Intensity V in South Island.

R. C. Hayes.
"Earthquakes in New Zealand during the Year 1945." New Zealand Journal of Science and Technology, vol. 27, No. 6, Sect. B, 1946. Wellington, 1947, p. 438. Map of Epicentres, p. 436.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Monowai		1·6	51	0 55?	+25	1 18?	+27	—	—	—
Christchurch		5·8	58	1 29	0	—	—	—	—	—
Kaimata		5·9	45	1 34	+ 3	—	—	—	—	—
Wellington		8·5	53	2 9	+ 2	3 40?	− 5	—	—	—
New Plymouth		9·8	41	2 26	+ 2	—	—	—	—	—
Auckland		12·0	37	2 51	− 4	—	—	—	—	—
Riverview		17·1	314	i 4 1a	− 1	i 7 11	− 1	i 4 11	PP	e 8·2
Brisbane		21·8	330	i 4 55	− 1	i 9 0	+ 8	—	—	e 9·7
Berkeley		106·0	53	—	—	e 27 14	PS	e 33 59	SS	e 53·5
Tucson		108·6	63	—	—	e 30 0	PPS	—	—	e 51·0
New Delhi	N.	109·3	292	—	—	e 28 54	PS	—	—	—
St. Louis	N.	125·6	69	—	—	e 28 8	{+17}	e 31 4	PS	e 53·9
Cheb		162·1	292	—	—	e 30 55?	{−28}	—	—	e 69·9
De Bilt		166·3	300	—	—	e 44 55?	SS	—	—	e 87·9
Granada		167·6	223	e 25 35	PP	i 31 53	{+ 2}	—	—	—
Toledo		169·9	231	e 21 31	PKP_2	—	—	—	—	95·9

Additional readings :—
Riverview PEN =4m.4s., iSN =7m.14s., iE =7m.19s., iSSN =7m.31s.
Brisbane ePE =4m.58s., eSN =9m.3s.
Berkeley eN =28m.11s., eE =48m.11s., eN =49m.55s.
St. Louis eSSS?N =40m.51s.
Long waves were also recorded at Tananarive, Sitka, Pasadena, Chicago, Bermuda, San Juan, Huancayo, and other European stations.

Sept. 4d. Readings also at 0h. (Triest, near Basle, Chur, Neuchatel, and Zürich), 1h. (Alicante), 3h. (Helwan, Collmberg, Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 7h. (Wellington, Boulder City, Overton, Pierce Ferry, Tucson, Mount Wilson, Palomar, Riverside, Tinemaha, and Collmberg (2)), 9h. (near Samarkand, Stalinabad, and Tashkent), 10h. (Collmberg), 12h. (La Paz (2), Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Pierce Ferry, Balboa Heights, near Bogota, and near Leninakan), 15h. (Arapuni, Auckland, Riverview, and Wellington), 16h. (Collmberg (2) and Toledo), 17h. (Toledo), 21h. (Stalinabad, Tashkent, La Plata, and near Tucson).

Sept. 5d. 1h. 33m. 40s. Epicentre 38°·6N. 57°·2E. (as on 1939 Sept. 19d.).

A = +·4244, B = +·6586, C = +·6213 ; δ = −12 ; h = −1 ;
D = +·841, E = −·542 ; G = +·337, H = +·522, K = −·784.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Samarkand	7·7	79	2 40	P_g	—	—
Stalinabad	9·1	86	e 2 10	− 4	—	—
Tashkent	9·7	70	e 2 22	0	—	—
Sverdlovsk	18·4	6	e 4 20	+ 2	i 7 48	+ 7
Moscow	21·6	329	e 4 54	0	e 8 47	− 2
Helwan	23·0	256	e 5 5	− 2	e 9 20	+ 6

Long waves were recorded at some European stations.

Sept. 5d. 21h. 48m. 48s. Epicentre 5°·2S. 152°·4E. Depth of focus 0·005.

$A = -\cdot8826$, $B = +\cdot4614$, $C = -\cdot0901$; $\delta = -1$; $h = +7$;
$D = +\cdot463$, $E = +\cdot886$; $G = +\cdot080$, $H = -\cdot042$, $K = -\cdot996$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·2	179	i 4 51	− 1	i 8 58	+11	e 5 7	pP	—
Riverview		28·5	183	i 5 52k	+ 1	i 10 38	+ 5	i 6 10	pP	e 14·5
Auckland		37·6	150	7 27	pP	13 4	+10	8 42	PP	16·2
Arapuni		39·0	151	8 12	+50	13 6	−10	—	—	21·2
Wellington		41·1	155	7 40	+ 1	13 47	0	7 57	pP	19·2
Christchurch		42·1	158	7 48	+ 1	14 5	+ 3	8 6	pP	20·9
Tokyo		42·4	345	e 7 59	+ 9	—	—	—	—	—
Hikone		43·0	342	7 49	− 6	13 54	−21	—	—	—
Perth		43·3	228	—	—	i 15 12	+53	i 17 40	SS	—
Nagano		43·7	344	e 8 3	+ 3	—	—	—	—	—
Hukuoka		43·8	333	8 5	+ 4	14 25	− 2	—	—	—
Hamada		44·3	336	8 8	+ 3	14 37	+ 3	—	—	—
Sendai		44·5	348	8 4	− 3	15 54	+77	—	—	—
Wazima		44·8	343	e 8 11	+ 2	—	—	—	—	—
Mizusawa		45·3	348	8 14	+ 1	e 15 20	sS	15 27	?	21·1
Sapporo		49·1	350	e 8 44	+ 1	—	—	—	—	—
Honolulu		55·4	60	e 9 27	− 3	e 17 23	+15	e 19 23	S_cS	e 22·9
Calcutta	N.	68·4	297	—	—	e 20 46	S_cS	e 21 29	?	—
Irkutsk		70·3	331	10 57	−12	—	—	—	—	—
Colombo	E.	73·4	278	11 42	+15	21 13	+23	—	—	29·6
Kodaikanal	E.	76·2	282	i 10 50	−53	i 20 30	−51	13 30	PP	35·7
Hyderabad		76·3	289	11 41	− 3	21 25	+ 3	14 16	PP	36·1
New Delhi	N.	79·6	301	i 12 1	− 1	i 21 56	− 1	i 22 56	PS	—
Bombay		81·9	290	i 12 14	0	i 22 27	+ 6	i 28 17	SS	36·3
College		82·4	22	e 12 15	− 1	e 22 25	− 1	e 27 47	SS	e 33·8
Sitka		85·0	32	i 12 28	− 2	i 22 55	+ 3	e 15 45	PP	e 35·1
Tashkent		88·2	311	i 12 48	+ 3	e 23 30	+ 8	e 16 32	PP	—
Ferndale	E.	88·3	49	—	—	e 23 12	−11	—	—	e 40·2
Ukiah		88·9	51	e 12 50	+ 2	i 23 41	+12	e 16 12	PP	e 34·9
Berkeley		89·5	53	12 53	+ 2	i 22 24	−10	23 19	SKS	36·6
Branner	E.	89·5	53	—	—	e 23 27	− 7	—	—	e 40·8
Santa Clara		89·7	53	i 12 56	+ 4	e 23 31	− 5	—	—	e 40·8
Shasta Dam		89·7	49	i 12 52	0	i 23 23	[+ 7]	e 16 20	PP	—
Lick	E.	90·1	53	—	—	e 23 25	[+ 7]	—	—	e 41·0
Seattle		90·6	43	—	—	e 23 37	− 7	e 25 12	PS	e 39·9
Santa Barbara	Z.	91·2	56	i 12 50	− 9	—	—	—	—	—
Pasadena		92·4	56	i 13 5a	0	e 24 3	+ 3	e 30 11	SS	e 37·4
Tinemaha		92·6	53	i 13 7	+ 1	e 23 40	[+ 8]	i 13 20	pP	—
Haiwee		92·7	54	e 13 8	+ 2	—	—	—	—	—
Grand Coulee		92·9	42	e 13 7	0	e 23 56	− 9	i 23 40	SKS	e 43·9
La Jolla		93·1	57	e 13 7	− 1	—	—	—	—	—
Riverside		93·1	56	e 13 8a	0	—	—	i 13 16	pP	—
Palomar		93·4	57	i 13 10	+ 1	i 23 49	[+13]	i 13 18	pP	—
Boulder City		95·3	54	i 13 18	0	e 24 25	0	i 13 32	pP	—
Sverdlovsk		95·3	326	i 13 17	− 1	24 34	+ 9	i 13 31	pP	—
Overton		95·6	53	e 13 23	+ 4	—	—	—	—	—
Pierce Ferry		95·9	54	i 13 22	+ 1	i 24 4	[+15]	i 17 11	PP	—
Butte		97·2	43	—	—	i 24 8	[+11]	e 29 28	?	e 39·6
Salt Lake City		97·7	50	—	—	e 24 24	−21	e 26 2	PS	i 39·5
Bozeman		98·3	44	e 13 32	0	e 24 12	[+ 9]	—	—	e 39·4
Tucson		98·5	58	i 13 35	+ 2	e 24 57	+ 5	e 17 27	PP	e 40·4
Saskatoon		100·8	38	17 54	PP	24 51	−20	27 54	PPS	42·2
Tananarive		102·3	250	—	—	e 24 33	[+11]	27 27	PS	e 50·2
Rapid City		103·9	46	e 18 23	PP	i 24 39	[+ 9]	e 28 0	PPS	e 48·4
Leninakan		107·5	311	e 14 20	P	—	—	18 19	PKP	—
Moscow		108·1	327	14 14	P	24 44	[− 5]	14 28	pP	—
Florissant		114·4	50	e 19 22	PP	i 25 23	[+ 9]	i 29 16	PS	—
St. Louis		114·5	50	e 18 47	[+14]	e 25 21	[+ 7]	e 19 26	PP	—
Ksara		114·8	304	e 19 19	PP	—	—	e 28 37	?	—
Chicago		115·6	46	e 16 33	?	e 25 27	[+ 9]	e 27 33	S	e 48·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Upsala	E.	115·6	336	e 19 35	PP	e 28 43	PS	e 30 10?	PPS		—
	N.	115·6	336	e 19 48	PP	e 28 59	PS	e 35 12	SS		e 57·2
Cincinnati		118·7	48	i 19 55	PP	—	—	—	—		e 55·4
Bucharest		119·0	319	e 21 8?	?	—	—	—	—		51·2
Helwan		119·4	301	19 0	[+18]	26 7	[+35]	20 42	PP		—
Bergen		119·6	342	13 40	?	e 25 55	[+22]	18 8	PKP		52·7
Copenhagen		120·4	335	i 20 12	PP	26 31	[+56]	—	—		—
Sofia		121·6	318	e 18 48	[+ 2]	—	—	e 33 12?	?		e 60·2
Ottawa		122·2	38	18 49	[+ 2]	25 52	[+10]	20 21	PP		57·2
Belgrade		122·5	321	e 20 25	PP	e 26 5	[+22]	—	—		e 48·5
Pennsylvania		122·8	43	e 21 36	?	e 25 32	[−12]	e 32 6	PPS		—
Columbia		122·9	52	—	—	e 26 9	[+25]	e 31 57	PPS		e 50·2
Collmberg	Z.	123·0	331	i 18 52	[+ 3]	e 26 7	[+23]	i 20 40	PP		e 66·7
Shawinigan Falls		123·4	35	e 19 6	[+16]	—	—	—	—		53·2
Jena	N.	123·9	331	e 19 9	[+18]	—	—	e 21 1	PP		—
	Z.	123·9	331	e 19 4	[+13]	—	—	e 20 45	PP		—
Cheb		124·1	330	e 22 59	PPP	e 32 47	PPS	e 39 12?	?		e 67·2
Georgetown		124·1	45	e 16 25	?	—	—	—	—		—
Seven Falls		124·2	34	19 6	[+15]	30 21	PS	20 30	PP		52·2
Aberdeen	N.	124·4	343	e 20 37	PP	i 30 40	PS	i 38 16	SSP		60·5
Philadelphia		125·0	44	e 20 40	PP	e 25 55	[+ 5]	e 30 40	PS		e 49·0
Fordham		125·5	42	e 19 1	[+ 7]	e 37 36	SS	e 20 46	PP		52·8
Edinburgh		125·8	343	e 20 54	PP	—	—	—	—		—
De Bilt		126·0	336	i 18 58	[+ 3]	e 30 12?	PS	e 38 12?	SS		e 61·2
Triest		126·1	325	e 19 8	[+13]	e 26 30	[+37]	e 23 32	PPP		—
Strasbourg		127·3	331	e 19 0	[+ 2]	—	—	e 38 42	SSP		62·2
Uccle		127·3	335	e 19 0	[+ 2]	—	—	e 20 54	PP		e 59·2
Chur		127·6	329	e 19 2	[+ 4]	—	—	—	—		—
Zürich		127·8	330	e 19 0	[+ 1]	—	—	—	—		—
Basle		128·2	330	e 19 2	[+ 3]	—	—	—	—		—
Neuchatel		128·8	330	e 19 3	[+ 2]	—	—	—	—		—
Huancayo		129·5	110	e 19 21	[+19]	e 26 25	[+22]	e 21 32	PP		e 53·1
Paris		129·6	334	19 5	[+ 3]	e 38 52	SSP	i 21 12	PP		—
Halifax		129·7	33	e 22 26	SKP	—	—	—	—		53·2
La Plata	Z.	130·9	147	22 24	SKP	—	—	—	—		—
Clermont-Ferrand		131·6	331	e 19 9	[+ 3]	e 33 26	PPS	e 21 26	PP		e 63·2
Marseilles		132·2	327	e 23 31	?	—	—	—	—		e 66·2
Bogota		133·7	88	e 19 12	[+ 3]	e 22 44	SKP	i 19 28	pPKP		—
La Paz		134·5	119	e 16 34	?	26 22	[+ 8]	i 19 16a	PKP		64·7
Barcelona		135·2	328	—	—	e 22 48	SKP	—	—		e 62·6
Bermuda		136·1	47	e 19 19	[+ 5]	e 32 1	PS	e 22 19	PP		e 54·6
Tortosa		136·5	328	i 19 19	[+ 4]	27 5	[+47]	21 56	PP		e 65·2
Toledo		139·5	331	e 19 17	[− 3]	42 3	SSP	i 23 11	PKS		—
San Juan		140·2	67	i 19 23	[+ 2]	e 40 1	SS	e 22 51	PP		e 58·8
Granada		141·3	328	19 33a	[+ 9]	41 18	SS	e 22 24	PP		66·8
Malaga	Z.	142·1	329	e 19 21	[− 4]	25 49	[−37]	i 23 4	PP		72·6
Lisbon		142·7	336	19 27	[+ 1]	23 17	PKS	42 24	SSP		69·0
San Fernando		143·2	331	i 19 27	[0]	i 23 8	PKS	i 22 38	PP		e 67·9
Fort de France		145·7	72	e 19 32	[+ 1]	—	—	—	—		—

Additional readings:—
Brisbane ePE =4m.54s.
Riverview iN =9m.41s., iZ =10m.28s., isS?N =10m.59s.
Auckland PPP =9m.15s., P_cS =13m.48s., SS =14m.59s.
Wellington sPZ =8m.12s., sPPZ =9m.47s., sP_cP =9m.57s., iZ =11m.28s., sS_cP =14m.12s., sS?Z =14m.42s., SS? =17m.12s.?
Christchurch eEZ =8m.44s., iEZ =10m.55s., sS =14m.32s., SSE =16m.39s., S_cS =17m.40s.
Kodaikanal PSE =21m.0s., SSE =25m.12s.
Hyderabad PSE =22m.3s., SSN =26m.50s.
Sitka i =13m.31s., ePPP =17m.48s., e =20m.0s., ePS =23m.52s., e =25m.2s. and 28m.54s., eSSS =32m.8s.
Ukiah eSKS =23m.20s., e =24m.42s. and 29m.40s.
Berkeley ePPZ =16m.19s., ePPE =16m.37s., ePPN =16m.39s., eE =22m.19s., iPPSE =24m.39s., ePPSZ =24m.45s., ePPSN =24m.54s., e =29m.51s.
Shasta Dam i =12m.59s.
Seattle eSKS? =24m.28s.

Continued on next page.

Tashkent eSP =24m.29s.
Pasadena eE =23m.39s.
Boulder City iPP =17m.7s., iSKS =23m.59s.
Sverdlovsk iPP =17m.11s., SKKS =24m.1s., SS =30m.58s., SSS =34m.48s.
Salt Lake City e =30m.24s.
Tucson ePPP =19m.42s., e =23m.7s., iSKS =24m.18s., eSS =31m.53s.
Saskatoon SS =32m.55s., SSS =36m.12s.?
Tananarive SSN =32m.34s., SSSE =36m.27s.
Rapid City eSS? =32m.54s.
Moscow PP =18m.45s., pPP =18m.59s., S =26m.20s., PS =28m.7s.
Florissant iSKKSE =26m.32s.
St. Louis iZ =20m.23s., eSKKSE =26m.36s., eSE =27m.27s., iPSE =29m.18s., iE = 36m.9s.
Chicago eSS =34m.48s.
Upsala eSS?E =35m.24s., eSSS?E =39m.36s., eE =40m.54s., eN =41m.0s. and 45m.37s.
Helwan PKSZ =22m.37s., PPPZ =23m.24s., eSZ =28m.40s.
Bergen PPSE =28m.48s., SSEN =31m.12s.?
Copenhagen PS =30m.17s., 31m. 26s., SS =36m.42s., 37m.24s., SSS =41m.42s.
Ottawa SKKS =27m.24s., SS =37m.12s., SSS =41m.12s.?
Belgrade e =24m.9s. and 33m.8s.
Pennsylvania e =26m.41s. and 36m.15s., eSS? =37m.46s.
Collmberg ePPP =23m.30s., ePS =30m.41s., eSS =37m.48s. and numerous other readings given without phase.
Seven Falls SS =36m.36s.
Philadelphia eSS =37m.33s., eSSS =42m.14s.
Triest iPKS =22m.32s., eSKKS =30m.50s., ePS =34m.0s., eSS =38m.57s., eSSS = 42m.36s.
Huancayo e =22m.31s., i =22m.45s., ePPP =23m.36s., ePS =31m.38s., eSS =38m.41s., e =46m.58s.
Paris e =22m.21s., 23m.3s., and 24m.38s.
La Plata E =22m.28s., EN =22m.42s.
Clermont-Ferrand eSKP =22m.34s.
La Paz PP =22m.4s., iSKP =22m.44s., iSKKS =28m.22s., S? =28m.32s., PPS = 33m.32s.
Bermuda i =30m.41s., eSS =39m.14s.
Tortosa SKPEN =22m.49s., SKKSN =29m.1s., PPSN =34m.44s., SSN =41m.0s., SSSEN =49m.12s.?
San Juan i =19m.36s., e =25m.3s., and 28m.27s., ePS =33m.41s., e =45m.57s.
Malaga iPKP$_2$Z =19m.39s., iPPPZ =26m.31s., PPSZ =36m.10s., SSZ =42m.2s., QZ = 58m.56s.
Lisbon PKPE =19m.39s., E =36m.36s., N =38m.8s.
San Fernando iPPPZ =26m.0s., eSSSE =46m.31s.
Long waves were also recorded at Ivigtut.

Sept. 5d. Readings also at 0h. (Collmberg), 1h. (near Malaga and Granada), 3h. (Tucson, Tinemaha, Palomar and Mount Wilson), 5h. (New Delhi, Christchurch and Wellington), 8h. (near La Paz), 12h. (Tucson, Tinemaha and Palomar), 13h. (Sverdlovsk and Collmberg), 14h. (Brisbane), 15h. (Riverview, Perth, Collmberg (2), Paris, Mount Wilson, Tinemaha, Palomar, Riverside, Boulder City, Tucson, St. Louis, San Juan and Bermuda), 16h. (Toledo), 18h. (Wellington, Christchurch and near Tucson), 19h. (near Tucson and near Ottawa), 20h. (Collmberg, near Erevan and Leninakan), 21h. (Collmberg), 22h. (Collmberg, near Zürich, Basle, and near Tucson), 23h. (Tananarive and La Plata).

Sept. 6d. 1h. 26m. 27s. Epicentre 5°·2S. 152°·4E. (as on 5d.) Depth of focus 0·005.

$A = -\cdot8826$, $B = +\cdot4614$, $C = -\cdot0901$; $\delta = -1$; $h = +7$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·2	179	i 4 51	− 1	i 8 51	+ 4	—	—	i 11·6
Riverview		28·5	183	—	—	e 10 41	+ 8	e 10 59	?	e 12·4
Auckland		37·6	150	7 30	pP	13 8	+14	—	—	17·1
Arapuni		39·0	151	—	—	13 33	+17	—	—	—
Wellington		41·1	155	7 42	+ 3	13 51	+ 4	7 51	pP	19·6
Christchurch		42·1	158	7 49	+ 2	14 1	− 1	8 7	pP	20·2
Perth		43·3	228	—	—	i 17 41	SS	—	—	i 21·2
Honolulu		55·4	60	—	—	e 17 19	+11	—	—	e 24·8
Colombo	E.	73·4	278	e 18 33?	?	—	—	—	—	—
New Delhi	N.	79·6	301	—	—	i 22 12	+15	i 23 7	PPS	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay	E.	81·9	290	e 15 20	PP	—	—	—	—	—
College		82·4	22	—	—	e 22 30	+ 4	—	—	e 34·1
Sitka		85·0	32	i 12 28	− 2	i 22 53	+ 1	e 24 4	PS	e 35·1
Tashkent		88·2	311	i 12 48	+ 3	e 23 49	+27	e 23 12	SKS	—
Ukiah		88·9	51	—	—	e 24 41	PS	—	—	e 36·4
Berkeley		89·5	53	—	—	e 23 41	+ 7	i 24 51	PS	e 40·7
Santa Clara		89·7	53	e 12 53	+ 1	e 24 49	PS	—	—	e 42·7
Shasta Dam		89·7	49	e 12 49	− 3	e 23 33	− 3	i 23 23	SKS	—
Pasadena		92·4	56	e 13 5	0	—	—	—	—	e 38·2
Mount Wilson		92·5	56	e 13 9	+ 4	—	—	—	—	—
Tinemaha		92·6	53	i 13 6	0	—	—	—	—	—
Haiwee		92·7	54	e 13 7	+ 1	—	—	—	—	—
Grand Coulee		92·9	42	e 13 7	0	—	—	—	—	—
Riverside	Z.	93·1	57	i 13 9	+ 1	—	—	—	—	—
Palomar		93·4	57	i 13 11	+ 2	—	—	—	—	—
Boulder City		95·3	326	i 13 18	0	e 24 15	−10	i 17 6	PP	—
Sverdlovsk		95·3	326	i 13 18	0	i 24 23	− 2	i 17 9	PP	—
Overton		95·6	53	i 13 26	+ 7	—	—	i 13 43	pP	—
Pierce Ferry		95·9	54	i 13 22	+ 1	—	—	i 14 17	sP	—
Salt Lake City		97·7	50	—	—	e 24 12	[+12]	—	—	e 41·1
Bozeman		98·3	44	—	—	i 24 15	[+12]	i 24 33	S	e 45·0
Tucson		98·5	58	e 13 34	+ 1	—	—	e 17 40	PP	e 44·8
Rapid City		103·9	46	—	—	e 24 40	[+10]	—	—	e 50·2
Moscow		108·1	327	e 14 19	P	24 53	[+ 4]	18 46	PP	—
Florissant	E.	114·4	50	—	—	e 25 41	[+27]	e 26 58	SKKS	—
St. Louis		114·5	50	e 19 56	PP	e 25 40	[+26]	e 26 52	SKKS	—
Chicago		115·6	46	—	—	e 29 19	PS	e 35 44	SS	e 49·6
Upsala		115·6	336	—	—	e 40 15	SSS	—	—	e 60·2
Helwan	Z.	119·4	301	e 20 6	PP	—	—	—	—	—
Copenhagen		120·4	335	i 20 18	PP	30 6	PS	31 33	PPS	—
Ottawa		122·2	38	18 49	[+ 2]	25 51	[+ 9]	20 21	PP	51·6
Collmberg		123·0	331	e 15 51	P	e 24 57	[−47]	e 20 29	PP	—
Cheb		124·1	330	e 23 6	PPP	—	—	e ?2 57	?	61·6
Seven Falls		124·2	34	e 20 33?	PP	—	—	e 33 33?	?	50·6
Aberdeen	N.	124·4	343	—	—	e 30 50	PS	—	—	e 64·7
Philadelphia		125·0	44	—	—	e 26 0	[+10]	e 30 36	PS	e 59·8
Triest		126·1	325	e 16 48	?	—	—	—	—	—
Uccle		127·3	335	e 18 33?	[−25]	—	—	—	—	e 58·6
Huancayo		129·5	110	e 22 32	SKP	e 32 22	PPS	e 39 2	SSP	e 54·0
Paris		129·6	334	e 19 5	[+ 3]	e 22 24	SKP	e 21 13	PP	—
Clermont-Ferrand		131·6	331	e 19 10	[+ 4]	e 22 25	SKP	e 21 27	PP	e 62·6
La Paz		134·5	119	i 19 21	[+10]	i 22 23	SKP	i 21 49	PP	63·6
Bermuda		136·1	47	—	—	e 22 53	SKP	e 39 54	SS	e 63·7
Tortosa		136·5	328	i 22 45	SKP	i 25 48	[−30]	—	—	e 80·6
Toledo		139·5	331	e 19 18	[− 2]	—	—	—	—	57·7
San Juan		140·2	67	e 19 27	[+ 6]	e 22 57	SKP	e 34 57	PPS	e 58·0
Granada		141·3	328	20 44	[+80]	—	—	24 16	?	72·8
San Fernando		143·2	331	i 19 30	[+ 3]	e 23 10	SKP	i 22 36	PP	e 71·6
Fort de France		145·7	72	e 19 35	[+ 4]	—	—	—	—	—

Additional readings :—
Wellington PPZ = 9m.13s., PPPZ = 9m.59s., Q?Z = 17m.15s.
Christchurch PPEZ = 9m.53s., SSEN = 16m.29s., S_cS = 17m.38s.
Sitka i = 23m.11s.
Berkeley eN = 28m.6s., eE = 28m.11s.
Tashkent ePPS = 24m.38s.
Boulder City i = 13m.56s., eSKS = 23m.57s.
Sverdlovsk eSKS = 23m.50s., PS = 28m.53s., SS = 31m.2s.
Moscow SS = 33m.51s.
Helwan eZ = 21m.27s. and 32m.40s.
Copenhagen 27m.49s., SS = 36m.45s., SSS = 41m.45s.
Ottawa PPS = 31m.57s., SS = 37m.3s.
Collmberg i = 18m.51s., 19m.3s., and 19m.15s., e = 21m.42s., 25m.11s., and 28m.33s.
Philadelphia eSS = 37m.46s., e = 48m.50s.
La Paz Z = 22m.41s.
San Juan e = 23m.58s.
Long waves were also recorded at Tananarive, Seattle, Columbia, Bergen, De Bilt, and Ivigtut.

September 6d. 14h. 49m. 32s. Epicentre 5°·2S. 152°·4E. Depth of focus 0·005. (as at 1h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·2	179	i 4 51	− 1	i 8 54	+ 7	i 5 4	pP	i 11·6
Riverview		28·5	183	e 5 59	+ 8	i 10 39	+ 6	i 6 9	pP	e 13·8
Auckland		37·6	150	6 36	−34	12 53	− 1	i 7 33	pP	17·5
Arapuni		39·0	151	7 28?	+ 6	13 34	+18	—	—	19·5
Wellington		41·1	155	7 53	pP	i 13 49	+ 2	9 43	P_cP	19·2
Christchurch		42·1	158	8 6	pP	14 0	− 2	9 42	PP	20·2
Perth		43·3	228	14 28	PPS	17 43	SSS	—	—	i 19·1
Honolulu		55·4	60	e 11 54	PP	e 17 18	+10	—	—	e 25·4
Calcutta	N.	68·4	297	e 12 48	PP	—	—	—	—	—
Colombo	E.	73·4	278	11 31	+ 4	21 6	+16	—	—	—
Kodaikanal	E.	76·2	282	(i 12 7)	+24	(i 21 27)	+ 6	(14 37)	PP	(35·3)
Hyderabad		76·3	289	11 49	+ 5	21 23	+ 1	14 11	PP	37·2
New Delhi	N.	79·6	301	e 12 5	+ 3	i 22 16	+19	—	—	—
Bombay		81·9	290	e 12 10	− 4	i 22 15	− 6	—	—	—
College		82·4	22	—	—	e 22 19	− 7	—	—	e 34·2
Tashkent		88·2	311	e 12 33	−12	i 23 22	0	e 23 8	SKS	—
Berkeley		89·5	53	—	—	e 23 47	+13	e 29 34	SS	e 40·6
Pasadena		92·4	56	e 13 3	− 2	—	—	—	—	e 37·7
Mount Wilson		92·5	56	e 13 6	+ 1	—	—	—	—	—
Tinemaha		92·6	53	i 13 5	− 1	—	—	—	—	—
Haiwee		92·7	54	i 13 6	0	—	—	—	—	—
Riverside	Z.	93·1	56	i 13 6	− 2	—	—	—	—	—
Palomar		93·4	57	i 13 9	0	—	—	—	—	—
Sverdlovsk		95·3	326	i 13 13	− 5	24 18	− 7	17 4	PP	—
Tucson		98·5	58	e 13 34	+ 1	e 27 7	PPS	—	—	e 41·4
Rapid City		103·9	46	—	—	e 24 52	+22	—	—	e 49·2
Moscow		108·1	327	e 14 16	P	25 1	[+13]	e 18 42	PP	—
Florissant		114·4	50	e 19 24	PP	e 26 55	S	e 28 59	PS	—
St. Louis	E.	114·5	50	e 19 25	PP	e 25 11	[− 3]	e 26 57	S	—
Chicago		115·6	46	e 18 52	[+17]	e 25 40	[+21]	e 29 10	PS	e 46·2
Upsala		115·6	336	e 21 28?	?	e 25 16	[− 3]	e 35 28	SS	e 53·5
Helwan		119·4	301	e 20 10	PP	e 30 4	PS	—	—	—
Bergen		119·6	342	—	—	e 29 58	PS	—	—	50·5
Copenhagen		120·4	335	e 18 48	[+ 4]	26 11	[+36]	20 5	PP	—
Ottawa		122·2	38	18 47	[0]	26 4	[+22]	20 40	PP	50·5
Belgrade		122·5	321	—	—	e 27 2	SKKS	e 37 59	SSP	e 72·6
Collmberg	Z.	123·0	331	i 18 48	[− 1]	i 25 13	[−31]	e 32 58	PPS	—
Cheb		124·1	330	e 23 4	PPP	—	—	e 33 50	?	—
Seven Falls		124·2	34	20 16	PP	30 16	PS	37 28?	SS	50·5
Philadelphia		125·0	44	e 20 37	PP	e 25 58	[+ 8]	e 30 32	PS	e 49·5
De Bilt		126·0	336	e 20 47	PP	e 32 23	PPS	—	—	e 55·5
Triest		126·1	325	e 20 52	PP	e 30 49	PS	—	—	—
Uccle		127·3	335	e 19 1	[+ 3]	e 27 28?	SKKS	e 20 54	PP	e 60·5
Huancayo		129·5	110	e 22 7	PKS	e 22 33	SKP	e 38 7	SS	e 54·0
Paris		129·6	334	e 18 28?	[−34]	e 22 38	SKP	e 21 10	PP	—
Clermont-Ferrand		131·6	331	e 21 22	PP	e 22 37	SKP	e 40 4	?	—
La Paz		134·5	119	i 19 17	[+ 6]	22 52	SKP	i 23 12	?	64·5
Bermuda		136·1	47	—	—	e 22 28	SKP	e 40 41	SSP	e 64·6
Tortosa		136·5	328	e 21 50	PP	e 22 53	SKP	—	—	e 64·5
Toledo		139·5	331	e 19 19	[− 1]	—	—	—	—	56·1
San Juan		140·2	67	e 19 25	[+ 4]	e 26 4	[−19]	e 23 1	SKP	e 65·7
Granada		141·3	328	e 19 5k	[−19]	—	—	e 22 32	PP	70·8
Lisbon		142·7	336	19 22	[− 4]	—	—	—	—	68·5
San Fernando	Z.	143·2	331	e 19 17	[−10]	—	—	e 19 48	PKP_3	—
Fort de France		145·7	72	e 19 32	[+ 1]	—	—	—	—	—

Additional readings :—
Riverview iNZ = 6m.37s., iPPNZ = 6m.51s., isS?NZ = 11m.6s.
Auckland i = 13m.23s., S_cS = 17m.24s.
Wellington P_cS = 13m.33s., S = 14m.4s.
Christchurch SEZ = 14m.6s., SSEN = 16m.34s., S_cSEZ = 17m.30s.
Kodaikanal SSE = (25m.40s.), readings increased by two minutes.

Continued on next page.

Hyderabad PSN =22m.6s.
Sverdlovsk SKS =23m.34s., SS =30m.50s., SSS =34m.28s.
Tucson ePP =16m.38s., e =21m.17s.
Moscow PS =27m.51s.
Florissant eE =29m 26s
St. Louis ePS?E =29m.10s.
Chicago eSS =35m.1s.
Upsala eE =25m.40s., 40m.28s., and 45m.9s.
Helwan eZ =20m.40s. and 21m.34s.
Copenhagen SKKS =27m.33s., 32m.58s., and 34m.4s., SS =37m.46s.
Ottawa SS =37m.28s.?
Collmberg iZ =25m.8s., eZ =28m.46s.
Philadelphia eSS =37m.33s.
Uccle eSKPEN =22m.19s., ePPS =32m.41s.?
San Juan e =20m.8s., 31m.44s., and 33m.7s., eSS? =41m.20s.
San Fernando ePPZ =23m.29s.
Long waves were also recorded at Ukiah, Santa Clara, Tananarive, Prague, and Bucharest.

Sept. 6d. Readings also at 0h. (Christchurch and Collmberg), 3h. (Collmberg, Palomar, Riverside, Tinemaha, Pasadena, Sitka, Auckland, and Riverview), 4h. (Helwan, Collmberg, and Tashkent), 10h. (Collmberg), 11h. (Upsala, Bergen, Collmberg, Pierce Ferry, Boulder City, Palomar, Riverside, Tinemaha, Pasadena, Riverview, and Brisbane), 12h. (Alicante), 15h. (Samarkand), 19h. (Collmberg and Samarkand).

Sept. 7d. 6h. Pacific. Undetermined shock.

Brisbane ePZ =14m.52s., ePN =14m.55s., eSN =19m.8s., iN =22m.50s.
Riverview iN =16m.0s., 17m.34s., and 20m.17s., iEN =20m.50s., iE =21m.57s., eLE =24m.24s.
Wellington S? =19m.55s., eZ =23m., Q =30m.?, RZ =32m.?
Shasta Dam e =22m.54s.
Auckland e =23m.?, L =29m.?
Santa Barbara iPZ =23m.23s.
Christchurch S =23m.27s., QEN =26m.20s., R =29m.10s.
Pasadena iP =23m.28s., iZ =23m.33s., eLZ =51·3m.
Mount Wilson ePEN =23m.31s.
Tinemaha iPEZ =23m.31s.k.
La Jolla ePEZ =23m.32s.
Haiwee iPEZ =23m.33s.
Riverside iPZ =23m.33s.
Palomar iP =23m.34s., iZ =23m.39s.
Boulder City iP =23m.42s., e =27m.24s. and 28m.30s.
Overton iP =23m.45s.
Pierce Ferry iP =23m.45s.
Tashkent eP =24m.15s., eS =34m.44s., PPS =36m.5s., eSS =40m.37s.
La Paz P =27m.15s., iZ =27m.36s.
Collmberg iZ =29m.29s., eZ =31m.7s.
San Fernando iP?Z =30m.13s.
Paris e =32m.6s.?, e =33m., eL =80m.
Sverdlovsk eS =34m.47s.
St. Louis eE =39m.27s., eLE =62m.
Long waves were also recorded at Arapuni and Tucson.

Sept. 7d. 15h. 48m. 20s. Epicentre 45°·7N. 26°·8E. Focus at Base of Superficial Layers (as at 1945 March 12d.).

Intensity V at Bucharest, epicentre near Vrancea.
Bull. Seism. de l'Observatoire de Bucarest, 1945, Vol. XI, p. 22. Suggested depth 150km.

$A = +·6255$, $B = +·3160$, $C = +·7133$; $\delta = -10$; $h = -4$;
$D = +·451$, $E = -·893$; $G = +·637$, $H = +·322$, $K = -·701$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Campalung	1·3	254	i 0 29	+ 7	i 0 46	+ 8	—	—	—
Bucharest	1·4	198	i 0 30	+ 7	0 47	+ 6	—	—	—
Sofia	3·9	221	i 1 4	+ 5	i 1 36	− 8	—	—	—
Belgrade	4·5	262	i 0 58k	−10	i 1 36	−24	i 1 52	SS	—
Yalta	5·3	101	i 1 26	+ 7	i 2 26	+ 6	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		9·1	275	i 2 15	+ 3	i 4 3	+ 9	—	—	—
Prague		9·4	303	i 2 18	+ 2	e 4 1	− 1	—	—	e 4·8
Cheb		10·6	300	i 4 59	SS	—	—	—	—	e 7·5
Collmberg		10·8	306	i 2 33	− 2	i 4 32	− 4	—	—	i 5·7
Jena	N.	11·4	303	i 2 53	+ 9	e 5 44	L	—	—	e 6·4
Chur		12·0	282	i 2 51	− 1	e 5 28	+23	—	—	e 6·9
Moscow		12·1	30	i 2 53	0	i 4 58	−10	—	—	—
Zürich		12·7	284	i 2 59k	− 2	e 5 39	+17	—	—	e 7·2
Strasbourg		13·3	290	i 3 9	0	i 5 51	+14	—	—	—
Leninakan		13·3	105	e 3 16	+ 7	e 5 46	+ 9	—	—	—
Copenhagen		13·5	323	i 3 8	− 4	e 5 38	− 3	—	—	6·2
Ksara		13·8	146	e 3 22	+ 6	e 6 9	+21	—	—	—
Erevan		14·1	107	e 3 27	+ 8	e 6 10	+14	—	—	—
Upsala		15·2	342	3 31	− 3	6 7	−15	3 47	PP	e 7·7
De Bilt		15·6	304	i 3 38k	− 1	e 6 40	+ 9	—	—	e 8·7
Uccle		15·8	297	i 3 42k	0	i 6 43	+ 7	i 4 7	PP	e 7·7
Helwan		16·2	166	i 3 49k	+ 2	6 44	− 1	4 4	PP	—
Clermont-Ferrand		16·6	279	i 3 48	− 4	i 7 4	+10	—	—	e 8·6
Paris		16·8	289	i 3 53	− 1	i 6 58	− 1	i 4 18	pP	e 8·0
Barcelona		18·4	264	4 12	− 2	i 7 36	+ 1	4 55	PP	—
Kew		18·8	298	i 4 18k	− 1	i 7 48	+ 4	i 4 26	PP	e 9·2
Bergen		19·4	329	4 25	− 1	7 57	0	4 44	PP	9·5
Tortosa		19·7	264	i 4 27	− 2	i 8 3	− 1	4 52	PP	i 8·8
Aberdeen	N.	21·2	315	i 4 48	+ 3	i 8 33	− 1	—	—	—
Edinburgh		21·4	310	e 4 45	− 2	i 8 36	− 2	9 3	SS	—
Toledo		23·3	267	i 5 4	− 2	i 9 9	− 3	—	—	—
Sverdlovsk		23·7	50	i 5 10	0	i 9 18	− 1	i 5 28	pP	—
Granada		24·2	261	i 5 16k	+ 2	i 9 33	+ 5	5 35	pP	—
Malaga		25·0	261	i 5 21	− 1	i 9 45	+ 4	—	—	10·9
San Fernando		26·4	261	e 5 28	− 7	i 10 3	− 1	i 6 3	PP	e 13·2
Lisbon		27·4	268	5 42	− 2	10 12	− 9	6 6	PP	11·9
Tashkent		30·9	82	i 6 19	+ 3	11 9	− 7	—	—	—
Frunse		33·9	77	i 6 47	+ 5	e 12 4	+ 1	—	—	—
New Delhi	N.	42·9	95	i 7 59	+ 2	i 14 16	− 3	i 8 20	pP	—
Bombay		46·3	109	i 8 32	+ 8	i 15 15	+ 7	—	—	—
Irkutsk		49·0	53	i 8 46	+ 1	—	—	—	—	—
Seven Falls		62·8	311	10 42	+18	18 43	− 6	—	—	30·7
Weston		66·1	306	i 10 43	− 3	e 19 24	− 6	e 11 5	pP	—
Ottawa		66·5	311	10 45	− 3	19 30	− 5	—	—	31·7
Bermuda		68·6	295	—	—	e 19 57	− 4	—	—	e 38·0
St. Louis		78·8	315	i 11 58	− 3	e 21 47	− 8	i 12 22	pP	—
San Juan		79·1	285	e 12 24	pP	e 21 51	− 7	—	—	—
Grand Coulee		82·0	337	e 12 16	− 2	—	—	—	—	—
Boulder City		91·6	329	i 13 3	− 2	—	—	i 13 29	pP	—
Tinemaha	E.	91·8	332	e 13 7	+ 1	—	—	—	—	—
Tucson		93·4	325	i 13 11	− 2	—	—	i 13 38	pP	e 45·5
Pasadena	z.	94·4	331	e 13 16	− 2	—	—	e 13 42	pP	—
Palomar	z.	94·7	329	i 13 16	− 3	—	—	i 13 41	pP	—

Additional readings :—
Sofia iS_eEN = 1m.44s.
Belgrade iP_e = 1m.5s., iPP = 1m.24s., i = 2m.1s.
Collmberg iZ = 2m.39s., 2m.48s., 3m.0s., 3m.11s., 3m.18s., 3m.28s., 4m.6s., 4m.40s., and 5m.13s.
Copenhagen 3m.43s. and 5m.54s.
Upsala iN = 3m.55s., SSN = 6m.14s., iN = 6m.26s., 6m.32s., and 6m.48s.
Uccle iSE = 6m.46s.
Helwan PPPNZ = 4m.13s., SNZ = 6m.49s.
Paris e = 4m.38s., i = 4m.58s., isS? = 7m.33s.
Kew ePPPEZ = 4m.36s., iN = 7m.2s., eSSSE = 9m.4s.?
Bergen PPPEZ = 4m.57s.
Tortosa iEN = 4m.30s., PPPE = 5m.8s.
Edinburgh P_eP = 8m.45s.
Granada eP_eP = 9m.2s., SS = 10m.33s.
San Fernando iPPPZ = 6m.22s., iSSZ = 11m.13s.
Lisbon PZ = 5m.46s.a, PPE = 6m.23s., N = 9m.30s., E = 9m.46s., SN = 10m.5s.
New Delhi sSN = 14m.56s., S_eSN = 17m.31s.
St. Louis isS?N = 22m.25s., ePS?N = 22m.53s.
Boulder City ePP = 17m.6s.
Tucson ePP = 16m.50s.

Sept. 7d. Readings also at 0h. (near Berkeley, Branner, Lick, and San Francisco), 1h. (San Juan), 2h. (Haiwee, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton Pierce Ferry, and Shasta Dam), 6h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Boulder City, Overton, and Pierce Ferry), 7h. and 9h. (near Mizusawa), 11h. (Palomar, Riverside, Tinemaha, Tucson, Boulder City (2), Pierce Ferry, St. Louis, near Berkeley, Branner, Fresno, Lick, San Francisco, and near Triest), 12h. (Palomar, Tinemaha, and near Malaga), 13h. (Arapuni, Auckland, Christchurch, Wellington, Brisbane, Riverview, Honolulu, Tucson, and Tashkent), 14h. (La Jolla, Palomar, Pasadena, near Tucson, Boulder City, and Pierce Ferry), 15h. (near Boulder City, Overton, Tucson, La Jolla, Pasadena, Palomar, and Riverside), 16h. (near Pehpel), 17h. (Collmberg), 18h. and 21h. (2), (near Tucson), 23h. (near Ksara).

Sept. 8d. 3h. 32m. 55s. Epicentre 58°·0S. 147°·0E. (as on 1940, Nov. 17d.).

Rough.

$A = -\cdot4466$, $B = +\cdot2900$, $C = -\cdot8464$; $\delta = -6$; $h = -8$;
$D = +\cdot545$, $E = +\cdot839$; $G = +\cdot710$, $H = -\cdot460$, $K = -\cdot533$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		21·5	59	4 50	− 2	8 48	+ 1	5 44	pP	i 10·9
Wellington		24·3	58	5 20	0	9 50	+13	i 6 35	PP	11·1
Riverview		24·3	10	i 5 22 s	+ 2	i 9 52	+15	i 5 42	pP	e 11·1
Arapuni		27·3	56	—	—	(11 17)	+50	—	—	11·3
Auckland		27·9	54	e 8 5?	?	10 20?	−17	—	—	12·7
Kodaikanal	E.	88·1	293	—	—	e 20 44	?	—	—	—
Hyderabad	N.	93·8	297	—	—	24 7	{− 3}	—	—	—
Bombay		97·8	293	e 21 51	?	e 31 30	SS	—	—	—
Helwan		128·3	266	e 19 26	[+17]	e 24 59	PPP	e 38 53	SS	—
San Juan		133·4	134	e 23 8	PKS	e 25 13	PPP	e 39 17	SS	e 64·6
St. Louis		138·8	92	e 22 25	PP	e 40 25	SS	e 45 28	SSS	e 64·1
Philadelphia		147·6	107	e 19 47	[+ 3]	e 36 1	PPS	e 22 33	PKS	e 41·3
Triest		149·2	268	e 20 20	?	—	—	—	—	—
Ottawa		151·2	96	e 20 0	[+11]	e 30 35	PKKS	e 43 5	SS	71·1
Cheb		152·7	273	e 36 54	PPS	e 45 59	?	—	—	e 91·1
Collmberg		153·0	275	i 20 9	[+17]	e 24 27	PP	—	—	—
Toledo		154·1	238	e 20 10	[+17]	—	—	—	—	82·1
Strasbourg		154·2	267	e 20 19	[+26]	—	—	i 21 48	?	—
Seven Falls		154·9	98	—	—	e 32 53	PKKP	—	—	75·1
Copenhagen		155·4	284	e 22 22	?	26 58	[− 2]	50 17	Q	69·1
De Bilt		156·9	273	—	—	e 44 5?	SSP	—	—	e 77·1

Additional readings :—
Christchurch sP = 6m.13s., sS = 10m.5s.?.
Wellington iZ = 7m.8s. and 10m.9s.
Riverview iN = 5m.30s., iPPN = 6m.7s., iPPPZ = 6m.20s., iS_cSE = 15m.54s.
Auckland i = 11m.55s.
San Juan e = 34m.59s.
St. Louis eZ = 22m.34s., eN = 41m.40s. and 48m.7s.
Collmberg iZ = 20m.21s., eZ = 21m.20s. and 22m.17s.
Long waves were also recorded at New Delhi, Sitka, Butte, Tucson, Huancayo, La Paz, and other European stations.

Sept. 8d. Readings also at 0h. (Bermuda), 5h. (Toledo), 11h. (Collmberg and near Pehpei), 14h. (Collmberg), 20h. (near Mizusawa), 21h. (near Tucson), 22h. (near Chur, Zürich, and near Malaga (2)), 23h. (near Malaga (2)).

Sept. 9d. 4h. 2m. 56s. Epicentre 17°·4S. 167°·9E.

$A = -\cdot9336$, $B = +\cdot2002$, $C = -\cdot2972$; $\delta = +2$; $h = +5$;
$D = +\cdot210$, $E = +\cdot978$; $G = +\cdot291$, $H = -\cdot062$, $K = -\cdot955$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia	19·9	83	i 4 35	− 1	e 8 50	+35	—	—	—
Auckland	20·3	164	4 39	− 1	8 4?	−19	5 7	PP	10·1
Arapuni	21·7	163	5 4	+ 9	9 16	+25	—	—	10·1
New Plymouth	22·2	167	5 2	+ 2	9 13	+13	i 5 19	PP	12·2
Riverview	22·2	218	i 4 55 k	− 5	i 9 5	+ 5	i 5 15	PP	e 11·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Wellington		24·5	167	5 24	+ 2	9 39	− 1	6 1	PP	12·1
Christchurch		26·4	172	5 36	− 4	10 9	− 3	8 54	P_cP	15·0
Honolulu		51·1	43	e 11 32	PP	e 16 25	+ 1	—	—	e 20·7
Yokohama		59·0	333	9 28	−36	—	—	—	—	—
Shizuoka		59·1	332	e 10 4	0	17 51	−20	—	—	—
Hunatu		59·4	332	e 8 30	?	16 34	?	—	—	—
Koti		60·4	327	e 10 14	+ 1	18 25	− 3	—	—	—
Sendai		60·9	336	10 21	+ 4	18 33	− 1	—	—	—
Mizusawa	E.	61·6	337	e 10 26	+ 4	18 41	− 2	—	—	—
	N.	61·6	337	10 21	− 1	18 46	+ 3	—	—	27·2
Hukuoka		62·0	324	10 23	− 1	18 53	+ 5	—	—	—
Sapporo		64·9	339	e 10 52	+ 9	—	—	—	—	—
Ukiah		85·4	47	e 12 44	+ 4	e 23 10	− 1	e 16 10	PP	e 39·3
Berkeley		85·5	49	12 39	− 2	23 8	− 4	13 32	pP	38·6
Santa Clara		85·5	49	e 12 46	+ 5	e 23 16	+ 4	e 30 38	PKKP	e 41·1
Shasta Dam		86·6	46	e 12 42	− 4	e 23 10	[− 1]	—	—	—
Pasadena		87·0	53	e 12 46	− 2	i 23 16	[+ 2]	i 16 16	PP	e 35·8
Mount Wilson	Z.	87·1	53	e 12 49	0	—	—	—	—	—
La Jolla	Z.	87·2	54	e 12 52	+ 3	—	—	—	—	—
Riverside		87·5	53	i 12 46	− 5	—	—	—	—	—
Palomar		87·6	54	i 12 48	− 3	e 23 22	[+ 4]	i 16 27	PP	—
Haiwee	E.	87·7	51	e 12 52	0	—	—	—	—	—
Tinemaha		88·1	50	e 12 50	− 4	—	—	—	—	—
Sitka		88·2	27	e 12 56	+ 2	i 23 20	[− 2]	e 18 11	PPP	e 37·2
Irkutsk		88·5	326	e 12 53	− 3	i 23 25	[+ 1]	—	—	—
College		88·7	17	e 12 31	−26	e 23 23	[− 2]	—	—	e 37·1
Victoria		89·5	38	—	—	e 23 47	− 3	—	—	43·1
Boulder City		90·2	52	e 12 51	−13	e 23 27	[− 7]	e 16 34	PP	—
Colombo	E.	90·2	276	13 15	+11	23 35	[+ 1]	—	—	48·1
Pierce Ferry		90·9	52	i 13 3	− 4	—	—	—	—	—
Grand Coulee		91·9	40	e 13 17	+ 6	e 23 34	[−10]	—	—	—
Tucson		92·0	57	e 13 9	− 3	e 23 38	[− 6]	e 17 38	PP	e 39·7
Kodaikanal	E.	93·4	280	e 11 35	?	—	—	—	—	39·4
Salt Lake City		94·0	48	e 17 5	PP	e 24 34	+ 4	e 23 59	SKS	e 39·7
Logan		94·4	47	e 16 10	?	e 23 37	[−21]	e 16 41	PP	e 42·1
Hyderabad		94·6	286	e 13 33	+ 9	24 0	[+ 1]	16 21	PP	—
Bozeman		96·2	44	—	—	i 24 14	[+ 6]	e 26 19	PS	e 35·5
New Delhi	N.	98·7	297	—	—	i 24 19	[− 2]	32 58	SS	—
Bombay		100·1	286	e 13 36	−13	i 25 27	+ 6	—	—	43·9
Saskatoon		100·8	38	—	—	e 24 34	[+ 3]	—	—	49·1
Rapid City		101·1	47	e 18 12	PP	e 24 34	[+ 2]	e 27 10	PS	e 39·2
Tashkent		107·6	308	i 14 28	P	i 25 8	[+ 6]	e 18 52	PP	—
Florissant		109·7	54	e 19 8	PP	e 25 7	[− 4]	e 26 7	SKKS	—
St. Louis		109·8	54	e 18 38	[+ 5]	e 25 8	[− 3]	e 19 5	PP	—
Huancayo		111·0	111	e 22 42	PKS	e 25 4	[−12]	e 28 30	PS	e 45·9
Tananarive		111·2	241	—	—	e 25 19	[+ 2]	e 28 54	PS	58·6
Chicago		112·1	51	e 19 23	PP	e 27 7	S	e 28 54	PS	e 45·1
Sverdlovsk		113·8	325	14 53	P	i 25 27	[0]	19 31	PP	—
Cincinnati		114·3	54	e 14 56	P	e 25 36	[+ 7]	e 19 40	PP	e 55·1
La Paz		115·3	118	e 14 32	P	29 48	PS	i 19 47	PP	54·2
Columbia		116·8	60	e 19 50	PP	e 29 32	PS	e 36 8	SS	e 54·4
Pittsburgh		117·8	52	e 20 7	PP	e 25 44	[+ 2]	e 31 13	PPS	—
Pennsylavania		119·4	52	e 20 17	PP	e 32 5	PPS	e 35 17	SS	—
Georgetown		120·1	55	e 18 23	[−30]	30 8	PS	20 3	PP	56·1
Ottawa		120·7	47	18 50	[− 4]	25 52	[0]	20 22	PP	51·1
Philadelphia		121·5	53	e 20 31	PP	e 27 13	{−10}	e 30 13	PS	e 59·4
Fordham		122·4	52	e 19 3	[+ 6]	e 28 40	?	e 20 34	PP	e 54·6
Seven Falls		123·8	44	20 46	PP	26 0	[− 2]	27 43	SKKS	40·1
Moscow		126·4	327	21 4	PP	27 57	{+ 1}	30 44	PS	—
San Juan		128·8	80	i 19 11	[+ 1]	e 26 52	[+35]	e 21 15	PP	e 58·1

Continued on next page.

		△	Az.	P.		O−C.	S.		O−C.	Supp.			L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.		m.
Ivigtut		129·3	21	19	16	[+ 5]	22	30	PKS	23	41	PPP	63·1
Bermuda		130·5	61	e 21	32	PP	e 39	5	SS	—		—	e 66·5
Upsala		132·5	340	e 21	39	PP	e 28	28	{− 7}	i 22	47	PKS	e 60·1
Ksara		134·2	300	e 19	3	[−17]	——		—	e 22	6	PP	—
Bergen		135·3	348	e 22	1	PP	31	44	PS	22	54	PKS	64·1
Copenhagen		137·5	340	i 19	29	[+ 3]	i 32	28	PS	i 22	59	PKS	58·1
Bucharest		138·2	317	e 21	16	PP	—		—	(40	4?)	SS	40·1
Helwan		138·5	295	i 19	26k	[− 2]	40	43	SS	22	20	PP	—
Aberdeen	N.	139·6	351	e 20	57	?	i 23	10	PKS	i 46	5	SSS	67·4
Collmberg		140·7	334	e 19	22	[−10]	—		—	e 22	27	PP	e 50·9
Sofia		140·7	317	e 19	35	[+ 3]	e 29	29	{+ 4}	e 22	35	PP	—
Belgrade		141·4	321	e 19	34a	[+ 1]	e 29	31	{+ 2}	e 23	13	PKS	e 70·4
Jena		141·6	335	e 19	48	[+15]	e 29	45	{+14}	e 22	51	PP	—
Cheb		141·9	334	e 21	54	?	e 29	58	{+16}	e 25	9	PPP	e 82·1
De Bilt		142·8	342	i 19	36	[+ 1]	e 41	34	SS	i 22	53	PP	e 67·1
Uccle		144·2	343	e 19	34a	[− 4]	i 29	50	{+ 5}	e 22	55	PP	e 62·1
Triest		144·5	328	e 19	41	[+ 3]	i 29	52	{+ 5}	e 22	48	PP	—
Strasbourg		144·9	337	e 19	36	[− 3]	e 29	49	{ 0}	e 22	46	PP	—
Chur		145·6	334	e 19	39	[− 1]	e 29	18	{−36}	—		—	—
Zürich		145·6	335	e 19	38k	[− 2]	—		—	i 24	7	PP	—
Basle		145·9	336	e 19	39	[− 2]	e 29	19	{−36}	—		—	—
Paris		146·5	342	i 19	43	[+ 1]	i 22	58	PKS	—		—	—
Neuchatel		146·6	336	e 19	39	[− 3]	—		—	—		—	—
Clermont-Ferrand		149·0	339	e 19	47	[+ 1]	—		—	i 23	23	PKS	e 71·1
Tortosa		154·3	337	20	23	[+29]	20	37	PKP_2	24	12	PP	e 81·1
Toledo		156·5	344	e 20	2	[+ 5]	—		—	e 25	13	PP	—
Lisbon		158·6	352	20	4	[+ 5]	—		—	20	43	PKP_2	74·1
Granada		158·9	341	e 19	34a	[−26]	30	52	{−14}	i 24	22	PP	80·0
Malaga		159·6	341	e 20	38	PKP_2	31	10	{ 0}	24	32	PP	86·8
San Fernando		160·3	346	i 20	6	[+ 5]	—		—	i 24	24	PP	e 77·1

Additional readings :—
Auckland i = 7m.4s., P_cS = 13m.30s.
Riverview i = 4m.59s., iNZ = 6m.49s., iN = 7m.14s., iSN = 9m.8s., iSSE = 10m.4s., iSSN = 10m.13s.
Wellington P = 5m.16s., i = 10m.9s. and 10m.29s.
Christchurch pP?E = 5m.58s., iEZ = 6m.52s., eSEN = 10m.40s., Q = 11m.37s.
Ukiah e = 28m.6s.
Berkeley eEN = 12m.46s., eN = 13m.35s., eZ = 13m.38s., ePPZ = 16m.12s. and 16m.20s., eSSE = 24m.42s., eN = 24m.53s., eSSSN = 34m.34s., eN = 35m.32s.
Pasadena eEZ = 13m.27s., iSKSZ = 23m.11s.
Riverside iZ = 13m.1s.
Palomar eSKSE = 22m.51s.
Tinemaha iZ = 13m.11s., eE = 21m.42s.
Sitka e = 15m.46s., 23m.53s., and 24m.48s.
Irkutsk SKS = 23m.13s.
College e = 24m.51s. and 27m.41s.
Tucson e = 15m.28s., ePPP = 18m.55s., ePS = 25m.28s., e = 26m.16s., eSS = 30m.38s.
Kodaikanal eE = 14m.43s., iE = 21m.58s., eE = 22m.38s. and 27m.3s.
Salt Lake City e = 17m.47s., ePS = 25m.57s., e = 28m.50s.
Hyderabad SN = 24m.45s.
Bozeman e = 25m.14s.
New Delhi iSKKSN = 25m.13s.
Bombay eN = 25m.34s.
Tashkent ePPP = 21m.13s., SS = 34m.6s.
Florissant eN = 26m.50s., ePSE = 28m.31s., ePPSE = 29m.45s., eSSE = 35m.3s.
St. Louis eSKKSE = 26m.14s., eN = 26m.27s., ePSE = 28m.33s., ePPSE = 29m.46s., eSSF = 35m.4s.
Huancayo eSS = 34m.10s.
Tananarive N = 44m.49s.
Chicago eSS = 34m.43s., eSSS = 39m.9s.
Sverdlovsk iSKKS = 26m.35s., iPS = 29m.11s., iPPS = 30m.5s., SS = 35m.28s.
Cincinnati e = 18m.40s., epPP = 22m.1s., e = 24m.26s.
La Paz PPS = 31m.8s., iZ = 36m.54s.
Pennsylvania e = 33m.48s.
Georgetown e = 18m.26s. and 19m.2s., 20m.28s., and 20m.31s.
Ottawa SKS = 23m.19s., PS = 27m.22s., PPS = 28m.22s., SSS = 37m.22s.
Philadelphia e = 24m.37s., eSS = 37m.37s., eSSS = 41m.45s.
Seven Falls PS = 30m.43s., SS = 32m.52s.
Moscow S = 28m.57s., SKSP = 31m.53s., SS = 37m.56s.
San Juan e = 22m.31s. and 36m.27s.

Continued on next page.

Bermuda e =22m.37s.
Upsala eE =22m.40s., eSKKSE =28m.37s., eSKSP =31m.46s., e =33m.4s., eE = 41m.40s., eSSSN =44m.4s.
Bergen PKSZ =22m.57s., eSSN =38m.34s.
Copenhagen 20m.30s., 22m.14s., and 35m.34s.
Helwan iZ =19m.49s., SKPZ =22m.55s., iN =42m.33s.
Aberdeen iN =29m.21s.
Collmberg gives also many eZ and iZ readings.
Sofia eSKKSE =31m.30s., phases wrongly identified.
Belgrade e =35m.29s., 38m.6s., and 44m.23s.
Jena eP?N =19m.52s., ePP?E =22m.54s., eS?N =29m.48s., eSS?N =35m.8s.
Cheb e =41m.4s. and 45m.34s.
De Bilt eSSS =47m.4s.?
Uccle e =24m.28s.
Triest eSS =42m.36s.
Strasbourg eSS =42m.17s.
Paris i =20m.38s.
Granada SKSP =34m.21s., SS =44m.34s.
Malaga epPKP =20m.50s., PPP =28m.10s., SKSP =34m.46s., PPS =37m.28s.
San Fernando iPKP$_2$Z =20m.45s., ePPPZ =28m.6s.
Long waves were also recorded at Seattle.

Sept. 9d. 12h. 56m. 22s. Epicentre 14°·0S. 75°·0W. Depth of focus 0·005.

A = +·2512, B = −·9376, C = −·2404 ; δ = −1 ; h = +6 ;
D = −·966, E = −·259 ; G = −·062, H = +·230, K = −·971.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·0	351	i 0 42	+10	i 1 4	+ 7	—	—	—
La Paz	z.	7·1	112	i 1 43	− 1	i 3 2	− 2	—	—	3·5
Bogota		18·5	4	i 4 29	+16	—	—	—	—	—
Balboa Heights		23·2	351	(e 5 6)	+ 4	e 5 6	P	—	—	—
San Juan		33·4	17	e 6 53	+19	e 11 55	+ 5	—	—	e 17·7
St. Louis		54·3	347	e 9 22	0	e 16 51	− 2	i 9 41	pP	—
Tucson		57·4	325	i 9 44	0	—	—	i 10 7	pP	—
Palomar		61·7	321	e 10 13	− 1	—	—	i 10 35	pP	—
Pierce Ferry		62·0	325	i 10 16	0	—	—	—	—	—
Boulder City		62·3	324	e 10 18	0	—	—	e 10 38	pP	—
Overton		62·5	325	e 10 21	+ 2	—	—	e 10 52	pP	—
Riverside		62·6	321	i 10 19	− 1	—	—	i 10 42	pP	—
Mount Wilson		63·1	321	i 10 23	0	—	—	i 10 44	pP	—
Pasadena	z.	63·1	321	i 10 23	0	—	—	i 10 43	pP	—
Tinemaha		65·1	323	i 10 36	0	—	—	i 10 58	pP	—
Collmberg	z.	99·5	41	e 13 38	+ 1	—	—	e 18 8	PP	—

Additional readings :—
Huancayo i =49s. and 55s.
Bogota i =4m.48s., e =8m.1s. and 8m.44s.
San Juan e =8m.22s. and 8m.50s. eS? =14m.19s.
St. Louis iZ =9m.50s., esS?E =17m.29s.
Tucson iP$_c$P =11m.4s.
Palomar isPZ =10m.45s.
Boulder City e =13m.22s.
Riverside isPNZ =10m.48s.
Tinemaha isPZ =11m.6s.
Collmberg eZ =19m.2s.

Sept. 9d. Readings also at 0h. (Neuchatel, near Malaga, and near Mizusawa), 1h. (Bogota St. Louis, Tucson, Boulder City, Palomar, Pasadena, Riverside, and Tinemaha), 3h. (Bogota (2), near Samarkand, and Stalinabad), 5h. (near Malaga), 7h. (near Mizusawa), 8h. (near Malaga), 9h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Pierce Ferry, Riverview, Auckland, near Apia, and near Malaga), 10h. (Riverview), 11h. (near Berkeley, Branner, and Lick), 13h. (near Grand Coulee), 16h. (Auckland and Riverview), 19h. (Collmberg, Helwan, Sverdlovsk, and near Malaga), 21h. (Samarkand).

Sept. 10d. 13h. 57m. 53s. Epicentre 38°·6N. 69°·3E.

Epicentre 38°37′N. 69°20′E. Suggested focal depth 100km. (Stations of the U.S.S.R.).

A = +·2769, B = +·7329, C = +·6213 ; δ = −17 ; h = −1 ;
D = +·935, E = −·353 ; G = +·220, H = +·581, K = −·784.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Stalinabad		0·4	263	0 20	+ 7	0 33	+12	—	—	—
Samarkand		2·1	300	0 13	−24	—	—	—	—	—
Tashkent		2·7	359	i 1 49?	+64	2 29	+70	—	—	—
Andijan		3·2	46	i 0 52	0	i 1 29	− 3	—	—	—
Frunse		5·9	41	i 1 27	− 4	2 33	− 7	—	—	—
New Delhi	N.	12·0	144	—	—	c 5 3	− 8	—	—	—
Baku		15·1	282	—	—	6 37	+12	—	—	—
Sverdlovsk		19·1	345	i 4 22	− 5	7 55	− 2	—	—	—
Hyderabad	N.	22·6	157	5 10	+ 7	9 14	+ 7	—	—	—
Moscow		27·2	320	5 48	+ 1	—	—	—	—	—
Irkutsk		27·8	49	—	—	c 10 46	+11	—	—	—
Collmberg		40·9	307	e 7 43	− 3	—	—	c 9 27	PP	i 21·0
Tinemaha		104·4	6	e 13 34a	−34	—	—	—	—	—
Riverview	E.	104·6	122	e 17 19	?	—	—	—	—	—
Overton		105·2	3	i 13 45	P	—	—	—	—	—
Haiwee		105·3	6	i 13 33	P	—	—	—	—	—
Pierce Ferry		105·6	2	i 13 45	P	—	—	—	—	—
Boulder City		105·7	3	i 13 43	P	—	—	—	—	—
Mount Wilson		107·2	6	i 13 26a	P	—	—	—	—	—
Pasadena		107·3	6	i 13 25a	P	—	—	—	—	—
Riverside	Z.	107·5	6	i 13 28	P	—	—	—	—	—
Palomar	Z.	108·2	5	i 13 28a	P	—	—	—	—	—
Tucson		109·5	0	i 13 50	P	—	—	e 14 29	pP	—

New Delhi gives also eN = 6m.7s., iN = 7m.9s.
Long waves were also recorded at Copenhagen, De Bilt, and Cheb.

Sept. 10d. 15h. 0m. 53s. Epicentre 38°·6N. 69°·3E. (as at 13h.).

Stations of the U.S.S.R. suggest focal depth of 100km.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.
Stalinabad	0·4	263	0 20	+ 7	0 33	+12
Samarkand	2·1	300	−0 48?	?	−0 28?	?
Tashkent	2·7	359	i 1 46?	+61	e 2 18?	+59
Andijan	3·2	46	e 0 51	− 1	1 28	− 4
Frunse	5·9	41	1 25	− 6	2 31	− 9

Sept. 10d. 16h. 7m. 17s. Epicentre 38°·6N. 69°·3E. (as at 15h.).

Stations of U.S.S.R. suggest focal depth 100km.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.
Stalinabad		0·4	263	0 20	+ 7	0 33	+12
Samarkand		2·1	300	0 15?	−22	—	—
Tashkent		2·7	359	i 1 48?	+63	e 2 21?	+62
Andijan		3·2	46	0 51	− 1	i 1 29	− 3
Frunse		5·9	41	1 26	− 5	2 32	− 8
Sverdlovsk		19·1	345	i 4 21	− 6	7 55	− 2
Ksara		27·3	270	—	—	c 10 11	−16
Collmberg	Z.	40·9	307	c 7 47	+ 1	—	—

Ksara c = 9m.12s.
Long waves were also recorded at New Delhi.

Sept. 10d. Readings also at 1h. (Tinemaha and Mount Wilson), 6h. (Auckland), 8h. (Toledo, Collmberg, Tucson, Pierce Ferry, Boulder City, Overton, Palomar, Riverside, Tinemaha, Haiwee, Mount Wilson, Pasadena, Berkeley, and Riverview), 12h. (Malaga and Tucson), 16h. (near Andijan and near Samarkand), 18h. and 21h. (near Tucson), 22h. (near Grand Coulee).

September 11d. 18h. Undetermined shock.

Brisbane iPN = 1m.55s., iPZ = 1m.58s., iSN = 5m.9s., eLN = 7m.9s.
Riverview iPZ = 2m.56s., iPPZ = 3m.32s., iSE = 7m.0s. iE = 7m.36s., eLEZ = 9m.0s.
Auckland i = 4m.26s., S? = 6m.20s., L = 7m.
Wellington eZ = 5m.? Q = 10m.? R = 11m.?
Arapuni e = 7m.?
Christchurch SEN = 8m.8s., QN = 10m.5s., RZ = 12m.40s.
Palomar iPZ = 10m.48s.,
Riverside iPZ = 10m.48s.
Tinemaha ePZ = 10m.50s.
Pasadena iPZ = 10m.54s., eLZ = 37·6m.
Boulder City eP = 11m.3s.
Pierce Ferry iP = 11m.3s.
Collmberg eZ = 17m.24s. and 49m. 24s.
Paris ePKP = 17m.48s.
Long waves were also recorded at Tucson and Huancayo.

Sept. 11d. 19h. 11m. 26s. Epicentre 22°·7S. 179°·4E. Depth of focus 0·080
(as on 1944 May 14d.)

$A = -·9234$, $B = +·0097$, $C = -·3837$; $\delta = -1$; $h = +4$;
$D = +·010$, $E = +1·000$; $G = +·384$, $H = -·004$, $K = -·923$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Apia		12·2	45	e 2 39	− 2	e 4 44	− 6	—	—
Auckland		14·6	195	—	—	5 12	−23	i 5 29	S
Wellington		18·9	192	—	—	5 32	−78	—	—
Brisbane		24·3	254	i 4 39	+ 3	i 8 26	+ 8	i 4 49	pP
Riverview		27·1	239	i 6 42	pP	i 9 8	+ 6	i 11 59	sS
Santa Barbara		81·1	48	i 11 20a	0	—	—	i 13 15	pP
Berkeley		81·4	44	e 11 22	+ 1	—	—	e 13 16	pP
La Jolla		81·9	51	i 11 24a	0	—	—	—	—
Pasadena		81·9	49	i 11 23a	− 1	i 21 0	+ 7	e 13 17	pP
Mount Wilson		82·1	49	e 11 24	− 1	—	—	—	—
Palomar		82·4	50	i 11 27a	+ 1	e 20 59	+ 1	i 13 22	pP
Riverside		82·4	49	i 11 27a	+ 1	e 21 0	+ 2	i 13 21	pP
Shasta Dam		83·1	42	i 11 31	+ 1	i 21 2	− 2	i 11 50	P_cP
Haiwee		83·2	47	i 11 31	+ 1	—	—	i 13 31	pP
Tinemaha		83·5	47	i 11 33a	+ 1	e 21 6	− 2	i 13 32	pP
Boulder City		85·2	49	i 11 41	+ 1	i 21 18	− 7	e 13 34	pP
Overton		85·8	49	i 11 44	+ 1	—	—	i 13 40	pP
Pierce Ferry		85·9	49	i 11 44	0	—	—	i 13 39	pP
Tucson		86·2	53	i 11 45	0	i 21 22	−12	i 13 41	pP
Grand Coulee		89·4	37	e 11 59	− 1	e 21 38	−25	—	—
Florissant	E.	104·0	54	—	—	e 23 39	−27	—	—
St. Louis	E.	104·1	54	—	—	e 23 40	−27	e 26 40	sS
San Juan		118·9	80	—	—	e 23 51	[0]	e 28 46	PS
Collmberg		149·6	344	e 18 43	[0]	—	—	e 20 53	pP

Additional readings :—
Brisbane iE = 7m.10s.
Berkeley epPN = 13m.20s., esPZ = 14m.36s.
Pasadena iZ = 13m.21s., isPZ = 14m.37s., iZ = 21m.54s.
Palomar isPNZ = 14m.37s.
Riverside isPZ = 14m.44s.
Shasta Dam ipP = 13m.26s., i = 21m.13s., eSP = 21m.59s.
Boulder City iPP = 15m.6s., i = 21m.33s., eSP = 21m.51s.
Overton i = 14m.43s.
Tucson e = 12m.48s. and 21m.43s.
Collmberg i = 18m.50s., 19m.0s. and 19m.15s., e = 19m.34s., i = 21m.4s.

Sept. 11d. Readings also at 1h. (Moscow and near Bogota), 2h. (Tucson), 9h. (Riverview), 10h. (Shasta Dam), 12h. (Copenhagen, Collmberg, Triest, Bucharest, Belgrade and Sofia), 13h. (Collmberg), 14h. (Balboa Heights), 15h. (near Triest), 17h. (Cape Girardeau, Collmberg, near Sofia, Belgrade, and near Tashkent, Frunse and Andijan), 19h. (near Samarkand), 21h. (Grand Coulee), 23h. (near Lick, Branner, San Francisco and Berkeley).

Sept. 12d. 0h. 51m. 23s. Epicentre 2°·6N. 15°·7E.

Intensity VII at Ouesso (Middle Congo); V-VI at Moadhi and Batouri (Cameroons); and V at Carnot (High Sanga).
Epicentre 20°N. 16°E. (Strasbourg). 2°N. 15°E. (Gutenberg).
Macroseismic radius 400 - 450kms.
Enquête du Chef du Service Météorologique du Gabon.

$A = +\cdot9617$, $B = +\cdot2703$, $C = +\cdot0450$; $\delta = -5$; $h = +7$;
$D = +\cdot271$, $E = -\cdot963$; $G = +\cdot043$, $H = +\cdot012$, $K = -\cdot999$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	Z.	30·9	28	i 6 20k	0	e 11 35	+11	7 31	PP	—
Ksara		36·3	30	e 7 11	+ 4	e 13 4?	+16	—	—	—
Granada		38·7	335	7 25a	− 2	e 13 25	0	7 46	pP	e 20·6
Malaga		38·7	334	i 7 46	+19	—	—	e 9 22	PPP	e 20·6
Toledo		41·2	337	i 7 50	+ 2	14 27	+25	—	—	—
Belgrade		42·3	6	i 8 5a	+ 8	e 14 22	+ 3	e 16 56	SS	e 32·9
Triest		42·9	358	i 8 2	0	e 14 30	+ 3	—	—	—
Chur		44·4	354	e 8 13	− 1	—	—	—	—	—
Clermont-Ferrand		44·4	348	e 8 15	+ 1	—	—	—	—	—
Neuchatel		44·9	352	i 8 17	− 1	—	—	—	—	—
Zürich		45·0	353	e 8 18a	− 1	—	—	—	—	—
Basle		45·3	353	i 8 20	− 1	—	—	e 8 46	?	—
Erevan		45·6	32	e 8 23	− 1	—	—	—	—	—
Leninakan		45·7	30	e 8 27	+ 3	—	—	—	—	—
Strasbourg		46·3	353	e 8 29	0	e 15 27	+11	—	—	—
Cheb		47·4	358	—	—	e 18 9	S_eS	e 24 1	?	e 31·6
Paris		47·4	348	i 8 38	0	—	—	i 10 29	PP	e 24·6
Jena	N.	48·3	357	e 8 57	+12	—	—	—	—	—
Collmberg		48·6	358	i 8 46	− 1	—	—	i 10 28	PP	e 24·8
Uccle		49·0	350	e 8 50a	0	e 15 55	0	—	—	e 25·6
De Bilt		50·1	352	i 9 0a	+ 1	—	—	e 10 57	PP	e 26·6
Copenhagen		53·0	358	i 9 18a	− 3	i 16 52	+ 2	17 10	PPS	30·6
Moscow		55·9	15	i 9 41	− 1	e 17 26	− 3	9 56	pP	—
Bombay	E.	58·1	70	—	—	e 18 1	+ 3	—	—	—
Sverdlovsk		64·8	26	i 10 40	− 3	i 19 6	−17	—	—	—
San Juan		81·4	289	e 12 23	+ 3	e 22 29	− 2	—	—	e 39·0
La Paz	Z.	84·8	254	12 35	− 2	—	—	—	—	—
Pierce Ferry		119·4	314	i 17 36	?	—	—	i 17 47	?	—
Boulder City		120·0	314	e 17 32	?	—	—	e 28 59	?	—
Tinemaha		121·8	317	i 17 26	?	—	—	i 18 56	PKP	—
Haiwee	Z.	122·1	316	i 18 59	[+ 2]	—	—	—	—	—
Palomar	Z.	122·8	312	i 17 16	?	—	—	i 18 56	PKP	—
Riverside	Z.	122·8	314	i 17 18	?	—	—	i 18 57	PKP	—

Additional readings:—
Helwan PPPZ = 7m.55s., S_eSE = 16m.42s.
Granada PP = 9m.1s.
Malaga e = 9m.37s.
Belgrade e = 11m.8s.
Jena iN = 9m.29s., eN = 12m.32s.
Collmberg i = 8m.57s., e = 13m.17s., and 14m.4s.
Copenhagen 19m.16s.
Tinemaha eZ = 20m.32s.
Long waves were also recorded at Tananarive, Tortosa, Barcelona, Huancayo, Pasadena, Tucson and Riverview.

Sept. 12d. 16h. 29m. 20s. Epicentre 40°·0N. 20°·0E. (as on 1940 February 23d.).

$A = +\cdot7219$, $B = +\cdot2627$, $C = +\cdot6402$; $\delta = +1$; $h = -2$;
$D = +\cdot342$, $E = -\cdot940$; $G = +\cdot602$, $H = +\cdot219$, $K = -\cdot768$

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	3·7	42	i 0 58	− 2	i 2 5	S_g	i 1 11	P*	—
Belgrade	4·8	5	e 1 23a	+ 8	i 2 1	−11	e 1 33	P*	—
Bucharest	6·3	44	e 1 36	0	i 2 51	+ 1	i 1 54	P*	—
Campulung	6·4	31	0 40?	−58	—	—	8 40?	P_gP	—
Triest	7·3	323	e 1 46	− 4	i 3 14	− 1	e 2 17	P*	i 4·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		10·2	315	e 2 32	+ 1	e 4 27	0	—	—	—
Zürich		11·1	315	e 2 42	− 1	e 4 45	− 4	—	—	—
Basle		11·7	314	e 2 54	+ 3	e 5 16	+12	e 3 18	PPP	—
Neuchatel		11·8	311	e 2 52	− 1	e 4 52	−14	—	—	—
Collmberg		12·3	339	e 2 58	− 1	i 6 21	+63	i 3 14	PP	i 7·4
Strasbourg		12·3	319	e 3 5	+ 6	e 5 31	+13	—	—	—
Jena		12·4	334	e 3 9	+ 8	—	—	e 3 12	PP	e 7·4
Helwan	Z.	13·7	134	e 3 22	+ 4	e 6 10	+18	—	—	e 6·8
Ksara		14·1	111	e 3 21	− 2	—	—	—	—	e 7·0
Tortosa	N.	14·9	280	e 5 13	?	—	—	—	—	e 9·7
Paris		15·3	311	—	—	e 6 49	SS	—	—	—
Uccle		15·4	320	—	—	e 6 55	SSS	—	—	e 9·0
De Bilt		15·8	325	—	—	e 7 0	SS	—	—	e 9·7
Copenhagen		16·5	345	—	—	e 7 15	+17	—	—	8·2
Toledo		18·4	277	i 4 17	− 1	—	—	4 46	PPP	—
Granada		18·6	270	e 4 41	+20	e 8 23	+37	—	—	—
Malaga		19·4	270	i 4 27	− 3	i 4 52	PP	—	—	—
Moscow		19·6	32	e 4 28	− 4	e 8 8	0	—	—	—
Upsala		19·9	356	e 4 38?	+ 2	e 8 16	+ 1	e 8 26	?	e 10·7
Sverdlovsk		31·2	44	6 17	− 6	11 19	−10	—	—	—

Additional readings :—
Sofia iS*N = 2m.18s., iS_gE = 2m.23s.
Belgrade i = 2m.34s., iP_gS_g = 2m.48s., iS_g = 2m.57s.
Bucharest eE = 1m.57s., iP_gN = 2m.13s., iSE = 2m.54s., iS*N = 3m.21s., iS_gE = 3m.36s.
Triest iS_gS_g = 3m.43s.
Collmberg eZ = 3m.3s., iZ = 3m.6s. and 3m.10s., iPPPZ = 3m.18s., iZ = 3m.22s., 3m.26s., 4m.51s., and 5m.57s., iSS = 6m.53s.
Jena eN = 3m.42s.
Long waves were also recorded at Cheb.

Sept. 12d. Readings also at 0h. (Tashkent and Collmberg), 1h. (San Fernando, Malaga and Samarkand), 7h. (Pasadena, Riverside, Palomar, Haiwee and Tinemaha), 8h. (Collmberg, Palomar, Tinemaha, Riverview and Brisbane), 9h. (near Ottawa), 10h. (Brisbane), 11h. (near Apia), 12h. (near Mizusawa), 14h. (near Granada), 15h. (St. Louis, Tinemaha, Haiwee, Boulder City, Pierce Ferry, Palomar, Tucson (2) and Tacubaya), 19h. (Balboa Heights, Brisbane, and near Ottawa), 20h. (St. Louis, Tucson, Pierce Ferry, Grand Coulee, Boulder City, Palomar, Tinemaha, Riverside, Pasadena, Shasta Dam, Christchurch, Auckland, Riverview and near Andijan), 21h. (Pierce Ferry, Boulder City, Palomar, Tinemaha, Riverside, Pasadena, Christchurch, Riverview, Brisbane), 23h. (Auckland and Wellington).

Sept. 13d. 11h. 17m. 5s. Epicentre 33°·8S. 70°·5W. Focus at base of superficial layers.

Epicentre in Cordilleras. Intensity VIII at Rancagua ; VII at Curico. The belt of maximum intensity extends from Juncal to Bulnes, and includes the sea coast from Putaendo to Quillota (32°—36°S.). Macroseismic area includes Copiapo and Osorno. Macroseismic radius 800km.

Frederico Greve :
Determinacion del Coeficiente de Seguridad Antisismico para las Diferentes Zonas de Chile, p. 16.

$A = +·2780$, $B = -·7850$, $C = -·5537$; $\delta = +9$; $h = +1$;
$D = -·943$, $E = -·334$; $G = -·185$, $H = +·522$, $K = -·833$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	N.	10·4	99	2 33	+ 3	i 4 27	+ 1	—	—	5·6
La Paz		17·4	8	i 4 5k	+ 3	i 7 22	+10	i 4 33	pP	9·8
Huancayo		22·1	348	e 4 59	+ 5	e 8 56	+ 6	e 5 22	pP	e 9·5
Bogota		38·4	355	i 7 21	+ 1	e 13 17	+ 5	i 7 44	pP	e 23·9
Balboa Heights		43·4	348	i 8 1	0	—	—	—	—	—
Fort de France		49·1	13	i 8 46	0	e 15 46	− 2	—	—	—
San Juan		52·1	6	i 9 7	− 2	i 16 16	−13	i 11 6	PP	i 21·7
Tacubaya		59·6	329	e 10 4	+ 1	e 18 4	− 5	i 10 30	pP	—
Bermuda		66·0	6	e 11 1	+16	i 19 44	+15	e 11 21	pP	i 27·9
Mobile		66·3	344	10 45	− 2	19 27	− 6	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Sdpp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Columbia		68·2	352	e 10 57	− 2	e 19 45	−11	i 11 20	pP	e 27·9
Georgetown		72·6	356	i 11 25	− 1	i 20 41	− 6	i 11 49	pP	—
Cape Girardeau	N.	72·9	345	e 11 26	− 2	e 20 43	− 7	e 11 49	pP	—
Philadelphia		73·5	358	i 11 30	− 1	i 20 52	− 5	e 11 55	pP	e 30·5
Cincinnati		73·7	349	i 11 30	− 2	i 20 52	− 7	i 11 53	pP	—
Pittsburgh		74·4	353	i 11 38	+ 2	i 20 59	− 8	e 14 24	PP	—
St. Louis		74·4	344	i 11 36	0	e 20 58	− 9	i 12 1	pP	i 30·3
Pennsylvania		74·5	355	i 11 37	0	i 21 1	− 7	i 11 59	pP	—
Florissant		74·6	344	i 11 34	− 4	i 21 2	− 8	i 11 58	pP	—
Weston		75·8	0	i 11 44	0	i 21 19	− 4	12 7	pP	—
Harvard		75·9	0	e 11 44	− 1	e 21 16	− 8	i 12 8	pP	—
Tucson		75·9	326	i 11 44	− 1	i 21 20	− 4	i 12 8	pP	e 32·7
Chicago		76·8	347	e 11 49	− 1	i 21 27	− 7	i 12 12	pP	e 31·0
Ottawa		79·0	357	12 1	− 1	21 51	− 6	22 52	PS	33·9
La Jolla		79·6	322	i 12 6k	+ 1	e 22 3	− 1	i 12 30	pP	—
Palomar		79·7	323	i 12 7k	+ 1	i 22 3	− 2	i 12 27	pP	—
Shawinigan Falls		80·0	359	12 7	− 1	22 1	− 7	—	—	—
Seven Falls		80·5	0	12 11	+ 1	22 8	− 5	—	—	36·9
Riverside		80·5	322	i 12 11k	+ 1	e 22 13	0	i 12 35	pP	—
Pierce Ferry		80·6	326	i 12 11	0	i 22 10	− 4	i 12 35	pP	—
Boulder City		80·8	326	e 12 12	0	e 22 11	− 5	i 12 35	pP	e 38·8
Mount Wilson		81·0	322	e 12 14	+ 1	e 22 18	0	e 12 38	pP	—
Pasadena		81·0	322	i 12 14k	+ 1	i 22 16	− 2	i 12 37	pP	e 43·0
Overton		81·1	326	i 12 15	+ 2	i 22 17	− 2	i 12 38	pP	—
Santa Barbara		82·1	321	i 12 19	0	e 22 28	− 2	i 12 42	pP	—
Haiwee		82·5	324	i 12 22	+ 1	e 22 32	− 2	—	—	—
Rapid City		83·0	337	i 12 25	+ 2	i 22 35	− 4	i 12 47	pP	e 34·4
Salt Lake City		83·4	330	e 12 25	0	e 22 34	− 9	e 13 0	pP	e 35·3
Tinemaha		83·4	323	i 12 25k	0	e 22 39	− 4	i 12 49	pP	e 42·8
Christchurch		83·9	221	12 29	+ 1	22 43	− 5	12 54	pP	38·5
Wellington	Z.	84·2	223	12 29	0	22 45	− 6	12 55	pP	38·9
Logan		84·2	331	e 11 55	−34	e 22 1	−50	i 12 21	pP	e 40·6
Santa Clara		85·5	322	i 13 1	+25	i 22 55	− 8	—	—	—
Arapuni		85·7	227	e 16 55?	PP	23 25	+20	28 55?	SS	36·9
Berkeley		86·0	322	12 39	+ 1	i 22 55	[− 4]	13 3	pP	35·8
Auckland		87·0	227	12 45?	+ 2	23 16	− 2	24 27	PS	39·9
Bozeman		87·2	333	e 13 3	+19	e 22 57	[− 9]	e 13 28	pP	e 36·4
Ukiah		87·5	322	e 13 9	+23	i 23 1	[− 7]	e 16 11	PP	e 36·8
Butte		88·1	333	e 12 50	+ 2	i 23 6	[− 6]	i 13 13	pP	e 41·1
Shasta Dam		88·2	324	i 12 47	− 2	i 23 6	[− 6]	i 13 11	pP	—
Saskatoon		91·2	339	e 13 37	?	23 24	[− 7]	—	—	41·9
San Fernando		92·1	47	e 13 32	pP	i 24 3	− 1	e 16 53	PP	e 41·5
Grand Coulee		92·2	329	e 13 6	− 2	e 23 58	− 7	i 13 30	pP	—
Malaga		93·4	47	i 13 38	pP	i 24 16	0	—	—	e 54·4
Granada		94·2	47	13 53k	pP	30 39	SS	17 38	PP	—
Victoria		94·6	327	e 13 49	pP	23 47	[− 3]	—	—	45·9
Toledo		95·6	45	i 13 20	− 3	e 23 53	[− 2]	—	—	—
Ivigtut		96·4	11	—	—	23 51	[− 9]	26 27	PS	—
Tortosa	N.	98·9	47	i 21 18	?	24 13	[+ 1]	—	—	e 58·9
Riverview		102·2	215	e 18 39	pPP	i 25 8	SKKS	i 32 41	SS	e 47·3
Clermont-Ferrand		103·3	44	—	—	e 24 33	[0]	—	—	e 46·9
Paris		104·7	41	e 17 55?	PP	e 27 19	PS	e 28 37	PPS	e 49·9
Kew		104·8	37	e 18 18?	PP	e 24 35	[− 5]	e 25 43?	S	e 49·4
Sitka		106·0	329	e 18 49	PP	i 24 39	[− 7]	i 27 43	PS	e 44·1
Uccle		106·8	39	—	—	e 24 45	[− 4]	e 32 55?	SS	—
Aberdeen		107·3	32	—	—	i 27 58	PS	—	—	55·2
De Bilt		108·0	39	e 17 51	[−33]	e 24 52	[− 3]	e 19 11	PP	e 42·9
Triest		109·6	48	i 19 19	PP	i 34 48	SS	i 25 45	SKKS	—
Cheb		110·9	43	e 20 8	PPP	e 23 37	?	e 28 55	PPS	e 57·9
Collmberg		111·8	42	i 18 32	[0]	e 28 49	PS	e 18 57	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Prague		112·1	43	—	—	e 25 55?	SKKS	e 28 37	PS	—
Bergen		112·3	30	—	—	—	—	e 38 55?	SSS	64·9
Belgrade		113·5	51	e 18 36k	[+ 1]	e 35 5	SS	e 19 52	PP	e 67·4
Copenhagen		113·5	37	e 19 48	PP	i 28 55	PS	34 41	SS	—
Helwan	Z.	115·0	70	i 18 40a	[+ 2]	25 30	[+ 7]	19 52	PP	—
College		115·0	332	e 19 32	PP	e 25 14	[− 9]	e 29 12	PS	e 48·0
Upsala	E.	117·7	34	—	—	e 25 27	[− 5]	e 29 37	PS	e 56·9
Ksara		120·2	68	e 20 21	PP	e 30 18	PS	—	—	—
Moscow		127·1	42	19 0	[− 1]	31 4	PS	19 27	pPKP	—
Leninakan		128·4	62	e 19 23	[+19]	—	—	—	—	—
Erevan		128·7	63	e 19 10	[+ 6]	—	—	—	—	—
Grozny		130·3	59	e 19 6	[− 2]	—	—	—	—	—
Baku		132·8	63	19 19	[+ 6]	26 27	[+ 8]	39 19	SS	—
Sverdlovsk		139·8	40	e 15 17	P	40 25	SS	i 19 52	sPKP	—
Colombo	E.	141·7	127	19 27	[− 1]	—	—	e 22 32	PP	—
Kodaikanal	E.	142·4	120	e 17 24	?	e 27 39	SKKS	—	—	—
Bombay	E.	144·1	105	e 19 29	[− 3]	i 29 35	SKKS	i 22 52	PP	—
Hyderabad		147·8	112	19 44	[+ 5]	30 33	SKKS	23 23	PP	—
Andijan		149·8	65	e 19 48	[+ 6]	—	—	—	—	—
Frunse		151·3	61	e 19 54	[+10]	—	—	—	—	—
New Delhi	N.	152·0	92	i 23 24	PP	e 33 38	PS	—	—	—
Calcutta	N.	158·0	115	e 20 15	pPKP	—	—	e 24 29	PP	—
Irkutsk		161·2	10	e 19 57	[0]	26 39	[−18]	24 16	PP	—

Additional readings :—
La Plata iPZ = 2m.36s., SEZ = 4m.31s., N = 4m.40s.
La Paz isPN = 4m.53s.
Huancayo i = 5m.46s.
Bogota i = 8m.19s., e = 12m.27s.
San Juan i = 10m.43s., iPPP = 12m.13s., i = 16m.49s., iSS = 20m.5s.
Tacubaya iPPEN = 12m.15s., esSN = 18m.43s.
Bermuda ePP? = 13m.16s., ePPP = 15m.1s., isS = 20m.16s., eSS = 24m.1s., e = 27m.6s.
Columbia ePP = 13m.26s., ePPP = 15m.10s., esS = 20m.20s., e = 20m.48s., and 24m.10s.
Georgetown sS = 21m.23s.
Cape Girardeau esSN = 21m.25s.
Philadelphia ePP = 14m.16s., isS = 21m.30s., eScS = 22m.3s., eSS = 25m.32s.
Cincinnati iPP = 14m.9s., iPPP = 16m.3s., isS = 21m.28s., iPS = 21m.57s.
St. Louis iN = 13m.27s. and 13m.48s., ePPN = 14m.17s., iPPPZ = 16m.18s., iSEN = 21m.2s., iPSN = 21m.30s., isSEN = 21m.40s., ipPS?N = 21m.48s., iE = 21m.58s. and 22m.20s., iSSN = 25m.55s., iSSSN = 28m.14s.
Pennsylvania e = 21m.22s.
Florissant iZ = 13m.47s., iPPZ = 14m.15s., eSN = 20m.55s., iPSN = 21m.31s., isSN = 21m.47s., iSSN = 25m.59s.
Weston SS = 26m.13s.
Tucson e = 14m.30s., i = 15m.5s., isS = 21m.50s., e = 26m.21s. and 32m.21s., ePKP,PKP = 39m.6s., ePKP,PKP,PKP = 59m.4s.
Chicago ePP = 15m.5s., e = 16m.31s., eS = 21m.20s., i = 21m.50s., isS = 21m.55s., i = 22m.25s., e = 26m.8s.
Ottawa e = 12m.4s., SS = 27m.12s.
Palomar i = 12m.30s., isPZ = 12m.42s., iPPNZ = 15m.31s., iNZ = 15m.54s., i = 22m.36s., eSKP,PKPZ = 42m.10s.
Riverside iPPZ = 15m.38s.
Pasadena iNZ = 12m.22s., isPZ = 12m.46s., iZ = 13m.13s., iPPEZ = 15m.15s., iZ = 22m.36s., iEN = 22m.44s., eQEN = 34m.42s., ePKP,PKPZ = 39m.4s., iSKP,PKP = 42m.11s.
Rapid City i = 14m.11s., ePP = 15m.35s., ipPP = 16m.2s., e = 20m.13s., esS = 23m.12s., eSS = 26m.31s., e = 27m.40s., eSSS = 31m.38s.
Salt Lake City ePP = 15m.48s., e = 19m.58s., esS = 23m.5s., eSS = 28m.13s.
Tinemaha iZ = 12m.38s., isPZ = 12m.59s.
Christchurch sP?EZ = 13m.3s., EZ = 13m.37s., PPEZ = 16m.4s., SS = 23m.25s., PSE = 24m.15s., SSEN = 28m.24s., SSSEN = 32m.2s., QEN = 35m.0s.
Wellington iZ = 14m.0s., pPPZ = 16m.15s., PPPP?Z = 20m.7s., ScS? = 23m.0s., sS = 23m.26s., PSZ = 23m.55s., sSS?Z = 28m.55s.?, QZ = 34·9m.
Logan iPP = 14m.58s., isS = 22m.36s., eSS = 27m.42s.
Berkeley eNZ = 16m.14s., eE = 16m.20s., ePPPZ = 18m.15s., ePPPZ = 18m.20s., ePPNZ = 23m.50s., eN = 26m.20s., eE = 26m.27s., eSSE = 29m.8s.
Auckland i = 13m.55s. and 14m.40s., sS = 23m.53s., SS = 29m.5s.?, Q = 35·9m.
Bozeman ePP = 16m.22s., iS = 23m.1s., e = 23m.50s.
Ukiah i = 23m.19s., eSSS = 33m.5s.
Butte ePP = 16m.1s., isS = 23m.25s., e = 28m.6s.
Shasta Dam iPP = 16m.45s., ipPP = 17m.38s., iS = 23m.23s., ePS = 23m.45s., ePKKP = 29m.57s.

Continued on next page.

San Fernando ePPPZ = 18m.46s., ePSE = 24m.35s., iSSE = 28m.53s.
Grand Coulee ePP = 17m.3s., i = 17m.28s.
Malaga iS = 24m.48s. and 25m.48s.
Riverview iPSZ = 27m.15s., iZ = 27m.42s., iSSPZ = 32m.53s., iE = 33m.25s.
Paris e = 34m.11s.
Kew eSKKS?E = 25m.15s.?, eSP?EZ = 27m.15s., ePSE = 27m.39s., ePPSEZ = 28m.38s., e = 31m.18s., eSSEN = 32m.58s., esSS?Z = 33m.58s., eSSSNZ = 37m.15s., eQ = 41·9m.
Sitka e = 20m.0s. and 21m.27s., i = 25m.21s.
Uccle eSEN = 26m.5s.
De Bilt eS = 26m.20s., eSS = 33m.52s.
Triest ipP?Z = 20m.8s., iSKP?E = 26m.36s.
Collmberg eZ = 19m.37s., 19m.54s., 20m.44s., 21m.17s., 21m.35s., 22m.33s., 23m.24s., 29m.55s., 30m.26s., 33m.13s., and 34m.55s.
Prague e = 29m.43s. and 32m.55s.
Belgrade ePPP = 22m.21s., e = 27m.11s., eSSS = 39m.5s.
Copenhagen 25m.12s., 26m.20s. and 27m.7s., SS = 35m.7s., SSS = 41m.7s.
Helwan pPKPZ = 22m.7s., SN = 27m.19s., sSN = 28m.7s., sPSN = 30m.3s.
College e = 25m.56s. and 34m.59s.
Upsala eN = 25m.31s. and 46m.25s.
Moscow PP = 20m.49s., PPP = 21m.15s., PS = 31m.15s., SS = 37m.49s.
Sverdlovsk ePP = 22m.19s., pPS = 33m.9s., SSS = 45m.31s.
Kodaikanal eE = 18m.24s., 23m.34s., and 25m.9s.
Bombay iE = 26m.2s., ePSKSE = 33m.12s.
Hyderabad PKP_2N = 20m.19s., SKSPE = 33m.30s., SSN = 42m.54s.
New Delhi eN = 34m.30s., iN = 36m.56s.

Sept. 13d. 21h. 40m. 37s. Epicentre 17°·4S. 167°·9E. (as on 9d.).

A = −·9336, B = +·2002, C = −·2972; δ = +2; h = +5;
D = +·210, E = +·978; G = +·291, H = −·062, K = −·955.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		17·0	230	i 4 0	− 1	i 7 19	+ 9	—	—	i 9·4
Auckland		20·3	164	—	—	7 29?	−54	—	—	8·8
Arapuni		21·7	163	—	—	9 23?	+32	—	—	10·4
Riverview		22·2	218	i 5 0a	0	i 9 6	+ 6	i 5 17	pP	e 10·7
Wellington		24·5	167	5 20	− 2	10 3	+23	5 29	pP	12·4
Christchurch		26·4	172	—	—	10 12	0	11 28	SS	13·9
Riverside	z.	87·5	53	e 12 52	+ 1	—	—	—	—	—
Palomar	z.	87·6	54	e 12 52	+ 1	—	—	—	—	—
Tinemaha	z.	88·1	50	e 13 1	+ 7	—	—	e 13 24	pP	—
Tucson		92·0	57	i 13 20	+ 8	—	—	—	—	—
Collmberg	z.	140·7	317	e 19 33	[+ 1]	—	—	—	—	—
Chur		145·6	334	e 19 43	[+ 3]	—	—	—	—	—
Zürich		145·6	335	e 19 57	[+17]	—	—	—	—	—
Basle		145·9	336	e 19 45	[+ 4]	—	—	—	—	—

Additional readings:—
Riverview eZ = 5m.54s., iZ = 7m.17s. and 9m.16s., iN = 9m.47s.
Wellington PP = 6m.56s., Q = 11·4m.
Christchurch QN = 11m.33s.
Riverside iZ = 12m.58s.
Long waves were also recorded at Pasadena.

Sept. 13d. Readings also at 1h. (Huancayo and Collmberg), 4h. (near Tacubaya), 7h. (Collmberg and Shasta Dam), 8h. (near Andijan and Samarkand), 9h. (La Paz, St. Louis, Florissant, Boulder City, Overton, Pierce Ferry, Tucson, Palomar, Pasadena, Riverside, Tinemaha, Riverview, Christchurch and near Andijan), 10h. (Collmberg (2) and St. Louis), 12h. (Brisbane and Collmberg), 20h. (near Stalinabad), 21h (Belgrade, Cheb, Collmberg, Pittsburgh and near Tucson), 23h. (Collmberg, Boulder City, Pierce Ferry and near Mizusawa).

Sept. 14d. 2h. 2m. 21s. Epicentre 7°·1N. 37°·7W.

$A = +\cdot7852$, $B = -\cdot6069$, $C = +\cdot1228$; $\delta = -5$; $h = +7$;
$D = -\cdot612$, $E = -\cdot791$; $G = +\cdot097$, $H = -\cdot075$, $K = -\cdot992$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		24·2	290	e 5 20	+ 1	i 9 40	+ 5	5 52	PP	—
San Juan		29·9	296	i 6 20	+ 8	i 10 51	−18	—	—	e 12·2
Bermuda		35·5	319	e 6 55	− 5	e 12 1	−35	e 8 0	PP	e 14·6
Bogota		36·3	268	i 7 7	0	e 12 57	+ 9	e 18 4	?	24·7
La Paz	z.	38·2	231	i 7 24a	+ 1	i 13 24	+ 7	i 7 49	pP	18·5
Lisbon		40·7	35	e 7 47k	+ 3	13 49	− 6	9 20	PP	18·6
San Fernando		41·0	40	i 7 47	+ 1	e 14 1	+ 2	i 9 12	PP	e 19·5
Huancayo		42·0	243	e 7 50	− 4	e 14 1	−13	e 9 35	PP	e 18·4
Malaga		42·3	41	e 7 58	+ 1	e 14 8	−11	8 4	pP	e 20·0
Granada		43·1	41	i 8 11a	+ 7	14 33	+ 3	8 40	pP	20·4
Toledo		44·4	37	e 8 12	− 2	e 14 44	− 5	—	—	—
La Plata		45·9	203	8 20	− 6	15 15	+ 4	18 27	SS	23·4
Weston		46·0	325	e 8 22	− 5	e 15 6	− 6	18 35	SS	19·4
Fordham		46·6	322	i 8 31	− 1	i 15 15	− 6	—	—	21·7
Philadelphia		46·8	320	e 8 31	− 2	i 15 16	− 8	e 18 32	SeS	e 19·5
Georgetown		47·5	318	e 8 39	+ 1	i 15 31	− 3	—	—	21·1
Tortosa		47·8	39	8 43	+ 2	15 35	− 3	9 25	pP	e 21·7
Columbia		48·1	310	e 8 44	+ 1	i 15 39	− 3	e 16 21	?	e 19·2
Seven Falls		48·9	331	8 47	− 3	15 47	− 6	—	—	19·7
Pennsylvania		49·0	320	e 10 45	PP	i 15 56	+ 1	e 19 12	SS	—
Shawinigan Falls		49·5	329	8 49	− 5	15 51	−11	—	—	21·7
Pittsburgh		50·2	319	e 8 57	− 3	e 16 11	0	—	—	—
Ottawa		50·4	326	8 56	− 5	16 9	− 5	—	—	21·7
Clermont-Ferrand		52·1	36	e 9 16	+ 2	i 16 35	− 3	—	—	e 24·3
Mobile		52·6	303	—	—	16 51	sS	—	—	—
Cincinnati		52·7	315	i 9 17	− 1	i 16 44	− 2	i 10 23	PeP	e 24·2
Paris		53·6	32	9 21	− 4	16 52	− 6	—	—	e 23·7
Kew		53·9	28	e 9 22?	− 5	i 16 55	− 7	i 17 25?	sS	e 24·2
Ivigtut		54·5	353	—	—	16 59	−11	—	—	22·7
Neuchatel		55·1	36	e 9 32	− 4	—	—	—	—	—
Basle		55·7	36	e 9 40	0	e 17 24	− 2	—	—	—
Cape Girardeau	E.	55·7	311	e 9 43	+ 3	e 17 23	− 3	—	—	—
Uccle		55·8	31	e 10 4	+23	i 17 21	− 7	e 22 39?	?	—
Chicago		56·0	317	e 9 45	+ 2	e 17 27	− 3	e 21 46	SS	e 23·9
Zürich		56·2	36	e 9 38	− 6	e 17 28	− 5	—	—	—
De Bilt		56·3	30	i 9 49	+ 4	e 17 44	+10	—	—	e 24·7
Strasbourg		56·4	34	9 49	+ 4	e 17 39	+ 3	e 11 57	PP	25·7
Chur		56·5	37	e 9 45	− 1	e 16 59	−38	—	—	e 26·2
St. Louis		56·7	312	e 9 44	− 4	i 17 36	− 4	e 10 5	pP	i 24·1
Aberdeen		57·1	22	—	—	i 17 44	− 1	i 23 46	SSS	i 25·7
Triest	E.	58·6	39	e 9 53	− 8	i 18 1	− 3	e 12 17	PP	—
Cheb		59·7	35	e 10 32	+23	e 18 39	+20	e 14 27	PPP	e 28·7
Jena	z.	59·7	34	e 10 22	+13	—	—	—	—	—
Collmberg	z.	60·6	34	e 10 13	− 2	e 19 39	+69	e 12 48	PP	e 30·7
Copenhagen		62·5	29	e 10 33	+ 5	i 18 54	0	12 59	PP	—
Belgrade		62·7	43	e 10 27k	− 2	e 18 57	0	i 10 38	?	e 30·9
Upsala		67·0	27	e 19 36?	?	e 19 48	− 2	—	—	e 27·7
Rapid City		67·6	315	e 11 1	0	e 19 51	− 6	e 13 46	PP	e 29·2
Helwan		68·3	60	i 11 6a	+ 1	20 6	0	20 27	PS	—
Saskatoon		71·5	323	—	—	e 20 24	−19	—	—	31·7
Tucson		72·0	302	e 11 25	− 3	e 20 44	− 5	e 14 5	PP	e 33·7
Ksara		72·5	57	e 11 27?	− 3	e 21 1	+ 7	—	—	—
Bozeman		73·3	316	e 12 10	+35	i 21 48	PPS	e 25 28	SS	e 32·5
Salt Lake City		73·4	311	e 11 58	+22	e 21 1	− 4	e 25 51	SS	e 30·6
Logan		73·5	312	e 11 2	−34	e 20 23	−43	e 29 1	SSS	e 32·0
Butte		74·4	317	—	—	e 21 22	+ 6	e 25 37	SS	e 34·1
Pierce Ferry		74·8	305	e 11 41	− 3	—	—	i 11 56	PeP	—
Overton		75·2	306	e 11 50	+ 4	—	—	i 11 59	PeP	—
Boulder City		75·5	305	e 11 46	− 2	—	—	i 11 51	PeP	—
Moscow		75·9	34	e 11 49	− 1	e 21 29	− 3	12 11	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		77·1	302	e 11 55	− 2	e 21 46	0	i 11 59	P_cP	—
La Jolla	z.	77·4	302	e 12 5	+ 7	—	—	—	—	—
Riverside		77·5	303	i 11 59	0	—	—	i 12 18	P_cP	—
Haiwee	z.	78·0	305	i 12 6	+ 4	—	—	—	—	—
Mount Wilson		78·1	303	e 12 8	+ 6	—	—	—	—	—
Pasadena		78·2	303	e 12 7	+ 4	e 21 57	0	i 22 43	PS	e 36·9
Tinemaha		78·2	306	e 12 6	+ 3	—	—	—	—	—
Grand Coulee		78·9	318	e 12 6	− 1	—	—	e 12 18	P_cP	—
Erevan		79·5	50	e 12 13	+ 3	—	—	—	—	—
Santa Barbara	z.	79·5	304	i 12 14	+ 4	—	—	—	—	—
Grozny		80·4	47	e 12 17	+ 2	—	—	—	—	—
Santa Clara		81·2	307	e 12 15	− 4	—	—	—	—	e 36·2
Berkeley		81·4	307	e 12 18	− 2	e 22 26	− 5	i 33 39?	Q	35·7
Tananarive		87·8	109	—	—	e 32 30	SSS	—	—	e 41·0
Sitka		88·1	327	—	—	i 23 27	−10	e 24 23	PS	e 36·4
Sverdlovsk		88·7	33	i 12 59	+ 2	i 23 50	+ 7	25 1	PS	—
College		92·0	337	—	—	e 23 50	[+ 6]	e 24 58	PS	e 37·2
Bombay	E.	106·8	68	—	—	e 23 39?	?	—	—	—
New Delhi	N.	108·0	57	—	—	e 28 6	PS	—	—	e 58·2
Kodaikanal	E.	113·2	76	—	—	e 31 55	?	—	—	—
Christchurch		135·0	211	37 46	?	e 40 4	SS	61 9	Q	65·5
Riverview		152·2	196	—	—	e 44 15	SSP	—	—	e 74·8

Additional readings :—
Fort de France PPP = 6m.1s.
La Paz sPZ = 8m.16s., PPZ = 8m.48s., P_cPZ = 9m.42s., pSZ = 14m.2s., sSZ = 14m.44s., SSZ = 16m.6s.
Lisbon Z = 9m.45s., QE = 17m.3s.
San Fernando eSSZ = 16m.40s.
Huancayo iPPP = 10m.6s., eSS = 16m.51s.
Malaga PP? = 9m.52s., iP_cP = 9m.58s.
Granada sS = 15m.9s.
La Plata E = 8m.51s., SZ = 15m.21s.
Philadelphia e = 9m.30s.
Tortosa P_cPN = 9m.55s., PPN = 10m.52s., PPPN = 11m.35s., P_cSN = 14m.9s., PSN = 15m.55s., SSN = 19m.7s., SSSN = 20m.51s.
Cincinnati iPP = 11m.18s., ePPP = 12m.14s.
Kew ePPP?Z = 12m.11s., eSSS? = 20m.19s.?, eQ = 22m.9s.
St. Louis ePPPE = 12m.54s., eSE = 17m.31s., iN = 17m.59s., iSSE = 21m.28s.
Cheb eSS = 22m.57s.
Collmberg iZ = 10m.19s. and 10m.44s., eZ = 11m.19s., 12m.10s., and 14m.3s., ePPPZ = 14m.33s., eZ = 15m.57s., 20m.51s., 22m.57s., and 23m.57s.
Copenhagen 13m.47s., 20m.29s., and 24m.27s.
Rapid City eSS = 23m.55s.
Tucson i = 11m.33s., eSS = 25m.36s.
Bozeman e = 15m.30s., eSSS = 29m.32s.
Logan e = 13m.43s. and 24m.22s.
Pasadena iZ = 13m.5s., iSEN = 22m.3s.
Berkeley iSS? = 28m.46s.
Sitka eSS = 29m.21s.
Sverdlovsk SKS = 23m.25s.
Christchurch PSE = 49m.44s., SSEN = 53m.55s., ; readings wrongly identified.
Long waves were also recorded at Barcelona, Bergen, Seattle, Wellington, Arapuni, and Auckland.

Sept. 14d. Readings also at 1h. (Christchurch), 3h. (Berkeley), 4h. (Grand Coulee), 8h. (San Juan), 17h. (Belgrade, near Sofia, Bucharest, and Campulung), 19h. (La Paz), 20h. (St. Louis, Palomar, Tucson, Riverside, Tinemaha and near Mizusawa), 22h. (Sitka and near Tucson).

Sept. 15d. Readings at 3h. (near Mizusawa), 6h. (Pasadena, Tinemaha, Tucson, Palomar, Riverside, Christchurch, Arapuni, Wellington, Auckland, Riverview and near Stalinabad), 14h. (Collmberg, Riverside, Palomar and Tucson), 15h. (Tinemaha, Palomar and Tuscon), 16h. (Pasadena, Riverside, Tinemaha, Palomar, and Tuscon), 19h. (Cape Girardeau), 20h. and 21h. (near Tucson).

Sept. 16d. Readings at 1h. (Boulder City, Pierce Ferry, Overton, Tucson, and near Granada), 3h. (Shasta Dam), 4h. (Tinemaha, Riverside, Pasadena, and near Tucson (2)), 5h. (Collmberg (2)), 17h. (near Mizusawa), 23h. (Shasta Dam, near Lick, Branner, San Francsico and Berkeley).

Sept. 17d. 0h. 47m. 35s. Epicentre 16°·2N. 100°·6W.

$A = -·1767$, $B = -·9444$, $C = +·2773$; $\delta = +1$; $h = +6$;
$D = -·983$, $E = +·184$; $G = -·051$, $H = -·273$, $K = -·961$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya		3·5	23	1 0	+ 3	(1 44)	+ 4	—	—	1·7
Puebla		3·6	38	0 57	− 1	1 35	− 7	—	—	1·7
Oaxaca		3·8	77	0 50	−11	(1 24)	−23	—	—	1·4
Guadalajara	N.	5·2	330	—	—	e 2 5	?	e 2 45	S_g	—
Vera Cruz		5·2	54	1 15	− 6	2 8	−14	—	—	2·3
Tucson		18·5	332	e 4 18	− 1	e 7 43	− 1	—	—	e 8·9
Palomar	Z.	22·5	324	e 5 0	− 2	—	—	—	—	—
Pierce Ferry		23·1	332	i 5 9	+ 1	—	—	—	—	—
Riverside	Z.	23·3	323	e 5 2	− 8	—	—	—	—	—
Boulder City		23·4	331	e 5 14	+ 3	e 11 58	L	—	—	(e 12·0)
Overton		23·7	332	e 5 18	+ 4	—	—	—	—	—
St. Louis		24·1	21	e 5 26	+ 8	e 9 35	+ 1	—	—	—
Florissant		24·2	21	e 5 20	+ 1	e 9 35	0	—	—	—
Haiwee		25·2	326	e 5 32	+ 3	—	—	—	—	—
Tinemaha		26·0	326	e 5 37	+ 1	—	—	—	—	—
San Juan		33·0	80	—	—	e 11 55	− 2	—	—	e 16·8

Additional readings :—
Tucson i = 4m.38s. and 4m.48s., e = 5m.8s.
Palomar iZ = 5m.17s. and 5m.51s.
Pierce Ferry i = 5m.23s.
St. Louis eN = 5m.52s., eE = 9m.59s., 10m.33s., 10m.48s., and 11m.10s., eSS?E = 14m.39s.
Florissant eE = 9m.53s., eSS?N = 14m.36s.
Long waves were also recorded at Huancayo and other American stations.

Sept. 17d. Readings also at 5h. (near Andijan, Stalinabad and Tashkent), 8h. (near Mizusawa), 14h. (Auckland, Christchurch, and Riverview), 15h. (Tortosa), 19h. (near Tucson), 21h. (near Stalinabad (2) and near Tucson), 22h, (La Paz).

Sept. 18d. 11h. 9m. 10s. Epicentre 41°·8N. 138°·6E. (as on 1941 April 2d.).

Uncertain.

$A = -·5608$, $B = +·4944$, $C = +·6641$; $\delta = -4$; $h = -2$;
$D = +·661$, $E = +·750$; $G = -·498$, $H = +·439$, $K = -·748$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	3·3	144	e 0 54	+ 1	1 42	+ 7	—	—	—
Andijan		48·6	292	e 9 39	+52	—	—	—	—	—
Sverdlovsk		50·2	316	e 9 31	+31	i 17 11	+60	—	—	—
Tashkent		50·5	294	—	—	i 16 59	+43	—	—	—
Baku		63·8	301	—	—	e 19 54	+43	—	—	—
Collmberg	Z.	75·9	327	i 12 8	+18	—	—	e 15 27	PP	—
Pasadena	Z.	76·8	56	e 11 51	− 4	—	—	—	—	—
Riverside	Z.	77·3	56	e 11 55	− 3	—	—	—	—	—
Palomar		78·1	56	i 11 59k	− 3	—	—	—	—	—
Tucson		82·5	55	e 12 25	− 1	—	—	—	—	e 41·0

Additional readings :—
Collmberg iZ = 12m.20s.
Pasadena eZ = 12m.4s.
Tucson e = 12m.36s.
Long waves were also recorded at De Bilt, Paris, and Triest.

Sept. 18d. 22h. 37m. 56s. Epicentre 42°·8N. 115°·6W.

A = −·3180, B = −·6637, C = +·6770; δ = −5; h = −3;
D = −·902, E = +·432; G = −·293, H = −·611, K = −·736.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Shasta Dam		5·5	250	e 1 25	0	e 2 18	−12	—	—	—
Tinemaha		6·0	200	i 1 30	− 2	i 2 33	−10	i 1 43	P*	—
Overton		6·3	172	i 1 43	+ 7	i 3 9	S*	i 1 51	P*	—
Pierce Ferry		6·8	169	i 1 45	+ 1	i 2 58	− 5	i 2 0	P*	—
Boulder City		6·8	170	i 1 43	− 1	i 2 55	− 8	i 1 58	P*	—
Haiwee		6·9	196	i 1 41	− 4	i 2 56	− 9	i 1 57	P_g	—
Mount Wilson		8·8	194	i 2 9	− 2	e 3 55	+ 2	i 2 30	P*	—
Pasadena		8·9	194	i 2 15	+ 3	i 3 58	+ 3	i 2 31	P*	—
Riverside		8·9	189	i 2 10	− 2	e 3 56	+ 1	i 2 32	P*	—
Santa Barbara	z.	8·9	202	—	—	e 4 5	+10	—	—	—
Palomar		9·5	187	i 2 18	− 2	i 4 14	+ 4	i 2 44	P*	—
Tucson		11·2	159	e 3 16	+32	e 4 30	−22	—	—	e 5·2
Collmberg	z.	76·2	30	e 18 59	?	—	—	—	—	—

Additional readings;—
Overton i = 2m.43s.
Boulder City e = 2m.37s.
Tucson e = 3m.26s. and 5m.2s.
Long waves were also recorded at Grand Coulee and Salt Lake City

Sept. 18d. Readings also at 1h. (Collmberg), 2h. (Tashkent), 3h. (Palomar, Pasadena, Tinemaha, Tucson, Boulder City, Grand Coulee, Overton, Pierce Ferry, Shasta Dam, Sitka, College, Bermuda, St. Louis, San Juan, Copenhagen, De Bilt, Collmberg, and Paris), 7h. (Berkeley, Branner and near Lick), 10h. (Palomar, Tinemaha and Tucson) 13h. (Collmberg), 16h. (near Shasta Dam, near Andijan (2) and Stalinabad (2)), 19h. (Collmberg), 20h. (Collmberg and near Tuscon), 21h. (near Tucson), 22h. (New Delhi, Leninakan, and near Andijan).

Sept. 19d. 6h. 48m. 0s. Epicentre 35°·7N. 4°·6W.

Intensity V at Penon de Velez (Spanish Morocco); III at Rute in Spain.
Boletín del Observatorio del Ebro, 1945.
Resumen de las Observaciones solares meteorológicas y sismológicas efectuadas durante el año 1945. p. 194. Tortosa 1946. Epicentre as adoptcd.

A = +·8113, B = −·0653, C = +·5810; δ = +3; h = 0;
D = −·080, E = −·997; G = +·579, H = −·047, K = −·814.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		
		°	°	m. s.	s.	m. s.	s.	m. s.		
Malaga		1·0	9	i 0 15	− 6	i 0 32	− 2	e 0 24	S_g	
Granada		1·7	28	0 35a	+ 4	0 59	+ 5	—	—	
Almeria		2·1	56	0 16	?	—	—	—	—	
Toledo	z.	4·2	6	e 1 12	+ 5	—	—	e 1 27	P_g	
Alicante		4·2	50	1 4	− 3	—	—	—	—	

Additional readings;—
Malaga SP = 21s., SSS = 42s., i = 45s. and 53s.
Toledo e = 1m.30s.

Sept. 19d. 10h. 40m. 49s. Epicentre 29°·5N. 84°·0E.

Very rough.

A = +·0911, B = +·8670, C = +·4899; δ = −1; h = +2;
D = +·995, E = −·105; G = +·051, H = +·487, K = −·872.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Dehra Dun		5·2	281	e 1 32	P*	i 1 53	?	e 1 41	P_g	—
New Delhi	E.	6·0	262	i 1 29	− 3	i 2 15	−28	1 44	P*	—
Calcutta	N.	7·9	149	e 3 42	S	(e 3 42)	+12	i 4 54	L	(i 4·9)
Hyderabad	N.	13·0	204	3 5	− 4	e 5 52	+17	6 13	SS	—
Andijan		14·7	323	e 3 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.
Bombay		14·7	226	e 3 38	+ 7	e 6 9	− 7	—	—	7·2
Stalinabad		15·5	310	3 39	− 3	6 37	+ 2	—	—	—
Tashkent		16·8	319	i 3 59	+ 1	i 7 16	+11	—	—	—
Colombo	E.	22·8	192	4 59	− 6	—	—	—	—	—
Irkutsk		27·3	28	e 6 17	+29	e 11 9	+42	—	—	—
Baku		29·8	301	—	—	e 11 10	+ 3	—	—	—
Moscow		41·9	323	e 8 10	+16	—	—	—	—	—
Helwan	N.	45·4	285	—	—	e 15 1	− 3	—	—	—
Collmberg	Z.	56·0	314	e 9 51	+ 8	—	—	e 12 1	PP	—

Additional readings and notes :—
New Delhi S_eE =2m.37s.
Calcutta records S as P and L as S.
Bombay iSN =5m.49s.
Collmberg iZ =9m.58s., eZ =10m.28s. and 20m.56s., e =21m.37s.
Long waves were also recorded at Copenhagen and De Bilt.

Sept. 19d. 12h. 28m. 2s. Epicentre 42°·5N. 144°·4E. Depth of focus 0·005.

A = −·6013, B = +·4305, C = +·6731 ; δ = −4 ; h = −3 ;
D = +·582, E = +·813 ; G = −·547, H = +·392, K = −·740.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		2·3	284	0 37k	0	—	—	—	—	—
Hatinohe		2·9	228	0 27k	−18	0 56	−23	—	—	—
Mori		2·9	262	0 45k	0	1 17	− 2	—	—	—
Mizusawa		4·2	218	1 4	+ 1	1 49	− 3	—	—	—
Sendai		5·0	214	1 14	0	—	—	—	—	—
Onahama		6·2	207	1 25k	− 6	2 30	−11	—	—	—
Mito		6·8	208	1 33	− 6	—	—	—	—	—
Utunomiya		6·9	213	1 45	+ 4	—	—	—	—	—
Tukubasan		7·1	210	1 48	+ 4	—	—	—	—	—
Nagano		7·5	222	1 56	+ 7	3 35	+21	—	—	—
Tokyo		7·7	210	1 53	+ 1	3 14	− 5	—	—	—
Wazima		7·7	231	2 1	+ 9	3 27	+ 8	—	—	—
Mera		8·4	207	1 59	− 3	3 37	+ 1	—	—	—
Shizuoka		8·9	214	2 7	− 1	3 43	− 5	—	—	—
Kyoto		10·1	225	2 22	− 3	—	—	—	—	—
Toyooka		10·2	230	2 14	−12	4 9	−11	—	—	—
Owase		10·6	220	2 32	+ 1	—	—	—	—	—
Koti		12·4	227	2 55	− 1	5 15	+ 2	—	—	—
Huknoka		14·1	236	3 16	− 2	—	—	—	—	—
Irkutsk		28·5	305	5 50	− 1	10 33	0	—	—	—
College		43·3	35	i 7 58	+ 1	e 14 15	− 4	e 8 17	pP	e 19·7
Sitka		50·6	44	i 8 54	0	e 15 51	−12	e 10 54	PP	e 28·5
Andijan		52·3	295	e 9 9	+ 2	e 16 29	+ 3	—	—	—
Tashkent		54·1	297	i 9 17	− 3	i 16 50	0	—	—	—
New Delhi	N.	55·1	280	—	—	i 17 4	0	21 19	SS	—
Stalinabad		55·8	294	i 9 31	− 2	—	—	—	—	—
Hyderabad	N.	60·8	268	e 10 13	+ 5	18 7	−11	—	—	—
Grand Coulee		63·8	48	e 10 24	− 4	e 20 12	?	—	—	—
Bombay		64·0	273	i 10 29	0	i 18 59	0	e 10 46	pP	—
Moscow		64·3	323	10 28	− 3	19 0	− 2	—	—	—
Shasta Dam		66·1	57	i 9 42	−60	e 18 11	−73	—	—	—
Baku		67·0	305	10 51	+ 3	19 38	+ 3	—	—	—
Saskatoon		67·6	40	—	—	e 19 4	−38	—	—	34·0
Grozny		67·7	309	10 57	+ 4	19 43	− 1	—	—	—
Berkeley	Z.	67·8	59	i 10 43	−10	—	—	—	—	—
Upsala		69·0	335	e 11 1	0	e 19 59	0	—	—	e 34·0
Bozeman		69·5	47	e 11 29	+25	e 20 7	+ 2	—	—	e 33·7
Brisbane	Z.	70·1	172	i 11 9	+ 2	—	—	—	—	—
Leninakan		70·4	308	e 11 12	+ 3	—	—	—	—	—
Tinemaha		70·8	58	i 11 12	0	e 20 19	− 1	i 11 26	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		71·6	58	i 11 17	+ 1	e 20 34	+ 5	—	—	—
Santa Barbara	Z.	71·6	60	i 11 18	+ 2	—	—	i 11 39	sP	—
Bergen		72·1	341	11 21	+ 2	20 38	+ 3	—	—	e 37·0
Pasadena		72·7	59	i 11 22	− 1	i 20 47	+ 5	i 11 35	pP	e 30·6
Mount Wilson		72·8	59	i 11 22a	− 1	e 20 47	+ 4	i 11 38	pP	—
Riverside		73·3	59	i 11 26	0	e 20 51	+ 2	i 11 38	pP	—
Overton		73·5	56	i 11 29	+ 1	—	—	i 11 44	pP	—
Boulder City		73·6	56	i 11 28	0	e 20 56	+ 4	i 11 46	pP	—
Copenhagen		74·0	335	i 11 30a	0	i 21 0	+ 4	i 14 29	PP	—
La Jolla		74·1	60	e 11 32	+ 1	e 21 3	+ 6	—	—	—
Palomar		74·1	59	i 11 31a	0	i 21 3	+ 6	i 11 44	pP	—
Pierce Ferry		74·1	56	i 11 31	0	—	—	i 11 41	pP	—
Rapid City		74·7	44	i 11 35	+ 1	i 21 28	+24	e 14 18	PP	e 41·2
Riverview		76·2	174	i 11 44k	+ 1	i 21 27	+ 6	i 11 57	pP	e 35·9
Aberdeen	N.	76·8	343	i 18 2	?	—	—	—	—	—
Bucharest		77·4	320	11 40	−10	—	—	—	—	33·0
Collmberg	Z.	77·5	332	i 11 48	− 2	e 21 58	+23	e 14 54	PP	45·0
Prague		78·0	330	e 12 1	+ 8	e 21 43	+ 3	e 22 15	PS	e 39·0
Jena		78·3	332	e 12 11	+16	e 22 1	+18	—	—	—
Tucson		78·6	57	i 11 57	+ 1	—	—	i 12 19	pP	e 36·7
Cheb		78·7	332	—	—	e 22 0	+12	e 34 30	Q	e 41·0
De Bilt		79·4	336	e 11 58	− 3	e 21 58	+ 3	—	—	e 39·0
Belgrade		79·7	323	e 12 2k	0	e 22 0	+ 2	—	—	e 41·3
Ksara		79·8	307	e 12 7?	+ 4	e 22 4	+ 5	—	—	—
Sofia		80·0	320	e 12 6	+ 2	e 22 0	− 1	—	—	e 41·5
Uccle		80·8	337	e 12 7a	− 1	—	—	—	—	e 40·0
Strasbourg		81·6	333	e 12 9	− 3	e 22 19	+ 1	—	—	e 43·3
Triest		81·9	328	i 22 17	S	(i 22 17)	− 4	e 25 28	SS	—
Zürich		82·3	332	e 12 15a	− 1	e 22 25	0	e 12 51	pP	—
Chur		82·4	331	e 12 16	0	e 22 27	+ 1	—	—	e 31·6
Basle		82·5	332	e 12 16	− 1	e 22 29	+ 2	—	—	—
Paris		83·1	336	i 12 21	+ 1	e 22 33	0	i 15 31	PP	e 40·0
Neuchatel		83·2	332	e 12 20	− 1	—	—	—	—	—
Auckland		83·7	156	—	—	22 22?	−17	—	—	41·0
Florissant	Z.	85·0	40	e 12 29	− 1	e 22 53	+ 1	i 12 44	pP	—
Arapuni		85·1	156	—	—	e 32 58?	SSS	—	—	e 41·0
St. Louis		85·2	40	e 12 30	− 1	e 22 48	− 6	i 12 46	pP	—
Helwan		85·3	307	i 12 32k	+ 1	22 52	− 3	12 58	pP	—
Cape Girardeau	E.	86·6	41	e 13 36	+59	—	—	—	—	—
Wellington		87·8	158	—	—	e 37 58?	Q	—	—	43·0
Christchurch		89·3	160	—	—	e 22 58?	−35	41 16	Q	44·9
Fordham		90·1	29	—	—	i 23 21	[+ 4]	i 23 42	SKKS	e 52·0
Tortosa		90·9	334	13 54	+56	23 55	+ 8	24 25	PS	e 47·0
Toledo		93·2	337	e 13 7	− 1	e 24 32	+25	—	—	—
Granada		95·5	336	26 7	PS	—	—	—	—	51·0
Lisbon	N.	95·7	341	—	—	24 23	− 5	—	—	49·6
Malaga		96·2	336	i 13 21k	− 1	23 49	[− 3]	i 17 13	PP	55·0
San Fernando		97·0	337	i 13 25	− 1	e 24 50	+10	i 17 19	PP	—
San Juan		113·2	33	e 19 28	PP	e 27 15	PS	e 34 34	SS	e 51·8
Huancayo		134·1	62	e 19 2	[− 8]	e 33 5	PPS	e 39 31	SS	e 53·0
La Paz		142·0	58	19 25	[0]	26 5	[−21]	i 22 37	PP	73·3

Additional readings :—
College =8m.27s. and 18m.0s.
New Delhi iN =17m.34s., S_cSN =19m.34s.
Grand Coulee iP =10m.27s., i =10m.42s., e =13m.33s.
Shasta Dam i =18m.29s.
Upsala eSE =19m.54s.?
Tinemaha isPZ =11m.35s.
Pasadena isPZ =11m.45s.
Mount Wilson isPZ =11m.44s.
Riverside isPZ =11m.44s.
Boulder City e =21m.36s.
Copenhagen 16m.13s., pS =21m.29s., 27m.10s. and 29m.28s.
Palomar isPEZ =11m.52s., iE =12m.15s., iN =21m.38s.
Riverview ePSZ =22m.12s.

Continued on next page.

Collmberg ePPPZ = 16m.50s., ePSZ = 22m.52s., eSSZ = 27m.40s., and many other unidentified readings.
Prague eSS = 26m.52s. and 31m.4s.
Jena eN = 22m.23s.
Tucson i = 12m.29s. and 12m.43s., iPP = 15m.36s., ePPP = 17m.0s., e = 17m.26s. and 22m.13s.
Triest eS = 32m.20s.
Paris eS = 23m.1s., ePS = 23m.58s.?
Florissant iPPZ = 15m.48s., ipPPZ = 16m.1s
St. Louis iZ = 13m.16s. and 13m.33s., eZ = 14m.17s., ePPZ = 15m.39s., epPP?Z = 16m.3s., eZ = 16m.53s., ePPPZ = 17m.34s., eZ = 18m.6s. and 18m.15s., iSN = 22m.55s., isSN = 23m.22s., iPS?E = 23m.49s., eSSN = 28m.31s.
Helwan sPZ = 13m.12s., PPZ = 15m.49s., PSN = 24m.0s.
Tortosa iE = 24m.16s.
Malaga eP? = 14m.0s., SKS = 20m.7s., PPP = 20m.54s., SKKKS = 24m.39s., record having been wrongly interpreted.
San Juan e = 40m.5s.
Huancayo e = 23m.9s. and 49m.23s.
La Paz iSKP = 23m.3s.
Long waves were also recorded at Honolulu, Ukiah, Bermuda, and Clermont-Ferrand.

Sept. 19d. Readings also at 4h. (Collmberg), 5h. (Collmberg, Samarkand, near Andijan, Stalinabad, and Tashkent), 6h. (near Alicante (2)), 7h. (New Delhi), 11h. (Bombay, Samarkand, and near Tucson (2)), 13h. (near Samarkand), 17h. (Overton, Pierce Ferry, and near Tucson), 18h. (Boulder City, Pierce Ferry, Tucson, St. Louis, Mount Wilson, and Palomar), 20h. (near Tucson), 22h. (Collmberg, Strasbourg, Chur, Basle, Zürich, and near Triest).

Sept. 20d. Readings at 2h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Boulder City, Overton, Pierce Ferry, Shasta Dam, and Collmberg), 3h. (near Almeria, Granada, and Malaga), 4h. (Boulder City, Overton, Pierce Ferry, Collmberg, and near Mizusawa), 5h. (Baku, Erevan, Andijan, Leninakan, Sverdlovsk, Grozny, Helwan, Ksara, and Collmberg), 7h. (near Andijan), 10h. (near Dehra Dun), 12h. (New Delhi), 13h. (La Paz), 14h. (near Triest), 20h. (near Tucson), 22h. (near Berkeley, Branner, Lick, and San Francisco).

Sept. 21d. Readings at 0h. (near Berkeley, Branner, Lick, and San Francisco), 1h. (Mount Wilson, Palomar, Tucson, and Riverside), 7h. (Mount Wilson, Tucson, and Tinemaha), 8h. (Alicante and Collmberg), 13h. (La Paz), 15h. (near Pehpei), 21h. (near Ottawa), 23h. (Auckland).

Sept. 22d. 9h. 9m. 56s. Epicentre 3°·2S. 148°·2E.

$A = -\cdot8486$, $B = +\cdot5262$, $C = -\cdot0555$; $\delta = +9$; $h = +7$;
$D = +\cdot527$, $E = +\cdot850$; $G = +\cdot047$, $H = -\cdot029$, $K = -\cdot998$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		24·6	169	i 5 22	− 1	i 9 53	+11	—	—	—
Riverview		30·6	175	e 6 14	− 4	i 11 25	+ 5	i 6 20	pP	e 14·3
Auckland		41·5	147	7 52	+ 2	13 54	−13	9 29	PP	19·1
Arapuni		42·8	148	—	—	14 34	+ 8	18 4	SSS	20·1
Wellington		44·8	151	8 13	− 4	15 4	+ 9	8 54	sP	22·1
Christchurch		45·6	155	8 28	+ 4	15 7	+ 1	10 1	PP	22·2
Honolulu		58·2	63	e 10 1	+ 3	i 18 7	+ 8	e 22 2	SS	e 24·5
Calcutta	N.	63·7	297	e 13 6	PP	i 20 38	S_cS	—	—	—
Irkutsk		66·5	333	i 10 51	− 3	19 39	− 5	—	—	—
Colombo	E.	68·9	278	—	—	16 4?	?	—	—	—
Hyderabad	N.	71·7	289	—	—	20 50	+ 5	—	—	—
Kodaikanal	E.	71·7	282	(11 11)	−15	(20 21)	−24	(13 41)	PP	(34·5)
New Delhi	N.	75·0	301	e 14 1	PP	i 21 23	0	—	—	—
Bombay		77·2	290	e 12 0	+ 3	e 21 47	0	—	—	—
Andijan		81·4	312	e 12 28	+ 8	e 22 35	+ 4	—	—	—
College		82·1	23	—	—	e 22 30	− 8	e 23 26	PS	e 33·9
Tashkent		83·8	312	e 12 26	− 6	22 42	−13	e 16 5	PP	—
Sitka		85·5	32	e 12 39	− 2	i 23 8	− 4	i 23 29	S_cS	e 35·3
Ukiah		90·9	51	—	—	e 23 37	[− 1]	e 30 19	SS	e 37·8
Sverdlovsk		91·3	327	e 13 5	− 4	i 24 7	+ 1	16 43	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		91·3	42	—	—	e 23 49	[+ 9]	—	—	43·1
Berkeley		91·6	53	13 7	− 3	e 24 11	+ 2	23 48	SKS	41·9
Santa Clara	E.	91·8	53	e 24 19	S	(e 24 19)	+ 8	e 30 42	SSP	e 42·7
Shasta Dam		91·9	50	e 13 7	− 4	—	—	—	—	—
Grand Coulee		94·3	42	e 13 30	+ 7	e 24 28	− 4	e 23 53	SKS	—
Tinemaha	Z.	94·7	54	e 13 25	+ 1	—	—	—	—	—
Pasadena		94·8	56	i 13 23	− 2	i 24 2	[+ 2]	e 17 13	PP	e 38·9
Mount Wilson		94·9	56	i 13 24	− 1	—	—	e 17 15	PP	—
Riverside	Z.	95·5	56	e 13 25	− 3	—	—	e 17 3	PP	—
Palomar	Z.	95·9	57	i 13 29	− 1	—	—	e 17 22	PP	—
Baku		98·4	310	13 57	+16	24 25	[+ 6]	17 43	PP	—
Butte		98·7	43	—	—	e 24 31	[+10]	e 30 54	?	e 40·4
Logan		99·6	48	e 17 20	PP	e 26 6	PS	—	—	e 30·5
Bozeman		99·8	44	—	—	e 26 29	PS	e 33 4	?	e 40·0
Tucson		101·0	58	e 13 46	− 7	e 25 36	+ 7	i 18 0	PP	e 42·6
Saskatoon		101·8	37	—	—	e 23 4	?	e 32 28	SS	42·1
Erevan		102·5	310	e 18 0	PP	—	—	—	—	—
Leninakan		103·0	311	e 18 0	PP	—	—	—	—	—
Moscow		104·1	327	e 14 12	+ 5	24 48	[+ 2]	—	—	—
Rapid City		105·5	45	e 18 34	PP	e 25 45	{+11}	e 27 48	PS	e 33·7
Ksara		110·3	305	e 18 49	[+15]	e 28 15	PS	—	—	—
Upsala		112·1	336	—	—	e 27 46	S	e 28 34	PS	e 57·1
Bucharest		114·8	318	20 4?	PP	40 4?	SSS	—	—	—
Helwan	Z.	114·8	301	e 19 43	PP	—	—	e 21 52	PPP	—
Florissant		116·2	48	e 19 21	[+36]	e 25 40	[+ 4]	e 19 46	PP	e 47·8
St. Louis	E.	116·4	48	e 19 47	PP	e 25 38	[+ 1]	e 25 56	SKKS	e 47·8
Copenhagen		116·8	334	e 19 48	PP	—	—	—	—	—
Chicago		117·2	43	—	—	e 27 42	S	e 49 28	Q	—
Belgrade		118·3	320	e 23 34	?	e 26 23	[+39]	e 38 45	?	e 67·7
Collmberg		119·2	329	e 18 40	[−11]	e 25 29	[−18]	e 20 4	PP	e 68·1
Prague		119·2	328	—	—	e 32 35	?	e 39 58	?	—
Cheb		120·3	329	e 24 4?	?	e 28 4?	?	e 38 4?	?	e 62·1
Triest	E.	122·0	324	e 25 18	SKS	(e 25 18)	[−39]	e 40 31	?	—
De Bilt		122·4	334	e 23 4?	PPP	e 26 24	[+26]	e 37 4?	SS	e 56·1
Ottawa		123·1	34	e 21 6	PP	e 27 38	{+ 3}	e 30 40	PS	49·1
Seven Falls		124·8	31	e 23 52	PPP	—	—	—	—	56·1
Paris		125·9	332	e 23 37	PPP	e 25 41	[−28]	—	—	e 61·1
Philadelphia		126·4	40	e 22 35	SKP	e 26 50	[+40]	e 31 2	PS	e 52·1
Fordham		126·8	39	e 19 12	[+ 6]	e 28 0	{+ 1}	e 20 51	PP	—
Huancayo		134·2	111	e 19 28	[+ 8]	e 28 18	{−28}	e 24 24	PPP	e 55·1
Toledo		135·7	328	e 21 57	PP	40 54	SSP	i 23 42	?	—
Granada		137·4	326	23 4	SKP	e 44 32	?	—	—	e 74·0
Bermuda		137·7	42	e 23 4	SKP	e 29 17	{+10 }	e 25 22	PPP	e 65·7
Bogota		137·8	86	e 19 31	[+ 4]	—	—	e 22 27	PP	—
Malaga	Z.	138·2	326	22 4a	PP	—	—	22 44	pPP	74·1
La Paz		139·1	120	19 33	[+ 4]	26 36	[− 2]	23 2	SKP	69·1
San Fernando		139·4	327	e 25 26	PPP	—	—	e 30 33	?	71·4
San Juan		143·2	63	e 19 38	[+ 2]	e 26 47	[+ 3]	e 23 24	PP	e 59·5
Fort de France		148·9	66	e 19 53	[+ 7]	—	—	—	—	—

Additional readings :—
Riverview iPPNZ =7m.23s., iPPPN =7m.38s., iE =12m.7s. and 13m.4s., iSSE = 13m.25s., iN =13m.36s., iE =13m.50s.
Auckland i =17m.28s.
Wellington iZ =8m.20s., sP_cPZ =10m.13s., PPP =10m.34s., SS =18m.29s., Q =20m,14s.
Christchurch EZ =16m.43s., SS =18m.51s., QN =19m.15s.
Honolulu e =13m.14s.
Kodaikanal PSE =(20m.46s.), SSE =(24m.56s.), readings decreased by 3m.
College e =27m.22s.
Tashkent SKS =22m.56s., ePS =23m.36s., SS =28m.42s.
Sitka e =27m.54s.
Sverdlovsk iSKS =23m.35s., PS =25m.9s., SS =30m.14s.
Berkeley iE =25m.22s. and 30m.25s., eQN =37m.28s.
Grand Coulee e =18m.4s.
Pasadena iZ =14m.3s., ePPZ =16m.29s., eZ =18m.8s., iEZ =25m.57s., eE =31m.0s.
Mount Wilson eZ =16m.45s.

Continued on next page.

Riverside eZ = 16m.38s.
Tucson eSKS = 24m.42s., ePS = 26m.48s., ePPS = 27m.48s., eSS = 32m.42s.
Upsala eN = 34m.46s., eE = 37m.20s., eN = 46m.4s.?,
Helwan eZ = 20m.25s. and 24m.33s.
Florissant eSKKSE = 26m.54s., eSN = 27m.36s., ePSE = 29m.33s., ePPPS?E = 30m.58s., eE = 32m.40s., 33m.30s., and 34m.6s., eN = 35m.14s., eSSSE = 40m.33s.
St. Louis eE = 20m.47s., eSN = 27m.39s., ePS?E = 29m.42s., ePPSN = 30m.33s., ePPPS?E = 31m.1s., eE = 32m.41s., eSSSE = 40m.31s.
Collmberg eZ = 20m.44s., 21m.15s., 21m.55s., 22m.29s., 23m.48s., and 32m.10s.
Ottawa e = 22m.12s.
Philadelphia eSS = 37m.47s., eSSS = 42m.52s.
Fordham eSS = 38m.9s.
Huancayo e = 22m.57s. and 23m.36s., eSS = 39m.55s.
Bermuda eS = 36m.7s., eSS = 40m.27s.
Malaga ePPZ = 25m.2s., PPPZ = 28m.10s., PPS?Z = 37m.54s., QZ = 68·1m.
La Paz iZ = 23m.26s. and 24m.40s., SKKSZ = 29m.28s.
San Juan ePPS = 35m.40s., eSS = 41m.30s., eSSS = 46m.11s.
Long waves were also recorded at Tananarive, Seattle, Columbia, Lincoln, Harvard, Bergen, Clermont-Ferrand, and Tortosa.

Sept. 22d. Readings also at 1h. (Auckland), 3h. (Collmberg, St. Louis, Tucson, Palomar, Riverside, Pasadena, Mount Wilson, and Tinemaha), 6h. (near Sofia), 8h. (San Juan), 9h. (Tucson and near Boulder City), 10h. (Ksara and Helwan), 17h. (near Tucson), 18h. (near Sofia, near Stalinabad and near Tucson), 22h. (Collmberg and Mizusawa), 23h. (Tucson, Tinemaha, Palomar, Riverside, Pasadena, and Mount Wilson).

Sept. 23d. 9h. 57m. 48s. Epicentre 48°·0N. 114°·2W.

Scale VI at Bigfork, Prairie Ranger Station, De Borgia, Elmo, and Polson, Bovill, and Mullaw; V at Dixon, Kila, Missoula, Whitepine, and Avery ; IV at Anaconda, Canyon Creek, Columbia Falls, Great Falls, and Helena.
United States Earthquakes.
U.S.C.G.S. p.9. Washington, 1947. Epicentre as adopted.

$A = -\cdot2753$, $B = -\cdot6126$, $C = +\cdot7409$; $\delta = 0$; $h = -5$;
$D = -\cdot912$, $E = +\cdot410$; $G = -\cdot304$, $H = -\cdot676$, $K = -\cdot672$.

		△	Az.	P.	O − C.	S.	O − C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Butte		2·3	151	i 0 40	0	i 0 55	−14	—	—	i 1·1
Bozeman		3·2	137	i 0 53	+ 1	—	—	—	—	i 1·5
Grand Coulee		3·2	269	e 0 49	− 3	i 1 40	+ 8	—	—	—
Victoria		6·2	279	—	—	e 3 15	S*	—	—	4·2
Saskatoon		6·4	47	e 1 39	+ 1	—	—	—	—	4·0
Logan		6·5	164	e 1 27	−12	e 2 46	− 9	—	—	e 3·3
Salt Lake City		7·4	166	e 2 30	P_g	e 3 2	−16	—	—	e 3·7
Rapid City		8·6	113	e 2 4	− 5	e 3 52	+ 4	i 2 33	P*	e 4·2
Shasta Dam		9·4	222	i 2 18	0	e 4 50	S*	—	—	—
Tinemaha		11·3	197	e 2 55	+ 9	i 6 4	+70	—	—	—
Overton		11·4	181	i 2 51	+ 4	e 5 27	+31	—	—	i 5·8
Pierce Ferry		11·9	179	i 2 57	+ 3	i 6 7	+58	—	—	—
Boulder City		12·0	183	i 2 53	− 2	e 6 12	+61	—	—	—
Haiwee		12·2	195	e 3 9	+11	—	—	—	—	—
Mount Wilson		14·1	193	e 3 23	0	—	—	—	—	—
Pasadena		14·2	194	i 3 24	0	—	—	—	—	i 7·5
Riverside		14·2	191	i 3 24	0	—	—	—	—	—
Palomar		14·8	189	i 3 32	0	—	—	—	—	—
La Jolla	z.	15·3	190	e 3 39	0	—	—	—	—	—
Tucson		16·0	170	e 3 45	− 3	i 6 56	+10	—	—	e 8·0
St. Louis		19·7	109	e 4 28	− 6	e 8 17	+ 7	e 9 7	SS	i 10·2
Ottawa		26·3	81	e 5 36	− 3	—	—	—	—	11·2

Additional readings :—
Grand Coulee i = 59s., 1m.5s., and 1m.44s.
Boulder City e = 5m.31s.
Pasadena iZ = 3m.29s.
Tucson i = 3m.49s., 3m.58s., and 5m.19s.
Long waves were also recorded at other American stations.

Sept. 23d. 15h. 34m. 23s. Epicentre 40°·1N. 118°·8E.

Felt at Peking.
Annales de l'Institut de Physique du Globe de Strasbourg 2e partie Séismologie Tome X, Strasbourg, 1951, p. 34.

$A = -\cdot3695$, $B = +\cdot6722$, $C = +\cdot6416$; $\delta = +3$; $h = -2$;
$D = +\cdot876$, $E = +\cdot482$; $G = -309$, $H = +\cdot562$, $K = -\cdot767$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		10·3	69	i 2 33	+ 1	i 4 39	+ 9	—	—	—
Hukuoka		11·3	122	2 50	+ 4	6 8	L	—	—	(6·1)
Toyooka		13·5	105	i 3 4	−11	7 39	?	—	—	—
Sumoto		14·0	109	e 2 44	−38	7 20	L	—	—	(7·3)
Osaka		14·4	107	e 4 11	+44	8 43	L	—	—	(8·7)
Pehpei		14·4	229	e 3 19	− 8	e 6 42	+33	—	—	e 7·2
Irkutsk		15·7	326	3 47	+ 3	6 59	+20	—	—	—
Sapporo		17·1	71	4 2	0	8 11	+59	—	—	—
Mizusawa		17·2	86	e 4 5	+ 2	7 26	+12	—	—	—
Mera		17·4	103	4 2	− 4	8 2	+43	—	—	—
Calcutta	N.	31·2	245	e 7 19	PP	—	—	—	—	15·1
Frunse		32·9	290	e 6 45	+ 7	—	—	—	—	—
Andijan		35·0	286	e 6 57	+ 1	—	—	—	—	—
New Delhi	N.	35·9	265	e 7 3	− 1	e 12 33	− 9	—	—	—
Tashkent		37·1	289	e 7 12	− 2	13 1	0	—	—	—
Stalinabad		38·2	285	e 6 23	−60	—	—	—	—	—
Hyderabad	N.	41·5	249	7 59	+ 9	14 9	+ 2	—	—	—
Bombay		44·7	256	i 8 22	+ 6	i 15 14	+20	—	—	—
Kodaikanal	E.	47·1	243	e 7 54	?	e 15 4	−24	—	—	23·7
Colombo	E.	48·0	237	—	—	15 36	− 5	—	—	—
Grozny		53·0	300	e 9 23	+ 2	—	—	—	—	—
Moscow		53·4	317	9 22	− 2	16 58	+ 3	—	—	—
College		55·9	31	—	—	e 17 34	+ 5	—	—	e 27·0
Ksara		64·3	293	e 10 48?	+ 9	e 19 21	+ 4	—	—	—
Copenhagen		66·0	324	e 10 48	− 2	e 19 43	+ 5	—	—	32·1
Sofia		67·7	308	e 11 37	+36	e 20 2	+ 4	—	—	e 33·6
Belgrade		68·2	311	e 20 4	S	(e 20 4)	0	—	—	e 37·6
Collmberg	Z.	68·4	320	i 11 3	− 3	e 21 25	?	e 14 25	PP	e 35·9
Prague		68·4	318	—	—	e 18 44	−83	—	—	e 32·6
Jena	N.	69·3	319	e 11 31	+20	—	—	—	—	—
Triest		71·5	315	i 20 47	S	(i 20 47)	+ 4	—	—	e 34·8
Zürich		73·1	319	e 11 32	− 2	—	—	—	—	—
Basle		73·5	319	e 11 35	− 1	—	—	—	—	—
Neuchatel		74·2	319	e 11 34	− 6	—	—	—	—	—
Grand Coulee		78·5	36	e 12 2	− 2	—	—	—	—	—
Riverview		79·4	153	—	—	—	—	e 31 37	Q	e 38·4
Toledo		85·0	320	11 46	−52	e 23 9	+ 2	15 58	PP	—
Tinemaha		87·0	43	i 12 50	+ 2	—	—	—	—	—
Haiwee	Z.	87·9	43	i 12 53	0	—	—	—	—	—
San Fernando	E.	88·6	319	—	—	e 23 44	+ 2	—	—	e 47·0
Mount Wilson		89·3	44	e 13 0	+ 1	—	—	—	—	—
Pasadena		89·3	44	i 12 58	− 1	—	—	—	—	e 47·5
Overton		89·4	41	i 13 0	0	—	—	—	—	—
Boulder City		89·6	41	i 13 1	0	—	—	—	—	—
Pierce Ferry		89·9	41	i 13 2	0	—	—	—	—	—
Riverside		89·9	44	e 13 0	− 2	—	—	—	—	—
Palomar		90·6	44	i 13 5	0	—	—	e 16 4	PP	—
Ottawa		93·9	11	e 13 19	− 2	—	—	—	—	43·6
Tucson		94·6	41	e 13 21	− 3	—	—	—	—	—
St. Louis		97·3	23	e 13 40	+ 4	—	—	—	—	e 42·7

Additional readings :—
Pehpei eP = 3m.22s.
Kodaikanal eE = 9m.44s., 17m.26s., and 18m.38s.
Sofia eN = 21m.37s.?
Belgrade e = 21m.4s., 33m.17s., and 35m.2s.

Continued on next page.

Collmberg ePPPZ = 16m.10s., ePSZ = 22m.7s., eSSZ = 26m.31s., and many other unidentified iZ readings.
Grand Coulee e = 12m.44s.
Pasadena iZ = 13m.4s.
Palomar iZ = 13m.11s and 13m.17s.
Long waves were also recorded at Huancayo, Bermuda, San Juan, and many other American and European stations.

Sept. 23d. 17h. 20m. 34s. Epicentre 17°·5N. 105°·2W.

$A = -\cdot2502$, $B = -\cdot9209$, $C = +\cdot2989$; $\delta = 0$; $h = +5$;
$D = -\cdot965$, $E = +\cdot262$; $G = -\cdot078$, $H = -\cdot288$, $K = -\cdot954$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara		3·6	29	0 42	−16	—	—	—	—	1·3
Tacubaya		6·0	71	i 1 41	+ 9	i 3 6	S*	—	—	3·4
Tucson		15·5	342	i 3 39	− 3	e 6 49	+14	—	—	e 7·5
La Jolla		18·8	328	i 4 24	+ 1	—	—	—	—	—
Palomar		18·9	329	i 4 27k	+ 3	—	—	—	—	—
Riverside		19·7	329	i 4 34k	0	—	—	—	—	—
Pierce Ferry		20·1	340	i 4 37	− 1	i 10 53	L	—	—	(i 10·9)
Mount Wilson		20·2	329	e 4 40	+ 1	—	—	—	—	—
Pasadena		20·2	329	e 4 40k	+ 1	(e 8 20)	− 1	—	—	e 8·3
Boulder City		20·3	338	i 4 40	0	e 8 17	− 6	—	—	i 10·6
Overton		20·6	339	i 4 44	+ 1	—	—	—	—	i 11·2
Santa Barbara		21·3	327	i 4 52	+ 2	—	—	—	—	—
Haiwee		21·7	333	i 4 56k	+ 1	—	—	—	—	—
Tinemaha		22·7	333	i 5 6k	+ 2	—	—	—	—	—
Salt Lake City		23·9	349	e 5 14	− 2	e 9 25	− 5	—	—	e 11·7
Lincoln		24·4	16	—	—	e 10 36	+57	—	—	e 13·0
Logan		24·8	349	e 4 52	−33	—	—	—	—	e 10·4
St. Louis		24·8	29	i 5 22	− 3	i 9 39	− 7	i 5 48	PP	e 11·6
Florissant		24·9	29	e 5 23	− 3	i 9 40	− 7	i 10 51	SS	e 11·8
Berkeley	z.	25·2	328	e 5 33	+ 4	—	—	—	—	—
Rapid City		26·5	4	e 5 45	+ 4	e 9 42	−32	—	—	e 13·5
Columbia		27·2	48	—	—	e 10 57	+32	—	—	e 16·4
Shasta Dam		27·5	332	i 5 50	0	—	—	—	—	—
Grand Coulee		32·4	344	i 6 33	− 1	—	—	—	—	—
San Juan		37·1	83	—	—	—	—	e 16 8	Q	e 17·8
Harvard		37·9	43	e 7 21	+ 1	—	—	—	—	—
Weston		38·0	43	i 7 22	+ 1	—	—	—	—	—

Additional readings :—
Tucson i = 3m.45s., 3m.50s., 4m.8s., and 4m.24s., iS = 6m.52s.
Palomar iZ = 4m.35s.
Pierce Ferry i = 4m.49s.
Pasadena iNZ = 4m.45s.
Boulder City i = 5m.21s.
Overton i = 4m.56s. and 5m.11s.
Salt Lake City e = 6m.43s.
Logan e = 5m.40s. and 9m.3s.
St. Louis iZ = 5m.31s.
Long waves were also recorded at Huancayo, La Paz, and some other American stations.

Sept. 23d. Readings also at 1h. (near Malaga), 2h. (Collmberg and near Grand Coulee), 3h. (near Andijan and Stalinabad), 4h. (Collmberg near Tacubaya and near Tashkent), 7h. (near Cape Girardeau, Florissant, St. Louis, and Pittsburgh), 8h. (Bermuda, Philadelphia, St. Louis, Tucson (2), Palomar (2), Pasadena, Riverside (2), Tacubaya, Huancayo, and La Paz), 11h. (Auckland, Christchurch, and Riverview), 12h. (Belgrade, Bucharest, Sofia, and Triest), 13h. (Shasta Dam), 15h. (Granada, Palomar, Riverside, Tucson, and near Samarkand), 17h. (Collmberg), 18h. (Tashkent, near Andijan, and Stalinabad), 20h. (near Tucson), 21h. (Collmberg and Huancayo), 22h. (New Delhi).

Sept. 24d. 12h. 35m. 19s. Epicentre 7°·2S. 155°·3E. Depth of focus 0·020.
(as on 1943 Oct. 17d.).

$A = -·9014$, $B = +·4146$, $C = -·1245$; $\delta = -8$; $h = +7$;
$D = +·418$, $E = +·909$; $G = +·113$, $H = -·052$, $K = -·992$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		20·3	185	i 4 24a	− 1	i 8 15	+17	i 8 52	sS	—
Riverview		26·8	187	i 5 29a	+ 2	i 10 1	+11	i 5 48	pP	e 12·7
Auckland		34·5	154	12 3	S	(12 3)	+13	16 44	S_cS	20·3
Arapuni		35·9	151	—	—	e 11 41?	−31	15 41?	SSS	—
Wellington		38·1	155	9 41	P_cP	i 12 51	+ 6	15 41	SS	21·3
Christchurch		39·2	160	—	—	12 40	−22	15 49	Q	19·1
Kodaikanal	E.	79·4	282	—	—	e 24 33	?	e 29 45	?	33·7
New Delhi	N.	83·1	300	—	—	i 22 16	+ 3	i 22 53	S_cS	—
College		83·2	20	—	—	e 22 13	− 1	—	—	e 38·1
Bombay		85·2	290	e 8 45	?	i 22 45	+11	—	—	—
Berkeley	Z.	88·4	52	e 11 32	−63	—	—	i 13 3	pP	—
Andijan		89·3	311	e 12 42	+ 3	e 23 0	−13	—	—	—
Victoria		89·6	41	—	—	e 23 17	+ 2	—	—	40·7
Pasadena		91·1	56	i 12 45k	− 3	—	—	i 13 9	pP	e 40·4
Mount Wilson		91·2	56	i 12 46k	− 2	—	—	i 13 9	pP	—
Tinemaha		91·4	53	i 12 47	− 2	—	—	e 16 45	PP	—
Haiwee		91·6	54	e 12 55	+ 5	—	—	—	—	—
Tashkent		91·7	311	e 12 51	+ 1	23 13	[+ 7]	24 12	S_cS	—
Riverside	Z.	91·8	56	i 12 47k	− 4	—	—	i 13 11	pP	—
Palomar		92·1	57	i 12 50k	− 2	—	—	i 13 19	pP	—
Boulder City		94·1	54	i 12 59	− 2	—	—	i 13 25	pP	—
Overton		94·4	53	e 13 8	+ 5	—	—	i 13 37	pP	—
Pierce Ferry		94·8	54	i 13 2	− 2	—	—	i 13 27	pP	—
Tucson		97·1	58	e 13 16	+ 1	e 25 56	PS	e 13 38	pP	e 43·1
Sverdlovsk		98·5	326	13 20	− 1	24 36	+ 4	23 48	SKS	—
St. Louis	E.	113·5	50	—	—	e 24 52	[+ 3]	e 28 43	PS	e 51·3
Bucharest		122·4	319	—	—	31 41?	PPS	33 41?	?	—
Ottawa		122·6	39	e 18 34	[− 3]	—	—	—	—	56·7
Copenhagen		123·4	336	—	—	31 15	SPP	37 0	SS	55·7
Collmberg	Z.	126·1	333	i 18 43	[0]	e 25 53	[+22]	i 19 19	pPKP	—
Triest		129·3	327	—	—	e 40 39	?	—	—	—
Zürich		130·9	331	e 22 9	pPP	—	—	—	—	—
La Paz		131·0	119	e 22 6	pPP	—	—	—	—	—
Basle		131·7	331	e 21 14	PP	—	—	e 22 10	pPP	—
San Juan		138·1	70	—	—	e 22 35	pPP	e 31 3	?	e 65·9
Toledo		142·6	333	e 19 12	[− 2]	—	—	i 22 48	PP	—
Malaga	Z.	145·3	331	i 19 19a	[0]	e 22 27	PP	e 20 5	pPKP	—
San Fernando	Z.	146·3	333	i 19 27	[+ 6]	i 22 57	PP	i 20 7	pPKP	—

Additional readings :—
Riverview iE = 10m.6s. and 10m.19s., iN = 10m.26s., iE = 10m.36s. and 10m.51s., iN = 10m.55s., iE = 11m.58s.
Auckland PP = 12m.35s. Readings wrongly identified.
Wellington i = 13m.26s., P_cS = 14m.54s., i = 17m.6s.
Christchurch iN = 13m.12s.
Pasadena isP = 13m.19s.
Tashkent SS = 28m.49s.
Riverside isPZ = 13m.19s.
Palomar iZ = 12m.55s.
Boulder City i = 13m.55s., iPP = 17m.5s.
Overton iPP = 17m.26s.
Pierce Ferry i = 14m.0s., iPP = 16m.52s.
Tucson i = 17m.8s. and 17m.36s.
Sverdlovsk PS = 25m.11s.
St. Louis eE = 29m.23s. and 29m.56s.
Copenhagen 51m.11s.
Collmberg iZ = 19m.4s., eZ = 21m.21s., 22m.15s., 23m.17s., 27m.47s., 29m.11s., 30m.23s., and 31m.11s.
Malaga PP?Z = 19m.43s., Z = 22m.57s.
San Fernando iPPZ = 19m.45s.
Long waves were also recorded at Uccle and De Bilt.

Sept. 24d. Readings also at 0h. (Collmberg (2) and Kodaikanal), 1h. (Copenhagen, Collmberg, Triest, Belgrade, and Bucharest), 4h. (near Mizusawa and near Tucson), 5h. (near La Paz), 9h. (near Tucson), 10h. (near Mizusawa), 11h. (near Stalinabad), 12h. (near Samarkand), 13h. (near Berkeley and Branner), 14h. (La Paz and near Andijan), 15h. (near Fresno, Berkeley, San Francisco, Branner, and Lick), 16h. and 17h. (San Juan), 18h. (Collmberg, Tucson, Palomar, Riverside, Mount Wilson, and Tinemaha). 19h. (La Plata, Riverside, Tucson, St. Louis, near Berkeley, San Francisco, Branner, and Lick), 21h. (near Tucson).

Sept. 25d. Readings at 4h. (near Andijan), 9h. (Harvard), 11h. (near Bogota), 12h. (Collmberg and Ksara), 15h. (San Juan, Huancayo, Copenhagen, and De Bilt), 18h. (Tucson, Mount Wilson, Riverside, Palomar, and Tinemaha), 19h. (Shasta Dam, near Fresno, Lick, Branner, San Francisco, Berkeley, and near Tucson), 20h. (Palomar, Tinemaha, Mount Wilson, Pasadena, Riverside, Tucson, near La Paz (2), and near San Juan), 21h. (La Paz), 22h. (Tinemaha, Pasadena, Riverside, Tucson, and Grand Coulee).

Sept. 26d. 3h. Undetermined shock.

College e = 40m.46s., eL = 44m.51s.
Sitka eP? = 41m.25s., i = 44m.32s., iL = 47m.50s.
Grand Coulee eP = 43m.28s.
Shasta Dam eP = 43m.39s.
Tinemaha iPZ = 44m.22s., iZ = 44m.39s.
Haiwee eP = 44m.30s., iZ = 44m.45s.
Boulder City eP = 44m.45s., e = 44m.53s.
Pierce Ferry iP = 44m.49s.
Palomar iP = 44m.50s., ipP? = 45m.6s.
Pasadena iZ = 44m.50s., eLZ = 58·9m.
Overton eP = 44m.56s., e = 45m.34s.
Riverside eZ = 44m.56s.
Tucson iP = 45m.26s., e = 46m.10s., iPP = 47m.8s., i = 47m.27s., eL = 62m.13s.
St. Louis ePZ = 46m.24s., eSE = 53m.38s., eE = 57m.48s., eLE = 61m.23s.
Ottawa eZ = 46m.50s., L = 66m.
Collmberg iZ = 49m.9s. and 49m.20s.
Florissant eSE = 53m.35s.
Long waves were also recorded at Copenhagen.

Sept. 26d. 13h. 42m. 4s. Epicentre 42°·0N. 20°·5E. (as on 1941 Sept. 13d.).

Intensity VII at Prizren; VI at Brod, Dragas; V at Skoplje; and IV at Peek.

Epicentre 40°13′N. 20°43′E (Belgrade)
Macroseismic radius 43km.
Annuaire de l'Institut séismologique de Beograd, microséismique et macroséismique 1945, Beograd 1950, p. 37 and p. 23.

$A = +·6982$, $B = +·2610$, $C = +·6666$; $\delta = -4$; $h = -2$;
$D = +·350$, $E = -·937$; $G = +·624$, $H = +·233$, $K = -·745$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		2·2	72	i 0 40	+ 2	i 1 3	− 3	i 0 48	P_g	—
Belgrade		2·8	359	c 0 46	− 1	1 27	+ 5	i 0 50	P*	—
Bucharest	E.	4·8	58	e 1 16	+ 1	c 2 24	S*	c 1 35	P_g	—
Triest		6·1	309	i 1 36	+ 2	i 2 30	−15	i 1 42	P*	—
Prague		9·1	335	e 2 24?	+10	c 4 22	+22	—	—	e 4·9
Chur		9·2	305	e 2 19	+ 3	e 4 3	0	e 4 23	SSS	—
Cheb		9·9	328	—	—	e 4 56?	S*	—	—	—
Zürich		10·1	306	e 2 28	0	e 4 30	+ 5	—	—	—
Collmberg	Z.	10·6	333	i 2 34	− 2	i 5 0	SSS	i 2 41	PP	i 5·8
Basle		10·7	306	e 2 37	− 1	e 4 41	+ 2	—	—	—
Jena		10·9	328	e 3 4	PPP	e 4 49	+ 5	—	—	e 6·1
Neuchatel		10·9	302	e 2 39	− 1	—	—	—	—	e 6·1
Strasbourg		11·1	311	e 2 59	PPP	e 5 10	SSS	—	—	—
Besançon		11·6	302	e 2 58	+ 8	e 4 46	−15	—	—	—
Uccle		14·2	314	e 3 34	+10	—	—	—	—	e 7·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Paris		14·4	304	—	—	e 6 35	SS	—	—	7·9
Ksara		14·6	119	e 3 41	PP	—	—	—	—	e 8·5
Copenhagen		14·7	341	e 3 31	0	i 6 30	+14	—	—	8·1
Moscow		17·7	33	4 10	0	e 7 31	+ 5	—	—	—
Upsala		18·0	355	e 4 13	0	e 7 32	0	—	—	e 9·4
Toledo	z.	18·6	271	e 4 21	0	—	—	e 4 29	PP	—
Baku		22·1	84	e 5 12	+13	—	—	—	—	—
Sverdlovsk		29·5	46	e 6 10	+ 2	—	—	—	—	—

Additional readings :—
Sofia iS_eEN = 1m.12s.
Belgrade 0m.58s., iS_e = 1m.29s
Bucharest iE = 1m.54s.
Collmberg iPPPZ = 2m.44s., iZ = 2m.47s., 3m.0s., 3m.30s., 4m.0s., and 5m.11s., iSSZ = 5m.24s., iZ = 5m.28s.
Long waves were also recorded at De Bilt.

Sept. 26d. 14h. 27m. 5s. Epicentre 19°·8N. 65°·6W.

$A = +\cdot3890$, $B = -\cdot8575$, $C = +\cdot3367$; $\delta = -1$; $h = +5$;
$D = -\cdot911$, $E = -\cdot413$; $G = +\cdot139$, $H = -\cdot307$, $K = -\cdot942$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		1·5	199	i 0 24	− 4	i 0 35	−11	—	—	i 0·8
Fort de France		6·6	138	e 1 38	− 3	e 2 50	− 8	e 1 50	P*	—
Bogota		17·2	210	e 4 0	− 3	e 7 24	+10	i 4 14	PP	—
Balboa Heights		17·3	233	e 4 3	− 1	—	—	—	—	—
Columbia		19·7	319	e 4 31	− 3	e 8 19	+ 9	—	—	e 10·0
Georgetown		21·5	336	i 4 53	+ 1	e 9 1	+14	—	—	10·9
Fordham		22·1	343	e 5 0	+ 1	e 9 9	+11	—	—	—
Harvard		23·2	350	i 5 11	+ 2	i 9 25	+ 7	i 5 27	PP	—
Pennsylvania		23·4	336	e 5 15	+ 4	e 9 35	+14	e 6 24	?	—
Ottawa		26·9	344	e 5 45	0	(9 55?)	−25	—	—	9·9
Shawinigan Falls		27·3	350	e 5 48	0	—	—	—	—	16·9
St. Louis		28·4	317	5 58	0	e 10 56	+11	i 6 40	PP	—
Florissant		28·6	317	e 6 1	+ 1	e 11 3	+15	e 6 43	PP	—
Chicago		28·8	324	e 8 8	?	e 11 13	+22	—	—	e 14·0
Huancayo		33·1	198	e 6 45	+ 5	—	—	—	—	e 12·7
La Paz		36·2	183	7 12	+ 6	—	—	—	—	23·3
Rapid City		39·5	316	i 7 37	+ 3	e 14 20	+43	i 9 9	PP	e 20·7
Tucson		42·2	297	i 7 57	+ 1	—	—	e 9 50	PP	e 21·1
Pierce Ferry		45·3	302	i 8 22	+ 1	—	—	i 8 33	?	—
Overton		45·7	303	i 8 27	+ 3	—	—	—	—	—
Boulder City		45·9	302	i 8 37	+11	—	—	e 10 58	PPP	—
Palomar		47·4	298	i 8 39	+ 1	—	—	i 8 49	?	—
Riverside	z.	47·8	299	i 8 42	+ 1	—	—	—	—	—
Mount Wilson	z.	48·4	299	i 8 46	0	—	—	e 8 58	?	—
Haiwee		48·5	302	e 8 46	0	—	—	—	—	—
Pasadena		48·5	299	i 8 48	+ 2	—	—	i 8 58	?	e 26·1
Tinemaha		48·8	302	i 8 49	0	—	—	i 9 5	?	—
Grand Coulee		51·2	317	e 9 4	− 3	—	—	—	—	—
Shasta Dam		52·4	306	e 9 13	− 3	—	—	—	—	—
Toledo	z.	55·9	55	e 9 39	− 3	—	—	—	—	—
Copenhagen		67·2	36	—	—	e 20 0	+ 8	—	—	32·9
Collmberg	z.	67·7	42	e 10 57	− 4	—	—	—	—	—

Additional readings :—
Fort de France e = 3m.2s. and 3m.8s.
St. Louis iZ = 6m.10s., eZ = 6m.15s., iZ = 6m.31s., eSSSE = 12m.40s.
Rapid City i = 8m.9s.
Tucson i = 8m.36s.
Pierce Ferry e = 8m.54s.
Boulder City i = 9m.14s.
Long waves were also recorded at other American and European stations.

Sept. 26d. Readings also at 0h. (San Juan and near Samarkand), 1h. (near Tacubaya), 2h. (near Mizusawa and near Samarkand), 3h. (near Samarkand), 4h. (near Tacubaya), 8h. (Tinemaha, Riverside, Palomar, Tucson, and near Tacubaya), 9h. (Tinemaha, Mount Wilson, Riverside, Palomar, Tucson, St. Louis, Fort de France, near San Juan, New Plymouth, Wellington, near Kaimata, Christchurch, and Monowai, and near Andijan), 10h. (Collmberg (2)), 11h. (Collmberg, near Tashkent, Andijan, Samarkand and Stalinabad), 12h. (near Andijan), 15h. (San Juan), 17h. (Palomar, Riverside, Mount Wilson, and Pasadena), 18h. (Christchurch, Riverview, and Balboa Heights), 19h. (Andijan and near Tucson), 20h. (near Andijan), 21h. (near Tucson), 23h. (Collmberg).

Sept. 27d. 23h. 8m. 58s. Epicentre 14°·9S. 173°·3W. (as on 1942 Nov. 26d.).

Intensity IV at Apia.
Annales de l'Institut de Physique du Globe de Strasbourg 2e partie, Séismologie, Tome X, 1951, p. 35.

$A = -\cdot 9599$, $B = -\cdot 1128$, $C = -\cdot 2569$; $\delta = +13$; $h = +6$;
$D = -\cdot 117$, $E = +\cdot 993$; $G = +\cdot 255$, $H = +\cdot 030$, $K = -\cdot 967$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		1·9	54	i 0 31	− 3	—	—	—	—	—
Auckland		24·2	204	—	—	(9 27)	− 8	—	—	11·0
Arapuni		25·0	202	—	—	10 2?	+13	—	—	12·0
Wellington		28·2	199	—	—	(11 2?)	+21	—	—	12·0
Christchurch		30·9	199	—	—	11 17	− 7	13 2	Q	15·6
Honolulu		39·1	24	—	—	e 13 33	+ 2	—	—	e 16·2
Pasadena	z.	71·7	46	i 11 27	+ 1	—	—	—	—	e 32·5
Mount Wilson	z.	71·8	46	i 11 28	+ 2	—	—	—	—	—
Palomar		72·1	47	i 11 29	+ 1	—	—	—	—	—
Riverside	z.	72·1	46	e 11 29	+ 1	—	—	—	—	—
Shasta Dam		72·8	38	e 11 33	+ 1	—	—	—	—	—
Boulder City		74·9	46	e 11 45	+ 1	—	—	—	—	—
Pierce Ferry		75·6	47	i 11 50	+ 2	—	—	—	—	—
Tucson		76·0	51	i 11 51	0	e 21 34	0	e 14 39	PP	e 34·8
Grand Coulee		79·1	34	i 11 52	−16	—	—	—	—	—
Florissant	E.	93·9	52	—	—	e 24 2	{− 8}	24 38	S	e 44·0
St. Louis		93·9	52	e 13 22	+ 1	e 24 0	[+ 5]	e 24 36	S	e 43·6
Philadelphia		105·6	53	—	—	e 24 58	[+ 5]	e 33 42	SS	e 48·4
Seven Falls		109·3	44	—	—	e 25 20	[+11]	—	—	54·0
San Juan		110·6	75	—	—	e 25 17	[+ 2]	(e 28 42)	PS	e 28·7
Collmberg	z.	143·4	353	e 19 37	[+ 1]	—	—	e 22 44	PP	—
Paris		146·1	4	e 19 45	[+ 4]	—	—	—	—	—
Bucharest		146·4	334	20 2?	[+20]	26 2?	[−47]	—	—	—
Strasbourg		146·5	357	e 19 48	[+ 6]	—	—	—	—	—
Zürich		147·3	358	e 19 48	[+ 5]	—	—	—	—	—
Basle		147·5	358	e 19 47	[+ 4]	—	—	—	—	—
Ksara		147·6	310	e 19 57	[+14]	—	—	e 22 57	PP	—
Triest		148·9	349	i 19 55	[+ 9]	e 21 10	?	—	—	—
Clermont-Ferrand		149·1	5	e 19 44	[− 2]	—	—	—	—	—
Toledo		153·5	18	e 20 5	[+12]	e 27 44	PPP	—	—	—
Malaga	z.	156·2	22	i 20 9a	[+13]	26 49	[−12]	e 24 2	PP	72·0

Additional readings and note :—
Auckland S is given as Q.
Grand Coulee e = 12m.9s.
Florissant eE = 26m.8s., eSS?E = 30m.57s.
St. Louis eSKS?E = 23m.25s., eSS?E = 30m.56s.
Collmberg e = 20m.9s.
Malaga PKP_2Z = 20m.27s., PPZ (△ >180°) = 28m.51s.
Long waves were also recorded at Riverview, Sitka, De Bilt, Uccle, and Copenhagen.

Sept. 27d. Readings also at 0h. (Auckland, Christchurch, and Wellington), 5h. (Tashkent near Andijan and Stalinabad, Berkeley (2), Branner (2), Fresno (2), Lick (2), San Francisco, and near Santa Clara), 6h. (Ksara), 7h. (Palomar and Tucson), 8h. (Andijan, Tashkent, Erevan, Leninakan, Moscow, Ksara, and near Malaga (3)), 9h. (Collmberg and near Tananarive), 10h. (Riverview, Malaga, and near Bogota), 19h. (near Tucson), 20h. (Andijan, Tashkent, near Samarkand, Stalinabad, and near Tucson), 21h. (Bucharest), 22h. (near Andijan, Stalinabad, and Tashkent).

Sept. 28d. 22h. 24m. 4s. Epicentre 41°·8N. 126°·8W.

U.S.C.G.S. gives epicentre 41°·7N. 126°·9W. Bulletin of stations of N. California gives epicentre 41°·9N. 126°·7W.

$A = -·4479$, $B = -·5987$, $C = +·6641$; $\delta = +8$; $h = -2$;
$D = -·801$, $E = +·599$; $G = -·398$, $H = -·532$, $K = -·748$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		2·3	123	e 0 37	− 3	i 1 4	− 5	—	—	—
Shasta Dam		3·5	107	i 0 54	− 3	i 1 36	− 4	i 1 10	P_g	—
Ukiah		3·8	133	e 1 0	− 1	i 1 42	− 5	i 1 24	P_g	e 2·2
Mineral	E.	4·2	108	i 1 3?a	− 4	i 1 51	− 6	—	—	—
San Francisco		5·2	138	e 1 22	+ 1	—	—	e 1 55	P_g	e 2·3
Berkeley		5·2	137	1 19	− 2	2 16	− 6	—	—	2·6
Branner		5·6	139	i 1 26	− 1	i 2 30	− 3	e 1 50	P_g	e 2·8
Santa Clara		5·8	138	e 1 27	− 2	i 2 41	+ 3	—	—	—
Lick		6·0	36	i 1 30	− 2	e 2 36	− 7	e 2 7	P_g	e 2·7
Seattle		6·6	27	(e 1 24)	−17	—	—	—	—	e 1·4
Victoria		7·1	18	1 46	− 2	3 17	+ 7	—	—	3·5
Fresno	N.	7·4	131	e 1 52	0	e 3 18	0	—	—	i 3·8
Tinemaha		8·1	122	i 2 6	+ 4	e 3 40	+ 5	—	—	—
Grand Coulee		8·3	39	i 2 3	− 1	—	—	e 4 2	S*	i 4·8
Haiwee		8·9	127	i 2 18	+ 6	i 4 11	+16	—	—	—
Santa Barbara		9·2	140	i 2 24	+ 8	—	—	—	—	—
Mount Wilson		10·2	135	i 2 32	+ 1	—	—	—	—	—
Pasadena		10·2	136	i 2 30	− 1	i 4 26	− 1	—	—	—
Riverside		10·8	133	i 2 36	− 3	—	—	—	—	—
Overton		10·9	114	e 2 21	−19	—	—	—	—	—
Boulder City		11·0	118	e 2 40	− 2	e 4 25	−22	—	—	—
Butte		11·1	63	e 3 34	+51	e 5 37	+48	e 4 13	PP	e 6·3
Logan		11·2	85	e 2 6	−38	—	—	—	—	i 4·8
Salt Lake City		11·3	90	e 2 44	− 2	e 4 13	−41	—	—	e 5·0
Palomar		11·5	134	e 2 50	+ 2	—	—	—	—	—
Pierce Ferry		11·5	115	i 2 50	+ 2	—	—	—	—	e 6·6
Bozeman		12·0	66	e 2 50	− 5	i 5 10	− 1	—	—	e 6·2
Tucson		15·9	122	i 3 48	+ 1	e 6 52	+ 8	—	—	e 7·7
Sitka		16·7	344	i 3 53	− 4	i 7 9	+ 6	—	—	i 8·1
Saskatoon		17·2	46	3 53	−10	7 8	− 6	—	—	8·9
Rapid City		17·4	75	i 4 5	− 1	e 7 24	+ 5	—	—	e 9·4
Lincoln		22·6	83	i 4 59	− 4	i 9 12	+ 5	—	—	e 12·4
College		26·0	339	e 5 39	+ 3	e 10 15	+ 9	—	—	e 11·6
Florissant		27·8	85	e 5 52	− 1	e 10 37	+ 2	—	—	—
St. Louis		28·0	85	i 5 53	− 2	e 10 37	− 1	—	—	e 13·9
Cape Girardeau	E.	28·9	86	e 6 5	+ 2	e 11 3	+10	—	—	—
Chicago		29·1	77	e 6 5	+ 1	e 10 56	0	i 7 2	PP	e 14·5
Cincinnati		32·0	81	i 6 29	− 1	11 44	+ 2	7 16	PP	—
Tacubaya		32·4	126	6 34	0	—	—	e 7 13	PP	e 18·8
Mobile		32·8	97	—	—	12 14	+20	—	—	—
Honolulu		33·1	241	e 7 48	PP	e 12 8	+ 9	—	—	e 13·8
Vera Cruz		34·4	121	—	—	i 12 29	+10	e 15 8	SS	e 18·1
Pennsylvania		36·4	75	e 7 6	− 2	e 12 53	+ 3	e 8 24	PP	e 14·0
Columbia		36·6	87	(e 7 7)	− 3	(e 13 1)	+ 8	—	—	e 13·0
Ottawa		36·7	67	7 10	0	12 56	+ 2	—	—	17·9
Georgetown		37·6	77	i 7 19	+ 1	i 13 13	+ 5	i 8 47	PP	18·9
Shawinigan Falls		38·4	64	7 26	+ 1	13 25	+ 5	—	—	18·9
Philadelphia		38·6	75	i 7 27	+ 1	e 13 22	− 1	e 8 58	PP	e 16·0
Fordham		39·2	73	i 7 32	+ 1	i 13 39	+ 7	i 8 59	PP	i 20·5
Seven Falls		39·6	63	7 37	+ 2	13 41	+ 3	9 6	PP	19·9
Harvard		40·3	70	e 7 37	− 3	—	—	e 9 13	PP	e 22·9
Ivigtut		49·3	39	8 57	+ 4	16 2	+ 3	19 38	SS	23·9
San Juan		56·2	95	e 9 44	0	e 17 29	− 4	e 12 2	PP	e 27·7
Vladivostok		69·8	310	—	—	e 21 42	PS	e 26 7	SS	—
Bergen		70·9	23	—	—	e 20 41	+ 5	e 28 28	SSS	35·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen		71·0	29	e 6 11	?	e 22 1	PPS	i 28 49	SSS	33·2
Edinburgh		71·6	31	—	—	e 21 34	PS	—	—	—
Upsala	N.	74·6	18	—	—	e 21 8	−10	—	—	e 36·9
Irkutsk		76·4	331	e 14 48	PP	21 44	+ 6	e 22 34	PS	—
Copenhagen		76·9	23	i 11 59	+ 3	i 21 41	− 3	22 36	PS	—
De Bilt		77·6	28	i 12 4	+ 4	i 21 59	+ 8	e 30 56?	SSS	e 35·9
Uccle		78·4	30	e 12 6k	+ 2	e 21 59?	− 1	e 26 46	SS	e 32·9
Paris		79·3	32	e 12 12	+ 3	e 22 15	+ 6	—	—	e 38·9
Collmberg		80·9	25	i 12 19	+ 2	e 23 26	PS	e 15 24	PP	e 44·9
Strasbourg		81·5	29	e 12 26	+ 5	e 22 22	−10	—	—	e 41·9
Sverdlovsk		81·5	356	e 12 23	+ 2	22 36	+ 4	i 15 32	PP	—
Cheb		81·8	26	—	—	e 22 56?	+21	—	—	e 42·9
Moscow		81·9	10	e 12 25	+ 2	e 22 38	+ 2	—	—	—
Clermont-Ferrand		82·0	34	e 12 26	+ 3	e 22 42	+ 5	e 28 56?	SS	—
Basle		82·3	29	e 12 27	+ 2	—	—	—	—	—
Prague		82·4	24	—	—	e 22 56	+15	—	—	e 41·9
Neuchatel		82·5	29	e 12 32	+ 6	—	—	—	—	—
Zürich		82·8	29	e 12 29	+ 2	—	—	—	—	—
Toledo		83·5	41	i 12 35	+ 4	i 22 54	+ 2	—	—	—
Chur		83·6	29	e 12 35	+ 4	—	—	—	—	e 46·9
Tortosa		84·9	38	12 48	+10	e 23 6	0	—	—	e 32·9
San Fernando	E.	85·1	45	—	—	e 23 16	+ 8	—	—	42·9
Granada		85·8	43	e 12 28a	−14	e 23 20	+ 5	—	—	45·7
Malaga	Z.	85·8	43	i 12 54k	+12	i 23 1	−14	i 16 7	PP	36·7
Triest		86·1	27	i 12 47	+ 3	i 23 24	+ 6	e 24 18	PS	—
Belgrade		88·9	23	e 13 42	?	e 24 49	PS	e 28 40	SS	e 48·5
Tashkent		96·0	348	e 14 14	+44	e 24 50	+ 3	e 20 38	PPP	—
Erevan		98·0	7	—	—	e 24 31	[+14]	—	—	—
Baku		98·1	3	e 15 52	?	—	—	—	—	—
Christchurch		100·9	220	—	—	—	—	e 32 30	SS	46·0
Ksara		103·1	15	e 19 56	PPP	e 27 52	PS	—	—	—
New Delhi	N.	106·5	338	e 21 14	PPP	—	—	—	—	—
Bombay		116·9	340	—	—	—	—	e 35 56?	SS	e 49·9

Additional readings and notes :—
Ferndale iE = 0m.53s. and 1m.19s.
San Francisco eEN = 1m.26s., eE = 1m.34s. and 1m.38s., eN = 2m.14s. and 2m.17s.
Berkeley eEN = 1m.28s., iEN = 1m.38s., eEN = 1m.48s., eN = 1m.56s., eE = 1m.59s., iN = 2m.21s.
Branner iN = 1m.36s., iE = 1m.40s., eE = 1m.43s., iE = 2m.10s., eN = 2m.20s., iN = 2m.25s., eEN = 2m.40s.
Lick eE = 1m.37s., eEN = 1m.41s. and 1m.44s., eE = 1m.48s., iEN = 2m.17s. and 2m.27s. eE = 2m.32s.
Fresno eN = 1m.56s. and 2m.8s., iN = 3m.25s.
Grand Coulee e = 3m.29s.
Pasadena iNZ = 3m.11s.
Overton iP = 2m.28s., i = 2m.46s.
Boulder City i = 2m.43s., e = 3m.36s. and 5m.3s.
Logan i = 3m.37s., e = 4m.17s., i = 4m.28s.
Salt Lake City e = 3m.0s. and 4m.27s.
Pierce Ferry i = 3m.5s.
Bozeman e = 3m.5s. and 3m.40s., i = 5m.40s.
Tucson i = 4m.3s., 4m.18s., 4m.39s., and 5m.20s.
Rapid City i = 5m.3s., e = 7m.37s.
Lincoln i = 5m.29s. and 10m.7s.
Florissant iPZ = 5m.57s., iSE = 10m.41s.
St. Louis iPZ = 5m.59s., iZ = 6m.6s., iSE = 10m.43s.
Chicago iP = 6m.10s., e = 13m.41s.
Cincinnati PPP = 7m.44s.
Tacubaya eE = 6m.57s. and 14m.33s., eN = 14m.37s.
Pennsylvania ePPP = 8m.43s.
Columbia gives P as S and S as L.
Philadelphia iS = 13m.27s., e = 14m.24s.
San Juan ePPP = 13m.16s., eSS = 20m.51s.
Upsala eE = 21m.20s., eN = 30m.14s., eE = 30m.38s., eN = 31m.50s.
Copenhagen 27m.2s.
Collmberg eZ = 12m.44s., 13m.14s., and 17m.26s.
Prague e = 23m.32s.

Continued on next page.

Tortosa iSE =23m.14s.
Malaga eSZ =23m.31s., eSSZ =24m.7s.
Triest eSKS? =23m.9s.
Belgrade e =15m.58s.
Tashkent eS =25m.34s.
Long waves were also recorded at Huancayo, Riverview, Wellington, and Kodaikanal.

Sept. 28d. 23h. North Pacific ?.

Mizusawa PE =41m.55s., SE =43m.34s.
Grand Coulee iP =49m.15s.
Shasta Dam iP =49m.32s.
Tinemaha iPZ =50m.4s. a.
Overton iP =50m.15s., i =50m.34s.
Mount Wilson iPZ =50m.16s. a.
Pasadena iPZ =50m.16s.
Riverside iPZ =50m.18s. a.
Boulder City iP =50m.21s., i =51m.15s.
Pierce Ferry iP =50m.23s., i =50m.47s.
Palomar iPZ =50m.24s.
Tucson iP =50m.51s. a.
Collmberg iZ =51m.5s. and 51m.12s., eZ =52m.20s. and 52m.43s.
St. Louis ePZ =51m.24s., iPZ =51m.27s.
Basle e =57m.34s.

Sept. 28d. Readings also at 5h. (La Plata, St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, near Berkeley, Branner, and Lick, not all one shock), 9h. (near Shasta Dam), 11h. (Riverview and Toledo), 13h. (Samarkand (3)), 14h. (Auckland), 15h. (Andijan and near Tucson), 16h. (near Mizusawa and near Ottawa), 17h. (near Samarkand), 18h. (Riverview), 20h. (Grand Coulee, Shasta Dam (2), and near Tucson (2)).

Sept. 29d. 4h. 27m. 51s. Epicentre 6°·0S. 77°·0W. Depth of focus 0·005.
(as on 1945 Aug. 9d.).

$A = +·2237$, $B = -·9691$, $C = -·1038$; $\delta = -3$; $h = +7$;
$D = -·974$, $E = -·225$; $G = -·023$, $H = +·101$, $K = -·995$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		6·3	164	e 1 32	0	e 2 39	− 5	i 1 43	PP	e 3·3
Bogota		11·0	16	e 2 37	0	i 5 45	+66	i 2 47	pP	—
La Paz		13·6	141	3 19	+ 8	6 49	+68	—	—	7·7
San Juan		26·5	25	—	—	e 10 6	+ 5	e 10 21	sS	e 15·8
St. Louis		46·1	345	e 8 19	0	e 15 0	0	e 8 29	pP	—
Tucson		49·8	322	i 8 49	+ 1	—	—	i 9 27	?	—
Palomar	z.	54·4	319	i 9 24	+ 1	—	—	—	—	—
Riverside	z.	55·1	319	i 9 27	− 1	—	—	—	—	—
Mount Wilson	z.	55·7	319	i 9 33	+ 1	—	—	—	—	—
Pasadena	z.	55·7	319	i 9 33	+ 1	—	—	—	—	—
Haiwee		56·8	321	e 9 55	pP	—	—	—	—	—
Tinemaha	z.	57·6	321	i 9 58	pP	—	—	—	—	—

Additional readings ;—
Huancayo e =2m.1s., i =2m.56s.
Bogota i =4m.57s., 5m.38s., and 6m.10s.
San Juan e =12m.43s.
St. Louis eSSE =18m.12s.
Long waves were also recorded at Uccle,

Sept. 29d. 4h. Undetermined shock.

Apia iP = 44m.46s., iS = 45m.8s.
Pasadena iPZ = 55m.36s., iZ = 55m.47s., eLZ = 106·8m.
Mount Wilson iPZ = 55m.37s., iZ = 55m.48s.
Palomar iPZ = 55m.39s.
Riverside ePZ = 55m.39s.
Haiwee iPZ = 55m.44s.
Tinemaha iPZ = 55m.46s.
Shasta Dam eP = 55m.47s.
Boulder City iP = 55m.56s.
Pierce Ferry iP = 56m.0s.
Tucson iP = 56m.2s., i = 56m.12s., 56m.28s., and 57m.14s., eL = 79m.0s.
Grand Coulee iP = 56m.20s.
Collmberg iZ = 63m.47s.
Zürich ePKP? = 63m.48s.
Strasbourg ePKP = 63m.50s.
Paris ePKP = 63m.55s., eL = 122m.
Triest iP?Z = 64m.4s.
Ksara e = 64m.5s. and 66m.56s.
Helwan eZ = 64m.14s. and 64m.27s.
St. Louis eSKSE = 68m.4s., eSKKSE = 68m.43s., eLE = 88m.17s.
Florissant eSKSE = 68m.5s., eL?E = 89·0m.
Long waves were also recorded at Wellington, Christchurch, Riverview, and Uccle.

Sept. 29d. Readings also at 0h. (De Bilt and Uccle), 1h. (Strasbourg, Basle, Zürich, Collmberg, and Jena), 2h. (Helwan and Ksara), 3h. (Tucson and Palomar), 6h. (New Delhi, Collmberg (2), Almeria, near San Juan, and near Samarkand), 7h. (Helwan and near Samarkand), 9h. (Butte and near Samarkand (2)), 11h. (near Tashkent, Stalinabad, Andijan, and Samarkand), 12h. (near Oaxaca), 14h. (Triest, St. Louis, Haiwee, Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, Honolulu, Riverview, Christchurch, and Wellington), 15h. (Uccle and La Paz), 16h. (near Apia), 19h. (near Berkeley), 20h. (near Tucson), 21h. (near Mizusawa).

Sept. 30d. Readings at 1h. (Berkeley and near La Paz), 5h. (Grozny, Frunse, Jena, and Collmberg), 9h. (Jena and Bogota), 10h. (near Mizusawa), 11h. (Tucson, Palomar, Riverside, Pasadena, Mount Wilson, Santa Barbara, and Tinemaha), 14h. (near Samarkand), 18h. (near Tucson), 22h. (Tucson, Riverside, Mount Wilson, and Tinemaha).

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

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

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

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