The International Seismological Summary.

1945 April, May, June.

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

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

The second quarter of 1945 contains 94 epicentres, 46 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

April	3d.	21h.	Undetermined shock.		Suggested Deep
	10d.	1h.	41·8N.	143·0E.	,, ,,
	11d.	15h.	Undetermined shock.		,, ,,
	12d.	11h.	29·0S.	173·0W.	0·040
	13d.	21h.	23·1S.	178·6E.	0·080
	14d.	6h.	Undetermined shock.		Suggested Deep
	15d.	2h.	57·2N.	163·8E.	,, ,,
	15d.	3h.	57·2N.	163·8E.	,, ,,
	19d.	13h.	21·4S.	169·3E.	0·005
	21d.	17h.	18·8N.	100·7W.	Suggested Deep
	22d.	9h.	5·4N.	123·0E.	0·080
	23d.	6h.	4·2S.	152·2E.	0·010
	24d.	14h.	31·0N.	139·5E.	0·050
	26d.	13h.	20·5S.	177·5W.	0·060
	29d.	2h.	4·5N.	98·0E.	Suggested Deep
	30d.	11h.	50·7N.	150·0E.	0·070
	30d.	17h.	20·2S.	178·2W.	0·070
May	1d.	5h.	20·8S.	69·0W.	0·010
	1d.	16h.	31·5S.	68·6W.	0·010
	9d.	3h.	6·8S.	125·5E.	0·080
	18d.	23h.	43·8N.	149·0E.	0·020
	20d.	18h.	11·8N.	125·1E.	0·010
	31d.	11h.	33·6N.	137·7E.	Suggested Deep
	31d.	18h.	37·8N.	142·6E.	,, ,,

			°	°	
June	1d.	15h.	53·4N.	168·7W.	Suggested Deep
	3d.	13h.	8·4N.	82·7W.	,, ,,
	4d.	12h.	30·3N.	80·0E.	,, ,,
	5d.	15h.	37·6N.	3·5W.	,, ,,
	19d.	17h.	41·2N.	142·5E.	0·010
	19d.	17h.	17·7S.	69·2W.	0·025
	21d.	12h.	34·7N.	137·9E.	Suggested Deep
	22d.	9h.	42·4N.	147·0E.	0·030
	24d.	19h.	35·0S.	70·5W.	0·010
	25d.	23h.	37·7N.	141·8E.	0·010

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

KEW OBSERVATORY,
RICHMOND,
SURREY.

April, 1954.

1945 APRIL, MAY, JUNE.

April 1d. 22h. 20m. 6s. Epicentre 22°·4S. 62°·5W. (as on 1941 Aug. 10d.).

A = +·4273, B = −·8208, C = −·3789; δ = −14; h = +4;
D = −·887, E = −·462; G = −·175, H = +·336, K = −·925.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz	Z.	7·9	316	1 59	0	i 3 41	+11	—	—	4·2
La Plata	E.	13·1	163	3 6	− 4	6 6	+28	—	—	6·7
	Z.	13·1	163	3 5	− 5	5 18	−20	—	—	7·1
Huancayo		16·0	308	i 3 49	+ 1	e 6 34	−12	—	—	e 8·6
Bogota		29·2	337	e 6 7	+ 2	—	—	—	—	e 16·6
San Juan		40·7	356	—	—	e 17 17	SSS	—	—	e 22·6
Tucson		71·3	319	i 11 21a	− 2	—	—	—	—	—
Palomar	Z.	75·9	316	i 11 48	− 2	—	—	—	—	—
Riverside	Z.	76·6	316	i 11 52	− 2	—	—	—	—	—
Mount Wilson		77·2	316	i 11 55	− 2	—	—	—	—	—
Pasadena		77·2	316	i 11 56	− 1	—	—	—	—	—
Malaga	Z.	80·4	44	i 12 22	+ 7	23 28	PPS	16 56	PP	e 68·9
Shasta Dam		83·9	319	i 12 29	− 4	—	—	—	—	—
Grand Coulee		86·4	326	e 12 44	− 1	—	—	—	—	—

Additional readings and note :—
Bogota e = 5m.14s.
San Juan e = 19m.48s.
Malaga pPZ = 12m.35s., eZ = 12m.57s., PPP?Z = 20m.30s., readings interpreted as of an antipodal shock.

April 1d. 23h. 43m. 44s. Epicentre 34°·0N. 120°·0W.

Intensity IV at Santa Barbara, Santa Maria, and Los Alamos; III at Fillmore, Los Olivos and Simi.
Macroseismic area 1000 sq. m.—U.S.C.G.S.

A = −·4154, B = −·7195, C = +·5566; δ = +4; h = 0;
D = −·866, E = +·500; G = −·278, H = −·482, K = −·831.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Barbara		0·5	28	i 0 8	− 6	i 0 12	−11	—	—	—
Pasadena		1·5	84	i 0 26a	− 2	i 0 44	− 5	—	—	—
Mount Wilson		1·6	82	i 0 28a	− 2	—	—	—	—	—
Riverside		2·2	90	i 0 36	− 2	i 1 4	− 2	—	—	—
La Jolla		2·6	116	e 0 47	+ 3	i 1 23	S_g	—	—	—
Haiwee		2·7	38	e 0 44	− 1	i 1 14	− 5	—	—	—
Palomar		2·7	104	i 0 44a	− 1	—	—	—	—	—
Tinemaha		3·4	24	i 0 55a	0	1 1 40	+ 3	—	—	—
Lick	E.	3·6	339	e 0 56	− 2	e 1 48	+ 6	e 1 12	P_g	—
Santa Clara		3·7	335	i 0 12	−48	e 0 53	−52	—	—	—
Branner		3·8	334	i 1 0	− 1	1 1 55	+ 8	i 1 13	P_g	—
Berkeley		4·3	335	e 1 5	− 3	i 2 6	+ 6	e 1 19	P_g	—
Boulder City		4·7	64	i 1 11	− 3	—	—	i 1 32	P_g	—
Ukiah		5·7	334	e 1 56	P_g	—	—	—	—	i 3·0
Shasta Dam		7·0	345	i 1 45	− 1	i 3 12	+ 4	—	—	e 3·6
Ferndale	N.	7·4	334	—	—	e 3 16?	− 2	—	—	—
Tucson		7·9	100	e 1 56	− 3	e 3 26	− 4	—	—	i 4·2
Salt Lake City		9·4	41	e 2 19	+ 1	e 4 3	− 4	i 3 14	P_g	e 4·6
Logan		10·1	37	e 2 38	+10	—	—	—	—	i 5·4
Butte		13·3	23	e 3 19	+ 6	—	—	—	—	e 6·9
Bozeman		13·5	28	e 3 22	+ 7	e 6 18	+31	—	—	e 6·9
Seattle		13·7	353	e 3 11	− 7	—	—	—	—	e 5·0
Grand Coulee		13·9	3	e 3 21	0	e 6 0	+ 3	—	—	e 7·1
Rapid City		16·5	47	e 3 54	0	—	—	—	—	i 6·0
Saskatoon		20·5	24	—	—	8 39	+12	—	—	11·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Florissant		24·3	70	e 5 22	+ 2	e 9 47	+10	—	—	e 12·8
St. Louis		24·4	70	e 5 20	− 1	e 9 51	+12	e 6 43	PP	e 12·7
Sitka		25·8	341	—	—	e 10 4	+ 2	—	—	e 13·4
Chicago		26·6	62	e 8 55	P_cP	e 10 25	+ 9	—	—	e 11·8
Ottawa		35·5	57	—	—	—	—	e 15 16?	Q	e 18·9
Fordham		36·9	65	—	—	e 13 5	+ 7	—	—	e 20·0
Seven Falls		39·0	55	—	—	e 13 34	+ 5	—	—	22·3
San Juan		50·2	94	e 15 6	?	e 16 27	+16	—	—	e 25·6
Collmberg	z.	85·6	28	e 12 46	+ 5	—	—	—	—	—

Additional readings :—
Lick eEN =1m.4s., iSN =2m.9s., eSE =2m.12s.
Branner eN =1m.16s., iEN =1m.25s., iN =1m. 33s., eEN =2m.0s., iS_gEN =2m.12s.
Berkeley eZ =1m.11s., i =1m.24s., eSE =2m.16s., eSN =2m.20s., iZ =2m.26s., eEZ = 2m.31s.
Boulder City i =1m.28s.
Shasta Dam i =2m.41s.
Tucson i =3m.5s., iS? =3m.31s., i =3m.44s., and 3m.51s.
Logan i =3m.2s. and 5m.10s.
Grand Coulee i =4m.25s.
Rapid City i =4m.0s.
Long waves were also recorded at Honolulu, Huancayo, Auckland, Wellington, Riverview, and other American and European stations.

April 1d. Readings also at 0h. (Riverview, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, and Chur), 1h. (Tucson, Mount Wilson, Riverside, Collmberg, and Moscow), 6h. (New Delhi), 9h. (Collmberg, Grand Coulee, Shasta Dam, Tucson, Haiwee, Tinemaha, Mount Wilson, Pasadena, Palomar, Riverside, Mount Wilson, Auckland, Wellington, and near Apia), 10h. (Boulder City, Pierce Ferry, and Tucson), 11h. (near Irkutsk), 14h. (Pierce Ferry, Tucson, and Collmberg), 15h. (Collmberg, Auckland, Wellington, and Riverview), 17h. (Collmberg and near Mineral), 22h. (La Plata), 23h. (Mount Wilson, Palomar, Riverside, Tucson, Shasta Dam, La Paz, Huancayo, and near La Plata).

April 2d. Readings at 2h. (Granada, La Paz, Mizusawa, Mount Wilson, Pasadena, and Riverside), 3h. (La Plata), 5h. (La Paz and La Plata), 6h. (Huancayo), 8h. (near Apia), 11h. (near Malaga), 17h. (near Granada), 21h. (near La Paz).

April 3d. 21h. South Pacific. Very deep.

New Plymouth P =3m.45s., i =3m.53s., S =6m.20s.
Wellington P =3m.56s., S =6m.40s., i =6m.45s., S_cS =14m.36s.
Auckland S =5m.31s., i =5m.45s.
Kaimata S =7m.32s.?
Santa Barbara iPZ =11m.58s.
Pasadena iP =12m.0s.a, iZ =12m.18s., epPZ =14m.1s., esPZ =15m.10s.
La Jolla iP =12m.1s.
Riverside iPZ =12m.3s.a, iZ =12m.12s., epPZ =14m.7s., isPZ =15m.25s.
Palomar iP =12m.4s.a, ipPZ =14m.5s.
Shasta Dam iP =12m.8s.
Haiwee ePEN =12m.10s.
Tinemaha iPEZ =12m.10s.
Boulder City iP =12m.17s.
Pierce Ferry iP =12m.21s.
Tucson iP =12m.22s., ipP =14m.25s., esP =15m.47s.
Grand Coulee eP =12m.36s.
Overton e =12m.51s.
Copenhagen iP =19m.15s.
Collmberg eZ =19m.17s., iZ =19m.24s. and 19m.36s., eZ =21m.27s., and 22m.20s.

April 3d. Readings also at 8h. (Kew), 9h. (near Balboa Heights), 13h. (Basle, Clermont-Ferrand, Strasbourg, and Uccle), 14h. (Huancayo, La Paz, and La Plata), 15h. (Copenhagen), 18h. (Palomar, Pasadena, Riverside, and Tucson), 19h. (Tacubaya), 21h. (Tucson, Palomar, and Riverside), 23h. (Collmberg).

April 4d. 0h. 37m. 30s. Epicentre 11°·0S. 33°·0E. Very rough.
(as on 1940 Dec. 18d.).

$A = +·8235$, $B = +·5348$, $C = -·1896$; $\delta = +11$; $h = +6$;
$D = +·545$, $E = -·839$; $G = -·159$, $H = -·103$, $K = -·982$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Johannesburg		15·8	196	3 48	+ 3	7 36	SS	4 24	PP	9·6
Granada		59·0	326	i 10 9a	+ 5	i 17 55	−15	i 10 19	pP	i 30·9
Malaga	z.	59·1	325	i 10 23	+19	e 19 7	+56	e 12 46	PP	32·1
Toledo		61·2	328	i 10 14	− 5	e 19 24	+46	—	—	—
Chur		61·3	342	e 10 14	− 6	—	—	—	—	—
Tashkent		61·9	31	e 10 33?	+ 9	e 18 56?	+ 9	—	—	—
Coimbra		63·8	326	e 6 27	?	14 38	?	e 13 26	PP	37·5
Grand Coulee		136·3	332	e 19 36	[+12]	—	—	—	—	—
Tucson		140·7	309	i 19 45	[+13]	—	—	—	—	—
Palomar	z.	144·6	313	i 19 51	[+13]	—	—	—	—	—
Riverside	z.	144·6	316	i 19 51	[+13]	—	—	—	—	—
Mount Wilson	z.	144·9	316	i 19 52	[+13]	—	—	—	—	—

Additional readings :—
Johannesburg ?N = 5m.18s.
Granada SS = 21m.52s., SSS = 23m.43s.
Malaga PPPZ = 14m.17s., SSZ = 19m.43s.
Long waves were also recorded at Colombo, New Delhi, Huancayo, La Paz, Ksara, and other European stations.

April 4d. Readings also at 1h. (near Branner), 4h. (Belgrade), 11h. (Mizusawa (2)), 12h. (Tucson, Mount Wilson, Palomar, and Tinemaha), 13h. (near Bogota), 14h. (Mizusawa, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 15h. (near Tacubaya), 16h. (near Almata), 18h. (La Paz and near Branner), 19h. (near Mizusawa), 23h. (near Chur, and Zürich).

April 5d. Readings at 0h. (Auckland), 1h. (near Mizusawa), 4h. (Collmberg, Cheb, Copenhagen, Bucharest, Belgrade, Sofia, Triest, Ksara, Potsdam, Uccle, Kew, Granada, and Malaga), 5h. (Ksara), 7h. (Collmberg and Sofia), 8h. (Tucson and near Triest), 10h. (Chur, Zürich, and near Collmberg), 11h. (Zürich and near Chur), 13h. (near Malaga), 17h. (Bogota), 18h. (Mizusawa), 19h. (near Andijan and near Bogota), 22h. (Port au Prince), 23h. (Auckland, Christchurch, Wellington, Riverview, Berkeley, Mount Wilson (2), Pasadena (2), Palomar Riverside (2), Tinemaha (2), Tucson (2), Boulder City, Pierce Ferry, Montezuma, La Paz, Clermont-Ferrand, and Collmberg).

April 6d. 18h. 30m. 50s. Epicentre 8°·4N. 72°·0W.

Felt at Cucuta (Colombia).
Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Séismologie, Tome X, Strasbourg, 1951, p. 25. Epicentre 8°·5N. 72°·0W. South-West of Gulf of Maracaibo.

$A = +·3058$, $B = -9410$, $C = +·1451$; $\delta = +5$; $h = +7$;
$D = -·951$, $E = -·309$; $G = +·045$, $H = -·138$, $K = -·989$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		4·3	209	i 1 11	+ 3	—	—	i 1 23	P_g	—
Balboa Heights		7·5	274	e 1 52	− 1	i 3 15	− 5	—	—	—
San Juan		11·4	29	e 2 50	+ 3	—	—	—	—	e 6·1
Fort de France		12·3	59	e 3 56	+57	—	—	—	—	—
Huancayo		20·6	189	i 4 42	− 1	i 8 37	+ 8	i 5 13	PP	e 10·8
Bermuda		24·8	15	e 5 40	+15	e 10 23	+37	—	—	e 11·8
La Paz		25·0	171	i 5 27a	0	i 9 53	+ 4	—	—	13·4
St. Louis		34·3	334	i 6 48	− 2	e 12 12	− 5	—	—	e 14·8
Tucson		43·1	309	i 8 3	− 1	e 14 34	+ 4	e 9 35	PP	e 27·4
Pierce Ferry		47·1	312	i 8 36	+ 1	—	—	—	—	e 23·2
Boulder City		47·7	312	i 8 41	+ 1	—	—	—	—	—
Palomar		48·2	308	i 8 45a	+ 1	—	—	i 10 37	PP	—
Riverside	z.	48·8	309	i 8 49	0	—	—	i 10 45	PP	—
Mount Wilson	z.	49·4	309	e 8 54	+ 1	—	—	i 10 55	PP	—
Pasadena		49·5	309	i 8 54	0	—	—	—	—	—

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.	50·1	311	i 8 58	− 1	—	—	—	—	—
Tinemaha		50·6	312	i 9 2	0	—	—	—	—	—
Grand Coulee		55·9	324	i 9 40	− 2	e 18 34	+65	—	—	—
Malaga	z.	67·1	53	i 10 57	0	—	—	—	—	—
Toledo		67·8	51	i 11 1	− 1	15 59	?	—	—	—
Clermont-Ferrand		73·6	45	e 11 37	0	—	—	—	—	—
Basle		76·8	43	e 11 55	0	—	—	—	—	—
Strasbourg		77·0	42	e 12 2	+ 6	—	—	—	—	—
Zürich		77·5	43	e 11 58	− 1	—	—	—	—	—
Chur		78·1	43	e 12 3	+ 1	—	—	—	—	—
Collmberg	z.	80·4	39	e 12 14	− 1	—	—	—	—	—

Additional readings :—
San Juan e = 3m.13s., i = 5m.18s. and 5m.23s.
Huancayo i = 5m.37s. and 9m.24s.
St. Louis iZ = 6m.55s.
Tucson i = 8m.8s.
Palomar iZ = 8m.50s.
Riverside iZ = 8m.54s.
Pasadena iZ = 9m.0s.
Haiwee iZ = 9m.5s.
Tinemaha iZ = 9m.9s.
Grand Coulee i = 9m.47s.
Malaga eZ = 12m.9s.
Collmberg e = 12m.21s.
Long waves were also recorded at La Plata, Fordham, Sitka, and Kew.

April 6d. Readings also at 0h. (Granada and La Paz (2)), 4h. (Auckland), 10h. (near Andijan), 11h. (New Delhi, Strasbourg, near Chur, and Zürich), 12h. (Huancayo, La Paz, and Monetezuma), 13h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Palomar, Tucson, and near Malaga), 14h. (near Andijan, Tashkent, and Lick), 15h. (Mizusawa, Tucson, near Boulder City, and Pierce Ferry), 16h. (Branner and near Triest), 17h. (near Tananarive), 18h. (Balboa Heights).

April 7d. 9h. Peru.

Intensity IV at Talara. Epicentre near 6°S. 80°W.

E. Silgado.
Datos sismológicos del Perú, 1944-45, Instituto geológico del Perú, Bol. 3, Lima, 1946, p. 15.

Huancayo iP = 33m.17s., i = 33m.55s., iS = 33m.55s., iS = 34m.39s., iL = 35m.5s.
Bogota e = 33m.38s. and 33m.50s., iS? = 36m.58s., i = 37m.24s.
La Paz iPZ = 35m.1s., iZ = 35m.25s., iSZ = 38m.29s., LZ = 40m.48s.
San Juan e = 36m.31s. and 37m.0s., i = 37m.18s., eS = 41m.17s., iS = 41m.22s., eL = 45m.13s.
Tucson iP = 39m.16s., eL = 54m.55s.
Palomar iPNZ = 39m.52s.
Riverside ePZ = 39m.57s.
Mount Wilson iPZ = 40m.0s.
Pasadena eZ = 40m.11s.
Haiwee iPZ = 40m.12s.
Tinemaha iPZ = 40m.15s.
Malaga iPZ = 43m.12s., LZ = 68m.48s.

April 7d. 10h. 25m. 23s. Epicentre 8°·4N. 72°·0W. (as on 6d.).

A = +·3058, B = −·9410, C = +·1451 ; δ = +5 ; h = +7.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		4·3	209	e 1 14	+ 6	i 2 5	+ 5	i 1 26	P_g	—
Balboa Heights		7·5	274	e 1 53	0	i 3 16	− 4	—	—	—
San Juan		11·4	29	e 6 9	?	e 8 4	?	—	—	e 8·9
Huancayo		20·6	189	e 4 29	−14	e 9 5	SS	e 4 43	P	e 11·3
La Paz	z.	25·0	171	i 5 30	+ 3	10 39	SS	—	—	14·8
Tucson		43·1	309	e 8 4	0	—	—	—	—	—
Palomar	z.	48·2	308	e 8 49	+ 5	—	—	—	—	—
Riverside	z.	48·8	309	e 8 42	− 7	—	—	—	—	—
Haiwee	z.	50·1	311	e 9 10	+11	—	—	—	—	—
Tinemaha	z.	50·6	312	e 9 9	+ 7	—	—	—	—	—

Bogota gives also iP_g = 1m.36s., iS* = 2m.13s., iS_g = 2m.26s.

April 7d. 21h. Undetermined shock.

Shasta Dam iP =34m.34s.
Sitka eP =34m.52s., eS? =39m.17s., eL =43m.29s.
Grand Coulee iP =36m.44s.
Tinemaha iPZ =37m.37s.
Pasadena iPZ =37m.52s.
Mount Wilson iPZ =37m.53s.
Riverside iPZ =37m.57s.
Palomar iP =38m.3s.
Pierce Ferry eP =38m.4s.
Tucson iP =38m.38s., i =38m.45s. and 38m.50s.
St. Louis eP?Z =39m.34s.
Fordham iP? =40m.26s., i =40m.40s.

April 7d. Readings also at 2h. (Tashkent, Andijan, Bombay, and New Delhi), 3h. and 4h. (near Bogota), 10h. (Ksara, Pierce Ferry, and Boulder City), 11h. (Hyderabad, Bombay, and Ksara), 17h. (Huancayo), 18h. (La Paz), 23h. (Tucson, Pasadena, Mount Wilson, and Palomar).

April 8d. Readings at 1h. (Auckland, Christchurch, Wellington, Brisbane, Riverview, Berkeley, Mount Wilson (2), Pasadena, Palomar (2), Riverside (2), Tinemaha (2), Tucson (2), St. Louis, and Clermont-Ferrand), 2h. (Fordham, La Paz, Granada, and Malaga), 9h. (Zürich (2), and near Mizusawa), 10h. (Zürich), 14h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and Mizusawa), 19h. (near Shasta Dam).

April 9d. Readings at 0h. (near Bogota), 2h. (San Fernando), 11h. (Alicante and near Andijan), 15h. (Vladivostok), 17h. (near Bogota), 19h. (near Branner), 20h. (near Balboa Heights), 21h. (New Delhi, Irkutsk, Sverdlovsk, Tashkent, and Collmberg), 22h. (Copenhagen, Prague, Potsdam, Kew, Uccle, Paris, Clermont-Ferrand, Granada, Malaga, and near Andijan), 23h. (Apia).

April 10d. 1h. 22m. 4s. Epicentre 41°·8N. 143°·0E.

Intensity VII at Horoizumi and Erimomisaki; VI at Urakawa; IV at Mori, Hakodate, Hatinohe, and Morioka; II-III at Muroran, Asahigawa, and Nemuro. Epicentre as adopted. Suggested depth 50km.

Seismo. Bull. Cent. Met. Obs., Japan, for 1945. Tokyo, 1952.

$A = -\cdot5971$, $B = +\cdot4500$, $C = +\cdot6641$; $\delta = +6$; $h = -2$;
$D = +\cdot602$, $E = +\cdot799$; $G = -\cdot530$, $H = +\cdot400$, $K = -\cdot748$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe	1·7	221	0 33	+ 2	0 53	− 1	—	—	—
Mori	1·9	279	0 30k	− 4	0 43	P_g	—	—	—
Miyako	2·3	200	0 40	0	1 6	− 3	—	—	—
Nemuro	2·4	51	0 43	+ 2	1 12	0	—	—	—
Morioka	2·5	213	0 43a	0	1 12	− 2	—	—	—
Akita	3·0	227	0 51	+ 1	1 26	− 1	—	—	—
Mizusawa	3·0	208	0 52	+ 2	1 29	+ 2	—	—	—
Sendai	3·9	205	1 3a	+ 1	1 45	− 5	—	—	—
Mito	5·8	201	1 44	P*	2 56	S*	—	—	—
Utunomiya	5·8	206	1 49	P*	2 46	+ 8	—	—	—
Maebasi	6·2	211	1 37	+ 2	2 59	+11	—	—	—
Kumagaya	6·3	207	1 36	0	2 54	+ 4	—	—	—
Wazima	6·5	229	1 40	+ 1	3 22	S*	—	—	—
Toyama	6·8	223	1 45	+ 1	3 20	S*	—	—	—
Yokohama	6·9	203	1 23	−22	1 52	?	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kohu		7·1	211	1 30	−18	3 4	− 6	—	—	—
Misima		7·4	207	1 49	− 3	3 13	− 5	—	—	—
Shizuoka		7·7	209	1 54	− 2	3 36	+11	—	—	—
Kyoto		8·9	223	2 11	− 1	3 24	−31	—	—	—
Toyooka		8·9	228	2 14	+ 2	4 16	+21	—	—	—
Owase		9·4	217	2 21	+ 3	4 32	S•	—	—	—
Hamada		11·0	235	2 47	+ 5	4 48	+ 1	—	—	—
Hirosima		11·1	232	2 44	+ 1	5 8	+19	—	—	—
Kôti		11·1	225	2 43	0	5 13	+24	—	—	—
Hukuoka		12·9	235	3 7a	0	6 12	+39	—	—	—
Kumamoto		13·3	231	3 11	− 2	6 12	+30	—	—	—
Irkutsk		28·0	307	i 5 51	− 4	i 10 34?	− 4	—	—	—
College		44·4	35	10 35	PPP	—	—	e 17 31	SS	e 19·6
Almata		47·5	296	8 38	0	—	—	—	—	—
Calcutta	N.	49·2	265	e 8 53	+ 1	i 16 24	+26	—	—	—
Andijan		51·7	295	e 9 8	− 3	e 16 29	− 3	—	—	—
New Delhi	N.	54·2	279	i 9 26	− 3	e 16 58	− 8	17 24	PS	—
Bombay		63·0	272	e 10 27	− 4	e 18 55	− 6	23 10	SS	—
Moscow		64·2	324	i 10 34	− 5	19 8	− 8	10 49	pP	31·7
Kodaikanal	E.	65·0	262	—	—	e 18 56	−30	—	—	—
Grand Coulee		65·1	48	i 10 42	− 3	—	—	—	—	—
Baku		66·6	304	10 52	− 2	19 38	− 7	11 6	pP	—
Shasta Dam		67·3	55	i 10 58	− 1	i 19 49	− 5	—	—	—
Upsala		69·2	335	e 11 7	− 3	20 29	+13	28 25	SSS	e 34·9
Erevan		70·0	307	e 11 15	0	—	—	—	—	—
Bozeman		70·8	46	—	—	e 20 30	− 5	e 21 18	S_eS	e 33·6
Tinemaha		72·1	57	i 11 28	0	—	—	i 11 43	pP	—
Bergen		72·4	340	e 11 26	− 4	20 26	−27	—	—	40·3
Santa Barbara	Z.	72·8	60	i 11 41	+ 9	—	—	i 11 48	pP	—
Haiwee	Z.	72·9	57	i 11 43	+10	—	—	—	—	—
Salt Lake City		73·5	50	—	—	e 21 3	− 3	—	—	e 42·2
Mount Wilson	Z.	74·0	59	i 11 39	0	—	—	i 11 48	pP	—
Pasadena		74·0	59	i 11 39	0	—	—	i 11 47	pP	e 34·0
Copenhagen		74·2	334	i 11 38	− 2	i 21 4?	−10	—	—	—
Riverside		74·6	59	i 11 42	− 1	—	—	i 11 54	pP	—
Boulder City		74·9	55	e 11 44	0	—	—	—	—	—
Palomar	Z.	75·3	59	i 11 52	+ 5	—	—	—	—	—
Riverview		75·6	173	—	—	e 21 29	0	—	—	e 32·7
Rapid City		75·9	43	i 12 1	+11	i 21 27	− 5	e 14 56	PP	e 38·7
Potsdam		76·7	332	—	—	e 21 34	− 7	—	—	e 37·0
Collmberg		77·6	331	i 11 57	− 3	e 21 46	− 5	e 14 58	PP	e 41·9
Prague		78·0	330	e 11 39	−23	e 21 34	−21	e 26 26	SS	—
Ksara		79·4	306	e 12 7	− 2	e 22 32	[+10]	—	—	—
Tucson		79·9	56	i 12 12	0	e 22 41	+25	i 12 18	pP	e 37·8
Uccle		81·0	336	12 15a	− 3	e 27 57	SS	—	—	e 38·9
Strasbourg		81·7	332	e 12 20	− 2	e 23 11	PS	e 14 58	PP	e 45·9
Kew		81·8	338	i 12 20	− 2	i 22 54	+19	e 24 2?	PPS	e 44·9
Zürich		82·5	331	e 12 22	− 4	e 23 1	+19	e 12 49	pP	—
Basle		82·7	332	e 12 23a	− 4	—	—	—	—	—
Paris		83·3	336	12 27	− 3	—	—	—	—	42·9
Clermont-Ferrand		85·8	333	i 12 41	− 1	e 23 36	+21	—	—	42·1
Florissant		86·2	40	i 12 44	0	i 23 15	[+ 6]	e 12 56	pP	e 39·9
St. Louis		86·4	40	i 12 44	− 1	e 23 15	− 6	i 12 57	pP	e 36·9
Seven Falls		86·5	23	—	—	e 23 14	− 8	—	—	40·9
Ottawa		86·6	27	—	—	e 23 14	− 9	—	—	38·9
Fordham		91·2	27	e 13 7	− 1	i 24 1	− 4	—	—	e 47·4
Philadelphia		91·5	28	—	—	e 23 23	[−19]	i 23 59	S	e 45·4
Toledo		93·4	335	i 13 16	− 2	24 47	+23	—	—	—
Coimbra		94·4	338	e 16 13	?	e 25 43	PS	—	—	47·9
Granada		95·7	334	i 17 20k	PP	28 29	?	34 32	SSS	45·7
Malaga	Z.	96·4	334	i 17 21a	PP	i 27 46	PPS	i 17 43	pPP	53·0
San Juan		114·3	30	e 29 13	PS	e 35 22	SS	—	—	e 60·8
La Paz	Z.	143·3	55	i 19 37	[+ 1]	—	—	23 5	PP	70·3

For Notes see next page.

NOTES TO APRIL 10d. 1h. 22m. 4s.

Additional readings :—
College e =17m.6s.
New Delhi SSSN =22m.2s.
Bombay eSN =18m.58s., SPE =19m.22s., iN =23m.24s.
Moscow iS =19m.31s.
Baku sS =20m.2s.
Upsala eSN =20m.32s., eSSS?E =28m.30s., eN =31m.56s.?
Mount Wilson iZ =11m. 56s.
Pasadena iZ =11m.55s.
Copenhagen 22m.5s. and 27m.20s.
Riverside iZ =12m.25s.
Rapid City e =21m.50s., eSS? =26m.33s.
Potsdam eE =iN =21m.58s.
Collmberg iZ =12m.3s., 12m.12s., 12m.33s. and 12m.47s., eZ =13m.30s., 13m.56s., 14m.48s., 15m.6s., 15m.42s., and 22m.8s., eSSS =30m.36s., e =31m.14s.
Prague ePS? =22m.11s.
Tucson i =12m.42s., e =23m.30s.
Kew iSKS?EN =22m.30s., eSSSNZ =43m.51s.?
Florissant ePPZ =16m.7s., eS?E =23m.5s., eSSE =29m.0s.
St. Louis iZ =14m.40s., eS?E =23m.5s., esS?E =23m.40s., eSSE =28m.58s., esSSE =29m.27s.
Fordham e =13m.21s., 13m.29s., and 24m.24s.
Coimbra e =23m.3s. and 31m.13s.
Malaga iPPZ =21m.10s., iPPPZ =23m.13s., iSZ =28m.30s., sSZ =29m.9s.
Long waves were also recorded at Bermuda, Auckland, Wellington, and other European stations.

April 10d. 16h. 15m. 39s. Epicentre 24°·3N. 122°·3E. (as on 1943 Oct. 22d.).

$A = -\cdot4876$, $B = +\cdot7713$, $C = +\cdot4092$; $\delta = +10$; $h = +4$;
$D = +\cdot845$, $E = +\cdot534$; $G = -\cdot219$, $H = +\cdot346$, $K = -\cdot912$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kumamoto		11·2	39	e 2 46	+ 2	5 1	+ 9	—	—	—
Hukuoka		11·6	36	2 51	+ 1	5 35	L	—	—	(5·6)
Hamada		13·5	37	e 3 13	− 2	5 56	+ 9	—	—	—
Pehpei		15·2	295	e 4 1	+23	—	—	e 7 56	Q	i 9·1
Vladiivostok		20·4	22	i 4 9	−32	i 7 54?	−31	—	—	—
Mizusawa	N.	21·7	43	4 49	− 6	9 41	+50	—	—	—
	E.	21·7	43	4 54	− 1	9 21	+30	—	—	—
Calcutta	N.	31·2	274	e 5 56	−27	—	—	e 13 44	SSS	e 16·6
New Delhi	N.	40·4	287	—	—	i 13 41	− 9	i 16 53	SS	—
Hyderabad	N.	41·4	269	e 7 50	0	14 8	+ 3	17 38	SSS	21·1
Almata		41·6	309	e 7 58	+ 7	—	—	—	—	—
Andijan		44·6	304	e 8 17	+ 1	—	—	—	—	—
Bombay		46·1	274	i 8 32	+ 4	e 15 20	+ 6	10 20	PP	—
Tashkent		46·9	305	8 35	+ 1	15 29	+ 4	—	—	—
Brisbane	Z.	59·4	148	i 10 7	+ 1	—	—	—	—	—
Baku		61·6	305	i 10 22	0	e 18 45	+ 2	—	—	—
Riverview		64·0	153	e 10 39	+ 1	e 19 15	+ 2	—	—	—
Moscow		67·4	323	10 53	− 6	e 19 47	− 8	—	—	—
Upsala		76·3	330	—	—	e 26 46	SS	e 30 49	Q	e 37·4
Prague		82·4	322	—	—	e 27 57	SS	e 30 57	SSS	e 43·4
Basle		87·6	322	e 12 50	− 1	—	—	—	—	—
Kew		89·3	328	—	—	e 23 47?	− 1	—	—	e 34·4
Paris		89·6	325	e 16 21?	PP	—	—	—	—	e 46·4

Additional readings :—
Hyderabad eN =6m.53s.
Bombay PPN =10m.23s., iSN =15m.23s., iSSE =eSSN =18m.47s.
Riverview eN =19m.45s., eZ =27m.9s.
Prague e =42m.27s.
Long waves were also recorded at Dehra Dun, Bermuda, and other European and American stations.

April 10d. Readings also at 14h. (near Malaga), 20h. (Brisbane), 21h. (Coimbra, Lisbon, near Toledo (2), and Malaga (2)), 22h. (near Andijan).

April 11d. 2h. 2m. 55s. Epicentre 42°·0N. 127°·0W.

$A = -·4486$, $B = -·5953$, $C = +·6666$; $\delta = -2$; $h = -2$;
$D = -·799$, $E = +·602$; $G = -·401$, $H = -·532$, $K = -·745$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale		2·5	125	e 0 53	P_g	e 1 5	− 9	—	—	—
Shasta Dam		3·7	108	e 1 0	0	i 1 45	0	i 1 24	P_g	2·8
Mineral	E.	4·4	110	1 15	+ 5	e 2 5	+ 3	—	—	—
Berkeley		5·5	137	e 1 13	−12	i 2 28	− 2	—	—	e 3·4
San Francisco	N.	5·5	139	e 1 23	− 2	—	—	—	—	—
Branner		5·9	139	e 1 21	−10	—	—	i 1 32	P	—
Santa Clara		6·1	139	e 1 31	− 3	—	—	—	—	e 3·1
Grand Coulee		8·2	41	e 2 20	P*	—	—	—	—	—
Tinemaha		8·3	123	e 2 5	+ 1	—	—	—	—	—
Haiwee	Z.	9·1	127	e 2 21	+ 7	—	—	—	—	—
Mount Wilson	Z.	10·5	135	i 2 31	− 4	—	—	—	—	—
Riverside	Z.	11·0	133	e 2 37	− 5	—	—	—	—	—
Boulder City		11·2	118	e 2 45	+ 1	—	—	—	—	—
Pierce Ferry		11·7	116	e 2 53	+ 2	—	—	—	—	—
Tucson		16·1	122	i 3 54	+ 5	—	—	i 4 0	PP	—
St. Louis	E.	28·1	85	—	—	e 11 59	SS	—	—	e 16·2

Additional readings :—
Berkeley ePZ = 1m.17s., eN = 2m.16s., eZ = 3m.11s.
Branner eE = 1m.28s.
Tinemaha iZ = 2m.12s.
Long waves were also recorded at Logan, Rapid City, and Florissant.

April 11d. 11h. 22m. 14s. Epicentre 42°·0N. 127°·0W. (as at 2h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale	E.	2·5	125	e 0 48	P*	e 1 13	− 1	—	—	—
Shasta Dam		3·7	108	i 1 2	+ 2	i 1 46	+ 1	—	—	e 3·1
Mineral	E.	4·4	110	e 1 17	+ 7	e 2 4	+ 2	—	—	—
Berkeley		5·5	137	e 1 11	−14	i 2 29	− 1	e 1 26	P	i 2·7
San Francisco	N.	5·5	139	e 1 20	− 5	—	—	e 1 43	P*	—
Branner		5·9	139	e 1 24	− 7	i 2 30	−10	—	—	e 3·4
Santa Clara		6·1	139	e 1 52	P*	(e 3 9)	S*	—	—	e 3·2
Lick		6·2	136	e 1 30	− 5	e 2 34	−14	e 1 40	P*	e 3·3
Grand Coulee		8·2	41	e 2 8	+ 5	—	—	e 2 21	P*	e 5·1
Tinemaha		8·3	123	i 2 8	+ 4	e 3 54	+14	i 2 15	P*	—
Haiwee	Z.	9·1	127	e 2 15	+ 1	—	—	—	—	—
Mount Wilson	Z.	10·5	135	e 2 30	− 5	i 4 23	−12	—	—	—
Pasadena	Z.	10·5	136	e 2 27	− 8	i 4 17	−18	—	—	—
Riverside	Z.	11·0	133	e 2 39	− 3	e 4 32	−15	—	—	—
Boulder City		11·2	118	e 2 50	+ 6	—	—	—	—	—
Logan		11·4	85	e 3 8	PPP	—	—	—	—	e 6·8
Pierce Ferry		11·7	116	e 2 54	+ 3	—	—	—	—	—
Palomar	Z.	11·8	134	i 2 50	− 3	—	—	—	—	—
Tucson		16·1	122	e 3 51	+ 2	e 7 3	+14	i 4 14	PPP	e 8·6
Rapid City		17·5	75	i 4 19	PP	e 8 9	SSS	e 4 46	PPP	e 10·1
Florissant	E.	27·9	85	—	—	e 11 1	+24	—	—	e 15·6
St. Louis	E.	28·1	85	—	—	e 10 59	+19	—	—	e 15·3
Ottawa		36·7	68	—	—	e 13 22	+28	—	—	e 18·3
Philadelphia		38·7	76	—	—	e 13 51	+26	—	—	e 18·4

Additional readings :—
Ferndale eN = 1m.6s.
Berkeley iPZ = 1m.18s., iZ = 1m.21s., eEN = 1m.38s., i = 2m.10s., eE = 2m.26s., eZ = 2m.36s.
Branner iE = 1m.34s., iEN = 2m.10s., and 2m.26s.
Logan e = 3m.32s. and 6m.2s.
Tucson iP = 3m.56s.
Long waves were also recorded at Paris and at other American stations.

April 11d. 15h. Undetermined shock. Pasadena suggests deep focus.

Auckland P =21m.5s., S =22m.53s., L =23m.18s.
Sydney e =23m.24s. and 32m.6s.
Brisbane iPZ =23m.28s., iPE =23m.33s., iQ?N =30m.20s.
Riverview iP?Z =23m.49s. a, iZ =25m.9s., iE =28m.42s., eLEZ =31m.4s.
Mount Wilson iPZ =30m.14s.
Pasadena iPZ =30m.14s., iZ =30m.31s., eLZ =55m.4s.
Palamar iPZ =30m.15s.
Riverside iPZ =30m.17s., iZ =30m.36s.
Haiwee iPZ =30m.22s.
Shasta Dam iP =30m.24s.
Tinemaha iP =30m.25s., iZ =30m.36s.
Tucson iP =30m.34s., i =30m.45s. and 30m.55s., eS =40m.46s., e =41m.37s., eL = 58m.12s.
Paris ePKP =37m.47s., eL =107m.
Collmberg eZ =37m.48s., e =38m.11s.
Berkeley iE =40m.40s., eEZ =56·3m., eN =56m.30s.
Victoria e =41m.45s., L =63m.
Kew eZ =41m.47s., eL =100m.
Salt Lake City e =41m.55s., eL =66m.55s.
Rapid City e =42m.8s., eL =65m.33s.
Bozeman eS =42m.26s., eL =58m.26s.
Huancayo eS =43m.16s., e =48m.40s., eL =62m.28s.
Chicago e =46m.9s., eL =72m.14s.
Ottawa eE =47m.36s., eL =78m.
Philadelphia eSS =53m.54s., eL =77m.34s.
Florissant eN =66m.33s., eL?N =70m.
Long waves were also recorded at Colombo, New Delhi, Honolulu, San Juan, La Paz, Ukiah, Logan, Uccle, Toledo, Copenhagen, Clermont-Ferrand, and Triest.

April 11d. Readings also at 3h. (Mizusawa), 6h. (Tucson, Riverside, Mount Wilson, Tinemaha, Shasta Dam, Grand Coulee, and College), 8h. (Brisbane, Sydney, Riverview, Bucharest, near Zürich, and Chur), 9h. (Paris, Kew, Uccle, Pasadena, Riverside, and Palomar), 10h. (Auckland), 19h. (near Tacubaya), 22h. (Branner, Bucharest, and Tananarive), 23h. (near Malaga).

April 12d. 0h. 21m. 7s. Epicentre 2°·5N. 80°·0W.

A = +·1735, B = −·9839, C = +·0433 ; δ = +4 ; h = +7 ;
D = −·985, E = −·174 ; G = +·008, H = −·043, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		6·3	71	i 1 33	− 3	i 2 43	− 7	i 2 55	?	6·9
Huancayo		15·2	162	e 4 4	PPP	e 6 50	SS	—	—	—
San Juan		20·8	41	e 4 44	− 1	e 8 39	+ 6	e 5 18	PPP	e 9·6
Fort de France		22·2	58	e 5 1	+ 1	i 9 4	+ 4	—	—	—
La Paz	z.	22·2	148	i 5 3	+ 3	10 56	?	—	—	14·5
Tacubaya		25·2	313	e 5 25	− 4	e 10 37	+45	e 5 48	PP	—
St. Louis		37·2	347	i 7 13	− 2	e 12 59	− 3	i 7 22	?	—
Florissant	z.	37·4	347	e 7 13	− 3	—	—	—	—	—
Tucson		41·4	320	e 7 51	+ 1	—	—	—	—	e 21·5
Pierce Ferry		45·9	321	i 7 55	−31	—	—	—	—	—
Palomar		46·2	317	i 8 29	+ 1	—	—	—	—	—
Boulder City		46·3	320	i 8 3	−26	—	—	—	—	—
Riverside	z.	46·9	317	e 8 34	0	—	—	—	—	—
Mount Wilson	z.	47·5	317	i 8 42	+ 4	—	—	—	—	—
Collmberg	z.	89·9	39	e 13 3	+ 1	—	—	—	—	—

San Juan gives also iP =4m.51s.
Long waves were also recorded at Pasadena.

April 12d. 11h. 27m. 21s. Epicentre 29°·0S. 173°·0W. Depth of focus 0·040.
(as on 1938, May 16d.).

A = −·8695, B = −·1068, C = −·4823; δ = +5; h = +2;
D = −·122, E = +·992; G = +·479, H = +·059, K = −·876.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Auckland		12·9	230	2 26	−29	5 4	− 9	—	—
New Plymouth		14·7	224	3 17	+ 1	—	—	—	—
Wellington		15·8	216	3 31	+ 2	6 11	− 5	i 3 59	pP
Christchurch		18·5	214	3 57	0	7 0	− 9	—	—
Kaimata		18·5	219	(3 56)	− 1	3 56	P	—	—
Pasadena		81·4	44	i 11 46	0	—	—	—	—
Mount Wilson	z.	81·6	44	i 11 47	0	—	—	—	—
Palomar		81·7	45	i 11 50	+ 2	—	—	—	—
Riverside	z.	81·8	44	i 11 48	0	—	—	—	—
Haiwee	z.	83·0	42	i 11 53	− 1	—	—	—	—
Tinemaha	z.	83·4	42	i 11 56	0	—	—	—	—
Shasta Dam		83·7	36	i 12 51	pP	—	—	—	—
Boulder City		84·7	44	e 12 2	− 1	—	—	—	—
Tucson		84·8	49	i 12 7	+ 4	—	—	i 14 21	pP
Overton		85·3	44	i 11 42	−24	—	—	—	—
Pierce Ferry		85·3	45	i 12 5	− 1	—	—	—	—

Wellington gives also i = 3m.38s., 3m.52s., and 6m.16s., S_cS? = 14m.7s., i = 14m.34s.

April 12d. 14h. Mexico.

Oaxaca PE = 53m.13s., LE = 53m.37s.
Tacubaya PE = 53m.54s., LE = 55m.3s.
Tucson eP = 57m.9s., eS? = 61m.2s., eL = 64m.8s.
St. Louis ePZ = 57m.40s.
Palomar iPZ = 57m.55s.
Riverside ePZ = 58m.0s.
Mount Wilson ePZ = 58m.3s.
Long waves were also recorded at Pasadena.

April 12d. Readings also at 3h. (Shasta Dam and near Lick), 7h. (near La Paz), 14h. (Zürich and near Mizusawa), 19h. (Auckland), 23h. (near Mizusawa).

April 13d. 21h. 12m. 37s. Epicentre 23°·1S. 178°·6E. Depth of focus 0·080.

A = −·9205, B = +·0225, C = −·3901; δ = 0; h = +4;
D = +·024, E = +1·000; G = +·390, H = −·010, K = −·921.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Auckland		14·1	193	2 53	− 7	5 20	− 5	—	—
New Plymouth		16·4	193	3 26	+ 3	—	—	—	—
Wellington		18·4	191	3 42	0	6 35	− 6	—	—
Christchurch		21·0	193	4 6	0	7 15	−10	—	—
Riverview		26·3	240	7 32k	?	i 11 49	?	i 8 54	?
Pasadena	z.	82·8	48	i 11 28	0	—	—	i 13 27	pP
Mount Wilson	z.	82·9	48	i 11 28	− 1	—	—	i 13 26	pP
Palomar		83·2	49	i 11 30a	0	i 21 2	− 3	i 13 29	pP
Riverside	z.	83·2	48	—	—	—	—	i 13 28	pP
Shasta Dam		83·9	41	i 11 34	0	—	—	e 13 33	pP
Boulder City		86·0	48	e 11 44	0	—	—	e 13 44	pP
Pierce Ferry		86·7	49	i 11 46	− 1	—	—	i 13 47	pP
Tucson		87·0	53	i 11 48	− 1	e 21 49	+ 8	i 13 49	pP
Grand Coulee		90·1	37	—	—	—	—	e 14 7	pP
Florissant	E.	104·9	54	—	—	e 23 44	SKKS	—	—
St. Louis	E.	104·9	54	—	—	e 23 42	SKKS	—	—
Collmberg	z.	149·7	342	e 18 46	[+ 3]	—	—	e 20 58	pPKP

Additional readings:—
Mount Wilson esPZ = 14m.46s.
Palomar isPZ = 14m.57s.
Riverside esPZ = 14m.49s.
Tucson esP = 15m.21s.
Collmberg iZ = 18m.52s. and 21m.4s.

April 13d. Readings also at 1h. (Huancayo), 2h. (Bogota), 3h. (La Paz (2)), 7h. (Copenhagen), 12h. (near Basle, Chur, Neuchatel, and Zürich), 13h. (near La Paz), 14h. (Hyderabad, near Berkeley, Branner, Fresno, and Lick), 17h. (Collmberg, Bucharest, and near Sofia), 18h. (Collmberg, Riverview, near Almata, and near Malaga), 23h. (near Bogota).

April 14d. 6h. Undetermined shock, South America.

Pasadena suggests deep focus.
Scale V at Punta de Bombon ; IV at Arequipa and Moquegua.
Macroseismic epicentre near 16S. 72W.

E. Silgado.
Datos Sismológicas del Perú, 1944-1945, Institut geológico del Perú, Bol. 3, Lima, 1946, p.15.

La Paz iPZ =58m.27s., LZ =59m.3s.
Montezuma eP =58m.31s., eS? =59m.0s., eL =59m.6s.
Huancayo eP =59m.48s., e =61m.13s., eS =61m.23s., iL =61m.43s.
Bogota e =61m.45s., i =61m.53s., e =66m.9s.
Tucson iP =68m.8s., ipP =68m.35s.
Pierce Ferry eP =68m.36s., i =69m.3s.
Overton iP =68m.42s., i =69m.6s.
Riverside iZ? =68m.42s., iZ =69m.9s.
Palomar iZ =69m.4s.
Tinemaha iPZ =69m.4s., iZ =69m.23s.
Boulder City i =69m.6s.
Pasadena iZ =69m.12s.
Toledo iPZ =70m.2s.
St. Louis eE =75m.45s. and 76m.32s.
Florissant eN =75m.46s. and 76m.33s.

April 14d. Readings also at 2h. (Tucson, Palomar and near Balboa Heights), 3h. (near Stalinabad), 4h. (Collmberg and near Mizusawa), 5h. (Copenhagen, Uccle, and Kew), 7h. (near Malaga), 9h. (near Triest), 11h. (near Lick), 12h. (near La Paz), 15h. (near Almata), 18h. (Malaga and New Delhi), 19h. (New Delhi, Copenhagen, Upsala, Paris, Clermont-Ferrand, Granada, and Shasta Dam), 20h. (Copenhagen, Upsala, Uccle, Paris, Clermont-Ferrand, Granada, and Malaga), 21h. (Ksara), 23h. (near Branner).

April 15d. 2h. 35m. 20s. Epicentre 57°·2N. 163°·8E.

Pasadena suggests deep focus.

A = −·5227, B = +·1519, C = +·8389 ; δ = +4 ; h = −8 ;
D = +·279, E = +·960 ; G = −·806, H = +·234, K = −·544.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro	18·0	227	3 22	−51	e 8 13	+41	—	—	—
Mori	21·2	234	e 5 7	+18	e 9 25	+44	—	—	11·5
Hatinohe	22·0	229	e 4 59	+ 1	8 42	−14	—	—	10·9
Morioka	22·9	229	e 5 9	+ 3	9 7	− 6	—	—	e 11·4
Akita	23·3	230	5 56	+46	10 18	+58	—	—	11·4
Mizusawa	23·4	229	5 12	+ 1	9 13	− 8	—	—	e 11·4
College	24·1	52	(e 5 22)	+ 4	(i 9 35)	+ 1	(i 5 40)	pP	(i 10·7)
Kumagaya	26·6	227	5 46	+ 4	10 45	+29	—	—	13·6
Maebasi	26·6	228	e 5 39	− 3	10 18	+ 2	—	—	—
Wazima	26·6	233	e 5 41	− 1	10 34	+18	—	—	—
Tokyo	26·9	227	e 5 44	− 1	12 10	?	—	—	i 13·6
Toyama	27·1	232	e 5 42	− 4	e 11 20	+56	—	—	—
Yokohama	27·2	227	5 52	+ 5	e 9 41	−44	—	—	—
Kohu	27·4	228	6 1	+12	10 17	−11	—	—	14·5
Shizuoka	28·1	228	5 55	0	10 36	− 4	—	—	12·5
Hamada	30·9	237	e 6 12	− 8	11 29	+ 5	—	—	15·3
Kôti	31·3	234	e 6 24	0	11 32	+ 1	—	—	—
Sitka	31·9	64	i 6 30	+ 1	i 11 36	− 4	i 7 30	PP	i 15·3
Hukuoka	32·7	237	6 35	− 1	12 2	+10	8 8	PPP	17·4
Miyazaki	33·7	234	e 6 43	− 2	e 12 30	+22	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		42·8	69	8 3	+ 2	14 14	−12	10 10	PP	20·7
Seattle		43·9	69	e 8 25	+15	e 14 52	+10	e 9 38	PP	e 18·6
Grand Coulee		45·4	67	i 8 20	− 2	i 15 4	0	i 9 40	PP	—
Honolulu		45·5	125	—	—	i 15 10	+ 5	i 18 30	SS	e 19·7
Pehpei		47·9	260	e 9 10	+28	e 15 39	0	—	—	e 26·9
Saskatoon		48·5	56	8 56	+10	15 50	+ 2	19 31	SS	24·7
Shasta Dam		48·7	76	i 8 45	− 3	i 15 50	0	i 10 42	PP	—
Ukiah		49·4	78	e 8 54	+ 1	i 15 56	− 4	—	—	e 21·2
Butte		49·9	64	e 8 57	0	e 15 54	−13	e 10 50	PP	e 22·3
Berkeley		50·8	79	i 9 2	− 2	e 16 20	0	i 9 20	pP	i 25·2
San Fernando	E.	50·8	79	e 9 1	− 3	e 16 22	+ 2	e 18 52	S_cS	—
Bozeman		50·9	64	e 9 3	− 2	i 16 16	− 5	e 9 47	pP	e 22·8
Sverdlovsk		51·0	316	i 9 3	− 3	i 16 15	− 7	—	—	—
Branner	E.	51·2	79	e 9 8	+ 1	e 16 31	+ 6	—	—	—
Santa Clara		51·4	79	i 9 13	+ 4	e 16 16	−12	—	—	e 24·0
Lick		51·5	79	e 9 9	0	e 16 34	+ 5	—	—	—
Fresno	N.	53·0	77	e 9 22	+ 1	e 16 34	−16	—	—	—
Logan		53·4	68	i 9 26	+ 2	e 16 58	+ 3	i 11 39	PP	—
Almata		53·5	295	9 22	− 2	—	—	—	—	—
Tinemaha		53·5	76	i 9 24	0	e 17 2	+ 5	i 9 38	pP	—
Salt Lake City		54·1	68	e 9 29	0	e 17 4	− 1	e 12 10	sPP	e 24·5
Haiwee		54·4	76	i 9 31	0	—	—	—	—	—
Mount Wilson		55·8	78	i 9 40k	− 1	e 17 28	0	—	—	—
Pasadena		55·8	78	i 9 39k	− 2	e 17 29	+ 1	i 12 44	PP	e 23·7
Overton		55·9	74	i 9 41	− 1	i 24 21	SSS	—	—	—
Rapid City		55·9	60	e 9 41	− 1	e 17 17	−12	e 11 47	PP	e 23·3
Boulder City		56·2	75	i 9 42	− 2	e 17 39	+ 6	i 12 38	sPP	i 24·2
Riverside		56·3	78	i 9 42	− 3	e 17 39	+ 5	i 10 1	pP	—
Pierce Ferry		56·5	74	i 9 45	− 1	e 17 16	−21	—	—	—
Palomar		57·1	78	i 9 48	− 2	i 17 48	+ 3	—	—	—
La Jolla		57·3	79	e 9 52	0	e 17 51	+ 4	—	—	—
Andijan		57·6	296	9 56	+ 2	e 17 46	− 5	—	—	—
Tashkent		58·7	298	10 1	− 1	18 5	− 1	—	—	—
Reykjavik		58·9	4	e 10 20	+17	e 18 21	+13	—	—	e 34·0
Ivigtut		59·3	18	10 3	− 3	18 11	− 3	13 58	PP	24·7
Moscow		59·3	328	10 3	− 3	18 11	− 3	—	—	—
Upsala		60·3	342	i 10 10	− 3	i 18 22	− 4	12 28	PP	e 28·7
Tucson		61·1	74	e 10 17	− 1	i 18 40	+ 3	i 10 49	pP	e 29·8
Bergen		61·5	348	10 21	0	18 38	− 4	e 22 39	SS	27·8
Dehra Dun	N.	62·8	284	—	—	e 19 31	+33	e 22 6	SS	e 32·7
Calcutta	N.	63·5	271	i 10 39a	+ 5	i 19 9	+ 2	i 12 59	PP	e 30·2
New Delhi		64·7	284	i 10 38k	− 4	i 19 17	− 5	i 12 54	PP	—
Chicago		64·7	52	e 10 40	− 2	e 19 16	− 6	i 11 17	pP	e 32·0
Copenhagen		65·1	343	e 10 43	− 2	i 19 28	+ 1	13 10	PP	—
St. Louis		66·1	55	e 10 49	− 2	e 19 37	− 2	i 13 19	PP	—
Ottawa		66·4	42	10 50	− 3	19 36	− 7	13 19	PP	30·7
Shawinigan Falls		66·4	38	10 51	− 2	19 40	− 3	13 16	PP	36·7
Seven Falls		66·6	37	10 57	+ 3	i 19 41	− 4	26 49	SS	30·7
Edinburgh		66·7	352	—	—	i 19 47	+ 1	—	—	—
Cape Girardeau	E.	67·6	55	e 11 1?	0	e 19 54	− 3	e 13 37	PP	—
Baku		68·1	311	i 11 2	− 2	e 19 48?	−15	—	—	—
Stonyhurst		68·8	352	e 11 19	+11	i 20 14	+ 3	i 13 54	PP	—
Pittsburgh		69·0	47	i 11 5	− 4	i 20 5	− 9	—	—	—
Collmberg		69·2	341	i 11 11	+ 1	e 20 21	+ 5	e 13 44	PP	e 42·2
Prague		70·1	340	e 11 16k	0	20 19	− 8	e 13 40	PP	e 31·7
Yalta		70·3	324	e 11 15	− 2	—	—	—	—	—
Erevan		70·4	314	11 20	+ 2	20 35	+ 5	—	—	—
Harvard		70·4	40	i 11 19	+ 1	e 20 28	− 2	i 14 9	PP	e 52·7
Weston		70·6	40	i 11 17	− 2	i 20 29	− 4	13 52	PP	e 42·3
Kew		70·9	350	i 11 19a	− 2	i 20 35	− 1	i 14 2	PP	e 34·7
Uccle		71·0	347	e 11 20a	− 2	i 20 35	− 2	13 57	PP	e 31·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fordham		71·0	43	e 11 20	− 2	i 20 37	0	e 13 58	PP	—
Georgetown		71·5	46	e 11 22	− 2	e 20 40	− 3	14 2	PP	—
Campulung		72·2	330	e 11 34	+ 5	e 21 1	+10	e 14 6	PP	e 35·7
Strasbourg		72·7	343	11 33	+ 1	20 56	− 1	14 18	PP	38·7
Bucharest		72·8	329	i 11 34	+ 2	i 21 13	+15	e 14 8	PP	35·7
Hyderabad	N.	73·0	276	—	—	20 56	− 4	14 2	PP	36·2
Paris		73·2	348	i 11 34	− 1	i 21 0	− 2	i 13 58	PP	e 36·7
Mobile		73·7	59	e 11 42	+ 4	i 21 12	+ 4	—	—	—
Basle		73·8	344	e 11 38	0	e 20 57	−12	e 14 24	PP	—
Belgrade		73·8	334	e 11 39a	+ 1	e 21 22	+13	e 16 17	PPP	e 44·3
Zürich		73·8	343	e 11 37	− 1	e 21 11	+ 2	e 14 24	PP	—
Chur		74·1	342	e 11 41	+ 1	e 21 10	− 2	—	—	e 35·1
Besançon		74·3	345	i 11 45	+ 4	e 21 16	+ 1	—	—	e 36·7
Neuchatel		74·4	344	e 11 40	− 2	e 21 19	+ 3	—	—	—
Triest		74·5	339	i 11 45	+ 3	i 21 21	+ 4	i 14 35	PP	—
Bombay		74·9	281	i 11 44	0	i 21 22	0	21 49	ScS	34·7
Sofia		75·1	331	i 11 48	+ 2	e 21 10?	−14	e 13 40?	PP	e 42·2
Clermont-Ferrand		76·1	347	i 11 52	+ 1	e 21 38	+ 3	i 14 45	PP	e 36·8
Tacubaya	E.	77·6	74	e 12 4	+ 4	i 21 53	+ 2	—	—	—
Ksara		79·3	318	e 12 14?	+ 5	e 22 17	+ 8	—	—	—
Kodaikanal	E.	79·5	272	i 12 50	+40	i 22 50	+39	16 30	PP	38·0
Barcelona		80·5	347	e 11 57	−18	e 22 22	0	22 47	PS	e 37·6
Colombo	E.	81·0	268	12 19	+ 1	22 24	− 3	—	—	46·7
Tortosa		81·3	347	i 12 21	+ 1	22 33	+ 3	15 42	PP	40·4
Bermuda		81·8	40	e 12 28	+ 6	i 22 35	0	e 15 0	PP	e 33·4
Toledo		82·7	351	i 12 27	0	i 22 46	+ 2	—	—	—
Coimbra		82·7	354	12 30	+ 3	22 44	0	23 59	PS	38·2
Lisbon		84·3	355	12 36a	+ 1	23 12	+12	15 51	PP	39·4
Brisbane		84·8	189	i 12 40	+ 3	i 23 8	+ 3	i 16 1	PP	e 39·3
Granada		85·4	350	i 12 42a	+ 2	i 23 20	+ 9	15 51	PP	48·5
Malaga		85·9	351	i 12 42a	− 1	i 23 10	− 6	13 5	pP	41·2
San Fernando	E.	86·3	342	13 19	+34	23 27	+ 7	—	—	44·7
Riverview		91·3	190	i 13 12k	+ 3	i 24 6	0	i 13 21	pP	e 42·9
Sydney		91·3	190	—	—	e 23 34	[− 6]	e 30 4	SS	e 40·4
San Juan		94·0	47	e 13 26	+ 5	e 23 48	[− 8]	e 17 9	PP	e 42·4
Auckland		94·2	171	i 21 43	?	24 42	+11	i 29 20	?	45·7
Arapuni		95·4	171	17 40?	PP	e 28 40?	?	—	—	43·7
Wellington		98·6	172	13 40	− 2	24 20	[0]	17 52	PP	46·7
Fort de France		99·2	43	e 17 53	PP	e 24 28	[+ 5]	—	—	—
Christchurch		100·6	174	17 29	PP	i 27 0	PS	27 49	PPS	47·0
Bogota		102·8	60	e 14 4	+ 3	(23 40)	[−60]	e 18 19	PP	23·7
Huancayo		116·6	70	e 19 23	?	e 25 40	[+ 2]	e 19 54	PP	e 48·7
Tananarive		119·9	282	e 20 12	PP	e 30 24	PS	e 51 52	Q	59·2
La Paz		124·0	65	19 8	[+ 7]	25 45	[−18]	22 44	PKS	68·0
La Plata	N.	144·3	69	19 38	[0]	29 28	[−18]	23 28	PKS	70·5

Additional readings and notes :—
Mizusawa SE =9m.17s.
College i =(5m.49s.), iPP =(6m.19s.), e =(7m.0s.), isS =(10m.13s.); all readings have been diminished by 3m.
Kumagaya e =8m.45s.
Tokyo i =5m.56s., 6m.44s., and 7m.33s.
Hukuoka Q =14m.28s.
Victoria SS =18m.3s.
Seattle epPP =10m.25s., e =14m.34s.
Grand Coulee iPcS =13m.49s., i =13m.59s., iSS =18m.18s.
Honolulu isSS =18m.54s.
Shasta Dam iPcP =10m.20s., ePcS? =14m.10s., e =15m.19s., iSS =18m.40s.
Butte ePPP =11m.55s., i =16m.13s., isS =16m.52s., eSS =19m.33s.
Berkeley iZ =10m.19s., iPcPE =11m.59s., ePcPNZ =12m.2s., iScS =18m.58s., eSSN = 19m.54s., eSSE =19m.59s., eSSZ =20m.4s., iZ =24m.56s.
San Francisco iPE =9m.10s.
Bozeman e =10m.2s., esPP =11m.56s., ePPP =12m.7s., isS =17m.4s., iSS =19m.56s., isSS =20m.42s.
Logan i =9m.42s., iPcP =10m.24s., i =11m.6s., iPPP =12m.58s., eScS =18m.56s., eSS = 20m.42s.
Salt Lake City ePPP =12m.51s., eSS =20m.53s.
Mount Wilson iZ =9m.57s. and 10m.6s., iPKP,PKPZ =39m.41s.

Continued on next page.

Pasadena iZ = 9m.58s. and 10m.10s., iP_cPZ = 10m.40s., eSN = 17m.22s., iSSEN = 21m.12s., ePKP,PKPZ = 39m.36s.
Rapid City i = 9m.44s., 12m.53s., and 17m.31s., eSS = 21m.19s.
Riverside ePKP,PKPZ = 39m.47s.
Palomar i = 9m.57s., iZ = 10m.6s., iSEN = 17m.51s., ePKP,PKPZ = 39m.29s.
Reykjavik eE = 10m.44s.
Ivigtut 19m.57s. and 22m.8s.
Upsala ePPE = 12m.35s., iN = 13m.3s., iPPPN = 13m.50s., eE = 19m.33s., eN = 21m.23s., eSS = 22m.40s.?
Tucson i = 10m.25s., ipPP = 13m.6s., iPPP = 14m.12s., iS_cS = 19m.53s., i = 21m.0s. and 22m.18s., eSS = 22m.46s., eSSS = 25m.55s., e = 27m.24s., ePKKP = 29m.0s.
Bergen eN = 20m.26s., eE = 25m.30s.
Calcutta iPPPN = 14m.0s., PSN = 19m.39s., iSSN = 23m.26s., iSSSN = 25m.29s.
New Delhi P_cPEN = 11m.13s., PSN = 19m.31s., PPSEN = 19m.48s., iE = 23m.17s., SSN = 23m.29s., SSSN = 25m.33s.
Chicago e = 12m.7s., ePP = 13m.23s., eS_cS = 20m.8s., eSS = 23m.23s., eSSS = 26m.30s.
Copenhagen 10m.54s. and 15m.20s., SS = 23m.52s.
St. Louis iPZ = 10m.54s., $iP_cP?Z$ = 11m.18s., iZ = 11m.48s., iPPP?Z = 14m.52s., iPPPPZ = 15m.38s., iN = 20m.51s., eSSE = 23m.55s.
Ottawa PPP = 14m.52s., SS = 23m.54s., SSS = 26m.58s.
Shawinigan Falls SS = 23m.40s.?
Stonyhurst iP_cP = 11m.54s., iPPS? = 21m.20s., i = 22m.1s., iSS = 24m.47s., iSSS = 27m.59s.
Pittsburgh ePZ = 11m.9s.
Collmberg ePPP = 15m.42s., ePPS = 21m.10s., eSS = 25m.23s., eSSS = 28m.28s., eQ = 38m.4s.
Prague eSS = 24m.58s., eSSS = 28m.16s.
Weston i = 35m.0s.
Kew iP_cPEN = 11m.40s., eN = 12m.12s., ePPPZ = 14m.58s., ePSEN = 21m.4s., ePPSEN = 21m.20s., eSSNZ = 25m.10s.?, eSSSE = 28m.40s.?, eQE = 30m.40s.?
Uccle PPP = 15m.42s., eSS = 25m.12s.
Fordham iP = 11m.23s., iPS = 21m.26s., iSS = 24m.41s.
Georgetown 15m.44s., i = 25m.19s.
Campulung eSN = 21m.10s., eSE = 21m.15s.
Strasbourg i = 11m.57s.
Bucharest eEN = 20m.59s., iPSE = 21m.36s.
Hyderabad PSN = 21m.28s., SSN = 25m.32s.
Paris i = 22m.42s., eQ = 29·7m.
Belgrade e = 12m.0s., e = 27m.17s.
Triest iPPP = 16m.33s., iPS = 21m.54s.
Bombay SPPEN = 22m.9s.
Sofia eN = 16m.12s.?, eE = 21m.28s.?, eQEN = 29·7m.
Kodaikanal SSE = 27m.33s.
Tortosa P_cPN = 12m.35s., PPPN = 17m.40s., S_cSN = 22m.53s., PSE = 23m.33s., PPSN = 23m.40s., SSN = 27m.52s., SSSN = 31m.12s., QE = 37m.19s.
Bermuda e = 13m.55s., ePPP = 17m.23s., i = 23m.41s., iSS = 27m.59s., esSS = 28m.36s.
Toledo iN = 13m.26s.
Coimbra i = 23m.6s., PPS = 25m.11s., i = 28m.10s., SS = 30m.10s., i = 34m.50s.
Lisbon E = 12m.46s., SKS?E = 22m.59s., SN = 23m.15s., N = 24m.27s.
Brisbane iPN = 12m.46s., SSN = 28m.58s.
Granada ipPP = 16m.10s., SKS = 22m.50s., SS = 28m.57s.
Malaga iPPZ = 16m.1s., PPPZ = 17m.55s., PSZ = 24m.3s., SSZ = 28m.57s., QZ = 36m.40s., PKP,PKPZ = 38m.49s.
Riverview iPPZ = 16m.57s., iSKSN = 23m.48s., iS_cSN = 24m.18s., iSSE = 30m.24s., eQE = 37m.22s.
San Juan e = 13m.38s., i = 17m.31s., iPS = 25m.48s., iSS = 30m.54s., e = 37m.53s.
Wellington iZ = 15m.55s., 16m.18s., 16m.54s., and 21m.20s., SKKSZ = 24m.51s., S? = 25m.20s., iZ = 25m.35s., PPPS?Z = 27m.55s.?, SS? = 31m.20s.?, SSS = 35m.40s.?, Q = 44·7m.
Christchurch PS = 29m.10s., QEN = 41·7m.
Huancayo e = 24m.40s., ePS = 29m.37s., eSS = 35m.54s., iSSS? = 40m.40s.
La Paz PSKS = 32m.19s., SSN = 41m.15s.
La Plata PKPE = 20m.44s.

April 15d. 3h. 41m. 23s. Epicentre 57°·2N. 163°·8E. (as at 2h.).

Pasadena suggests deep focus.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Mizusawa	N.	23·4	229	5 13	+ 2	e 9 37	+16	—	—	e 11·4
Sendai		24·2	227	e 6 18	+59	10 39	+64	—	—	—
Kohu		27·4	228	5 57	+ 8	10 45	+17	—	—	13·4
Misima		27·7	227	e 5 53	+ 1	15 49	L	—	—	(15·8)
Grand Coulee		45·4	67	i 8 21	− 1	e 15 3	− 1	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Honolulu		45·5	125	e 14 35	?	i 15 10	+ 5	—	—	e 18·5
Shasta Dam		48·7	76	i 8 47	− 1	e 15 51	+ 1	—	—	—
Berkeley	Z.	50·8	79	i 9 3	− 1	—	—	—	—	—
Fresno	N.	53·0	77	e 9 26	+ 5	—	—	—	—	—
Logan		53·4	68	i 9 42	+18	e 16 51	− 4	—	—	e 21·1
Tinemaha		53·5	76	i 9 25k	+ 1	—	—	—	—	—
Haiwee		54·4	76	i 9 30	− 1	—	—	—	—	—
Santa Barbara		54·7	80	i 9 33k	0	—	—	—	—	—
Mount Wilson		55·8	78	i 9 41k	0	—	—	—	—	—
Pasadena		55·8	78	i 9 39	− 2	i 17 25	− 3	—	—	—
Overton		55·9	74	i 9 53	+11	—	—	—	—	—
Rapid City		55·9	60	e 9 47	+ 5	i 17 36	+ 7	—	—	e 28·4
Boulder City		56·2	75	i 9 43	− 1	—	—	—	—	—
Riverside		56·3	78	i 9 43k	− 2	—	—	—	—	—
Pierce Ferry		56·5	74	i 9 46	0	—	—	—	—	—
Palomar	Z.	57·1	78	i 9 49	− 1	e 17 47	+ 2	—	—	—
La Jolla		57·3	79	e 9 49	− 3	—	—	—	—	—
Ivigtut		59·3	18	10 10	+ 4	—	—	—	—	24·6
Tucson		61·1	74	i 10 18	0	i 18 41	+ 4	i 10 43	pP	e 29·5
Copenhagen		65·1	343	i 10 45	0	—	—	—	—	—
St. Louis		66·1	55	i 10 50	− 1	e 19 42	+ 3	—	—	—
Collmberg	Z.	69·2	341	e 11 8	− 2	—	—	—	—	—
Fordham		71·0	43	e 11 22	0	—	—	—	—	—
Belgrade		73·8	334	e 11 40	+ 2	—	—	e 14 35	PP	—
Zürich		73·8	343	e 11 37	− 1	—	—	—	—	—
Neuchatel		74·4	344	e 11 39	− 3	—	—	—	—	—
Tacubaya	N.	77·6	74	e 12 6	+ 6	—	—	—	—	—
Tortosa		81·3	347	e 12 42	+22	22 49	+19	—	—	—
Toledo	Z.	82·7	351	i 12 22	− 5	—	—	—	—	—
Granada		85·4	350	i 12 47a	+ 7	e 23 43	PS	—	—	—
Malaga	Z.	85·9	351	e 13 3	+20	24 48	PPS	17 54	PPP	35·6

Additional readings :—
Grand Coulee i = 9m.17s.
Shasta Dam i = 9m.27s.
Logan i = 11m.44s.
Pasadena iZ = 9m.48s.
Palomar iEZ = 9m.55s.
St. Louis iPZ = 10m.54s.
Belgrade e = 12m.34s.
Malaga iPZ = 13m.6s.

April 15d. 19h. 50m. 39s. Epicentre 22°·0N. 107°·5W.

A = −·2791, B = −·8851, C = +·3724 ; δ = −2 ; h = +4 ;
D = −·954, E = +·301 ; G = −·112, H = −·355, K = −928.

		△	Az.	P.	O—C	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara		4·1	108	1 10	+ 5	—	—	i 1 22	P*	i 2·2
Manzanillo		4·2	134	i 1 4	− 3	i 2 0	+ 3	—	—	i 2·1
Tacubaya		8·2	107	i 2 5	+ 2	—	—	i 2 43	P_g	i 4·2
Tucson		10·6	345	i 2 36	0	e 4 41	+ 4	—	—	i 6·3
Vera Cruz	Z.	11·0	103	e 2 46	+ 4	—	—	—	—	e 6·0
La Jolla		13·8	324	e 3 22	+ 3	—	—	—	—	—
Palomar		14·0	326	i 3 25k	+ 3	—	—	—	—	—
Riverside	Z.	14·8	326	i 3 35	+ 3	—	—	—	—	—
Pierce Ferry		15·2	340	i 3 40	+ 2	—	—	—	—	—
Mount Wilson		15·3	325	i 3 42k	+ 3	—	—	—	—	—
Pasadena		15·3	325	i 3 43k	+ 4	(e 6 39)	+ 9	—	—	e 6·6
Boulder City		15·3	337	e 3 42	+ 3	—	—	—	—	—
Overton		15·7	339	i 3 47	+ 3	—	—	—	—	—
Santa Barbara		16·4	322	i 3 57	+ 4	—	—	—	—	—
Haiwee		16·8	329	i 4 1k	+ 3	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		17·7	331	i 4 12	+ 2	—	—	—	—	—
Fresno	N.	18·1	328	e 4 19	+ 5	i 12 39	PcS	e 4 36	PP	e 10·1
Salt Lake City		19·1	351	i 4 26	− 1	—	—	i 5 0	PP	e 9·4
Mobile		19·4	60	e 4 33	+ 3	i 8 10	+ 6	—	—	—
Lick		19·6	325	e 4 35	+ 3	e 8 35	+27	—	—	e 15·7
Santa Clara		19·8	325	e 4 47	+12	e 8 29	+16	—	—	e 9·5
Branner		19·9	324	e 4 51	+15	e 9 21?	+66	—	—	—
Logan		20·0	351	i 4 38	+ 1	i 8 31	+14	i 4 58	PP	i 10·6
Berkeley		20·3	325	i 4 41	+ 1	i 8 35	+12	—	—	i 9·6
San Fransisco		20·3	325	e 4 38	− 2	e 8 46	+23	e 5 15	PPP	9·8
Ukiah		21·7	326	e 4 57	+ 2	—	—	—	—	e 9·2
Cape Girardeau	N.	21·8	42	i 4 56	0	—	—	i 5 18	PP	—
St. Louis		22·2	38	i 4 56	− 4	i 8 59	− 1	i 5 18	PP	i 11·5
Florissant		22·3	38	e 4 57	− 4	i 8 58	− 4	i 5 20	PP	—
Rapid City		22·3	9	i 5 1	0	e 9 4	+ 2	—	—	e 11·6
Shasta Dam		22·5	330	e 4 53	− 9	—	—	i 5 25	PP	e 13·2
Ferndale	E.	23·3	327	e 5 24	+14	e 9 37	+17	—	—	e 10·9
Bozeman		23·8	355	e 5 16	+ 1	e 9 48	+20	e 5 48	PP	e 12·0
Butte		24·3	354	e 5 21	+ 1	e 9 49	+12	—	—	e 13·0
Chicago		25·9	35	e 5 41	+ 6	e 9 54	−10	e 6 8	PP	e 12·4
Columbia		26·2	57	5 47	+ 9	e 10 16	+ 7	—	—	e 13·4
Grand Coulee		27·3	344	i 5 49	+ 1	—	—	—	—	e 13·7
Victoria		29·4	339	e 7 21	PP	e 10 33	−28	—	—	14·4
Pittsburgh		29·7	46	—	—	i 11 1	− 5	i 12 53	SS	—
Saskatoon		30·1	0	—	—	e 10 57	−15	—	—	16·4
Georgetown		31·0	50	e 6 19	− 2	e 11 50	+24	—	—	—
Fordham		34·0	49	e 6 44	− 4	e 12 5	− 8	e 8 1	PP	e 17·2
Ottawa		34·9	41	6 53	− 2	12 21	− 6	14 21	SS	17·4
Harvard		36·3	48	e 7 13	+ 6	—	—	—	—	e 18·4
Bogota		36·7	113	i 7 13	+ 3	—	—	—	—	—
Seven Falls		38·7	41	e 6 39	−48	e 13 21	− 4	—	—	18·4
San Juan		38·9	87	e 7 26	− 3	e 13 23	− 5	i 8 59	PP	e 16·2
Bermuda		39·2	65	e 8 31	+60	e 13 31	− 1	e 8 55	PP	e 16·1
Sitka		40·9	337	—	—	e 13 57	− 1	—	—	e 17·6
Fort de France		44·4	92	e 8 8	− 6	—	—	—	—	—
Huancayo		46·3	133	e 8 28	− 1	e 15 22	+ 6	—	—	e 18·8
La Paz		54·3	131	9 29	− 1	—	—	—	—	27·2
Kew		83·2	37	—	—	e 22 35	−14	—	—	e 31·4
Toledo	z.	85·9	49	e 12 51	+ 8	—	—	—	—	—
Malaga	z.	87·0	52	i 12 51s	+ 3	23 5	[− 9]	12 58	pP	44·6
Upsala		87·0	25	—	—	e 26 21?	?	—	—	e 40·4
Copenhagen		87·4	29	—	—	e 23 34	+ 4	29 15	?	35·4

Additional readings :—
Manzanillo iZ = 1m.52s., iEN = 1m.55s.
Tacubaya iN = 2m.32s., iZ = 2m.35s. and 2m.39s., iN = 2m.55s., 2m.58s. and 3m.52s.
Tucson i = 4m.51s. and 4m.57s.
Vera Cruz iZ = 3m.44s.
Pasadena iZ = 4m.34s., and 4m.47s.
Overton i = 6m.3s.
Fresno eN = 6m.53s.
Salt Lake City e = 8m.57s. and 9m.11s.
Logan i = 5m.39s.
San Francisco iE = 4m.46s.
St. Louis iPPPZ = 5m.25s., iZ = 5m.56s.
Chicago iS = 10m.10s.
Columbia e = 8m.52s.
Pittsburgh e = 11m.35s.
Fordham e = 6m.59s. and 14m.0s.
San Juan e = 7m.33s.
Malaga iPPZ = 16m.27s. iPKP,PKPZ = 38m.35s.
Long waves were also recorded at Seattle, New Delhi, Moscow and other European stations.

April 15d. Readings also at 0h. (Grand Coulee), 2h. (Mount Wilson, Pasadena, Palomar, Riverside and Tinemaha), 3h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Shasta Dam, Collmberg, Copenhagen, near Almata, Andijan, Stalinabad and Tashkent), 4h. (Copenhagen), 5h. (near Triest), 8h. (Almata, near Andijan and near Mizusawa), 13h. (near Stalinabad), 14h. (Almata, near Andijan, Tashkent and Ksara), 16h. (near Mizusawa), 21h. (Triest, Tashkent, near Andijan and Stalinabad), 22h. (near Lisbon, Malaga (2), and Toledo (2)).

April 16d. Readings at 1h. (Tucson, Palomar, Riverside, Mount Wilson, Tacubaya, Cheb, near Malaga and near La Paz), 5h. (Collmberg), 7h. (Tucson, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside and Tinemaha), 8h. (Shasta Dam), 16h. (near Mizusawa), 20h. (near Branner), 21h. (Tashkent near Almata and Andijan).

April 17d. Readings at 2h. (near Berkeley, Branner and Lick), 3h. (Mizusawa), 7h. (Kew), 8h. (Sitka, St. Louis, La Paz, Alicante, Almeria and near Malaga (2)), 9h. (near Bogota and near Malaga), 12h. (Pierce Ferry, Tucson, Overton, Tinemaha, Haiwee, Riverside, Palomar, Pasadena, Mount Wilson, Riverview, Brisbane and Auckland), 13h. (La Paz and near Andijan), 20h. (Tucson, Mount Wilson, Palomar, Haiwee and Tinemaha).

April 18d. 13h. 4m. 34s. Epicentre 41°·5S. 79°·5E.

$A = +\cdot1369$, $B = +\cdot7386$, $C = -\cdot6601$; $\delta = 0$; $h = -2$;
$D = +\cdot983$, $E = -\cdot182$; $G = -\cdot120$, $H = -\cdot649$, $K = -\cdot751$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		30·5	84	7 11	PP	i 11 11	− 7	i 12 29	SS	—
Tananarive		35·3	300	8 54	PPP	e 12 44	+11	—	—	e 15·2
Colombo	E.	48·2	0	8 45	+ 1	15 38	− 5	—	—	—
Riverview		55·8	108	e 9 39	− 2	i 17 26	− 2	i 17 44	PS	e 26·3
Sydney		55·8	108	—	—	e 17 2	−26	—	—	e 25·4
Hyderabad	N.	58·6	359	9 59	− 2	18 4	0	12 21	PP	28·2
Bombay		60·4	353	i 10 15	+ 2	18 27	− 1	22 25	SS	26·9
Brisbane		60·5	102	i 10 16	+ 2	i 18 31	+ 2	e 22 16	SS	29·0
Calcutta	N.	64·2	10	e 11 29	+50	e 19 7	− 9	—	—	—
Christchurch		65·0	127	8 14	?	17 24	?	27 18	Q	31·5
New Delhi	N.	69·8	358	e 11 12	− 2	e 20 14	− 9	20 43	PS	32·6
Auckland		70·2	122	e 25 26?	?	—	—	—	—	—
Andijan		82·1	355	e 12 35	+11	22 57	+19	—	—	—
Tashkent		83·0	353	12 27	− 1	22 47	0	e 23 36	PS	—
Baku		85·8	338	12 55	+13	23 23	+ 8	—	—	—
Irkutsk		95·8	15	—	—	24 5	[0]	24 47	S	—
Sverdlosvk		99·2	349	—	—	24 20	[− 3]	—	—	—
Copenhagen		112·2	34	—	—	e 34 56	SS	—	—	53·4
Upsala		113·0	29	—	—	e 35 14	SS	e 51 26?	?	e 61·4
Pasadena		164·2	112	e 20 8	[+ 3]	—	—	e 29 44?	?	e 76·4
Mount Wilson	z.	164·4	112	e 20 7	[+ 2]	—	—	—	—	—
Palomar	z.	164·7	117	e 20 0	[− 5]	—	—	e 20 53	PKP_2	—
Riverside	z.	164·7	114	e 20 7	[+ 2]	—	—	e 21 5	PKP_2	—
Tinemaha	z.	165·6	101	e 21 9	PKP_2	—	—	—	—	—
Tucson		167·6	135	e 20 11	[+ 3]	—	—	e 21 19	PKP_2	e 66·9

Additional readings :—
Riverview eSS?EN = 21m.0s., eQE = 24m.2s.
Hyderabad SSN = 21m.42s.
Christchurch S_cS = 18m.14s.
New Delhi SSN = 24m.52s.
Irkutsk PS = 27m.32s., SS = 33m.43s.
Palomar iZ = 21m.5s. and 24m.53s.
Riverside eZ = 25m.3s.
Tucson e = 25m.0s., 25m.11s. and 29m.19s., eSS? = 35m.2s.
Long waves were also recorded at Wellington, Huancayo, San Juan, Bermuda and at other American and European stations.

April 18d. Readings also at 2h. (near Andijan), 4h. (near Tucson, Berkeley, Fresno, Pierce Ferry, Overton and Boulder City and near Zürich), 5h. (Shasta Dam, Lick and near Tananarive), 13h. (near Zürich), 14h. (Tucson, Mount Wilson, Palomar and Riverside), 21h. (near Andijan (2)).

April 19d. 0h. 30m. 7s. Epicentre 39°·6N. 19°·8E. (as on 1947 March 6d.).

$A = +·7269$, $B = +·2617$, $C = +·6349$; $\delta = -3$; $h = -2$;
$D = +·339$, $E = -·941$; $G = +·597$, $H = +·215$, $K = -·773$.

	△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	4·1	39	e 1 4	− 1	i 1 54	− 1	i 1 16	P*	i 2·1
Belgrade	5·2	5	e 1 15	− 6	i 2 23	+ 1	e 1 45	P_g	—
Bucharest	6·7	40	e 1 42	0	e 3 2	+ 2	e 2 8	P_g	—
Triest	7·5	326	e 1 55	+ 2	e 3 23	+ 3	—	—	—
Chur	10·4	317	e 2 38k	+ 4	—	—	—	—	—
Prague	11·1	342	(e 2 35)	± 8	—	—	—	—	—
Zurich	11·2	317	e 2 40	− 4	e 4 52	0	—	—	—
Basle	11·9	316	e 1 59	−55	e 5 24	SS	—	—	e 7·1
Strasbourg	12·5	320	e 3 18	PP	e 5 47	SS	—	—	—
Collmberg	12·6	340	e 3 8	+ 5	—	—	e 3 19	PP	e 6·9
Paris	15·4	312	e 3 50	+10	—	—	—	—	e 9·7

Additional readings :—
Belgrade iSS? = 2m.55s., e = 3m.15s.
Bucharest eS?N = 3m.7s., iN = 3m.35s.
Prague reading has been increased by 2m.
Long waves were also recorded at Kew, Uccle and Copenhagen.

April 19d. 13h. 4m. 7s. Epicentre 21°·4S. 169°·3E. Depth of focus 0·005. (as on 1945 February 8d.).

$A = -·9157$, $B = +·1730$, $C = -·3628$; $\delta = +6$; $h = +4$;
$D = +·186$, $E = +·983$; $G = +·356$, $H = -·067$, $K = -·932$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		16·0	244	i 3 42	0	i 6 59	+22	i 4 9	PPP	i 8·2
Auckland		16·1	164	3 44	0	6 28	−12	i 3 54	pP	7·4
Arapuni		17·5	163	3 53?	− 8	7 41	+29	—	—	8·9
Riverview		20·2	229	i 4 32k	0	i 8 28	+18	i 4 47	pP	i 9·8
Sydney		20·2	229	i 4 26	− 6	i 8 17	+ 7	—	—	9·8
Wellington		20·4	169	4 34	0	8 3	−11	i 4 46	pP	9·9
Christchurch		22·2	173	4 55a	+ 3	8 47	0	—	—	—
Perth		48·5	246	e 11 3	PPP	i 15 43	+10	i 19 36	SSS	25·4
Honolulu		53·2	39	e 10 7	P_eP	e 16 58	+20	i 18 41	S_eS	e 24·4
Santa Clara		87·1	48	e 12 45	+ 5	e 24 31	PS	—	—	e 40·6
Berkeley		87·2	48	e 12 36	− 4	e 23 18	+ 5	i 24 29	PS	e 36·5
Ukiah		87·2	46	e 12 41	+ 1	e 23 16	+ 3	e 13 2	pP	e 36·5
Santa Barbara	Z.	87·3	52	e 12 41	0	—	—	—	—	—
Pasadena		88·3	52	e 12 42	− 4	e 23 14	[+ 7]	e 16 13	PP	e 40·1
Mount Wilson	Z.	88·4	52	e 12 43	− 3	—	—	—	—	—
Shasta Dam		88·5	46	e 12 45	− 2	—	—	—	—	—
Riverside	Z.	88·8	52	i 12 47	− 1	—	—	i 13 8	pP	—
Palomar		88·9	53	i 12 46	− 2	—	—	i 13 8	pP	—
Haiwee	Z.	89·4	51	e 12 52	+ 1	—	—	—	—	—
Tinemaha	Z.	89·6	50	e 12 53	+ 1	—	—	—	—	—
Calcutta	N.	90·2	294	e 13 51	+56	i 23 58	+17	—	—	—
Sitka		91·2	26	e 13 35	+36	e 25 7	PS	e 16 51	PP	e 38·0
Boulder City		91·6	51	e 12 58	− 3	—	—	e 29 11	?	—
Victoria		91·8	38	13 41	+39	23 59	+ 4	30 5	SS	46·9
Colombo	E.	92·0	276	13 13	+10	23 44	[+16]	—	—	51·9
College		92·1	16	—	—	e 24 0	+ 2	e 25 58	PPS	e 43·1
Irkutsk		92·5	326	13 11	+ 6	23 56	− 5	e 17 11	PP	—
Tucson		93·1	57	e 13 5	− 3	e 23 49	[+14]	e 16 48	PP	e 41·3
Grand Coulee		94·1	40	e 15 1	?	—	—	—	—	—
Salt Lake City		95·7	48	—	—	e 23 59	[+11]	e 24 31	S	e 40·5
Logan		96·1	48	e 13 24	+ 2	e 24 3	[+11]	e 26 18	PS	e 45·5
Hyderabad	N.	97·0	286	e 13 47	pP	24 58	+18	i 17 38	PP	47·5
Bozeman		98·1	44	e 18 28	?	e 24 17	[+15]	e 26 11	PS	e 41·2
New Delhi	N.	101·7	296	i 15 32	?	27 34	PPS	i 17 44	PP	40·2
Bombay		102·5	285	18 17	PP	24 33	[+10]	27 28	PS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rapid City		102·8	47	e 23 34	?	e 33 9	SSP	e 26 10	?	e 48·0
Saskatoon		103·1	38	—	—	e 27 17	PS	—	—	50·9
Huancayo		108·4	111	e 18 27	PP	e 25 2	[+12]	e 28 10	PS	e 48·1
Tananarive		110·3	239	e 32 3	?	34 21	SS	38 40	SSS	53·4
St. Louis	E.	111·0	56	e 17 45	?	e 25 7	[+ 7]	e 28 23	PS	—
Tashkent		111·1	307	—	—	25 23	[+23]	e 19 4	PP	—
La Paz		112·3	119	e 19 5	PP	28 56	PS	29 58	PPS	52·9
Chicago		113·5	53	e 19 20	PP	e 29 10	PS	e 34 53	SS	e 52·2
Sverdlovsk		117·8	324	19 58	PP	e 27 50	?	e 29 44	PS	—
Pittsburgh		119·1	54	e 19 51	PP	—	—	—	—	—
Ottawa		123·3	49	e 20 53?	PP	—	—	e 28 41	?	62·9
Fordham		123·7	55	e 19 43	[+53]	e 31 57	PPS	e 21 45	?	e 62·3
Seven Falls		125·6	47	e 20 47	PP	e 30 53	PS	e 38 17	SSP	61·9
Baku		125·7	305	20 59	PP	26 27	[+35]	31 0	PS	—
San Juan		128·0	83	e 21 14	PP	e 22 16	PKS	e 42 35	SSS	e 62·8
Bermuda		131·1	65	e 21 15	PP	e 22 38	PKS	e 31 20	PS	e 61·6
Ivigtut		132·5	24	22 34	PKS	—	—	—	—	—
Upsala		136·7	340	e 23 25	?	e 31 34	PS	—	—	e 59·9
Copenhagen		141·7	339	e 20 14	[+50]	—	—	e 23 11	PKS	—
Bucharest		142·0	316	e 19 53?	[+28]	25 53?	[−33]	—	—	—
Sofia		144·5	315	e 19 34	[+ 5]	—	—	—	—	—
Collmberg		144·9	333	e 19 34	[+ 4]	e 27 58	?	e 22 58	PP	—
Prague		145·2	331	e 19 36	[+ 6]	—	—	e 26 41	PPP	—
Belgrade		145·3	319	e 19 32	[+ 2]	e 33 49	PS	—	—	—
Uccle		148·4	343	e 19 41	[+ 5]	—	—	—	—	e 67·9
Triest		148·6	326	e 19 44	[+ 8]	—	—	e 21 1	PKP_2	—
Kew		148·9	347	e 19 39	[+ 2]	e 23 20	PKS	e 31 36?	?	e 70·9
Strasbourg		149·1	336	e 19 48	[+11]	—	—	—	—	—
Chur		149·8	333	e 19 44	[+ 6]	—	—	—	—	—
Zürich		149·8	334	e 19 44	[+ 6]	—	—	—	—	—
Basle		150·0	335	19 45	[+ 7]	—	—	—	—	—
Neuchatel		150·7	335	e 19 47	[+ 8]	—	—	—	—	—
Paris		150·7	342	e 19 44	[+ 5]	—	—	e 23 33	PP	e 70·9
Besançon		150·9	336	19 53?	[+13]	—	—	—	—	e 65·9
Clermont-Ferrand		153·2	338	e 19 50	[+ 7]	—	—	—	—	e 55·9
Tortosa		158·4	336	—	—	(e 39 53?)	PPS	—	—	e 39·9
Toledo		160·7	344	e 19 57	[+ 4]	46 0	SSP	i 21 20	PKP_2	—
Coimbra		161·2	354	e 19 23	[−30]	45 38	SSP	—	—	68·1
Granada		163·1	340	i 19 58s	[+ 3]	23 39	PKS	45 54	SSP	79·8

Additional readings :—
Brisbane iN = 4m.12s.
Auckland i = 4m.8s., 4m.21s., and 6m.53s.
Riverview iPPE = 4m.53s., iN = 5m.32s., iE = 5m.35s., iSSN = 9m.5s., eQ?N = 9m.17s.
Wellington i = 5m.14s. and 5m.48s., iZ = 7m.18s., i = 8m.24s., Q = 8·9m.
Perth SSS = 23m.3s.
Honolulu e = 12m.41s., i = 16m.14s.
Berkeley iPNZ = 12m.43s., eZ = 13m.21s. and 13m.39s., ePPN = 16m.9s., eEZ = 17m.4s., ePPPEZ = 18m.35s., eN = 27m.49s., eSSE = 28m.59s., eSSN = 29m.2s., eSSSN = 32m.47s., eSSSE = 32m.59s.
Ukiah e = 17m.24s., eSS = 29m.23s.
Pasadena iNZ = 13m.21s., eZ = 15m.18s. and 20m.23s., eSSEN = 28m.23s., e = 32m.47s.
Palomar iZ = 13m.25s.
Sitka e = 22m.35s.
College e = 26m.4s. and 39m.26s.
Irkutsk SKS = 23m.29s., SS = 30m.34s.
Tucson e = 13m.59s. and 19m.53s., eS_cS = 24m.16s., ePPS? = 25m.37s., eSS = 30m.45s., e = 30m.53s., eSSS = 34m.16s.
Salt Lake City ePS? = 26m.3s., e = 31m.34s.
Hyderabad SKSN = 24m.11s., SSN = 31m.39s.
Bozeman eSS = 31m.40s.
New Delhi iN = 16m.31s. and 23m.39s.
Bombay SKKSE = 25m.6s., SKKSN = 25m.10s., iE = 26m.9s., SSN = 32m.55s., SSE = 33m.0s.
Huancayo ePPS = 29m.4s., eSS = 34m.9s.
St. Louis eSSN = 34m.23s., eSSSE = 39m.3s.
Tashkent PS = 28m.55s., SS = 34m.54s.

Continued on next page.

La Paz iS = 30m.38s., PS = 33m.8s., PPS = 34m.8s., SS = 39m.11s.; readings wrongly identified.
Sverdlovsk eSS = 36m.8s.
Baku SKKS = 28m.1s., SS = 37m.23s.
San Juan e = 33m.53s. and 39m.6s.
Bermuda e = 34m.28s., 44m.15s., and 50m.38s.
Upsala eE = 23m.34s. and 35m.53s.?, eN = 36m.25s., e = 43m.53s.?, eN = 49m.53s.?, eE = 55m.53s.?
Sofia iN = 20m.30s., eN = 24m.24s.
Collmberg iZ = 19m.40s., iP_cP = 20m.8s., eZ = 21m.11s., ePP = 21m.59s., ePPP = 23m.37s., e = 23m.54s. and 28m.29s., eS_cS = 29m.39s.
Prague e = 24m.23s.
Belgrade i = 19m.39s., e = 20m.4s. and 30m.27s.
Paris i = 19m.54s., e = 20m.26s.
Toledo PP = 25m.3s.
Coimbra e = 20m.38s., PP = 23m.48s., PPP = 28m.58s., e = 35m.38s., PSKS = 36m.38s., ? = 50m.8s.
Granada SKSP = 35m.53s.
Long waves were also recorded at Columbia and at other European stations.

April 19d. 17h. 46m. 47s. Epicentre 42°·9N. 77°·8E.

$A = +\cdot1553$, $B = +\cdot7182$, $C = +\cdot6782$; $\delta = -12$; $h = -3$;
$D = +\cdot977$, $E = -\cdot211$; $G = +\cdot143$, $H = +\cdot663$, $K = -\cdot735$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almata		0·7	301	i 0 12	− 5	—	—	—	—	—
Andijan		4·6	244	e 1 12	0	i 2 2	− 5	2 29	S_g	—
Tashkent		6·5	259	e 1 37	− 2	2 52	− 3	—	—	—
Stalinabad		8·1	241	e 2 34	P_g	e 4 6	S*	—	—	—
Dehra Dun	N.	12·6	179	e 3 6	+ 3	e 5 21	− 5	5 51	SS	7·0
New Delhi	N.	14·3	183	i 3 25k	− 1	i 6 18	+12	3 31	PP	7·9
Irkutsk		20·1	53	4 41	+ 3	8 27	+ 8	—	—	—
Baku		21·0	273	4 50	+ 3	8 37	0	—	—	—
Calcutta	N.	22·3	153	e 5 7	+ 6	i 9 30	+28	9 58	SS	12·1
Bombay		24·3	192	i 5 21	+ 1	i 9 41	+ 4	5 59	PP	i 12·9
Hyderabad	N.	25·2	178	5 24	− 5	10 10	+18	11 1	SS	—
Ksara		33·8	268	e 6 52	+ 6	e 12 23	+13	—	—	—
Colombo	E.	35·9	177	7 5	+ 1	—	—	15 9	SS	—
Vladivostok		39·0	71	12 28?	?	—	—	—	—	—
Sofia		39·4	289	e 7 36	+ 3	e 13 34	− 1	e 16 31	SS	e 22·4
Upsala	N.	39·7	317	e 17 32	SSS	20 37	L	—	—	(20·6)
Copenhagen		42·9	311	i 8 0	− 2	14 22	− 5	17 33	SS	i 22·8
Collmberg		43·6	305	i 8 9	+ 1	e 14 34	− 4	e 9 49	PP	e 23·2
Triest		44·9	297	i 8 15	− 3	e 14 51	− 5	—	—	—
Chur		47·2	300	e 8 33	− 3	—	—	—	—	—
Strasbourg		47·6	303	11 19	PPP	—	—	—	—	—
Zürich		47·6	301	e 8 57	+18	—	—	—	—	e 23·0
Basle		48·1	301	e 8 40	− 3	—	—	—	—	e 26·2
Uccle		48·9	307	e 18 13?	?	—	—	e 19 13?	SS	e 25·2
Paris		50·8	303	e 9 2	− 2	—	—	e 20 13?	SS	e 25·2
Kew		51·4	309	—	—	—	—	e 20 26	SS	e 23·2
Granada		60·3	295	—	—	—	—	i 22 37	SS	33·2
Coimbra		61·8	299	e 17 28	?	e 28 29	Q	e 21 39	SS	e 39·6

Additional readings :—
Dehra Dun eN = 6m.25s.
New Delhi SSN = 6m.29s.
Calcutta iSSN = 10m.31s.
Bombay SSEN = 10m.30s.
Upsala ePE = 17m.39s., SE = 20m.43s.
Collmberg e = 8m.15s. and 8m.19s., ePPP = 10m.26s., e = 11m.51s. and 14m.48s., $eS_cS?Z$ = 17m.56s., e = 19m.25s. and 21m.31s.
Long waves were also recorded at Prague, Clermont-Ferrand, Bergen, and Sitka.

April 19d. Readings also at 2h. (Collmberg, Tinemaha, Palomar, Mount Wilson, Wellington, Auckland, and Riverview), 3h. (Mizusawa), 4h. (St. Louis, Tucson, Pierce Ferry, Boulder City, Overton, Palomar, Riverside, Pasadena, Mount Wilson, Santa Barbara, Haiwee, and Tinemaha), 5h. (New Delhi), 6h. (Logan), 10h. (near San Francisco, Branner, and Berkeley), 13h. (Copenhagen), 15h. (Tucson, Riverside, and Auckland (2)), 16h. (Riverside, Tucson, Mount Wilson, Palomar, and Riverview), 18h. (Erevan), 19h. (Tucson), 21h. (Tashkent, Andijan, and near Almata), 22h. (Sofia), 23h. (near Branner).

April 20d. 22h. Undetermined shock.

Auckland e =37m.24s., L =39m.42s.
Christchurch PZ =39m.6s., S =42m.19s.?, L =43m.40s.
Arapuni P? =39m.30s., S =40m.6s.
Brisbane iPZ =39m.57s., eE =40m.27s., iN =40m.35s., eN =46m.22s., iLN =48m.12s.
Wellington P? =40m.17s., S? =41m.38s.?, R =42m.30s.
Riverview eEZ =40m.17s., eP?EZ =40m.40s., eE =41m.2s., iE =41m.18s., iS?E = 44m.59s., iN =45m.21s., iE =45m.36s., eLE =47·9m.
Sydney e =45m.27s., eL =48·5m.
Mount Wilson iPZ =46m.36s.
Riverside ePZ =46m.36s.
Palomar iP =46m.37s.
Pasadena iPZ =46m.38s., eLEN =70·2m.
Haiwee ePZ =46m.44s.
Shasta Dam iP =46m.45s.
Tinemaha iPZ =46m.45s., eZ =46m.56s.
Boulder City iP =46m.53s.
Tucson iP =46m.54s., eL =74m.4s.
Pierce Ferry iP =46m.55s.
Santa Clara ePZ =47m.2s., eLEN =73m.7s.
Grand Coulee eP =47m.11s.
Honolulu eS =52m.9s., eL =56m.13s.
Copenhagen iP =54m.15s., e =67m.6s., L =102m.
Paris PKP =54m.15s.
Collmberg eZ =54m.19s. and 54m.35s.
Granada iPKP =54m.31s.a, ePP =60m.1s., iSS =80m.25s., L =119·9m.
Kew eZ =56m.16s.? and 61m.33s.?, eL =118m.
Berkeley eN =56m.54s., eEZ =57m.0s., eN =60m.14s., eE =60m.37s. and 68m.48s., eEN =69m.31s., eEZ =71m.54s., eLEN =74m.3s.
Huancayo eSKS? =58m.7s., eL =80m.10s.
Victoria e =58m.12s., L =78m.
Sitka eS? =58m.21s., e =62m.16s., eSS? =64m.18s., eL =74m.14s.
Salt Lake City eS? =58m.29s., eL =79m.24s.
St. Louis eE =58m.53s., eN =60m.9s., eLN =80m.
San Juan eSKS? =59m.56s., e =64m.2s., ePS? =64m.18s., eL =90m.8s.
Bombay iE =61m.4s., eEN =65m.31s.
New Delhi eN =61m.4s.
Seven Falls e =64m.24s., L =96m.
Coimbra e =75m.10s., e =79m.50s. and 92m.40s., eL =118m.10s.
Long waves were also recorded at La Paz, Clermont-Ferrand, Triest, Uccle, Calcutta, and at other American stations.

April 20d. Readings also at 1h. (near Almeria, Malaga, Granada, and Alicante), 2h. (near Granada), 3h. (Collmberg), 4h. (Riverview, Granada, Uccle, and near Andijan), 5h. (near Mineral), 10h. (Basle), 12h. (Alicante), 15h. (Tucson, Tinemaha, Palomar, Riverside, and Mount Wilson), 16h. (2), 17h. (near Tacubaya), 19h. (Branner and near Tacubaya (3)), 22h. (Overton, Pierce Ferry, Boulder City, and near Tucson).

April 21d. 14h. Undetermined shock.

Belgrade eP =12m.3s., e =12m.52s., 13m.2s., 14m.16s., 15m.24s., and 15m.41s.
Sofia ePEN =12m.10s., iEN =12m.31s., iN =13m.16s.
Bucharest eP?EN =13m.30s.
Triest eP =14m.5s., eS =15m.40s.
Zürich eP =14m.9s., eS? =16m.45s.
Basle eP =14m.16s., eS? =17m.0s.
Collmberg eZ =14m.25s., i =14m.31s., e =19m.36s.
Copenhagen eP =15m.8s., e =16m.42s., 22m.24s.
Pierce Ferry e =25m.18s.
Overton e =25m.28s.
Long waves were recorded at Kew.

April 21d. 17h. 14m. 17s. Epicentre 18°·8N. 100°·7W.

Felt at Mexico City and in the state of Michoacan.
Epicentre 18°·75N. 101·0W. (U.S.C.G.S.). Depth 130 km.

Annales de l'Institut de Physique du Globe de Strasbourg, 2ème partie, Séismologie, Tome X, Strasbourg 1951, p.26.

$A = -\cdot1767$, $B = -\cdot9307$, $C = +\cdot3203$; $\delta = +2$; $h = +5$;
$D = -\cdot982$, $E = +\cdot187$; $G = -\cdot060$, $H = -\cdot315$, $K = -\cdot947$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya		1·6	71	2 43	?	—	—	—	—	3·0
Puebla		2·4	86	i 0 36	− 5	i 1 5	− 7	i 0 49	P_g	—
Guadalajara		3·0	307	i 0 51	+ 1	i 1 33	+ 7	i 1 0	P_g	i 1·7
Manzanillo		3·4	99	i 0 54	− 1	i 1 39	+ 2	i 1 10	P_g	i 1·7
Oaxaca		4·2	115	i 0 58	− 9	i 1 47	−10	i 1 7	P	i 2·0
Chihuahua	Z.	10·9	335	i 2 42	+ 2	e 4 54	+10	i 5 22	?	i 5·6
Tucson		16·2	328	i 3 54	+ 4	i 7 5	+14	i 4 16	pP	i 8·9
Mobile		16·4	42	i 4 1	+ 8	i 7 10	+14	i 4 23	pP	—
La Jolla		20·4	317	i 4 41	0	—	—	—	—	—
Palomar	Z.	20·4	320	i 4 41a	0	—	—	i 4 55	PP	—
Pierce Ferry		20·8	329	i 4 47	+ 2	—	—	—	—	—
Cape Girardeau	N.	20·9	27	i 4 47	+ 1	e 8 40	+ 5	i 5 7	pP	—
Boulder City		21·1	328	i 4 50	+ 2	—	—	i 5 29	PPP	—
Riverside		21·2	320	i 4 49a	0	i 8 52	+11	i 5 12	pP	—
Overton		21·4	329	i 4 53	+ 2	—	—	—	—	—
Mount Wilson		21·8	320	i 4 55a	− 1	i 8 53	+ 1	i 5 20	PP	—
Pasadena		21·8	320	i 4 55a	− 1	i 8 53	+ 1	i 5 16	pP	e 10·9
St. Louis		21·8	23	i 4 56	0	i 8 53	+ 1	i 5 13	pP	i 11·5
Florissant	N.	21·9	23	i 4 57	0	i 8 58	+ 4	i 5 13	pP	e 11·5
Balboa Heights		22·8	113	e 5 7	+ 2	—	—	—	—	—
Haiwee		23·0	323	i 5 8a	+ 1	i 9 14	0	i 5 25	pP	—
Santa Barbara		23·0	317	i 5 8	+ 1	—	—	—	—	—
Columbia		23·2	45	e 5 25	+16	e 9 19	+ 1	e 10 2	SS	e 12·8
Tinemaha		23·8	324	i 5 17	+ 2	i 9 16	−12	e 8 58	PcP	—
Salt Lake City		23·9	340	e 5 18	+ 2	e 9 38	+ 8	i 5 32	pP	e 11·6
Fresno	N.	24·5	322	e 5 29	+ 7	—	—	e 8 7	?	—
Rapid City		25·3	357	i 5 32	+ 2	i 10 10	+16	e 5 43	pP	e 11·7
Chicago		25·5	22	i 5 30	− 2	e 9 54	− 3	i 5 48	pP	i 11·5
Lick	N.	26·0	321	e 5 36	0	—	—	—	—	—
Santa Clara		26·2	321	e 4 16	?	e 9 59	−10	—	—	—
Berkeley		26·7	321	e 5 40	− 3	e 10 19	+ 2	e 5 59	pP	12·8
Pittsburgh		28·0	36	i 6 25	+30	e 11 34	+56	i 6 55	PPP	—
Bozeman		28·1	346	e 5 53	− 2	e 10 39	− 1	e 7 0	PPP	e 11·6
Shasta Dam		28·7	325	i 5 58	− 3	e 12 43	SSS	e 6 58	PP	e 15·8
Butte		28·8	345	e 6 1	− 1	e 11 54	SS	e 6 43	PP	e 14·9
Bogota		29·6	115	i 6 12	+ 3	—	—	—	—	—
Philadelphia		30·5	42	e 6 15	− 2	e 11 14	− 4	e 7 2	PP	e 15·7
Fordham		31·8	41	i 6 26	− 2	e 11 29	− 9	i 7 25	PP	—
Grand Coulee		32·6	338	i 6 34	− 1	e 11 46	− 5	i 9 18	PcP	e 17·9
San Juan		32·8	85	i 6 40	+ 3	i 11 53	− 1	e 7 0	pP	e 14·9
Saskatoon		33·6	354	e 6 45	+ 1	(14 43?)	SSS	e 8 1	PP	14·7
Ottawa		33·7	32	6 43	− 2	e 12 4	− 4	8 0	PP	17·7
Harvard		34·2	40	i 6 49	0	—	—	i 7 14	pP	—
Victoria		34·9	334	e 7 5	+10	—	—	(14 43?)	SS	14·7
Bermuda		35·0	60	e 8 10	PP	e 12 48	+20	e 13 59	SS	e 14·6
Shawinigan Falls		36·0	34	7 2	− 3	e 14 43?	SS	8 30	PP	20·7
Seven Falls		37·3	34	e 7 19	+ 3	13 0	− 4	e 8 39	PP	18·7
Fort de France		38·1	90	e 7 22	0	—	—	—	—	—
Huancayo		39·6	138	i 7 39	+ 4	e 13 38	0	e 9 46	PcP	e 17·1
Sitka		46·4	335	e 8 18	−12	e 15 7	−11	e 10 19	PP	e 18·9
La Paz	Z.	47·5	135	i 8 38	0	i 15 46	+12	i 10 8	PP	i 25·9
College		55·6	338	e 12 50	PPP	e 17 54	PPS	—	—	e 27·5
Ivigtut		56·0	28	13 9	PPP	17 18	−12	—	—	—
Kew		81·8	38	e 12 5	−17	e 22 38	+ 3	—	—	e 30·7
Toledo		83·1	50	i 12 30	+ 1	i 22 49	+ 1	—	—	—
Granada		84·3	53	i 12 39a	+ 4	i 22 59	− 1	i 12 47	PcP	41·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Paris		84·4	40	i 12 35	− 1	e 22 43	−18	—	—	45·7
Clermont-Ferrand		86·0	43	i 12 43	0	—	—	—	—	e 43·8
Tortosa	N.	86·1	48	12 45	+ 1	23 15	− 3	24 8	PS	—
Copenhagen		87·0	31	—	—	i 23 11	[− 3]	23 41	S	39·7
Strasbourg		87·7	39	e 12 53	+ 1	—	—	e 13 28	?	—
Basle		88·1	40	e 12 53	− 1	—	—	—	—	—
Zürich		88·8	40	e 12 56k	− 1	—	—	—	—	—
Collmberg	Z.	89·4	35	i 13 3	+ 3	—	—	e 14 1	?	—
Triest		92·7	39	—	—	e 23 40	[− 8]	—	—	—
New Delhi	N.	132·9	2	i 22 41	PKS	—	—	—	—	—

Additional readings :—
Puebla iN = 0m.55s.
Guadalajara iZ = 1m.12s.
Manzanillo isPN = 1m.27s., isPZ = 1m.30s.
Oaxaca iE = 1m.14s., isPE = 1m.28s.
Tucson i = 4m.51s., 6m.1s., 6m.30s. and 8m.28s.
Mobile isS = 7m.43s.
Riverside iZ = 9m.9s.
Mount Wilson iZ = 9m.12s.
Pasadena iPP = 5m.43s., iZ = 7m.15s. and 7m.59s., iSN = 9m.32s., iS_cPN = 11m.20s., iN = 12m.20s.
St. Louis isPE = 5m.25s., isSN = 9m.21s.
Florissant isSN = 9m.30s.
Haiwee eZ = 8m.56s.
Columbia e = 9m.47s.
Salt Lake City e = 6m.15s., 6m.50s. and 10m.10s.
Chicago ePP = 6m.16s., eP_cP = 8m.52s., i = 10m.9s., e = 10m.55s.
Berkeley iZ = 5m.58s., iEZ = 6m.35s., iN = 6m.38s., isSE = 11m.7s.
Shasta Dam e = 7m.13s. and 15m.1s.
Philadelphia e = 10m.55s., eS = 11m.33s.
Fordham iPPP = 7m.42s., iP_cS? = 12m.17s.
Grand Coulee e = 16m.19s., eS_cS = 17m.15s.
San Juan e = 7m.35s., iPP = 8m.6s., i = 12m.12s.
Ottawa S = 12m.43s., SS = 14m.43s.
Huancayo i = 7m.59s.
Sitka e = 17m.53s.
La Paz PPP = 10m.50s., iPSZ = 16m.14s., SSZ = 19m.25s., iSSS = 21m.10s.
Ivigtut 13m.28s. and 19m.27s.
Granada SS = 31m.40s.
New Delhi iN = 22m.59s and 28m.33s.
Long waves were also recorded at Ukiah, Seattle and Riverview.

April 21d. Readings also at 1h. (Wellington, Arapuni, Auckland, and Riverview), 2h. (Toledo, Malaga, and Granada), 4h. (Logan, Salt Lake City, Boulder City, Pierce Ferry, and near Tucson), 5h. (Chicago, Florissant, and St. Louis), 10h. (Wellington, Arapuni, Auckland, and Riverview), 11h. (Christchurch), 12h. (Auckland, Riverview, Collmberg, La Jolla, Palomar, Riverside, Mount Wilson, Pasadena, Haiwee, Tinemaha, Overton, Pierce Ferry (2), Boulder City (2), near Tucson (3), and near Balboa Heights), 13h. (Pasadena, Riverside, and Palomar), 15h. (Auckland and Riverview), 18h. (near Andijan, Tashkent, and Stalinabad), 23h. (Copenhagen).

April 22d. 3h. 49m. 20s. Epicentre 3°·6S. 146°·0E.

$A = -·8275$, $B = +·5581$, $C = -·0623$; $\delta = +11$; $h = +7$;
$D = +·559$, $E = +·829$; $G = +·052$, $H = -·035$, $K = -·998$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	24·7	165	i 5 25	+ 1	i 9 48	+ 4	i 13 42	?	i 15·4
Riverview		30·5	172	e 6 57	PP	e 11 14	− 4	e 7 20	PPP	e 16·6
Sydney		30·5	172	—	—	e 10 52	−26	—	—	e 15·7
Perth		40·4	221	13 55	S	(13 55)	+ 5	19 15	?	21·8
Auckland		42·4	145	8 0	+ 2	14 31	+11	—	—	18·1
Mizusawa	E.	42·8	355	7 59	− 2	14 25	− 1	—	—	—
Arapuni		43·7	146	7 40?	−28	—	—	—	—	16·7
Wellington		45·5	150	9 25	+62	15 10	+ 5	i 10 8	PP	19·7
Christchurch		46·3	153	7 24?	−65	15 8?	− 8	18 56?	SS	22·0
Calcutta	N.	62·0	298	—	—	e 18 49	+ 1	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		65·9	333	10 49	− 1	19 36	− 1	—	—	—
Colombo	E.	66·8	279	—	—	19 55	+ 7	—	—	—
Kodaikanal		69·6	283	e 8 21	?	—	—	—	—	—
Hyderabad		69·8	290	11 12	− 2	20 26	+ 3	14 0	PP	33·2
New Delhi	N.	73·3	301	—	—	i 21 2	− 2	—	—	e 39·0
Bombay		75·3	290	e 11 48	+ 1	i 21 24	− 2	22 4	PS	35·7
Tashkent		82·4	312	e 12 26	+ 1	22 47	+ 6	—	—	—
Sitka		87·0	32	e 12 52	+ 4	e 23 10	[− 4]	e 36 2	Q	e 37·8
Sverdlovsk		90·4	327	—	—	23 32	[− 3]	e 24 54	S	—
Shasta Dam		93·5	49	e 13 19	0	—	—	—	—	—
Grand Coulee		96·0	42	e 13 34	+ 4	—	—	—	—	—
Pasadena		96·8	55	i 13 39	+ 5	—	—	i 19 56	PPP	e 40·5
Mount Wilson	Z.	96·9	55	e 13 34	0	—	—	—	—	—
Baku		97·0	310	e 17 36	PP	26 16	PS	—	—	—
Riverside	Z.	97·5	55	e 13 36	− 1	—	—	e 17 35	PP	—
Palomar	Z.	97·9	56	i 13 47	+ 8	—	—	i 19 26	PPP	—
Bozeman		101·6	43	—	—	e 24 51	[+16]	—	—	e 45·9
Tucson		103·0	57	e 14 2	0	—	—	e 17 58	PP	e 47·0
Copenhagen		116·2	333	—	—	26 52	{+ 4}	29 40	PS	52·7
Paris		125·3	331	—	—	e 30 40	PS	—	—	64·7
Toledo	Z.	134·9	326	e 22 28	PP	—	—	—	—	—
Granada		136·5	324	e 17 5a	?	34 33	PPS	i 19 55	PKP	64·6
San Juan		145·3	62	e 20 10	[+30]	—	—	—	—	e 68·0

Additional readings :—
Riverview iP_cP?Z = 7m.28s., iE = 11m.21s., iN = 11m.44s., iE = 12m.58s., iN = 13m.50s., iE = 14m.4s., eQ?E = 14m.16s., iS_cSE = 15m.28s.
Mizusawa PN = 8m.16s.
Wellington iZ = 10m.35s., PPPZ = 10m.55s., P_cSZ = 15m.25s., iZ = 16m.5s.
Hyderabad P_cPE = 11m.51s., PSE = 20m.44s., SSN = 24m.37s.
Bombay SSE = 26m.17s.
Sverdlovsk eSS = 30m.14s.
Riverside iZ = 13m.48s., eZ = 16m.47s.
Granada pPKP? = 20m.8s., iPP = 22m.33s., SS = 39m.53s., SSS = 45m.56s.
San Juan e = 32m.7s. and 39m.47s.
Long waves were also recorded at College, Berkeley, Santa Clara, Logan, Salt Lake City, Bermuda, La Paz, Huancayo, Moscow, and at other European stations.

April 22d. 9h. 45m. 48s. Epicentre 31°·5N. 114°·0W. (as given by Pasadena).

$A = -·3474$, $B = -·7804$, $C = +·5199$; $\delta = +1$; $h = +1$;
$D = -·914$, $E = +·407$; $G = -·211$, $H = -·475$, $K = -·854$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		2·8	76	i 0 44	− 3	i 1 22	0	i 0 49	P*	i 1·7
Palomar		3·1	309	i 0 48	− 3	—	—	i 1 2	P_g	—
La Jolla	Z.	3·1	298	e 0 54	+ 3	i 1 39	S_g	—	—	—
Riverside		3·8	313	e 1 5	+ 4	i 2 18	S_g	i 1 13	P_g	—
Mount Wilson	Z.	4·4	310	e 1 8	− 2	—	—	—	—	—
Pasadena	Z.	4·4	308	e 1 8	− 2	i 2 20	S*	i 1 21	P*	—
Boulder City		4·5	352	i 1 17	+ 6	—	—	—	—	—
Overton		5·0	358	i 0 54	−24	—	—	—	—	—
Chihuahua	Z.	7·4	110	—	—	e 4 21	S_g	—	—	i 5·2
Santa Clara	Z.	8·8	314	e 4 56	S_g	—	—	—	—	e 6·1
Berkeley		9·3	315	—	—	e 4 53	S*	e 5 19	S_g	e 6·2
Logan		10·4	10	e 2 45	+11	e 5 49	S_g	e 3 10	PPP	e 6·1
Shasta Dam		11·4	326	e 2 56	+ 9	—	—	e 3 37	PPP	e 6·3
Rapid City		15·2	31	i 3 44	+ 6	—	—	e 4 38	?	e 8·7
Grand Coulee		16·9	348	e 4 1	+ 2	—	—	e 5 13	?	e 9·7
Florissant		20·6	63	e 4 39	− 4	e 8 48	+19	—	—	i 11·3
St. Louis		20·7	63	i 4 41	− 3	e 8 38	+ 7	—	—	e 11·4
Chicago		23·5	57	—	—	e 9 57	+34	—	—	e 12·7

Tucson gives also i = 1m.2s. and 1m.12s.
Long waves were also recorded at San Juan, College, Sitka, and at other American stations.

April 22d. 9h. 51m. 14s. Epicentre 5°·4N. 123°·0E. Depth of focus 0·080.
(as on 1940, June 18d.).

$A = -\cdot5423$, $B = +\cdot8350$, $C = +\cdot0935$; $\delta = +6$; $h = +7$;
$D = +\cdot839$, $E = +\cdot545$; $G = -\cdot051$, $H = +\cdot078$, $K = -\cdot996$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	37·4	23	e 5 45	−43	10 39	−60	—	—	—
	N.	37·4	23	e 5 28	−60	10 34	−65	—	—	—
Calcutta	N.	37·6	301	e 6 28	− 2	i 11 35	− 7	—	—	—
Colombo	E.	42·9	274	7 9	− 3	12 53	− 6	—	—	—
Brisbane		43·7	140	i 7 16a	− 2	i 12 57	−13	i 9 12	PP	—
Hyderabad		45·1	290	7 30	+ 1	12 27	−62	17 13	SS	—
Riverview		47·2	149	i 7 46k	0	i 13 54	− 5	i 9 28	PP	—
New Delhi	N.	49·1	303	—	—	i 14 19	− 6	i 18 12	SS	—
Bombay	E.	50·7	290	e 8 8	− 4	14 43	− 3	10 5	PP	—
Andijan		57·3	316	9 1	+ 3	—	—	—	—	—
Tashkent		59·6	316	e 9 13	− 1	i 16 45	+ 3	—	—	—
Auckland		64·0	135	i 16 2?	?	i 17 29	− 7	—	—	—
Sverdlovsk		70·6	330	e 10 20	− 2	18 46	− 7	11 7	pP	—
Baku		73·7	310	10 44	+ 4	e 19 32	+ 5	—	—	—
Erevan		77·7	310	e 11 3	+ 1	—	—	—	—	—
Moscow		83·0	325	11 28	− 1	e 20 52	−11	—	—	—
Ksara		84·6	303	e 11 39	+ 2	—	—	—	—	—
Copenhagen		96·9	328	—	—	25 34	PS	27 10	?	—
Collmberg		98·1	324	e 12 42	+ 2	—	—	e 16 48	PP	—
Triest		99·4	317	—	—	e 22 29	[− 2]	—	—	—
Zürich		102·2	321	e 16 31	?	—	—	—	—	—
Basle		102·8	321	e 16 26	?	—	—	—	—	—
Paris		105·3	324	e 17 48	PP	—	—	e 20 38	PPP	—
Kew		105·6	327	e 20 45	PPP	e 27 9	PS	—	—	e 43·8
Clermont-Ferrand		106·3	321	e 17 53	PP	e 23 5	[+ 2]	e 27 4	PS	—
Tinemaha	z.	109·1	49	i 20 6	?	—	—	—	—	—
Pasadena	z.	110·2	51	i 20 13	?	—	—	—	—	—
Riverside	z.	110·9	51	i 20 14	?	—	—	—	—	—
Palomar		111·5	51	i 20 16	?	—	—	—	—	—
Toledo		113·7	317	e 17 41	[+ 5]	—	—	i 18 22	PP	—
Tucson		116·6	50	e 20 22	?	—	—	—	—	—
La Paz	z.	164·5	136	19 1	[0]	26 30	[+77]	—	—	33·2

Additional readings :—
Brisbane eN = 16m.9s.
Riverview iSN = 13m.51s., iE = 16m.36s.
New Delhi iN = 19m.37s.
Bombay ePN = 8m.12s., PPPE = 10m.53s., S_cPEN = 13m.1s., SSE = 18m.7s., SSN = 18m.12s.
Collmberg i = 12m.47s., e = 17m.0s. and 18m.52s.
Kew eZ = 30m.46s.?
La Paz iPZ = 19m.5s., iPPZ = 21m.18s.

April 22d. Readings also at 1h. (Collmberg and near Triest), 2h. (Granada), 5h. (Tashkent and near Stalinabad), 6h. (Andijan and near Stalinabad), 10h. (near Bogota), 14h. (Ksara and near Zürich), 15h. (Basle, Zürich, Almata, near Tashkent, Andijan, and Stalinabad), 16h. (Granada and near La Paz), 17h. (Ksara and Berkeley), 18h. (Mizusawa), 19h. (Kew, Copenhagen, Zürich, Sofia, near Triest, and near Stalinabad), 21h. (near Berkeley, Lick, Branner, Fresno, and San Francisco), 22h. (Philadelphia, Logan, Salt Lake City, Overton, Berkeley, San Francisco, Fresno, Boulder City, and near Tucson).

April 23d. 5h. Mexico.

Oaxaca PE =45m.54s., LE =46m.13s.
Vera Cruz PEN =46m.27s., iZ =46m.36s., LN =47m.19s.
Puebla eN =46m.47s., eE =46m.52s., LEN =47m.31s.
Tacubaya PE =46m.47s., LE =48m.2s.
Tucson iP =50m.17s., i =50m.33s., eS? =54m.14s., eL =55m.52s.
Florissant ePN =50m.33s.
St. Louis iPZ =50m.34s., ipPZ =50m.43s., eN =54m.52s.
Palomar iPNZ =51m.1s., iZ =51m.26s.
Riverside ePZ =51m.7s.
Mount Wilson iPZ =51m.12s.
Pasadena ePZ =51m.15s.
Tinemaha iPZ =51m.30s.
Grand Coulee eP =52m.50s.
Long waves were also recorded at Berkeley, Ferndale, Bozeman, and Bermuda.

April 23d. 6h. 22m. 25s. Epicentre 4°·2S. 152°·2E. Depth of focus 0·010.
(as on 1939, February 28d.).

$A = -\cdot8822$, $B = +\cdot4652$, $C = -\cdot0728$; $\delta = -1$; $h = +7$;
$D = +\cdot466$, $E = +\cdot885$; $G = +\cdot064$, $H = -\cdot033$, $K = -\cdot997$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	23·2	182	i 4 59k	0	i 9 0	0	—	—	—
Riverview		29·5	182	i 6 9k	+12	i 10 39	− 4	i 6 33	pP	e 14·8
Sydney		29·5	182	e 6 35	pP	e 10 41	− 2	—	—	e 12·4
Auckland		38·6	150	7 16	+ 1	14 8	+64	15 5	sS	—
Arapuni		39·9	151	—	—	13 35	+12	—	—	17·6
Wellington	Z.	42·1	155	7 45k	+ 1	13 45	−11	8 15	pP	20·6
Christchurch		43·1	158	7 53k	+ 1	14 3	− 7	17 31	ScS	19·9
Mizusawa	E.	44·3	348	8 4	+ 2	13 54	−34	—	—	—
	N.	44·3	348	8 7	+ 5	13 57	−31	—	—	—
Calcutta	N.	67·8	296	e 10 57	+ 7	—	—	e 16 8	?	—
Hyderabad		75·8	289	11 37	0	21 1	− 9	21 56	PS	36·5
Kodaikanal	E.	75·8	282	i 10 35	−62	20 5	−65	13 35	PP	—
New Delhi	N.	78·9	301	11 54	0	i 23 8	PPS	—	—	—
Bombay		81·3	290	i 12 9	+ 2	i 22 5	− 3	i 12 47	pP	—
College		81·5	22	—	—	e 22 38	+28	e 23 42	sS	e 34·5
Sitka		84·2	32	i 12 20	− 2	i 22 33	− 4	i 13 3	pP	—
Andijan		85·0	311	e 12 27	+ 1	—	—	—	—	—
Tashkent		87·4	312	i 12 37	0	i 23 9	+ 1	—	—	—
Ferndale		87·8	49	—	—	e 22 55	[− 1]	e 23 7	S	—
Ukiah		88·4	51	—	—	e 23 5	[+ 5]	—	—	—
Berkeley		89·0	53	e 12 47	+ 2	i 23 7	[+ 3]	i 23 13	S	e 41·7
Shasta Dam		89·2	49	e 12 44	− 2	i 23 25	0	i 16 57	pPP	—
Santa Barbara	Z.	90·8	56	i 12 56	+ 2	—	—	—	—	—
Fresno	N.	90·9	53	e 12 55	+ 1	e 24 35	SP	—	—	—
Pasadena		92·0	56	i 12 58	− 1	i 23 20	[− 1]	i 13 39	pP	e 27·6
Mount Wilson		92·1	56	i 12 59	− 1	e 23 39	−12	i 13 40	pP	—
Tinemaha		92·1	54	i 13 0	0	—	—	e 13 42	pP	—
Grand Coulee		92·3	42	e 12 57	− 3	i 23 51	− 1	i 13 46	pP	—
Haiwee	E.	92·3	54	e 13 2	+ 2	—	—	—	—	—
La Jolla		92·7	58	e 13 3	+ 1	—	—	—	—	—
Riverside		92·7	56	i 13 0	− 2	—	—	i 13 44	pP	—
Palomar		93·1	57	i 13 4	0	i 23 29	[+ 2]	i 13 45	pP	—
Sverdlovsk		94·3	327	13 10	0	24 4	− 6	—	—	—
Butte		96·6	44	—	—	e 23 44	[− 3]	e 30 55	SS	e 36·3
Logan		97·2	48	e 23 33	?	e 23 50	[0]	e 27 59	?	—
Salt Lake City		97·2	49	—	—	e 23 50	[0]	—	—	e 42·9
Bozeman		97·7	44	—	—	e 23 54	[+ 1]	e 24 35	S	e 50·6
Tucson		98·1	58	e 13 26	− 1	—	—	e 14 5	pP	e 44·9
Saskatoon		100·2	38	—	—	e 32 35?	SSP	—	—	57·6
Rapid City		103·4	45	—	—	i 24 19	[− 1]	e 28 9	PPS	e 43·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Florissant	E.	113·9	49	e 19 14	pPKP	i 26 10	sSKS	e 19 54	pPP		e 28·6
St. Louis		114·0	49	e 18 29	[+ 1]	e 24 59	[− 6]	e 19 8	pPKP		e 37·6
Ksara		114·1	305	e 19 21	PP	—	—	29 35?	?		—
Upsala		114·6	337	e 19 35?	PP	—	—	e 29 35?	?		e 47·6
Copenhagen		119·4	335	20 5	PP	26 32	sSKS	20 59	pPP		—
Ottawa		121·5	38	18 43	[0]	27 2	?	e 20 19	PP		65·6
Seven Falls		123·5	34	—	—	e 27 5	?	—	—		44·6
Philadelphia		124·5	43	e 21 11	pPP	—	—	—	—		e 60·5
Triest		125·1	325	e 20 43	PP	—	—	—	—		—
Strasbourg		126·4	332	e 18 58	[+ 6]	—	—	—	—		—
Chur		126·7	329	e 18 52	[0]	—	—	—	—		—
Zürich		126·8	330	e 18 51	[− 2]	—	—	—	—		—
Basle		127·2	331	e 18 52	[− 1]	—	—	e 20 51	PP		—
Kew		127·6	339	e 18 58	[+ 4]	—	—	e 21 0	PP		e 62·6
Paris		128·6	335	e 18 59	[+ 3]	—	—	e 21 5	PP		—
Huancayo		130·1	110	e 19 3	[+ 4]	e 31 21	PS	e 19 47	pPKP		—
Clermont-Ferrand		130·6	332	e 19 2	[+ 2]	—	—	—	—		—
La Plata		131·9	146	19 37	pPKP	23 2	?	—	—		—
La Paz		135·2	118	19 11	[+ 3]	i 22 35	SKP	i 19 53	pPKP		71·9
Bermuda		135·5	46	—	—	e 22 38	SKP	e 31 50	PS		e 54·7
Tortosa		135·5	329	22 25	pPP	22 51	SKP	29 12	SKKS		—
Toledo		138·5	332	i 19 10	[− 5]	—	—	i 24 20	?		—
San Juan		140·0	66	e 19 21	[+ 3]	—	—	e 22 38	pPP		e 54·7
Coimbra		140·1	337	e 12 39	?	24 5	?	e 30 9	?		e 42·6
Granada		140·4	329	i 19 25a	[+ 7]	26 44	[+27]	i 22 43	pPP		57·3
Fort de France		145·5	70	e 19 28	[+ 1]	—	—	—	—		—

Additional readings :—
Riverview iN =6m.35s., iZ =6m.43s., iNZ =7m.5s., iE =8m.58s., isSE =11m.14s., iN =12m.11s., iE =12m.33s., iZ =12m.47s., iE =13m.5s.
Auckland i =8m.21s., PP =9m.6s., i =12m.1s., SS =17m.5s., S_cS? =19m.31s.
Wellington sPZ =8m.31s., iZ =8m.42s., PP =9m.30s., pP_cPZ =9m.58s., i =10m.33s., iZ =11m.6s. and 14m.20s., sS =14m.28s., iZ =15m.35s., SS =17m.5s., S_cS? = 17m.42s., sSS?Z =17m.50s.?
Christchurch iZ =8m.43s.
Bombay sPE =13m.2s., iE =16m.11s., SPE =22m.58s., sSE =23m.10s., iE =28m.36s.
College e =28m.57s.
Sitka esS =23m.41s., e =29m.11s., 30m.59s., 32m.11s., and 35m.47s.
Ferndale eE =24m.3s., eN =24m.21s., eE =24m.50s.
Berkeley eN =25m.23s., eE =26m.19s., iN =26m.29s., eZ =26m.35s.
Pasadena iZ =14m.34s., iEZ =17m.14s.
Mount Wilson iZ =17m.15s.
Grand Coulee iP =12m.59s., isP =14m.23s., eSKS =23m.15s., e =27m.12s.
Palomar iZ =16m.36s.
Butte e =28m.27s.
Bozeman e =29m.58s.
Tucson i =18m.4s., eSS =32m.35s.
Rapid City e =24m.57s., eSS =32m.35s.
St. Louis iPPZ =19m.19s., ipPPZ =19m.57s., esSKSE =26m.12s.
Copenhagen 27m.54s., i =30m.53s. and 37m.11s.
Ottawa PPS =30m.35s., SS =35m.35s.?, e =43m.35s.?
Philadelphia e =27m.10s., eSS =36m.8s., e =46m.18s.
Kew eZ =21m.53s., eNZ =23m.8s., iZ =24m.43s.
Paris e =21m.58s.
Huancayo e =22m.20s., i =23m.6s. and 27m.27s., eSS =38m.11s.
Clermont-Ferrand e =22m.14s., 23m.7s., and 25m.5s.
La Paz isPKPZ =20m.18s., ipPP =23m.41s., iPPP =24m.56s., PSKS =32m.3s., SSZ = 40m.11s.
Bermuda e =23m.32s. and 39m.7s.
Tortosa PPPE =25m.53s., SKSPE =32m.18s.
San Juan e =23m.27s., 27m.27s., and 41m.41s.
Granada PPS =36m.44s., SS =41m.43s.
Long waves were also recorded at Uccle.

April 23d. Readings also at 2h. (near Granada and Malaga), 3h. (near Fresno and Tucson), 4h. (near Mizusawa), 5h. (Ukiah, Shasta Dam, Auckland, and Wellington), 6h. (Tucson (2), Tinemaha, Palomar, Riverside, Pasadena, Grand Coulee (2), and Shasta Dam (2)), 7h. (Logan, Salt Lake City, Rapid City, Tucson, Palomar, Riverside, Mount Wilson, Tinemaha, Grand Coulee, Shasta Dam, Ukiah, Berkeley, Fresno, Ferndale, and near Mizusawa (2)), 8h. (near Tashkent and Andijan), 10h. (Bombay, New Delhi, and near Mizusawa), 11h. (near Andijan and near Mizusawa), 12h. (Palomar, Riverside, Mount Wilson, Pasadena, Tinemaha, and Brisbane), 21h. (Huancayo and near Tacubaya), 22h. (Mizusawa, Palomar, Riverside, Mount Wilson, Tinemaha, Tucson, and near Tananarive).

April 24d. 14h. 36m. 34s. Epicentre 31°·0N. 139°·5E. Depth of focus 0·050.

Intensity II-III at Utunomiya.
Seismo. Bull. Cent. Met. Obs., Japan, 1945. Tokyo, 1951.
Epicentre as adopted. Focal depth 240km.

$A = -·6530$, $B = +·5577$, $C = +·5125$; $\delta = +9$; $h = +2$;
$D = +·649$, $E = +·760$; $G = -·390$, $H = +·333$, $K = -859$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Omaesaki		3·7	343	(0 50)	−16	1 59	+ 1	—	—
Mera		3·9	4	1 11	+ 3	2 5	+ 3	—	—
Siomisaki		4·0	308	(0 43)	−26	(2 5)	+ 1	—	—
Shizuoka		4·1	347	1 11	+ 1	2 4	− 2	—	—
Yokohama		4·4	1	(1 13)	− 1	(2 10)	− 1	—	—
Hunatu		4·5	352	(1 29)	+14	(2 24)	+11	—	—
Kyoto		5·1	323	(1 45)	+24	2 15	−10	—	—
Tukubasan		5·2	5	1 23	+ 1	2 13	−14	—	—
Mito		5·4	8	1 25	0	2 30	− 1	—	—
Utunomiya		5·5	3	1 27	+ 1	2 31	− 2	—	—
Kôti		5·6	298	1 20a	− 7	2 22	−13	—	—
Toyama		6·0	342	0 53	−38	2 39	− 4	—	—
Wazima		6·7	342	1 30	−10	2 50	− 8	—	—
Hukusima		6·8	6	1 42	+ 1	2 56	− 4	—	—
Sendai		7·3	8	1 45k	− 2	3 5	− 5	—	—
Hamada		7·4	304	1 39k	− 9	2 50	−23	—	—
Kumamoto		7·7	286	1 42	− 9	3 2	−17	—	—
Hukuoka		8·1	291	1 46	−10	3 11	−17	—	—
Mizusawa	E.	8·2	9	1 58	+ 1	i 3 27	− 3	—	—
Akita		8·7	3	2 15	+12	3 48	+ 8	—	—
Morioka		8·8	8	2 4	0	3 38	− 5	—	—
Grand Coulee		74·7	43	i 11 2	− 2	—	—	—	—
Tinemaha		80·7	52	i 11 36	0	—	—	i 13 5	pP
Santa Barbara	z.	81·0	55	i 11 40	+ 2	—	—	—	—
Haiwee	z.	81·4	53	i 11 40	0	—	—	—	—
Mount Wilson	z.	82·3	55	i 11 44	0	—	—	—	—
Pasadena	z.	82·3	55	i 11 44	0	—	—	e 13 18	pP
Riverside	z.	82·9	55	i 11 47	0	—	—	—	—
Palomar		83·6	54	i 11 51	0	—	—	—	—
Tucson		88·4	52	e 12 14	0	—	—	—	—

Additional readings and notes :—
* Omaesaki P has been increased by 1m.
Siomisaki both readings increased by 1m.
Yokohama both readings increased by 1m.
Hunatu both readings increased by 2m.
Kyoto P has been increased by 2m.
Mizusawa ePN = 2m.1s.

April 24d. Readings also at 2h. (Tucson, Palomar, and Tinemaha), 6h. (Boulder City, Grand Coulee, Tucson, Mount Wilson, Palomar, Riverside, Tinemaha, St. Louis, Florissant, Tacubaya, and San Juan), 10h. (Auckland), 13h. (Auckland and Zürich), 14h. (near Andijan and Tashkent), 15h. (Calcutta and near Mineral), 16h. (near Tucson, near Andijan, and Tashkent), 19h. (near Branner), 20h. (2) and 21h. (near Mineral), 23h. (Auckland).

April 25d. Readings at 0h. (near Berkeley), 1h. (near Andijan), 2h. (Auckland, Wellington, Christchurch, and Riverview), 3h. (Kew), 4h. and 6h. (near Mizusawa), 7h. (Christchurch and Auckland), 8h. (Auckland and Tacubaya), 9h. (near Tacubaya), 10h. (near Mizusawa), 13h. (Tinemaha, Palomar, Riverside, Sydney, Riverview, Wellington, Auckland, Christchurch, and Arapuni), 14h. (Kew and Triest), 20h. (near Triest, Zürich, and Chur).

April 26d. 13h. 40m. 59s. Epicentre 20°·5S. 177°·5W. Depth of focus 0·060.
(as on 1943, June 14d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		17·6	201	−0 8	?	i 6 57	+19	—	—	—
Arapuni		18·5	198	3 1?	−48	—	—	—	—	—
Wellington		21·7	197	4 26	+ 6	8 2	+12	14 47	S_cS	—
Brisbane		27·8	252	i 5 15	0	i 9 28	0	i 15 15	?	—
Riverview		30·8	237	i 5 43a	+ 2	i 10 12	− 2	e 12 49	sS	—
Pasadena		78·3	47	i 11 16	− 1	e 20 32	− 5	e 12 52	pP	—
Mount Wilson	z.	78·5	47	i 11 18	0	—	—	e 12 53	pP	—
Palomar		78·8	49	i 11 19	− 1	i 20 48	+ 6	i 12 56	pP	—
Riverside	z.	78·8	47	i 11 21	+ 1	—	—	e 12 54	pP	—
Shasta Dam		79·5	39	e 11 23	0	i 20 48	− 1	i 12 58	pP	—
Tinemaha		80·0	44	e 11 26	0	e 20 55	+ 1	—	—	—
Tucson		82·5	52	i 11 41	+ 2	e 21 22	+ 2	e 13 17	pP	—
Grand Coulee		85·9	35	i 11 54	− 2	i 21 37	−16	i 13 31	pP	—
Tashkent		120·5	306	19 25	PP	24 20	[− 2]	—	—	—
Baku		135·2	307	e 21 1	PP	—	—	—	—	—
Moscow		136·1	332	e 18 30	[− 3]	29 35	SKKS	21 11	PP	—
Copenhagen		144·1	350	i 18 44	[− 3]	—	—	i 21 19	PP	—
Kew	z.	149·0	3	e 20 24	pPKP	—	—	e 21 17?	PP	e 32·0
Uccle		149·7	359	e 19 1	[+ 5]	—	—	—	—	—
Paris		151·7	0	e 20 1?	[+62]	—	—	—	—	—
Basle		152·7	353	e 19 0	[0]	—	—	—	—	—
Zürich		152·7	352	e 19 2	[+ 2]	—	—	—	—	—

Additional readings :—
Brisbane iSSN = 18m.26s.
Riverview iN = 14m.26s., iS_cSN = 15m.29s.
Pasadena iZ = 11m.26s.
Palomar eSN ? = 19m.43s.
Tucson e = 14m.4s.
Moscow pPP = 22m.45s.
Basle e = 28m.59s. and 30m.22s.

April 26d. Readings also at 0h. (near Andijan), 1h. (Grand Coulee, Tucson, Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, and Boulder City), 3h. (near Basle, Zürich, Triest, and Chur), 4h. (near Triest and Strasbourg), 5h. (Tucson, Mount Wilson, Pasadena, Riverside, Palomar, and Tinemaha), 6h. (Pehpei), 8h. (La Paz Shasta Dam, Tucson, Grand Coulee, Mount Wilson, Pasadena, Riverside, and near Andijan), 9h. (near Bogota), 12h. (near Granada).

April 27d. 14h. Mediterranean shock.

Felt on the Algerian coast between Cape Tènes and Cherchell.
Epicentre 36°40′N., 0°35′W. (Strasbourg).
Annales de l'Institut de Physique du Globe de Strasbourg, 2ème partie Séismologie, Tome, X, Strasbourg, 1951, p. 27.

Alicante P = 44m.23s.
Almeria P = 44m.28s.
Tortosa iPN = 44m.48s., P_gN = 44m.56s., 45m.2s., 45m.5s., and 45m.15s., PSN = 45m.18s., 45m.24s., and 45m.31s., S_gN = 45m.34s., P_gS_gN = 45m.45s., SN = 45m.48s., PSN = 45m.55s., S_gN = 46m.3s., iSE = 46m.23s.
Toledo PZ = 44m.58s., S_gE = 46m.11s.
Malaga eP_gZ = 45m.0s., iS_gZ = 45m.38s., iZ = 46m.17s., LZ = 47m.15s.
Granada iP = 45m.26s., P_gS_g = 45m.36s., S_g = 46m.9s. and 46m.30s.
Barcelona P = 45m.43s., PS = 46m.18s., eS = 47m.8s.
Lisbon E = 48m.0s.?, N = 48m.17s.
Coimbra eP = 48m.20s., S = 50m.48s., L = 52m.26s.
Tucson iP = 56m.27s.
Tinemaha ePZ = 56m.32s.
Riverside ePZ = 56m.39s.
Long waves were also recorded at Kew, Paris, Uccle, and Copenhagen.

April 27d. Readings also at 0h. (Andijan and near Tashkent), 6h. (Tucson), 7h. (Tinemaha and Palomar), 8h. (Tucson, Pasadena, Riverside, Palomar, Haiwee, and Tinemaha), 13h. (La Paz), 16h. (Auckland).

April 28d. 15h. 44m. 6s. Epicentre 5°·0N. 82°·5W. (as on 1944, May 29d.).

$A = +\cdot1300$, $B = -\cdot9877$, $C = +\cdot0866$; $\delta = -5$; $h = +7$;
$D = -\cdot991$, $E = -\cdot131$; $G = +\cdot011$, $H = -\cdot086$, $K = -\cdot996$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		4·9	35	i 1 18	+ 1	e 2 17	+ 2	—	—	—
Huancayo		18·7	157	e 4 17	− 5	e 7 16	−32	i 4 41	PP	e 7·9
San Juan		20·8	48	i 4 48	+ 3	e 8 44	+11	—	—	e 11·1
La Paz		25·7	146	5 31	− 2	10 43	+42	i 5 36	?	15·3
St. Louis		34·2	350	i 6 40	− 9	e 12 15	− 1	—	—	—
Florissant	E.	34·4	350	—	—	e 12 18	− 1	—	—	—
Tucson		37·9	319	i 7 21	+ 1	—	—	—	—	e 21·2
Palomar		42·6	316	i 7 59	0	—	—	—	—	—
Riverside	z.	43·3	316	i 8 4	− 1	—	—	—	—	—
Mount Wilson	z.	43·9	316	i 8 10	0	—	—	—	—	—
Pasadena	z.	44·0	316	i 8 10	− 1	—	—	—	—	—
Tinemaha		45·7	319	i 8 24	0	—	—	—	—	—

Huancayo gives also e = 5m.56s.

April 28d. Readings also at 1h. (Tucson and Tinemaha), 2h. (Bogota and Bucharest), 6h. (near Stalinabad), 7h. (near Berkeley), 10h. (Basle and Zürich), 11h. (Tucson and near Tacubaya), 21h. (Balboa Heights).

April 29d. 2h. 25m. 38s. Epicentre 4°·5N. 98°·0E.

Rough. Pasadena suggests deep focus.

$A = -\cdot1388$, $B = +\cdot9873$, $C = +\cdot0779$; $\delta = +10$; $h = +7$;
$D = +\cdot990$, $E = +\cdot139$; $G = -\cdot011$, $H = +\cdot077$, $K = -\cdot997$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo	E.	18·2	278	4 15	− 1	7 56	+19	—	—	—
Calcutta	N.	20·2	333	e 5 13	PP	i 8 35	+14	—	—	—
Hyderabad		23·1	305	5 8	0	9 17	+ 1	5 45	PP	11·8
Bombay		28·4	302	e 5 57	− 1	i 10 45	0	e 6 40	PP	—
New Delhi	N.	31·1	323	—	—	i 11 24	− 4	—	—	e 14·6
Tashkent		44·8	330	e 8 17	0	i 14 52	− 3	—	—	—
Sverdlovsk		60·0	338	—	—	e 18 10	−13	—	—	—
Brisbane	z.	61·8	124	i 9 52	−31	—	—	—	—	—
Riverview		63·0	132	i 18 5	?	e 18 52	− 9	—	—	e 29·7
Copenhagen		83·8	326	i 12 23	− 9	—	—	—	—	—
Chur		85·7	317	e 13 32k	+50	—	—	—	—	—
Zürich		86·3	317	e 13 34k	+49	—	—	—	—	—
Basle		87·0	317	e 13 37	+49	—	—	—	—	—
Granada		96·5	307	—	—	(24 28)	{− 1}	—	—	24·5
Shasta Dam		121·8	35	e 18 37	[−19]	—	—	i 21 57	SKP	—
Tinemaha		126·6	36	i 18 48	[−17]	—	—	i 21 51	SKP	—
Haiwee		127·4	36	i 18 51	[−16]	e 26 34	[+21]	i 21 53	SKP	—
Mount Wilson	z.	128·6	38	e 20 49	PP	—	—	i 21 57	SKP	—
Pasadena		128·6	38	i 21 57	SKP	—	—	—	—	—
Riverside		129·2	38	e 21 3	PP	—	—	i 21 58	SKP	—
Palomar		129·9	37	i 21 22	PP	—	—	i 22 18	SKP	—
La Jolla		130·0	38	i 22 4	SKP	—	—	—	—	—
Tucson		134·3	33	e 18 53	[−27]	e 26 1	[−29]	i 22 19	SKP	—
La Paz		161·9	228	20 45	[+42]	—	—	—	—	—

Additional readings :—
Hyderabad SSE = 10m.7s.
Tinemaha iZ = 31m.49s.

April 29d. 20h. 16m. 15s. Epicentre 47°·5N. 122°·4W. (as on 1939, November 13d.).

Intensity VII at North Bend, Palmer, and Stampede Pass; VI at Baldi, Cedar Falls Ellensburg, Elma, Greenwater, Preston, and Skykomish.
Macroseismic epicentre 47°·4N. 121°·7W. Macroseismic area 50,000 square miles.
United States Earthquakes, 1945, U.S. Coast and Geodetic Survey, Washington, 1947, p. 16. Isoseismic chart p. 16.

A = −·3633, B = −·5725, C = +·7350; δ = −3; h = −4;
D = −·844, E = +·536; G = −·394, H = −·621, K = −·678.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Seattle		0·2	22	i 0 13?	+ 3	i 0 16?	0	i 0 22?	?	—
Victoria	Z.	1·2	326	0 33	+ 9	0 55	+14	—	—	—
Grand Coulee		2·3	79	i 0 34	− 6	i 1 2	− 7	—	—	—
Butte		6·9	98	e 1 50	+ 5	i 3 9	+ 4	e 2 28	P_g	i 3·5
Shasta Dam		6·9	180	e 1 42	− 3	e 3 36	S*	i 1 50	P*	—
Mineral	E.	7·2	174	e 1 52	+ 3	—	—	—	—	—
Logan		9·5	124	e 2 28	+ 8	e 4 7	− 3	—	—	e 4·6
Berkeley		9·6	180	i 2 22	+ 1	e 4 42	S*	i 2 41	PPP	e 5·6
Branner		10·1	179	e 2 30	+ 2	—	—	e 2 41	PP	—
Salt Lake City		10·1	128	e 2 46	PPP	e 4 36	+11	e 5 0	SSS	i 5·3
Lick		10·2	175	e 2 28	− 3	—	—	e 2 43	PP	—
Santa Clara		10·2	177	e 2 47	PPP	—	—	—	—	e 5·9
Fresno	N.	10·9	169	e 2 44	+ 4	—	—	—	—	e 5·7
Tinemaha		10·9	162	i 2 40	0	—	—	—	—	e 5·9
Saskatoon		11·2	60	—	—	e 4 51	− 1	—	—	5·8
Haiwee		11·8	163	i 2 54	+ 1	—	—	i 3 2	PP	—
Boulder City		12·8	151	e 3 34	PPP	—	—	—	—	i 9·9
Santa Barbara	Z.	13·2	170	e 3 17	+ 6	—	—	—	—	—
Mount Wilson		13·7	164	i 3 16	− 2	—	—	—	—	—
Pasadena		13·7	165	e 3 15	− 3	i 7 21	?	i 3 25	PP	e 7·8
Rapid City		13·8	97	e 3 17	− 2	e 5 45	− 9	—	—	i 6·8
Riverside		14·0	162	i 3 22	0	—	—	—	—	e 7·5
Palomar		14·7	163	i 3 30k	− 1	—	—	i 3 39	PP	—
La Jolla		15·1	164	e 3 38	+ 2	—	—	—	—	—
Tucson		17·6	146	i 4 5	− 3	i 7 29	+ 6	i 4 14	PP	e 8·9
Florissant		24·8	98	i 5 19	− 6	i 9 43	− 3	—	—	e 12·7
St. Louis		25·0	98	e 5 15	−12	e 9 49	0	i 5 25	pP	e 12·6
Ottawa		31·9	76	e 9 12	P_cP	—	—	—	—	e 16·3
Shawinigan Falls		33·4	72	e 9 27	P_cP	—	—	—	—	16·8
Philadelphia		34·5	84	—	—	e 14 51	SSS	—	—	e 16·8

Additional readings:—
Butte iS? = 2m.47s.
Logan e = 3m.46s. and 4m.27s.
Berkeley iZ = 2m.30s., eN = 2m.44s., iZ = 3m.9s., eN = 3m.12s. and 3m.35s., iE = 3m.44s., e = 4m.42s.
Branner eN = 2m.44s.
Lick ePE = 2m.34s.
Pasadena iZ = 4m.56s.
Long waves were also recorded at Granada, Kew, Ukiah, Chicago, Pittsburgh, Harvard, and Seven Falls.

April 29d. Readings also at 6h. (La Paz), 7h. (Tucson, Mount Wilson, Pasadena, Palomar, and Tinemaha), 13h. (La Paz), 15h. (Bucharest and La Paz), 19h. (Auckland, Christchurch, Wellington, Arapuni, Riverview, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Shasta Dam, Tucson, and near Balboa Heights), 20h. (St. Louis, Tinemaha, Haiwee, Pasadena, Mount Wilson, La Jolla, Riverside, Palomar, Tucson, La Paz, San Juan, Bogota, and Balboa Heights), 21h. (St. Louis, Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, Palomar, Tucson, La Paz, San Juan, and Balboa Heights), 23h. (Berkeley (2)).

April 30d. 11h. 15m. 13s. Epicentre 50°·7N. 150°·0E. Depth of focus 0·070.

$A = -·5507$, $B = +·3180$, $C = +·7718$; $\delta = +7$; $h = -6$;
$D = +·500$, $E = +·866$; $G = -·668$, $H = +·386$, $K = -·636$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	13·2	212	2 55	+ 2	5 12	+ 1	—	—	—
Sendai		14·0	211	e 3 2	+ 1	5 29	+ 2	—	—	—
Hukusima		14·6	211	3 9	+ 2	5 41	+ 3	—	—	—
Wazima		16·3	220	e 3 17	− 7	6 27	+18	—	—	—
Toyooka		18·7	222	e 3 42	− 6	6 41	−11	—	—	—
Irkutsk		28·1	292	e 5 14	0	9 26	+ 2	—	—	—
Sverdlovsk		49·4	314	8 3	− 4	i 14 35	− 2	—	—	—
Grand Coulee		55·7	55	i 9 1	+ 9	—	—	—	—	—
Shasta Dam		58·6	63	i 9 20	+ 8	i 18 9	+91	i 13 5	PPP	—
Moscow		60·0	323	9 22	+ 1	e 16 56	0	e 11 9	pP	—
Tinemaha		63·4	63	e 9 43	− 1	e 17 36	− 2	e 11 25	pP	—
Haiwee	Z.	64·2	64	i 9 48	− 1	—	—	e 12 14	sP	—
Santa Barbara	Z.	64·4	67	i 9 50	0	—	—	—	—	—
Mount Wilson	Z.	65·5	66	i 9 55	− 2	—	—	e 11 38	pP	—
Pasadena		65·5	66	i 9 56	− 1	—	—	i 11 42	pP	—
Baku		65·6	305	10 3	+ 6	18 5	+ 1	—	—	—
Riverside	Z.	66·1	66	e 9 58	− 2	—	—	e 12 29	sP	—
Boulder City		66·1	62	i 10 30	+30	—	—	—	—	—
Pierce Ferry		66·5	61	e 9 31	−32	(e 17 47?)	−28	—	—	e 17·8
Palomar		66·8	65	i 10 5a	0	i 18 20	+ 1	e 11 50	pP	—
La Jolla		67·0	66	i 10 6	0	—	—	—	—	—
Copenhagen		68·3	336	i 10 13	− 1	—	—	—	—	—
Tucson		71·1	63	i 10 30	− 1	—	—	e 12 17	pP	—
Collmberg	Z.	72·0	334	i 10 41	+ 5	e 19 17	− 1	e 12 32	pP	—
Florissant		76·3	44	e 10 58	− 2	e 19 59	− 6	e 23 11	sS	—
St. Louis		76·5	44	i 10 59	− 2	e 20 1	− 6	e 12 47	pP	—
Zürich		76·8	335	e 11 1k	− 2	—	—	—	—	—
Basle		76·9	335	e 11 3	0	—	—	—	—	—
Chur		77·0	334	e 11 4	0	—	—	—	—	—
Paris		77·0	339	e 11 2	− 2	—	—	—	—	—
Clermont-Ferrand		79·7	337	e 11 18	0	—	—	—	—	—
Harvard		80·3	30	i 11 20	− 1	—	—	—	—	—

Additional readings :—
Grand Coulee i = 9m.29s.
Shasta Dam i = 16m.39s.
Tinemaha iEZ = 10m.17s., esPZ = 12m.3s.
Mount Wilson esPZ = 12m.26s., eZ = 13m.13s.
Pasadena isPZ = 12m.28s.
Riverside ePKPPKPZ = 38m.14s.
Pierce Ferry i = 9m.34s.
Palomar iNZ = 10m.20s., iEZ = 12m.34s.
Tucson i = 13m.7s., iPKPPKP = 38m.13s.
Collmberg iZ = 11m.7s., eZ = 13m.24s.
St. Louis esS?E = 23m.13s.

April 30d. 17h. 27m. 19s. Epicentre 20°·2S. 178°·2W. Depth of focus 0·070.

$A = -·9387$, $B = -·0295$, $C = -·3433$; $\delta = -12$; $h = +5$;
$D = -·031$, $E = +1·000$; $G = +·343$, $H = +·011$, $K = -·939$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland	17·7	200	3 38	0	5 57	−37	—	—	—
Arapuni	18·6	196	e 3 41!	− 6	—	—	—	—	—
Wellington	21·9	195	4 16	− 2	7 36	−10	14 27	S_eS	—
Christchurch	24·5	197	1 41	?	(8 45)	+17	7 4	pP	11·2
Brisbane	27·3	250	i 5 6k	− 1	i 9 6	− 6	—	—	e 11·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		30·4	237	i 5 34k	0	i 9 53	− 7	i 7 18	pP	—
Sydney		30·4	237	e 8 5	?	e 9 47	−13	—	—	—
Santa Barbara		77·7	47	i 11 9	+ 1	—	—	—	—	—
Branner		77·9	43	e 11 12	+ 3	—	—	—	—	—
Berkeley	z.	78·1	43	i 11 10	0	—	—	—	—	—
La Jolla		78·6	49	i 11 13	+ 1	e 20 30	+ 1	—	—	—
Pasadena		78·6	48	i 11 13k	+ 1	i 20 28	− 1	i 13 11	pP	—
Mount Wilson		78·7	48	i 11 14k	+ 1	—	—	i 13 12	pP	—
Palomar		79·1	49	i 11 16k	+ 1	i 20 37	+ 3	i 13 11	pP	—
Riverside		79·3	48	i 11 14k	− 2	e 20 34	− 2	e 13 12	pP	—
Shasta Dam		79·7	40	i 11 19	+ 1	i 20 37	− 4	i 13 18	pP	—
Haiwee		79·9	46	i 11 19k	0	e 20 44	+ 1	i 13 19	pP	—
Tinemaha		80·2	45	i 11 22k	+ 1	e 20 47	+ 1	e 13 21	pP	—
Boulder City		81·9	47	i 12 1	+31	—	—	—	—	—
Pierce Ferry		82·6	48	e 11 34	+ 1	—	—	—	—	—
Tucson		82·9	52	i 11 35	0	e 21 14	+ 1	e 14 28	pP	—
Grand Coulee		86·0	36	i 11 50	0	e 20 38	− 4	—	—	—
Rapid City		93·6	44	e 10 24	?	e 20 52	?	—	—	—
Florissant		100·7	53	—	—	e 22 41	[− 9]	e 23 49	S	—
St. Louis		100·8	53	—	—	e 22 44	[− 6]	e 23 53	S	—
San Juan		116·3	79	e 16 15	P	i 23 49	[− 6]	e 33 17	SS	e 53·3
Copenhagen		143·7	350	i 18 37	[− 4]	—	—	—	—	—
Ksara		146·9	301	e 18 50	[+ 4]	—	—	e 22 8	PP	—
Collmberg		147·7	347	i 18 52	[+ 5]	e 22 26	PP	i 21 4	pPKP	—
Strasbourg		151·3	352	e 18 57	[+ 6]	—	—	—	—	—
Paris		151·4	0	e 18 59	[+ 8]	—	—	—	—	—
Basle		152·3	351	e 18 53	[0]	—	—	—	—	—
Zürich		152·3	350	e 18 51k	[− 2]	—	—	—	—	—
Chur		152·7	349	e 18 51	[− 2]	—	—	—	—	—
Clermont-Ferrand		154·5	357	e 18 55	[0]	—	—	—	—	—
Toledo	z.	159·8	13	i 19 2	[− 1]	—	—	—	—	—
Granada		162·4	15	—	—	—	—	(26 23)	PPP	26·4
Malaga	z.	162·6	17	i 19 56k	[+50]	i 23 42	PP	(26 42)	PPP	26·7

Additional readings :—
Auckland i = 6m.31s., 6m.51s., and 7m.28s.
Wellington i = 6m.46s. and 7m.7s.
Christchurch gives S as Q.
Brisbane iSE = 9m.11s.
Riverview iP_cPZ = 8m.5s., i = 10m.59s., isSN = 13m.12s., iS_cSEN = 15m.9s.
Pasadena iZ = 11m.20s., i = 11m.36s.
Mount Wilson ePKP,PKPZ = 37m.58s.
Palomar iZ = 11m.38s., eZ = 14m.10s., iPKP,PKPZ = 38m.8s.
Riverside ePKP,PKPZ = 38m.7s.
Shasta Dam iSKS = 20m.59s.
Tinemaha ePKP,PKPZ = 37m.51s., iZ = 38m.5s.
Tucson e = 22m.9s.
Florissant esSN = 27m.40s.
St. Louis isSN = 27m.35s.
Collmberg i = 18m.57s., 19m.12s., 19m.18s., and 19m.43s., eZ = 19m.48s.
Strasbourg e = 19m.21s.
Paris i = 19m.11s.
Basle e = 19m.2s.
Toledo i = 19m.46s.
Malaga pPZ = 20m.5s., iZ = 22m.1s.

April 30d. Readings also at 13h. (Riverview), 14h. and 16h. (Collmberg), 17h. (Haiwee, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, Boulder City, Shasta Dam, Bombay, Collmberg, Riverview, and near Mizusawa), 19h. (near Branner), 23h. (Berkeley).

May 1d. 5h. 57m. 35s. Epicentre 20°·8S. 69°·0W. Depth of Focus 0·010.

A = +·3353, B = −·8735, C = −·3531 ; δ = +11 ; h = +4 ;
D = −·934, E = −·358 ; G = −·127, H = +·330, K = −·936.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		1·8	175	i 0 27	− 3	i 0 48	− 5	e 0 44	PPP	—
La Paz		4·4	11	i 1 9	+ 3	(i 1 43)	−13	i 1 34	?	1·7
Huancayo		10·6	325	e 2 35	+ 5	e 4 10	−18	—	—	i 4·8
La Plata	E.	17·1	147	4 1	+ 7	6 43	−17	4 19	pP	8·3
	N.	17·1	147	3 55	+ 1	7 7	+ 7	4 19	pP	8·9
Bogota		25·7	348	i 5 21	− 2	e 10 3	+21	i 6 1	pP	—
Fort de France		36·1	14	e 6 54	0	—	—	—	—	—
San Juan		39·0	5	e 7 17	− 1	i 13 3	− 7	e 7 53	pP	e 16·9
Bermuda		53·0	5	e 9 13	+ 4	e 15 56	−33	e 20 50	sSS	e 22·0
Pittsburgh		61·8	351	e 10 6	− 5	e 18 13	−12	i 18 45	PS	—
St. Louis		62·4	341	i 10 12	− 3	e 18 29	− 3	e 10 38	pP	—
Florissant		62·6	341	i 10 12	− 4	e 18 31	− 4	e 10 41	pP	—
Harvard		63·0	358	i 10 16	− 3	—	—	—	—	—
Tucson		66·2	322	e 10 39	− 1	—	—	—	—	e 27·3
La Jolla		70·5	318	e 11 7	+ 1	—	—	—	—	—
Palomar		70·6	319	i 11 6k	− 1	—	—	i 11 26	pP	—
Pierce Ferry		70·8	323	e 11 8	0	e 20 20	+ 6	i 11 39	pP	—
Boulder City		71·2	322	i 11 8	− 2	—	—	i 11 40	pP	—
Riverside	Z.	71·3	319	i 11 11k	0	—	—	i 11 41	pP	—
Overton		71·4	323	i 11 12	0	—	—	i 11 41	pP	—
Rapid City		71·8	323	i 11 13	− 1	e 21 10	PS	e 11 46	pP	e 31·1
Mount Wilson		71·9	319	i 11 16k	+ 2	e 20 33	+ 7	i 11 42	pP	—
Pasadena		71·9	319	i 11 14	0	i 20 37	+11	i 11 44	pP	—
Haiwee	E.	73·1	321	e 11 24	+ 2	—	—	—	—	—
Salt Lake City		73·1	327	e 11 48	pP	e 20 48	+ 8	e 21 59	?	e 43·8
Santa Barbara		73·1	317	e 11 22	0	—	—	—	—	—
Tinemaha		74·0	321	e 11 29	+ 2	—	—	—	—	—
Shasta Dam		78·8	321	i 11 51	− 3	—	—	—	—	—
Grand Coulee		81·8	328	e 12 9	− 1	—	—	i 12 40	pP	—
Malaga		83·6	47	—	—	i 22 35	+ 4	23 31	PS	e 37·4
Granada		84·3	47	i 12 23s	+ 1	i 22 41	+ 3	13 3	pP	41·2
Toledo		85·5	44	i 12 26	− 2	22 50	0	—	—	—
Tortosa	N.	88·9	45	—	—	23 39	+17	—	—	—
Kew		93·6	36	—	—	e 24 51?	?	i 25 37	PS	e 47·4
Copengagen		102·3	35	—	—	27 49	PPS	—	—	44·4
Riverview		113·6	216	e 19 55	pPP	e 28 59	PS	e 35 55	SSP	e 56·3

Additional readings :—
La Plata S?N = 6m.19s.
Bogota e = 15m.1s.
San Juan i = 9m.23s., esS = 13m.48s., iSS = 16m.7s.
St. Louis iZ = 10m.15s., iP_ePZ = 10m.52s., eN = 13m.9s., iSN = 18m.34s., esSN = 19m.12s., eS_eSN = 19m.57s., eN = 20m.35s., eSSN = 22m.46s.
Florissant eP_ePZ = 10m.55s., eZ = 13m.7s., esSE = 19m.23s.
Palomar iPKP,PKPZ = 37m.27s.
Riverside iZ = 11m.53s.
Pasadena iZ = 11m.56s.
Granada sS = 23m.55s., eSS = 29m.13s., sSS = 30m.7s.

May 1d. 8h. Undetermined shock.

Malaga ePZ = 0m.37s., pPZ = 1m.25s., iZ = 1m.45s., iSZ = 12m.5s., iZ = 32m.17s., eLZ = 40m.9s.
Irkutsk eP = 1m.25s., eS = 6m.56s.
Grand Coulee iP = 2m.20s.
Shasta Dam iP = 2m.44s.
Tinemaha eE = 3m.22s.
Haiwee eE = 3m.30s.
Pasadena iPEZ = 3m.35s,. iZ = 3m.44s.
Mount Wilson iPZ = 3m.36s.
Overton eP = 3m.38s.
Riverside ePZ = 3m.38s., eZ = 3m.48s.
Santa Barbara eZ = 3m.38s.

Continued on next page.

Boulder City eP = 3m.40s.
Pierce Ferry iP = 3m.42s., i = 3m.52s.
Palomar iPNZ = 3m.44s., iZ = 3m.54s.
La Jolla eZ = 3m.55s.
Tucson eP = 4m.14s.
St. Louis ePZ = 4m.50s., eZ = 4m.53s., iZ = 4m.59s., eSN = 13m.45s., eE = 21m.48s.
Collmberg eZ = 5m.17s.
Copenhagen 14m.12s., L = 30m.
Long waves were also recorded at Sitka, Bozeman, San Juan, Upsala, Kew, Granada, Bombay, and Riverview.

May 1d. 16h. 35m. 3s. Epicentre 31°·5S. 68°·6W. Depth of Focus 0·010.
(as on 1944 January 15d.).
Felt near San Juan, at Pocito, and Cancete. Depth 100km. (U.S.C.G.S.).

$A = +\cdot3117$, $B = -\cdot7953$, $C = -\cdot5199$; $\delta = -5$; $h = +1$;
$D = -\cdot931$, $E = -\cdot365$; $G = -\cdot190$, $H = +\cdot484$, $K = -\cdot854$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata		9·6	114	i 2 18	+ 1	4 1	− 3	—	—	4·3
La Paz		15·0	4	e 3 27	− 1	i 6 21	+ 9	3 31	?	i 7·3
Huancayo		20·3	341	i 4 33	+ 3	i 8 19	+12	i 4 53	pP	e 9·3
Bogota		36·3	351	e 6 57	+ 1	e 12 33	+ 4	e 7 24	pP	—
Fort de France		46·5	11	e 8 19	0	—	—	—	—	—
San Juan		49·7	4	e 8 43	− 1	e 15 35	− 9	e 9 6	pP	e 19·2
St. Louis		72·6	342	i 11 18	− 1	i 20 32	− 2	i 11 44	pP	—
Florissant		72·8	358	i 11 18	− 2	i 20 34	− 2	i 11 47	pP	—
Harvard		73·7	358	i 11 24	− 1	—	—	—	—	—
Tucson		74·9	324	i 11 32	0	e 21 2	+ 2	i 11 58	pP	e 41·4
Chicago		75·0	345	e 11 25	− 7	e 20 51	−10	e 21 25	pS	e 31·0
Ottawa		76·8	355	e 11 41	− 2	(20 57?)	−24	—	—	21·0
La Jolla		78·8	320	i 11 55	+ 1	—	—	—	—	—
Palomar		79·0	321	i 11 55k	0	i 21 49	+ 5	i 12 27	pP	—
Pierce Ferry		79·6	323	i 11 58	0	e 21 52	+ 1	e 22 40	PS	—
Riverside		79·7	320	i 11 59k	0	—	—	i 12 28	pP	—
Boulder City		79·9	323	i 11 59	− 1	e 21 54	0	e 22 47	PS	—
Overton		80·1	323	i 12 2	+ 1	—	—	—	—	—
Mount Wilson		80·3	320	i 12 2k	0	—	—	i 12 30	pP	—
Pasadena		80·3	320	i 12 0k	− 2	i 21 57	− 1	i 12 31	pP	e 31·4
Santa Barbara		81·3	319	i 12 7	0	—	—	—	—	—
Rapid City		81·6	336	i 12 5	− 4	e 22 14	+ 3	e 23 3	sS	e 32·0
Haiwee		81·7	322	i 12 11	+ 2	—	—	—	—	—
Salt Lake City		82·3	328	—	—	e 22 18	0	e 23 7	sS	e 33·3
Tinemaha		82·5	322	i 12 13	0	—	—	i 12 38	pP	—
Lick	N.	84·5	320	(e 13 26)	+63	e 13 26	P	—	—	—
Shasta Dam		87·4	321	i 12 36	− 1	—	—	—	—	—
Grand Coulee		91·1	328	i 12 53	− 2	e 23 35	− 7	i 13 19	pP	—
Riverview	Z.	105·0	213	e 18 36	PP	27 39	PS	—	—	e 50·3
Collmberg	Z.	109·0	41	e 18 27	pPKP	—	—	e 19 21	pPP	—

Additional readings :—
La Plata SE = 4m.9s.
Huancayo iPP? = 5m.20s.
San Juan esP = 9m.21s., e = 10m.50s., epPP = 11m.11s., e = 16m.22s.
St. Louis isPZ = 11m.56s., iN = 21m.8s., isSN = 21m.22s., iN = 21m.34s., eN = 24m.43s., eSSSE = 28m.51s.
Florissant eN = 21m.13s., isSN = 21m.24s., eN = 21m.40s.
Tucson ePS = 21m.55s., eSS? = 36m.12s.
Chicago esS = 21m.40s.
Palomar iZ = 12m.43s.
Pasadena iZ = 22m.47s.
Salt Lake City esSS = 28m.10s.
Tinemaha iZ = 12m.43s.
Grand Coulee i = 13m.47s.
Long waves were also recorded at Clermont-Ferrand.

May 1d. 23h. Undetermined shock.

Irkutsk eP =6m.24s.
Sverdlovsk eP =11m.0s., eS =18m.28s.
Collmberg eZ =13m.49s.
Grand Coulee iP =14m.18s., i =14m.22s.
Shasta Dam eP =14m.28s.
Hyderabad SN =15m.0s., SSN =18m.35s.
Pierce Ferry eP =15m.12s., eS =19m.13s.
Mount Wilson eZ =19m.7s.
Boulder City e =19m.11s. and 19m.17s.
Riverside eZ =19m.14s.
Palomar iZ =19m.21s.
Tucson e =19m.45s.
Bombay eN =28m.
Riverview eZ =30m.6s.
Granada e =42m.52s., L =53·7m.
Long waves were also recorded at other European stations.

May 1d. Readings also at 0h. (Berkeley (2)), 4h. (Riverview, La Paz (2), Kew, Granada, Collmberg, Ksara, Bucharest, and near Yalta), 5h. (Collmberg and Shasta Dam), 7h. (Collmberg (2), Ksara, Palomar, Tucson, Mount Wilson, and Santa Barbara), 13h. (near Bogota), 20h. (Riverside, Mount Wilson, Pasadena, Palomar, Tucson, and Tinemaha), 21h. (Collmberg, Wellington, Riverview, Auckland, Christchurch, and near Lick), 22h. (New Delhi).

May 2d. 19h. 47m. 58s. Epicentre 41°·3N. 122°·5W.

Intensity VI at Etna, Burnt Ranch ; V at Callahan, Clear Creek, Eureka, and Weaverville.
Epicentre as adopted (U.S.C.G.S.). Macroseismic area : 3,500 square miles.
United States Earthquakes, 1945.
U.S. Coast and Geodetic Survey, Washington, 1947, p. 13.

$$A = -\cdot4049,\ B = -\cdot6355,\ C = +\cdot6575\ ;\quad \delta = +11\ ;\quad h = -2\ ;$$
$$D = -\cdot843,\ E = +\cdot537\ ;\quad G = -\cdot353,\ H = -\cdot555,\ K = -\cdot754.$$

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mineral	E.	1·2	144	i 0 25	+ 1	i 0 40	− 1	i 0 37	?	—
Ferndale	E.	1·5	241	e 0 13	?	i 0 25	P	—	—	—
Ukiah		2·2	194	e 0 40	+ 2	i 0 54	−12	—	—	e 1·1
Berkeley		3·4	177	e 0 50	− 5	i 1 32	− 5	e 0 58	P*	i 2·4
San Francisco		3·5	179	e 0 54	− 3	i 1 42	+ 2	i 0 59	P*	i 2·2
Branner		3·9	176	e 0 56	− 6	i 1 53	+ 3	i 1 5	P*	—
Santa Clara		3·9	173	e 1 2	0	i 1 56	+ 6	—	—	—
Lick		4·0	169	e 1 0	− 4	i 2 0	+ 8	e 1 10	P*	—
Fresno	N.	5·0	154	e 1 18	0	i 2 13	− 5	e 1 27	P*	i 4·7
Tinemaha		5·3	140	i 1 23	+ 1	i 2 37	S*	—	—	—
Haiwee		6·2	144	e 1 37	+ 2	e 3 9	S*	—	—	—
Grand Coulee		7·1	19	e 1 50	+ 2	—	—	i 2 4	P*	i 4·0
Santa Barbara		7·1	162	i 1 48	0	i 3 28	S*	—	—	—
Overton		7·8	124	e 1 58	0	(i 3 52)	S*	—	—	i 3·9
Mount Wilson		7·8	152	i 1 56	− 2	e 3 57	S*	—	—	—
Pasadena		7·9	153	i 1 56a	− 3	i 4 7	S*	i 2 11	P*	—
Boulder City		8·0	129	e 2 0	0	(e 4 27?)	S_g	i 2 40	P_g	e 4·5
Logan		8·0	83	i 2 18	P*	(i 4 22)	S_g	i 2 44	P_g	i 4·4
Salt Lake City		8·0	90	i 2 6	+ 6	e 3 55	S*	—	—	e 4·6
Riverside		8·3	149	i 2 2	− 2	e 4 8	S*	—	—	—
Pierce Ferry		8·4	125	i 2 6	0	(e 4 35)	S_g	i 2 47	P_g	e 4·6
Butte		8·6	53	—	—	e 3 46	− 2	(e 4 19)	S*	e 4·3
Palomar		9·1	148	i 2 13	− 1	—	—	—	—	—
Tucson		13·0	130	i 3 9	0	e 5 44	+ 9	i 3 22	PP	e 6·4
Rapid City		14·4	73	i 3 31	+ 4	i 6 11	+ 2	i 3 47	PPP	i 8·0
St. Louis		24·8	85	i 5 19	− 6	e 9 52	+ 6	—	—	e 14·5

For Notes see next page.

NOTES TO MAY 2d. 19h. 17m. 58s.

Additional readings :—
Berkeley eEN =1m.5s., iEN =1m.10s., 1m.17s., 1m.24s., and 1m.28s., iN =1m.42s., i =1m.46s., iEZ =2m.8s.
San Francisco iSN =1m.49s.
Branner iEN =1m.0s., iSN =1m.36s.
Lick eEN =1m.6s., iN =1m.18s., iEN =1m.40s., eEN =2m.4s.
Fresno iN =1m.33s. and 2m.28s.
Grand Coulee e =1m.57s., i =2m.17s.
Boulder City i =2m.2s.
Tucson i =3m.43s. and 4m.24s.
Long waves were also recorded at Seattle, Bozeman, and Philadelphia.

May 2d. Readings also at 0h. (Collmberg), 5h. (Bogota, La Paz, and Huancayo), 6h. (Santa Clara, near Berkeley, Branner, and Lick), 8h. (near Fresno), 9h. (Tortosa, near Lick, and Fresno), 10h. (Tinemaha, Mount Wilson, Riverside, Tucson, near La Paz, near St. Louis, Florissant, and Cape Girardeau), 17h. (near La Paz), 18h. (St. Louis, Pasadena, Mount Wilson, and Tinemaha), 21h. (Ksara).

May 3d. 15h. Undetermined shock.

Christchurch P =14m.24s., S =21m.23s., Q =26m.20s., R =29m.4s.
Wellington S? =22m.48s.?, R =29m.
Auckland S? =23m.20s., L =25m.0s.
Riverview iP?Z =23m.28s., iE =23m.32s., eN =29m.35s., eREZ =31m.12s.
Arapuni e =24m.24s.
La Jolla ePNZ =28m.12s.
Pasadena iP =28m.12s.k, eLZ =54·7m.
Mount Wilson iPZ =28m.13s.k
Palomar iPEN =28m.14s.
Riverside iPZ =28m.14s.k.
Shasta Dam iP =28m.22s.
Tinemaha iPEZ =28m.22s.k.
Boulder City iP =28m.31s.
Pierce Ferry iP =28m.34s.
Tucson i =28m.34s., eL =56m.36s.
Overton iP =28m.44s.
Grand Coulee e =29m.11s.
Collmberg eZ =36m.2s., iZ =36m.10s., i =36m.13s., eZ =36m.20s., e =37m.15s., 39m.30s., and 41m.12s.
Ksara e =36m.4s. and 47m.6s.
Copenhagen iP =65m.53s.
Long waves were also recorded at Paris.

May 3d. Readings also at 5h. (La Paz and near Bogota), 6h. (Mount Wilson, Riverside, and Wellington), 7h. (La Paz), 11h. (Granada, Riverview, and Brisbane), 13h. (Mizusawa), 14h. (Auckland), 17h. (Mizusawa), 21h. (near Ottawa).

May 4d. Readings also at 1h. (near Lick and Fresno), 2h. (near Lick), 8h. (Palomar, Pasadena, Mount Wilson, Riverside, Tucson, Riverview, Arapuni, Auckland, Wellington, and Christchurch), 11h. (near Lick), 13h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, Irkutsk, Moscow, Copenhagen, Collmberg, Basle, Paris, near Misuzawa, and near Erevan), 19h. (near La Paz), 23h. (Berkeley and near Branner).

May 5d. 13h. Undetermined shock.

Christchurch P =49m.3s., S =56m.4s., Q =59m.52s., R =63m.19s.
Riverview eZ =63m.30s., eLN =65·5m.
Tinemaha ePZ =64m.1s., iZ =64m.24s.
Pasadena ePZ =64m.2s., eLZ =92·8m.
Mount Wilson ePZ =64m.3s.
Riverside ePZ =64m.3s.
Palomar ePN =64m.5s.
Boulder City eP =64m.18s.
Overton eP =64m.22s.
Pierce Ferry iP =64m.22s.
Tucson eP =64m.22s.
Collmberg eZ =71m.45s.
Long waves were also recorded at Auckland, Arapuni, Wellington, Moscow, and Paris.

May 5d. Readings also at 0h. (near Basle, Zürich, Chur, and Triest), 2h. (Mount Wilson, Tucson, Riverside, St. Louis, and Granada), 8h. (Wellington and Arapuni), 9h. (Bogota), 10h. (near Tashkent), 12h. (Moscow, St. Louis (2), Tinemaha (2), Mount Wilson, Pasadena, Riverside, Tucson (2), and La Paz), 13h. (Overton, Boulder City, Pierce Ferry, Mount Wilson, Pasadena, Riverside, and Tucson), 20h. (St. Louis, Chicago, Salt Lake City, Tinemaha, Haiwee, Mount Wilson, Pasadena, Pierce Ferry, Riverside, and Tucson), 22h. and 23h. (near Berkeley).

May 6d. Readings at 5h. (Tacubaya), 8h. (Tucson, Pierce Ferry, Boulder City, Palomar, Riverside, Mount Wilson, Pasadena, Tinemaha, and Shasta Dam), 9h. (near Fresno, Branner, Lick, and near Tananarive), 11h. (Shasta Dam, Tinemaha, Pasadena, Riverside, Palomar, and Tucson), 14h. (Berkeley), 18h. (Alicante, near Toledo, Granada, Almeria, and Malaga), 23h. (near Tashkent and Andijan).

May 7d. 17h. 14m. 58s. Epicentre 5°·5S. 128°·0E. (as on 1937, September 5d.).

$A = -\cdot6129$, $B = +\cdot7845$, $C = -\cdot0952$; $\delta = +15$; $h = +7$;
$D = +\cdot788$, $E = +\cdot616$; $G = +\cdot059$, $H = -\cdot075$, $K = -\cdot996$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	32·3	136	—	—	e 11 42	− 4	—	—	17·1
Riverview		35·5	146	—	—	e 11 56	−40	e 14 50	SS	—
Auckland		52·9	133	—	—	17 17	+29	—	—	29·0
Christchurch		54·0	142	—	—	18 2	+59	—	—	—
Wellington		54·8	138	i 9 27	− 7	i 17 47	+33	—	—	30·0
Bombay		59·5	295	e 10 4	− 3	18 12	− 4	—	—	—
New Delhi	N.	59·5	308	e 10 7	0	i 18 12	− 4	18 24	PS	—
Irkutsk		61·0	344	10 24	+ 6	e 18 46	+11	—	—	—
Andijan		68·6	317	e 11 10	+ 3	—	—	—	—	—
Tashkent		70·9	317	e 11 16	− 5	e 20 40	+ 4	21 30	PPS	—
Baku		84·5	312	12 39	+ 3	23 9	+ 7	13 23	sP	—
Moscow		94·7	325	13 25	+ 1	24 51	+15	e 13 55	pP	—
Tinemaha	z.	112·2	53	e 18 42	[+ 4]	—	—	e 19 31	PP	—
Mount Wilson	z.	112·8	56	e 18 44	[+ 5]	—	—	e 19 36	PP	—
Riverside	z.	113·4	56	19 41	PP	—	—	—	—	—
Palomar	z.	114·0	57	i 19 55	PP	—	—	—	—	—
Kew		117·4	326	(e 20 2?)	PP	—	—	—	—	e 20·0
Tucson		119·2	56	e 18 56	[+ 5]	—	—	e 20 26	PP	—

Additional readings :—
Riverview eZ = 14m.56s.
New Delhi SSN = 22m.14s.
Baku sS = 24m.8s.
Moscow SKS = 24m.3s.

May 7d. Readings also at 4h. and 8h. (Bogota), 12h. (Andijan), 13h. (Bucharest), 14h. (Andijan), 16h. (near Mizusawa), 18h. (Palomar, Tucson, near San Juan, and Fort de France), 19h. (near Branner), 21h. (near Bogota).

May 8d. Readings at 3h. (Bucharest), 6h. (Riverside and Tucson), 12h. (near Bogota), 13h. (near Tashkent and Andijan), 15h. (Palomar, Mount Wilson, Pasadena, Tinemaha, Tucson, and near Erevan), 17h. (Wellington, Riverview, Christchurch, and near Fresno), 18h. (Tucson, Shasta Dam, near Lick, Fresno, and Branner), 23h. (Tinemaha, Tucson, Pasadena, Mount Wilson, Palomar, and Riverside).

May 9d. 3h. 31m. 15s. Epicentre 6°·8S. 125°·5E. Depth of focus 0·080.

A = −·5767, B = +·8085, C = −·1176; δ = +8; h = +7;
D = +·814, E = +·581; G = +·068, H = −·096, K = −·993.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		26·6	199	i 6 15	PPP	i 8 52	− 2	i 10 57	SSS	—
Brisbane	N.	33·2	132	i 5 50	− 3	i 10 32	− 4	i 7 22	pP	—
Riverview		35·9	143	i 6 17a	+ 1	i 11 19	+ 2	i 7 54	pP	c 14·6
Calcutta	N.	46·6	310	e 9 45	PP	i 14 5	+15	—	—	—
Colombo	E.	47·5	286	12 45?	?	17 15?	?	—	—	—
Kodaikanal	E.	50·7	290	i 10 20	PP	i 15 15	+29	16 35	SS	18·8
Hyderabad		52·3	298	10 9	PP	15 8	0	—	—	—
Auckland		53·9	132	8 35?	+ 1	15 31	+ 2	17 27	S_cS	—
Christchurch		55·1	140	8 44	+ 1	15 47	+ 3	10 30	pP	—
Wellington		55·6	137	8 45	− 1	15 49	− 2	10 55	PP	—
Bombay		57·9	297	i 10 46	PP	i 16 15	− 5	—	—	—
New Delhi	N.	58·3	310	i 9 3	− 2	i 16 19	− 7	i 12 56	PPP	—
Irkutsk		61·6	346	9 26	− 1	17 4	− 3	11 12	pP	—
Almata		66·4	324	e 10 3	+ 6	—	—	—	—	—
Andijan		67·9	319	e 10 7	+ 1	—	—	—	—	—
Tashkent		70·2	319	i 10 19	− 1	i 18 45	− 3	i 22 1	sS	—
Sverdlovsk		82·3	330	i 11 25	− 1	i 20 48	− 9	e 13 20	pP	—
Baku		83·5	312	11 35	+ 3	21 6	− 2	13 32	pP	—
Ksara		93·4	303	e 14 23	pP	—	—	e 24 41	PS	—
Moscow		94·4	325	12 21	− 2	22 40	− 6	14 20	pP	—
Sitka		100·6	33	e 17 1	PP	i 22 38	[+ 1]	e 19 35	sPP	e 31·2
Bucharest	E.	101·4	314	e 17 14	PP	e 22 47	[+ 6]	e 26 29	PS	e 33·8
Upsala		104·8	330	e 14 23	pP	e 23 34	[+38]	e 20 12	PPP	e 51·8
Copenhagen		108·5	327	18 8	PP	i 24 45	S	i 26 35	SP	—
Prague		108·7	321	e 20 49	PPP	e 24 3	S	e 26 57	PS	—
Triest		110·0	316	e 18 13	PP	e 27 5	PS	—	—	—
Bergen		110·5	333	e 9 14	?	e 21 1	PPP	e 26 52?	SP	45·8
Shasta Dam		111·1	49	e 13 41	P	i 18 20	PP	i 17 35	PKP	—
Grand Coulee		112·0	40	e 18 27	PP	—	—	—	—	—
Santa Barbara	Z.	114·2	55	e 17 42	[+ 5]	—	—	—	—	—
Uccle		114·6	324	e 20 45?	PPP	e 28 45?	PS	—	—	e 37·8
Tinemaha		114·9	52	e 17 40	[+ 1]	e 23 46	[+ 9]	i 18 50	PP	—
Haiwee		115·4	53	e 17 45	[+ 5]	e 23 47	[+ 8]	—	—	—
Pasadena		115·5	55	i 17 41	[+ 1]	i 23 47	[+ 8]	i 18 44	PP	e 53·8
Mount Wilson		115·6	55	e 17 41	[+ 1]	i 20 28	SKP	i 18 55	PP	—
Riverside	Z.	116·2	55	e 17 42	[+ 1]	i 20 28	SKP	i 18 54	PP	—
La Jolla	Z.	116·5	56	17 44	[+ 2]	—	—	—	—	—
Paris		116·5	322	e 19 4	PP	e 27 44	SP	e 21 42	sPP	—
Palomar		116·7	55	e 17 36	[− 6]	i 23 55	[+12]	i 18 37	PP	—
Kew		117·1	325	e 19 2	PP	e 24 11	[+27]	i 21 47	PPP	e 53·8
Clermont-Ferrand		117·2	318	e 19 45	PP	e 22 34	?	—	—	—
Boulder City		117·9	52	i 17 45	[0]	—	—	i 19 6	PP	—
Overton		118·1	52	e 17 45	[0]	—	—	—	—	—
Pierce Ferry		118·5	52	i 17 47	[+ 1]	—	—	i 19 12	PP	—
Logan		118·6	46	e 19 23	PP	e 31 45	sPS	—	—	—
Tucson		121·9	56	e 17 54	[+ 1]	e 28 35	SP	i 19 36	PP	—
Toledo	Z.	124·2	314	i 17 59	[+ 2]	—	—	i 19 52	PP	—
Granada		124·8	311	19 0a	[+62]	31 19	PPS	20 48	PP	60·2
Malaga	Z.	125·6	311	i 18 2k	[+ 3]	i 25 5	SKKS	21 58	PPP	e 69·2
Florissant		134·6	39	e 18 17	[0]	e 24 42	[+ 7]	i 21 0	SKP	—
St. Louis		134·8	39	e 20 53	PP	e 24 44	[+ 8]	e 30 8	SP	—
Ottawa		137·4	21	e 18 30	[+ 7]	—	—	e 21 6	PP	36·8
Seven Falls		137·5	16	e 21 5	PP	e 23 33	pPP	—	—	38·8
Pittsburgh		139·5	29	e 18 20	[− 7]	—	—	e 21 3	PP	—
Harvard		141·4	19	e 18 28	[− 3]	—	—	i 21 18	PP	—
Fordham		141·9	23	e 18 26	[− 6]	e 24 11	[−36]	e 21 19	PP	—
Huancayo		152·1	132	e 19 0	[+14]	e 32 7	PS	41 36	SS	e 74·2
La Paz	Z.	153·2	150	i 18 53k	[+ 5]	e 32 12	PS	i 22 21	PP	—
Bogota		160·4	94	e 18 57	[0]	i 20 44	pPKP	e 22 52	PP	—
San Juan		163·9	43	i 19 5	[+ 4]	e 36 15	PPS	i 23 45	PP	e 75·0

For Notes see next page.

NOTES TO MAY 9d. 3h. 31m. 15s.

Additional readings and notes :—
Brisbane ipPZ = 7m.19s., iZ = 11m.7s., isSN = 13m.25s.
Riverview iE = 14m.3s., isS = 14m.25s.
Auckland e = 11m.45s.
Christchurch sS = 18m.52s.
Wellington PPP? = 12m.25s., S_cS = 17m.40s., pS_cS = 17m.55s.
Bombay iE = 11m.38s., iN = 17m.54s., iEN = 19m.26s.
New Delhi iSN = 17m.52s., SSN = 19m.16s., sSSN = 20m.18s.
Moscow sS = 26m.19s.
Sitka ePS = 26m.20s., e = 28m.35s., esSS = 28m.45s.
Bucharest eN = 18m.51s., eE = 19m.2s., eN = 23m.48s.
Upsala eE = 25m.53s., eN = 29m.18s., eE = 31m.15s., eN = 35m.11s., e = 42m.45s.?
Copenhagen 20m.1s., 22m.45s., and 24m.11s., SS = 32m.24s.
Prague eN = 22m.15s., eE = 27m.45s.
Bergen eE = 10m.45s.?, eEN = 30m.45s.?
Tinemaha ePZ = 14m.10s., i = 17m.44s., iSKPZ = 20m.27s., ePKKPZ = 28m.13s.
Pasadena i = 17m.44s., iNZ = 18m.54s., iZ = 19m.4s., iSKPZ = 20m.27s., eZ = 21m.24s., eSPE = 28m.48s.
Mount Wilson ePZ = 14m.18s., iZ = 20m.7s.
Riverside iZ = 17m.45s., ePKKPZ = 28m.14s.
Palomar ePZ = 14m.18s., iZ = 17m.47s., 18m.59s., and 19m.18s., iSKPZ = 20m.31s., iZ = 21m.26s.
Kew iZ = 20m.20s., eZ = 20m.49s., iSKKSEN = 26m.3s., iSP = 27m.50s., ePSZ = 28m.55s., ePPS = 30m.14s., esS?NZ = 31m.28s., eSSEZ = 34m.55s., eSSSNZ = 38m.45s.?
Boulder City i = 18m.2s.
Tucson i = 21m.39s. and 27m.56s., e = 31m.19s., 33m.26s. and 47m.52s., cSS = 55m.15s eSSS = 59m.25s.
Granada SKS = 26m.15s., SKKS = 27m.9s., PPS = 32m.21s., SS = 36m.36s.
Malaga PKP_2Z = 18m.22s.
Florissant epPPE = 23m.49s.
St. Louis eN = 21m.13s., ePPE = 21m.50s., epPPN = 23m.49s., eSPE = 30m.41s., eSSE = 38m.12s., esSS?E = 42m.3s.
Pittsburgh e = 18m.29s., i = 21m.26s.
Fordham iPKP = 18m.29s., e = 20m.29s. and 22m.13s.
Huancayo e = 35m.3s., ePPS = 37m.52s.
La Paz iZ = 21m.13s., 29m.27s., 29m.55s., 35m.19s., and 37m.7s.
San Juan e = 28m.21s., 34m.1s., and 46m.34s.

May 9d. Readings also at 0h. (Lick, San Francisco, and near Berkeley), 6h. (near Triest), 10h. (near Mizusawa), 15h. (Auckland), 17h. (La Paz and near Huancayo), 19h. (near Erevan), 22h. (Andijan, Sverdlovsk, Riverview, and St. Louis), 23h. (Mount Wilson, Pasadena, Riverside, Santa Barbara, Tucson, Boulder City, Pierce Ferry, Shasta Dam, Malaga, Granada, Moscow, and Ksara).

May 10d. 17h. 53m. 18s. Epicentre 14°·6S. 76°·3W.

Intensity IV felt at Pisco.

E. Silgado.
Datos Seismológicas del Perú, 1944-45, Instituto Geológico del Perú, Bol. 3, Lima, 1946, p. 16.

$A = +\cdot2293$, $B = -\cdot9406$, $C = -\cdot2505$; $\delta = +6$; $h = +6$;
$D = -\cdot972$, $E = -\cdot237$; $G = -\cdot059$, $H = +\cdot243$, $K = -\cdot968$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo	2·7	20	i 0 47	+ 2	i 1 17	− 2	—	—	—
La Paz	8·1	105	i 2 4a	+ 2	i 3 40	+ 5	—	—	i 4·3
Bogota	19·2	5	i 4 30	+ 2	e 8 10	+11	—	—	i 10·5
Balboa Heights	23·6	353	e 5 12	− 1	—	—	—	—	—
La Plata	26·1	144	5 36	− 1	10 12	+ 5	—	—	12·6
San Juan	34·3	17	e 6 47	− 3	i 12 4	−13	i 8 15	PP	e 14·2
St. Louis	54·5	346	i 9 27	− 5	i 17 2	− 8	i 9 35	pP	—
Florissant	54·7	346	i 9 28	− 5	e 17 5	− 8	i 9 36	pP	—
Pittsburgh	54·9	357	e 9 37	+ 2	e 17 18	+ 2	—	—	—
Fordham	55·2	2	i 9 32	− 5	e 17 12	− 8	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Harvard		57·0	5	e 9 47	− 3	—	—	—	—	—
Chicago		57·1	350	e 14 28	?	i 17 36	− 9	i 19 34	S_eS	e 25·9
Tucson		57·1	325	i 9 50	0	e 17 50	+ 5	—	—	e 28·8
Ottawa		59·7	1	10 5	− 4	18 12	− 7	—	—	27·7
La Jolla		61·3	320	e 10 24	+ 4	—	—	—	—	—
Palomar	z.	61·4	321	i 10 20k	0	—	—	—	—	—
Seven Falls		61·6	4	—	—	e 18 36	− 7	—	—	28·7
Pierce Ferry		61·8	326	i 10 21	− 2	e 18 46	0	—	—	—
Boulder City		62·1	325	e 10 19	− 6	—	—	—	—	—
Riverside		62·2	321	e 10 30	+ 4	—	—	—	—	—
Overton		62·3	326	i 10 25	− 1	—	—	—	—	—
Mount Wilson		62·7	321	e 10 34	+ 5	—	—	—	—	—
Pasadena	z.	62·7	321	e 10 28	− 1	—	—	e 39 29	P'P'	e 30·7
Rapid City		63·3	339	e 10 32	− 1	e 19 1	− 3	—	—	e 34·8
Santa Barbara	z.	63·9	320	e 10 37	0	—	—	—	—	—
Haiwee	N.	64·0	323	e 10 42	+ 4	—	—	—	—	—
Salt Lake City		64·2	331	—	—	e 19 10	− 6	—	—	e 36·9
Tinemaha	z.	64·8	323	i 10 42	− 1	—	—	e 39 24	P'P'	—
Bozeman		67·7	335	—	—	e 19 51	− 7	—	—	e 39·3
Shasta Dam		69·6	324	i 11 10	− 3	—	—	—	—	—
Grand Coulee		73·0	331	e 11 38	+ 5	—	—	—	—	—
Victoria		75·5	330	—	—	e 19 36	?	—	—	38·7
Ivigtut		78·8	14	12 2	− 4	22 12	+ 8	—	—	—
Lisbon		82·1	47	12 25	+ 1	—	—	—	—	41·5
Coimbra		83·2	46	e 12 36	+ 7	24 34	PPS	—	—	40·8
Malaga	z.	84·7	50	i 12 36a	− 1	i 23 2	− 2	i 12 46	pP	43·7
Granada		85·5	50	i 12 38a	− 3	23 17	+ 5	—	—	42·4
Toledo		86·2	48	i 12 43	− 1	e 23 52	+33	—	—	—
Tortosa	E.	89·7	48	i 15 18	?	23 43	− 9	25 12	PS	e 43·7
Kew		92·8	38	e 13 13	− 3	—	—	(e 25 42?)	PS	e 25·7
Clermont-Ferrand		93·1	44	e 14 2?	+45	—	—	—	—	e 46·7
Paris		93·6	41	e 13 21	+ 2	e 25 12	PS	e 17 0	PP	e 46·7
Wellington		94·1	226	—	—	—	—	i 42 37	Q	54·7
Christchurch		94·7	223	39 21	?	42 57	Q	—	—	44·7
Uccle		95·4	39	—	—	e 24 42?	0	—	—	e 36·7
Triest		100·3	45	e 18 6	PP	e 26 59	PS	—	—	—
Copenhagen		101·2	35	—	—	24 36	[+ 3]	i 25 34	S	48·7
Riverview		114·0	222	—	—	e 27 24	{+51}	e 36 11	SS	e 54·1
Moscow		115·4	35	e 14 57	P	e 29 27	PS	19 41	PP	—
Ksara		116·3	59	e 19 42?	PP	e 29 42	PS	—	—	—

Additional readings :—
La Paz iSN = 3m.47s.
Bogota i = 4m.40s. and 8m.39s.
San Juan i = 12m.52s.
St. Louis isSN = 17m.15s., S_eSE = 19m.13s., isS_eSE = 19m.28s.
Florissant esSE = 17m.16s., eS_eSE = 19m.15s., esS_eSE = 19m.27s.
Pittsburgh eZ = 10m.19s.
Tucson i = 9m.57s.
Palomar iZ = 10m.25s.
Boulder City i = 10m.24s. and 10m.29s.
Pasadena iZ = 10m.35s.
Tinemaha i = 10m.49s.
Malaga iZ = 13m.42s., iSZ = 23m.21s.
Copenhagen 27m.12s. and 28m.0s., SS = 31m.42s.
Long waves were also recorded at Bombay, Kodaikanal, and New Delhi.

May 10d. Readings also at 0h. (Copenhagen, Kew, Paris, Uccle, Clermont-Ferrand, Granada, Wellington, Arapuni, and Christchurch), 1h. (Kew and near La Paz), 2h. (Mount Wilson (2), Pasadena, Palomar (2), Tucson (2), Boulder City (2), Overton, Pierce Ferry (2), St. Louis, Bogota, San Juan, and near Malaga (2)), 3h. (near Reykjavik), 5h. (Baku, Sverdlovsk, Tashkent, Ksara, and Moscow), 8h. and 9h. (near Reykjavik), 10h. (Bogota), 13h. (near Tananarive and near Reykjavik), 16h. (Pasadena, Palomar, Tucson, and Tinemaha), 18h. (near Triest), 20h. (near Basle), 22h. (near Branner and Lick).

May 11d. 20h. 17m. 28s. Epicentre 34°·8N. 52°·1E. (as on 1937, April 7d.).

A = +·5055, B = +·6494, C = +·5681 ; δ = −1 ; h = 0 ;
D = +·789, E = −·614 ; G = +·349, H = +·449, K = −·823.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Baku		5·8	343	1 31	+ 2	i 2 41	+ 3	—	—
Erevan		8·1	314	e 2 10	+ 8	e 3 44	+ 9	—	—
Ksara		13·4	270	e 3 28	+14	7 44	L	(7·7)	—
Andijan		17·1	63	e 3 2	−60	—	—	—	—
Almata		21·0	58	e 4 46	− 1	—	—	—	—
Bucharest		22·1	304	4 32?	−27	—	—	—	—
New Delhi	N.	22·2	100	—	—	e 9 9	+ 9	—	—
Sverdlovsk		22·8	13	i 5 0	− 5	i 9 7	− 4	—	—
Moscow		23·2	340	i 5 5	− 4	i 9 15	− 3	—	—
Sofia		23·7	299	e 5 17	+ 3	e 9 45	+18	—	—
Bombay	N.	24·3	126	e 5 23	+ 3	e 10 18	+41	—	—
Chur		34·0	305	e 6 44a	− 4	—	—	—	—
Copenhagen		34·2	321	—	—	12 20	+ 4	—	—
Zürich		34·7	305	e 6 52	− 2	—	—	—	—
Paris		38·8	307	e 8 56	PP	—	—	—	—

Long waves were recorded at Uccle

May 11d. 21h. 52m. 33s. Epicentre 41°·1N. 142°·3E. (as on 1944, October 2d.).

A = −·5980, B = +·4622, C = +·6548 ; δ = 0 ; h = −2 ;
D = +·612, E = +·791 ; G = −·518, H = +·400, K = −·756.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe		0·8	227	0 24a	+ 6	0 41	+10	—	—	—
Mori		1·6	307	0 39	+ 9	0 58	+ 7	—	—	—
Morioka		1·7	211	0 44a	+13	1 8	+14	—	—	—
Sapporo		2·1	340	0 42a	+ 5	1 32	?	—	—	—
Akita		2·2	233	0 44	+ 6	1 20	S_g	—	—	—
Mizusawa	E.	2·2	204	0 39	+ 1	1 6	0	—	—	—
Sendai		3·0	200	0 36	−14	1 21	− 6	—	—	—
Nemuro		3·3	46	0 43	−10	1 18	−17	—	—	—
Hukusima		3·6	203	0 56	− 2	1 52	+10	—	—	—
Tukubasan		5·2	201	1 16	− 5	—	—	—	—	—
Wazima		5·6	230	1 39	+12	2 28	− 5	—	—	—
Toyama		5·9	224	1 32	+ 1	3 25	S_g	—	—	—
Hunatu		6·2	208	1 31	− 4	2 47	− 1	—	—	—
Mera		6·5	198	1 20	−19	1 51	−64	—	—	—
Misima		6·5	205	1 45	+ 6	3 2	+ 7	—	—	—
Shizuoka		6·9	208	1 55	+10	3 25	S*	—	—	—
Omaesaki		7·3	208	2 0	+10	2 49	−26	—	—	—
Vladivostok		8·0	288	e 2 10	+10	i 4 13	S_g	—	—	—
Osaka		8·4	222	2 20	+14	5 18	?	—	—	—
Irkutsk		28·0	307	5 56	+ 1	10 49	+11	—	—	—
Sverdlovsk		52·6	318	i 9 17	− 1	i 17 3	+19	—	—	—
Moscow		64·4	324	e 10 36	− 4	e 19 35	+17	—	—	—
Baku		66·5	304	—	—	e 19 47	+ 3	—	—	—
Shasta Dam		68·2	55	e 10 57	− 7	—	—	—	—	—
Copenhagen		74·6	334	—	—	21 21	+ 3	—	—	37·4
Pasadena	Z.	74·8	58	e 11 45	+ 1	—	—	—	—	—
Riverside	Z.	75·4	58	e 11 49	+ 2	—	—	—	—	—
Boulder City		75·7	55	i 11 53	+ 4	—	—	—	—	—
Pierce Ferry		76·1	55	e 11 48	− 3	—	—	—	—	—
Palomar	Z.	76·2	58	i 11 55	+ 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Prague		78·4	329	e 30 51	?	—	—	e 33 51	?	e 42·4
Ksara		79·3	306	e 12 8	− 1	e 22 31	+22	—	—	—
Tucson		80·7	55	e 12 11	− 5	—	—	—	—	—
St. Louis		87·3	39	e 11 53	−57	e 23 23	− 6	—	—	—
Toledo	z.	93·8	334	e 20 43	?	—	—	—	—	—
Granada		96·1	333	e 17 53a	PP	e 28 31	?	—	—	46·2
Malaga	z.	96·8	333	e 18 44	PP	e 30 36	SS	e 35 3	SSS	e 48·3

Additional readings :—
Riverside iZ? =11m.39s. and 12m.10s.
Boulder City e =12m.47s.
Palomar iZ =12m.19s.
Tucson e =12m.20s.
Malaga iZ =33m.13s.
Long waves were also recorded at Bombay, New Delhi, and other European stations.

May 11d. Readings also at 0h. (near Fresno), 5h. (Bogota, La Paz, La Plata, near Basle, Chur, and Zürich), 6h. (Pasadena, Tucson, and Palomar), 7h. (Bucharest, Sofia, Ksara, Chur, Zürich, and Brisbane), 8h. (Riverview), 12h. (Bogota, Huancayo, La Paz, and La Plata), 13h. (Brisbane), 15h. (Almata, Sverdlovsk, and Moscow), 16h. (Copenhagen, Kew, Paris, Bombay, and New Delhi), 18h. (Shasta Dam, near Branner, and near Mizusawa), 19h. (Ksara), 22h. (La Paz).

May 12d. 7h. 33m. 2s. Epicentre 31°·6N. 115°·6W. (given by Pasadena).

A = −·3687, B = −·7695, C = +·5214 ; δ = −7 ; h = +1 ;
D = −·902, E = +·432 ; G = −·225, H = −·470, K = −·853.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla		1·9	312	i 0 32	− 2	i 0 58	− 1	—	—	—
Palomar		2·1	329	i 0 35k	− 2	—	—	—	—	—
Riverside		2·8	328	i 0 46	− 1	i 1 26	+ 4	—	—	—
Mount Wilson	z.	3·3	322	e 0 53	0	—	—	—	—	—
Pasadena		3·3	320	i 0 53	0	i 1 41	+ 6	—	—	—
Tucson		4·1	80	i 1 3	− 2	i 1 57	+ 2	i 1 19	P_g	i 2·4
Boulder City		4·4	8	e 1 9	− 1	e 2 21	S_g	i 1 30	P_g	—
Pierce Ferry		4·7	16	i 1 14	0	e 2 21	S*	e 2 30	S_g	—
Overton		5·0	11	i 1 19	+ 1	e 2 4	S_g	—	—	—
Fresno	n.	6·2	327	e 1 42	+ 7	i 3 16	S*	—	—	—
St. Louis	z.	21·9	64	e 5 1	+ 4	—	—	—	—	—

Additional readings :—
Tucson i =1m.24s. and 2m.11s.
Boulder City e =2m.29s.
Long waves were recorded at Shasta Dam.

May 12d. Readings also at 2h. (Berkeley), 3h. (Bombay), 4h. (Almata and Bombay), 5h. (Bucharest, Copenhagen, and Kew), 8h. (Ksara), 13h. (Mount Wilson, Tucson, St. Louis, and Riverview), 18h. (near Berkeley), 20h. (Paris, Kew, near Alicante, Almeria, Granada, Malaga (2), Tortosa, and Toledo), 21h. (Berkeley), 22h. (Strasbourg, near Basle, Chur, and Zürich).

May 13d. 20h. 27m. 33s. Epicentre 24·1N. 108°·7W.

A = −·2930, B = −·8656, C = +·4061 ; δ = +3 ; h = +4 ;
D = −·947, E = +·321 ; G = −·130, H = −·385, K = −·914.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		8·3	347	i 2 4	0	e 3 54	+14	—	—	i 4·4
Tacubaya		10·0	116	e 2 26	− 1	e 5 11	S*	i 5 34	S_g	—
Palomar	z.	11·6	324	e 2 50	0	—	—	—	—	—
Riverside	z.	12·4	325	e 3 6	+ 5	—	—	—	—	—
Pier Ferry		12·8	340	e 3 3	− 3	—	—	—	—	e 6·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Boulder City		13·0	337	e 3 7	− 2	—	—	—	—	e 7·2
Mount Wilson	Z.	13·0	323	e 3 14	+ 5	—	—	—	—	—
Pasadena		13·0	323	i 3 13	+ 4	e 5 27?	− 8	—	—	—
Overton		13·3	340	e 3 12	− 1	—	—	—	—	e 7·2
Haiwee	N.	14·4	328	e 3 28	+ 1	—	—	—	—	—
Tinemaha		15·3	330	e 3 44	+ 5	—	—	—	—	—
Salt Lake City		16·8	352	e 3 56	− 2	e 7 26	+21	—	—	e 7·9
Logan		17·8	353	i 4 18	+ 7	e 9 22	L	—	—	e 10·0
Lincoln		19·5	29	—	—	e 8 3	− 3	—	—	e 10·2
Rapid City		20·4	13	e 4 43	+ 2	e 8 23	− 2	—	—	e 9·8
Florissant		21·4	43	e 4 49	− 2	e 8 44	− 1	—	—	e 10·8
Bozeman		21·6	357	e 5 13	+19	e 8 59	+10	—	—	e 11·6
Butte		22·1	354	—	—	e 9 8	+10	—	—	e 12·3
Chicago		24·9	39	—	—	e 9 47	0	—	—	e 12·0
Columbia		26·0	61	—	—	e 10 6	0	—	—	e 14·1
Philadelphia		32·3	54	—	—	e 11 46	0	—	—	e 13·7
San Juan		40·0	90	e 7 41	+ 3	e 13 38	− 6	e 9 0 PP		e 16·7
Granada		86·9	51	e 13 49a	+61	e 23 24	− 2	—	—	e 43·4

Additional readings :—
Tacubaya iPN =2m.37s., iN =5m.18s., iN =5m.37s.
Florissant iSE =8m.51s.
Long waves were also recorded at Santa Clara, Sitka, Harvard, Copenhagen, Kew, Clermont-Ferrand, and Triest.

May 13d. Readings also at 2h. (Bogota and near La Paz), 3h. (Strasbourg, Chur, near Basle, Zürich, and Neuchatel), 6h. (Mount Wilson, Tucson, and Palomar), 9h. (Mount Wilson, Pasadena, Palomar, Tucson, St. Louis, and Huancayo), 10h. (Toledo, Sofia, Bucharest, Paris, near Triest, Fresno, near Branner, and Lick), 11h. (Bogota and near Mizusawa), 14h. (near Fresno), 15h. (Kew), 16h. (Mount, Wilson, Palomar, Tucson, Riverside, La Paz, and Pehpei), 18h. (Bucharest and Sofia), 21h. (College, Palomar, Tucson, Pierce Ferry, and Chicago), 23h. (near Triest (2)).

May 14d. 6h. 33m. 31s. Epicentre 38°·5N. 1°·3W.

Intensity VI 2km., S.E. of Jumilla.

A. Rey Pastor.
Nota Acerca del Sismo de Cehegin (Murcia) del 23 de Junio, 1948, p. 2. Epicentre as adopted. Observ. Sismolog. de Alicante, Instituto Geogr. y Catastral.

A. Rey Pastor.
"Estudio sismotectónico de la Región Sureste de España." Madrid 1951. Macroseismic chart fig. 17a. Epicentre as adopted, macroseiesmic radius 8km.

$A = +·7844$, $B = -·0178$, $C = +·6199$; $\delta = -12$; $h = -1$;
$D = -·023$, $E = -1·000$: $G = +·620$, $H = -·014$, $K = -·785$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Alicante		0·6	103	0 15	0	—	—	—	—	—
Almeria		1·9	209	0 37	+ 3	—	—	—	—	—
Granada		2·2	234	0 41k	+ 3	1 11	S_g	0 45	P_g	—
Toledo		2·6	303	e 0 44	0	1 22	S*	—	—	—
Tortosa	N.	2·7	31	e 0 56	P_g	i 1 36	S_g	—	—	—
Malaga		3·0	234	e 0 46	− 4	i 1 19	− 8	e 0 58	P_g	1·8
Coimbra		5·8	290	e 1 57	P_g	3 8	S_g	—	—	—

Additional readings :—
Granada P_g =57s., PS =1m.3s., S_g =1m.18s., PS_g =2m.21s.
Tortosa iPN =1m.4s., P_gN =1m.8s., PS =1m.19s. and 1m.32s., S_gN =1m.43s. and 1m.53s., P_gS_g =1m.56s.
Malaga iP =50s., SP =1m.4s., iS =1m.27s., eS =1m.32s., iS_g =1m.39s.
Coimbra i =3m.25s.

May 14d. Readings also at 2h. (near Triest), 3h. (Brisbane and Riverview), 4h. (near Tacubaya), 5h. (Mount Wilson, Tucson, and Palomar), 6h. (Harvard and near Mizusawa), 8h. (Brisbane and Riverview), 11h. and 12h. (near Mizusawa), 13h. (Upsala), 16h. (San Francisco (2)), 18h. (Kew), 20h. (near Mineral), 21h. (Ottawa),

May 15d. Readings at 3h. (Brisbane, Riverview, Palomar, Riverside, Tucson, Boulder City, Pierce Ferry and Shasta Dam), 5h. (near Tananarive), 6h. (Fort de France and near San Juan), 7h. (near Mizusawa), 11h. (Almeria, Alicante, Granada, near Malaga, Tortosa, and Toledo), 18h. (Boulder City, Pierce Ferry, Tucson, and near Overton), 21h. (Strasbourg, Neuchatel, near Basle, and Zürich).

May 16d. Readings at 1h. (near Almata Andijan, and near Mizusawa), 2h. (Triest, Belgrade, near Sofia, and Bucharest), 3h. (Granada and near Mizusawa), 5h. (Almata and near Tashkent), 6h. (Palomar, Mount Wilson, Tucson, and near Triest), 8h. (Irkutsk, Tucson, Palomar, Bogota, and near La Paz), 9h. (La Paz, St. Louis, Pierce Ferry, Shasta Dam, Sverdlovsk, and Tashkent), 10h. (College, Sitka, near San Juan, and Fort de France), 11h. (Shasta Dam, Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, Pierce Ferry, and Tucson), 15h. (Tucson and Huancayo), 16h. (Pasadena), 17h. (near Andijan), 19h. (Vladivostok, Sverdlovsk, Irkutsk, Bombay, New Delhi, Kodaikanal, Colombo, and Riverview).

May 17d. 15h. 6m. 45s. Epicentre 36°·8N. 121°·4W.

Intensity VI at Hollister ; V at Carmel, San Jose, Gilroy, and Tres Pinos ; IV at Hayward, Morgan Hill, and King City.

Epicentre : 36°·8N. 121°·5W. (U.S.C.G.S.). Macroseismic area 6000 sq.m.
36°51′N. 121°24′W. (Pasadena).
36°49′N. 121°22′W. (Berkeley).

United States Earthquakes, 1945. U.S. Coast and Geodetic Survey, Washington, 1947, p.13.

$A = -\cdot4182$, $B = -\cdot6851$, $C = +\cdot5964$; $\delta = -5$; $h = 0$;
$D = -\cdot854$, $E = +\cdot521$; $G = -\cdot311$, $H = -\cdot509$, $K = -\cdot803$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Lick		0·6	339	i 0 14	− 1	i 0 23	− 3	i 0 31	?	—
Santa Clara		0·6	321	i 0 17	+ 2	i 0 30	+ 4	—	—	—
Branner		0·9	314	e 0 20	0	i 0 31	− 3	i 0 28	?	—
Berkeley		1·3	327	i 0 25	0	i 0 42	− 2	i 0 28	P_g	—
Fresno	N.	1·3	93	e 0 25	0	i 0 40	− 4	i 0 38	?	—
San Francisco		1·3	319	e 0 25	0	i 0 45	+ 1	—	—	—
Tinemaha	E.	2·5	89	e 0 44	+ 1	i 1 17	+ 3	—	—	—
Santa Barbara		2·7	149	i 0 46	+ 1	i 1 17	− 2	—	—	—
Haiwee		2·8	104	i 0 51	+ 4	i 1 25	+ 3	—	—	—
Pasadena		3·7	134	i 0 59	− 1	i 1 42	− 3	—	—	—
Shasta Dam		4·0	359	e 1 3	− 1	i 1 47	− 5	i 1 14	P*	—
Riverside	Z.	4·3	128	e 1 8	0	—	—	—	—	—
Boulder City		5·3	96	e 1 26	+ 4	(2 23)	− 2	e 1 31	P*	i 2·4
Overton		5·6	90	e 1 32	+ 5	(e 2 56)	S*	e 1 44	P*	e 2·9
Pierce Ferry		6·0	94	e 1 33	+ 1	—	—	e 1 48	P*	—
Logan		8·9	54	—	—	e 4 43	S_g	—	—	e 5·0
Tucson		9·8	114	e 2 26	+ 2	e 3 58	−19	—	—	e 5·1

Additional readings :—
Berkeley iNZ = 0m.53s.
Shasta Dam e = 2m.16s.
Boulder City e = 1m.41s.
Long waves were also recorded at Salt Lake City, Grand Coulee, and Bozeman.

May 17d. Readings also at 1h. (Granada), 3h. (near Mizusawa), 8h. (Chur, Pierce Ferry, Pasadena, Palomar, Riverside, Mount Wilson, Riverview, Brisbane, and near Mizusawa), 10h. (Ksara), 11h. (Tucson, Overton, Boulder City, and Pierce Ferry), 12h. (Sofia, near Granada, and near Bogota), 13h. and 15h. (near Berkeley), 16h. (Triest), 18h. (New Delhi, Toledo, Alicante, near Malaga, and Almeria), 19h. (near Mizusawa), 20h. and 23h. (near Berkeley).

May 18d. 9h. 44m. 41s. Epicentre 36°·2N. 118°·4W. (as given by Pasadena)

A = −·3847, B = −·7115, C = +·5880 ; δ = −3 ; h = 0 ;
D = −·880, E = +·476 ; G = −·280, H = −·517, K = −·809.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	1·3	296	i 0 23	− 2	i 0 39	− 5	—	—	—
Lick		2·8	293	e 0 51	+ 4	e 1 29	+ 7	—	—	—
Boulder City		2·9	94	i 0 46	− 2	(1 31)	S*	i 0 52	P*	e 1·5
Overton		3·2	84	i 0 51	− 1	(e 1 44)	S_g	i 0 59	P*	e 1·7
Branner		3·3	292	e 0 55	+ 2	e 1 49	S_g	—	—	—
Berkeley	Z.	3·5	298	i 0 59	+ 2	—	—	—	—	—
Pierce Ferry		3·6	91	i 0 56	− 2	(e 1 52)	S*	i 1 5	P*	e 1·9
Shasta Dam		5·5	327	—	—	e 2 19	−11	(e 2 48)	S*	e 2·8
Tucson		7·4	120	e 1 40	−12	(e 3 45)	S*	—	—	e 3·8

May 18d. 23h. 35m. 54s. Epicentre 43°·8N. 149°·0E. Depth of focus 0·020.
Intensity IV at Nemuro ; II-III at Urakawa.
Epicentre as adopted. Depth 150km.
Seismological Bulletin of the Central Meteorological Observatory for the Year 1945, Tokyo 1951, pp. 31-32.

A = −·6207, B = +·3729, C = +·6897 ; δ = +1 ; h = −3 ;
D = +·515, E = +·857 ; G = −·591, H = +·355, K = −·724.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Sapporo		5·6	265	1 22	0	2 31	+ 5	—	—
Mori		6·5	256	1 30	− 4	2 44	− 4	—	—
Morioka		7·1	238	1 44	+ 2	3 4	+ 2	—	—
Mizusawa	E.	7·5	234	1 53	+ 5	3 15	+ 3	—	—
Akita		7·8	241	1 55	+ 3	3 21	+ 2	—	—
Sendai		8·2	231	1 59	+ 2	3 33	+ 5	—	—
Hukisima		8·8	230	2 22	+17	3 56	+13	—	—
Kohu		11·4	228	2 56	+17	4 50	+ 6	—	—
Misima		11·6	225	2 50	+ 8	4 56	+ 8	—	—
Vladivostok		12·5	274	e 2 53	0	i 5 30	+21	—	—
Irkutsk		30·6	303	—	—	e 10 56?	+ 6	—	—
Sverdlovsk		54·0	318	e 9 2	− 8	e 18 46	S_eS	—	—
Andijan		54·9	295	e 9 16	0	e 16 52	+ 9	—	—
Tashkent		56·6	297	9 30	+ 2	e 17 15	+ 9	—	—
Grand Coulee		60·4	61	i 9 52	− 5	—	—	—	—
Shasta Dam		62·5	59	i 10 7	− 2	—	—	—	—
Berkeley	Z.	64·3	62	i 10 19	− 1	—	—	—	—
Moscow		65·2	325	e 10 21	− 5	—	—	—	—
Tinemaha		67·3	61	e 10 40	0	—	—	—	—
Haiwee		68·0	61	i 10 44	0	—	—	—	—
Baku		69·0	306	e 10 52	+ 2	e 19 44	+ 4	—	—
Mount Wilson		69·2	63	i 10 50 a	− 1	—	—	i 11 3	pP
Pasadena		69·2	63	i 10 49 a	− 2	—	—	—	—
Riverside	Z.	69·8	63	i 10 53 a	− 2	—	—	—	—
Overton		70·0	59	i 10 56	0	—	—	—	—
Boulder City		70·1	60	i 10 56	− 1	i 19 59	+ 6	—	—
Palomar		70·5	63	i 10 59 a	0	—	—	i 11 13	pP
Pierce Ferry		70·5	59	i 10 57	− 2	—	—	—	—
La Jolla		70·6	64	i 10 59	− 1	—	—	—	—
Tucson		75·0	60	i 11 25	0	—	—	—	—
Strasbourg		81·9	335	12 3	0	—	—	—	—
St. Louis		82·0	44	i 12 2	− 1	e 22 5	+ 3	—	—
Zürich		82·7	334	e 12 7	0	—	—	—	—
Basle		82·9	335	e 12 6	− 2	—	—	—	—
Chur		82·9	333	e 12 8	0	—	—	—	—
Paris		83·2	339	i 12 9	0	—	—	—	—
Neuchatel		83·6	334	e 12 11	0	—	—	—	—
Clermont-Ferrand		85·8	337	i 12 24	+ 2	—	—	—	—
Harvard		86·7	29	i 12 26	− 1	—	—	—	—
Fordham		87·3	32	i 12 30	0	—	—	—	—

Mizusawa gives also ePN = 1m,56s,

May 18d. Readings also at 1h. (near Tananarive), 7h. (San Juan), 9h. (Riverview, Almata, near Tashkent, and Andijan), 11h. (near Mizusawa), 12h. (Palomar, Riverside, Mount Wilson, Tinemaha, Tucson, and La Paz), 13h. (Upsala), 15h. (near Branner), 21h. (near Malaga), 22h. (Upsala, near Tashkent and Andijan).

May 19d. 5h. 2m. 53s. Epicentre 25°·1N. 90°·9E.

$A = -\cdot0142$, $B = +\cdot9066$, $C = +\cdot4219$; $\delta = +12$; $h = +3$;
$D = +1\cdot000$, $E = +\cdot016$; $G = -\cdot006$, $H = +\cdot422$, $K = -\cdot907$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	3·5	224	i 1 1	+ 4	i 1 51	+11	i 1 21	P_g	—
Hyderabad		13·9	239	3 16	− 5	5 38	−19	3 28	PP	6·6
Bombay		17·8	253	4 7	− 4	e 7 34	+ 6	4 22	PP	—
Kodaikanal	E.	19·5	225	i 4 34	+ 3	i 8 9	+ 3	—	—	9·8
Colombo	E.	20·9	212	4 46	0	8 34	− 1	—	—	—
Almata		21·4	332	4 53	+ 2	—	—	—	—	—
Andijan		22·0	319	e 4 58	0	9 2	+ 6	—	—	—
Tashkent		24·2	317	i 5 20	+ 1	i 9 39	+ 4	—	—	—
Irkutsk		29·0	17	6 3	− 1	—	—	—	—	—
Baku		37·3	304	e 7 19	+ 3	13 11	+ 7	—	—	—
Vladivostok		38·0	52	e 7 24	+ 3	—	—	—	—	—
Zürich		66·9	313	e 10 52	− 4	—	—	—	—	—
Paris		70·5	315	11 15	− 3	—	—	—	—	—
Toledo	Z.	77·9	308	i 11 58	− 3	—	—	—	—	—
Bogota		147·0	332	e 19 40	[− 3]	—	—	—	—	—

Additional readings :—
Calcutta iP*N = 1m.11s.
Hyderabad SSN = 5m.54s.
Bombay SSE = 7m.57s., SSN = 8m.0s.
Bogota i = 19m.54s.
Long waves were also recorded at New Delhi, Kew, and Granada.

May 19d. 7h. 55m. 45s. Epicentre 16°·0N. 98°·4W.

$A = -\cdot1405$, $B = -\cdot9515$, $C = +\cdot2739$; $\delta = +11$; $h = +6$;
$D = -\cdot989$, $E = +\cdot146$; $G = -\cdot040$, $H = -\cdot271$, $K = -\cdot962$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		1·9	57	0 39	+ 5	1 23	?	—	—	—
Puebla		3·0	4	e 0 56	+ 6	1 36	+ 9	—	—	—
Tacubaya		3·5	347	0 57	0	i 1 45	+ 5	i 1 10	P_g	2·0
Vera Cruz		3·8	33	1 3	+ 2	2 5	S_g	—	—	2·2
Guadalajara		6·6	315	i 1 29	−12	e 2 50	− 8	—	—	—
Balboa Heights		19·7	107	e 4 28	− 6	—	—	—	—	—
Tucson		19·7	328	i 4 32	− 2	i 8 20	+10	—	—	i 9·6
Cape Girardeau	N.	22·6	19	e 5 1	− 2	e 9 20	+13	—	—	—
St. Louis		23·7	15	e 5 12	− 2	i 9 33	+ 6	i 5 39	pP	—
Florissant		23·8	15	i 5 13	− 2	i 9 35	+ 7	i 5 42	pP	—
Columbia		23·8	37	e 5 14	− 1	e 9 38	+10	—	—	e 10·8
La Jolla		23·9	318	e 5 18	+ 2	—	—	—	—	—
Palomar		24·0	319	i 5 18a	+ 1	—	—	—	—	—
Boulder City		24·7	327	e 5 24	0	e 9 22	−22	—	—	e 10·0
Lincoln		24·8	4	e 5 30	+ 5	e 9 35	−11	—	—	e 12·8
Riverside		24·8	320	i 5 25	0	e 9 45	− 1	—	—	—
Overton		24·9	328	e 5 26	0	—	—	—	—	—
Mount Wilson		25·3	320	i 5 26	− 4	e 10 5	+11	—	—	—
Pasadena		25·4	320	i 5 31a	0	i 10 3	+ 7	—	—	e 12·1
Bogota		26·4	112	i 5 41	+ 1	e 7 22	?	—	—	17·2
Santa Barbara	Z.	26·5	318	i 5 44	+ 3	—	—	—	—	—
Haiwee		26·6	323	e 5 46	+ 4	e 10 40	+24	—	—	—
Chicago		27·3	16	i 5 45	− 3	i 10 28	+ 1	—	—	e 15·0
Salt Lake City		27·3	338	e 5 45	− 3	e 10 29	+ 2	—	—	e 15·0
Tinemaha		27·4	324	i 5 50	+ 1	e 10 50	+22	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	28·0	322	e 6 8	+13	—	—	—	—	e 15·4
Logan		28·1	339	e 6 13	+18	e 11 1	+21	e 7 24	PPP	e 13·0
Rapid City		28·3	353	e 5 59	+ 2	e 10 49	+ 6	—	—	e 15·5
Pittsburgh		29·2	30	e 6 1	− 4	i 11 1	+ 3	—	—	—
Santa Clara		29·8	321	e 6 14	+ 3	e 11 17	+10	—	—	e 15·6
Berkeley		30·3	321	i 5 17	−58	i 10 25	−50	—	—	e 14·7
San Juan		30·9	80	e 6 19	− 1	i 11 25	+ 1	e 7 12	PP	e 13·6
Philadelphia		31·3	37	e 6 22	− 2	e 11 30	− 1	e 7 29	PP	i 13·4
Bozeman		31·4	344	e 6 24	− 1	e 11 33	+ 1	—	—	e 16·5
Ukiah		31·7	322	e 6 29	+ 2	e 11 45	+ 8	—	—	e 15·7
Butte		32·2	343	e 6 31	− 1	e 11 47	+ 2	—	—	e 17·8
Shasta Dam		32·2	325	e 6 30	− 2	—	—	—	—	e 15·7
Ottawa		35·0	28	6 54	− 2	12 32	+ 4	—	—	16·2
Fort de France		35·9	87	e 10 48	?	—	—	—	—	—
Huancayo		36·0	139	e 7 10	+ 5	i 12 50	+ 6	e 8 32	PP	e 15·5
Grand Coulee		36·1	337	i 7 4	− 1	e 12 46	+ 1	—	—	e 19·0
Saskatoon		36·6	351	7 8	− 2	12 55	+ 2	—	—	19·2
Shawinigan Falls		37·2	29	7 13	− 2	13 7	+ 5	—	—	23·2
Victoria		38·4	333	7 26	+ 1	13 27	+ 7	—	—	19·2
Seven Falls		38·5	30	7 23	− 3	13 28	+ 6	—	—	22·2
Halifax		40·9	38	e 7 45	− 1	(14 15?)	+17	—	—	14·2
La Paz		44·0	135	i 8 13	+ 2	i 14 48	+ 5	1 9 53	PP	23·0
Sitka		49·8	335	e 8 53	− 3	e 16 3	− 3	e 10 52	PP	e 24·4
Honolulu		56·3	285	—	—	e 17 41	+ 7	—	—	e 25·4
Ivigtut		57·5	26	9 49	− 4	17 56	+ 6	21 51	SS	—
College		59·0	338	—	—	e 18 16	+ 6	e 19 58	S_eS	e 29·8
Lisbon		79·6	52	12 11a	+ 1	22 14	+ 2	—	—	—
Kew		82·6	38	i 12 25a	− 1	e 22 48	+ 5	e 15 35?	PP	e 39·3
Toledo		83·2	50	i 12 28	− 1	—	—	28 2	SS	—
Malaga	Z.	83·7	54	i 12 29a	− 3	i 22 57	+ 3	12 49	pP	40·6
Paris		85·1	41	e 12 37	− 2	e 23 6	− 2	e 15 58	PP	—
Tortosa		86·2	49	e 12 52	+ 8	e 23 9	−10	15 57	PP	e 35·2
Clermont-Ferrand		86·5	43	e 12 45	− 1	e 24 15?	PS	—	—	—
Sofia		100·8	39	—	—	e 23 35	[−56]	—	—	—
Riverview		115·6	239	—	—	e 25 33	[− 1]	e 29 33	PS	e 45·8

Additional readings :—
Oaxaca iZ = 1m.7s., sPE = 1m.13s., iE = 1m.26s.
Tacubaya SN = 1m.53s.
Tucson i = 4m.47s., e = 4m.53s.
St. Louis iPPPN = 6m.3s., iP_ePN = 8m.35s., ipSE = 9m.59s., isSE = 10m.15s., iSSN = 10m.41s., iSSSN = 10m.57s., iS_ePE = 12m.24s., iS_eSE = 16m.23s.
Florissant iZ = 5m.50s., iPPPZ = 6m.7s., ipPPP?Z = 6m.38s.
Columbia e = 7m.0s. and 7m.21s.
Pasadena iSZ = 10m.21s.
Chicago e = 6m.10s.
Rapid City e = 11m.3s.
Berkeley ePN = 5m.20s., eZ = 10m.35s., iNZ = 13m.23s.
San Juan e = 7m.47s., 8m.38s., and 12m.6s.
Bozeman e = 6m.55s., iS = 11m.38s.
Butte e = 12m.33s.
Grand Coulee i = 7m.44s., e = 13m.34s.
Sitka eSS = 19m.51s.
Kew eZ = 14m.17s., ePPPZ = 17m.35s.?, eS_eS?EZ = 23m.10s., ePS?Z = 23m.40s., eSS = 28m.15s.?, eQNZ = 36m.15s.
Malaga iPPZ = 15m.39s., PPPZ = 17m.26s., SKSZ = 22m.36s., PSZ = 23m.54s., eSSZ = 28m.31s.
Paris eSS = 28m.49s.
Tortosa S_ePN = 12m.57s., S_eSE = 23m.24s., PPSE = 24m.31s., SSE? = 29m.22s.
Long waves were also recorded at Seattle.

May 19d. 15h. 7m. 2s. Epicentre 40°·6N. 126°·4W.

Intensity V at Upper Mattole ; IV at Blue Lake, Arcata, Eureka, Orick, Piercy, and Scotia.
Macroseismic area 1500 sq. m. Epicentre as adopted.
U.S. Coast and Geodetic Survey, Washington, 1947, p. 13.

$A = -\cdot4519$, $B = -\cdot6129$, $C = +\cdot6482$; $\delta = +2$; $h = -2$;
$D = -\cdot805$, $E = \cdot+593$; $G = -\cdot385$, $H = -\cdot522$, $K = -\cdot761$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ferndale	E.	1·6	91	e 0 31	+ 1	i 0 48	− 3	—	—	—
Ukiah		2·9	121	i 0 45	− 3	i 1 22	− 2	—	—	—
Shasta Dam		3·0	88	i 0 49	− 1	i 1 26	− 1	—	—	—
Mineral	E.	3·7	93	i 1 0	0	i 1 44	− 1	i 1 13	P_g	—
Berkeley		4·2	130	e 1 2	− 5	—	—	i 1 14	P^*	i 2·3
San Francisco		4·2	132	i 1 4	− 3	i 1 52	− 5	—	—	i 2·2
Branner		4·6	133	e 1 8	− 4	i 2 3	− 4	i 1 31	P_g	—
Santa Clara		4·8	132	i 1 13	− 2	i 2 22	+10	—	—	—
Lick		4·9	130	e 1 13	− 4	i 2 10	− 5	—	—	e 2·6
Fresno	N.	6·4	125	e 1 36	− 2	i 2 51	− 2	—	—	—
Tinemaha		7·3	117	i 1 51	+ 1	i 3 22	+ 7	—	—	—
Seattle		7·6	21	e 2 1	+ 6	—	—	—	—	e 3·6
Haiwee		8·0	122	e 2 1	+ 1	—	—	—	—	—
Santa Barbara		8·1	137	i 1 58	− 4	i 3 29	− 6	—	—	—
Victoria		8·2	14	2 8	+ 5	3 51	+13	—	—	6·0
Grand Coulee		9·0	33	e 2 15	+ 2	—	—	—	—	e 4·4
Mount Wilson		9·2	132	i 2 13	− 3	i 3 56	− 7	—	—	—
Pasadena		9·2	132	i 2 12	− 4	i 3 54	− 9	—	—	i 4·4
Spokane		9·6	39	—	—	e 4 24	+12	—	—	i 7·1
Riverside		9·7	130	i 2 21	− 1	i 4 9	− 6	—	—	—
Boulder City		10·2	114	i 2 31	0	—	—	—	—	e 5·0
Overton		10·2	110	i 2 34	+ 3	—	—	—	—	—
Palomar		10·5	131	i 2 31	− 4	i 4 28	− 7	—	—	—
La Jolla		10·6	134	e 2 35	− 1	—	—	—	—	—
Pierce Ferry		10·7	111	i 2 39	+ 1	—	—	—	—	e 5·3
Logan		11·1	79	i 3 2	+19	i 4 48	− 1	—	—	i 5·1
Salt Lake City		11·1	85	i 2 44	+ 1	e 4 46	− 3	—	—	e 5·0
Butte		11·4	57	i 2 50	+ 3	i 4 56	0	—	—	i 6·1
Bozeman		12·3	61	i 2 58	− 1	i 5 19	+ 1	i 3 40	PP	e 6·4
Tucson		15·0	119	i 3 35	0	i 6 30	+ 7	—	—	e 7·1
Rapid City		17·5	71	i 4 6	− 1	i 7 28	+ 7	—	—	i 7·8
Sitka		17·9	345	i 4 9	− 3	i 7 36	+ 6	i 4 27	PP	i 8·1
Lincoln		22·5	80	e 5 8	+ 6	e 9 24	+19	i 5 22	PP	e 10·0
College		27·3	341	e 5 58	+10	e 10 34	+ 7	—	—	e 12·4
Florissant		27·7	83	i 5 52	0	i 10 36	+ 3	—	—	—
St. Louis		27·8	83	i 5 54	+ 1	i 10 37	+ 2	i 11 48	SS	i 13·0
Cape Girardeau	N.	28·7	85	e 6 8	+ 7	e 10 56	+ 6	—	—	—
Chicago		29·1	75	e 6 4	0	i 10 55	− 1	e 7 11	PP	i 11·8
Honolulu		32·9	244	e 6 36	− 2	e 12 16	+20	e 8 0	PPP	e 13·8
Pittsburgh		35·0	75	i 6 55	− 1	i 12 26	− 2	—	—	—
Columbia		36·3	86	e 7 6	− 1	e 12 48	0	e 8 17	PP	e 15·0
Ottawa		36·9	66	7 13	+ 1	13 1	+ 3	8 34	PP	e 18·0
Georgetown		37·6	76	e 7 20	+ 2	i 13 10	+ 2	—	—	—
Philadelphia		38·6	74	e 7 28	+ 2	e 13 26	+ 3	i 8 54	PP	i 16·1
Shawinigan Falls		38·7	62	7 28	+ 1	13 27	+ 2	—	—	18·0
Seven Falls		39·9	61	7 36	− 1	13 51	+ 8	8 57	PP	21·0
Harvard		40·5	69	i 7 43	+ 1	—	—	—	—	e 23·0
Halifax		45·4	63	e 8 27	+ 5	e 15 16	+12	e 18 38	SS	24·0
Ivigtut		50·0	39	9 1	+ 3	16 12	+ 3	11 1	PP	24·0
San Juan		55·8	95	e 9 51	+10	i 17 31	+ 3	e 12 1	PP	e 23·4
Bogota		59·0	113	i 10 20	+16	—	—	—	—	—
Fort de France		61·8	95	e 10 24	+ 1	e 18 54	+ 8	—	—	—
Huancayo		70·5	126	e 11 40	+22	e 20 32	0	e 24 43	SS	e 30·0
Vladivostok		70·8	311	e 11 17	− 3	21 4	PS	e 14 7	PP	—
Bergen		71·9	23	11 32	+ 5	e 20 37	−11	25 35	SS	29·0
Aberdeen		72·0	28	i 11 32	+ 4	i 20 55	+ 6	i 14 18	PP	33·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Edinburgh		72·5	30	—	—	20 58	+ 4	25 33	SS	—
Upsala		75·6	19	11 54	+ 6	21 32	+ 3	e 29 24	SSS	e 34·0
Kew		77·0	32	i 11 58 a	+ 2	e 21 48	+ 3	i 14 50	PP	e 35·0
Irkutsk		77·6	331	e 12 4	+ 4	i 21 54	+ 3	—	—	—
La Paz	z.	78·4	123	i 12 1	− 3	22 3	+ 3	i 15 9	PP	39·7
Uccle		79·3	30	—	—	e 22 22	+13	e 27 51	SS	e 35·0
Paris		80·2	32	e 12 19	+ 5	e 22 23	+ 4	e 15 17	PP	38·0
Jena		81·7	26	e 12 8	−14	e 23 6	+32	—	—	—
Coimbra		81·8	44	e 12 17	− 5	22 47	+12	15 35	PP	e 40·5
Strasbourg		82·4	29	12 34	+ 9	23 4	+23	—	—	—
Lisbon		82·5	45	12 27	+ 1	22 58	+16	23 34	PS	41·0
Sverdlovsk		82·8	356	i 12 29	+ 2	i 22 46	+ 1	—	—	—
Clermont-Ferrand		82·9	34	e 12 35	+ 7	e 24 8	PPS	e 17 44	PPP	—
Moscow		83·1	10	i 12 28	− 1	i 22 48	0	—	—	—
Basle		83·2	30	e 12 33	+ 4	e 23 38	−11	—	—	—
Neuchatel		83·4	31	e 12 32	+ 2	—	—	—	—	—
Prague		83·4	25	e 12 30	0	e 23 1	+10	e 23 43	PS	e 33·0
Zürich		83·7	30	e 12 34 a	+ 2	e 23 10	+16	—	—	—
Toledo		84·2	42	i 12 35	+ 1	i 23 8	+ 9	15 53	PP	—
Chur		84·5	29	e 12 39	+ 3	e 23 16	+14	—	—	e 45·0
Tortosa		85·7	38	e 12 51	+ 9	23 17	+ 3	15 49	PP	e 37·4
Barcelona		86·0	37	e 12 46	+ 3	e 24 12	PS	—	—	e 41·1
Malaga	z.	86·5	44	i 12 50 a	+ 4	i 23 24	+ 2	i 16 21	PP	43·2
Granada		86·5	43	i 12 51 k	+ 5	i 23 31	+ 9	i 12 57	P_cP	42·7
Triest		87·0	27	i 13 0	+12	e 23 43	+16	e 16 24	PP	e 40·1
Bucharest		91·8	20	—	—	e 22 52	PKS	e 26 4	PPS	43·0
Sofia		92·7	23	e 16 52	PP	e 25 44	PPS	—	—	38·0
Tashkent		97·2	349	e 14 2	+26	e 24 42	−15	e 26 34	PS	—
Andijan		97·3	346	e 18 2	PP	24 23	[+10]	26 38	PS	—
Baku		99·3	4	—	—	—	—	e 27 38	PPS	—
Riverview		106·0	240	—	—	i 25 6	[+11]	e 27 48	PS	e 48·8
New Delhi	N.	107·8	339	—	—	i 28 37	PS	i 29 15	PPS	—

Additional readings :—
Mineral iE = 1m.3s.
Berkeley iSE = 1m.47s., eE = 2m.14s.
Branner iN = 1m.14s. and 1m.20s., iS_eE = 2m.38s., iS_eN = 2m.43s.
Fresno iN = 1m.39s., 1m.43s., 3m.14s., and 4m.10s.
Seattle i = 2m.16s.
Grand Coulee iP = 2m.17s.
Tucson i = 4m.1s. and 5m.24s.
Rapid City i = 4m.27s.
Sitka i = 7m.0s.
Chicago e = 10m.17s.
Honolulu e = 12m.57s.
Ottawa PPP = 8m.46s.
Philadelphia e = 8m.4s., e = 15m.33s.
Seven Falls e = 17m.58s.?
Ivigtut 19m.34s. and 20m.26s.
San Juan ePPP = 13m.6s., iSS = 21m.22s.
Bogota i = 10m.32s. and 10m.50s.
Vladivostok iSS = 25m.46s.
Aberdeen i = 13m.53s., 16m.1s., and 25m.21s.
Upsala eN = 18m.43s., eE = 21m.40s., eN = 25m.42s., eSSSE = 29m.36s.
Kew iP_cP = 12m.7s., ePPPNZ = 16m.44s., eZ = 18m.16s., ePS = 22m.13s., ePPSZ = 22m.38s.?, eSS = 26m.48s., eSSSEN = 30m.28s.
La Paz PPP = 16m.59s., iZ = 18m.55s., SS = 26m.27s.
Paris i = 12m.25s., e = 12m.56s., ePS = 23m.8s., eSS? = 27m.34s.
Jena eE = 12m.12s. and 12m.38s., eN = 18m.48s.
Coimbra P = 12m.27s., PPP = 17m.51s., PS = 23m.41s.
Lisbon PZ = 12m.33s., SN = 23m.3s.
Prague e = 15m.58s., eSS = 28m.28s.
Tortosa PSE = 25m.4s., PPSE = 25m.37s.
Malaga PPPZ = 17m.53s., sSZ = 24m.21s., SSZ = 29m.27s.
Triest ePPP = 18m.4s., eSKS? = 23m.11s., ePS = 24m.30s.
Riverview eN = 27m.52s. and 33m.44s., iE = 33m.58s.
New Delhi iN = 38m.19s.
Long waves were also recorded at Vera Cruz, Auckland, Tananarive, and Kodaikanal.

May 19d. Readings also at 0h. (Granada and Kew), 1h. (near Mizusawa), 2h. (Mount Wilson, Palomar, Riverside, Santa Barbara, Tucson, Pierce Ferry, Shasta Dam, Auckland, Brisbane, and Riverview), 3h. (La Paz, Berkeley (2), Pasadena, Granada, Malaga, Kew, and Paris), 4h. (Clermont-Ferrand), 5h. (near Granada and Malaga), 8h. (Mount Wilson, Pasadena, Tucson, Riverside, Tinemaha, Mizusawa, and Sverdlovsk), 12h. (Mount Wilson, Palomar, Tucson, Pierce Ferry, and Honolulu), 15h. (Auckland and Riverview), 16h. (near Malaga (2)), 18h. (La Paz), 19h. (Mount Wilson, Pasadena, Tinemaha, Tucson, Boulder City, Pierce Ferry, and Shasta Dam), 22h. (Granada), 23h. (Auckland and Riverview).

May 20d. 16h. Undetermined shock.

Tucson iP =32m.22s., eS =34m.23s., iL =34m.47s.
Palomar ePZ =33m.10s.
Riverside iPZ =33m.23s.
Pierce Ferry iP =33m.26s., iL =37m.21s.
Boulder City iP =33m.29s., eL =37m.29s.
Overton eP =33m.32s., eL =37m.53s.
Tinemaha iP =34m.3s.
Shasta Dam eP =34m.53s.
St. Louis ePZ =35m.12s., eSN =39m.12s,. eLN =41m.17s.
Florissant eSN =39m.11s.
Bozeman eS? =39m.22s., eL =42m.18s.
Long waves were also recorded at Chicago, Logan, Pasadena, and Kew.

May 20d. 18h. 2m. 21s. Epicentre 11°·8N. 125°·1E. Depth of focus 0·010.
(as on 1942 July 25d.).

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

		△	Az.	P.	O—C.	S.	O—C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Vladivostok		31·8	10	e 6 22	+ 5	i 11 25	+ 6	e 6 44	pP
Irkutsk		43·7	341	e 8 1?	+ 4	i 14 25	+ 6	e 8 23	pP
Colombo	E.	44·9	268	8 4	− 3	15 18	sS	—	—
Hyderabad	E.	45·4	283	8 30	pP	—	—	—	—
Bombay		50·8	285	e 9 11	pP	i 15 59	0	e 10 51	PP
Riverview		51·7	153	i 8 55a	− 4	i 16 6	− 6	i 9 14	pP
Tashkent		56·8	311	e 9 37	+ 1	17 22	+ 2	e 9 58	pP
Sverdlovsk		66·3	328	i 10 38	− 2	i 19 22	+ 2	i 11 0	pP
Baku		71·2	309	e 11 15	+ 5	i 20 26	+ 8	21 4	sS
Moscow		78·9	325	i 11 52	− 2	i 21 42	− 1	12 12	pP
Bucharest		88·2	315	—	—	22 39?	[−20]	25 39?	PPS
Shasta Dam		98·8	46	i 13 29	− 1	i 23 58	[− 1]	i 17 29	PP
Boulder City		106·2	47	—	—	e 18 23	PP	—	—
Pierce Ferry		106·7	47	e 14 0	P	e 18 29	PP	—	—

Additional readings :—
Vladivostok isS =11m.58s.
Bombay eE =9m.14s.
Riverview isS?EN =16m.42s.
Sverdlovsk isP =11m.7s., isS =19m.58s.
Moscow pS =22m.6s., isS =22m.20s.
Long waves were recorded at Kew.

May 20d. Readings also at 0h. (near San Francisco, Berkeley, Branner, and Lick), 1h. (Alicante), 4h. (Bogota, Tucson, Pierce Ferry, Boulder City, Overton, Shasta Dam, Tinemaha, Haiwee, Palomar, Mount Wilson, Riverside, Pasadena, and Wellington), 12h. (Palomar, Tinemaha, Overton, Pierce Ferry, Tucson, and Riverview), 13h. (near La Paz, and near Tananarive (2)), 15h. (near Tashkent, Andijan, and Stalinabad).

May 21d. Readings at 8h. (Victoria), 11h. (Riverview, Christchurch, Wellington, Arapuni, and Auckland), 12h. (Riverview), 14h. (Tucson, Pierce Ferry, Tinemaha, Palomar, Mount Wilson, and near Apia), 15h. (Christchurch), 16h. (Riverview, Auckland, and Wellington), 18h. (Auckland), 19h. (Riverview), 21h. (Tinemaha, Mount Wilson, Riverside, Palomar, Tucson, St. Louis, Bogota, La Paz, and near Huancayo), 22h. (Auckland).

May 22d. Readings at 0h. (Tucson, Palomar, Tashkent, Hyderabad, Bombay, and Kodaikanal), 5h. (Tinemaha, Palomar, Riverside, Tucson, and Mount Wilson), 6h. (Triest, Bucharest, and Sofia), 7h. (Bombay, Hyderabad, and Kodaikanal), 9h. (La Paz), 11h. (near Andijan), 14h. (near Branner, Lick, and Fresno), 18h. (Toledo), 20h. (near Andijan (2), Tashkent, and Stalinabad).

May 23d. Readings at 0h. (near Tashkent), 3h. (Tinemaha, Palomar, Tucson, Riverside, and Mount Wilson), 6h. (Shasta Dam, Tinemaha, Tucson, Riverside, Mount Wilson, Palomar, St. Louis, and San Juan), 9h. (Bucharest and Sofia), 10h. (Triest, Basle, Chur, Zürich, Bucharest, Belgrade, Sofia, and near La Paz), 13h. (Bombay), 14h. (Palomar and Tucson), 19h. (Palomar, Mount Wilson, Riverside, and Tinemaha), 20h. (St. Louis, Kew (2), Bucharest, and near Stalinabad).

May 24d. Readings at 0h. (near Sofia), 2h. (Bogota), 9h. (near Tananarive), 11h. (near Andijan, Tashkent and Stalinabad), 16h. (Tucson, Palomar, Mount Wilson, and Brisbane), 19h. (near Branner), 20h. (Tinemaha, Pasadena, Tucson, La Paz, and near Huancayo).

May 25d. Readings at 0h. (Tucson, Tinemaha, Mount Wilson, and near Apia), 4h. (near Tashkent, Andijan, and Stalinabad), 7h. (St. Louis, Tinemaha, Mount Wilson, Tucson, and Palomar), 11h. (Sverdlovsk, Almata, near Andijan, Tashkent, and Stalinabad), 12h. (near Malaga), 13h. (Aberdeen), 16h. (Auckland), 19h. (near Branner, Berkeley, and San Francisco), 20h. (Kodaikanal, Harvard, near San Juan, and Port-au-Prince), 21h. (near Tortosa).

May 26d. Readings at 10h. (Kodaikanal), 14h. (near Tashkent, Almata, and Andijan), 16h. (near La Paz), 17h. (near Mizusawa).

May 27d. 21h. 38m. 4s. Epicentre 32°·0N. 137°·0E. Rough.

$A = -·6214$, $B = +·5794$, $C = +·5273$; $\delta = -11$; $h = +1$;
$D = +·682$, $E = +·731$; $G = -·386$, $H = +·360$, $K = -850$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Mizusawa		7·9	24	1 42	−17	3 19	−11	—	—
Irkutsk		31·2	320	e 6 24	+ 1	—	—	—	—
New Delhi	N.	51·2	283	e 9 17	+10	e 16 33	+ 8	c 11 6	PP
Tashkent		53·9	300	e 17 11	S	(e 17 11)	+ 9	—	—
Sverdlovsk		56·6	321	i 9 52	+ 5	17 32	− 6	—	—
Baku		68·1	305	e 11 6	+ 2	c 20 3?	0	—	—
Moscow		69·1	323	e 11 4	− 6	c 20 4?	−11	—	—
Shasta Dam		77·1	50	e 11 54	− 3	—	—	—	—
Tinemaha	Z.	81·7	52	e 12 21	− 1	—	—	e 27 49	SS
Boulder City		84·6	51	e 12 36	0	—	—	—	—
Overton		84·6	50	e 12 35	− 1	—	—	—	—
Palomar	Z.	84·8	54	i 12 37	0	—	—	i 26 52	?
Pierce Ferry		85·1	51	i 11 54	−45	—	—	e 12 37	P
Tucson		89·5	52	e 13 0	0	—	—	i 28 55	SS

Long waves were recorded at some European stations.

May 27d. Readings also at 0h. (Paris and Kew), 4h. (near Sofia), 5h. (Bucharest), 13h. (Palomar, Tucson, near Vera Cruz, and Tacubaya), 15h. (Triest, and Bucharest), 19h. (near Tashkent and Andijan).

May 28d. 6h. 40m. 7s. Epicentre 40°·3N. 73°·2E. (as on 1943 November 7d.).
Epicentre 40°15′N. 73°15′E. (stations of the U.S.S.R.).

$A = +·2211$, $B = +·7322$, $C = +·6443$; $\delta = +12$; $h = -2$;
$D = +·957$, $E = -·289$; $G = +·186$, $H = +·617$, $K = -·765$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Andijan	0·8	305	i 0 17	− 1	—	—	—	—
Tashkent	3·1	289	e 0 39	−12	i 1 36	+ 7	—	—
Almata	4·1	42	e 1 14	+ 9	2 6	+11	2 24	S_g
Baku	17·7	279	e 4 12?	+ 2	e 7 34	+ 8	—	—
Sverdlovsk	18·4	337	e 4 18	0	e 7 54	+13	—	—
Moscow	28·0	316	c 6 15	+20	—	—	—	—

May 28d. 9h. Undetermined shock.

Brisbane iZ = 44m.12s.
Riverview iPZ = 44m.50s.a, iSE = 49m.19s., eRE = 51·2m.
Wellington i = 48m.?.
Christchurch P = 48m.38s., PP = 52m.21s., SKS = 59m.3s., S = 60m.0s., SS = 66m.29s., Q = 74m.33s., R = 79m.48s.
Auckland i = 49m.45s.?.
Pasadena iPZ = 52m.1s., eLZ = 77m.45s.
Shasta Dam eP = 52m.1s.
Riverside ePZ = 52m.2s.
Palomar iP = 52m.5s.
Tinemaha ePZ = 52m.7s.
Boulder City eP = 52m.16s.
Pierce Ferry eP = 52m.18s.
Overton eP = 52m.20s.
Tucson eP = 52m.21s., e = 65m.4s., eSS? = 79m.35s., eL = 86m.2s.
St. Louis eE = 77m.20s., eLE = 90m.
Long waves were also recorded at Berkeley.

May 28d. 10h. Undetermined shock.

Pasadena suggests between Fiji and Loyalty Island.
Auckland P = 12m.27s., i = 15m.40s., S = 16m.15s., i = 19m.55s.?, 21m.0s., and 23m.0s.
Brisbane iPE = 13m.16s., iSE = 17m.26s.
Wellington PZ = 13m.20s., PPZ = 13m.40s., iZ = 14m.28s., S = 17m.21s., sS = 18m.0s., SS?Z = 18m.31s., i = 18m.45s., R = 19m. P_cS = 20m.30s.
Riverview iPZ = 13m.54s.a, iEN = 13m.57s., ipPZ = 14m.1s., iPPZ = 14m.21s., iS = 18m.23s., isSN = 18m.44s., iSSN = 19m.29s., eLN = 20·0m.
Arapuni e = 14m.48s., S = 16m.36s.
Pasadena iPZ = 21m.7s., eLN = 42m.47s.
Riverside ePZ = 21m.7s.
Palomar iPNZ = 21m.8s.
Santa Clara ePZ = 21m.9s.
Tinemaha iPZ = 21m.15s.
Boulder City eP = 21m.20s., e = 23m.7s.
Overton eP = 21m.22s.
Pierce Ferry iP = 21m.22s.
Tucson eP = 21m.27s., i = 21m.35s., eL = 49m.36s.
Victoria e = 25m.42s., L = 45m.
Paris ePKP = 28m.28s., e = 29m.49s.
Kew eZ = 28m.50s.?., eL = 58m.
Toledo ePZ = 29m.0s.
Berkeley eN = 30m.34s., eEN = 31m.24s. and 42m.42s., eLEN = 46·4m.
Malaga iPKPZ = 33m.55s.a, ipPKPZ = 34m.31s., iPPZ = 38m.32s., P_cP,PKPZ = 41m.52s. PPPZ = 42m.21s., SKKSZ = 45m.11s., QZ = 82m.16s., RZ = 88m.36s.
Long waves were also recorded at Uccle, Honolulu, La Paz, Huancayo, Salt Lake City, Granada, and San Fernando.

May 28d. Readings also at 0h. (near Bogota), 4h. (Tashkent and near Sofia), 6h. (near Triest), 11h. (Pierce Ferry, Shasta Dam, and near Mizusawa), 17h. (Tinemaha, Tucson, Kew, Paris, Clermont Ferrand, Uccle, and San Fernando), 18h. (Tinemaha, Pasadena, Tucson, Palomar, Pierce Ferry, Boulder City, and Overton), 22h. (near Johannesburg).

May 29d. 17h. 33m. 51s. Epicentre 7°·5N. 126°·7E. (as on 1945 March 31d.).

$A = -·5926$, $B = +·7950$, $C = +·1297$; $\delta = +2$; $h = +7$;
$D = +·802$, $E = +·598$; $G = -·078$, $H = +·104$, $K = -·992$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		35·8	6	e 6 58	− 5	—	—	—	—	—
Riverview		47·2	152	i 8 42a	+ 6	e 15 35	+ 6	i 10 30	PP	—
Irkutsk		48·3	342	i 8 47	+ 2	e 15 31	−14	—	—	—
New Delhi	N.	51·1	302	—	—	i 16 21	− 3	i 18 55	S_cS	—
Bombay	N.	53·5	288	—	—	e 17 2	+ 5	i 19 17	S_cS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tashkent		60·8	313	e 10 4	−12	18 36	+ 3	—	—	—
Baku		75·1	310	—	—	21 33	+ 9	—	—	—
Moscow		83·4	326	12 30	0	i 22 46	− 5	12 45	pP	—
Ksara		86·6	303	e 12 54	+ 8	e 23 32	+ 9	—	—	—
Shasta Dam		100·6	47	i 13 49	− 2	—	—	e 17 53	PP	—
Tinemaha	z.	104·9	48	e 18 24	PP	—	—	e 18 34	?	—
Paris		105·7	325	—	—	e 27 45	PS	—	—	—
Mount Wilson	z.	106·1	51	i 18 11	[−14]	—	—	i 18 20	PKP	—
Pasadena	z.	106·1	51	e 18 19	[− 6]	—	—	—	—	e 62·0
Riverside	z.	106·7	51	e 18 35	[+ 9]	—	—	—	—	—
Palomar	z.	107·4	51	e 18 45	PP	—	—	—	—	—
Tucson		112·5	50	e 19 16	PP	e 23 28	?	e 21 14	PPP	e 61·4
St. Louis		122·7	34	e 18 59	[+ 1]	e 30 20	PS	i 20 29	PP	—
San Juan		151·3	25	e 19 53	[+ 4]	—	—	—	—	—
Fort de France		156·6	18	e 19 58	[+ 2]	—	—	—	—	—
La Paz		163·0	123	20 7	[+ 3]	—	—	22 41	?	80·1

Additional readings :—
Riverview iSSEN = 18m.56s.
Bombay iN = 22m.43s.
St. Louis eN = 39m.38s.
Long waves were also recorded at Kew.

May 29d. Readings also at 0h. (Tucson, Tinemaha, Palomar, Riverside, Wellington, Auckland, Vladivostok, and near Mizusawa), 3h. (Riverside, Palomar, Tucson, and Pierce Ferry), 4h. (Kew, Triest, and Bucharest), 9h. (Chur), 12h. (Tucson, Palomar, Riverside, Tinemaha, and Mount Wilson), 14h. (Basle), 15h. (Auckland, near Basle, and Zürich), 23h. (near Berkeley).

May 30d. Readings at 8h. (Riverview, Wellington, Arapuni, Auckland, and Christchurch), 11h. (Tashkent), 13h. (Kew, Paris, Zürich, Basle, Prague, Belgrade, Bucharest, and Triest), 17h. (Tashkent), 19h. (Prague), 23h. (Sofia).

May 31d. 11h. 7m. 55s. Epicentre 33°·6N. 137°·7E.

Scale IV at Shizuoka and Hamamatu II-III at Toyooka and Owase. Epicentre as adopted. Focal depth suggested 40-60 km.
Seismo. Bull. Cent. Met. Obs. Japan 1945. Tokyo 1951, p. 32.

$A = -·6173$, $B = +·5617$, $C = +·5508$; $\delta = -5$; $h = +1$;
$D = +·673$, $E = +·740$; $G = -·407$, $H = +·371$, $K = -·835$.

		Δ	Az.	P.	O—C.	S.	O—C.
		°	°	m. s.	s.	m. s.	s.
Owase		1·3	291	0 35$_a$	+10	0 48	+ 4
Shizuoka		1·5	23	0 29	+ 1	0 45	− 4
Misima		1·9	34	0 42	P_g	0 59	0
Hikone		2·0	324	0 36	+ 1	0 59	− 3
Osaka		2·1	301	0 49	P_g	1 34	?
Mera		2·2	53	0 57	P_g	1 27	S_g
Yokohama		2·4	41	0 39	− 2	1 9	− 3
Maebasi		3·0	22	0 46	− 4	1 21	− 6
Toyama		3·1	352	0 54	+ 3	1 35	S*
Toyooka		3·3	309	1 1	P*	1 43	S*
Kôti		3·4	271	1 24	?	2 9	?
Utunomiya		3·4	30	1 10	P_g	1 52	S_g
Mito		3·6	38	0 52	− 6	1 34	− 8
Wazima		3·8	350	1 19	P_g	2 3	S_g
Hukusima		4·7	28	1 16	+ 2	2 12	+ 2
Hukuoka		6·1	272	2 5	P_g	3 34	S_g
Mizusawa	E.	6·2	25	1 48	P*	3 4	S*

Long waves were recorded at Paris.

May 31d. 18h. 11m. 44s. Epicentre 37°·8N. 142°·6E. (as on 1941 February 4d.).

Intensity V at Sendai, Hukusima; IV at Mizusawa, Tukubasan, Mito, Utunomiya, Hatinohe, II-III at Maebasi.
Epicentre 37°·7N. 142°·6E. Focal depth suggested 60km.

$A = -\cdot6293$, $B = +\cdot4811$, $C = +\cdot6103$; $\delta = -6$; $h = -1$;
$D = +\cdot607$, $E = +\cdot794$; $G = -\cdot485$, $H = +\cdot371$, $K = -\cdot792$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sendai		1·4	289	1 15k	+48	1 29	+43	—	—	—
Hukusima		1·7	268	0 25	− 6	0 37	−17	—	—	—
Mizusawa	N.	1·7	286	0 33	+ 2	0 53	− 1	—	—	—
Mito		2·2	230	0 34	− 4	0 56	−10	—	—	—
Utunomiya		2·5	240	0 40	− 3	1 13	− 1	—	—	—
Tukubasan		2·6	232	0 37	− 7	1 2	−15	—	—	—
Hatinohe		2·8	343	0 52a	+ 5	1 23	+ 1	—	—	—
Tokyo		3·1	227	0 39	−12	1 7	−22	—	—	—
Maebasi		3·2	244	0 46	− 6	1 15	−17	—	—	—
Mera		3·6	219	0 58	0	1 23	−19	—	—	—
Hunatu		3·8	235	0 46	−15	1 36	−11	—	—	—
Misima		3·9	230	1 0k	− 2	1 44	− 6	—	—	—
Shizuoka		4·4	232	1 11	+ 1	1 57	− 5	—	—	—
Toyama		4·5	255	1 8	− 3	—	—	—	—	—
Wazima		4·5	264	1 10	− 1	1 43	−22	—	—	—
Sapporo		5·3	349	1 30	+ 8	—	—	—	—	—
Hikone		5·7	246	1 22	− 6	—	—	—	—	—
Nemuro		6·0	22	1 42	+10	2 49	+ 6	—	—	—
Owase		6·4	237	1 31	− 7	2 23	−30	—	—	—
Vladivostok		9·7	306	i 2 23	+ 1	i 4 12	− 3	i 2 33	P*	—
Irkutsk		30·3	312	6 11	− 4	11 5	−10	6 37	?	—
New Delhi	N.	54·5	282	e 9 30	− 2	e 17 0	−10	—	—	—
Tashkent		55·1	299	i 9 34	− 2	—	—	10 0	?	—
Sverdlovsk		55·2	319	i 9 35	− 2	i 17 10	−10	i 9 45	?	—
Bombay		62·9	274	i 10 26	− 4	e 18 45	−15	i 19 17	PS	—
Moscow		67·3	323	i 10 0	?	i 19 44	−10	i 10 55	P	—
Grand Coulee		68·1	46	e 11 16	+12	—	—	—	—	—
Shasta Dam		69·9	54	i 11 19	+ 4	—	—	—	—	—
Tinemaha		74·6	56	i 11 48	+ 5	—	—	e 12 6	PcP	—
Santa Barbara	Z.	75·2	58	e 11 51	+ 5	—	—	e 12 4	PcP	—
Haiwee		75·3	56	e 12 0	PcP	—	—	—	—	—
Mount Wilson		76·4	58	i 11 47	− 6	—	—	i 12 10	PcP	—
Pasadena		76·4	58	e 11 45	− 8	—	—	i 12 8	PcP	e 35·0
Riverside	Z.	77·0	58	e 12 2	+ 6	—	—	e 12 13	PcP	—
Overton		77·4	54	i 12 2	+ 4	—	—	—	—	—
Boulder City		77·5	55	i 12 4	+ 5	—	—	—	—	—
La Jolla	Z.	77·7	58	e 12 17	PcP	—	—	—	—	—
Palomar		77·7	57	i 12 9	+ 9	—	—	i 12 18	PcP	—
Pierce Ferry		77·9	54	i 12 6	+ 5	i 22 0	+ 6	—	—	—
Ksara		81·5	306	e 12 32	+11	e 22 34	+ 2	—	—	—
Jena		81·7	331	e 12 3	?	—	—	e 12 15	P	—
Tucson		82·4	55	e 12 30	+ 5	—	—	i 12 42	PcP	e 38·3
Triest		85·0	327	e 23 13	S	(e 23 13)	+ 6	—	—	—
Kew		85·4	338	—	—	e 24 16?	PS	—	—	e 40·3
Zürich		85·4	331	i 12 41a	+ 1	—	—	—	—	—
Basle		86·0	331	e 12 42	− 1	—	—	—	—	—
Paris		86·8	335	12 48	+ 1	e 23 21	− 4	—	—	—
Florissant	E.	89·5	39	—	—	e 23 29	[− 1]	e 23 53	S	—
St. Louis		89·7	39	i 13 3	+ 2	e 23 29	[− 2]	i 13 15	pP	—
Malaga	Z.	99·8	334	i 17 52k	PP	i 24 36	[+10]	i 20 14	PPP	61·6
La Paz	Z.	145·6	61	i 19 48	[+ 8]	—	—	(20 22)	PKP_2	20·4

Additional readings :—
Moscow iP = 11m.6s., and 11m.22s.
St. Louis esSE = 23m.51s., eE = 29m.59s.
Malaga SKKSZ = 26m.45s.
Long waves were also recorded at other European stations.

May 31d. 23h. Undetermined shock. Probably China Sea.

New Delhi eN =14m.18s., iN =24m.38s., 26m.0s., 27m.48s., and 28m.25s.
Irkutsk P =17m.19s., eS =22m.5s.
Sverdlovsk iP =20m.31s., ipP =21m.16s., S =27m.50s., isS =29m.12s.
Moscow P =21m.58s., pP =22m.44s., S =30m.32s.
Shasta Dam iP =24m.7s.
Tinemaha iPEZ =24m.30s.
Haiwee iPZ =24m.34s.
Mount Wilson ePZ =24m.37s.
Bogota i =30m.45s.
St. Louis eP?Z =33m.18s.?.
Long waves were recorded at Granada, Malaga, and Prague.

May 31d. Readings also at 0h. (Tinemaha, Riverside, Mount Wilson, Palomar, and La Plata), 7h. (near Almata, Tashkent, and Andijan), 15h. (3) and 16h. (near Malaga), 18h. (near Branner), 21h. (Tinemaha, Mount Wilson, Palomar, Pierce Ferry, and Tucson), 23h. (Pasadena, Mount Wilson, Riverside, Palomar, Tinemaha, Haiwee, Overton, Boulder City, Pierce Ferry, and Tucson).

June 1d. 15h. 13m. 40s. Epicentre 53°·4N. 168°·7W. (as on 1942, Sept. 4d.).

Pasadena suggests focal depth 80km.

$A = -\cdot5872$, $B = -\cdot1173$, $C = +\cdot8009$; $\delta = 0$; $h = -7$;
$D = -\cdot196$, $E = +\cdot981$; $G = -\cdot785$, $H = -\cdot157$, $K = -\cdot599$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·6	35	e 4 2	+19	e 7 9	+32	—	—	e 8·8
Sitka		19·3	66	e 4 34	+ 5	e 8 19	+17	—	—	e 9·5
Victoria		28·6	83	6 14	+14	11 11	+23	—	—	14·3
Grand Coulee		31·4	81	i 6 29	+ 4	(e 11 35)	+ 3	—	—	e 11·6
Honolulu		33·1	162	e 7 27	PP	e 11 20	−39	—	—	e 13·6
Shasta Dam		33·4	94	i 6 43	+ 1	e 12 11	+ 8	—	—	—
Berkeley		35·3	98	e 5 55	−64	e 11 36	−57	—	—	e 15·1
Santa Clara	z.	35·8	98	e 6 9	−54	—	—	—	—	—
Butte		36·2	77	—	—	e 13 1	+14	—	—	e 16·5
Saskatoon		36·5	68	—	—	e 12 20?	−31	—	—	17·3
Bozeman		37·3	78	e 7 17	+ 1	e 13 7	+ 3	—	—	e 17·1
Tinemaha		38·2	95	i 7 22	− 1	i 13 26	+ 9	e 13 17	S_cP	—
Haiwee		39·0	95	e 7 30	0	—	—	—	—	—
Santa Barbara	z.	39·1	100	e 7 32	+ 1	—	—	—	—	—
Salt Lake City		39·7	86	e 7 36	0	e 13 32	− 8	e 9 10	PP	e 17·0
Vladivostok		39·8	280	i 7 58?	+22	—	—	—	—	—
Pasadena		40·2	98	i 7 38	− 2	e 13 34	−14	i 13 24	S_cP	e 17·2
Mount Wilson		40·3	98	i 7 39	− 1	—	—	i 13 24	S_cP	—
Riverside		40·8	98	i 7 42	− 3	e 13 59	+ 3	i 13 26	S_cP	—
Overton		40·9	93	i 7 45	− 1	—	—	—	—	—
Boulder City		41·0	94	e 7 45	− 1	e 14 0	+ 1	i 13 28	S_cP	—
Pierce Ferry		41·4	93	i 7 48	− 2	i 14 10	+ 5	—	—	—
Palomar		41·6	98	i 7 51	0	i 14 12	+ 4	i 13 31	S_cP	—
La Jolla		41·7	99	i 7 50	− 2	e 14 11	+ 1	—	—	—
Rapid City		42·8	76	e 8 5	+ 4	e 14 32	+ 6	e 10 8	PPP	e 18·2
Tucson		46·0	94	i 8 25	− 2	e 15 15	+ 3	e 10 10	PP	e 19·0
Irkutsk		49·4	307	e 8 45	− 8	16 7	+ 7	—	—	—
Chicago		53·0	68	—	—	i 16 55	+ 5	e 19 3	S_cS	e 25·4
Florissant		53·5	73	e 9 22	− 2	i 16 59	+ 2	i 19 13	S_cS	e 25·3
St. Louis		53·7	73	i 9 25	− 1	i 17 1	+ 2	i 9 46	pP	—
Ivigtut		56·4	31	—	—	17 44?	+ 8	—	—	32·3
Ottawa		56·9	57	9 49	0	17 46	+ 4	e 19 32	S_cS	26·3
Shawinigan Falls		57·5	55	9 56	+ 3	17 56	+ 6	—	—	—
Seven Falls		58·1	53	—	—	e 18 1	+ 3	—	—	30·3
Pittsburgh		58·2	65	e 10 3	+ 5	e 18 8	+ 9	e 19 42	S_cS	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Harvard		61·0	58	i 10 17	− 1	—	—	—	—	—
Fordham		61·1	60	e 10 18	0	i 18 44	+ 7	—	—	—
Sverdlovsk		63·0	333	i 10 25	− 6	i 18 58	− 3	—	—	—
Upsala		67·0	358	—	—	e 20 48	+58	—	—	e 29·3
Moscow		69·1	345	11 7	− 3	20 11	− 4	—	—	—
Bermuda		72·3	60	—	—	i 21 0	+ 8	—	—	e 36·6
Tashkent		73·3	319	11 24	−11	e 20 57	− 7	—	—	—
De Bilt		74·7	6	e 11 45	+ 2	e 21 20?	+ 1	—	—	—
Kew		75·0	9	e 11 44	− 1	—	—	—	—	e 38·3
Jena		76·0	0	—	—	—	—	e 32 19	Q	—
Paris		77·9	8	e 11 58	− 3	—	—	—	—	—
Strasbourg		78·3	4	e 12 0	− 3	—	—	e 16 20	PPP	—
Basle		79·4	4	e 12 8	− 1	—	—	—	—	—
Zürich		79·6	4	e 12 8	− 2	—	—	—	—	—
Neuchatel		79·9	4	e 12 12	0	—	—	—	—	—
New Delhi	N.	80·4	306	—	—	i 22 7	−14	—	—	e 43·5
Clermont-Ferrand		81·0	8	e 12 17	− 1	—	—	—	—	—
Triest		81·3	359	e 22 20	S	(e 22 20)	−10	—	—	—
San Juan		82·7	70	e 13 0	+33	i 22 44	0	e 27 48	SS	e 34·6
Toledo		86·1	12	i 12 44	0	e 23 22	+ 4	—	—	—
Bombay	E.	90·7	304	—	—	e 23 23	[−14]	—	—	—
Riverview	N.	93·6	213	—	—	e 24 3	[+10]	—	—	e 42·1
Huancayo		101·6	96	—	—	e 24 28	[− 7]	e 33 3	SS	e 43·8
La Paz	Z.	109·4	92	28 24	PS	—	—	—	—	54·7

Additional readings :—
Berkeley eN =6m.10s., eZ =7m.21s., iN =14m.22s., eE =14m.26s.
Tinemaha iZ =7m.37s.
Pasadena iZ =7m.55s. and 9m.16s.
Palomar iZ =8m.4s.
Tucson i =8m.39s. and 13m.49s.
Florissant eSSE =21m.20s.
St. Louis iZ =9m.33s.
Long waves were also recorded at Bucharest, Granada, San Fernando, and Christchurch.

June 1d. 15h. 43m. 48s. Epicentre 53°·4N. 168°·7W. (as at 15h. 13m.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·6	35	e 4 11	+28	e 7 0	+23	—	—	e 9·0
Grand Coulee		31·4	81	e 6 28	+ 3	(e 11 36)	+ 4	—	—	e 11·6
Honolulu		33·1	162	—	—	e 11 57	− 2	—	—	e 15·6
Shasta Dam		33·4	94	e 6 43	+ 1	e 12 9	+ 6	—	—	—
Tinemaha		38·2	95	i 7 24	+ 1	e 13 25	+ 8	i 13 17	S_eP	—
Haiwee		39·0	95	e 7 35	+ 5	—	—	—	—	—
Pasadena		40·2	98	i 7 38	− 2	—	—	—	—	e 18·4
Mount Wilson		40·3	98	i 7 40	0	—	—	—	—	—
Riverside	Z.	40·8	98	i 7 43	− 2	—	—	—	—	—
Overton		40·9	93	e 7 44	− 2	—	—	—	—	—
Boulder City		41·0	94	i 7 46	0	e 14 3	+ 4	—	—	—
Palomar		41·6	98	i 7 51	0	i 14 13	+ 5	i 12 24	S_eP	—
La Jolla	Z.	41·7	99	e 7 52	0	—	—	—	—	—
Tucson		46·0	94	i 8 27	0	e 15 29	+17	i 10 24	PP	e 21·3
Florissant	E.	53·5	73	e 9 23	− 1	i 16 59	+ 2	—	—	—
Ottawa		56·9	57	9 50	+ 1	17 46	+ 4	—	—	30·2
Shawinigan Falls		57·5	55	9 54	+ 1	17 54	+ 4	—	—	—
Fordham		61·1	60	e 10 20	+ 2	i 18 46	+ 9	—	—	—

Tucson gives also i =8m.38s. and 12m.59s., eS_eS =18m.18s.

June 1d. 16h. 54m. 52s. Epicentre 46°·6N. 112°·0W.

Intensity V near the epicentre; IV at Austin, Butte, Townsend, and Wolf Creek; III at Anaconda, Deer Lodge, and Virginia City.
Macroseismic area 6000 sq. miles (covering S.W. portion of Montana). Epicentre as adopted.
U.S.C.G.S., Washington, 1947, "United States Earthquakes, 1945," p. 9.

$A = -\cdot2583$, $B = -\cdot6393$, $C = +\cdot7243$; $\delta = +3$; $h = -4$;
$D = -\cdot927$, $E = +\cdot375$; $G = -\cdot271$, $H = -\cdot672$, $K = -\cdot690$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Butte		0·7	214	i 0 12	− 5	—	—	—	—	—
Bozeman		1·1	144	i 0 21	− 1	i 0 40	+ 1	—	—	—
Grand Coulee		4·9	289	i 1 15	− 2	i 2 9	− 6	i 1 31	P_g	i 2·5
Logan		4·9	178	c 1 27	P_g	i 2 31	S*	—	—	i 3·0
Rapid City		6·7	109	i 2 11	P_g	—	—	—	—	i 3·2
Shasta Dam		9·6	236	i 2 21	0	—	—	i 2 58	P_g	—
Overton		10·2	191	e 2 31	0	—	—	—	—	e 5·3
Pierce Ferry		10·6	189	e 2 38	+ 2	—	—	—	—	e 5·5
Tinemaha		10·6	208	e 2 35	− 1	—	—	—	—	e 5·3
Boulder City		10·8	192	e 2 36	− 3	—	—	—	—	e 5·6
Mount Wilson	z.	13·2	202	e 3 17	+ 6	—	—	—	—	e 7·0
Tucson		14·4	176	e 3 32	+ 5	—	—	—	—	e 7·5

Long waves were also recorded at Haiwee, Pasadena, Palomar, Riverside, Salt Lake City, and Florissant.

June 1d. 22h. 24m. 7s. Epicentre 7°·0N. 34°·6W. (as on 1941, March 21d.).

$A = +\cdot8171$, $B = -\cdot5636$, $C = +\cdot1211$; $\delta = -4$; $h = +6$;
$D = -\cdot568$, $E = -\cdot823$; $G = +\cdot100$, $H = -\cdot057$, $K = -\cdot993$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		32·7	294	e 6 35	− 1	e 11 48	− 4	—	—	i 13·6
Bermuda		37·8	317	e 8 45	PP	—	—	—	—	e 16·1
San Fernando	E.	39·1	37	—	—	e 13 29	− 2	—	—	18·9
Malaga	z.	40·4	39	i 7 42a	+ 1	i 15 1	+71	i 8 1	pP	c 24·5
Coimbra		40·5	33	7 27	−15	13 31	−21	—	—	16·7
La Paz	z.	40·6	235	i 7 45k	+ 2	i 14 4	+10	i 9 25	PP	20·8
Granada		41·2	39	7 54k	+ 6	14 4	+ 2	—	—	23·2
Toledo		42·7	36	i 8 1	+ 1	e 14 25	+ 1	—	—	—
Huancayo		44·7	246	e 8 35	+19	e 14 57	+ 3	e 12 1	?	e 20·0
Harvard		48·1	324	i 8 40	− 3	—	—	—	—	—
Fordham		48·6	321	e 8 49	+ 2	e 15 53	+ 4	—	—	—
Clermont-Ferrand		50·5	34	e 9 3	+ 1	—	—	—	—	e 23·4
Paris		52·1	31	e 9 15	+ 1	e 16 46	+ 8	—	—	e 22·9
Ottawa		52·2	325	9 15	0	16 35	− 4	—	—	21·9
Kew		52·6	27	—	—	e 16 47	+ 3	—	—	e 28·9
De Bilt		55·5	29	—	—	e 17 23	− 1	—	—	e 23·9
Triest		56·7	39	e 9 47	− 1	e 17 40	0	—	—	—
St. Louis		59·1	312	e 10 0	− 4	e 18 5	− 6	—	—	—
Florissant		59·2	312	e 10 6	+ 1	e 18 4	− 8	—	—	—
Helwan	N.	65·7	62	—	—	e 19 49	+15	—	—	e 27·3
Moscow		74·2	34	11 40	0	e 21 16	+ 2	—	—	—
Tucson		74·7	302	i 11 43	0	—	—	i 11 52	P_cP	e 38·1
Pierce Ferry		77·4	305	e 11 59	+ 1	—	—	—	—	—
Overton		77·7	306	i 12 1	+ 1	—	—	—	—	—
Boulder City		78·0	305	e 12 1	− 1	—	—	—	—	—
Palomar		79·7	302	i 12 12	+ 1	—	—	i 12 22	P_cP	—
Haiwee	z.	80·6	305	i 12 16	0	—	—	—	—	—
Mount Wilson	z.	80·7	303	i 12 17	+ 1	—	—	—	—	—
Sverdlovsk		87·1	34	c 12 50	+ 1	e 23 36	+ 8	—	—	—

Additional readings:—
Malaga $P_cPZ = 10m.43s.$, $SKSZ = 17m.16s.$
St. Louis $eZ = 10m.8s.$, $eE = 19m.50s.$
Long waves were also recorded at La Plata, Pittsburgh, Berkeley, Pasadena, and Uccle.

June 1d. Readings also at 6h. (Auckland, Pasadena, Mount Wilson, Palomar, Riverside, Haiwee, Tinemaha, Shasta Dam, Boulder City, Pierce Ferry, Overton, and Tucson), 8h. (Bogota), 11h. (2) and 15h. (near Malaga), 17h. (Triest), 21h. (Tucson, near Overton, Pierce Ferry, and Boulder City).

June 2d. 18h. 16m. 53s. Epicentre 35°·5N. 141°·0E. (as on 1941, February 9d.).

Intensity IV at Tokyo, Yokohama, and Hunatu ; II-III at Tukubasan, Mera, Kamizawa, Shizuoka, Hukusima, Titibu, and Maebasi.
Epicentre 35°·5N. 141°·5E. Very shallow.

The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1945, Tokyo, 1951. Pages 35-36.

$A = -\cdot6342$, $B = +\cdot5135$, $C = +\cdot5781$; $\delta = +9$; $h = 0$;
$D = +\cdot629$, $E = +\cdot777$; $G = -\cdot449$, $H = +\cdot364$, $K = -\cdot816$.

		△	Az.	P.	O−C.	S.	O−C.		Supp.
		°	°	m. s.	s.	m. s.	s.	m.	s.
Tukubasan		1·0	315	0 34	+13	0 49	+13	—	—
Mera		1·1	289	0 29	+ 7	0 44	+ 5	—	—
Yokohama		1·1	267	0 24a	+ 2	0 39	0	—	—
Maebasi		1·8	300	0 34	+ 2	1 1	+ 5	—	—
Hunatu		1·9	270	0 23k	−11	0 38	−21	—	—
Shizuoka		2·2	256	0 36a	− 2	0 53	−13	—	—
Hukusima		2·3	349	0 43k	+ 3	1 15	+ 6	—	—
Nagano		2·6	297	0 38	− 6	1 13	− 4	—	—
Sendai		2·8	358	1 1	P_g	1 32	S*	1 37	S_g
Toyama		3·3	291	0 44	− 9	1 17	−18	—	—
Mizusawa	N.	3·7	4	e 1 11	P_g	1 56	S*	—	—
Kameyama		3·8	263	0 54	− 7	1 25	−22	—	—
Owase		4·2	252	0 56	−11	1 31	−26	—	—
Hatinohe		5·0	4	1 34	P*	2 31	S*	—	—
Toyooka		5·0	273	2 16	S	(2 16)	− 2	—	—
Kôti		6·5	254	1 36	− 3	2 25	−30	—	—
Sapporo		7·5	2	2 2	+ 9	3 29	+ 9	—	—
Hukuoka		8·9	261	2 7	− 5	—	—	—	—
Tinemaha		77·0	53	i 11 57a	+ 1	—	—	—	—
Santa Barbara	z.	77·5	57	i 11 59	0	—	—	—	—
Haiwee	z.	77·7	55	i 12 1	+ 1	—	—	—	—
Mount Wilson	z.	78·7	56	i 12 6	0	—	—	i 12 42	?
Pasadena	z.	78·7	56	i 12 6	0	—	—	—	—
Riverside	z.	79·3	56	i 12 9	0	—	—	e 12 45	?
Overton		79·8	52	i 12 12	0	—	—	—	—
Boulder City		79·9	52	i 12 13	+ 1	—	—	i 12 49	?
Palomar		80·0	56	i 12 13a	0	—	—	e 12 48	?
Pierce Ferry		80·3	52	i 12 14	0	—	—	—	—
Tucson		84·8	53	i 12 37	0	—	—	i 13 13	?

June 2d. Readings also at 0h. (Berkeley), 4h. (near San Francisco), 6h. (Tucson, near Pierce Ferry, Overton, Boulder City, and Fresno), 10h. (Riverside, Palomar, St. Louis, Tucson, and near Tacubaya), 12h. (near Tashkent), 13h. (Jena and near College), 14h. (Grand Coulee, Tinemaha, Mount Wilson, Riverside, Palomar, and Tucson), 18h. (near Almata), 19h. (Mizusawa), 22h. (near Berkeley and San Francisco), 23h. (near Berkeley, Branner, and San Francisco).

June 3d. 0h. Undetermined shocks.

Malaga I eP = 44m.43s., iP_g = 44m.47s., i = 44m.58s., iS = 45m.4s., iS_g = 45m.10s., SSS = 45m.17s., L = 45m.37s. ; II iP_g? = 46m.15s., i = 46m.26s., S = 46m.31s., e = 46m.49s.
Coimbra e = 44m.44s., S = 47m.44s.
Almería P = 44m.55s.
Granada eP_g = 45m.2s., iS_g = 45m.24s.
Toledo eZ = 45m.30s., eP_g = 45m.38s., S_g? = 46m.54s.
Tortosa eN? = 45m.43s., iE = 48m.6s., iN = 48m.19s., iE = 48m.30s., iN = 48m.39s.
Alicante P = 46m.1s.
De Bilt e = 54m,

June 3d. 13h. 5m. 33s. Epicentre 8°·4N. 82°·7W.

Felt strongly in the province of Chirigui. Slight damage at David and Puerto Armuelles. Epicentre 8°·6N. 82°·6W. Focal depth suggested 80km. (U.S.C.G.S.).
Annales de l'Institut de Physique du Globe de Strasbourg, 2 ème partie, Séismologie, Tome X, Strasbourg, 1951, p. 28.

$A = +\cdot1257$, $B = -\cdot9814$, $C = +\cdot1451$; $\delta = 0$; $h = +7$;
$D = -\cdot992$, $E = -\cdot127$; $G = +\cdot018$, $H = -\cdot144$, $K = -\cdot989$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		3·1	79	i 0 54	+ 3	i 1 40	+11	—	—	—
Bogota		9·4	113	i 2 24	+ 6	i 4 15	+ 8	i 4 52	S*	—
Port au Prince		14·3	44	e 3 26	0	—	—	—	—	—
Vera Cruz		16·9	311	e 4 21	+22	e 7 47	SSS	i 4 30	pP	—
San Juan		18·9	57	i 4 24	0	i 7 41	−12	—	—	i 8·7
Tacubaya		19·4	307	i 4 32	+ 2	e 8 14	+10	i 8 30	SS	—
Huancayo		21·6	161	i 4 54	0	i 8 54	+ 5	i 5 35	PPP	i 10·1
Fort de France		22·0	73	i 4 58	0	e 9 2	+ 6	—	—	—
Mobile		22·8	348	e 5 9	+ 4	i 9 26	+15	5 25	pP	—
Columbia		25·5	4	e 5 31	− 1	e 10 0	+ 3	—	—	e 13·3
La Paz		28·6	150	e 5 56k	− 4	9 57	−51	6 59	PPP	16·4
Bermuda		29·1	33	e 6 1	− 3	e 10 48	− 8	e 6 47	PP	e 11·9
Cape Girardeau	E.	29·5	350	e 6 4	− 4	e 11 13	+11	—	—	—
Georgetown		30·8	10	i 6 19	− 1	i 11 0	−23	—	—	15·5
St. Louis		30·9	349	e 6 18	− 2	e 11 22	− 2	—	—	—
Florissant	Z.	31·1	349	i 6 18	− 4	i 11 40	+12	i 7 19	PP	i 13·5
Pittsburgh		32·0	5	i 6 25	− 5	i 11 46	+ 4	e 7 21	PP	—
Philadelphia		32·1	14	i 6 31	0	i 11 45	+ 2	e 7 50	PPP	e 13·1
Chicago		33·5	353	e 6 41	− 2	e 12 11	+ 6	e 7 53	PP	e 13·3
Tucson		35·3	316	i 6 58	− 1	e 12 35	+ 2	8 22	PP	e 16·3
Harvard		35·4	15	e 7 0	0	—	—	—	—	e 19·0
Ottawa		37·4	8	7 15	− 1	13 4	− 1	8 51	PPP	16·7
Shawinigan Falls		39·0	12	7 29	− 1	13 29	0	17 9	SSS	21·5
Halifax		39·7	23	9 9	?	16 39	?	—	—	22·5
Pierce Ferry		39·7	319	i 7 36	0	i 13 30	−10	—	—	e 18·0
Rapid City		39·8	337	i 7 35	− 1	i 13 41	− 1	e 9 2	PP	e 16·9
Seven Falls		39·9	13	7 36	− 1	13 43	0	9 25	PPP	18·5
Boulder City		40·1	318	i 7 40	+ 1	e 13 32	−14	e 17 47	ScS	—
Palomar		40·1	314	i 7 40	+ 1	i 13 53	+ 7	i 7 51	pP	—
La Jolla		40·2	313	i 7 40	0	—	—	i 7 50	pP	—
Overton		40·2	319	e 7 38	− 2	e 13 30	−18	—	—	—
Riverside		40·8	314	e 7 45	0	e 14 0	+ 4	i 7 55	pP	—
Salt Lake City		41·3	326	e 7 49	0	e 14 9	+ 5	e 9 33	PP	e 17·2
Mount Wilson		41·4	314	i 7 51a	+ 1	—	—	i 8 0	pP	—
Pasadena		41·5	314	i 7 50a	0	i 14 11	+ 4	i 8 0	pP	i 19·0
Logan		42·0	328	e 7 54	0	e 14 21	+ 7	e 9 37	PP	e 18·4
Haiwee		42·3	316	i 7 57a	− 1	e 14 25	+ 6	i 8 8	pP	—
Santa Barbara		42·7	313	i 8 1	+ 1	e 14 44	+20	—	—	—
Tinemaha		43·1	317	i 8 3a	+ 1	e 14 36	+ 6	i 8 13	pP	—
Fresno	N.	43·9	316	e 8 15	+ 5	—	—	—	—	—
Butte		45·4	332	e 8 24	+ 2	e 14 14	−50	e 10 17	PP	e 19·0
Lick		45·5	316	e 9 23	+60	—	—	e 9 34	?	—
Santa Clara		45·7	316	i 8 26	+ 2	i 15 15	+ 7	—	—	e 25·0
Branner		45·9	316	e 8 27	+ 1	e 15 15	+ 4	e 8 37	?	—
Berkeley		46·2	316	i 8 29	+ 1	i 15 9	− 6	—	—	e 21·6
Ukiah		47·5	317	e 8 37	− 1	e 15 37	+ 3	—	—	e 19·9
Shasta Dam		47·7	320	i 8 37	− 3	e 15 33	− 3	i 11 26	PPP	—
Saskatoon		47·8	340	8 27?	−14	15 27?	−11	19 27?	SS	26·5
La Plata	N.	49·0	153	8 51	+ 1	15 57	+ 2	19 51	SS	27·4
Grand Coulee		49·9	329	e 8 53	− 4	e 16 3	− 4	—	—	—
Victoria		52·6	327	9 30	+12	17 12	+28	—	—	26·5
Ivigtut		58·6	19	9 59	− 2	—	—	—	—	20·5
Sitka		63·5	331	e 10 30	− 4	e 18 53	−14	e 12 51	PP	e 28·4
College		72·0	336	e 11 25	− 3	e 20 47	− 2	—	—	e 33·3
Lisbon		72·0	52	11 26	− 2	20 49	0	24 52	SS	33·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Coimbra		72·6	51	11 10	−21	20 54	− 2	i 11 37	P	34·7
Honolulu		73·2	290	—	—	e 21 12	+10	—	—	e 32·7
San Fernando		74·2	55	e 11 40	0	i 21 16	+ 2	22 1	PPS	35·5
Malaga	z.	75·7	56	i 11 49a	0	i 21 26	− 4	22 4	PS	36·4
Toledo		76·0	52	i 11 49	− 2	e 21 35	+ 1	—	—	—
Granada		76·3	54	i 11 54a	+ 2	i 21 39	+ 2	12 8	PcP	36·5
Edinburgh		77·2	35	e 11 59	+ 2	e 21 48	+ 1	e 26 47	SS	—
Aberdeen		77·9	33	i 21 13	?	i 21 53	− 1	i 26 58	SS	32·5
Kew		78·7	39	e 12 8a	+ 2	e 22 16	+13	e 15 46?	PP	e 36·5
Tortosa		79·4	50	12 12	+ 3	22 1	− 9	12 41	pP	e 38·5
Paris		80·6	42	i 12 16	0	e 22 20	− 3	e 16 56?	PPP	e 38·5
Clermont-Ferrand		81·1	45	e 12 20	+ 2	e 22 33	+ 5	—	—	e 39·2
Uccle		81·7	40	—	—	e 22 32	− 2	—	—	e 35·5
Bergen	z.	81·8	30	e 12 35	+13	e 22 47	+12	—	—	—
De Bilt		82·1	38	i 12 23a	− 1	e 22 35	− 3	—	—	e 28·5
Neuchatel		83·7	44	e 12 31	− 1	—	—	—	—	—
Basle		84·1	43	e 12 34	0	—	—	—	—	—
Strasbourg		84·1	42	e 12 33	− 1	—	—	—	—	e 40·5
Zürich		84·8	43	e 12 37k	0	e 23 27	+22	e 13 10	?	—
Chur		85·5	43	e 12 41	0	e 23 20	+ 8	—	—	—
Upsala		87·9	30	e 12 53	0	e 23 27?	− 8	e 16 54	PP	e 36·5
Prague		88·2	40	e 12 48	− 6	e 23 32	− 6	e 24 11	PS	e 41·5
Triest		88·5	44	i 12 54	− 2	i 23 37	− 4	i 16 7	PP	—
Arapuni		104·3	233	—	—	e 28 27?	PPS	e 36 57?	SSS	51·5
Wellington		104·9	229	—	—	26 27?	+26	28 37	PPS	49·5
Auckland		105·0	234	—	—	e 33 27?	SS	—	—	51·5
Christchurch		106·4	227	18 47	PP	25 14	[+17]	27 58	PS	50·3
Helwan	N.	106·8	56	—	—	e 26 5	−12	e 28 7	PS	—
Riverview		124·5	234	e 20 51	PP	i 31 12	PS	e 37 59	SS	e 59·5
New Delhi	N.	138·4	27	e 22 58	PP	34 48	PPS	40 30	SS	—
Bombay	N.	143·7	41	e 19 35	[− 2]	—	—	e 23 19	PP	—

Additional readings :—
Bogota iP* =2m.52s., e =6m.46s., ePcP =9m.29s.
Vera Cruz eZ =8m.21s., eN =9m.5s., eZ =9m.9s., iN =9m.38s. and 9m.56s., eZ = 10m.4s., eE =10m.51s.
La Paz SS =12m.4s., SSS =13m.9s.
Bermuda e =6m.15s.
St. Louis eN =6m.27s., eE =11m.9s.
Florissant iSS?Z =12m.22s. and 12m.43s., iZ =13m.10s.
Philadelphia e =6m.53s. and 10m.52s.
Tucson i =7m.8s. and 7m.51s.
Ottawa SSS =15m.45s.
Rapid City i =7m.48s.
Seven Falls SSS =16m.51s.
Palomar iScPZ =13m.34s.
Riverside iScPZ =13m.35s.
Pasadena eScPZ =13m.13s., eZ =13m.36s., iSZ =14m.16s., eN =17m.50s.
Tinemaha iNZ =8m.27s., eScPZ =13m.45s.
Fresno eN =8m.21s. and 9m.19s.
La Plata PZ =8m.40s., SE =15m.57s., SSN =22m.15s.
Grand Coulee i =9m.26s. and 15m.19s.
Sitka e =23m.30s.
Lisbon PZ =11m.29s., SN =20m.45s., QE =28m.33s.
Coimbra i =18m.40s.
Malaga SSZ =27m.44s.
San Fernando SSE =26m.27s.
Granada iSS =27m.7s., SSS =30m.17s.
Kew eZ =18m.32s., ePSE =23m.6s., eSSNZ =27m.27s.?
Tortosa PPN =14m.51s., PSN =22m.36s., SSN? =27m.47s.
Paris eSS =27m.51s.
Upsala eE =14m.11s. and 23m.47s., eSSE =29m.27s.?
Prague eSS =29m.9s.
Triest eSKS =23m.25s., ePS =24m.35s., iPPS =24m.58s., eSS =29m.34s., eSSS =33m.1s.
Wellington eZ =33m.27s.?, SS?Z =34m.27s.?
Christchurch PPS =28m.59s., SS =34m.5s., Q =43m.27s.
Helwan eN =26m.39s. and 33m.59s.
Riverview eE =33m.36s. and 40m.59s., eZ =42m.15s. and 45m.54s.
New Delhi SSSN =45m.27s.
Long waves were also recorded at Bozeman, Seattle, Besançon, and Colombo.

June 3d. Readings also at 1h. (near Irkutsk), 11h. (near Tananarive), 13h., 14h., and 16h.(2) (near Balboa Heights), 17h. (Tucson, Palomar, Mount Wilson, and Tinemaha), 20h. (Tananarive), 21h. (near Balboa Heights), 23h. (Tinemaha, Palomar, Riverside, Tucson, and near Tacubaya).

June 4d. 12h. 8m. 55s. Epicentre 30°·3N. 80°·0E.

Pasadena suggests deep focus.

$A = +\cdot1502$, $B = +\cdot8518$, $C = +\cdot5020$; $\delta = +13$; $h = +2$;
$D = +\cdot985$, $E = -\cdot174$; $G = +\cdot087$, $H = +\cdot494$, $K = -\cdot865$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Delhi		3·0	235	i 0 53a	+ 3	i 1 38	S_g	i 1 3	P_g	—
Calcutta	N.	10·7	134	i 2 39a	+ 1	i 4 20	−19	i 5 21	SSS	—
Andijan		12·1	331	e 3 2	+ 5	i 5 18	+ 4	—	—	—
Bombay	N.	13·1	212	i 3 5	− 5	5 18	−20	i 3 11	P	6·4
Almata		13·2	350	3 12	+ 1	—	—	—	—	—
Tashkent		14·0	325	i 3 14	− 8	i 5 49	−10	—	—	—
Kodaikanal	E.	20·1	188	i 4 57	+19	i 8 22	+ 3	8 42	SS	10·6
Pehpei		22·9	84	e 4 45	−21	e 9 4	− 9	—	—	i 11·0
Colombo	E.	23·3	181	5 15	+ 5	9 20	0	—	—	14·3
Irkutsk		28·3	32	i 5 59	+ 2	10 47	+ 4	—	—	—
Sverdlovsk		29·8	338	i 6 11	0	11 1	− 6	—	—	—
Erevan		30·4	298	e 6 21	+ 5	e 11 23	+ 7	—	—	—
Ksara		37·3	287	e 7 21	+ 5	e 13 9	+ 5	—	—	—
Moscow		39·2	323	i 7 32	+ 1	i 13 32	0	—	—	—
Helwan	N.	41·8	282	8 5	+12	14 11	0	9 59	PPP	—
Bucharest	N.	44·3	304	e 8 17	+ 4	i 14 52	+ 4	e 18 11	SS	20·1
Sofia		46·4	301	e 8 32	+ 2	e 15 19	+ 1	e 18 23	SS	e 27·1
Belgrade		48·3	304	e 8 42a	− 3	e 15 54	PS	—	—	—
Upsala		50·5	324	i 9 3	+ 1	i 16 15	− 1	e 10 59	PP	e 23·1
Prague		52·1	312	e 9 14	0	16 41	+ 3	e 20 17	SS	—
Triest		53·0	306	i 9 21	0	i 16 45	− 5	i 11 13	PP	—
Jena	N.	53·8	312	e 9 7	−19	e 16 43	−18	e 12 7	PPP	—
Chur		55·7	308	e 9 41	+ 1	—	—	—	—	—
Zürich		56·3	309	e 9 42a	− 3	e 17 29	− 5	e 11 37	PP	—
Strasbourg		56·6	311	e 10 7	+20	e 17 23	−15	—	—	32·1
Bergen		56·7	325	9 40	− 8	e 17 30	−10	12 0	PP	27·1
Basle		56·9	310	e 9 49	0	e 17 31	−11	—	—	—
Neuchatel		57·4	309	e 9 52	− 1	e 17 48	− 1	—	—	—
De Bilt		57·7	315	i 9 55a	0	i 17 56	+ 3	—	—	e 31·1
Uccle		58·4	314	e 9 59	− 1	e 18 3	+ 1	e 12 18	PP	e 31·1
Paris		60·0	312	i 10 11	0	e 18 22	− 1	e 10 49	P_cP	—
Clermont-Ferrand		60·3	308	e 10 12	− 1	e 18 5?	−21	—	—	—
Aberdeen		60·9	322	i 10 14	− 3	i 18 38	+ 4	—	—	33·6
Kew		61·1	315	e 10 19a	+ 1	i 18 36	− 1	e 13 55?	PPP	e 28·1
Edinburgh		61·8	320	—	—	e 18 27	−19	—	—	—
Tortosa		63·5	303	i 10 34	0	i 19 7	0	11 9	P_cP	e 41·1
Toledo		67·1	303	i 10 54	− 3	i 19 52	+ 1	—	—	—
Granada		67·7	300	i 11 7	+ 6	i 19 59	+ 1	11 21	pP	—
Malaga		68·5	300	e 11 5	− 1	i 20 5	− 3	11 15	pP	—
San Fernando	E.	69·9	300	11 10	− 5	20 29	+ 5	e 20 44	PS	—
Coimbra		70·1	305	e 11 10	− 6	20 22	− 5	e 11 48	P_cP	e 41·8
Lisbon		71·2	304	11 23	0	20 42	+ 2	—	—	—
College		78·1	19	e 12 3	+ 1	e 21 56	0	—	—	e 40·7
Ivigtut		79·6	337	12 12	+ 2	22 12	0	—	—	—
Sitka		87·6	18	e 12 53	+ 2	e 23 19	[+ 2]	—	—	e 43·5
Brisbane	Z.	90·4	122	i 13 4	0	—	—	—	—	—
Riverview		92·6	128	—	—	i 24 18	0	e 30 34	SS	—
Victoria		98·8	15	—	—	e 24 29	[+ 8]	—	—	57·1
Shasta Dam		106·4	17	i 18 35	PP	i 24 52	[− 5]	—	—	—
Chicago		107·4	350	—	—	e 24 57	[− 4]	e 28 12	PS	e 52·5
Salt Lake City		108·4	8	—	—	e 25 5	[0]	e 39 6	?	e 59·8
Bermuda		109·2	328	—	—	e 26 50	S	e 34 19	SS	e 54·6
Florissant	Z.	110·7	352	—	—	e 28 37	PS	e 29 47	PPS	—
St. Louis	N.	110·8	352	—	—	e 25 15	[0]	e 28 31	PS	—
Tinemaha	Z.	110·8	15	e 19 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.
Mount Wilson	z.	113·6	16	e 18 33	[− 7]	—	—	i 19 36	Pl'	—
Pasadena		113·7	16	e 19 13	[+32]	i 29 2	PS	—	—	e 54·9
Riverside	z.	114·0	16	e 18 41	[0]	—	—	e 19 25	PP	—
Palomar	z.	114·7	15	e 18 42	[0]	—	—	e 19 20	PP	—
Tucson		117·0	10	i 18 49	[+ 2]	—	—	e 19 56	PP	e 66·8
La Paz		147·8	288	19 45	[+ 1]	35 45	PPS	i 19 53	PKP$_3$	76·2
Huancayo		150·8	303	e 20 40	[+51]	—	—	e 42 56	SS	e 76·2

Additional readings :—
Helwan eN =8m.38s., iN =14m.41s. and 15m.8s.
Sofia eN =11m.51s.
Belgrade e =8m.47s. and 9m.45s.
Upsala eE =10m.35s., eN =10m.39s., eE =17m.41s., iN =18m.51s., eSSN =19m.49s., eSSE =19m.57s.
Prague ePP =10m.59s., e =18m.59s.
Triest ePPP =12m.9s.
Jena ePN =9m.11s., eN =18m.55s. and 21m.15s.
Uccle e =13m.35s.
Paris eSSS? =24m.27s.
Kew eS$_c$SEN =20m.5s., eSSZ =22m.43s., iSSSNZ =25m.18s., eZ =26m.17s., eEZ = 26m.55s.
Tortosa iSE =19m.10s., PSN =19m.30s., PPSE =19m.43s., iE =20m.13s., iN =20m.18s., S$_c$SN =20m.43s., SSN? =23m.24s.
Granada P$_c$P =11m.52s.
Malaga sS =20m.12s., S$_c$S =20m.40s.
Coimbra 22m.14s., e =26m.15s. and 31m.44s.
Lisbon SE =20m.45s., E =23m.16s.
Shasta Dam i =18m.40s. and 25m.4s.
Chicago eSS =33m.42s., e =39m.28s.
St. Louis eSKKSN =26m.11s., eSN =26m.52s., iPPS?N =29m.49s., eSSN =34m.1s.
Mount Wilson eZ =19m.15s. and 23m.57s.
La Paz PP =23m.17s., iZ =44m.29s.
Long waves were also recorded at Tananarive and Ukiah.

June 4d. 15h. 53m. 30s. Epicentre 8°·7N. 83°·0W.

A = +·1205, B = −·9812, C = +·1503 ; δ = −14 ; h = +7 ;
D = −·993, E = −·122 ; G = +·018, H = −·149, K = −·989.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		3·4	84	e 0 57	+ 2	e 1 45	+ 8	—	—	—
Bogota		9·8	113	e 2 25	+ 1	e 5 0	S*	—	—	—
San Juan		19·0	57	e 4 20	− 6	e 7 51	− 4	i 4 52	PPP	e 8·8
Huancayo		22·0	161	e 4 57	− 1	e 8 50	− 6	e 5 32	PPP	e 10·0
St. Louis		30·5	349	i 6 21	+ 4	e 11 17	− 1	e 13 0	SS	e 14·2
Florissant	E.	30·7	349	—	—	e 11 40	+19	e 13 55	SSS	—
Pittsburgh		31·7	5	e 10 26	?	—	—	—	—	—
Tucson		34·9	316	e 6 54	− 1	—	—	—	—	—
Boulder City		39·7	318	e 7 36	0	—	—	—	—	—
Palomar		39·7	314	e 7 35	− 1	—	—	—	—	—
La Jolla	z.	39·7	313	e 7 36	0	—	—	—	—	—
Riverside	z.	40·4	314	i 7 41	0	—	—	—	—	—
Mount Wilson	z.	41·0	314	i 7 47	+ 1	—	—	—	—	—
Pasadena		41·1	314	e 7 46	− 1	—	—	—	—	—
Tinemaha		42·6	317	e 7 58	− 1	—	—	—	—	—
Triest		88·5	44	e 23 31	SKS	(e 23 31)	[+ 7]	—	—	e 40·5

St. Louis gives also eN =11m.36s., eE =13m.49s.
Long waves were also recorded at Bermuda, La Paz, Kew, Paris, and De Bilt.

June 4d. Readings also at 0h. and 1h. (Balboa Heights), 3h. (near San Francisco and Berkeley), 4h. (near Balboa Heights), 5h. (Palomar, Tucson, and St. Louis), 8h. (Tucson, La Jolla, Palomar, Haiwee, Tinemaha, Mount Wilson, Riverside, Pasadena, Shasta Dam, Pierce Ferry, Riverview, and Brisbane), 10h. (Balboa Heights), 12h. (Bombay), 13h. (near Andijan, Tashkent, and Almata), 16h. (Palomar, St. Louis (2), near Balboa Heights (3), and near Mizusawa), 17h. (Balboa Heights (2)), 18h. (De Bilt, Strasbourg, Neuchatel, Basle, Zürich, Chur, and near Triest).

June 5d. 15h. 20m. 51s. Epicentre 37°·6N. 3°·5W.

Scale IV-V at Huelma. Suggested depth 25km. Epicentre as adopted.

P. Antonio Due Rojo.
"Movimentos Sismicos en Espana durante el ano 1945." Bull. de la Real Sociedad Espanola, de Historia Natural, Tome XLV, p.153, Madrid, 1947.

$A = +·7928$, $B = -·0485$, $C = +·6076$; $\delta = +6$; $h = -1$;
$D = -·061$, $E = -·998$; $G = +·606$, $H = -·037$, $K = -·794$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.	
Granada		0·4	191	0 10	− 3	i 0 16	− 5	—	—
Almeria		1·1	132	0 24	+ 2	—	—	—	—
Malaga		1·1	220	i 0 21	− 1	1 0 34	− 5	0 25	PP
Toledo		2·3	349	i 0 41	+ 1	1 12	+ 3	—	—
Alicante		2·5	72	0 50	P_g	—	—	—	—
Tortosa		4·5	43	e 1 30	P_g	2 7	+ 2	—	—
Coimbra		4·6	305	e 2 8	S	(e 2 8)	+ 1	2 40	S_g

Additional readings :—
Malaga iS_g = 38s.
Tortosa P_gN = 1m.33s. and 1m.42s., P_gS_gN = 1m.59s., 2m.14s. and 2m.28s., S_gEN = 2m.31s., S_gN = 2m.36s. and 2m.43s.

June 5d. Readings also at 2h. (New Delhi), 4h., 8h., and 9h. (near Balboa Heights), 12h. (near San Francisco), 14h. (Balboa Heights, Bucharest, Triest, and near Sofia), 15h. (near Andijan), 16h. (Toledo), 19h. (Triest), 20h. (Bogota and La Paz), 21h. (near Balboa Heights), 22h. (Palomar, Riverside, Tinemaha, and Malaga).

June 6d. 0h. 52m. 41s. Epicentre 27°·7N. 129°·4E. (as on 1938, June 16d.).

$A = -·5628$, $B = +·6851$, $C = +·4624$; $\delta = -8$; $h = +3$;
$D = +·773$, $E = +·635$; $G = -·294$, $H = +·357$, $K = -·887$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Irkutsk		30·9	330	e 6 30	+10	11 36	+12	—	—	—
Andijan		48·1	301	e 8 41	− 2	—	—	—	—	—
Sverdlovsk		55·8	322	i 9 39	− 2	17 20	− 8	—	—	—
College		62·2	29	e 15 27	?	e 18 39	−12	—	—	e 27·9
Riverview		64·6	160	—	—	e 20 49	?	—	—	e 32·6
Moscow		68·6	323	i 11 4	− 3	e 20 1	− 8	—	—	—
Upsala	N.	76·5	332	—	—	e 25 19?	PS	e 36 1	Q	e 40·3
Ksara		77·8	301	e 12 6	+ 5	e 22 13	+20	—	—	—
Prague		83·5	317	—	—	—	—	e 34 1	Q	e 40·3
Jena	Z.	84·5	326	e 12 14	−22	—	—	—	—	—
Shasta Dam		84·9	47	i 12 35	− 3	e 22 54	−12	i 10 41	?	—
Triest		86·5	321	e 12 40	− 6	e 23 17	[+ 6]	—	—	—
De Bilt		86·8	330	e 12 47	0	e 23 29	+ 4	—	—	e 44·3
Zürich		88·3	325	e 12 22	−33	—	—	—	—	—
Kew		89·6	332	(e 14 19?)	+78	—	—	—	—	e 14·3
Mount Wilson	Z.	91·3	50	e 12 52	−17	—	—	—	—	—
Pasadena	Z.	91·3	50	e 13 2	− 7	—	—	—	—	—
Salt Lake City		91·3	41	—	—	e 24 2	− 4	—	—	e 53·2
Riverside	Z.	91·9	50	e 13 14	+ 3	—	—	—	—	—
Boulder City		92·4	46	e 13 11	− 3	—	—	—	—	—
Pierce Ferry		92·9	46	e 13 14	− 2	—	—	e 11 21	?	—
Tucson		97·3	47	e 13 35	− 1	—	—	—	—	—
Toledo		100·0	325	e 13 43	− 5	—	—	e 17 43	PP	—
St. Louis	E.	104·3	31	—	—	e 25 46	−10	e 33 8	SS	—
Pittsburgh		106·9	22	—	—	e 25 28	[+29]	—	—	e 66·5
San Juan		131·8	19	e 22 39	PKS	—	—	—	—	e 69·1
Balboa Heights		134·0	40	—	—	—	—	e 37 58	SS	—

Long waves were also recorded at New Delhi, Philadelphia, and other European stations.

June 6d. 7h. 0m. 7s. Epicentre 60°·4N. 28°·7W.

A = −·4355, B = +·2384, C = +·8681 ; δ = +9 ; h = −9 ;
D = −·480, E = −·877 ; G = +·761, H = −·417, K = −·496.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Reykjavik		4·9	38	i 1 16	− 1	i 2 16	+ 1	—	—	e 2·3
Aberdeen		14·1	92	—	—	i 6 20	+18	—	—	—
Bergen		16·7	75	—	—	e 7 15	+12	—	—	e 8·4
Kew		18·1	108	i 4 15a	+ 1	e 7 48	+13	i 4 29	PP	e 9·4
De Bilt		20·4	99	i 4 42	+ 1	i 8 36	+11	—	—	e 9·9
Uccle		20·8	104	e 4 45	0	e 8 34	+ 1	—	—	e 9·9
Paris		21·2	110	e 4 51	+ 2	e 8 49	+ 8	—	—	e 10·9
Upsala		22·7	72	e 5 4	0	e 9 14	+ 5	—	—	e 12·9
Clermont-Ferrand		23·8	115	i 5 16	+ 1	e 9 47	+19	—	—	e 12·4
Coimbra		23·8	140	e 4 53	−22	9 25	− 3	—	—	12·8
Strasbourg		23·9	104	e 5 9	− 7	e 9 35	+ 5	—	—	e 13·9
Jena	Z.	24·2	96	e 5 0	−19	—	—	—	—	—
Basle		24·5	106	e 5 23	+ 1	e 9 47	+ 7	—	—	—
Neuchatel		24·6	107	e 5 24	+ 1	e 10 1	+19	—	—	—
Lisbon		24·9	143	5 26	0	10 0	+13	—	—	11·8
Zürich		25·2	106	e 5 29	0	—	—	—	—	—
Toledo		25·6	133	e 5 34	+ 2	10 33	+34	6 25	PP	—
Prague		26·2	94	e 4 53?	−45	—	—	—	—	—
Tortosa	N.	26·6	125	i 5 43	+ 1	i 10 25	+ 9	6 26	PP	e 15·2
San Fernando	E.	27·9	140	—	—	10 25	−12	—	—	—
Granada		28·2	136	5 41a	−15	10 39	− 2	6 3	PP	12·7
Triest		28·9	102	e 6 1	− 2	e 11 0	+ 7	e 6 50	PP	—
Moscow		34·0	69	—	—	e 12 17	+ 4	—	—	—
Philadelphia		35·1	256	—	—	e 12 34	+ 4	—	—	e 16·7
Sofia		35·7	97	—	—	e 12 47	+ 8	—	—	e 19·9
Chicago		39·8	271	—	—	e 13 47	+ 5	e 16 37	SS	e 19·2
Sverdlovsk		43·3	54	8 6	+ 1	14 36	+ 3	—	—	—
Florissant		43·5	270	e 8 8	+ 1	e 14 38	+ 2	—	—	—
St. Louis		43·5	270	e 8 6	− 1	e 14 39	+ 3	e 17 21	SS	—
Rapid City		45·8	285	e 8 26	+ 1	—	—	e 18 32	SS	e 23·7
College		47·0	330	—	—	e 15 32	+ 6	—	—	e 19·5
Butte		48·7	294	e 10 44	PP	e 15 48	− 2	—	—	e 25·4
Ksara		48·8	93	8 53?	+ 4	e 16 3	+11	—	—	—
Sitka		49·1	317	—	—	e 16 6	+10	e 19 45	SS	e 25·2
San Juan		49·7	230	e 10 27	PP	e 16 8	+ 4	—	—	e 20·8
Salt Lake City		52·4	288	—	—	e 16 41	− 1	—	—	e 26·8
Overton		57·0	288	i 9 49	− 1	—	—	—	—	—
Pierce Ferry		57·2	287	i 9 49	− 2	—	—	—	—	—
Tinemaha	z.	58·4	291	i 9 59	− 1	—	—	—	—	—
Tucson		58·8	282	i 10 2	0	e 17 34	−33	—	—	e 28·6
Riverside	z.	60·5	288	i 10 17	+ 3	—	—	—	—	—
Mount Wilson	z.	60·6	288	i 10 14	− 1	—	—	—	—	—
Pasadena	z.	60·7	288	i 10 15	0	—	—	e 26 0	Q	—
Palomar	z.	60·8	287	i 10 16	0	—	—	—	—	—

Additional readings :—
Reykjavik iEN =1m.19s.
Upsala SE =9m.17s.
Lisbon SE =10m.4s.
Tortosa PPPN =6m.45s., SSN =11m.23s., SSSN? =12m.21s.
Triest ePPP =7m.11s., eSS =12m.5s.
St. Louis eSSSN =17m.58s.
Long waves were also recorded at Barcelona, Edinburgh, and Bozeman.

June 6d. Readings also at 1h. (near Bucharest and Campulung), 2h. (Balboa Heights), 5h. (near Bogota), 7h. (Palomar, Tinemaha, Tucson, near Balboa Heights, and near Mizusawa), 9h. (Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, near Fresno, and Lick), 11h. (Ksara and near Andijan), 12h. (Pittsburgh), 16h. (Pehpei), 17h. (Basle, Zürich, Collmberg, and near Triest (2)), 19h. (near Fresno), 22h. (near Balboa Heights), 23h. (near La Paz and near Chur).

June 7d. 1h. 20m. 37s. Epicentre 41°·0N. 33°·5E. (as on 1945, March 2d.).

Felt at Ankara, Bolu, Konya, Istanbul, Izmit, Cankiri, Kastamanu, Kutahya. Suggested epicentre 41·6N. 33·0E. (Strasbourg).
Bull. Met. et Seism. de l'Observatoire d'Istanbul-Kandilli, 1945—Istanbul, 1950, p. 77.

$A = +·6312$, $B = +·4178$, $C = +·6535$; $\delta = +3$; $h = -2$;
$D = +·552$, $E = -·834$; $G = +·545$, $H = +·361$, $K = -·757$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		7·4	164	e 1 58	+ 6	3 46	S*	—	—	—
Sofia		7·8	286	e 1 54	− 4	i 3 39	+11	i 4 1	S*	—
Erevan		8·4	92	i 2 44	P_g	—	—	—	—	—
Belgrade		10·3	297	e 2 28a	− 4	—	—	e 5 29	SS	—
Helwan	N.	11·3	188	2 41	− 5	4 47	− 7	5 35	S*	—
Moscow		15·0	9	e 3 30	− 5	i 6 13	−10	—	—	—
Triest		15·1	295	i 3 31	− 5	i 6 37	+12	i 3 43	PP	i 9·2
Prague		16·1	314	e 3 43	− 6	e 6 59	+10	—	—	e 10·9
Collmberg		17·5	313	(e 4 2)	− 5	(e 8 9)	+48	(i 4 28)	PP	(e 10·8)
Jena	N.	18·1	309	e 3 55	−19	—	—	—	—	e 9·0
Chur		18·2	297	e 4 13	− 3	e 7 53	+16	—	—	—
Basle		19·6	300	e 4 28	− 4	e 8 17	+ 9	—	—	—
Strasbourg		19·7	304	e 4 33	− 1	—	—	—	—	e 11·8
Neuchatel		20·0	299	e 4 35	− 2	—	—	—	—	—
Upsala		21·3	339	e 5 0	+10	i 8 48	+ 5	i 8 59	SS	e 10·4
De Bilt		22·3	313	e 5 3	+ 2	e 9 10	+ 8	—	—	e 14·4
Uccle		22·4	307	e 5 10	+ 8	—	—	—	—	e 13·4
Clermont-Ferrand		22·5	292	e 5 0	− 2	e 9 10	+ 5	—	—	e 15·7
Sverdlovsk		23·6	39	5 13	0	9 29	+ 4	—	—	—
Tortosa		24·9	280	i 5 28	+ 2	9 57	+10	6 10	PP	e 17·4
Tashkent		26·8	78	e 5 48	+ 4	i 10 52	+33	—	—	—
Toledo		28·4	280	e 5 55	− 3	10 47	+ 2	6 51	PP	—
Granada		29·0	275	6 15	+11	e 10 55	+ 1	6 29	pP	15·2
Andijan		29·2	78	e 6 8	+ 3	—	—	—	—	—
Malaga	z.	29·7	275	i 6 13k	+ 3	i 11 14	+ 8	6 23	pP	17·8

Additional readings :—
Sofia iEN =2m.14s. and 4m.31s.
Belgrade e =2m.37s., 5m.9s., and 5m.15s.
Helwan S_eN =6m.6s.
Collmberg i=(4m.9s.), (4m.17s.), and (4m.24s.), iPPP=(4m.36s.), i=(5m.2s.), e=(6m.6s.), eSS?=(8m.56s.); readings having been increased by 6m.
Strasbourg e =4m.50s. and 5m.49s.
Upsala SE =8m.32s., iSSS =9m.8s.
Tortosa PPPN =6m.29s., P_cPE? =9m.5s.
Malaga iPPZ =7m.8s., P_cPZ =9m.5s., S_cPZ =12m.41s., S_cSZ =16m.17s.
Long waves were also recorded at Kew and Aberdeen.

June 7d. 11h. Undetermined shock.

U.S.C.G.S. suggests Tonga Islands as probable region of epicentre.

Brisbane eE =53m.6s., eN =59m.6s., iN =60m.41s.
Wellington S? =53m.30s., i=54m.30s., L? =55m.
Riverview iP?EZ =54m.42s.k, eS?N =58m.50s., eLN =60·7m.
Balboa Heights e =58m.48s.
Pasadena ePZ =59m.35s., iZ =59m.43s., eLZ =83·5m.
Mount Wilson ePZ =59m.37s., iZ =59m.43s.
Palomar ePZ =59m.42s.
Riverside iPZ =59m.44s.
Tinemaha eZ =59m.45s., iZ =59m.53s.
Shasta Dam eP =59m.47s.
Haiwee eEZ =59m.49s.
Boulder City eP =59m.54s.
Pierce Ferry eP =59m.57s.
Tucson iP =59m.57s., i=60m.3s. and 60m.10s., eL =86m.20s.
Honolulu e =64m.6s., eL =71m.23s.
Berkeley eEN =69m.59s., eSEN =75m.47s., eE =80m.48s., eNZ =81m.18s., e =81m.48s. and 84m.48s., eEZ =87m.48s.
Huancayo e =72m.13s., eL =91m.1s.
St. Louis eSKS?N =73m.17s., eSSN =80m.17s., eLN =93m.19s.
Long waves were also recorded at Arapuni, Auckland, La Paz, Bermuda, and at other American and European stations.

June 7d. 19h. 55m. 31s. Epicentre 37°·3N. 142°·0E. (as on 1945, March 12d.).

Scale V at Utunomiya ; IV at Mito, Hukusima, and Sendai ; II-III at Tokyo and Titibu.
Seismo. Bull. Cent. Met. Obs., Japan, for 1945, p. 34. Epicentre 37°·3N. 141°·7E. Very shallow.

The readings for the American stations are systematically very early and would require an assumption of great depth, at least 0·060, which is inconsistent with the Japanese readings and with the high macroseismic intensities noted near the epicentre. The only explanation of this anomaly seems to be that the Japanese readings contained in the Seismological Bulletin (but not the independently published Mizusawa times), are systematically one minute in error, and this assumption has been made in making this determination.

$A = -·6284$, $B = +·4910$, $C = +·6034$; $\delta = +6$; $\lambda = -1$;
$D = +·616$, $E = +·788$; $G = -·476$, $H = +·372$, $K = -·797$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hukusima		1·3	290	0 23k	− 2	0 37	− 7	—	—	—
Sendai		1·3	318	0 24k	− 1	0 37	− 7	—	—	—
Tukubasan		1·8	235	0 31	− 1	0 52	− 4	—	—	—
Utunomiya		1·9	246	0 33	− 1	0 56	− 3	—	—	—
Mizusawa	E.	2·0	340	0 35	0	0 55	− 7	—	—	—
Tokyo		2·4	228	0 42k	+ 1	1 12	0	—	—	—
Yokohama		2·6	226	0 43	− 1	1 17	0	—	—	—
Mera		2·9	216	0 51	+ 3	1 34	+10	—	—	—
Hunatu		3·2	235	0 52	0	1 29	− 3	—	—	—
Hatinohe		3·3	354	0 56	+ 3	1 33	− 2	—	—	—
Misima		3·3	228	0 55a	+ 2	1 35	0	—	—	—
Shizuoka		3·7	232	1 1	+ 1	1 43	− 2	—	—	—
Hikone		5·1	247	1 20	0	2 16	− 4	—	—	—
Kameyama		5·1	242	1 25	+ 5	2 38	+18	—	—	—
Owase		5·7	237	1 32	+ 4	—	—	—	—	—
Sapporo		5·8	356	1 36	+ 7	2 51	+13	—	—	—
Shasta Dam		70·6	53	i 11 19	0	—	—	—	—	—
Tinemaha		75·2	56	i 11 48	+ 2	—	—	i 12 0	pP	—
Santa Barbara	Z.	75·8	58	e 11 50	0	—	—	e 12 3	pP	—
Haiwee		76·0	56	i 12 3	+12	—	—	—	—	—
Pasadena	Z.	77·0	58	i 12 8	+12	—	—	i 12 29	pP	—
Mount Wilson	Z.	77·1	58	e 11 41	−16	—	—	i 11 57	pP	—
Riverside	Z.	77·7	58	i 12 10	+10	—	—	e 12 29	pP	—
Boulder City		78·1	54	e 12 3	+ 1	—	—	i 12 15	pP	—
Palomar	Z.	78·4	58	e 12 1	− 3	—	—	—	—	—
Pierce Ferry		78·6	54	e 11 29	−36	—	—	i 11 57	pP	—
Collmberg		81·1	330	(i 12 14)	− 4	—	—	(i 12 26)	pP	—
Tucson		83·1	55	e 12 30	+ 1	—	—	e 12 42	pP	—
Triest		85·2	327	—	—	e 23 23	+14	—	—	e 43·5
St. Louis	Z.	90·4	39	e 13 3	− 1	—	—	—	—	—

Additional readings and note :—
Mount Wilson iZ = 12m.8s.
Collmberg i = (12m.41s.), e = (13m.0s.) ; readings having been increased by 6m.
Long waves are also recorded at De Bilt and Paris.

June 7d. Readings also at 0h. (Boulder City and near Lick), 1h. (Bogota and near Balboa Heights (3)), 2h. (New Delhi and Balboa Heights), 3h. (Balboa Heights and Riverview), 4h. (near Tashkent and Andijan), 9h. (St. Louis), 11h. (Collmberg and Paris), 20h. (St. Louis, Tucson, and Palomar).

June 8d. Readings at 2h. (Collmberg), 17h. (Tinemaha, Tucson, Riverview, and Auckland), 21h. (Bogota), 22h. (St. Louis and near Mizusawa).

June 9d. Readings at 2h. (Collmberg), 3h. (Tinemaha, Palomar, Riverside, Tucson, and near Balboa Heights), 5h. (near Mizusawa), 9h. (Ksara), 15h. (Auckland and Riverview), 16h. (La Paz), 17h. (Tucson, Riverside, Tinemaha, Pasadena, and Mount Wilson), 23h. (near Branner).

June 10d. Readings at 7h. (near Mizusawa), 8h. and 9h. (2) (near Triest), 14h. (near Andijan (2)), 15h. (La Paz), 20h. (St. Louis, Florissant, Cape Girardeau, near Andijan, and Stalinabad), 21h. (Riverside, Mount Wilson, Shasta Dam, Tucson, and Collmberg), 22h. (Triest), 23h. (Granada, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Grand Coulee, Shasta Dam, Ukiah, Auckland, Christchurch, Wellington, and Kaimata).

June 11d. Readings at 0h. (Granada), 1h. (near Neuchatel), 3h. (Bogota, Moscow, Sverdlovsk, and Collmberg), 4h. (Kew and Granada), 6h. (near Mizusawa), 8h. (near La Paz), 10h. (Sverdlovsk, Tashkent, near Balboa Heights, and near Oaxaca), 11h. (near Lick), 12h. (near Triest), 14h. (Wellington and near Triest), 15h. (Ksara), 20h. (near Branner).

June 12d. 15h. Undetermined shock.
Christchurch P =59m.32s., S =65m.37s., R =71m.18s.
Brisbane eN =60m.14s., iZ =65m.13s., eLN =73m.26s.
Auckland P =63m.30s., PP =64m.20s., S =67m.47s., Q? =69m.18s., L =70m.
Arapuni e =68m.?.
Wellington P?Z =68m.43s., S? =71m., R =72m.5m.
Pasadena iPZ =69m.48s., eEZ =94m.24s.
Santa Barbara ePZ =69m.48s.
Shasta Dam eP =69m.48s., i =69m.55s.
Mount Wilson iPZ =69m.49s.
Riverside iPZ =69m.50s.
Palomar iPNZ =69m.52s.
Haiwee iPZ =69m.56s.
Tinemaha ePZ =69m.58s.
Boulder City eP =70m.8s., e =70m.21s.
Pierce Ferry iP =70m.10s., i =70m.20s., and 70m.30s.
Overton iP =70m.12s.
Tucson eP =70m.13s., i =70m.46s., eL =94m.36s.
Honolulu e =71m.34s. and 75m.30s., eL =76m.54s.
Collmberg eZ =71m.54s., e =72m.5s.
College e =81m.7s., eL =95m.22s.
St. Louis eSE =82m.20s., eN =82m.55s., 85m.12s., 89m.12s., 91m.10s., and 95m.28s., eL?N =100·2m.
Florissant eSE =82m.20s.
Long waves were also recorded at Riverview, Ukiah, Rapid City, San Juan, La Paz, Triest, Clermont-Ferrand, and De Bilt.

June 12d. Readings also at 3h. (Balboa Heights), 7h. (Kew, Harvard, near Shawinigan Falls, Ottawa, and near Bogota), 8h. (Jena and Collmberg), 9h. (Pasadena, Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and Collmberg), 10h. (Triest), 13h. (Balboa Heights), 16h. (Tucson, Tinemaha, Palomar, Riverside, and Mount Wilson), 17h. (Balboa Heights), 20h. (near Tananarive), 23h. (Bucharest, La Paz, and Bogota).

June 13d. 23h. 44m. 18s. Epicentre 6°·5N. 93°·5E. (as on 1941 November 12d.).

$A = -\cdot0607$, $B = +\cdot9918$, $C = +\cdot1125$; $\delta = +1$; $h = +7$;
$D = +\cdot998$, $E = +\cdot061$; $G = -\cdot007$, $H = +\cdot112$, $K = -\cdot994$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo		13·5	272	3 22	+ 7	—	—	—	—	9·0
Kodaikanal	E.	16·3	284	i 4 7	PP	i 8 47	P_cP	—	—	11·6
Calcutta	N.	16·7	343	i 3 56	− 1	i 7 2	− 1	—	—	—
Bombay		23·6	303	e 5 17	+ 4	i 9 37	+12	—	—	12·8
Dehra Dun	N.	27·8	331	—	—	e 11 27	+52	—	—	—
Andijan		39·0	334	e 7 27	− 3	—	—	—	—	—
Irkutsk		46·5	10	8 26	− 5	—	—	—	—	—
Vladivostok		49·7	38	e 8 41	−15	—	—	—	—	—
Sverdlovsk		56·4	339	i 9 40	− 5	i 17 25	−11	—	—	—
Helwan		62·7	300	—	—	i 19 0	+ 3	—	—	—
Moscow		65·9	330	10 42	− 8	19 23	−14	—	—	—
Collmberg		79·0	321	(e 11 59)	− 8	—	—	(e 12 6)	P_cP	—
De Bilt		83·9	322	—	—	e 23 42?	PS	—	—	e 40·7
Clermont-Ferrand		85·7	315	16 12	PP	—	—	—	—	—
Paris		85·8	318	e 12 37	− 5	e 23 0	[− 6]	—	—	48·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew		87·3	321	—	—	e 23 36	+ 7	—	—	e 42·7
Granada		91·7	308	—	—	e 23 36	[− 7]	—	—	53·6
Haiwee	z.	128·3	32	i 19 13	[+ 4]	—	—	—	—	—
Mount Wilson	z.	129·7	33	i 19 15	[+ 4]	—	—	—	—	—
Pasadena	z.	129·7	33	i 19 15	[+ 4]	—	—	—	—	—
Pittsburgh		132·9	352	—	—	e 22 56	SKP	—	—	e 61·5
St. Louis	z.	135·0	4	e 19 22	[+ 1]	e 22 45	SKP	—	—	—
Tucson		135·0	29	e 19 22	[+ 1]	e 22 46	SKP	e 30 49	?	—
San Juan		148·1	321	e 19 55	[+11]	—	—	(e 42 58)	SSP	e 43·0

Additional readings and note :—
Kodaikanal PPE =4m.47s., SSE =9m.47s.
Readings for Collmberg increased by 6m.
Long waves were also recorded at Pehpei, Riverview Upsala, Sitka, Chicago, and La Paz.

June 13d. Readings also at 1h. (Auckland), 4h. (Balboa Heights and near Triest), 7h. (near Mizuswaa (2)), 9h. (near Fresno), 12h. (Auckland and near Mizusawa), 14h. (Tinemaha, Mount Wilson, Pasadena, Riverside, Palomar, Tucson, St. Louis, Bogota, and near Balboa Heights).

June 14d. 3h. 31m. 13s. Epicentre 37°·0N. 117°·2W. (as on 1939 June 13d.).

Epicentre 37°05′N. 117°30′W. (Pasadena).

$A = -·3660$, $B = -·7120$, $C = +·5992$; $\delta = -6$; $h = -1$;
$D = -·889$, $E = +·457$; $G = -·274$, $H = -·533$, $K = -·801$.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha		0·8	277	i 0 13a	− 5	i 0 22	− 9	—	—	—
Haiwee		1·1	215	i 0 19k	− 3	i 0 31	− 8	—	—	—
Boulder City		2·1	118	i 0 41	+ 4	i 1 12	+ 8	i 0 46	P_g	—
Fresno	N.	2·1	263	e 0 36	− 1	i 0 59	− 5	i 0 39	P*	—
Overton		2·3	102	i 0 49	+ 9	—	—	—	—	—
Pierce Ferry		2·7	105	e 0 48	+ 3	—	—	i 0 55	P_g	—
Mount Wilson		2·9	194	i 0 48k	0	i 1 29	+ 5	—	—	—
Pasadena		3·0	195	i 0 49k	− 1	i 1 32	+ 5	—	—	—
Riverside		3·0	183	i 0 50	0	i 1 35	+ 8	—	—	—
Lick		3·6	279	e 0 59	+ 1	i 1 49	+ 7	i 1 3	P*	—
Palomar		3·7	175	i 0 59	− 1	—	—	—	—	—
Santa Clara		3·8	276	e 1 10	P*	i 1 54	+ 7	—	—	—
Branner		4·0	278	e 1 3	− 1	i 1 54	+ 2	i 1 15	P*	—
Berkeley		4·1	282	e 1 4	− 1	e 1 53	− 2	i 1 59	S*	—
La Jolla		4·1	182	i 1 8	+ 3	—	—	—	—	—
San Fransisco		4·2	281	e 1 6	− 1	i 2 5	+ 8	e 1 10	P*	—
Ukiah		5·2	296	—	—	e 1 58	−24	—	—	i 2·9
Shasta Dam		5·5	314	e 1 8	−17	—	—	i 1 25	P	e 2·8
Salt Lake City		5·6	45	e 2 9	P_g	e 2 12	−21	—	—	e 3·2
Logan		6·3	40	e 2 8	P_g	—	—	—	—	e 3·4
Tucson		7·1	130	i 1 50	+ 2	e 3 18	+ 8	i 2 6	P*	i 4·3
Bozeman		9·9	26	e 2 28	+ 3	—	—	—	—	e 5·5
Florissant	N.	21·2	77	—	—	e 9 3	+22	—	—	e 11·0
St. Louis		21·4	77	e 4 54	+ 3	e 8 58	+13	—	—	e 11·2

Additional readings :—
Shasta Dam e =1m.22s., i =1m.39s.
Tucson i =2m.18s., 2m.23s., and 2m.43s., iS =3m.23s., i =3m.31s., 3m.38s., 3m.47s., 3m.57s., and 4m.7s.
Long waves were also recorded at Butte and Grand Coulee.

June 14d. 5h. 3m. 45s. Epicentre 44°·8N. 9°·2E.

Intensity VI-VII in the region of Bagnaria-Varzi.
Epicentre : 44°·75N. 9°·25E. (Strasbourg).
44°·8N. 9°·2E. (Macroseismic).
44°53′N. 9°11′E. (Boni).

A. Boni.
I terremoti dell'Appennino Vogherese Tortonese e la geologia della regione.
Goefis. pura e appl. 1947, vol. 10, N°3-4, pp. 114-143.

$A = +·7027$, $B = +·1138$, $C = +·7023$; $\delta = -4$; $h = -3$;
$D = +·160$, $E = -·987$; $G = +·693$, $H = +·112$, $K = -·712$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur	2·1	9	e 0 37	0	e 1 4	0	—	—	—
Zurich	2·6	348	i 0 43k	− 1	e 1 13	− 4	—	—	—
Neuchatel	2·7	325	e 0 44	− 1	e 1 29	S_g	i 0 51	P*	—
Basle	3·0	338	e 0 46	− 4	e 1 21	− 6	i 0 49	P*	—
Besançon	3·3	319	e 1 23	?	e 1 41	+ 6	e 1 56	S_g	—
Triest	3·3	73	i 1 4	P*	i 1 33	− 2	e 1 10	P_g	—
Strasbourg	3·9	347	e 1 4	+ 2	e 1 40	−10	e 2 4	S_g	—
Clermont-Ferrand	4·4	284	e 1 12	+ 2	e 1 42	−20	i 2 28	S_g	—
Paris	6·1	313	e 1 45	P*	e 2 13	−32	e 1 58	P_g	e 3·8
Jena	6·3	13	e 1 43	+ 7	e 2 51	+ 1	e 1 53	P*	e 3·1
Prague	6·4	32	e 1 19	−19	e 3 27	S_g	—	—	e 3·6
Collmberg	7·0	20	(e 1 45)	− 1	—	—	(i 2 10)	P*	(4·1)
De Bilt	7·8	341	—	—	e 4 15?	S_g	—	—	—
Kew z.	9·2	320	—	—	e 4 31	S*	e 4 59	S_g	e 5·8

Additional readings :—
Basle e = 1m.16s.
Triest iP_gP_g = 1m.13s., iS* = 1m.37s., iS_g = 1m.40s., iS_gS_g = 1m.51s.
Strasbourg eS_g = 2m.15s.
Jena eEN = 2m.17s., eN = 2m.29s.
Collmberg readings increased by 6m.

June 14d. 22h. 57m. 47s. Epicentre 36°·8N. 121°·4W. (as on 1945 May 17d.).

Intensity IV at Hollister.
Epicentre 36°42′N. 121°27′W. (Berkeley).

$A = -·4182$, $B = -·6851$, $C = +·5964$; $\delta = -5$; $h = 0$;
$D = -·854$, $E = +·521$; $G = -·311$, $H = -·509$, $K = -·803$.

	Δ	Az.	P.	O—C.	S.	O—C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Lick	0·6	339	e 0 14	− 1	i 0 22	− 4	i 0 17	?
Santa Clara	0·6	321	e 0 16	+ 1	i 0 28	+ 2	—	—
Branner	0·9	314	e 0 19	− 1	i 0 35	+ 1	—	—
Berkeley	1·3	327	i 0 24	− 1	e 0 43	− 1	e 0 31	P_g
Fresno	1·3	93	e 0 25	0	i 0 41	− 3	i 0 29	P_g
San Fransisco	1·3	319	e 0 26	+ 1	i 0 45	+ 1	e 0 29	P_g

Additional readings :—
Branner iEN = 24s., iN = 31s.
Berkeley eEN = 48s., iE = 1m.2s.

June 14d. Readings also at 1h. (St. Louis), 2h. (Palomar and Tucson), 3h. (St. Louis, Florissant, and Cape Girardeau), 4h. (Helwan, Triest, and Collmberg), 8h. (Auckland), 9h. (near Andijan), 16h. (Tucson, Palomar, Riverside, Pasadena, Mount Wilson, Tinemaha, and near Mizusawa), 17h. (Collmberg), 18h. (near Andijan), 22h. (St. Louis, Triest, and Collmberg), 23h. (La Paz and near Ottawa).

June 15d. 4h. 18m. 12s. Epicentre 53°·4N. 168°·7W. (as on 1d.).

$A = -·5872$, $B = -·1173$, $C = +·8009$; $\delta = 0$; $h = -7$.

		△	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·6	35	e 4 6	PPP	e 7 16	SS	—	—	e 9·1
Sitka		19·3	66	e 4 37	+ 8	e 8 23	+21	—	—	e 12·3
Shasta Dam		33·4	94	i 6 43	+ 1	—	—	—	—	—
Tinemaha	z.	38·2	95	i 7 24	+ 1	—	—	—	—	—
Haiwee	z.	39·0	95	i 7 32	+ 2	—	—	—	—	—
Pasadena	z.	40·2	98	i 7 45	+ 5	—	—	i 7 56	?	—
Mount Wilson	z.	40·3	98	i 7 41	+ 1	—	—	i 7 58	?	—
Riverside	z.	40·8	98	i 7 45	0	—	—	—	—	—
Overton		40·9	93	i 7 47	+ 1	—	—	—	—	—
Boulder City		41·0	94	i 7 47	+ 1	—	—	i 7 57	?	—
Pierce Ferry		41·4	93	i 7 50	0	e 14 12	+ 7	—	—	—
Palomar		41·6	98	i 7 51a	0	—	—	—	—	—
Tucson		46·0	94	i 8 26	− 1	i 14 10	P_cS	i 8 38	?	—
St. Louis		53·7	73	e 9 25	− 1	e 16 4	−55	—	—	28·6

June 15d. Readings also at 1h. (near Angra do Heroismo), 5h. (Bogota), 6h. (Tucson, Palomar, Riverside, Mount Wilson, and Tinemaha), 9h. (Bogota, La Paz, and near Huancayo), 11h. (Tashkent, Andijan, and near Almata), 12h. (Collmberg, Strasbourg, near Chur, Zürich, Basle, and Neuchatel), 16h. (near Bogota), 17h. (Tinemaha, Riverside, Mount Wilson, Pasadena, Palomar, Boulder City, Pierce Ferry, Tucson, St. Louis, and Pehpei),18h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, Tucson, near La Paz, and near San Juan), 22h. (Montezuma, Tucson, Tinemaha, Grand Coulee, near Victoria, and near Branner), 23h. (Tinemaha, Palomar, and Tucson).

June 16d. 19h. 54m. 46s. Epicentre 48°·5N. 29°·0W. (as on 1945, March 18d.).

$A = +·5817$, $B = -·3224$, $C = +·7467$; $\delta = -12$; $h = -5$;
$D = -·485$, $E = -·875$; $G = +·653$, $H = -·362$, $K = -·665$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew		18·6	70	i 4 21k	0	e 8 6?	+20	i 4 32	PP	e 8·7
Toledo		19·8	108	i 4 43	+ 8	e 8 46	+33	—	—	11·9
Paris		20·7	78	e 4 47	+ 3	—	—	—	—	e 10·2
Uccle		21·6	71	e 4 52	− 2	e 8 51	+ 2	—	—	e 10·7
Clermont-Ferrand		21·9	85	e 4 59	+ 2	—	—	—	—	e 13·2
Tortosa	N.	22·2	99	i 5 12	+12	9 21	+21	—	—	—
Strasbourg		24·2	76	e 5 29	+10	—	—	—	—	—
Basle		24·4	79	e 5 22	+ 1	—	—	—	—	—
Collmberg		26·9	70	(e 5 38)	− 7	—	—	—	—	—
Florissant	E.	44·4	282	—	—	e 14 51	+ 2	—	—	—
St. Louis		44·4	282	i 8 15	+ 1	e 14 53	+ 4	—	—	e 21·6
Sverdlovsk		51·2	45	9 3	− 4	16 12	−13	—	—	—
Pierce Ferry		61·0	293	i 10 16	− 2	—	—	—	—	—
Tucson		61·5	288	i 10 20	− 1	—	—	—	—	—
Boulder City		61·5	294	i 10 20	− 1	—	—	i 10 26	?	—
Tinemaha	z.	62·9	297	i 10 30	0	—	—	—	—	—
Riverside	z.	64·5	294	e 10 40	− 1	—	—	—	—	—
Palomar		64·6	293	i 10 41	0	—	—	—	—	—
Mount Wilson	z.	64·7	294	i 10 41	− 1	—	—	—	—	—
Pasadena	z.	64·8	294	i 10 42	− 1	—	—	—	—	—
Santa Barbara	z.	65·6	295	e 10 49	+ 1	—	—	—	—	—

Reading for Collmberg increased by 6 minutes.
Long waves were also recorded at De Bilt.

June 16d. 20h. 6m.30s. Epicentre 35°·8N. 140°·1E. (as on 1937, June 26d.).

A = −·6237, B = +·5215, C = +·5823 ; δ = +4 ; h = 0 ;
D = +·641, E = +·767 ; G = −·447, H = +·374, K = −·813.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Tokyo		0·3	253	0 12	+ 1	0 22	+ 4
Tukubasan		0·4	0	0 13	0	0 21	0
Yokohama		0·5	225	0 10k	− 4	0 18	− 5
Mito		0·7	27	0 15a	− 2	0 26	− 2
Utunomiya		0·8	346	0 19a	+ 1	0 31	0
Maebasi		1·0	306	0 25	+ 4	0 41	+ 5
Shizuoka		1·6	239	0 29k	− 1	0 51	0
Nagano		1·8	299	0 32	0	0 56	0
Hukusima		2·0	9	1 15	S_g	—	—
Toyama		2·5	291	0 44	+ 1	1 19	+ 5
Sendai		2·6	15	0 41	− 3	1 13	− 4
Wazima		3·0	302	0 50	0	1 30	+ 3
Kameyama		3·1	252	1 1	P_g	1 40	S_g
Mizusawa	E.	3·4	13	e 0 53	− 2	1 33	− 4
Owase		3·6	243	1 3	+ 5	—	—
Hatinohe		4·9	13	1 13	− 4	2 9	− 6
Shasta Dam		72·7	52	i 11 23	− 9	—	—
Tinemaha	Z.	77·4	53	i 11 52	− 6	—	—
Riverside	Z.	79·8	56	i 12 4	− 8	—	—
Palomar	Z.	80·5	56	i 12 4	−11	—	—
Collmberg	Z.	81·6	330	(e 12 9)	−12	—	—
Tucson		85·2	53	i 12 32	− 7	—	—

Reading for Collmberg increased by 6 minutes.

June 16d. Readings also at 6h. and 10h. (near La Paz), 12h. (near Malaga), 15h. (near Berkeley, Branner, and Fresno), 17h. (La Paz), 18h. (Harvard, Fort de France, and near San Juan), 19h. (Auckland), 21h. (Neuchatel).

June 17d. 16h. Undetermined shock.

Guadalajara PN =44m.2s., SZ =44m.38s., SE =44m.41s.
Tacubaya ePEN =44m.47s., iLEN =46m.16s.
Tucson iP =46m.16s., i =46m.29s., eL =50m.33s.
Palomar eZ =47m.2s.
Riverside eZ =47m.14s.
Pierce Ferry iP =47m.15s.
Boulder City iP =47m.18s., eL =53m.20s.
Overton iP =47m.21s.
Pasadena iZ =47m.26s.
Santa Barbara eZ =47m.41s.
Tinemaha iZ =47m.43s.
St. Louis iPZ =48m.5s., eSN =52m.20s., eLN =55m.6s.
Florissant ePE =48m.7s., eSN =52m.23s., eL?N =55m.39s.
Salt Lake City eS? =52m.6s., eL =54m.41s.
Cincinnati eS =52m.39s., e =57m.50s.
Chicago eS? =53m.41s., eL =56m.37s.
Long waves were also recorded at some European and at other American stations.

June 17d. Readings also at 0h. (Huancayo (2), Collmberg, La Paz, Bogota, Kew, and Malaga), 3h. (near Basle), 4h. (La Paz), 5h. (Ksara), 6h. (near Andijan and Tashkent), 9h. (near Toledo, Granada, Almeria, Malaga, Coimbra, and Lisbon, near Tucson, Overton, Pierce Ferry, Boulder City, and near La Paz), 12h. (Collmberg (2), and near Triest), 14h. (New Delhi), 17h. (Tinemaha, Riverside, Palomar, Tucson, and La Paz), 18h. (Collmberg (2), and Jena), 20h. (Collmberg), 22h. (St. Louis, Tucson, Overton, Palomar, Pierce Ferry, Boulder City, Tinemaha, College, Collmberg, and near Malaga (2)).

June 18d. 12h. Undetermined shock.

Guadalajara PN =44m.40s., SZ =45m.16s.
Tacubaya ePEN =45m.26s., iLEN =46m.55s.
Tucson iP =46m.55s.
Riverside ePZ =47m.49s.
Palomar iPZ =47m.52s.
Mount Wilson eZ =48m.3s.
Tinemaha iPZ =48m.22s.
Florissant ePE =48m.45s.
St. Louis iPZ =48m.45s., eE =56m.10s. and 58m.22s.
Long waves were also recorded at Salt Lake City and Rapid City.

June 18d. Readings also at 4h. (La Plata, La Paz, St. Louis, Tucson, Riverside, Tinemaha, Mount Wilson, and Overton), 6h. (near Balboa Heights), 8h. (Kew and near Mizusawa), 9h. (Pasadena, Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and Collmberg), 12h. (New Delhi), 13h. (near Stalinabad), 14h. (Jena), 15h. (near Harvard, Ottawa, Shawinigan Falls, and Seven Falls), 20h. (Branner), 22h. (near Berkeley, Fresno, Branner, and Lick).

June 19d. 17h. 31m. 23s. Epicentre 41°·2N. 142°·5E. Depth of focus 0·010.
(as on 1945, February 1d.).

Intensity V at Hatinohe and Urakawa ; II-III at Mizusawa.
Epicentre 41°·3N. 142°·5E. Focal depth 60km.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1945, pages 35-36.

$A = -·5987$, $B = +·4594$, $C = +·6561$; $\delta = -4$; $h = -2$;
$D = +·609$, $E = +·793$; $G = -·521$, $H = +·399$, $K = -·755$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe		1·0	228	0 16a	− 4	0 29	− 7	—	—	—
Sapporo		2·1	335	0 24	−10	0 47	−13	—	—	—
Mizusawa	E.	2·3	207	0 36	− 1	1 3	− 2	—	—	—
Sendai		3·2	203	0 46	− 4	1 24	− 3	1 38	?	—
Hukusima		3·8	206	0 57	− 1	1 47	+ 5	—	—	—
Mito		5·1	199	1 19	+ 3	2 16	+ 2	—	—	—
Utunomiya		5·1	205	1 17	+ 1	2 17	+ 3	—	—	—
Tukubasan		5·4	203	1 16	− 4	2 18	− 3	—	—	—
Maebasi		5·5	210	1 27	+ 6	2 33	+10	—	—	—
Nagano		5·6	218	1 39	pP	—	—	—	—	—
Wazima		5·8	230	1 23	− 2	2 29	− 2	—	—	—
Tokyo		5·9	202	1 33	+ 7	2 37	+ 4	—	—	—
Toyama		6·1	224	1 29	0	2 32	− 6	—	—	—
Hunatu		6·4	208	1 35	+ 2	3 6	sS	—	—	—
Omaesaki		7·4	209	1 39	− 8	—	—	—	—	—
Hikone		7·7	222	1 55	+ 4	—	—	—	—	—
Kameyama		7·9	219	1 57	+ 3	—	—	—	—	—
Vladivostok		8·1	287	e 1 44	−13	i 3 22	− 5	—	—	—
Irkutsk		28·1	307	e 5 39	− 6	e 10 17	− 4	—	—	—
College		45·2	35	—	—	e 14 42	+ 1	—	—	e 23·2
Moscow		64·4	323	i 10 23	− 5	—	—	—	—	e 34·0
Grand Coulee		65·8	47	i 10 54	pP	—	—	—	—	—
Shasta Dam		68·0	55	i 10 50	− 1	—	—	—	—	—
Tinemaha		72·7	55	e 11 19	0	—	—	i 11 40	pP	—
Santa Barbara	Z.	73·4	59	e 11 42	pP	—	—	—	—	—
Mount Wilson	Z.	74·6	58	i 11 31	+ 1	—	—	i 11 46	pP	—
Pasadena	Z.	74·6	58	i 11 30	0	—	—	i 11 48	pP	—
Riverside	Z.	75·2	58	e 11 43	+ 9	—	—	i 12 1	pP	—
Overton		75·4	54	i 11 36	+ 1	—	—	—	—	—
Boulder City		75·6	55	e 11 36	0	—	—	e 11 40	pP	—
Palomar	Z.	76·0	57	e 11 46	+ 8	—	—	i 11 57	pP	—
Pierce Ferry		76·0	54	i 11 39	+ 1	—	—	—	—	—
Collmberg		77·9	330	(i 11 39)	−10	—	—	(e 11 58)	pP	—
Tucson		80·5	55	i 12 3	0	—	—	i 12 23	pP	—
St. Louis	Z.	87·1	39	i 12 35	− 1	—	—	c 12 53	pP	—

Additional readings :—
Collmberg e =(12m.5s.) and (12m.23s.) ; readings increased by 6 minutes.
St. Louis eZ =12m.42s.
Long waves were also recorded at Triest, Kew, Uccle, and De Bilt.

June 19d. 17h. 44m. 30s. Epicentre 17°·7S. 69°·2W. Depth of focus 0·025.
(as on 1944, August 30d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		1·6	40	i 0 31 a	− 3	i 1 3	+ 2	—	—	1·1
Huancayo		8·2	313	—	—	e 3 50	+22	—	—	e 4·2
St. Louis		59·4	340	e 9 41	− 3	e 17 46	+10	i 10 27	pP	—
Florissant		59·6	340	e 9 46	0	e 17 50	+11	e 10 2	pP	—
Tucson		63·7	321	i 10 13	0	—	—	i 10 58	pP	—
Palomar	z.	68·2	318	i 10 42	0	—	—	i 11 26	pP	—
Pierce Ferry		68·3	322	i 10 43	+ 1	—	—	—	—	—
Boulder City		68·7	322	e 10 46	+ 1	—	—	—	—	—
Riverside	z.	68·9	318	i 10 47	+ 1	—	—	e 11 16	pP	—
Mount Wilson	z.	69·5	318	i 10 50	0	—	—	i 11 34	pP	—
Pasadena		69·5	318	i 10 50	0	—	—	i 11 33	pP	—
Tinemaha		71·5	320	i 11 4	+ 2	—	—	i 11 48	pP	—
Shasta Dam		76·2	321	i 11 28	− 1	—	—	—	—	—
Grand Coulee		79·0	328	i 11 55	+11	—	—	—	—	—
Granada		82·4	47	i 12 15 k	+13	—	—	i 12 37	pP	—

Additional readings :—
St. Louis iPZ = 9m.44s.
Florissant eE = 15m.47s. and 18m.41s.
Riverside eZ = 11m.24s., iZ = 11m.31s.

June 19d. Readings also at 2h. (Pennsylvania), 3h. (Almeria), 9h. (Ksara), 11h. (near Andijan).

June 20d. 1h. 23m. 44s. Epicentre 46°·3N. 153°·8E.

A = −·6221, B = +·3061, C = +·7206 ; δ = −3 ; h = −4 ;
D = +·442, E = +·897 ; G = −·647, H = +·318, K = −693.

		Δ	Az.	P.	O—C.	S.	O—C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		11·7	237	e 2 53	+ 2	4 52	−12	—	—	—
Vladivostok		15·9	266	i 3 42	− 5	i 6 44	0	—	—	—
Irkutsk		32·3	300	7 30	+57	12 52?	+66	—	—	—
College		36·2	38	e 7 8	+ 2	e 12 48	+ 1	—	—	e 15·7
Sitka		43·2	50	e 8 8	+ 4	e 14 40	+ 8	—	—	e 17·9
Honolulu		46·4	106	—	—	e 15 21	+ 3	—	—	e 20·5
Sverdlovsk		54·5	318	i 10 26	+54	18 11	+61	—	—	—
Grand Coulee		56·2	55	e 10 10	+26	—	—	—	—	—
Andijan		56·8	297	e 9 56	+ 8	—	—	—	—	—
Shasta Dam		58·3	63	e 9 59	0	e 18 5	+ 4	i 10 12	?	—
Saskatoon		60·2	45	—	—	e 18 22	− 3	—	—	33·3
Santa Clara		60·6	66	e 10 12	− 3	e 18 30	0	—	—	e 26·6
Butte		60·9	53	e 10 22	+ 5	e 18 40	+ 6	—	—	e 35·5
New Delhi	N.	61·0	283	i 10 18	0	i 18 28	− 7	—	—	—
Bozeman		62·0	53	e 10 24	0	e 18 49	+ 1	—	—	e 33·1
Tinemaha		63·1	64	e 10 33	+ 1	e 20 23	ScS	i 10 41	?	—
Santa Barbara	z.	63·8	67	e 10 50	+14	—	—	—	—	—
Haiwee	z.	63·9	64	e 10 41	+ 4	—	—	i 10 52	?	—
Mount Wilson	z.	65·0	67	e 10 47	+ 3	—	—	i 10 57	?	—
Pasadena		65·0	67	10 47	+ 3	i 19 29	+ 3	i 10 55	?	e 27·0
Moscow		65·1	327	i 10 41	− 4	e 19 27	0	14 36	PPP	—
Riverside	z.	65·6	67	i 10 38	−10	—	—	i 11 1	?	—
Overton		65·8	62	e 10 52	+ 3	—	—	—	—	—
Boulder City		65·9	63	e 10 51	+ 1	—	—	—	—	—
Pierce Ferry		66·3	62	i 10 55	+ 3	—	—	i 11 6	?	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar	Z.	66·4	67	i 10 53	0	—	—	—	—	—
Hyderabad	E.	67·5	273	e 10 56	− 4	19 51	− 5	13 27	PP	—
Upsala	E.	68·3	339	11 5	0	20 2	− 4	—	—	—
	N.	68·3	339	i 11 2	− 3	19 58	− 8	e 24 16?	SS	34·3
Bergen		70·6	345	e 11 20	+ 1	e 20 18	−15	—	—	e 37·6
Tucson		70·9	64	i 11 23	+ 2	e 20 33	− 3	i 11 35	P_cP	e 33·4
Piatigorsk		71·2	316	e 11 8	−15	—	—	—	—	—
Aberdeen		75·0	348	—	—	i 21 22	− 1	—	—	e 43·5
Collmberg		77·1	337	(i 11 48)	− 9	—	—	(i 12 7)	P_cP	(e 48·3)
Florissant		77·7	47	e 12 0	0	e 21 21	−31	—	—	—
Prague		77·8	336	e 11 59	− 2	e 21 22	−31	—	—	e 28·3
St. Louis		77·9	47	e 12 1	0	i 21 54	0	e 12 32	?	e 36·5
De Bilt		78·3	342	e 12 3a	0	e 21 58	− 1	e 27 16?	SS	e 40·3
Bucharest		78·5	325	e 11 57	− 7	e 21 57	− 4	e 12 6	P	34·3
Ottawa		78·8	34	12 6	0	21 58	− 6	15 4	PP	37·3
Seven Falls		79·1	30	—	—	e 22 10	+ 3	—	—	32·3
Uccle		79·7	342	e 12 9s	− 2	e 22 12	− 1	e 27 16?	SS	e 41·3
Riverview		79·8	183	e 12 43	+31	i 22 20	+ 6	e 22 33	S_cS	e 40·8
Kew		80·1	345	i 12 11s	− 2	e 22 23	+ 5	e 15 9?	PP	e 40·3
Strasbourg		81·0	339	e 12 18	0	—	—	—	—	—
Sofia		81·1	326	e 12 21	+ 3	e 22 25	− 3	—	—	—
Pittsburgh		81·2	39	i 12 18	− 1	e 22 25	− 4	e 15 28	PP	—
Pennsylvania		81·8	38	e 12 25	+ 3	—	—	—	—	—
Triest		81·9	334	e 12 20	− 3	e 22 36	0	e 15 15	PP	—
Zürich		81·9	338	e 12 22	− 1	e 22 33	− 3	—	—	—
Basle		82·0	338	e 12 22	− 1	—	—	—	—	—
Paris		82·0	342	e 12 24	+ 1	e 22 27	−10	e 22 16	?	e 44·3
Ksara		82·6	312	e 12 29	+ 3	e 22 46	+ 3	—	—	—
Neuchatel		82·6	338	e 12 26	0	—	—	—	—	—
Philadelphia		83·6	36	e 12 24	− 7	e 22 47	− 6	e 28 38	SS	e 38·7
Georgetown		83·7	38	e 12 33	+ 1	i 23 53	+59	i 23 56	?	—
Clermont-Ferrand		84·8	340	e 12 38	+ 1	e 24 0	PS	—	—	e 43·3
Helwan	N.	88·1	313	e 12 55	+ 1	23 36	− 1	23 22	SKS	—
Toledo		91·9	343	i 13 10	− 1	23 46	[+ 2]	—	—	48·8
Bermuda		94·3	32	—	—	e 24 31	− 1	—	—	e 47·6
Granada		94·4	342	i 16 55k	PP	24 0	[+ 2]	25 41	PS	48·5
San Fernando	E.	95·7	344	—	—	24 9	[+ 4]	—	—	51·3
San Juan		106·2	39	e 18 36	PP	e 26 13	+ 1	e 33 43	SS	e 54·4

Additional readings :—
Pasadena iS_cSN = 20m.38s.
Hyderabad SSE = 24m.31s.
Collmberg i = (12m.31s.), e = (13m.26s.), readings increased by 6 minutes.
St. Louis eE = 25m.22s.
Ottawa SSS = 30m.16s.?
Uccle e = 18m.16s.?
Riverview eN = 27m.21s., eQE = 34m.34s.
Kew ePPPZ = 17m.39s.?, ePSZ = 23m.3s., eSSZ = 27m.29s., eSSSZ = 30m.46s.?, eQEN = 34·3m.
Pittsburgh i = 22m.28s.
Triest ePPP = 16m.47s., ePS = 23m.33s.
Helwan SN = 23m.44s., eN = 24m.43s.
Long waves were also recorded at Suva, Auckland, Christchurch, and Wellington.

June 20d. 8h. 48m. 43s. Epicentre 3°·7S., 140°·3E. (as on 1944 August 8d.).

Felt in the region of Wewak-Wom (New Guinea).
Epicentre 4°S, 140°E (Strasbourg).
Annales de l'institut de Physique du Globe de Strasbourg, 2ème partie, Séismologie, tome X, Strasbourg, 1951, p. 29.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	26·6	155	i 5 42	0	i 9 59	−17	—	—	—
	E. or Z.	26·6	155	i 5 35	− 7	e 9 56	−20	i 11 48	SSS	—
Riverview		31·6	164	i 6 34a	+ 8	i 11 28	− 7	i 7 40	PP	e 15·3
Suva		40·0	115	8 9?	+31	e 12 57?	−47	—	—	15·9
Auckland		45·7	141	8 46	+22	14 53	−15	—	—	18·3
Arapuni		47·0	142	—	—	i 17 17?	?	—	—	24·3
Vladivostok		47·2	352	—	—	i 15 38	+ 9	i 19 16	SS	—
Wellington	Z.	48·5	146	8 48	+ 2	15 33?	−15	19 17?	SS	21·3
Christchurch		48·9	149	9 37	+47	15 44	− 9	—	—	21·0
Irkutsk		63·7	337	e 10 35	− 1	19 18	+ 8	—	—	—
Andijan		75·9	314	11 56	+ 6	—	—	—	—	—
Sverdlovsk		87·4	328	12 48	− 2	23 36	+ 6	e 16 17	PP	—
Sitka		90·0	33	—	—	e 23 22	[−11]	—	—	e 40·9
Shasta Dam		97·9	49	e 13 32	− 7	—	—	e 17 29	PP	—
Moscow		100·2	325	13 49	0	—	—	17 57	PP	—
Tinemaha	Z.	101·3	53	e 14 2	+ 8	—	—	—	—	—
Pasadena	Z.	101·6	55	i 13 59	+ 3	—	—	i 17 51	PP	e 45·8
Mount Wilson	Z.	101·7	55	e 13 51	− 5	—	—	e 17 52	PP	—
Riverside	Z.	102·3	55	e 13 54	− 5	—	—	e 17 41	PP	—
Boulder City		104·2	52	e 18 18	PP	—	—	—	—	—
Tucson		107·9	58	e 18 37	[+ 8]	e 28 1	PS	e 30 15	?	e 49·0
Upsala		109·1	333	e 30 58	?	—	—	e 36 51	?	e 53·3
Bergen		114·0	338	—	—	e 39 17?	SSS	—	—	e 67·3
Kew		122·2	332	e 20 46?	PP	e 30 22	PS	—	—	e 61·3
Florissant		122·3	45	e 21 4	PP	e 30 35	PS	—	—	e 59·3
St. Louis		122·5	45	e 20 13	PP	e 25 56	[− 2]	e 27 23	SKKS	—
Seven Falls		129·1	26	—	—	e 27 47k	{−27}	—	—	61·3
Columbia		131·2	46	—	—	e 22 49	SKP	—	—	e 63·4
Huancayo		141·3	114	—	—	e 41 18	SS	—	—	e 68·3
La Paz	Z.	145·5	126	19 38	[− 2]	—	—	—	—	75·3
Bogota		145·7	87	e 19 38	[− 2]	—	—	e 19 54	PKP$_2$	—
San Juan		150·3	58	e 20 9	[+21]	e 33 48	PS	e 23 32	PP	e 65·5

Additional readings :—
Riverview eE = 11m.32s., eZ = 12m.3s., iSSS?E = 13m.22s.
Wellington iZ = 14m.52s. and 16m.40s.
Shasta Dam i = 13m.35s.
Mount Wilson iZ = 13m.56s.
St. Louis ePSE = 30m.14s., eE = 30m.38s., eSS?E = 36m.3s.
Long waves were also recorded at Tananarive, Bermuda, Philadelphia, and at other European stations.

June 20d. 11h. Undetermined shock.

Suva iP = 42m.13s.?, S? = 44m.47s., L = 45·2m.
Auckland S? = 43m.35s., L = 45·7m.
Christchurch P = 43m.41s., S = 47m.51s., R = 50m.36s.
Arapuni e = 46m.?
Riverview eZ = 46m.15s., eE = 50m.49s., eLN = 53·7m.
Wellington iZ = 47m.23s., i = 47m.45s. and 48m.1s., R = 49·5m.
Pasadena iPZ = 52m.15s.
Mount Wilson ePZ = 52m.17s.
Riverside ePZ = 52m.17s.
Boulder City eP = 52m.25s., e = 52m.32s.
Tinemaha ePZ = 52m.26s.
Pierce Ferry eP = 52m.35s.
Tucson iP = 52m.36s., eL = 87m.16s.
Overton eP = 52m.37s.
Collmberg eZ = 59m.48s.
Long waves were also recorded at Kew and St. Louis.

June 20d. 17h. 35m. 6s. Epicentre 46°·3N. 153°·8E. (as at 1h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		11·7	237	e 2 47	− 4	4 48	−16	—	—	—
Vladivostok		15·9	266	i 3 43	− 4	—	—	—	—	—
Irkutsk		32·3	300	6 29	− 4	11 54	+ 8	—	—	—
College		36·2	38	e 7 9	+ 3	e 12 46	− 1	—	—	e 15·7
Sitka		43·2	50	i 8 10	+ 6	i 14 40	+ 8	—	—	e 18·0
Honolulu		46·4	106	e 8 36	+ 6	e 15 22	+ 4	e 10 54	PPP	e 20·3
Victoria		53·4	56	9 40	+16	17 12	+17	—	—	23·9
Sverdlovsk		54·5	318	i 9 25	− 7	—	—	e 21 7	SS	—
Grand Coulee		56·2	55	e 9 55	+11	e 17 29	− 4	—	—	—
Andijan		56·8	297	i 9 47	− 1	17 39	− 2	—	—	—
Calcutta	N.	57·3	270	e 9 56	+ 4	e 17 53	+ 6	—	—	—
Shasta Dam		58·3	63	i 10 0	+ 1	i 18 6	+ 5	—	—	—
Tashkent		58·4	299	i 9 59	− 1	—	—	e 13 28	PPP	—
Ukiah		58·7	65	e 10 8	+ 6	e 18 6	0	—	—	e 24·5
Berkeley		60·1	66	i 10 16	+ 5	e 18 28	+ 4	1 18 31	PS	e 25·9
Saskatoon		60·2	45	—	—	e 18 30	+ 5	—	—	33·9
Santa Clara		60·6	66	e 10 10	− 5	e 18 29	− 1	—	—	e 25·9
New Delhi	N.	61·0	283	i 10 15	− 3	i 18 38	+ 3	12 37	PP	—
Bozeman		62·0	53	e 10 26	+ 2	e 18 52	+ 4	—	—	e 32·3
Tinemaha		63·1	64	i 10 36	+ 4	e 19 8	+ 6	—	—	—
Santa Barbara	Z.	63·8	67	e 10 47	+11	—	—	—	—	—
Haiwee		63·9	64	i 10 52	+15	—	—	—	—	—
Logan		64·0	56	e 10 41	+ 3	e 19 20	+ 7	e 13 26	PP	30·7
Salt Lake City		64·6	57	e 10 44	+ 3	e 19 24	+ 3	e 20 32	S_cS	e 27·8
Mount Wilson		65·0	67	i 10 47	+ 3	e 19 35	+ 9	—	—	—
Pasadena		65·0	67	i 10 46	+ 2	i 19 28	+ 2	i 20 38	S_cS	e 27·1
Moscow		65·1	327	i 10 42	− 3	19 18	− 9	13 54?	PPP	—
Riverside	Z.	65·6	67	i 10 48	0	—	—	i 39 28	P′P′	—
Boulder City		65·9	63	i 10 51	+ 1	e 19 40	+ 3	—	—	—
Pierce Ferry		66·3	62	i 10 55	+ 3	i 19 46	+ 4	i 11 34	P_cP	—
La Jolla		66·4	67	e 10 56	+ 3	—	—	—	—	—
Palomar		66·4	67	e 10 53	0	i 19 47	+ 4	—	—	—
Rapid City		67·2	50	e 11 1	+ 3	i 19 55	+ 3	—	—	e 27·7
Hyderabad	E.	67·5	273	10 56	− 4	19 54	− 2	11 15	P_cP	33·2
Suva		67·9	156	e 13 0	PP	i 20 4?	+ 3	i 20 34?	PPS	e 29·9
Upsala		68·3	339	i 11 2	− 3	e 19 54?	−12	e 13 22	PP	e 32·9
Bombay	E.	70·4	278	i 11 22	+ 4	e 20 23	− 7	—	—	—
Bergen		70·6	345	11 14	− 5	20 22	−11	—	—	e 31·9
Tucson		70·9	64	i 11 23	+ 2	e 20 42	+ 6	i 11 41	P_cP	e 29·4
Kodaikanal	E.	73·2	268	e 11 34	− 1	e 21 19	+17	14 14	PP	34·4
Brisbane		73·4	181	i 11 37	+ 1	i 21 1	− 4	e 25 47	SS	—
Colombo	E.	73·9	264	e 10 54?	−45	—	—	—	—	—
Aberdeen	E.	75·0	348	i 11 42	− 3	i 21 20	− 3	—	—	41·8
Chicago		76·7	44	e 11 54?	− 1	e 21 37	− 4	—	—	e 34·3
Collmberg		77·1	337	(i 11 48)	− 9	(e 21 31)	−14	(e 14 30)	PP	(e 46·9)
Florissant		77·7	47	e 12 0	0	i 21 51	− 1	e 12 27	?	—
Jena		77·8	337	e 11 38	−23	e 21 25	−28	—	—	—
Prague		77·8	336	e 11 54	− 7	e 21 42	−11	e 18 54	?	e 35·9
St. Louis		77·9	47	e 12 1	0	e 21 53	− 1	i 12 13	P_cP	—
De Bilt		78·3	342	i 12 3a	0	i 21 59	0	—	—	e 39·9
Bucharest		78·5	325	e 12 3	− 1	e 21 57	− 4	—	—	38·9
Ottawa		78·8	34	12 5	− 1	21 59	− 5	15 6	PP	37·9
Shawinigan Falls		78·9	31	12 7	0	22 3	− 2	—	—	52·9
Seven Falls		79·1	30	—	—	e 22 0	− 7	—	—	40·9
Uccle		79·7	342	i 12 11a	0	e 22 14	+ 1	e 14 54?	PP	e 40·9
Riverview		79·8	183	i 12 17a	+ 5	i 22 17	+ 3	i 23 5	PS	e 37·5
Kew		80·1	345	i 12 11a	− 2	e 22 17	− 1	i 12 15	P_cP	e 37·9
Belgrade		80·4	329	e 12 14k	− 1	—	—	—	—	e 51·8
Strasbourg		81·0	339	i 12 18	0	e 22 23	− 4	—	—	e 36·9
Sofia		81·1	326	e 12 19	+ 1	e 22 23	− 5	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pennsylvania		81·8	38	—	—	e 22 36	+ 1	—	—	—
Triest		81·9	334	e 12 24	+ 1	e 22 42?	+ 6	e 15 12	PP	—
Zürich		81·9	338	e 12 22a	− 1	e 22 31	− 5	e 13 28	?	—
Basle		82·0	338	e 12 23	0	e 22 26	−11	—	—	—
Paris		82·0	342	e 12 24	+ 1	e 22 35	− 2	e 12 54	?	e 40·9
Ksara		82·6	312	e 12 28	+ 2	e 22 44	+ 1	—	—	—
Neuchatel		82·6	338	e 12 26	0	—	—	—	—	—
Fordham		83·4	35	e 12 30	0	e 23 2	+11	e 22 45	SKS	—
Philadelphia		83·6	36	e 12 32	+ 1	i 22 52	− 1	e 28 26	SS	38·5
Georgetown		83·7	38	12 33	+ 1	i 22 54	0	—	—	—
Clermont-Ferrand		84·8	340	e 12 38	+ 1	e 23 13	+ 8	—	—	—
Auckland		84·9	163	—	—	e 22 54	[− 6]	—	—	39·9
Columbia		86·0	43	—	—	e 23 7	[0]	—	—	e 35·8
Helwan	N.	88·1	313	e 12 54	0	23 36	− 1	23 20	SKS	—
Wellington		89·2	165	23 24	SKS	23 49	+ 2	29 54	SS	40·9
Tortosa	E.	90·1	339	—	—	e 24 2	+ 7	—	—	e 43·9
Toledo		91·9	343	i 13 10	− 1	—	—	16 48	PP	—
Coimbra		92·4	346	e 13 0	−14	24 6	−10	—	—	47·4
Lisbon		94·0	346	13 19	− 2	26 45?	PPS	—	—	49·8
Bermuda		94·3	32	e 17 8	PP	e 24 27	− 5	—	—	e 44·5
Granada		94·4	342	12 12a	−71	24 18	{+ 4}	17 3	PP	50·6
San Juan		106·2	39	e 18 38	PP	e 26 14	+ 2	e 25 26	SKKS	e 44·7
Huancayo		126·4	67	—	—	e 28 7	{+11}	e 38 1	SS	e 53·5
La Paz		134·3	63	19 18	[− 2]	28 48	{+ 1}	21 54	PP	66·2

Additional readings :—
Honolulu e =17m.20s. and 18m.18s.
Logan e =19m.41s., eSS =23m.38s.
Salt Lake City e =23m.29s.
Pasadena iZ =12m.13s.
Pierce Ferry i =11m.55s.
Hyderabad PPE =13m.26s., S_cSE =20m.55s., SSE =24m.20s.
Upsala eSN =19m.40s., eSS?N =23m.54s., e =27m.54s.
Tucson i =11m.34s., iPP =14m.5s.
Kodaikanal SSE =25m.44s.
Collmberg i =(11m.53s.), (11m.59s.), and (12m.34s.), e =(13m.36s.), i =(19m.18s.), e =(21m.59s.), eZ =(29m.6s.), e =(31m.12s.), ePKP,PKP? =(39m.4s.); readings increased by 6 minutes.
St. Louis iZ =12m.50s., iSN =21m.56s., eSSS?E =30m.12s.?
Ottawa SSN =27m.18s., SSSE =30m.36s.
Uccle e =18m.22s., eSS =26m.54s.?, eSSS =30m.54s.
Riverview eSSN =27m.25s., eQN =35m.30s.
Kew ePP =14m.59s., ePPPZ =16m.47s.?, iSKSZ =22m.22s., ePSNZ =23m.7s., eSSZ = 26m.54s.?
Belgrade eP_cP =12m.51s., e =15m.56s. and 18m.40s.
Triest ePPP =16m.51s.
Helwan eN =20m.0s.
Coimbra e =20m.6s. and 28m.34s.
Granada PPP =19m.45s., SS =30m.24s.
San Juan e =19m.30s. and 33m.16s., eSS =33m.37s.
La Paz SKP =22m.54s., PPP =24m.23s., SS =40m.13s.
Long waves were also recorded at Barcelona, San Fernando, and Malaga.

June 20d. Readings also at 8h. (near Bogota), 10h. (Collmberg), 16h. (De Bilt), 17h. (Wellington), 18h. (Tananarive), 20h. (Collmberg (2), Shasta Dam, Tinemaha (2), Mount Wilson (2), Pasadena, Riverside (2), Boulder City, Pierce Ferry, Tucson (2), and St. Louis (2)).

June 21d. 12h. 36m. 4s. Epicentre 34°·7N. 137°·9E. (as on 1945 Jan. 3d.).

Scale V at Iida; IV at Hunatu, Omaesaki, Shizuoka, and Misima; II-III Maebasi, Kameyama, Nagano.
Seismo. Bull. Cent. Met. Obs. Japan, 1945, Tokyo, 1951, p. 36. Epicentre as adopted. Depth suggested 40km.

$A = -·6114$, $B = +·5524$, $C = +·5667$; $\delta = +10$; $h = 0$;
$D = +·670$, $E = +·742$; $G = -·420$, $H = +·380$, $K = -·824$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Omaesaki	0·3	111	0 5	− 6	0 11	− 7
Shizuoka	0·5	57	0 5	− 9	0 13	−10
Misima	1·0	64	0 18k	− 3	0 32	− 4
Hunatu	1·1	42	0 30	+ 8	0 44	+ 5
Kameyama	1·2	277	0 19	− 5	0 35	− 6
Hikone	1·5	293	0 24	− 4	0 43	− 6
Owase	1·5	246	0 28	0	0 41	− 8
Mera	1·6	82	0 28	− 2	1 2	+11
Yokohama	1·6	63	0 38	+ 8	0 58	+ 7
Tokyo	1·8	57	0 33	+ 1	0 58	+ 2
Maebasi	1·9	29	0 37	+ 3	1 4	+ 5
Nagano	2·0	7	0 34	− 1	1 2	0
Toyama	2·1	344	0 36	− 1	1 3	− 1
Siomisaki	2·2	235	0 39	+ 1	—	—
Tukubasan	2·3	29	0 41	+ 1	1 11	+ 2
Utunomiya	2·4	41	0 46	+ 5	1 17	+ 5
Mito	2·7	51	0 49	+ 4	1 24	+ 5
Toyooka	2·7	288	0 31	−14	1 6	−13
Wazima	2·8	343	0 52	+ 5	1 25	+ 3
Hukusima	3·7	33	1 22	P_g	2 1	S_g
Kôti	3·8	254	1 3	+ 2	1 47	0
Sendai	4·3	33	1 13	+ 5	1 59	− 1
Mizusawa	5·1	29	1 27	+ 7	2 31	+11

Long waves were recorded at Kew.

June 21d. Readings also at 8h. (Collmberg), 11h. (near La Paz), 12h. (near Mizusawa), 16h. (near Tananarive (2)), 20h. (Collmberg, Riverview, and Suva), 21h. (near Zürich).

June 22d. 1h. 7m. 3s. Epicentre 36°·5S. 98°·5W. (as on 1937 March 23d.).

$A = -·1191$, $B = -·7969$, $C = -·5922$; $\delta = -6$; $h = 0$;
$D = -·989$, $E = +·148$; $G = +·088$, $H = +·586$, $K = -·806$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		32·1	46	e 6 33	+ 2	e 11 43	0	e 7 43	PP	e 14·3
La Paz	Z.	33·5	61	i 6 44 s	+ 1	11 1	−64	—	—	15·6
Bogota		46·9	35	e 8 35	+ 1	—	—	—	—	—
San Juan		62·6	35	—	—	e 18 48	− 8	—	—	e 26·3
Tucson		69·4	348	e 11 12	0	—	—	—	—	—
Palomar	E.	71·6	344	e 11 36	+11	—	—	—	—	—
Riverside	Z.	72·3	343	e 11 28	− 1	—	—	—	—	—
Pasadena		72·6	343	i 11 31	0	—	—	—	—	e 34·8
Mount Wilson	Z.	72·7	343	e 11 31	− 1	—	—	—	—	—
Boulder City		73·7	347	e 11 35	− 3	—	—	—	—	—
Pierce Ferry		73·7	347	e 11 36	− 2	—	—	—	—	—
Haiwee		74·5	343	e 11 47	+ 5	—	—	—	—	—
St. Louis		75·2	7	e 11 44	− 2	e 21 23	− 2	—	—	e 31·6
Florissant		75·3	7	e 11 44	− 3	e 21 25	− 1	—	—	—
Tinemaha	Z.	75·5	343	i 11 47	− 1	—	—	—	—	—
Shasta Dam		79·9	342	i 12 10	− 2	—	—	—	—	—
Collmberg		130·3	49	—	—	e 26 23	[+ 2]	—	—	—
Moscow		144·8	42	e 19 38	[− 1]	—	—	—	—	—

Additional readings:—
Pasadena iZ = 11m.53s.
Tinemaha iZ = 12m.1s.
Long waves also recorded at Riverview, Philadelphia, Triest, and Kew.

June 22d. 9h. 18m. 52s. Epicentre 42°·4N. 147°·0E. Depth of focus 0·030.

Scale VI at Nemuro ; V at Hatinoke and Urakawa, II-III at Mizusawa, Hukusima, Mito, and Tukubasan.
Seismo. Bull. Cent. Met. Obs., Japan, 1945, Tokyo, 1951, p. 37. Epicentre as adopted.

$A = -·6212$, $B = +·4034$, $C = +·6718$; $\delta = -6$; $h = -3$;
$D = +·545$, $E = +·839$; $G = -·563$, $H = +·366$, $K = -·741$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro		1·4	312	0 13	−22	0 28	−35	—	—	—
Sapporo		4·2	282	0 53a	−13	—	—	—	—	—
Hatinohe		4·5	247	1 5	− 4	1 57	− 6	—	—	—
Mizusawa		5·5	236	e 1 20	− 2	2 28	+ 2	—	—	—
Akita		5·9	245	1 25	− 2	2 40	+ 5	—	—	—
Sendai		6·2	230	1 32a	+ 1	2 48	+ 6	—	—	—
Hukusima		6·8	229	1 36	− 2	—	—	—	—	—
Mito		7·9	222	1 55	+ 2	3 29	+ 8	—	—	—
Utunomiya		8·0	226	1 58	+ 4	3 35	+12	—	—	—
Tukubasan		8·2	223	2 7	+10	—	—	—	—	—
Tokyo		8·8	222	2 9	+ 5	3 52	+10	—	—	—
Nagano		8·9	233	2 7	+ 1	3 44	0	—	—	—
Yokohama		9·0	222	2 19	+12	4 7	+21	—	—	—
Wazima		9·1	241	2 11	+ 3	3 52	+ 4	—	—	—
Mera		9·3	219	2 22	+11	4 10	+17	—	—	—
Toyama		9·5	236	2 14	+ 1	3 40	−18	—	—	—
Hikone		11·0	233	2 36a	+ 4	4 38	+ 6	—	—	—
Owase		11·9	229	2 50	+ 6	5 30	+37	—	—	—
Siomisaki		12·6	228	3 4	+11	—	—	—	—	—
Kôti		13·8	235	3 9	+ 1	—	—	—	—	—
Irkutsk		30·2	304	5 40	−12	—	—	—	—	—
Pehpei		34·8	263	—	—	e 11 55	+10	—	—	—
College		42·2	35	e 7 25	− 7	e 13 31	− 4	e 7 52	pP	e 16·8
Sitka		49·4	45	e 8 23	− 6	i 15 21	+ 4	e 19 25	sSS	e 21·8
Honolulu		50·4	97	e 8 42	+ 6	e 15 59	+28	—	—	e 20·6
Calcutta	N.	52·3	267	e 10 3	+73	i 16 47	+50	—	—	—
Andijan		54·1	295	e 8 59	− 5	i 16 20	− 1	—	—	—
Tashkent		55·9	298	i 9 10	− 7	i 16 42	− 3	—	—	—
New Delhi	N.	57·0	281	i 9 50	+26	i 16 58	− 2	17 52	sS	i 29·9
Stalinabad		57·6	295	e 9 32	+ 3	i 17 20	+13	—	—	—
Victoria		59·6	51	9 54	+12	17 48	+15	24 8?	SSS	—
Grand Coulee		62·5	50	e 9 58	− 4	i 18 11	+ 1	i 11 57	PP	—
Hyderabad		62·7	269	10 27	+24	18 16	+ 4	—	—	—
Shasta Dam		64·5	58	e 10 13	− 2	i 18 42	+ 8	i 10 53	sP	—
Ukiah		64·9	59	e 10 18	+ 1	e 18 46	+ 7	—	—	e 27·2
Moscow		65·5	324	i 10 11	−10	i 18 35	−12	i 10 39	pP	—
Bombay		66·0	275	e 10 24	0	i 18 58	+ 5	—	—	—
Berkeley		66·2	60	i 10 24	− 2	i 19 5	+10	i 10 54	pP	—
San Francisco		66·2	60	e 10 27	+ 1	—	—	—	—	—
Saskatoon		66·4	41	10 32	+ 5	19 2	+ 4	—	—	30·1
Branner		66·5	60	e 10 28	0	—	—	—	—	—
Santa Clara		66·7	60	i 10 36	+ 7	e 19 17	+16	—	—	e 33·7
Lick		66·9	60	i 10 30	0	—	—	—	—	—
Suva		66·9	148	i 10 38	+ 8	i 19 25	+22	i 11 9	pP	e 31·1
Bozeman		68·2	48	e 10 34	− 4	e 19 24	+ 5	e 20 12	sS	e 29·9
Fresno	N.	68·5	60	e 10 44	+ 4	e 14 32	PP	—	—	—
Tinemaha		69·2	59	i 10 45	+ 1	e 19 40	+ 9	i 11 18	pP	—
Brisbane		69·8	175	i 11 0	+12	i 20 12	+34	—	—	i 20·9
Santa Barbara		69·9	62	i 10 50	+ 2	e 20 0	+21	—	—	—
Haiwee		70·0	59	i 10 50	+ 1	e 19 45	+ 5	i 11 15	pP	—
Upsala		70·0	336	10 40	− 9	19 29	−11	e 15 21	pPPP	e 32·1
Logan		70·2	51	i 10 52	+ 2	—	—	—	—	—
Salt Lake City		70·8	52	e 10 52	− 2	e 19 51	+ 2	e 20 45	PS	e 28·7
Mount Wilson		71·1	61	i 10 55k	− 1	e 20 1	+ 9	i 13 42	PP	—
Pasadena		71·1	61	i 10 55	− 1	i 20 0	+ 8	i 11 24	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside		71·7	61	i 10 58	− 1	e 20 6	+ 6	e 38 40	P'P'	—
Erevan		72·0	308	e 10 8?	−53	—	—	—	—	—
Overton		72·0	57	i 11 0	− 1	i 20 10	+ 7	—	—	—
Boulder City		72·1	58	i 10 51	−11	i 20 12	+ 8	—	—	—
La Jolla		72·5	62	i 11 4	0	e 20 16	+ 8	—	—	—
Pierce Ferry		72·5	57	i 11 3	− 1	i 20 47	pS	—	—	—
Bergen	z.	72·9	342	i 10 59	− 7	e 20 8	− 5	—	—	—
Rapid City		73·4	45	i 11 8	− 1	i 20 23	+ 4	i 11 39	pP	—
Riverview		76·0	177	i 11 37k	+13	21 17	+30	i 12 7	pP	e 37·6
Tucson		77·0	59	i 11 30	0	e 21 8	+10	i 11 55	pP	e 32·2
Aberdeen		77·5	345	—	—	i 20 46	−17	—	—	40·1
Bucharest		78·7	321	e 11 36	− 3	i 21 14	− 2	e 14 42	PP	e 31·1
Edinburgh		78·8	343	—	—	21 9	− 8	—	—	—
Prague		79·0	331	11 38	− 2	i 21 15	− 4	—	—	e 37·1
Jena		79·3	333	e 11 16	−26	e 20 54	−28	e 11 44	P	—
De Bilt		80·2	337	i 11 42a	− 5	i 21 29	− 3	i 12 11	pP	e 40·1
Belgrade		80·9	324	i 11 46a	− 4	e 21 38	− 1	i 12 15	pP	e 52·4
Sofia		81·3	322	i 11 51	− 2	i 21 43	0	—	—	e 39·1
Ksara		81·4	308	e 11 53	0	e 21 48	+ 4	—	—	—
Uccle		81·6	338	i 11 48a	− 6	i 21 41	− 5	i 12 18	pP	e 36·1
Kew		82·3	340	i 11 54a	− 4	i 21 50	− 3	—	—	e 33·7
Strasbourg		82·5	334	i 11 55	− 4	i 21 54	− 1	i 12 17	pP	—
Chicago		82·8	39	i 11 58	− 2	i 21 57	− 1	e 27 23	SS	e 38·4
Auckland		82·9	158	—	—	—	—	(23 20)	PS	23·3
Triest		83·0	329	—	—	i 21 55	− 5	i 22 36	PS	e 39·6
Zürich		83·3	333	e 11 57	− 6	e 21 59	− 4	e 12 27	pP	—
Basle		83·5	333	e 12 0	− 4	e 22 0	− 5	—	—	—
Chur		83·5	332	e 11 58	− 6	—	—	—	—	—
Florissant		83·8	42	e 12 3	− 2	i 22 12	+ 4	i 15 19	PP	—
Paris		83·9	337	i 12 10	+ 4	i 22 7	− 2	—	—	e 39·1
St. Louis		84·0	42	i 12 5	− 1	i 22 13	+ 3	i 12 25	pP	e 38·1
Arapuni		84·2	158	—	—	—	—	e 23 8?	PS	—
Neuchatel		84·2	333	e 12 3	− 4	e 22 9	− 3	—	—	—
Shawinigan Falls		84·6	26	12 5	− 4	22 14	− 2	—	—	—
Ottawa		84·7	29	12 6	− 4	22 14	− 3	23 8	PS	40·1
Seven Falls		84·8	25	12 6	− 4	22 15	− 3	31 38	SSS	40·1
Cape Girardeau	E.	85·4	42	e 12 12	− 1	e 22 24	+ 1	e 23 16	PS	—
Clermont-Ferrand		86·5	335	i 12 18	− 1	i 22 37	+ 3	—	—	e 41·1
Wellington		87·0	159	—	—	23 38	PS	25 8?	PPS	e 46·1
Pittsburgh		87·2	34	i 12 19	− 3	i 22 41	+ 1	e 16 4	PP	—
Harvard		88·6	28	i 12 27	− 2	i 22 54	0	—	—	—
Christchurch		88·6	162	i 12 44	+15	i 23 33	+39	40 55	Q	48·3
Fordham		89·3	30	i 12 31	− 1	e 22 45	[+ 6]	i 13 2	pP	—
Philadelphia		89·6	31	i 12 31	− 2	i 23 2	− 1	i 23 45	sS	—
Georgetown		89·7	33	i 12 32	− 2	i 23 7	+ 3	i 22 47	SKS	—
Tortosa		91·8	335	i 12 43	− 1	22 59	[+ 6]	i 13 13	pP	e 46·2
Columbia		92·2	38	—	—	e 22 56	[+ 1]	e 28 48	SS	e 37·5
Toledo		94·0	337	i 12 49	− 5	e 24 3	+22	28 56	SS	—
Coimbra		94·8	341	e 12 18	−39	(23 58)	+10	29 8	SS	e 44·6
Granada		96·4	337	i 13 4k	0	23 25	[+ 7]	13 57	pP	48·8
Lisbon		96·4	341	13 3?	− 1	i 23 25	[+ 7]	13 28?	pP	43·0
Malaga	N.	97·0	337	—	—	i 23 25	[+ 3]	e 30 36	SS	39·6
San Fernando		97·8	338	13 9	− 2	23 35	[+ 9]	13 37	pP	53·1
San Juan		112·2	34	e 18 53	PP	e 26 18	PS	e 19 35	pPP	e 45·7
Bogota		120·2	49	i 18 31	[+ 7]	—	—	i 19 54	PP	—
Huancayo		132·4	63	e 18 55	[+ 7]	e 38 44	SS	e 22 9	SKP	e 54·2
La Paz		140·4	60	18 59	[− 4]	22 36	SKP	21 58	PP	75·1

Additional readings and notes :—
Honolulu i = 8m.48s. and 9m.36s., e = 11m.33s., esSS = 20m.11s.
New Delhi SSN = 20m.52s., sSSN = 21m.57s.
Grand Coulee i = 13m.24s., e = 19m.36s.
Shasta Dam e = 19m.1s. and 19m.54s.
Moscow esS = 19m.16s.
Bombay iN = 19m.1s.
Branner eEN = 10m.40s.

Continued on next page.

Lick iN =10m.33s.
Suva iScS =20m.14s.
Bozeman i =10m.40s., eSS =23m.53s., eSSS =27m.8s.
Fresno eN =10m.51s. and 11m.3s.
Tinemaha iEZ =10m.49s., ePKP,PKPZ =38m.54s.
Brisbane ePE =11m.5s.
Haiwee ePKP,PKPZ =38m.55s.
Upsala epPPP?E =15m.26s., isS?N =20m.25s., eSS?N =23m.56s., eSSS? =27m.8s.
Salt Lake City eSS? =24m.57s., eSSS =27m.49s.
Mount Wilson iZ =11m.27s. and 11m.41s., ePKP,PKPZ =38m.43s.
Pasadena iZ =13m.25s., isSEN =20m.47s., ePS =21m.2s., eNZ =28m.8s., iPKP,PKPZ = 38m.44s.
Boulder City i =11m.6s. and 19m.46s., e =21m.21s.
Rapid City i =21m.5s.
Riverview eZ =14m.6s., iPPN =14m.29s., iE =21m.24s., iScSN =21m.45s., iE = 21m.53s., iZ =22m.47s. and 26m.21s., iSSN =26m.29s., iSSSN =29m.40s., iE = 31m.57s.
Tucson e =18m.48s., eSS =26m.11s., eSSS? =29m.54s.
Bucharest eN =14m.59s.
Edinburgh SKS =21m.16s.
Jena eN =12m.2s. and 14m.11s.
Belgrade e =24m.55s.
Uccle epPEN =12m.23s., ePPP? =18m.8s.
Kew iN =12m.12s., i =12m.23s. and 21m.54s.
Strasbourg esS? =22m.58s.
Chicago eSSS =30m.54s.
Triest eSSE =28m.49s., eSSSN =32m.17s.
Zürich ePP =15m.15s.
Florissant iP$_c$PZ =12m.34s., iPSE =23m.5s., eSSN =27m.42s.
St. Louis iP$_c$PZ =12m.36s., ipP$_c$PZ =12m.54s., iPPZ =15m.18s., iE =22m.17s., iSKSE = 22m.25s., esSN =22m.54s., iPSE =23m.3s., iE =23m.8s., iSSN =27m.39s., eE = 34m.18s.
Clermont-Ferrand i =13m.17s.
Wellington readings wrongly identified.
Pittsburgh iZ =12m.50s., eS =22m.30s., i =26m.3s., eSS =28m.23s.
Fordham i =23m.5s., e =23m.54s.
Philadelphia eSKS =22m.40s., esSS =29m.29s.
Georgetown e =23m.57s.
Tortosa eE =21m.52s., S$_c$SEN =23m.25s., SSN? =26m.50s., SSSN? =28m.41s.
Columbia esSS? =29m.47s., eSSS =33m.16s.
Coimbra iS =22m.12s., true S is given as PS.
Granada isS =25m.1s., SSS =34m.4s.
Lisbon pPP?E =17m.20s.
San Fernando SS?E =27m.37s.
San Juan eSS =34m.10s., eSSS =38m.29s.
Huancayo e =23m.45s., eSSS =44m.17s.
La Paz iZ =19m.11s. and 19m.42s., PPP =25m.5s., PPS =34m.34s.

June 22d. 18h. 0m. 51s. Epicentre 32°·6N. 75°·9E.

Felt in Kashmir.
Annales de l'Institut de Physique du Globe de Strasbourg, 2ème partie, Séismologie, tome X, Strasbourg, 1951, page 29. Suggested epicentre 34°·7N. 75°·8E.

$A = +\cdot2056$, $B = +\cdot8187$, $C = +\cdot5362$; $\delta = +5$; $h = +1$;
$D = +\cdot970$, $E = -\cdot244$; $G = +\cdot131$, $H = +\cdot520$, $K = -\cdot844$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Dehra Dun	N.	2·9	141	i 0 39	− 9	i 1 7	−17	—	—	i 1·4
New Delhi		4·1	164	i 1 9a	+ 4	i 2 1	+ 6	1 28	P_g	—
Andijan		8·6	342	2 9	0	4 19	S*	—	—	—
Tashkent		10·2	331	2 3?	−28	i 4 19?	− 8	—	—	—
Almata		10·7	4	i 2 36	− 2	5 26	—	—	—	(5·4)
Bombay		13·9	192	e 3 14	− 7	i 5 48	− 9	—	—	7·4
Calcutta	N.	14·9	129	i 3 50	+16	i 6 32	+12	—	—	7·4
Hyderabad		15·3	171	3 31	− 8	6 11	−19	—	—	—
Kodaikanal	E.	22·3	177	e 3 29	?	i 7 9	?	8 29	SS	9·0
Colombo	E.	25·8	172	5 36	+ 2	10 4	+ 2	—	—	13·4
Pehpei		26·2	88	e 3 51	?	—	—	—	—	—
Erevan		26·3	296	e 5 45	+ 6	—	—	—	—	—
Irkutsk		28·4	37	i 5 55	− 3	i 11 13	+28	—	—	—
Ksara		33·4	283	e 6 47	+ 5	e 12 11	+ 8	—	—	—
Yalta		34·4	303	e 6 48	− 3	e 12 17	− 2	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Moscow		35·2	323	i 6 55	− 3	i 12 24	− 7	i 7 58	PP	—
Bucharest		40·1	302	e 7 43	+ 4	e 13 49	+ 3	—	—	20·2
Sofia		42·2	299	e 7 59	+ 3	i 14 18	+ 1	i 9 40	PP	—
Belgrade		44·2	303	e 8 11k	− 1	e 14 48	+ 2	e 10 36	PP	e 24·6
Upsala		46·6	324	i 8 31	− 1	15 8?	−13	10 17	PP	e 24·2
Prague		47·9	311	i 8 42	0	i 15 41	+ 2	—	—	—
Collmberg		48·8	313	e 8 47	− 2	e 15 52	0	i 10 42	PP	e 24·8
Triest		48·8	305	i 8 49	0	i 15 52	0	i 10 42	PP	—
Jena		49·7	312	e 8 32	−24	e 15 41	−23	e 10 53	PP	—
Zürich		52·1	308	e 9 10a	− 4	e 16 34	− 4	e 10 47	PP	—
Mizusawa	E.	52·3	63	e 9 11	− 4	16 35	− 5	—	—	—
Strasbourg		52·4	310	9 17	+ 1	e 16 36	− 6	e 11 22	PP	—
Basle		52·7	308	e 9 16	− 2	e 16 42	− 4	—	—	—
Bergen		52·8	325	i 9 17	− 2	16 42	− 5	20 39	SS	25·0
Neuchatel		53·2	307	e 9 20	− 2	e 16 50	− 2	—	—	—
De Bilt		53·6	314	i 9 24a	− 1	i 16 57	− 1	—	—	—
Uccle		54·3	313	e 9 28a	− 2	i 17 5	− 2	e 11 46	PP	e 29·2
Paris		55·8	310	i 9 42	+ 1	e 17 24	− 4	i 19 27	?	e 27·2
Clermont-Ferrand		56·1	306	i 9 43	0	e 17 33	+ 1	—	—	—
Aberdeen		57·0	321	i 9 51	+ 1	i 17 43	0	i 23 32	SSS	28·8
Kew		57·0	313	i 9 29a	−21	i 17 39	− 4	e 21 33?	SS	e 28·2
Edinburgh		57·8	319	9 54	− 1	17 54	0	18 9	PS	—
Barcelona		57·9	302	9 59	+ 3	17 49	− 6	11 57	PP	33·7
Tananarive		58·0	212	9 53	− 4	17 56	− 1	21 37	SS	e 29·6
Tortosa	N.	59·3	301	i 9 57	− 9	i 17 57	−17	11 14	PcP	32·2
Toledo		62·9	302	i 10 26	− 4	i 18 57	− 3	—	—	—
Granada		63·5	299	i 10 37a	+ 3	19 3	− 4	11 2	PcP	i 38·3
Malaga		64·3	299	i 10 43	+ 4	i 19 12	− 5	—	—	34·1
San Fernando		65·7	299	10 49	+ 1	19 31	− 3	20 10	PS	—
Coimbra		65·9	304	10 44	− 6	19 34	− 3	13 19	PP	e 38·6
Lisbon		67·0	302	10 58a	+ 1	i 19 50	0	11 24	pP	—
College		77·0	18	e 11 53	− 3	e 21 35	−10	—	—	e 35·4
Sitka		86·4	17	e 12 49	+ 4	e 23 12	− 9	e 16 6	PP	e 33·5
Seven Falls		95·2	337	e 13 39	+12	e 23 58	[− 4]	—	—	52·2
Saskatoon		95·6	1	—	—	e 24 4	[0]	—	—	54·2
Riverview		96·8	126	e 13 36	+ 2	i 24 51	− 3	e 31 12	SS	e 46·5
Victoria		97·4	12	e 13 51	+14	e 24 27	[+13]	e 17 48	PP	54·2
Ottawa		98·2	339	e 13 33	− 7	e 24 15	[− 3]	—	—	46·2
Grand Coulee		98·7	10	e 17 42	PP	e 24 17	[− 4]	—	—	—
Butte		101·4	5	e 14 2	+ 7	e 24 36	[+ 2]	e 18 1	PP	e 49·5
Bozeman		101·8	4	—	—	e 24 33	[− 3]	e 18 5	PP	e 40·4
Fordham		101·8	336	e 13 57	+ 1	i 24 33	[− 3]	e 18 4	PP	—
Philadelphia		103·0	336	e 17 34	?	i 24 38	[− 3]	e 18 16	PP	e 42·8
Pittsburgh		104·0	341	e 18 21	PP	e 24 25	[−21]	i 27 35	PS	e 55·4
Chicago		104·4	348	e 18 22	PP	e 24 44	[− 4]	e 27 36	PS	e 49·1
Shasta Dam		105·1	14	e 18 13	PP	i 24 54	[+ 3]	—	—	—
Bermuda		105·4	326	e 18 32	PP	e 26 10	+ 5	e 33 27	SS	e 52·9
Logan		105·7	6	e 18 40	PP	e 24 56	[+ 2]	e 26 3	S	e 49·8
Cinncinati		106·3	343	e 14 15	− 1	e 24 52	[− 4]	e 18 33	PP	e 61·2
Florissant		107·8	348	e 18 46	PP	e 25 1	[− 2]	e 26 24	S	e 42·6
Berkeley		107·9	14	i 18 52	PP	e 25 5	[+ 2]	e 28 6	PS	e 51·2
St. Louis		108·0	348	e 18 48	PP	i 25 1	[− 3]	e 28 9	PS	e 42·4
Tinemaha	Z.	109·4	12	e 18 34	[+ 2]	i 29 53	PKKP	e 18 53	PP	—
Pierce Ferry		111·0	8	e 18 39	[+ 4]	—	—	e 18 59	PP	—
Boulder City		111·1	9	e 18 13	[−22]	—	—	e 19 29	PP	—
Mount Wilson	Z.	112·2	12	e 18 8	[−29]	e 29 33	PKKP	e 19 16	PP	—
Pasadena		112·3	12	e 19 2	PP	e 25 21	[0]	e 29 25	PKKP	e 46·6
Riverside	Z.	112·6	12	e 18 43	[+ 5]	e 29 32	PKKP	e 19 27	PP	—
Palomar	E.	113·3	11	e 19 33	PP	—	—	—	—	—
Tucson		115·2	6	i 18 49	[+ 6]	e 25 34	[+ 1]	e 19 55	PP	e 56·9
San Juan		117·6	318	e 18 14	[−34]	e 29 45	PS	i 20 7	PP	e 54·6
La Paz		143·8	287	i 19 36	[− 1]	i 23 23	SKP	22 42	PP	78·2
Huancayo		146·6	301	e 19 48	[+ 6]	e 41 58	SS	i 22 17	PP	e 60·6

For Notes see next page.

NOTES TO JUNE 22d. 18h. 0m. 51s.

Additional readings :—
New Delhi P*N =1m.18s., iS*E =2m.13s., S_s =2m.26s.
Bombay iE =5m.56s. and 6m.37s., iN =6m.47s., iE =6m.57s.
Moscow eSS =14m.6s., SSS =15m.13s.
Bucharest iS?E =13m.52s.
Belgrade i =8m.17s., e =9m.15s. and 15m.28s.
Upsala iN =9m.48s., eN =10m.29s., eSSN =18m.21s., SS?E =18m.52s., iN =21m.27s., eE =21m.41s.
Collmberg iP_cP =9m.57s. and 10m.4s., iPPPZ =11m.32s., iP_cS =14m.0s., eS_cS = 18m.24s. and 18m.46s., eSSZ =19m.21s., and many other readings without phase.
Triest iPPP =11m.14s., iPS =16m.3s., eSS =19m.8s., eSSS =20m.26s.
Jena ePN =8m.35s., eN =11m.35s. and 13m.49s., eSE =15m.45s., eE =19m.37s., eN = 19m.45s.
Bergen SE =16m.46s., eEN =19m.7s.
Uccle i =9m.31s., ePPPN =12m.26s., eSE =17m.0s.?, S_cSN =19m.15s., iN =21m.45s.
Kew eS_cS?Z =19m.27s.
Barcelona PS =18m.4s.
Tananarive N =17m.44s., E =19m.31s.
Tortosa PSN =18m.11s.
Granada SS =24m.12s.
San Fernando SSE =23m.54s.
Coimbra SS =24m.9s.
Lisbon P =11m.1s., SSE =24m.3s.
Sitka e? =33m.17s.
Riverview eQN =42m.15s.
Fordham e =15m.13s., ePPP =20m.17s., iPPS =27m.17s.
Philadelphia iPKS =20m.25s., ePS =27m.25s., e =30m.56s., eSS =32m.48s.
Shasta Dam i =24m.19s.
Logan ePS =27m.59s., e =38m.17s.
Cincinnati iPPP =20m.54s.
Florissant eZ =18m.50s., eSKKS?E =25m.45s., ePSN =28m.13s.
St. Louis ePPPN =21m.7s., eSKKSN =25m.56s., eSN =26m.25s., iPPSN =29m.12s., eE =32m.26s., eSSE =34m.18s., eSSS?E =37m.51s.
Mount Wilson iZ =19m.21s.
Pasadena iNZ =19m.22s., eN =28m.45s., iZ =28m.51s.
Tucson e =19m.36s. and 24m.8s., eS =27m.31s., ePS =29m.19s.
San Juan e? =27m.49s., e =29m.48s. and 33m.41s., eSS =36m.14s., e =39m.41s. and 45m.15s.
La Paz iZ =24m.20s., iPPSZ =35m.44s., SS =41m.18s., SSS =46m.48s.
Huancayo i =20m.13s., e =32m.2s., eSSS =47m.12s.
Long waves were recorded at Ukiah.

June 22d. Readings also at 0h. (near Berkeley, Branner, Lick, and San Francisco), 6h. (Mount Wilson, Riverside, and near Mizusawa), 7h. (Collmberg and Kew), 11h. (Alicante), 13h. (near Fresno), 15h. (Mount Wilson, Tucson, and Tananarive), 16h. (La Paz and near Triest), 21h. (Ksara), 22h. (near Mizusawa), 23h. (near San Francisco).

June 23d. 20h. Undetermined shock.

La Paz iPZ =35m.7s.k, S?Z =42m.27s., LZ =53m.18s.
Huancayo e =36m.20s. and 38m.32s., eS =44m.45s., eL =50m.38s.
Fort de France eP? =37m.56s.
San Juan eP =38m.32s., e =41m.27s., eS =48m.26s., e =53m.29s., eL =59m.30s.
Florissant ePPZ =43m.54s., eSKKS?N =51m.19s., eLN =72m.
Collmberg eZ =44m.29s. and 55m.14s.
Tucson iPKP =44m.35s., i =44m.49s., ePS =55m.16s.
Pierce Ferry iPKP =44m.42s., i =44m.54s.
Riverside iPZ =44m.43s.a, iZ =44m.59s.
Boulder City iPKP =44m.44s., i =44m.50s.
Mount Wilson iPZ =44m.44s.
Pasadena iPNZ =44m. 45s., eLNZ =88·5m.
Palomar iPEN =44m.45s.
Tinemaha iPZ =44m.50s.
Haiwee iPZ =44m.51s.
Shasta Dam iPKP =44m.57s., i =45m.12s.
Grand Coulee ePKP =45m.4s., e =45m.19s.
Riverview iE =49m.37s.
Granada SKS =50m.26s., L =75·9m.
Kew e =54m., eL =80m.
De Bilt e =55m., eL =80m.
Uccle eN =68m., eLN =80m.
Long waves were also recorded at Wellington, Christchurch, Arapuni, San Fernando, and New Delhi.

June 23d. Readings also at 0h. (Chur), 1h. (Tucson, Mount Wilson, Riverside, Palomar, Tinemaha, Cape Girardeau, St. Louis, and Clermont-Ferrand), 5h. (near Mizusawa), 6h. (Kew), 10h. (Collmberg), 12h. (Collmberg and near Andijan), 19h. (Tananarive), 20h. (near Sofia), 22h. (near Mizusawa), 23h. (New Delhi and Andijan).

June 24d. 17h. Undetermined shock. Marianne Islands ?

Vladivostok eP =18m.2s.
Irkutsk eP =20m.20s.
Andijan eP =22m.40s., eS =31m.32s.
Tashkent eP =22m.48s.
Shasta Dam iP =23m.51s.
Moscow eP =24m.9s., eS =34m.32s.
Tinemaha iPZ =24m.16s.
Mount Wilson iPZ =24m.20s.
Pasadena iPZ =24m.20s., iZ =24m.49s.
Riverside ePZ =24m.22s.
Boulder City eP =24m.23s.
Overton eP =24m.30s.
Pierce Ferry iP =24m.32s., i =24m.51s. and 25m.0s.
Tucson iP =24m.52s.
Collmberg eZ =25m.23s.
Long waves were also recorded at Kew, Granada, and De Bilt.

June 24d. 19h. 58m. 0s. Epicentre 35°·0S. 70°·5W. Depth of focus 0·010.

Not approximate.

Intensity VIII at San Fernando on the coast (33° to 34°S.).
Macroseismic area between Serena and Traiguen.
Epicentre 35°·6S., 70°·5W. Depth 130kms. (J.S.A.).
35°S., 71°W. Depth 100km., ca. (U.S.C.G.S.).

Federico Greve.
Determinación del Coeficiente de Seguridad Antisismico para las diferentes Zonas de Chile, p. 16.

$$A = +\cdot2741,\ B = -\cdot7739,\ C = -\cdot5710\ ;\quad \delta = +9\ ;\quad h = 0\ ;$$
$$D = -\cdot943,\ E = -\cdot334\ ;\quad G = -\cdot191,\ H = +\cdot538,\ K = -\cdot821.$$

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Plata	E.	10·3	93	i 2 29	+ 3	4 24	+ 4	—	5·2
	N.	10·3	93	i 2 28	+ 2	4 20	0	—	5·0
	Z.	10·3	93	i 2 30	+ 4	4 36	+16	2 38 pP	—
La Paz	N.	18·5	9	i 4 14k	+ 3	i 7 39	+ 9	—	10·0
Huancayo		23·3	349	e 5 2	+ 2	i 9 4	+ 2	i 5 40 PP	i 9·7
Bogota		39·5	355	i 7 52	+30	c 13 49	+32	i 8 14 pP	—
Fort de France		50·2	13	e 8 45	− 3	—	—	—	—
San Juan		53·3	6	e 9 9	− 2	i 16 24	−10	i 16 54 sS	e 22·0
Georgetown		73·8	356	i 11 24	− 2	i 20 48	0	—	—
Cape Girardeau	E.	74·1	345	e 11 25	− 2	e 20 50	− 1	e 11 48 pP	—
Philadelphia		74·7	357	i 11 29	− 2	i 20 57	− 1	i 21 39 sS	—
Cincinnati		74·9	350	i 11 29	− 3	e 20 55	− 5	i 11 55 pP	—
Fordham		75·5	358	i 11 37	+ 2	i 21 8	+ 2	i 12 2 pP	—
St. Louis		75·5	345	i 11 31	− 4	i 21 3	− 3	i 11 57 pP	e 32·3
Pittsburgh		75·6	353	e 11 34	− 2	e 21 5	− 3	e 14 38 PP	—
Tucson		76·9	326	i 11 43	0	e 21 24	+ 2	i 12 7 pP	e 36·5
Harvard		77·1	0	i 11 45	+ 1	—	—	—	—
Chicago		78·0	346	e 11 48	− 1	e 21 26	− 8	e 15 3 PP	e 34·7
Ottawa		80·2	356	e 12 0	− 1	e 21 56	− 1	—	—
La Jolla		80·5	322	i 12 2	− 1	—	—	i 12 27 pP	—
Pierce Ferry		81·5	326	i 12 8	0	—	—	i 12 33 pP	—
Riverside		81·5	322	i 12 9k	+ 1	—	—	i 12 31 pP	—
Boulder City		81·8	325	i 12 4	− 6	e 22 11	− 2	i 12 28 pP	—
Mount Wilson		82·0	322	i 12 10k	− 1	e 22 18	+ 3	i 12 35 pP	—
Pasadena		82·0	322	i 12 11k	0	i 22 19	+ 4	i 12 36 pP	—
Overton		82·1	326	i 12 11	0	—	—	i 12 26 pP	—
Santa Barbara		83·0	321	i 12 17	+ 1	—	—	i 12 42 pP	—
Haiwee		83·4	323	i 12 19k	+ 1	—	—	i 12 44 pP	—
Tinemaha		84·4	323	i 12 23k	0	e 22 42	+ 3	i 12 49 pP	—
Butte		89·1	333	e 12 47	+ 1	e 23 7	[+ 2]	— —	e 56·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Shasta Dam		89·2	323	i 12 45	− 1	i 23 23	− 2	i 13 10	pP	—
Grand Coulee		93·3	330	e 13 4	− 1	—	—	—	—	—
Malaga	z.	94·2	48	i 13 8a	− 1	i 24 16	+ 7	i 13 39	pP	—
Granada		95·0	48	e 13 12k	− 1	i 24 21	+ 5	25 38	SP	e 44·9
Kew		105·7	38	—	—	e 27 0?	PS	(37 0?)	SSS	e 37·0
De Bilt		108·9	40	—	—	e 26 0	?	—	—	—
Collmberg	z.	112·7	43	18 24	[− 1]	—	—	—	—	—
Moscow		128·0	43	19 22	[+27]	e 25 50	[− 6]	21 22	PP	e 73·1
Tashkent		148·0	66	e 19 39?	[+ 8]	e 23 4?	PP	—	—	—
Andijan		150·3	68	e 19 44	[+ 9]	e 23 32	PP	—	—	—

Additional readings :—
Huancayo i = 6m.44s. and 9m.17s.
San Juan ePP = 10m.20s.
Cape Girardeau esSE = 21m.29s.
Philadelphia ePcP = 11m.44s.
Cincinnati esS = 21m.39s.
Fordham i = 21m.53s.
St. Louis iPcPZ = 12m.8s., ePPZ = 14m.22s., eN = 21m.33s., esSE = 21m.44s., ePSN = 22m.8s., eSS?E = 25m.50s., eE = 27m.8s., eSSS?E = 28m.37s.
Tucson ePP = 14m.34s., e = 21m.27s., esS = 21m.49s.
Chicago eSSS = 30m.14s.
Riverside iZ = 12m.51s.
Mount Wilson iZ = 12m.48s.
Pasadena iZ = 12m.46s., eZ = 15m.16s., eNZ = 39m.12s.
Shasta Dam eSKS = 23m.4s., esS = 23m.56s.
Malaga iPPZ = 16m.57s., sSZ = 25m.4s.
Granada SS = 30m.37s.

June 24d. Readings also at 1h. (Bogota and near Balboa Heights), 2h. (near Granada), 5h. (Tucson, Tinemaha, Mount Wilson, Riverside, Overton, and La Paz), 8h. (Balboa Heights), 9h. (Auckland, Moscow, Collmberg, and Bucharest), 11h. (Tucson, Boulder City, Overton, Pierce Ferry, Palomar, Tinemaha, Haiwee, Riverside, Mount Wilson, and near Collmberg (3)), 12h. (Jena and near Collmberg), 16h. (Bogota, La Paz, and Huancayo), 20h. (near Andijan), 21h. (Collmberg and near College).

June 25d. 15h. Undetermined shock.
Vladivostok eP = 53m.47s., eS = 57m.56s.
Irkutsk eP = 55m.0s., eS = 60m.0s.
Shasta Dam eP = 57m.58s., i = 61m.59s.
Mount Wilson ePZ = 58m.47s.
Pasadena ePZ = 58m.52s., eLNZ = 96·8m.
Riverside ePZ = 58m.53s.
Tucson eP = 59m.23s., i = 63m.28s.
Basle e = 60m.33s.
St. Louis eSE = 69m.31s., eE = 73m.34s., eZ = 75m.16s., eLE = 83·5m.
New Delhi eN = 74m.51s.
Bucharest iSEN = 82m.32s.
Long waves were also recorded at Moscow and at other European stations.

June 25d. 23h. 40m. 17s. Epicentre 37°·7N. 141°·8E. Depth of focus 0·010.
(as on 1944, October 25d.).

Intensity V at Sendai, Mizusawa, and Hukusima ; IV at Tukubasan, Sakata, Hatinohe, Mito, and Utunomiya ; II-III at Tokyo and Yokohama.
Epicentre 37°·9N. 141°·8E. Focal depth 60km.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1945, p. 38.

A = − ·6234, B = + ·4905, C = + ·6090 ; δ = +10 ; h = −1 ;
D = + ·618, E = + ·786 ; G = − ·479, H = + ·377, K = − ·793.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sendai		0·9	309	0 13	− 6	0 23	−11	—	—	—
Hukusima		1·1	273	0 18a	− 4	0 32	− 6	—	—	—
Mizusawa	E.	1·5	343	i 0 14	−13	0 24	−23	—	—	—
Mito		1·7	219	0 35a	+ 6	1 5	+14	—	—	—
Utunomiya		1·9	233	0 37	+ 5	0 56	+ 1	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Maebasi		2·6	239	0 42	+ 1	1 17	+ 5	—	—	—
Tokyo		2·6	219	0 48	+ 7	1 23	+11	—	—	—
Hatinohe		2·8	356	0 30k	−14	0 51	−26	—	—	—
Yokohama		2·8	217	0 36	− 8	1 19	+ 2	—	—	—
Nagano		3·0	247	0 52	+ 5	1 45	+23	—	—	—
Mera		3·2	210	1 2	+12	1 49	+22	—	—	—
Misima		3·5	223	0 59a	+ 5	1 43	+ 9	—	—	—
Toyama		3·8	256	0 59	+ 1	1 59	+17	—	—	—
Sapporo		5·3	356	1 7	−11	2 2	−16	—	—	—
Owase		5·8	233	1 20	− 5	2 44	+13	—	—	—
Vladivostok		9·3	308	i 2 37	pP	—	—	—	—	—
Hukuoka		10·1	250	2 11	−13	3 34	−42	—	—	—
Irkutsk		29·9	313	c 5 41	−20	10 35	−15	—	—	—
Andijan		52·6	297	c 8 57	− 9	e 16 19	− 5	—	—	—
Tashkent		54·5	298	e 9 9	−11	16 42	− 8	—	—	—
Moscow		66·9	323	10 37	− 7	19 17	−11	e 10 56	pP	e 40·3
Grand Coulee		68·6	45	e 11 12	pP	—	—	—	—	—
Shasta Dam		70·5	53	i 11 5	− 1	—	—	i 11 25	pP	—
Tinemaha		75·1	54	i 11 55	pP	—	—	—	—	—
Santa Barbara	z.	75·7	58	i 11 38	+ 2	—	—	—	—	—
Haiwee		75·9	55	i 11 39	+ 1	—	—	i 11 59	pP	—
Mount Wilson	z.	77·0	56	i 11 45a	+ 1	—	—	i 12 4	pP	—
Pasadena	z.	77·0	56	i 11 44	0	—	—	i 12 3	pP	—
Riverside	z.	77·6	56	i 11 47	0	—	—	i 12 6	pP	—
Overton		77·9	53	i 11 50	+ 1	—	—	i 11 59	pP	—
Boulder City		78·0	54	i 11 50	+ 1	—	—	i 12 9	pP	—
Palomar	E.	78·3	57	e 12 0	+ 9	—	—	—	—	—
Pierce Ferry		78·5	53	i 11 52	0	—	—	i 12 11	pP	—
Collmberg	z.	80·7	330	i 11 59	− 5	—	—	i 12 20	pP	—
Jena	N.	81·5	331	c 11 43	−25	—	—	—	—	—
De Bilt		82·9	335	—	—	i 22 18	− 6	—	—	—
Tucson		82·9	54	i 12 16	+ 1	—	—	i 12 36	pP	—
St. Louis		90·2	38	i 12 50	− 1	e 23 37	+ 3	i 13 9	pP	—
La Paz		146·2	59	i 19 30	[+ 2]	—	—	—	—	—

Additional readings :—
Moscow sP = 11m.3s., sS = 19m.51s.
Boulder City i = 12m.0s.
Pierce Ferry i = 11m.58s.
Long waves were also recorded at Kew.

June 25d. Readings also at 8h. (Aberdeen, Kew, Uccle, De Bilt, Collmberg, Prague, Moscow, Harvard, Philadelphia, St. Louis, Chicago, Riverside, Tucson, and Butte), 9h. (Balboa Heights), 11h. (De Bilt, Collmberg, and near Andijan), 17h. (near Mizusawa), 18h. (near La Paz), 22h. (near Andijan), 23h. (Collmberg).

June 26d. 21h. 25m. 23s. Epicentre 5°·0N. 82°·5W. (as on 1945, April 28d.).

$$A = +\cdot1300,\ B = -\cdot9877,\ C = +\cdot0866;\quad \delta = -5;\quad h = +7;$$
$$D = -\cdot991,\ E = -\cdot131;\quad G = +\cdot011,\ H = -\cdot086,\ K = -\cdot996.$$

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		4·9	35	e 1 17	0	e 2 15	0	—	—	—
San Juan		20·8	48	e 4 50	+ 5	e 8 45	+12	—	—	e 11·6
La Paz	z.	25·7	146	e 5 35	+ 2	11 37	SSS	—	—	16·1
St. Louis		34·2	350	e 6 44	− 5	—	—	—	—	e 14·1
Tucson		37·9	319	i 7 20	0	—	—	—	—	—
Boulder City		42·8	321	e 8 1	0	—	—	—	—	—
Riverside	z.	43·3	316	i 8 5	0	—	—	—	—	—
Mount Wilson	z.	43·9	316	i 8 10	0	—	—	—	—	—
Pasadena	z.	44·0	316	i 8 10	− 1	—	—	—	—	—
Tinemaha	z.	45·7	319	i 8 24	0	—	—	—	—	—

June 26d. Readings also at 0h. (near Mizusawa), 1h. (La Paz and near Huancayo), 2h. (Kew, De Bilt, Tucson, St. Louis, San Juan, and near Bogota (2)), 4h. (Bogota and La Paz), 6h. (Riverview, Wellington, Arapuni, Auckland, Christchurch, Riverside, Mount Wilson, Tucson, Bogota (2), and La Paz (2)), 7h. (Kew, Pasadena, and near Lick), 9h. (Balboa Heights and near Tortosa), 12h. (Bogota and near La Paz), 16h. (Grand Coulee, Tucson, Pierce Ferry, Overton, Boulder City, Tinemaha, Haiwee, Shasta Dam, Palomar, Riverside, Pasadena, Mount Wilson, Santa Barbara, and Auckland), 17h. (Jena and Collmberg (3)), 19h. and 20h. (Collmberg), 21h. (near Ottawa).

June 27d. 13h. 8m. 20s. Epicentre 26°·8N. 111°·2W.

Felt at Santa Rosalia, Baja, California (Tacubaya).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chihuahua	z.	4·9	67	e 1 31	P*	i 2 43	S_g	i 1 47	P_g	i 2·9
Tucson		5·4	4	i 1 18	− 6	i 2 23	− 5	i 2 35	S*	e 2·8
La Jolla		8·0	321	e 1 58k	− 2	—	—	—	—	e 3·4
Riverside		8·9	325	e 2 12k	0	—	—	—	—	—
Guadalajara		9·4	128	—	—	e 4 42	S*	—	—	e 5·7
Mount Wilson		9·5	323	i 2 19k	− 1	—	—	—	—	—
Pasadena		9·5	322	i 2 18k	− 2	(i 4 12)	+ 2	—	—	i 4·2
Pierce Ferry		9·6	347	i 2 19	− 2	—	—	i 2 23	?	e 5·0
Boulder City		9·7	342	i 2 22	0	e 4 22	+ 7	e 3 0	?	e 4·9
Overton		10·1	345	i 2 27	− 1	—	—	—	—	—
Santa Barbara	z.	10·6	318	e 2 34k	− 2	—	—	—	—	—
Haiwee		10·9	330	i 2 40k	0	e 4 51	+ 7	—	—	—
Tinemaha		11·9	332	i 2 53k	− 1	—	—	—	—	—
Tacubaya		13·3	121	e 3 11	− 2	i 6 6	+24	—	—	—
Lick		13·7	323	e 3 17	− 1	e 6 20	+28	—	—	—
Santa Clara		13·9	322	i 3 21	0	i 6 17	+20	—	—	—
Branner		14·1	322	i 3 25	+ 2	i 6 31	+29	i 3 35	PP	e 7·3
Berkeley		14·5	322	e 3 24	− 4	e 6 16	+ 5	i 3 29	P	e 7·2
San Francisco		14·5	322	e 3 29	+ 1	e 6 30	+19	e 6 35	SS	e 7·6
Logan		14·9	358	i 3 35	+ 1	i 6 37	+17	i 4 42	?	i 7·8
Ukiah		15·9	324	e 3 46	− 1	e 6 54	+10	—	—	i 7·7
Shasta Dam		16·7	329	i 3 56	− 1	e 7 4	+ 1	i 6 45	?	e 7·8
Ferndale		17·5	325	e 4 6	− 1	e 7 38	+17	i 7 42	SS	i 10·7
Rapid City		18·4	19	e 4 16	− 2	i 7 43	+ 2	—	—	e 8·5
Bozeman		18·8	0	i 4 20	− 3	i 8 0	+10	i 4 36	PP	i 9·9
Butte		19·2	357	i 4 26	− 2	i 8 19	+20	i 5 17	PPP	e 9·8
Mobile		20·6	73	e 4 55	+12	i 8 33	+ 4	—	—	—
Cape Girardeau		21·1	55	e 4 41	− 7	e 8 40	+ 1	—	—	e 11·1
Florissant		21·2	50	e 4 43	− 6	e 8 34	− 7	—	—	e 10·1
St. Louis		21·2	50	e 4 44	− 5	i 8 39	− 2	i 5 0	PP	e 10·1
Grand Coulee		22·0	346	e 4 52	− 6	e 9 1	+ 5	i 4 55	P	e 11·1
Seattle		22·6	341	e 5 14	+11	e 9 25	+18	—	—	e 11·9
Victoria		23·7	340	5 13	− 1	9 39	+12	—	—	11·7
Chicago		24·5	45	e 5 18	− 4	e 9 40	0	e 10 17	SS	e 11·3
Cincinnati		25·5	54	i 5 25	− 7	e 10 3	+ 6	i 10 10	?	i 13·3
Saskatoon		25·5	6	5 31	− 1	10 0	+ 3	—	—	12·7
Columbia		26·9	66	e 5 40	− 5	e 10 16	− 4	—	—	e 12·6
Pittsburgh	z.	29·2	54	i 6 3	− 2	i 11 14	+16	—	—	i 15·5
Pennsylvania		30·8	54	e 6 10	−10	e 11 10	−13	—	—	—
Georgetown		30·9	58	e 6 23	+ 3	i 11 21	− 3	i 6 28	?	—
Philadelphia		32·6	57	—	—	e 11 45	− 6	—	—	i 15·3
Fordham		33·8	55	e 6 48	+ 2	i 12 7	− 3	e 7 59	PP	e 15·3
Ottawa		33·8	47	6 46	0	12 10	0	14 10?	SS	e 15·7
Sitka		35·2	338	e 6 52	− 6	e 12 30	− 1	i 8 15	PP	e 14·6
Harvard		35·8	53	i 7 7	+ 4	—	—	—	—	e 18·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Shawinigan Falls		36·1	46	e 7 11	+ 6	—	—	—	—	15·7
Seven Falls		37·6	46	7 18	0	13 2	− 6	—	—	17·7
Bermuda		40·6	70	i 9 10	PP	e 14 3	+ 9	e 16 31	SS	e 19·9
Bogota		41·7	115	e 7 54	+ 2	—	—	i 7 59	?	—
Halifax		41·9	52	—	—	e 13 52	−21	—	—	19·7
San Juan		42·3	61	e 7 49	− 8	i 14 20	+ 1	e 9 3	PP	e 17·5
Honolulu		42·7	274	e 9 15	PP	e 14 32	+ 8	—	—	e 17·8
College		44·6	340	e 8 12	− 4	e 14 56	+ 4	e 10 0	PP	e 18·3
Fort de France		48·0	94	e 8 27	−16	—	—	—	—	—
Huancayo		52·0	133	e 9 15	+ 2	e 16 32	− 4	e 11 10	PP	e 22·5
La Paz		60·0	130	i 10 4k	− 7	i 20 10	ScS	i 12 20	PP	29·7
Reykjavik	N.	65·9	29	e 13 9	PP	e 20 19	PPS	—	—	e 27·5
Aberdeen		77·5	32	i 12 1	+ 2	i 21 50	0	i 26 44	SS	32·2
Edinburgh		77·6	34	e 14 40	PP	21 48	− 3	26 42	SS	—
Bergen		79·0	27	—	—	e 22 4	− 2	—	—	34·7
Kew		81·3	36	i 12 20k	0	e 22 30	0	e 17 23	PPP	e 37·7
Suva		81·6	245	—	—	i 22 28?	− 5	e 33 40?	Q	37·4
Coimbra		82·1	49	e 12 27	+ 3	e 22 35	− 3	17 50	PPP	38·0
Lisbon		82·3	51	12 26a	+ 1	22 34	− 6	28 3	SS	34·1
De Bilt		83·8	34	i 12 34k	+ 2	i 22 58	+ 3	e 28 20	SS	e 35·7
Upsala		84·0	24	e 12 34	+ 1	22 55	− 2	e 16 10	PP	e 34·7
Uccle	N.	84·2	35	e 12 34k	0	e 22 55	− 4	e 28 27	SS	e 36·7
Paris		84·3	38	e 12 38	+ 3	e 22 56	− 4	—	—	e 36·7
Toledo		85·2	48	e 12 49	+10	i 23 17	+ 8	—	—	—
San Fernando		85·5	52	e 12 43	+ 2	—	—	e 12 55	PcP	39·7
Clermont-Ferrand		86·4	40	e 12 47	+ 2	e 23 15	− 6	—	—	e 39·7
Malaga		86·6	50	i 12 52k	+ 6	e 23 29	+ 6	13 6	pP	40·1
Granada		86·9	50	i 12 52a	+ 4	i 23 29	+ 3	29 5	SS	e 32·8
Strasbourg		87·2	36	—	—	e 23 38	+10	—	—	41·3
Jena		87·6	33	e 12 29	−22	e 22 12	?	—	—	—
Tortosa		87·6	45	13 41	+50	23 9	[− 9]	16 15	PP	e 39·7
Basle		87·8	26	e 12 56	+ 4	e 22 55	[−24]	—	—	—
Neuchatel		87·8	37	e 12 43	− 9	e 23 36	+ 2	—	—	—
Collmberg		88·1	32	e 12 52	− 2	e 23 52	+15	e 16 24	PP	e 47·7
Barcelona		88·3	44	—	—	e 23 42	+ 3	—	—	e 42·2
Chur		89·3	37	e 13 4	+ 5	—	—	—	—	e 41·7
Vladivostok		89·5	319	e 12 34	−26	i 23 10	[−20]	i 24 29	PS	—
Prague		89·6	32	e 14 16	+75	e 23 40	{+ 1}	—	—	e 39·7
Triest		92·3	35	e 16 57	PP	i 24 22	+ 7	i 25 18	PS	e 41·7
Moscow		93·6	17	e 13 17	− 2	24 20	− 6	16 56	PP	—
Auckland		94·0	231	—	—	24 15	{+ 4}	38 40?	Q	—
Arapuni		94·1	229	—	—	24 40?	+ 9	—	—	44·7
Irkutsk		95·3	339	17 1	PP	23 47	[−16]	30 46	SS	—
Belgrade		96·2	33	e 19 30	PPP	—	—	—	—	e 53·7
Wellington		96·3	226	13 40	+ 8	24 58	+ 9	14 5	pP	42·7
Sverdlovsk		96·4	5	e 13 34	+ 2	e 24 50	0	e 17 14	PP	—
Christchurch		98·8	225	14 54	+71	25 15	+ 5	32 2	SS	45·1
Bucharest		99·1	29	e 17 46?	PP	e 24 59	−14	—	—	43·7
Sofia		99·1	33	e 17 58	PP	e 29 16	?	—	—	—
Brisbane		106·6	247	—	—	e 26 54	?	i 44 37	Q	e 49·9
Riverview		110·3	241	e 21 17	PPP	e 29 14	PPS	e 35 7	SS	e 51·1
Ksara		112·1	30	e 19 38	PP	e 29 14	PS	—	—	—
Tashkent		112·2	359	e 18 33	[− 5]	28 58	PS	e 29 59	PPS	—
Helwan	N.	113·2	36	22 10	PPP	29 26	PS	e 30 49	PPS	—
New Delhi	N.	124·3	350	e 23 14	SKP	30 59	PS	i 37 47	SS	65·4
Bombay		134·4	354	e 21 59	PP	e 33 18	PPS	—	—	—
Hyderabad	E.	135·0	347	—	—	30 34	?	40 35	SSP	—
Kodaikanal	E.	142·2	347	—	—	e 44 40	?	—	—	—

Additional readings :—
Lick eSN =6m.23s., eSEN =6m.46s., eSN =6m.57s.
Branner eE =3m.29s., iE =3m.54s., iN =4m.35s., eN =6m.35s.
San Francisco eEN =6m.46s.
Butte i =5m.47s.
St. Louis iPPPE =5m.11s.

Continued on next page.

Huancayo e =11m.14s., eSS =20m.0s.
La Paz PPP =13m.22s., SS =22m.20s., SSS =24m.24s.
Kew ePP?Z =14m.51s., eSSN =27m.35s., eQN =33·7m., eQE =35m.10s.
Suva SS? =29m.10s.?
Coimbra SS =28m.0s., SSS =31m.10s.
Lisbon SSN =28m.8s.?
Upsala ePSE =24m.10s., eE =25m.16s., eSSN =28m.20s., eSSSE =31m.54s.
Uccle ePS?N =23m.29s.
Malaga PP =16m.35s., ePS =24m.29s.
Jena eN =13m.38s., eS?Z =22m.15s.
Tortosa iEN =17m.13s., PPPE =18m.22s., S_eSEN =23m.52s., PSE =24m.35s., eQE = 34·7m.
Collmberg e =12m.55s., 15m.12s., 16m.16s., 17m.19s., and 17m.53s., eSKS =23m.16s., e =24m.58s., 26m.46s., and 30m.16s.
Vladivostok iPPS =24m.57s., iSS =29m.14s.
Triest eSKS =23m.51s., iSS =30m.24s.
Moscow SKS =23m.45s.
Wellington iZ =15m.36s., pPPZ =18m.10s., PPPP?Z =22m.16s., PPSZ =27m.25s., SS =31m.28s., Q =38·7m.
Sverdlovsk ePS =26m.10s.
Christchurch SKS =25m.23s.
Riverview eQN =46m.10s.
Tashkent eSS =40m.16s.
Helwan eN =35m.16s.
New Delhi PSN =34m.48s., SSN =41m.52s., SSSN =46m.41s. Readings wrongly identified.
Long waves were also recorded at Colombo and Tananarive.

June 27d. 18h. 8m. 4s. Epicentre 26°·8N. 111°·2W. (as at 13h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chihuahua	Z.	4·9	67	i 1 25	+ 8	i 2 37	+22	—	—	—
Tucson		5·4	4	i 1 20	− 4	—	—	e 1 26	P*	i 2·7
La Jolla		8·0	321	e 2 2	+ 2	—	—	—	—	—
Riverside	Z.	8·9	325	e 2 10	− 2	—	—	—	—	—
Mount Wilson	N.	9·5	323	e 2 17	− 3	—	—	—	—	—
Pasadena		9·5	322	i 2 17a	− 3	—	—	i 2 31	PPP	e 4·2
Pierce Ferry		9·6	347	i 2 19	− 2	—	—	i 3 5	?	—
Boulder City		9·7	342	i 2 19	− 3	—	—	—	—	—
Overton		10·1	345	i 2 25	− 3	—	—	i 3 44	?	—
Santa Barbara		10·6	318	e 2 34	− 2	—	—	—	—	—
Haiwee		10·9	330	i 2 41	+ 1	—	—	—	—	—
Tinemaha		11·9	332	i 2 52	− 2	—	—	—	—	—
Tacubaya		13·3	121	e 3 21	+ 8	—	—	—	—	e 7·2
Santa Clara		13·9	322	i 3 33	+12	e 6 4	+ 7	—	—	e 6·9
Branner	N.	14·1	322	e 2 59	−24	—	—	e 3 11	?	e 8·4
Berkeley		14·5	322	e 3 33	+ 5	i 6 19	+ 8	e 5 54	?	e 7·3
Logan		14·9	358	i 3 36	+ 2	e 6 33	+13	i 4 28	?	e 7·2
Ukiah		15·9	324	e 3 51	+ 4	e 6 56	+12	—	—	i 7·8
Shasta Dam		16·7	329	i 3 50	− 7	e 7 8	+ 5	—	—	e 8·5
Rapid City		18·4	19	i 4 19	+ 1	e 7 45	+ 4	—	—	e 9·7
Bozeman		18·8	0	e 4 21	− 2	i 8 6	+16	e 4 34	PP	e 9·8
Butte		19·2	357	e 4 27	− 1	e 8 14	+15	—	—	e 10·4
Cape Girardeau	N.	21·1	55	e 4 47	− 1	—	—	—	—	—
Florissant		21·2	50	e 4 50	+ 1	i 8 44	+ 3	—	—	—
St. Louis		21·2	50	e 4 50	+ 1	e 8 41	0	i 8 44	?	e 10·4
Grand Coulee		22·0	346	e 4 55	− 3	—	—	i 6 1	?	e 11·4
Victoria		23·7	340	5 14	0	9 39	+12	—	—	11·9
Cincinnati		25·5	54	i 5 35	+ 3	i 10 19	+22	—	—	i 13·5
Saskatoon		25·5	6	—	—	e 10 20	+23	—	—	13·9
Columbia		26·9	66	—	—	e 10 24	+ 4	—	—	e 13·9
Pittsburgh	Z.	29·2	54	e 6 7	+ 2	—	—	—	—	—
Georgetown		30·9	58	e 6 22	+ 2	i 11 29	+ 5	—	—	—
Philadelphia		32·6	57	—	—	e 11 49	− 2	—	—	e 13·9
Fordham		33·8	55	e 6 47	+ 1	e 12 13	+ 3	—	—	e 16·5
Ottawa		33·8	47	6 46	0	12 14	+ 4	14 56 SSS		16·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		35·2	338	e 8 16	PP	e 12 32	+ 1	—	—	e 15·3
Harvard		35·8	53	i 7 6	+ 3	—	—	—	—	e 17·9
Shawinigan Falls		36·1	46	e 7 6	+ 1	—	—	—	—	18·9
Seven Falls		37·6	46	7 19	+ 1	13 20	+12	—	—	19·9
Bermuda		40·6	70	e 9 20	PP	—	—	e 17 7	SS	e 20·2
San Juan		42·3	61	e 8 2	+ 5	e 14 20	+ 1	—	—	e 17·0
Honolulu		42·7	274	e 15 58	?	—	—	—	—	e 20·0
College		44·6	340	e 18 12	SS	—	—	e 18 24	?	e 20·5
Huancayo		52·0	133	e 9 29	+16	e 16 49	+13	—	—	e 23·0
La Paz	z.	60·0	130	10 15	+ 4	—	—	—	—	31·9
Aberdeen		77·5	32	—	—	i 21 53	+ 3	—	—	41·3
Kew		81·3	36	e 12 21?	+ 1	e 22 21?	− 9	e 15 11?	PP	e 39·9
Coimbra		82·1	49	—	—	e 22 46	+ 8	—	—	40·3
De Bilt		83·8	34	i 12 37	+ 5	e 23 1	+ 6	—	—	e 36·9
Upsala		84·0	24	—	—	e 22 56	− 1	—	—	e 43·9
Toledo		85·2	48	e 12 42	+ 3	e 23 20	+11	—	—	—
Clermont-Ferrand		86·4	40	11 56?	−49	—	—	—	—	—
Tortosa		87·6	45	16 26	PP	23 36	+ 4	—	—	e 43·9
Collmberg	z.	88·1	32	e 16 18	PP	—	—	—	—	—
Vladivostok		89·5	319	e 13 4	+ 4	e 23 24	[− 6]	—	—	—
Triest		92·3	35	—	—	e 23 51	[+ 5]	e 24 31	S	—
Moscow		93·6	17	e 13 19	0	e 23 52	[− 1]	—	—	—

Additional readings :—
Boulder City i = 2m.23s., 2m.52s., and 3m.21s.
Kew eZ = 13m.23s., eSSSZ = 30m.26s.?
Long waves were also recorded at New Delhi, Prague, Paris, Uccle, Chicago, Seattle, and Salt Lake City.

June 27d. Readings also at 0h. (La Paz, Collmberg, and Wellington), 9h. (near Tortosa), 11h. (near Tananarive), 12h. (near Malaga), 13h. (near Tananarive), 14h. (near Tortosa), 16h. (Collmberg), 18h. (Branner), 19h. (Tucson, Pasadena, Riverside, and St. Louis), 20h. (Columbia, Rapid City, and St. Louis), 22h. (La Plata and near Lisbon), 23h. (Boulder City, Bogota, Huancayo, and near La Paz).

June 28d. 4h. 30m. 17s. Epicentre 12°·0N. 94°·0E.

A = −·0682, B = +·9760, C = +·2066 ; δ = −9 ; h = +6 ;
D = +·998, E = +·070 ; G = −·014, H = +·206, K = −·978.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	11·8	333	i 2 53	0	i 5 9	+ 3	—	—	—
Hyderabad		16·0	292	—	—	6 48	+ 2	—	—	—
Pehpei		21·2	32	e 4 50	+ 1	—	—	—	—	—
Bombay	N.	21·5	292	—	—	i 8 48	+ 1	—	—	—
New Delhi	N.	22·8	320	—	—	i 9 21	+10	—	—	—
Andijan		34·4	330	e 6 57	+ 6	—	—	—	—	—
Tashkent		36·4	328	e 7 8	0	e 12 50	0	—	—	—
Sverdlovsk		51·6	338	9 9	− 1	e 16 28	− 3	9 36	pP	—
Moscow		61·5	328	e 10 17	− 4	e 18 34	− 8	e 10 44	pP	—
Collmberg	z.	75·1	320	e 11 43	− 3	—	—	—	—	—
Mount Wilson	z.	124·8	32	e 18 56	[− 6]	—	—	—	—	—
Pasadena	z.	124·8	32	e 18 56	[− 6]	—	—	—	—	—
Riverside	z.	125·4	32	i 18 57	[− 6]	—	—	—	—	—
St. Louis	z.	129·5	4	e 19 5	[− 6]	—	—	—	—	—
Tucson		130·0	27	i 19 6	[− 6]	—	—	—	—	—

Additional readings and note :—
Pehpei reading is given for 14h.
Bombay iE = 8m.51s.
Collmberg e = 12m.8s. and 12m.20s.

June 28d. Readings also at 0h. (Pierce Ferry, Overton, Boulder City, Shasta Dam, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and St. Louis), 3h. (De Bilt), 7h. (Arapuni, Auckland, Wellington, Christchurch, Riverview, Suva, Mount Wilson, Pasadena, Riverside, and Tucson), 9h. (Mizusawa and Tucson), 15h. (De Bilt, Uccle, Kew, and Triest), 16h. (La Paz), 17h. (Rapid City, St. Louis, Philadelphia, Boulder City, Overton, Pierce Ferry, Mount Wilson, Pasadena, Riverside, Tucson, and Balboa Heights), 18h. (near Strasbourg, Basle (2), Chur (2), Neuchatel (2), Zürich (2), and Clermont-Ferrand (2)), 19h. (Suva, Haiwee, Mount Wilson, Riverside, Santa Barbara, Tinemaha, Tucson, Boulder City, Grand Coulee, Pierce Ferry, and Shasta Dam), 20h. (near Ottawa), 22h. (near Mizusawa).

June 29d. 4h. 31m. 15s. Epicentre 5°·0S. 10°·0W.

$A = +·9811$, $B = -·1730$, $C = -·0866$; $\delta = -1$; $h = +7$;
$D = -·174$, $E = -·985$; $G = -·085$, $H = +·015$, $K = -·996$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Fernando	E.	41·4	5	—	—	e 16 26	SS	—	—	—
Malaga		41·8	7	e 8 42	+49	—	—	9 16	PP	—
Granada		42·5	7	i 8 0k	+ 1	14 42	+20	8 12	pP	20·0
Toledo		45·0	7	i 8 16	− 3	e 14 49	− 9	9 55	PP	—
Tortosa	N.	46·6	12	e 8 53	+21	—	—	i 10 1	PP	—
Clermont-Ferrand		51·9	12	8 45?	−27	—	—	—	—	—
Helwan	N.	52·6	47	—	—	i 17 3	+19	—	—	—
Basle		54·6	15	e 9 32	0	—	—	—	—	—
Triest		54·7	21	e 9 31	− 2	e 17 9	− 4	e 20 42	SS	—
Kew		56·9	8	(e 9 45?)	− 4	—	—	—	—	e 9·8
La Paz		58·1	254	e 10 1	+ 3	—	—	10 12	?	29·7
De Bilt		58·3	11	e 10 0	+ 1	e 17 59	− 2	—	—	e 30·8
Collmberg		59·4	17	e 10 7	+ 1	—	—	e 12 15	PP	—
Bogota		64·7	278	i 10 39	− 3	—	—	—	—	—
Huancayo		64·9	259	—	—	e 19 54	+30	—	—	e 31·5
Moscow		72·0	26	e 11 31?	+ 3	—	—	—	—	—
St. Louis		85·5	309	e 12 36	− 5	—	—	—	—	e 36·8

Additional readings :—
Malaga $P_cS = 10m.42s.$
Granada PP = 8m.42s., $P_cP = 8m.54s.$, PPP = 9m.6s., SS = 17m.6s.
Triest eSSS = 22m.19s.
Collmberg e = 12m.21s.
Long waves were also recorded at Uccle.

June 29d. 7h. 32m. 10s. Epicentre 44°·8N. 9°·2E. (as on 14d.).

$A = +·7027$, $B = +·1138$, $C = +·7023$; $\delta = -4$; $h = -3$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		
		°	°	m. s.	s.	m. s.	s.	m. s.		
Chur		2·1	9	e 0 36	− 1	—	—	—		—
Zürich		2·6	348	e 0 43	− 1	—	—	—		—
Neuchatel		2·7	325	e 0 45	0	—	—	—		—
Basle		3·0	338	e 0 45	− 5	e 1 19	− 8	—		—
Triest		3·3	73	e 1 30	S	(e 1 30)	− 5	i 2 6		?
Strasbourg		3·9	347	e 1 21	P_g	e 1 52	+ 2	e 2 13		S_g
Clermont-Ferrand		4·4	284	e 1 15?	+ 5	—	—	—		—
Jena	E.	6·3	13	e 2 0	P_g	e 3 10	S*	e 3 49		S_g
Collmberg		7·0	20	e 1 49	+ 3	i 3 5	− 3	e 2 8		P*

Additional readings :—
Jena eE = 2m.25s. and 2m.38s.
Collmberg e = 1m.56s. and 2m.16s., i = 2m.24s., 2m.38s., 2m.56s., and 3m.13s., iZ = 3m.19s., i = 3m.50s.
Long waves were recorded at De Bilt.

June 29d. 15h. 37m. 13s. Epicentre 44°·8N. 9°·2E. (as at 7h.).

Intensity VII-VIII at Ponte Crenna, Varzi, Bagnaria, San Pongo, Ponte Nizza, Gremiasco, and Lumello.
Felt less strongly in many other places. Microseismic epicentre 44°50′N., 9°11′E. (Boni).

A. Boni.
I terremoti dell'Appennino Vogherese Tortonese e la Geologia della regione.
Geofis pura e appl., 1947, Vol. 10, N°3-4, pp. 114-143. I isoseismic chart, p. 119.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur	2·1	9	e 0 38k	+ 1	—	—	—	—	—
Zürich	2·6	348	e 0 44k	0	e 1 18	+ 1	e 1 31	S_g	—
Neuchatel	2·7	325	e 0 43	− 2	e 1 26	S*	—	—	—
Basle	3·0	338	e 0 49	− 1	e 1 22	− 5	—	—	—
Besançon	3·3	319	e 1 2	P*	e 1 45	S*	—	—	—
Triest	3·3	73	e 0 56	+ 3	i 1 35	0	i 1 12	P_g	—
Strasbourg	3·9	347	e 1 2	0	e 1 48	− 2	e 1 21	P_g	—
Clermont-Ferrand	4·4	284	e 1 12?	+ 2	—	—	—	—	e 2·7
Paris	6·1	313	e 1 48	P*	e 3 8	S*	—	—	—
Jena	6·3	13	e 1 32	− 4	i 3 11	S*	i 1 43	P*	e 4·3
Prague	6·4	32	e 1 57	P*	3 25	S_g	—	—	—
Uccle	6·8	333	e 1 59	P*	e 3 13	+10	e 3 22	S*	e 4·7
Collmberg	7·0	20	i 1 46	0	i 3 17	+ 9	i 2 3	P*	i 3·8
Tortosa	7·5	241	2 3	+10	i 3 54	S*	i 2 35	P_g	—
De Bilt	7·8	341	i 2 33	P_g	—	—	—	—	e 4·3
Sofia	10·5	98	e 3 47	+72	e 5 56	+81	—	—	—
Toledo	11·0	248	i 2 39	− 3	e 5 43	+56	—	—	—
Malaga	13·1	237	e 2 22	−48	e 6 10	+32	—	—	—
Coimbra	13·8	257	e 2 32	−47	5 39	−15	—	—	9·0
Moscow	21·1	48	e 2 46	?	—	—	—	—	—

Additional readings :—
Strasbourg iS_g = 2m.7s.
Jena iN = 1m.46s., 2m.1s., and 2m.26s., iE = 3m.8s.
Uccle eP_gN = 2m.39s., e = 3m.49s., iS* = 3m.54s., iN = 4m.0s., e = 4m.5s., iS_g = 4m.17s.
Collmberg i = 1m.49s. and 1m.54s., iZ = 2m.10s., iP_g = 2m.18s., iZ = 2m.23s., i = 2m.30s., 2m.35s., 2m.44s., and 2m.56s., iS* = 3m.26s., iS_g = 3m.38s.
Tortosa SN = 4m.11s., SE = 4m.18s.
Long waves were also recorded at other European stations.

June 29d. Readings also at 1h. (Balboa Heights (2)), 2h. (Tucson), 3h. (near La Paz), 6h. (Shasta Dam, Collmberg, near Zürich, Basle, and Chur), 7h. (Tucson, Riverside, and Tinemaha), 9h. (near Mizusawa), 10h. (St. Louis, near Tashkent, and Andijan), 11h. (Collmberg), 12h. (Triest), 13h. (near Irkutsk), 15h. (St. Louis and near Almata), 18h. (Suva, Basle, and Zürich), 19h. (Suva, Collmberg, and near Branner), 21h. (St. Louis, near Collmberg (2), Jena, Strasbourg, Triest, Basle, Zürich, and Chur), 22h. (Balboa Heights).

June 30d. 5h. 31m. 16s. Epicentre 16°·5N. 116°·0W.

A = −·4205, B = −·8622, C = +·2823 ; δ = −10; h = +5 ;
D = −·899, E = +·438 ; G = −·124, H = −·254, K = −·959.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Guadalajara	N.	12·7	69	e 3 59	+54	—	—	—	—	e 6·2
Chihuahua	Z.	15·2	35	i 3 37	− 1	i 6 36	+ 8	—	—	i 7·6
Tacubaya		16·3	77	i 3 53	+ 1	i 7 15	+22	i 4 4	pP	8·6
La Jolla		16·3	356	i 3 52	0	i 7 14	+21	—	—	—
Tucson		16·4	16	i 3 52	− 1	i 6 53	− 3	—	—	i 7·0
Riverside		17·5	356	i 4 7a	0	e 7 33	+12	—	—	—
Pasadena		17·7	356	i 4 10a	0	i 7 40	+14	—	—	i 8·3
Mount Wilson		17·8	356	i 4 12a	+ 1	—	—	—	—	—
Boulder City		19·4	4	i 4 31	+ 1	—	—	—	—	—
Haiwee		19·6	356	i 4 34	+ 2	—	—	—	—	e 8·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pierce Ferry		19·6	7	e 4 32	0	—	—	—	—	—
Overton		20·0	4	i 4 52	PP	—	—	—	—	—
Fresno	N.	20·4	353	i 4 13	−28	e 8 13	−12	—	—	e 12·2
Tinemaha		20·6	356	i 4 44 a	+ 1	—	—	—	—	e 8·7
Lick		21·4	349	e 4 52	+ 1	e 8 59	+14	—	—	e 10·8
Santa Clara		21·4	349	i 4 57	+ 6	i 9 5	+20	—	—	—
Branner		21·5	349	e 4 58	+ 6	e 9 3	+16	—	—	e 10·3
San Francisco		21·9	349	e 4 58	+ 1	e 9 10	+16	—	—	—
Berkeley		22·0	349	i 4 58	0	i 9 7	+11	e 9 25	SS	e 10·4
Ukiah		23·4	347	e 5 14	+ 3	e 9 29	+ 8	—	—	e 10·1
Shasta Dam		24·7	350	i 5 24	0	e 9 44	0	i 6 2	PP	e 11·1
Ferndale	E.	25·0	346	e 5 32	+ 5	e 10 0	+11	—	—	—
	N.	25·0	346	e 5 28	+ 1	e 9 48	− 1	—	—	—
Logan		25·4	9	i 5 33	+ 2	i 9 50	− 6	i 6 3	PP	i 10·8
Bozeman		29·4	8	e 6 9	+ 2	i 10 55	− 6	i 7 6	PP	e 12·8
Butte		29·6	5	e 6 9	0	e 10 53	−11	e 7 6	PP	e 17·7
Rapid City		29·6	20	e 6 9	0	e 10 59	− 5	e 8 0	PP	e 12·4
Grand Coulee		31·4	356	e 6 23	− 2	e 11 35	+ 3	i 7 34	PP	—
Florissant		31·6	41	i 6 24	− 2	i 11 34	− 1	—	—	—
St. Louis		31·6	41	i 6 24	− 2	i 11 27	− 8	i 13 2	SS	—
Victoria		32·5	352	6 42	+ 8	11 55	+ 6	7 38	PP	15·7
Chicago		35·1	38	i 6 54	− 3	i 12 26	− 4	—	—	e 14·5
Cincinnati		35·6	45	i 7 0	− 1	i 12 38	0	i 8 25	PPP	—
Columbia		35·9	54	e 7 2	− 2	e 12 39	− 3	—	—	e 15·1
Balboa Heights		36·3	97	e 7 10	+ 3	—	—	—	—	—
Saskatoon		36·3	10	7 10	+ 3	12 50	+ 2	8 42	PPP	19·7
Pittsburgh		39·2	45	i 7 32	+ 1	e 13 42	+10	i 9 43	PPP	—
Honolulu		39·8	286	e 7 37	+ 1	e 13 49	+ 7	e 9 20	PP	e 16·5
Georgetown		40·6	49	i 7 40	− 3	i 13 53	− 1	9 32	PP	19·9
Pennsylvania		40·8	46	e 7 44	− 1	e 13 54	− 2	—	—	e 16·8
Philadelphia		42·4	49	i 7 57	− 1	e 14 12	− 8	i 9 37	PP	e 18·4
Bogota		42·8	101	i 8 5	+ 4	e 14 24	− 2	e 9 47	PP	—
Sitka		43·5	345	e 8 4	− 3	e 14 28	− 8	e 9 45	PP	e 18·0
Fordham		43·6	48	i 8 6	− 2	i 14 37	− 1	—	—	i 18·0
Ottawa		44·3	41	8 12	− 1	14 46	− 2	9 56	PP	20·7
Harvard		45·9	47	i 8 25	− 1	e 15 9	− 2	—	—	e 21·7
Weston		46·0	47	i 8 27	0	e 15 9	− 3	10 11	PP	—
Shawinigan Falls		46·6	41	8 31	− 1	15 19	− 2	18 20	SS	21·7
San Juan		47·5	80	e 8 37	− 1	e 15 18	−16	e 10 27	PP	e 19·2
Seven Falls		48·1	41	8 41	− 2	15 38	− 4	19 14	SS	23·7
Bermuda		48·9	62	i 8 44?	− 6	e 15 49	− 4	i 10 51	PP	e 19·6
Huancayo		49·2	123	e 8 52	0	e 15 58	0	e 10 54	PP	e 20·0
Halifax		52·0	47	9 7	− 6	16 32	− 4	—	—	23·7
Fort de France		52·4	85	e 9 17	+ 1	—	—	—	—	—
College		52·9	344	e 9 19	− 1	e 16 48	0	e 12 29	PPP	e 25·1
La Paz		57·5	122	i 9 54 k	+ 1	17 53	+ 3	i 12 9	PP	28·4
La Plata	E.	75·2	134	11 47	+ 1	21 26	+ 1	—	—	31·5
	N.	75·2	134	11 50	+ 4	21 30	+ 5	14 38	PP	32·8
Arapuni		83·9	227	—	—	—	—	e 34 44?	Q	38·7
Auckland		84·0	229	—	—	20 44?	?	—	—	—
Wellington		85·9	225	12 46	+ 3	23 30	+14	22 49	SKS	39·7
Christchurch		88·3	223	13 2	+ 7	23 31	− 8	23 57	S_cS	41·5
Aberdeen		88·6	31	e 15 24	?	i 23 46	+ 4	i 29 36	SS	47·1
Bergen		90·1	26	13 1	− 2	23 44?	−11	e 19 20	PPP	36·7
Coimbra		92·3	48	e 12 55	−18	e 24 14	− 1	25 44	PS	e 47·7
Lisbon		92·4	49	13 13	− 1	21 38	?	16 56	PP	45·7
De Bilt		94·8	32	e 13 24	− 1	e 31 4	SS	i 17 13	PP	—
Uccle		95·1	34	e 17 14?	PP	e 31 6	SS	e 26 13	PPS	e 41·7
Paris		95·2	36	e 17 12?	PP	—	—	—	—	e 38·7
Upsala		95·2	22	e 13 24	− 3	e 30 32	SS	e 17 11	PP	e 39·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Fernando	E.	95·4	51	e 17 23	PP	e 26 16	PS	—	—	40·7
Toledo		95·5	47	i 13 27	− 1	—	—	17 21	PP	—
Malaga	Z.	96·6	49	i 22 19	?	e 23 44	[−26]	—	—	—
Granada		97·0	49	13 39a	+ 4	i 24 59	+ 4	17 48	PP	47·1
Clermont-Ferrand		97·2	39	e 17 19?	PP	—	—	—	—	—
Tortosa	E.	98·1	44	—	—	e 24 22	[+ 4]	—	—	e 40·7
Strasbourg		98·2	34	e 26 51	PS	e 31 35	SS	e 35 44	SSS	e 41·7
Basle		98·7	35	e 13 42	0	—	—	e 22 59	?	—
Jena		98·7	31	—	—	—	—	e 38 38?	Q	—
Collmberg	Z.	99·2	30	e 13 44	− 1	e 25 2	−12	e 17 52	PP	e 59·2
Zürich		99·4	35	e 13 43	− 3	—	—	e 17 27	PP	—
Prague		100·7	30	e 17 44?	PP	e 33 20	SS	e 26 38	PS	e 42·7
Riverview		101·3	238	—	—	e 24 31	[− 2]	e 27 25	PS	e 46·6
Irkutsk		103·1	336	—	—	e 24 44	[+ 2]	e 32 44	SS	—
Triest	E.	103·2	34	14 5	+ 2	24 52	[+10]	e 18 17	PP	—
Moscow		104·7	15	e 14 8	− 1	24 47	[− 2]	18 26	PP	—
Sverdlovsk		106·9	2	14 23	+ 4	29 2	PPS	18 38	PP	—
Tashkent		122·3	355	e 20 1	PP	e 27 5	{−24}	e 37 3	SS	—
Ksara		123·2	29	20 44?	PP	29 44?	PS	—	—	—
Helwan	N.	124·2	35	e 20 46	PP	27 56	{+14}	31 20	PS	—
New Delhi	N.	133·4	344	22 44	PP	e 40 0	SS	i 31 52	PS	—

Additional readings :—
Tacubaya iE =4m.3s., sSE =7m.36s.
Tucson i =4m.57s. and 5m.25s.
Pasadena iNZ =6m.28s.
Boulder City iZ =5m.21s.
Fresno iN =4m.21s., eN =6m.27s.
Lick ePE =4m.55s.
San Francisco eE =9m.54s.
Berkeley iPE =5m.3s.
Shasta Dam i =5m.27s.
Grand Coulee e =8m.33s.
St. Louis iSN =11m.34s., iE =14m.14s.
Pittsburgh e =15m.40s.
Philadelphia e =13m.11s., eSS =17m.31s.
Bogota e =16m.59s.
Ottawa SSS =18m.4s.
Weston P_eP =10m.6s., SS =18m.23s.
San Juan e =11m.51s.
Huancayo i =9m.25s., e =9m.53s. and 14m.17s.
La Paz iPPP =13m.22s., PS =18m.17s., iSSS? =24m.36s.
La Plata P_ePN =12m.20s.
Wellington PS?Z =24m.22s.
Christchurch Q =36m.12s.
Bergen e =29m.44s.?
Coimbra i =16m.54s.
Lisbon QN =38·4m.
Upsala eN =20m.25s., ePPS?N =26m.3s., ePPS?E =26m.7s., eSS?E =30m.59s., e = 33m.44s.?
Granada PPP =19m.14s., SKS =24m.28s., SS =32m.14s.
Collmberg e =17m.44s. and 20m.44s., eSKSE =24m.23s., ePS =26m.50s. eSS =32m.2s.
Prague ePPS =27m.26s., eSSS =36m.26s.
Riverview eN =25m.56s., eQN =42m.44s.
Triest ePPPE =20m.21s., eSKKSE =25m.50s., ePSE =27m.26s., ePPSE =28m.26s., eSSN =32m.53s., eSSSN =36m.57s.
Moscow ePPP =20m.43s.
New Delhi PPPN =27m.30s., SS?N =44m.51s.
Long waves were also recorded at Seattle, Reykjavik, Bombay, and Kodaikanal.

June 30d. 18h. 18m. 28s. Epicentre 9°·5N. 75°·3W. (as on 1942 Dec. 26d.).

Felt at Sincelejo according to Bogota.
Epicentre approximately 9°·5N. 75°·0W. (U.S.C.G.S.).
Annales de l'Institut de Physique du Globe de Strasbourg 2ème partie, Séismologie tome X. p. 30, Strasbourg, 1951.

$A = +\cdot2503$, $B = -\cdot9542$, $C = +\cdot1640$; $\delta = +4$; $h = +7$;
$D = -\cdot967$, $E = -\cdot254$; $G = +\cdot042$, $H = -\cdot159$, $K = -\cdot986$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		4·3	261	i 1 10	+ 2	i 1 58	− 2	—	—	—
Bogota		5·0	166	i 1 16	− 2	i 2 15	− 3	i 1 26	P*	—
San Juan		12·5	44	e 3 19	PP	e 5 36	+13	—	—	e 6·8
Fort de France		14·8	68	e 3 18	−14	—	—	—	—	—
Huancayo		21·4	181	e 4 51	0	e 8 45	0	i 5 4	pP	e 11·4
La Paz	z.	26·8	164	5 41	− 3	10 56	+37	—	—	16·3
St. Louis		32·0	339	e 6 29	− 1	e 12 2	+20	—	—	e 14·0
Tucson		39·9	311	e 7 38	+ 1	—	—	—	—	—
Boulder City		44·5	313	i 8 16	+ 1	—	—	—	—	—
Overton		44·5	314	i 8 17	+ 2	—	—	—	—	—
Riverside	z.	45·6	309	i 8 24	0	—	—	—	—	—
Mount Wilson	z.	46·2	310	e 8 29	+ 1	—	—	—	—	—
Pasadena	z.	46·3	310	i 8 30	+ 1	—	—	—	—	—
Collmberg	z.	81·6	40	e 12 18	− 3	—	—	—	—	—

Additional readings :—
Huancayo e = 7m.16s., isS = 9m.7s.
Tucson i = 7m.50s., e = 9m.6s. and 9m.32s.?
Boulder City i = 8m.28s.
Overton i = 8m.28s.

June 30d. Readings also at 1h. (Collmberg), 2h. (Balboa Heights), 4h. (Arapuni, Auckland, Christchurch, Wellington, Basle, Chur, Zürich, Collmberg, Tucson, and Mount Wilson), 5h. (Pasadena and Riverside), 7h. (Pasadena, Riverside, and near Mizusawa (2)), 9h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Florissant, St. Louis, Collmberg (2), and Jena), 10h. (Collmberg (2)), 12h. (Collmberg), 14h. (Bucharest), 15h. (Collmberg), 16h. (Belgrade, Bucharest, Sofia, Collmberg, and near Triest), 18h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, La Paz, and Collmberg).

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

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

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

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