The International Seismological Summary.

1946 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 1946 contains 136 epicentres, 85 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

April	5d.	21h.	33·6N.	139·3E.	0·015
	13d.	18h.	19·0S.	175·5W.	0·030
	16d.	18h.	42·1S.	73·3W.	Suggested Deep
	26d.	8h.	50·1N.	147·7E.	0·080
	29d.	16h.	36·8N.	69·4E.	0·015
May	3d.	22h.	4·3S.	153·8E.	Base of Superficial Layers
	8d.	9h.	3·7S.	142·2E.	Base of Superficial Layers
	9d.	4h.	40·6S.	177·0E.	Suggested Deep
	9h.	19h.	42·9N.	44·5E.	Suggested Deep
	9h.	22h.	38·6N.	143·1E.	0·005
	10d.	23h.	24·7S.	70·2W.	Suggested Deep
	14d.	6h.	64·6N.	147·1W.	0·025
	19d.	18h.	37·0S.	175·0W.	0·070
	21d.	4h.	37·8N.	141·4E.	0·010
	21d.	9h.	14·7N.	60·5W.	Base of Superficial Layers
	29d.	19h.	17·0N.	121·5E.	0·015
June	4d.	4h.	17·5S.	179·5W.	0·080
	7d.	4h.	16·9N.	94·2W.	0·010
	12d.	4h.	42·9N.	44·5E.	Suggested Deep
	15d.	18h.	2·8S.	127·7E.	0·010
	24d.	15h.	14·4N.	89·6W.	0·030
	24d.	23h.	6·5S.	130·0E.	0·025
	26d.	7h.	14·7N.	91·2W.	Suggested Deep
	26d.	15h.	36·3N.	71·0E.	0·030
	26d.	19h.	33·1N.	139·3E.	0·015
	30d.	4h.	16·9N.	94·2W.	0·020
	30d.	21h.	43·3S.	171·6E,	Suggested Deep

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

KEW OBSERVATORY,
RICHMOND,
SURREY.

December, 1954.

1946 APRIL, MAY, JUNE.

April 1d. 6h. 2m. 30s. Epicentre 1°·0S. 25°·0W.

$A = +·9062$, $B = -·4226$, $C = -·0173$; $\delta = +9$; $h = +7$;
$D = -·423$, $E = -·906$: $G = -·016$, $H = +·007$, $K = -1·000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		44·8	298	e 10 44	PPP	e 14 36	−19	—	—	e 17·9
La Paz	z.	45·2	248	i 8 22	+ 2	e 15 10	+ 9	10 43	PP	23·8
Alicante		45·2	27	e 8 38	+18	14 22	−39	10 3	PP	e 20·0
Algiers		45·7	32	e 7 30?	−54	e 14 48	−20	—	—	24·5
Bogota		49·3	277	i 8 51	− 2	—	—	—	—	—
Clermont-Ferrand		52·8	25	e 9 19	0	e 16 51	+ 4	e 22 11	SSS	e 24·5
Rome		54·5	34	9 34s	+ 2	17 14	+ 4	20 52	SS	e 26·8
Paris		55·0	22	e 9 34	− 1	e 17 17	0	—	—	e 26·5
Strasbourg		57·0	26	e 10 10	+20	e 17 39	− 4	—	—	e 24·9
Uccle		57·3	21	—	—	e 17 40	− 7	—	—	e 24·5
Triest		57·7	31	i 9 55	0	e 17 53	0	e 12 9	PP	—
De Bilt		58·7	21	—	—	e 18 10	+ 4	—	—	e 25·5
Harvard		60·2	322	i 10 18	+ 6	—	—	—	—	—
Belgrade		60·9	36	e 10 29	+12	—	—	e 12 25	PP	—
Helwan		61·8	55	(e 10 27)	+ 4	e 19 0	+14	—	—	—
St. Louis		71·5	311	e 11 20	− 4	e 20 26	−17	—	—	e 33·2
Tucson		87·0	302	e 12 47	− 1	—	—	e 16 8	PP	e 46·8
Pierce Ferry		89·8	306	e 13 10	+ 8	—	—	—	—	—
Boulder City		90·4	305	e 13 4	0	—	—	—	—	—
Riverside	z.	92·5	304	e 13 13	− 1	—	—	—	—	—
Mount Wilson	z.	93·1	304	e 13 22	+ 5	—	—	—	—	—
Shasta Dam		96·3	310	e 13 8	−24	—	—	—	—	—

Additional readings and note :—
La Paz SSZ = 18m.32s.
Rome eZ = 22m.18s.
Belgrade eP? = 8m.40s., e = 12m.47s.
Helwan eP = 6m.45s.; true P is given as PPP?
St. Louis eE = 20m.49s.
Long waves were also recorded at Huancayo, Aberdeen, and Cheb.

April 1d. 12h. 28m. 56s. Epicentre 53°·4N. 163°·1W.

Slight damage at Dutch Harbour and Isles of Unimak and Ikatan. The tidal wave following this shock caused serious damage to the Isles of Hawai, particularly to Hilo, with many casualties. This wave was recorded as strongly in the Society and Marquesas Islands and at places on the coast of the American continent.

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"Aleutian Earthquake and Sea Wave of April 1, 1946." Earthquake Notes, Vol. 17, No. 4, p. 6, Washington, 1946.

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" The Aleutian tsunami at Hilo, Hawai of April 1, 1946," Bull. Seismo. Soc. Amer.. Vol. 36, No. 4, Oct., 1946, pp. 355, 356.
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Trans. Amer. Geophys. Union, Vol. 27, No. 4, pp. 490-500, with 3 tables, 13 figures, and map, Washington, Aug. 1946.

Anonymous.
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Report from the Ministre des Colonies (France). Tidal wave arrived at Tahiti about 13h.15m. Houses destroyed in Marquesas Islands at 12h.30m. Much damage at Ruruta in the Austral Islands, the wharf destroyed at 14h.45m.

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$;
$D = -\cdot291$, $E = +\cdot957$; $G = -\cdot766$, $H = -\cdot233$, $K = -\cdot599$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 22	+ 1	i 5 42	−15	—	—	i 6·3
Sitka		16·2	64	e 3 55	+ 5	i 6 38	−13	—	—	e 7·5
Victoria		25·2	85	5 20	− 9	9 49	− 3	6 22	PP	—
Seattle		26·3	86	e 5 42	+ 3	e 10 7	− 4	—	—	e 11·5
Grand Coulee		28·1	82	e 5 56	+ 1	e 10 24	−16	i 6 28	PP	e 14·4
Shasta Dam		30·1	98	e 6 11	− 2	e 10 44	−28	—	—	—
Ukiah		30·6	100	e 6 12	− 6	e 11 26	+ 6	e 7 18	PP	e 12·3
Mineral	E.	30·8	98	e 6 13	− 7	e 11 23	0	—	—	e 16·0
San Francisco		31·9	102	e 6 39	+10	—	—	—	—	e 13·7
Berkeley		32·0	102	e 6 31	+ 1	11 44	+ 2	i 8 3	PPP	16·5
Branner	E.	32·3	102	e 6 9	−24	(11 49)	+ 3	—	—	11·8
Honolulu		32·3	170	i 6 31	− 2	e 11 40	− 6	e 7 58	PPP	e 13·1
Santa Clara		32·5	102	i 6 37	+ 3	e 12 27	+38	—	—	e 14·2
Lick		32·7	102	e 6 48	+12	e 11 53	+ 1	—	—	e 13·8
Saskatoon		33·4	69	5 54	−48	11 3	−60	6 40	PP	13·1
Bozeman		34·0	81	e 6 49	+ 1	i 12 5	− 8	—	—	i 12·6
Fresno	N.	34·2	100	e 7 1	+12	e 12 30	+14	e 14 37	SS	—
Tinemaha		34·9	99	i 6 54	− 1	e 12 40	+13	—	—	—
Haiwee		35·7	100	e 7 3	+ 1	e 12 41	+ 2	—	—	—
Santa Barbara		35·8	103	e 7 5	+ 2	e 12 19	−22	—	—	—
Salt Lake City		36·3	88	e 7 14	+ 7	e 12 50	+ 2	e 9 13	PPP	e 15·6
Mount Wilson		37·0	102	i 7 12	− 1	—	—	—	—	—
Pasadera		37·0	102	i 7 11k	− 2	i 12 56	− 3	—	—	i 15·7
Riverside		37·5	102	e 7 18	+ 1	e 13 17	+10	—	—	—
Sapporo		37·5	278	e 7 19	+ 2	(13 0)	− 7	—	—	13·0
Boulder City		37·7	97	e 7 15	− 4	e 12 52	−18	—	—	—
Pierce Ferry		38·0	96	e 7 23	+ 2	—	—	—	—	—
Palomar		38·3	102	e 7 23	− 1	e 13 15	− 4	—	—	—
La Jolla		38·4	103	e 7 28	+ 3	e 13 15	− 5	—	—	—
Mori	N.	38·6	277	e 7 28	+ 2	13 52	+29	—	—	16·8
Rapid City		39·5	78	e 7 33	− 1	i 13 30	− 7	e 9 24	PPP	i 16·7
Morioka		39·7	274	e 7 28	− 7	13 52	+12	—	—	—
Mizusawa		40·1	273	7 44	+ 5	13 45	− 1	—	—	—
Sendai		40·8	271	e 7 44	− 1	13 54	− 2	—	—	—
Kakioka		42·5	270	e 7 53	− 6	14 20	− 2	—	—	—
Tucson		42·6	98	e 7 58	− 1	e 14 9	−14	i 9 12	PP	e 17·9
Vladivostok		43·1	283	i 8 2	0	14 33	+ 3	—	—	—
Tokyo		43·2	270	8 10	+ 6	14 35	+ 3	e 9 7	PP	18·1
Yokohama		43·4	270	e 8 7	+ 1	14 36	+ 1	17 50	SS	—
Shizuoka		44·5	271	e 8 15	0	14 53	+ 2	—	—	—

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lincoln		45·3	77	e 8 32	+11	i 15 0	− 2	—	—	i 19·4
Kobe		46·6	272	e 8 31	− 1	15 22	+ 1	—	—	—
Kôti		48·3	272	e 8 7	−38	15 11	−34	—	—	—
Chicago		49·9	71	e 9 6	+ 9	i 16 2	− 5	e 11 22	PP	i 19·8
Hukuoka		50·2	274	9 0	0	16 15	+ 4	21 27	Q	23·8
Florissant	E.	50·3	76	e 8 58	− 2	i 16 7	− 6	i 9 7	pP	—
St. Louis		50·5	76	e 8 59	− 3	i 16 9	− 7	i 9 8	pP	—
Miyazaki		50·7	272	e 9 4	+ 1	16 23	+ 5	—	—	—
Irkutsk		52·0	309	9 12	− 1	16 41	+ 5	—	—	—
Ottawa		54·0	60	9 28	0	17 0	− 3	11 29	PP	26·1
Shawinigan Falls		54·7	57	9 34	+ 1	17 10	− 3	19 46	SS	24·1
Ivigtut		54·7	33	9 32	− 1	17 13	0	11 22	PP	22·1
Seven Falls		55·3	56	9 36	− 2	17 21	0	20 52	SS	26·1
Guadalajara		55·7	101	—	—	e 18 12	+46	—	—	e 24·5
Mobile		57·3	81	9 58	+ 6	17 51	+ 4	—	—	—
Georgetown		57·8	66	e 9 49	− 6	i 17 42	−12	—	—	—
Fordham		58·1	63	i 9 51	− 7	i 17 53	− 5	—	—	—
Philadelphia		58·1	64	e 10 5	+ 7	i 17 54	− 4	i 21 49	SS	i 23·3
Harvard		58·2	59	i 9 57k	− 1	i 17 56	− 3	e 12 6	PP	e 25·8
Weston		58·4	59	e 9 37a	−23	i 17 42	−20	—	—	—
Columbia		59·0	73	e 10 14	+10	i 18 6	− 4	e 12 16	PP	e 23·7
Reykjavik		59·0	19	e 12 10	PP	e 18 10	0	—	—	e 29·8
Tacubaya		59·1	98	e 10 15	+11	e 18 12	+ 1	i 12 24	PP	—
Halifax		60·6	53	e 11 4	+49	18 20	−10	22 28	SS	—
Merida		63·7	89	e 10 24	−12	i 18 52	−18	—	—	—
Sverdlovsk		64·5	335	i 10 39	− 2	i 19 20	+ 1	—	—	—
Bergen		66·2	7	e 10 36	−16	e 19 40	0	e 13 44	PP	30·4
Pehpei		66·9	289	e 10 56	0	e 19 49	0	—	—	—
Upsala		67·1	0	e 10 53	− 4	e 19 47	− 4	e 14 38	PPP	e 27·6
Aberdeen		68·7	12	i 11 6	− 1	i 20 11	+ 1	i 20 43	PS	33·1
Bermuda		69·3	63	e 11 19	+ 8	e 20 8	− 9	e 13 41	PP	e 28·6
Edinburgh		69·8	13	e 11 7	− 7	i 20 21	− 2	20 56	PS	—
Moscow		69·9	348	i 11 13	− 2	i 20 21	− 3	—	—	—
Almata		70·8	318	i 11 20	0	e 20 37	+ 2	—	—	—
Durham		71·1	12	i 11 20	− 2	i 20 38	0	—	—	—
Copenhagen		71·2	3	i 11 23	0	i 20 41	+ 1	—	—	—
Frunse		72·1	319	e 11 28	0	e 20 56	+ 6	—	—	—
De Bilt		74·4	8	i 11 42a	0	i 21 20	+ 4	e 26 24	SS	e 35·1
Kew		74·5	12	i 11 43	+ 1	i 21 22	+ 5	—	—	—
Tchimkent		74·5	322	11 42	0	21 19	+ 2	—	—	—
Andijan		74·8	319	e 11 45	+ 1	e 21 23	+ 3	—	—	—
Tashkent		75·4	322	i 11 48	+ 1	i 21 25	− 2	—	—	—
Collmberg		75·6	3	i 11 47	− 1	e 21 32	+ 3	e 15 9	PP	e 32·1
Uccle		75·6	10	i 11 47a	− 1	e 21 28	− 1	e 21 56	PS	e 32·1
Jena		75·9	4	e 11 50	0	i 21 35	+ 3	e 27 4	SS	e 35·9
Cheb		76·8	4	e 11 58	+ 3	e 21 47	+ 5	e 22 59	PS	e 43·1
Prague		76·9	2	e 11 57a	+ 1	e 21 40	− 3	e 15 10	PP	e 32·1
Paris		77·4	11	e 11 59	+ 1	i 21 50	+ 1	e 14 53	PP	e 37·1
Samarkand		77·7	323	12 4	+ 4	22 4	+12	—	—	—
Stalinabad		78·0	321	i 12 2	0	22 24	+29	—	—	—
Strasbourg		78·1	7	i 12 2	0	e 21 57	+ 1	i 15 14	PP	37·1
Balboa Heights		79·0	89	i 12 27	+20	—	—	—	—	—
Basle		79·1	8	e 12 7a	− 1	e 21 42	−25	—	—	—
Besançon		79·3	9	e 12 17	+ 8	e 22 10	+ 1	—	—	e 38·1
Zürich		79·4	7	e 12 9a	0	e 22 11	+ 1	—	—	—
San Juan		79·5	73	e 12 12	+ 2	i 22 8	− 3	—	—	e 33·1
Neuchatel		79·6	8	e 12 10	0	e 22 17	+ 5	—	—	—
Chur		79·9	6	e 12 12a	0	e 22 18	+ 2	—	—	—
Kalossa	N.	80·4	359	e 12 27	+12	—	—	—	—	—
Clermont-Ferrand		80·5	11	i 12 16a	+ 1	i 22 23	+ 1	e 27 19	SS	e 33·6
Grozny		80·5	339	e 12 36	+21	e 23 5	PS	—	—	—
Dehra Dun	N.	81·2	310	e 13 56	+97	e 24 8	?	—	—	e 37·1
Zagreb		81·2	1	e 12 18a	− 1	e 22 32	+ 3	—	—	e 35·6
Triest		81·3	3	i 12 19	− 1	i 22 27	− 3	i 12 33	pP	—
Yalta		81·4	348	12 18	− 2	e 22 18	−13	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade		82·1	358	i 12 23	− 1	i 22 37	− 1	i 15 41	PP	e 39·1
Bucharest		82·2	354	e 12 23	− 1	e 22 39	0	e 23 29	PS	39·1
Baku		82·3	335	12 28	+ 3	22 48	+ 8	—	—	—
Calcutta	N.	82·6	298	e 12 5	−21	i 22 21	−22	i 15 15	PP	e 38·8
New Delhi		83·1	310	i 12 25k	− 4	22 46	− 2	15 5	PP	—
Florence		83·1	5	i 12 32	+ 3	i 23 5	+17	—	—	—
Erevan		83·8	339	e 12 35	+ 3	e 23 0	+ 5	—	—	—
Sofia		84·1	355	e 12 33	− 1	i 22 55	− 3	e 28 52	SS	—
Barcelona		84·7	12	e 12 37	0	e 23 6	+ 2	23 26	PS	e 39·0
Rome		85·0	4	i 12 38a	0	i 23 11	+ 4	i 16 30	PP	e 45·1
Tortosa		85·1	13	12 37	− 2	23 18	+10	13 5	pP	43·7
Fort de France		85·3	71	e 12 50	+10	e 23 6	− 4	e 23 50	PS	—
Toledo		85·3	16	i 12 40	0	i 23 14	+ 4	13 2	pP	40·3
Lisbon		85·5	20	12 40k	− 1	i 23 14	+ 2	15 56	PP	41·3
Bogota		85·7	87	e 12 53	+11	—	—	e 17 7	PP	—
Alicante		87·4	14	e 12 41	− 9	i 23 34	+ 4	16 24	PP	i 44·0
Granada		88·0	17	i 12 47k	− 6	i 23 46	+10	i 12 58	pP	i 44·5
Brisbane	N.	89·1	218	e 12 48	−10	i 23 22	[− 5]	i 13 17	pP	i 40·7
Algiers		89·4	12	e 12 52	− 8	i 23 51	+ 2	16 27	PP	45·1
Ksara		91·6	344	e 13 10	0	e 24 42	+33	—	—	—
Hyderabad	N.	91·9	303	13 13	+ 2	24 9	− 2	16 57	PP	—
Auckland		91·9	198	12 34	−37	23 20	[−24]	16 33	PP	41·9
Arapuni		93·0	197	—	—	23 52	[+ 2]	30 34	SS	35·9
Bombay		93·4	308	e 13 19	+ 1	i 23 44	[− 8]	e 16 56	PP	39·4
Riverview		95·5	217	e 13 29	+ 1	i 24 49	+ 7	e 17 27	PP	39·5
Helwan		96·1	347	i 13 31	0	24 50	+ 2	17 16	PP	45·6
Wellington		96·2	197	13 4	−27	23 55	[−13]	16 30	PP	43·3
Huancayo		98·2	99	e 13 41	+ 1	e 24 19	[+ 1]	e 17 41	PP	e 40·2
Kodaikanal	E.	98·5	300	i 11 27	?	i 21 57	?	28 27	?	38·9
Christchurch		98·8	198	13 32	−11	24 18	[− 3]	17 32	PP	45·2
La Paz		106·0	96	i 14 24	+ 9	25 16	[+21]	i 18 40	PP	51·6
Perth		110·0	244	19 37	PP	31 14	?	i 29 29	PPS	—
Santa Lucia		117·4	110	22 4?	PPP	29 34	PS	36 34	SS	56·1
La Plata	N.	125·8	102	—	—	32 34	PPS	37 52	SS	61·0
Tananarive		138·2	314	e 22 18	PP	29 16	{+ 6}	40 44	SS	61·3

Additional readings and notes :—
College i =4m.12s.
Victoria SS =11m.4s.?
Grand Coulee e =9m.22s. and 10m.34s.
Shasta Dam i =6m.34s. and 6m.49s.
Ukiah eP_cP =8m.10s.
Berkeley iP =6m.45s., i =8m.17s., SS =13m.28s., SSS =14m.4s.?
Honolulu i =7m.16s.
Fresno eN =7m.23s.
Tinemaha iZ =7m.10s.
Haiwee iZ =7m.17s.
Santa Barbara eZ =7m.19s.
Mount Wilson iZ =7m.48s.
Pasadena iZ =7m.15s. and 7m.48s.
Boulder City i =7m.48s.
Pierce Ferry e =7m.55s.
Rapid City i =7m.45s.
Tucson i =8m.12s. and 8m.35s.
Tokyo ePPP =11m.15s.
Yokohama e =8m.24s.
Chicago e =9m.38s., eP_cP =10m.18s.
Florissant eE =15m.40s.
St. Louis iPPZ =10m.36s., iZ =10m.49s.
Miyazaki e =9m.28s.
Ottawa SS =20m.38s., SSS =22m.14s.
Shawinigan Falls SSS =21m.16s.
Ivigtut 9m.56s.
Guadalajara iE =18m.23s., eN =18m.40s.
Fordham i =10m.49s.
Philadelphia iP_cP =10m.44s., i =11m.28s. and 20m.38s.
Harvard i =10m.7s., iP_cP =10m.49s., e =11m.26s., ePPP =13m.24s., e =14m 21s and 15m.8s., iPS =18m.12s., e =20m.42s., eSSS =21m.56s.
Weston i =10m.8s.
Columbia eP_cP =10m.56s., e =14m.36s., eSS =22m.13s.

Continued on next page.

Reykjavik eS?N =19m.46s., eN =24m.22s.
Tacubaya ePN =10m.18s., iEN =10m.36s., iN =12m.49s., iPPPE =13m.32s., iE = 18m.38s., iSSN =21m.44s., iN =26m.22s.
Halifax SSS =25m.4s.?
Merida eN =10m.34s.
Bergen eN =10m.50s., SN =19m.43s., PSN =20m.21s., eN =22m.27s. and 24m.4s.?, QE =26·6m.
Upsala eE =11m.29s., eN =20m.40s., eE =20m.52s., eSSN =24m.34s., eSSSN =26m.30s.
Aberdeen iEN =27m.52s.
Bermuda e =11m.27s. and 12m.8s., i =19m.22s., iSS? =24m.42s., iSSS =28m.12s.
Durham iN =11m.42s., N =16m.19s., iN =20m.41s.
Kew iS?N =21m.39s.
Collmberg ePPPZ =16m.36s., eS$_c$SE =22m.11s., eSSE =26m.51s., eSSSE =30m.17s., and other unidentified phases.
Uccle iNZ =12m.26s. and 12m.48s., eSSE =26m.15s.
Jena iPN =12m.0s., eN =18m.12s., eZ =18m.28s., eSN =21m.24s., iSE =21m.40s., eSSN =27m.12s., iSSN =27m.22s., eN =30m.52s.
Cheb e =13m.10s. and 17m.40s., eSS =27m.22s., eSSS? =32m.29s., e =38m.12s. and 40m.17s.
Prague ePPP =17m.4s., eSS =27m.4s.
Paris i =23m.18s., iSS? =27m.29s., eSSS? =29m.4s.?, eQ =32·1m.
Strasbourg i =12m.26s., e =18m.27s., eSS =27m.34s., eSSS? =31m.22s.
San Juan iP =12m.20s.
Kalossa ePE =12m.37s., iE =13m.1s.
Clermont-Ferrand i =12m.51s.
Dehra Dun eN =33m.56s.
Zagreb e =12m.31s. and 12m.54s., eZ =18m.59s., e =22m.52s. and 23m.28s., e = 28m.4s.?
Triest iZ =13m.31s., iPPPZ =18m.59s., iPSE =23m.6s.
Belgrade i =19m.41s., eSS =27m.16s.
Bucharest ePN =12m.35s., ePE =12m.39s.
Calcutta iPPPN =17m.5s., iPSN =23m.15s., iSSN =27m.47s., iSSSN =31m.11s.
New Delbi iN =13m.8s., PPPN =16m.39s., iSKS?N =22m.8s., PSE =22m.47s., PPSN = 23m.9s., SSN =26m.52s., i =28m.51s., SSS =30m.13s., i =31m.54s., iE =32m.34s.
Sofia eSSSN =33m.4s.?
Barcelona SS =26m.54s.
Rome iN =12m.44s., iE =12m.53s. and 13m.36s., ePPP?E =18m.57s., iZ =19m.17s., iSKKSE =23m.50s., S =24m.17s., ePPS? =26m.21s., eEN =27m.44s.
Tortosa P$_c$PN =12m.47s., sPN =13m.32s., pPPN =16m.26s., PPPN =17m.35s., pPPP = 18m.25s., S$_c$SN =23m.32s., PSN =23m.41s., PPSN =24m.19s., SSE =28m.34s., SSSE =32m.52s., eQ?E =37·1m.
Toledo P$_c$PZ =12m.49s., iPPZ =16m.7s., isSEN =23m.45s., iPSEN =24m.15s., PPSE = 24m.44s., SSE =29m.15s., P$_c$P,PKPE =35m.15s., iQN =36m.31s., iSKKSE = 37m.28s., iSKKSN =37m.32s.
Lisbon iZ =12m.53s., PPPZ =17m.50s., PSN =23m.43s., PPSN =24m.18s., SSE = 28m.41s., QEN =35m.34s.
Bogota i =13m.10s.
Alicante P$_c$P =12m.58s., sP =13m.8s., PPP =18m.10s., SKS =22m.42s., sS =24m.2s., SP =24m.28s., PS =24m.46s., SPP =25m.30s., PPS =25m.42s., SS =28m.57s., SSS =33m.0s.
Granada iPP =15m.58s., ipPP =16m.23s., S$_c$S =23m.37s., PS =24m.58s., iSS =29m.13s., Q =36m.52s.
Brisbane iN =23m.14s., iSSN =30m.55s., iSSSN =36m.56s.
Algiers i =13m.27s., 13m.33s., and 13m.52s., PPP =18m.34s., SKS =23m.17s., iPS = 24m.56s., PPS =25m.28s., iSS =30m.21s., SSS =34m.38s.
Ksara e =23m.7s.
Hyderabad SKSN =23m.45s., PSN =25m.38s., SSN =30m.19s.
Auckland SKS? =22m.43s., SS? =26m.34s., SSS =33m.32s., Q =39·1m.
Bombay iSSE =30m.57s.
Riverview iP$_c$PZ =13m.32s., iZ =17m.16s. and 19m.25s., iSKSEN =24m.5s., ePS?N = 26m.6s., iZ =31m.4s., iSSE =31m.21s., iSSPE =31m.40s., iE =34m.38s., eQ?E = 37·4m.
Helwan e =18m.29s., SKS =23m.58s., PS =25m.54s., i =26m.16s., SS =31m.25s.
Wellington sP?Z =13m.49s., sPPZ =17m.19s., iZ =19m.58s., PPPP? =20m.46s., SKS? = 23m.9s., sSZ =24m.37s., S$_c$SPZ =25m.36s., PPS =25m.54s., SS =30m.1s., PPPZ = 37m.55s., Q =40·0m.
Huancayo e =13m.59s. and 29m.4s., eSS =32m.4s., e =39m.4s.
Christchurch PPP =19m.30s., PPPP? =21m.43s., PS =25m.31s., PPS =26m.32s., SS =30m.44s., SSS =35m.54s., Q =39m.24s.
La Paz iPPP =21m.0s., SKKS =25m.56s., SZ =26m.8s., PSZ =28m.14s., PPS = 29m.22s., iSSZ =32m.52s., SSS? =36m.12s., QZ =47m.16s.
Perth PPP =26m.34s., i =30m.44s., SS =39m.27s., SSS =45m.17s.
Santa Lucia PPN =27m.4s.?, PPPN =30m.4s.?, E =47m.34s.
La Plata E =24m.34s., 37m.34s., 42m.34s., and 46m.22s., Z =46m.34s., N =49m.28s.
Tananarive PKS =23m.1s., SSS =45m.53s.

April 1d. 12h. 52m. 41s. Epicentre 53°·4N. 163°·1W. (as at 12h. 28m.).

		Δ	Az.	P.	O−C.
		°	°	m. s.	s.
Shasta Dam		30·1	98	i 6 14	+ 1
Berkeley	z.	32·0	102	i 6 30	0
Tinemaha		34·9	99	i 6 57k	+ 2
Haiwee	z.	35·7	100	i 7 3	+ 1
Santa Barbara	z.	35·8	103	i 7 3	0
Mount Wilson		37·0	102	i 7 13k	0
Pasadena		37·0	102	i 7 13	0
Riverside	z.	37·5	102	i 7 17k	0
Boulder City		37·7	97	i 7 19	0
Pierce Ferry		38·0	96	i 7 22	+ 1
Palomar		38·3	102	i 7 25	+ 1
La Jolla		38·4	103	i 7 26	+ 1
Tucson		42·6	98	i 7 59	0
Fordham		58·1	63	9 55	− 3
Harvard		58·2	59	i 9 55	− 3
Weston		58·4	59	e 9 57	− 3
Copenhagen		71·2	3	11 20a	− 3
Basle		79·1	8	e 12 5	− 3
Zürich		79·4	7	e 12 6	− 3
Toledo	z.	85·3	16	i 12 40	0
Alicante		87·4	14	13 51	+61
Granada		88·0	17	e 13 31k	+38

Tucson gives also i = 8m.10s.

April 1d. 12h. 55m. 45s. Epicentre 53°·4N. 163°·1W. (as at 12h. 52m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grand Coulee		28·1	82	i 5 58	+ 3	—	—	—	—	i 12·8
Shasta Dam		30·1	98	i 6 17	+ 4	i 11 20	+ 8	i 12 54	SS	—
Berkeley	z.	32·0	102	i 6 33	+ 3	—	—	—	—	—
Tinemaha		34·9	99	i 7 0	+ 5	i 12 38	+11	—	—	—
Haiwee		35·7	100	i 7 6	+ 4	i 12 47	+ 8	—	—	—
Santa Barbara		35·8	103	i 7 7	+ 4	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 17k	+ 4	—	—	—	—	—
Pasadena		37·0	102	i 7 16k	+ 3	—	—	—	—	—
Riverside		37·5	102	i 7 21k	+ 4	—	—	—	—	—
Boulder City		37·7	97	i 7 23	+ 4	i 13 15	+ 5	—	—	—
Pierce Ferry		38·0	96	i 7 26	+ 5	i 13 22	+ 8	—	—	—
Palomar		38·3	102	i 7 28	+ 4	i 13 25	+ 6	—	—	—
La Jolla		38·4	103	i 7 29	+ 4	—	—	—	—	—
Mizusawa	E.	40·1	273	(7 40)	+ 1	7 40	P	—	—	—
Kakioka		42·5	270	e 7 59	0	—	—	—	—	—
Tucson		42·6	98	i 8 2	+ 3	—	—	i 9 31	PP	—
Tokyo		43·2	270	8 18	+14	—	—	—	—	—
Nagano		43·4	274	e 7 31	−35	—	—	—	—	—
Shizuoka		44·5	271	e 8 15	0	—	—	—	—	—
Osaka		46·4	272	9 33	+63	—	—	—	—	—
Fordham		58·1	63	9 56	− 2	—	—	—	—	—
Harvard		58·2	59	i 9 56	− 2	—	—	—	—	—
Weston		58·4	59	i 9 57a	− 3	—	—	—	—	—
Tacubaya		59·1	98	i 10 9	+ 5	e 18 7	− 4	—	—	—
Merida		63·7	89	i 10 25	−11	i 18 55	− 15	—	—	—
Copenhagen		71·2	3	i 11 18a	− 5	—	—	—	—	—
Collmberg		75·6	3	i 11 44	− 4	e 21 30	+ 1	e 21 55	S_eS	e 36·0
Uccle		75·6	10	i 11 45a	− 3	—	—	—	—	—
Jena		75·9	4	i 11 47	− 3	i 21 27	− 5	—	—	—
Paris		77·4	11	i 11 42	−16	e 21 15?	−34	—	—	—
Strasbourg		78·1	7	i 11 59a	− 3	—	—	—	—	—
Balboa Heights		79·0	89	e 12 11	+ 4	—	—	—	—	—
Basle		79·1	8	e 12 5	− 3	e 22 2	− 5	—	—	—
Besançon		79·3	9	e 12 7	− 2	—	—	—	—	—
Zürich		79·4	7	e 12 6a	− 3	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Neuchatel		79·6	8	e 12 12	+ 2	—	—	— —	—
Chur		79·9	6	e 12 9	− 3	—	—	— —	—
Kalossa	N.	80·4	359	12 14	− 1	—	—	e 17 15? PPP	—
Clermont-Ferrand		80·5	11	i 12 14	− 1	e 22 18?	− 4	— —	—
Zagreb		81·2	1	e 12 21	+ 2	e 22 22	− 7	— —	—
Triest	Z.	81·3	3	i 12 16	− 4	—	—	— —	—
Belgrade		82·1	358	i 12 21	− 3	—	—	— —	—
Florence		83·1	5	i 12 28	− 1	i 22 59	+11	— —	—
Rome		85·0	4	i 12 36	− 2	23 2	[+ 1]	— —	—
Tortosa		85·1	13	i 12 38	− 1	i 23 3	[+ 2]	17 2 PP	—
Fort de France		85·3	71	i 12 41	+ 1	—	—	— —	—
Toledo	Z.	85·3	16	i 12 38	− 2	—	—	i 15 54 PP	—
Lisbon	Z.	85·5	20	12 40k	− 1	—	—	— —	—
Bogota		85·7	87	i 12 44	+ 2	—	—	— —	—
Alicante		87·4	14	i 12 45	− 5	i 23 17	[0]	— —	—
Granada		88·0	17	12 52k	− 1	22 52	?	16 38 PP	—
Algiers		89·4	12	i 13 0	0	i 23 46	− 3	i 17 7 PP	—
Ksara		91·6	344	e 13 8	− 2	e 23 34	[− 8]	— —	—
									—

Additional readings :—
Grand Coulee i = 6m.9s.
Shasta Dam i = 9m.14s.
Collmberg iZ = 11m.52s., 11m.57s., and 12m.4s., eZ = 12m.13s. and 12m.26s., eS?Z = 21m.17s., eP_cP,P_cS?N = 22m.43s.
Uccle eZ = 12m.18s. and 12m.26s.
Strasbourg i = 12m.23s., e = 13m.32s.
Kalossa eE = 16m.15s.?
Zagreb i = 22m.33s.
Rome S? = 23m.48s.
Granada PS = 23m.45s.
Algiers i = 14m.41s., iSKS = 23m.27s., PS = 24m.56s.

April 1d. 13h. 28m. 50s. Epicentre 53°·4N. 163°·1W. (as at 12h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m.	s.
College		13·9	28	i 3 22	+ 1	e 5 30	−27	—	—
Grand Coulee		28·1	82	e 6 0	+ 5	—	—	—	—
Shasta Dam		30·1	98	i 6 12	− 1	—	—	—	—
Berkeley	Z.	32·0	102	i 6 28	− 2	—	—	—	—
Tinemaha		34·9	99	i 6 56	+ 1	—	—	—	—
Haiwee	Z.	35·7	100	i 7 2	0	—	—	—	—
Santa Barbara	Z.	35·8	103	i 7 4	+ 1	—	—	—	—
Mount Wilson	Z.	37·0	102	i 7 12	− 1	—	—	—	—
Pasadena	Z.	37·0	102	i 7 12	− 1	—	—	—	—
Riverside	Z.	37·5	102	i 7 17	0	—	—	—	—
Boulder City		37·7	97	i 7 18	− 1	—	—	—	—
Palomar		38·3	102	e 7 15	− 9	—	—	—	—
La Jolla		38·4	103	i 7 24	− 1	—	—	—	—
Mizusawa	E.	40·1	273	(e 7 57)	+18	e 7 57	P	—	—
Tucson		42·6	98	i 7 58	− 1	—	—	—	—
Fordham		58·1	63	9 52	− 6	—	—	—	—
Harvard		58·2	59	i 9 52	− 6	—	—	—	—
Weston		58·4	59	e 9 54	− 6	—	—	—	—
Tacubaya	E.	59·1	98	i 10 13	+ 9	—	—	—	—
Merida	N.	63·7	89	i 10 33	− 3	i 19 12	+ 2	—	—
Copenhagen		71·2	3	11 18	− 5	—	—	—	—
Collmberg	Z.	75·6	3	e 11 44	− 4	—	—	—	—
Uccle		75·6	10	e 11 42	− 6	—	—	—	—
Jena	N.	75·9	4	i 11 46	− 4	e 21 40	+ 8	—	—
Paris		77·4	11	e 12 6	+ 8	e 30 58	SSS	—	—
Strasbourg		78·1	7	e 12 8	+ 6	—	—	—	—
Basle		79·1	8	e 12 4	− 4	—	—	—	—
Zürich		79·4	7	e 17 48	?	—	—	—	—
Kalossa	N.	80·4	359	e 12 26	+11	—	—	—	—
Clermont-Ferrand		80·5	11	e 12 23	+ 8	e 22 28	+ 6	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Zagreb		81·2	1	e 12 20	+ 1	e 22 38	+ 9	—	—
Triest	z.	81·3	3	i 12 26?	+ 6	—	—	i 13 30	pP
Rome		85·0	4	i 12 46	+ 8	e 23 16	+ 9	—	—
Tortosa	e.	85·1	13	i 12 39	0	—	—	12 58	P_cP
Toledo		85·3	16	i 12 37	− 3	—	—	—	—
Fort de France		85·3	71	e 13 44	+64	—	—	—	—
Alicante		87·4	14	12 24	−26	—	—	16 4	PP
Granada		88·0	17	12 51a	− 2	23 27	[+ 6]	16 4	PP
Algiers		89·4	12	12 57	− 3	23 59	+10	23 30	SKS
Ksara		91·6	344	e 13 19	+ 9	e 24 35	+26	—	—

Additional readings :—
Tinemaha iZ =7m.8s.
Santa Barbara iZ =7m.14s.
Pasadena iZ =7m.23s.
Riverside iZ =7m.32s.
Boulder City i =7m.31s.
Palomar i =7m.24s.
La Jolla iZ =7m.37s.
Tucson i =8m.9s.
Tacubaya iPN =10m.22s.
Collmberg eN =11m.52s., iZ =12m.0s., eZ =12m.45s., 13m.0s., 17m.26s., and 23m.30s.
Strasbourg i =12m.17s., e =13m.47s.
Kalossa eP =12m.32s.
Zagreb e =12m.27s.
Tortosa iN =14m.34s.
Algiers PS =24m.54s.

April 1d. 13h. 34m. 31s. Epicentre 53·4N. 163°·1W. (as at 13h. 28m.).

		Δ	Az.	P.	O−C.
		°	°	m. s.	s.
College		13·9	28	i 3 19	− 2
Shasta Dam		30·1	98	i 6 12	− 1
Berkeley	z.	32·0	102	i 6 29	− 1
Tinemaha	z.	34·9	99	i 6 56	+ 1
Haiwee	z.	35·7	100	i 7 3	+ 1
Santa Barbara	z.	35·8	103	i 7 4	+ 1
Mount Wilson	z.	37·0	102	i 7 12	− 1
Pasadena	z.	37·0	102	i 7 13	0
Riverside	z.	37·5	102	i 7 17	0
Boulder City		37·7	97	i 7 19	0
Pierce Ferry		38·0	96	i 7 23	+ 2
Palomar	z.	38·3	102	i 7 25	+ 1
La Jolla		38·4	103	i 7 26	+ 1
Tucson		42·6	98	i 7 59	0
Fordham		58·1	63	9 53	− 5
Harvard		58·2	59	e 9 56	− 2

April 1d. 13h. 40m. 34s. Epicentre 53°·4N. 163°·1W. (as at 13h. 34m.).

		Δ	Az.	P.	O−C.
		°	°	m. s.	s.
Shasta Dam		30·1	98	i 6 13	0
Berkeley	z.	32·0	102	i 6 29	− 1
Tinemaha	z.	34·9	99	i 6 57	+ 2
Haiwee	z.	35·7	100	i 7 2	0
Santa Barbara	z.	35·8	103	i 7 9	+ 6
Mount Wilson	z.	37·0	102	i 7 13	0
Pasadena	z.	37·0	102	i 7 12	− 1
Riverside	z.	37·5	102	i 7 17	0
Boulder City		37·7	97	i 7 19	0
Pierce Ferry		38·0	96	i 7 21	0
Palomar		38·3	102	i 7 24	0
La Jolla		38·4	103	i 7 25	0
Tucson		42·6	98	i 7 59	0
Harvard		58·2	59	i 9 53	− 5
Weston		58·4	59	e 9 53	− 7
Tacubaya	e.	59·1	98	i 10 27	+23

Tucson gives also i =8m.6s.

April 1d. 14h. 47m. 43s. Epicentre 53°·4N. 163°·1W. (as at 13h.).

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Grand Coulee	28·1	82	i 5 59	+ 4	—	—
Shasta Dam	30·1	98	i 6 13	0	—	—
Boulder City	37·7	97	i 7 19	0	—	—
Pierce Ferry	38·0	96	i 7 23	+ 2	—	—
Tucson	42·6	98	e 8 0	+ 1	—	—
Paris	77·4	11	e 11 59	+ 1	—	—
Strasbourg	78·1	7	e 12 20	+18	e 19 48	?
Basle	79·1	8	e 12 8	0	—	—
Zürich	79·4	7	e 12 9	0	—	—
Clermont-Ferrand	80·5	11	e 12 0	−15	—	—
Zagreb	81·2	1	e 12 19	0	—	—
Belgrade	82·1	358	i 12 23	− 1	—	—
Rome	85·0	4	e 12 39	+ 1	—	—
Toledo	85·3	16	i 12 42	+ 2	—	—

Additional readings :—
Shasta Dam i =6m.17s.
Tucson iP =8m.5s.
Clermont-Ferrand e =12m.20s.

April 1d. 15h. 20m. 22s. Epicentre 53°·4N. 163°·1W. (as at 14h.).

		△	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
College		13·9	28	e 3 38	+17	e 6 38	+41	e 7·3
Grand Coulee		28·1	82	e 5 45	−10	—	—	—
Shasta Dam		30·1	98	i 6 13	0	—	—	—
Berkeley	z.	32·0	102	i 6 30	0	—	—	—
Tinemaha	z.	34·9	99	i 6 57	+ 2	—	—	—
Haiwee	z.	35·7	100	i 7 3	+ 1	—	—	—
Santa Barbara	z.	35·8	103	i 7 5	+ 2	—	—	—
Mount Wilson	z.	37·0	102	i 7 14	+ 1	—	—	—
Pasadena	z.	37·0	102	i 7 13	0	—	—	—
Riverside	z.	37·5	102	i 7 18	+ 1	—	—	—
Boulder City		37·7	97	i 7 19	0	—	—	—
Pierce Ferry		38·0	96	i 7 22	+ 1	—	—	—
Palomar		38·3	102	i 7 25	+ 1	—	—	—
La Jolla		38·4	103	e 7 26	+ 1	—	—	—
Tucson		42·6	98	i 8 0	+ 1	—	—	—
Harvard		58·2	59	i 9 53	− 5	—	—	—
Weston		58·4	59	e 9 58	− 2	—	—	—
Copenhagen		71·2	3	11 19	− 4	—	—	—
Jena	z.	75·9	4	e 11 46	− 4	—	—	—
Paris		77·4	11	e 11 58	0	—	—	—
Strasbourg		78·1	7	e 11 53	− 9	—	—	—
Basle		79·1	8	e 12 6	− 2	—	—	—
Zürich		79·4	7	e 12 6	− 3	—	—	—
Clermont-Ferrand		80·5	11	e 12 17	+ 2	—	—	—
Zagreb		81·2	1	e 12 20	+ 1	—	—	—
Rome		85·0	4	e 12 37	− 1	e 23 10	+ 3	—
Toledo	z.	85·3	16	i 12 41	+ 1	—	—	—
Alicante		87·4	14	e 12 44	− 6	—	—	—
Granada		88·0	17	13 37a	+44	—	—	—

Additional readings :—
Tinemaha iZ =7m.34s.
Haiwee iZ =7m.39s.
Riverside iZ =7m.55s.
Palomar iNZ =8m.2s.
Copenhagen 11m.55s.

April 1d. 15h. 50m. 34s. Epicentre 53°·4N. 163°·1W. (as at 15h. 20m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 26	+ 5	e 6 2	+ 5	—	—	e 6·8
Grand Coulee		28·1	82	i 5 56	+ 1	—	—	—	—	—
Shasta Dam		30·1	98	e 6 13	0	—	—	i 7 44	PPP	—
Berkeley	z.	32·0	102	i 6 32	+ 2	—	—	—	—	—
Tinemaha		34·9	99	i 6 59	+ 4	—	—	i 8 29	PPP	—
Haiwee		35·7	100	i 7 6	+ 4	—	—	—	—	—
Santa Barbara	z.	35·8	103	i 7 6	+ 3	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 16	+ 3	—	—	i 8 46	PP	—
Pasadena	z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Riverside		37·5	102	i 7 19	+ 2	—	—	i 8 49	PP	—
Boulder City		37·7	97	i 7 18	− 1	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 20	− 1	—	—	—	—	—
Palomar		38·3	102	i 8 56	PP	—	—	—	—	—
La Jolla		38·4	103	i 7 28	+ 3	—	—	—	—	—
Rapid City		39·5	78	e 7 35	+ 1	e 13 44	+ 7	(e 15 57)	SS	e 16·0
Tucson		42·6	98	e 7 59	0	—	—	—	—	—
Harvard		58·2	59	e 9 55	− 3	—	—	—	—	—
Weston		58·4	59	i 9 56	− 3	—	—	—	—	—
Copenhagen		71·2	3	e 11 20	− 3	—	—	—	—	—
Collmberg	z.	75·6	3	e 11 44	− 4	e 29 42	SSS	—	—	—
Uccle	z.	75·6	10	e 11 49	+ 1	—	—	—	—	—
Jena	N.	75·9	4	e 11 47	− 3	—	—	—	—	—
Paris		77·4	11	e 12 0	+ 2	—	—	—	—	—
Strasbourg		78·1	7	e 11 54	− 8	—	—	—	—	—
Basle		79·1	8	e 12 4	− 4	—	—	—	—	—
Zürich		79·4	7	e 12 5	− 4	—	—	—	—	—
Clermont-Ferrand		80·5	11	e 12 13	− 2	—	—	—	—	—
Zagreb		81·2	1	e 12 15	− 4	—	—	—	—	—
Rome		85·0	4	e 12 35	− 3	e 23 6	− 1	—	—	—
Toledo	z.	85·3	16	i 12 39	− 1	—	—	—	—	—
Alicante		87·4	14	12 40	−10	23 30	0	16 23	PP	—
Granada		88·0	17	13 0k	+ 7	23 10	[−10]	16 37	PP	—

Additional readings :—
Tucson iP = 8m.2s.
Copenhagen 11m.23s.
Collmberg iZ = 11m.49s., eZ = 13m.20s. and 24m.14s.
Strasbourg e = 12m.2s. and 12m.8s.

April 1d. 16h. 59m. 14s. Epicentre 53°·4N. 163°·1W. (as at 15h.).

A = −·5729, B = −·1741, C = +·8009 ; δ = −3 ; h = −7 ;
D = −·291, E = +·957 ; G = −·766, H = −·233, K = −·599.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	i 3 28	+ 7	—	—	—	—	e 6·3
Sitka		16·2	64	—	—	i 6 31	−20	—	—	i 8·1
Victoria		25·2	85	e 5 24	− 5	—	—	—	—	9·8
Grand Coulee		28·1	82	e 5 57	+ 2	—	—	—	—	—
Shasta Dam		30·1	98	i 6 16	+ 3	—	—	i 9 14	P_cP	—
Berkeley		32·0	102	e 6 51	+21	—	—	—	—	—
Honolulu		32·3	170	e 7 52	PP	i 12 37	+51	i 8 28	PPP	e 14·2
Saskatoon		33·4	69	6 59	+17	12 20	+17	—	—	15·8
Tinemaha		34·9	99	i 6 58	+ 3	—	—	—	—	—
Haiwee	z.	35·7	100	i 7 6	+ 4	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 17	+ 4	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 16	+ 3	—	—	—	—	—
Riverside	z.	37·5	102	i 7 20	+ 3	—	—	—	—	—
Boulder City		37·7	97	i 7 23	+ 4	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 24	+ 3	—	—	—	—	—
Palomar		38·3	102	i 7 28	+ 4	—	—	—	—	—
La Jolla	z.	38·4	103	i 7 28	+ 3	—	—	—	—	—
Rapid City		39·5	78	e 7 35	+ 1	e 13 50	+13	i 9 22	P_cP	e 16·9
Tucson		42·6	98	i 8 1	+ 2	—	—	i 9 52	P_cP	—
Vladivostok		43·1	283	7 59	− 5	e 14 22	− 8	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lincoln		45·3	77	—	—	e 16 0	+58	—	—	e 20·3
Chicago		49·9	71	—	—	e 16 16	+ 9	—	—	e 21·7
Irkutsk		52·0	309	e 9 6	− 7	e 16 30	− 6	—	—	—
Ottawa		54·0	60	9 26	− 2	17 22	+19	21 10	SS	26·8
Shawinigan Falls		54·7	57	e 9 31	− 2	—	—	—	—	24·8
Ivigtut		54·7	33	—	—	17 28	+15	—	—	26·8
Seven Falls		55·3	56	e 9 34	− 4	e 18 28	+67	e 21 16	SS	e 27·8
Fordham		58·1	63	9 56	− 2	18 7	+ 9	—	—	—
Philadelphia		58·1	64	—	—	e 18 3	+ 5	e 21 59	SS	e 28·0
Harvard		58·2	59	i 9 56	− 2	—	—	i 12 14	PP	32·8
Weston		58·4	59	e 9 57	− 3	e 18 0	− 2	—	—	—
Bergen		66·2	7	10 52	0	19 13	−27	—	—	—
Upsala		67·1	0	—	—	e 19 40	−11	e 20 58	PS	e 32·8
Aberdeen		68·7	12	—	—	i 19 55	−15	i 21 23	PPS	—
Bermuda		69·3	63	e 12 11	+60	e 21 1	+44	—	—	e 37·1
Moscow		69·9	348	e 11 9	− 6	e 20 20	− 4	—	—	—
Copenhagen		71·2	3	i 11 23	0	e 20 38	− 2	—	—	33·8
De Bilt		74·4	8	i 11 39	− 3	i 21 14	− 2	—	—	e 34·8
Andijan		74·8	319	11 40	− 4	21 14	− 6	—	—	—
Tashkent		75·4	322	11 42	− 5	e 21 18	− 9	—	—	—
Collmberg		75·6	3	e 11 45	− 3	e 21 27	− 2	—	—	e 40·8
Uccle		75·6	10	e 11 46	− 2	e 21 26	− 3	e 22 10	PS	e 35·8
Jena		75·9	4	e 11 46	− 4	e 21 16	−16	—	—	—
Cheb	N.	76·8	4	e 12 0	+ 5	e 21 42	0	—	—	e 42·8
Prague		76·9	2	e 11 57?	+ 1	e 21 18	−25	—	—	e 31·8
Paris		77·4	11	i 12 2?	+ 4	—	—	—	—	e 36·8
Stalinabad		78·0	321	i 11 58	− 4	e 21 50	− 5	—	—	—
Strasbourg		78·1	7	e 11 59	− 3	e 21 52	− 4	e 27 31	SS	e 38·0
Basle		79·1	8	e 12 6	− 2	—	—	—	—	—
Zürich		79·4	7	e 12 4	− 5	—	—	—	—	—
Kalossa	N.	80·4	359	e 12 22	+ 7	—	—	—	—	—
Clermont-Ferrand		80·5	11	e 12 14	− 1	—	—	—	—	e 37·8
Grozny		80·5	339	12 14	− 1	—	—	—	—	—
Zagreb		81·2	1	e 12 14	− 5	e 22 26	− 3	—	—	—
Triest		81·3	3	e 12 15	− 5	e 22 29	− 1	e 23 8	PS	—
Belgrade		82·1	358	i 13 12	+48	e 23 43	+65	—	—	e 32·8
Bucharest		82·2	354	11 46?	−38	—	—	—	—	—
Baku		82·3	335	i 12 31	+ 6	i 22 45	+ 5	—	—	—
Calcutta	N.	82·6	298	e 7 18	?	e 17 18	PPP	—	—	—
New Delhi	N.	83·1	310	i 12 25	− 4	i 22 37	−11	27 6	SS	—
Florence		83·1	5	i 12 37	+ 8	i 23 10	+22	—	—	—
Erevan		83·8	339	e 12 31	− 1	—	—	—	—	—
Rome		85·0	4	i 12 35k	− 3	e 23 7	0	e 16 26	PP	—
Tortosa	N.	85·1	13	i 12 26	−13	—	—	—	—	—
Toledo	Z.	85·3	16	i 12 39	− 1	—	—	—	—	—
Lisbon		85·5	20	12 38	− 3	i 23 17	+ 5	15 15	PP	40·8
Alicante		87·4	14	e 11 38	−72	e 22 22	−68	—	—	—
Algiers		89·4	12	12 46	−14	23 36	[+ 7]	i 25 58	PPS	e 43·8
Ksara		91·6	344	e 13 7	− 3	e 24 16	+ 7	—	—	—
Hyderabad	N.	91·9	303	13 11	0	24 25	+14	—	—	—
Bombay		93·4	308	e 13 16	− 2	—	—	—	—	—
Riverview		95·5	217	—	—	e 24 48	+ 6	i 25 55	PS	e 44·8
Helwan		96·1	347	e 13 31	0	—	—	e 17 13	PP	—
Kodaikanal	E.	98·5	300	—	—	e 28 9	PPS	—	—	—
Christchurch		98·8	198	—	—	e 25 23	+13	32 22	SS	46·3

Additional readings :—
Grand Coulee 1 =6m.25s.
Tinemaha iZ =9m.28s.
Copenhagen 26m.10s.
Collmberg eZ =11m.51s., 12m.1s., 12m.7s., and 12m.37s., eE =24m.55s.
Jena ePZ =11m.50s.
Strasbourg eSSS? =31m.21s.
Zagreb e =12m.22s
Triest iZ =12m,23s,

Continued on next page.

New Delhi iN =13m.10s., PPSN =23m.41s.
Rome i =12m.45s. and 12m.58s.
Lisbon iPZ =12m.45s., PN =12m.49s., SN =23m.26s.
Helwan e =19m.16s. and 20m.31s.
Christchurch QE =41m.26s.
Long waves were also recorded at Ukiah, Arapuni, Auckland, Wellington, and La Paz.

April 1d. 18h. 57m. 34s. Epicentre 53°·4N. 163°·1W. (as at 16h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 28	+ 7	i 5 58	+ 1	i 3 50	PP	i 6·4
Sitka		16·2	64	i 3 52	+ 2	i 6 52	+ 1	—	—	—
Victoria		25·2	85	5 41	+12	10 8	+16	—	—	12·4
Seattle		26·3	86	e 5 53	+14	e 10 22	+11	—	—	e 12·6
Grand Coulee		28·1	82	e 5 35	−20	e 9 39	−61	e 7 5	PP	e 10·7
Shasta Dam		30·1	98	i 6 16	+ 3	e 11 24	+12	e 7 25	PP	i 13·0
Ukiah		30·6	100	e 7 0	+42	e 11 34	+14	—	—	e 13·0
Mineral	E.	30·8	98	e 6 31	+11	e 11 36	+13	—	—	13·6
Berkeley		32·0	102	6 42	+12	e 11 36	− 6	—	—	15·2
Branner	N.	32·3	102	6 36	+ 3	e 12 5	+19	—	—	e 15·3
Honolulu		32·3	170	—	—	e 12 5	+19	—	—	e 18·9
Santa Clara		32·5	102	e 6 50	+16	e 12 17	+28	—	—	—
Lick	N.	32·7	102	e 6 44	+ 8	e 11 13	−39	—	—	14·8
Saskatoon		33·4	69	6 52	+10	12 19	+16	15 2	SS	16·4
Bozeman		34·0	81	e 6 53	+ 5	e 12 27	+14	—	—	e 14·8
Fresno	N.	34·2	100	e 7 3	+14	—	—	e 8 1	PP	e 16·0
Tinemaha		34·9	99	i 6 59	+ 4	e 12 44	+17	i 9 30	PcP	—
Haiwee		35·7	100	i 7 5	+ 3	—	—	—	—	—
Santa Barbara		35·8	103	e 7 13	+10	—	—	i 9 37	PcP	—
Salt Lake City		36·3	88	e 7 12	+ 5	13 9	+21	e 8 48	PP	e 15·6
Mount Wilson	Z.	37·0	102	i 7 17	+ 4	—	—	—	—	—
Pasadena		37·0	102	i 7 15	+ 2	i 13 10	+11	i 9 55	PcP	e 15·6
Riverside	Z.	37·5	102	i 7 20	+ 3	—	—	i 9 38	PcP	—
Sapporo		37·5	278	e 7 18	+ 1	—	—	—	—	—
Boulder City		37·7	97	i 7 21	+ 2	e 13 4	− 6	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	e 13 27	+13	—	—	—
Palomar		38·3	102	i 7 27	+ 3	e 13 31	+12	—	—	—
La Jolla		38·4	103	e 7 29	+ 4	e 13 33	+13	—	—	—
Rapid City		39·5	78	e 7 37	+ 3	i 13 49	+12	i 9 26	PP	e 16·8
Mizusawa	E.	40·1	273	7 38	− 1	e 13 29	−17	—	—	—
	N.	40·1	273	e 7 35	− 4	13 35	−11	—	—	—
Sendai		40·8	271	7 22	−23	13 46	−10	—	—	—
Tucson		42·6	98	i 8 2	+ 3	e 14 39	+16	—	—	e 18·0
Vladivostok		43·1	283	7 58	− 6	e 14 36	+ 6	—	—	—
Tokyo		43·2	270	8 1	− 3	—	—	—	—	—
Nagano		43·4	274	e 7 36	−30	—	—	—	—	—
Shizuoka		44·5	271	e 8 16	+ 1	—	—	—	—	—
Lincoln		45·3	77	e 8 48	+27	e 15 4	+ 2	—	—	e 19·8
Chicago		49·9	71	e 8 51	− 6	e 16 5	− 2	e 10 46	PP	e 20·1
Hukuoka		50·2	274	9 0	0	16 4	− 7	—	—	—
St. Louis		50·5	76	e 8 57	− 5	i 16 24	+ 8	—	—	—
Miyazaki		50·7	272	9 5	+ 2	—	—	—	—	—
Irkutsk		52·0	309	e 9 10	− 3	e 17 34	+58	—	—	—
Ottawa		54·0	60	9 30	+ 2	17 8	+ 5	11 38	PP	24·4
Shawinigan Falls		54·7	57	e 9 35	+ 2	—	—	—	—	24·4
Ivigtut		54·7	33	9 32	− 1	17 15	+ 2	—	—	25·4
Seven Falls		55·3	56	9 39	+ 1	17 21	0	21 14	SS	27·4
Fordham		58·1	63	9 56	− 2	18 5	+ 7	—	—	—
Philadelphia		58·1	64	e 9 55	− 3	e 17 59	+ 1	i 21 56	SS	i 28·6
Harvard		58·2	59	i 9 56	− 2	e 18 7	+ 8	e 12 12	PP	e 30·4
Weston		58·4	59	e 9 57	− 3	e 18 4	+ 2	—	—	—
Tacubaya	E.	59·1	98	e 10 23	+19	e 18 17	+ 6	—	—	—
Halifax		60·6	53	e 10 38	+23	e 18 44	+14	—	—	31·4
Sverdlovsk		64·5	335	i 10 33	− 8	19 16	− 3	—	—	—
Bergen		66·2	7	10 54	+ 2	19 53	+13	e 13 26	PP	30·8
Upsala		67·1	0	e 10 45	−12	e 19 42	− 9	e 23 56	SS	e 30·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen		68·7	12	i 11 17	+10	i 20 10	0	i 28 14	SSS	33·7
Bermuda		69·3	63	e 11 26	+15	i 20 26	+ 9	e 14 41	PP	e 28·4
Moscow		69·9	348	e 11 8	− 7	e 20 17	− 7	—	—	—
Almata		70·8	318	11 19	− 1	—	—	—	—	—
Durham		71·1	12	i 11 25	+ 3	i 20 37	− 1	—	—	—
Copenhagen		71·2	3	e 11 19	− 4	i 20 37	− 3	—	—	—
Frunse		72·1	319	e 11 28	0	e 20 48	− 2	—	—	—
De Bilt		74·4	8	i 11 39	− 3	i 21 17	+ 1	—	—	e 34·4
Tchimkent		74·5	322	e 11 30	−12	e 21 6	−11	—	—	—
Andijan		74·8	319	e 11 41	− 3	i 21 18	− 2	—	—	—
Tashkent		75·4	322	i 11 43	− 4	21 24	− 3	—	—	—
Collmberg		75·6	3	i 11 43	− 5	e 21 29	0	e 22 3	ScS	e 33·4
Uccle		75·6	10	e 11 45	− 3	e 21 28	− 1	e 22 16	PS	e 33·4
Jena		75·9	4	e 11 46	− 4	e 21 26	− 6	e 26 50	SS	—
Cheb		76·8	4	e 11 59	+ 4	e 21 43	+ 1	e 22 26?	PS	e 42·4
Prague		76·9	2	e 11 53	− 3	e 21 14	−29	—	—	e 33·4
Paris		77·4	11	i 11 55	− 3	e 21 42	− 7	e 15 27	PP	e 31·4
Samarkand		77·7	323	11 56	− 4	21 44	− 8	—	—	—
Stalinabad		78·0	321	i 11 57	− 5	e 21 48	− 7	—	—	—
Strasbourg		78·1	7	e 12 3	+ 1	i 21 59	+ 3	e 22 43	PS	e 36·9
Basle		79·1	8	e 12 5	− 3	e 22 8	+ 1	—	—	—
Zürich		79·4	7	i 12 5	− 4	e 22 10	0	—	—	—
San Juan		79·5	73	e 12 17	+ 7	i 22 16	+ 5	—	—	e 41·4
Chur		79·9	6	e 12 8	− 4	e 22 18	+ 2	—	—	—
Kalossa		80·4	359	e 12 26?	+11	—	—	—	—	—
Clermont-Ferrand		80·5	11	i 12 20	+ 5	i 22 24	+ 2	—	—	e 38·2
Grozny		80·5	339	e 12 15	0	—	—	—	—	—
Zagreb		81·2	1	e 12 14	− 5	e 22 22	− 7	—	—	e 37·4
Triest		81·3	3	i 12 24	+ 4	22 34	+ 4	e 23 6	PS	—
Yalta		81·4	348	e 12 18	− 2	—	—	—	—	—
Belgrade		82·1	358	i 12 19	− 5	i 23 40	PS	—	—	e 34·4
Bucharest		82·2	354	e 12 28	+ 4	e 22 37	− 2	—	—	38·4
Baku		82·3	335	i 12 28	+ 3	i 22 43	+ 3	—	—	—
Calcutta	N.	82·6	298	e 6 40	?	i 16 54	?	—	—	30·6
New Delhi	N.	83·1	310	i 12 27	− 2	i 22 42	− 6	23 46	PS	—
Florence		83·1	5	i 12 19	−10	i 22 51	+ 3	—	—	—
Leninakan		83·4	340	e 12 30	0	—	—	—	—	—
Erevan		83·8	339	12 31	− 1	22 52	− 3	—	—	—
Sofia		84·1	355	e 12 35	+ 1	e 22 53	− 5	—	—	40·4
Barcelona		84·7	12	12 45	+ 8	22 59	− 5	—	—	e 41·6
Rome		85·0	4	12 34	− 4	23 5	− 2	i 12 58	pP	e 41·4
Tortosa		85·1	13	i 12 43	+ 4	22 59	− 9	17 8	PP	—
Toledo		85·3	16	i 12 39	− 1	i 23 10	0	i 12 51	pP	—
Fort de France		85·3	71	e 12 39	− 1	e 23 5	− 5	—	—	—
Lisbon	N.	85·5	20	12 43	+ 2	23 14	+ 2	—	—	40·7
Bogota		85·7	87	e 12 48	+ 6	—	—	—	—	—
Alicante		87·4	14	i 12 40	−10	i 23 30	0	16 22	PP	e 44·6
Granada		88·0	17	12 52k	− 1	23 38	+ 2	12 58	pP	44·1
Algiers		89·4	12	i 13 3	+ 3	e 23 32	[+ 3]	16 39	PP	e 43·4
Ksara		91·6	344	e 13 8	− 2	e 23 52	−17	—	—	—
Hyderabad		91·9	303	13 8	− 3	23 40	[− 4]	30 41	SS	45·1
Auckland		91·9	198	—	—	23 45	[+ 1]	30 26	SS	42·5
Arapuni		93·0	197	13 50	+33	30 38	SS	—	—	43·7
Bombay		93·4	308	e 13 14	− 4	e 24 7	[+15]	—	—	—
Riverview		95·5	217	e 13 31	+ 3	e 24 56	+14	e 31 54	SS	e 44·4
Helwan		96·1	347	e 13 26	− 5	23 50	[−17]	e 17 14	PP	—
Wellington		96·2	197	17 20	PP	24 12	[+ 4]	—	—	44·9
Kodaikanal	E.	98·5	300	i 16 59	PP	e 27 29	PPS	—	—	40·4
Christchurch		98·8	198	13 57	+14	25 26	+16	17 46	PP	45·2
La Paz	Z.	106·0	96	e 14 42	P	25 18	[+23]	18 48	PP	53·2

Additional readings :—
Shasta Dam i =9m.19s., eS_cS =16m.51s.
Berkeley eSE =11m.55s.
Tinemaha iZ =13m.8s.

Continued on next page.

Pasadena iZ =7m.24s. and 13m.19s.
Riverside iZ =13m.29s.
Tucson e =14m.1s.
St. Louis iZ =9m.6s.
Ottawa PSN =17m.47s., SS =21m.2s.
Ivigtut 9m.36s.
Harvard e =18m.46s.
Bergen eN =17m.10s., eE =20m.53s., eN =24m.39s., eE =25m.58s.
Upsala iN =11m.2s., eE =11m.52s., eN =13m.16s., eE =20m.52s., i =21m.4s., eSS?N = 24m.2s., eSSS?N =26m.26s. ?
Bermuda eSS =25m.44s.
Copenhagen 11m.23s. and 26m.4s.
Collmberg eN =11m.46s., iZ =11m.49s., iNZ =11m.56s., eZ =20m.54s., eN =21m.40s., eZ =23m.36s., eSSE =27m.1s.
Uccle eSSE =26m.26s.?
Jena iPNZ =11m.52s., eN =30m.26s. and 35m.26s.
Cheb e =13m.45s., 18m.42s., 22m.58s., and 24m.2s., eSS =26m.0s., e =37m.28s.
Paris i =12m.12s.
Strasbourg i =12m.11s., eSSS =27m.11s.
San Juan i =12m.45s.
Clermont-Ferrand e =12m.12s.
Zagreb e =12m.22s. and 22m.36s.
Triest iZ =12m.27s.
New Delhi iE =22m.48s.
Rome iZ =12m.42s., iNZ =12m.48s., eZ =16m.22s., eE =18m.2s., iZ =23m.21s., iSKKS?E =23m.45s., S =24m.4s., iN =24m.36s.
Tortosa P_cPE =12m.53s., PPS?E =25m.50s.
Toledo iPP =15m.59s., isSN =23m.31s., PPSN =24m.35s., iSSN =29m.15s.
Lisbon PEN =12m.49s., SN =23m.10s.?
Bogota i =12m.55s.
Alicante eP =13m.16s., PPP =18m.36s., sS =24m.35s., PS =25m.16s., SS =29m.50s., SSS =33m.34s., Q =37m.48s.
Granada PP =16m.28s., PS =24m.54s., SS =30m.20s.
Algiers iS =23m.51s., iPS =25m.5s.
Auckland S =24m.16s.
Arapuni PPP? =23m.26s.?, SS =36m.8s., SSS =40m.8s. : phases wrongly interpreted.
Riverview iZ =13m.41s., eN =24m.36s., eQE =39m.38s.
Helwan PPP =19m.18s., PPS =26m.26s.
Wellington PP?Z =20m.56s., S? =27m.40s.
Christchurch PPP =19m.52s., PSZ =26m.48s., PPS =27m.40s., SS =31m.46s., SSSE = 35m.38s., Q =39m.41s.
Long waves were also recorded at Reykjavik and La Plata.

April 1d. Complete list of after-shocks of the Aleutian-Alaskan earthquake.

The times are those recorded at Tinemaha. In most cases P was recorded at Mount Wilson and Pasadena 17s. later, and at Tucson 62s. later. Many of these shocks were recorded widely both in America and Europe.

h.	m.	s.
12	35	50
	42	34
	46	41
	59	38
13	2	45
	26	55
	29	34
	33	20
	34	37
	35	46
	39	57
	41	27
	43	58
	47	31
	53	22
14	2	14
	6	32
	8	44
	13	24
	21	48
	23	19

h.	m.	s.
14	32	26
	33	11
	39	55
	51	37
	54	45
15	19	12
	27	19
	27	56
	37	43
	42	54
	45	39
	57	33
	59	3
16	2	29
	6	19
	10	2
	15	30?
	27	29
	41	50
	47	26

h.	m.	s.
16	49	55
	53	34
	57	4
17	3	8
	6	12
	9	20
	29	38
	43	7
	47	13
18	0	22
	3	53
	6	31
	13	32
	19	2
	19	43
	33	16
	36	32
	43	12
	57	3
19	3	6

h.	m.	s.
19	4	33
	32	58
	35	29
	40	7
	47	51
	59	25
20	10	47
	17	50
	39	42
	42	10
	44	54
	50	14
21	28	41
	41	29
22	23	2
	56	53
23	15	28
	31	49
	37	4
	41	40

April 1d. Readings also at 1h. (Alicante, Granada, and Tucson), 6h. (near Samarkand), 7h. (Shasta Dam and Helwan), 10h. (Mount Wilson, Pasadena, Riverside, Palomar, and Tucson), 11h. (Haiwee, Tinemaha, Boulder City, Pierce Ferry, Shasta Dam, and St. Louis), 12h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson (2), Grand Coulee, Boulder City, Shasta Dam, Pierce Ferry, Harvard, and Weston), 13h. (Berkeley (3), Riverside, Tucson (14), Boulder City (5), Pierce Ferry (2), Alicante, Granada, Copenhagen, Basle, Zürich, and near Bogota), 14h. (Tucson (7), Boulder City (9), Pierce Ferry (8), Grand Coulee, Harvard, Weston, Mizusawa, Basle, Zürich, Collmberg, Paris, Belgrade, Zagreb, Jena, Clermont-Ferrand, Copenhagen, Uccle, Strasbourg, Tortosa, Toledo, Alicante, Granada, Tananarive, and near Bogota), 15h. (Tucson (5), Boulder City (3), Pierce Ferry (3), College, Alicante, and near Samarkand), 16h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson (8), Boulder City (5), Pierce Ferry (5), Grand Coulee, Shasta Dam (2), Harvard, Weston, Zürich, Basle, Granada, Toledo, Alicante, and Prague), 17h. (Boulder City, Pierce Ferry, near Harvard, Weston, Uccle, Toledo, Alicante, and Granada), 18h. (Berkeley, Boulder City (4), Pierce Ferry (4), Grand Coulee, Shasta Dam (3), College, Weston (2), Toledo (3), Tortosa, and Alicante (2)), 19h. (Boulder City, Pierce Ferry, Grand Coulee, Berkeley, Basle, Alicante (2), Granada (2), Toledo (2), Tortosa, Helwan (2), and Ksara), 20h. (Boulder City (2), Pierce Ferry (2), Grand Coulee, Shasta Dam (2), Weston (4), Copenhagen, Rome, Triest, Alicante (3), Toledo (2), and Granada), 21h. (Weston, Rome, Arapuni, and Wellington), 23h. (Boulder City, Pierce Ferry, College, and Weston (2)).

April 2d. 0h. 58m. 25s. Epicentre 53°·4N. 163°·1W. (as on 1d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 20	− 1	—	—	—	—	e 6·1
Grand Coulee		28·1	82	i 5 57	+ 2	—	—	e 9 22	P_cP	—
Shasta Dam		30·1	98	i 6 16	+ 3	—	—	—	—	—
Saskatoon		33·4	69	—	—	e 14 38	SSS	—	—	17·6
Boulder City		37·7	97	i 7 21	+ 2	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	—	—	—	—	—
Rapid City		39·5	78	e 7 35	+ 1	—	—	e 9 55	P_cP	e 21·1
Ottawa	z.	54·0	60	e 9 26	− 2	—	—	—	—	26·6
Harvard		58·2	59	e 9 57	− 1	—	—	—	—	—
Weston		58·4	59	i 9 57 a	− 3	—	—	—	—	—
Paris		77·4	11	e 11 55	− 3	—	—	—	—	—
Strasbourg		78·1	7	e 11 55	− 7	—	—	—	—	e 47·7
San Juan		79·5	73	—	—	e 22 22	+11	—	—	e 45·6
Clermont-Ferrand		80·5	11	e 12 14	− 1	—	—	—	—	—
Toledo		85·3	16	12 39	− 1	—	—	—	—	—
Alicante		87·4	14	e 13 23	+33	e 23 19	[+ 2]	—	—	—
Granada		88·0	17	13 11 k	+18	21 48	?	—	—	46·5

Grand Coulee gives also $iP_cP = 8m.39s.$
Long waves were also recorded at Chicago, Philadelphia, Cheb, and Rome.

April 2d. 4h. 13m. 39s. Epicentre 53°·4N. 163°·1W. (as at 0h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 20	− 1	e 5 56	− 1	—	—	e 6·9
Sitka		16·2	64	e 4 19	PPP	i 7 7	+16	—	—	i 9·3
Victoria		25·2	85	5 31	+ 2	10 9	+17	11 39	SSS	—
Seattle		26·3	86	e 8 55	P_cP	—	—	—	—	e 14·2
Grand Coulee		28·1	82	e 5 57	+ 2	e 10 53	+13	e 16 39	S_cS	—
Shasta Dam		30·1	98	i 6 15	+ 2	e 11 21	+ 9	e 7 14	PP	e 12·9
Ukiah		30·6	100	e 6 29	+11	e 11 33	+13	e 6 51	?	e 13·0
Berkeley		32·0	102	6 33	+ 3	11 53	+11	—	—	14·4
Santa Clara		32·5	102	e 7 50	PP	e 12 26	+37	—	—	—
Butte		32·9	81	e 6 40	+ 2	e 11 56	0	e 8 3	PPP	e 13·7
Saskatoon		33·4	69	6 51	+ 9	12 13	+10	—	—	16·4
Bozeman		34·0	81	e 6 53	+ 5	e 12 11	− 2	e 8 7	PP	e 14·7
Tinemaha	z.	34·9	99	i 6 58	+ 3	—	—	—	—	—
Haiwee	z.	35·7	100	i 7 4	+ 2	—	—	—	—	—
Santa Barbara	z.	35·8	103	e 7 8	+ 5	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		36·3	88	e 7 16	+ 9	e 12 46	− 2	e 8 41	PP	e 15·7
Mount Wilson	z.	37·0	102	i 7 14	+ 1	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 14	+ 1	—	—	—	—	—
Riverside	z.	37·5	102	i 7 19	+ 2	—	—	—	—	—
Boulder City		37·7	97	i 7 21	+ 2	e 13 11	+ 1	—	—	—
Pierce Ferry		38·0	96	i 7 24	+ 3	e 13 24	+10	—	—	—
La Jolla		38·4	103	e 7 30	+ 5	—	—	—	—	—
Rapid City		39·5	78	e 7 33	− 1	i 13 50	+13	e 9 11	PP	e 17·0
Tucson		42·6	98	i 8 1	+ 2	e 14 38	+15	—	—	e 17·7
Vladivostok		43·1	283	7 56	− 8	14 18	−12	—	—	—
Lincoln		45·3	77	—	—	e 14 54	− 8	—	—	e 24·1
Chicago		49·9	71	—	—	e 16 5	− 2	e 19 50	SS	e 20·2
Florissant		50·3	76	i 8 58	− 2	e 16 12	− 1	i 9 7	pP	—
St. Louis		50·5	76	i 9 2	0	i 16 15	− 1	i 9 9	pP	—
Irkutsk		52·0	309	e 9 2	−11	16 22	−14	—	—	—
Ottawa		54·0	60	9 30	+ 2	16 55	− 8	21 51	?	28·4
Shawinigan Falls		54·7	57	e 9 33	0	—	—	—	—	26·4
Seven Falls		55·3	56	9 39	+ 1	17 14	− 7	21 42	SS	27·4
Fordham		58·1	63	9 50	− 8	17 56	− 2	—	—	—
Philadelphia		58·1	64	e 10 40	+42	e 17 53	− 5	e 13 13	PPP	e 23·5
Harvard		58·2	59	i 10 2	+ 4	—	—	—	—	e 30·4
Weston		58·4	59	i 9 58k	− 2	e 18 11	+ 9	—	—	—
Tacubaya	E.	59·1	98	e 10 10	+ 6	—	—	—	—	—
Sverdlovsk		64·5	335	10 36	− 5	19 12	− 7	—	—	—
Aberdeen		68·7	12	—	—	i 20 7	− 3	—	—	e 28·9
Bermuda		69·3	63	—	—	e 20 21	+ 4	e 25 6	SS	e 34·4
Copenhagen		71·2	3	—	—	e 20 48	+ 8	—	—	32·4
De Bilt		74·4	8	i 11 39	− 3	e 21 25	+ 9	—	—	e 31·4
Andijan		74·8	319	11 41	− 3	—	—	—	—	—
Tashkent		75·4	322	e 11 34	−13	e 21 17	−10	—	—	—
Uccle		75·6	10	e 11 47	− 1	e 21 26	− 3	—	—	e 33·4
Jena	N.	75·9	4	e 11 47	− 3	e 21 21	−11	—	—	e 40·4
Cheb		76·8	4	e 11 41	−14	e 26 51	SS	—	—	e 42·4
Prague		76·9	2	e 11 56	0	e 21 15	−28	—	—	e 34·4
Paris		77·4	11	11 46	−12	e 21 21?	−28	—	—	e 44·4
Samarkand		77·7	323	11 58	− 2	—	—	—	—	—
Stalinabad		78·0	321	i 11 54	− 8	i 22 4	+ 9	—	—	—
Strasbourg		78·1	7	e 12 1	− 1	e 22 1	+ 5	i 12 26	P_cP	e 39·0
Basle		79·1	8	e 12 5	− 3	—	—	—	—	—
Zürich		79·4	7	e 12 6	− 3	—	—	—	—	—
San Juan		79·5	73	e 12 12	+ 2	i 22 13	+ 2	—	—	e 40·4
Clermont-Ferrand		80·5	11	e 12 14	− 1	—	—	—	—	e 35·4
Grozny		80·5	339	e 12 11	− 4	e 22 11	−11	—	—	—
Zagreb		81·2	1	e 12 12	− 7	—	—	—	—	—
Triest		81·3	3	e 12 18?	− 2	e 22 33	+ 3	e 12 41	pP	—
Belgrade		82·1	358	i 12 19	− 5	23 48	PPS	—	—	28·4
Baku		82·3	335	e 12 31	+ 6	e 22 39	− 1	—	—	—
Calcutta	N.	82·6	298	e 20 45	?	—	—	—	—	—
New Delhi	N.	83·1	310	i 12 45	+16	i 22 38	−10	—	—	—
Florence		83·1	5	i 12 31	+ 2	i 23 5	+17	—	—	—
Erevan		83·8	339	e 12 19	−13	—	—	—	—	—
Rome		85·0	4	e 12 36	− 2	e 23 10	+ 3	—	—	—
Tortosa		85·1	13	e 12 48	+ 9	—	—	e 13 8	P_cP	—
Toledo		85·3	16	i 12 39	− 1	23 12	+ 2	23 26	S_cS	—
Lisbon	E.	85·5	20	—	—	23 11	− 1	—	—	36·9
Bogota		85·7	87	e 12 47	+ 5	—	—	—	—	—
Alicante		87·4	14	12 43	− 7	23 31	+ 1	13 17	pP	e 45·6
Granada		88·0	17	12 57a	+ 4	23 36	0	—	—	44·3
Algiers		89·4	12	e 11 59	−61	22 53	−56	e 15 56	PP	52·4
Ksara		91·6	344	e 13 17?	+ 7	—	—	—	—	—
Hyderabad	N.	91·9	303	13 13	+ 2	24 9	− 2	23 37	SKS	41·7
Bombay	N.	93·4	308	e 13 22	+ 4	—	—	—	—	—
Riverview	E.	95·5	217	—	—	i 24 48	+ 6	e 39 15	Q	e 44·6
Helwan		96·1	347	—	—	e 23 36	[−31]	e 24 3	SKS	—
Kodaikanal	E.	98·5	300	—	—	e 25 4	− 4	—	—	—

For Notes see next page,

NOTES TO JANUARY 2d. 4h. 13m. 39s.

Additional readings :—
Grand Coulee ePcP =8m.39s.
Shasta Dam iPcP? =9m.11s., eScS =17m.1s.
Bozeman iS =12m.21s.
Rapid City ePPP =9m.39s.
Florissant isSE =16m.25s.
St. Louis isSE =16m.37s., iN =20m.17s.
Philadelphia e =11m.10s., eSS =21m.53s.
Bermuda e =27m.21s.
Jena ePN =11m.51s.
Strasbourg ePP =14m.46s., ePPP =16m.50s., eSS =27m.16s., e =31m.21s.
Triest esSE =22m.59s.
Rome eZ =22m.57s., PS =25m.11s.
Toledo S =23m.38s.
Alicante PP =16m.17s., sS =24m.33s., PS =25m.5s., Q =38m.53s.
Algiers PS =23m.46s.
Long waves were also recorded at Honolulu, Huancayo, Ivigtut, Upsala, Collmberg, Bergen, Auckland, Wellington, Arapuni, and La Paz.

April 2d. 5h. 38m. 14s. Epicentre 53°·4N. 163°·1W. (as at 4h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 16	− 5	e 5 45	−12	—	—	e 6·8
Sitka		16·2	64	e 3 24	−26	e 6 23	−28	—	—	e 7·2
Victoria		25·2	85	e 5 34	+ 5	e 9 58	+ 6	—	—	14·8
Grand Coulee		28·1	82	i 5 54	− 1	—	—	—	—	—
Shasta Dam		30·1	98	i 6 14	+ 1	—	—	i 9 14	PcP	—
Ukiah		30·6	100	—	—	e 11 24	+ 4	(e 13 18)	SSS	e 13·3
Berkeley	z.	32·0	102	e 6 27	− 3	—	—	—	—	—
Butte		32·9	81	e 6 47	+ 9	e 11 49	− 7	—	—	e 14·1
Saskatoon		33·4	69	7 2	+20	12 19	+16	—	—	13·8
Bozeman		34·0	81	e 8 11	PP	e 12 16	+ 3	—	—	e 14·8
Tinemaha	z.	34·9	99	i 6 56	+ 1	—	—	e 9 29	PcP	—
Haiwee	z.	35·7	100	i 7 3	+ 1	—	—	—	—	—
Santa Barbara	z.	35·8	103	i 7 6	+ 3	—	—	—	—	—
Salt Lake City		36·3	88	e 9 1	PP	e 13 11	+23	—	—	e 17·4
Mount Wilson	z.	37·0	102	i 7 13	0	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 14	+ 1	—	—	—	—	—
Riverside	z.	37·5	102	i 7 19	+ 2	—	—	—	—	—
Boulder City		37·7	97	i 7 19	0	e 13 9	− 1	—	—	—
Pierce Ferry		38·0	96	i 7 23	+ 2	e 13 21	+ 7	—	—	—
La Jolla		38·4	103	e 7 29	+ 4	—	—	—	—	—
Rapid City		39·5	78	e 7 34	0	e 13 35	− 2	e 9 9	PP	e 18·6
Tucson		42·6	98	i 7 55	− 4	—	—	—	—	—
Vladivostok		43·1	283	e 8 5	+ 1	14 15	−15	—	—	—
Lincoln		45·3	77	—	—	e 14 52	−10	—	—	e 19·8
Chicago		49·9	71	—	—	e 16 3	− 4	e 19 31	SS	e 20·1
Florissant		50·3	76	i 8 56	− 4	i 16 8	− 5	i 9 1	?	—
St. Louis		50·5	76	i 8 58	− 4	i 16 12	− 4	—	—	—
Irkutsk		52·0	309	e 9 11	− 2	e 16 32	− 4	—	—	—
Ottawa		54·0	60	e 9 22	− 6	e 18 10	+67	—	—	e 20·8
Seven Falls		55·3	56	e 9 34	− 4	e 21 22	SS	—	—	29·8
Harvard		58·2	59	e 9 54	− 4	—	—	—	—	—
Weston		58·4	59	e 9 55	− 5	—	—	—	—	—
Tacubaya	E.	59·1	98	9 42	−22	—	—	—	—	—
Sverdlovsk		64·5	335	10 51	+10	19 26	+ 7	—	—	—
Aberdeen	N.	68·7	12	—	—	i 20 22	+12	—	—	—
Bermuda		69·3	63	—	—	e 20 16	− 1	—	—	e 27·8
Copenhagen		71·2	3	i 11 19a	− 4	—	—	—	—	—
De Bilt		74·4	8	i 11 40	− 2	e 21 16	0	—	—	—
Andijan		74·8	319	e 11 44	0	21 21	+ 1	—	—	—
Tashkent		75·4	322	e 11 46	− 1	e 21 19	− 8	—	—	—
Jena	z.	75·9	4	e 11 46	− 4	—	—	—	—	—
Cheb		76·8	4	—	—	e 21 46?	+ 4	—	—	e 51·8
Prague		76·9	2	—	—	e 22 3	+20	—	—	e 47·3
Paris		77·4	11	e 12 2	+ 4	—	—	—	—	e 44·8
Strasbourg		78·1	7	e 12 3	+ 1	e 22 1	+ 5	e 27 27	SS	—

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Basle		79·1	8	e 12 5	− 3	—	—	—	—	—
Zürich		79·4	7	e 12 8	− 1	—	—	—	—	—
San Juan		79·5	73	e 12 10	0	i 22 14	+ 3	—	—	—
Clermont-Ferrand		80·5	11	e 12 14	− 1	e 21 46?	−36	—	—	e 43·3
Grozny		80·5	339	12 16	+ 1	—	—	—	—	—
Zagreb		81·2	1	e 12 16	− 3	—	—	—	—	—
Triest		81·3	3	e 12 18	− 2	e 22 28	− 2	e 12 22	P_cP	—
Belgrade		82·1	358	i 12 14	−10	—	—	—	—	—
Baku		82·3	335	e 12 33	+ 8	e 22 53	+13	—	—	—
New Delhi	N.	83·1	310	e 12 26	− 3	e 22 50	+ 2	—	—	—
Florence		83·1	5	i 12 25	− 4	i 22 51	+ 3	—	—	—
Erevan		83·8	339	e 12 39	+ 7	—	—	—	—	—
Rome		85·0	4	12 35k	− 3	23 6	− 1	i 12 43	P_cP	—
Toledo		85·3	16	i 12 38	− 2	e 23 17	+ 7	—	—	—
Bogota		85·7	87	i 12 43	+ 1	—	—	e 15 43	PP	—
Alicante		87·4	14	e 13 6	+16	e 23 55	+25	—	—	—
Granada		88·0	17	12 50a	− 3	23 11	[−10]	13 0	pP	43·7
Ksara		91·6	344	e 13 11	+ 1	—	—	16 46	PP	—
Hyderabad	N.	91·9	303	13 16	+ 5	24 9	− 2	—	—	—
Bombay	N.	93·4	308	—	—	e 24 42	+18	—	—	—
Riverview	E.	95·5	217	—	—	e 24 56	+14	e 38 28	Q	e 45·4
Helwan		96·1	347	i 13 36	+ 5	e 26 13	PS	e 16 18	?	—
Kodaikanal	E.	98·5	300	—	—	e 25 14	+ 6	—	—	—

Additional readings :—
Strasbourg e =25m.15s.
Triest esS?E =22m.53s.
Rome eN =23m.14s., S =24m.0s.
Long waves were also recorded at Seattle, Ivigtut, Philadelphia, Uccle, Auckland, Christchurch, and Arapuni.

April 2d. 5h. 57m. 9s. Epicentre 53°·4N. 163°·1W. (as at 5h. 38m.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 12	− 9	—	—	—	—	e 6·7
Grand Coulee		28·1	82	e 5 52	− 3	—	—	—	—	—
Shasta Dam		30·1	98	i 6 11	− 2	—	—	i 9 11	P_cP	—
Berkeley		32·0	102	e 6 27	− 3	—	—	—	—	—
Saskatoon		33·4	69	e 7 2	+20	e 11 57	− 6	—	—	16·9
Tinemaha	z.	34·9	99	i 6 54	− 1	—	—	i 9 26	P_cP	—
Haiwee	z.	35·7	100	e 7 0	− 2	—	—	—	—	—
Santa Barbara	z.	35·8	103	i 7 3	0	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 11	− 2	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 11	− 2	—	—	—	—	—
Riverside	z.	37·5	102	i 7 15	− 2	—	—	—	—	—
Boulder City		37·7	97	i 7 17	− 2	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 20	− 1	—	—	—	—	—
La Jolla		38·4	103	e 7 28	+ 3	—	—	—	—	—
Rapid City		39·5	78	e 7 33	− 1	e 13 31	− 5	e 9 23	PP	—
Tucson		42·6	98	i 7 58	− 1	—	—	—	—	—
Florissant	z.	50·3	76	e 8 55	− 5	—	—	i 9 8	pP	—
St. Louis	z.	50·5	76	i 8 57	− 5	—	—	i 9 9	pP	—
Ottawa		54·0	60	e 9 31	+ 3	—	—	—	—	9·9
Shawinigan Falls		54·7	57	e 9 33	0	—	—	—	—	28·9
Seven Falls		55·3	56	e 9 39	+ 1	—	—	—	—	25·9
Harvard		58·2	59	e 9 53	− 5	—	—	—	—	—
Weston		58·4	59	e 9 55	− 5	—	—	—	—	—
Tacubaya	E.	59·1	98	e 10 8	+ 4	—	—	—	—	—
Sverdlovsk		64·5	335	e 10 38	− 3	i 19 10	− 9	—	—	—
Upsala	N.	67·1	0	e 11 1	+ 4	e 19 54	+ 3	—	—	e 36·9
Aberdeen		68·7	12	—	—	i 20 5	− 5	—	—	40·1
Bermuda		69·3	63	—	—	e 19 31	−46	e 21 16	S_eS	e 32·3
Almata		70·8	318	11 20	0	—	—	—	—	—
Copenhagen		71·2	3	e 11 21	− 2	e 20 40	0	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
De Bilt		74·4	8	i 11 40	− 2	i 21 11	− 5	—	—	—
Andijan		74·8	319	11 45	+ 1	—	—	—	—	—
Tashkent		75·4	322	e 11 47?	0	—	—	—	—	—
Collmberg		75·6	3	e 11 56	+ 8	—	—	—	—	e 36·9
Uccle	N.	75·6	10	e 11 55	+ 7	i 21 26	− 3	—	—	—
Jena		75·9	4	e 11 47	− 3	e 21 26	− 6	i 11 57	P_cP	e 35·9
Paris		77·4	11	e 12 5	+ 7	—	—	—	—	—
Strasbourg		78·1	7	e 12 1	− 1	e 21 53	− 3	—	—	e 37·9
Basle		79·1	8	e 12 5	− 3	—	—	—	—	—
Zürich		79·4	7	e 12 6	− 3	—	—	—	—	—
San Juan		79·5	73	e 12 9	− 1	i 22 7	− 4	e 27 1	SS	e 32·5
Chur		79·9	6	e 12 9	− 3	—	—	—	—	—
Kalossa		80·4	359	e 11 41	−34	—	—	e 12 31	P_cP	—
Clermont-Ferrand		80·5	11	e 12 24	+ 9	e 22 25	+ 3	—	—	—
Grozny		80·5	339	e 12 16	+ 1	e 22 47	S_cS	—	—	—
Zagreb		81·2	1	e 12 17	− 2	e 22 26	− 3	e 12 26	P_cP	—
Triest		81·3	3	e 12 19	− 1	e 22 30	0	i 12 26	P_cP	—
Yalta		81·4	348	e 11 55	−25	—	—	—	—	—
Belgrade		82·1	358	i 12 17	− 7	—	—	e 20 51?	?	—
Baku		82·3	335	e 12 29	+ 4	i 22 44	+ 4	—	—	—
Erevan		83·8	339	e 12 31	− 1	23 15	S_cS	—	—	—
Rome		85·0	4	12 37a	− 1	23 5	− 2	i 12 45	P_cP	—
Tortosa	N.	85·1	13	e 12 47	+ 8	—	—	—	—	—
Toledo		85·3	16	i 12 40	0	i 23 10	0	16 1	PP	—
Lisbon		85·5	20	—	—	23 5	− 7	32 39	SSS	—
Bogota		85·7	87	i 12 41	− 1	—	—	—	—	—
Alicante		87·4	14	12 39	−11	23 11	[− 6]	—	—	—
Granada		88·0	17	12 49k	− 4	23 21	[0]	16 15	PP	—
Ksara		91·6	344	e 12 50	−20	e 23 40	[− 2]	—	—	—
Hyderabad	N.	91·9	303	e 13 23	+12	24 15	+ 4	23 45	SKS	—
Riverview	E.	95·5	217	—	—	i 24 58	+16	e 38 33	Q	e 43·6
Helwan		96·1	347	e 13 36	+ 5	24 3	[− 4]	26 3	PS	—

Additional readings :—
Bermuda e =26m.51s.
Jena ePEN =11m.51s.
Lisbon E =23m.10s.
Long waves were also recorded at Honolulu, Ivigtut, Bergen, Cheb, Wellington, and Christchurch.

April 2d. 13h. 4m. 21s. Epicentre 53°·4N. 163°·1W. (as at 5h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 20	− 1	e 5 56	− 1	—	—	e 6·3
Victoria		25·2	85	e 3 51	?	(9 39)	−13	—	—	9·7
Grand Coulee		28·1	82	e 5 56	+ 1	—	—	—	—	—
Shasta Dam		30·1	98	i 6 15	+ 2	—	—	—	—	—
Berkeley		32·0	102	i 6 32	+ 2	—	—	—	—	—
Saskatoon		33·4	69	6 44	+ 2	12 13	+10	—	—	18·7
Bozeman		34·0	81	—	—	e 12 9	− 4	—	—	e 15·2
Fresno	N.	34·2	100	e 6 53	+ 4	—	—	—	—	—
Tinemaha	Z.	34·9	99	i 6 59	+ 4	—	—	—	—	—
Haiwee	Z.	35·7	100	i 7 4	+ 2	—	—	—	—	—
Santa Barbara	Z.	35·8	103	e 7 8	+ 5	—	—	—	—	—
Mount Wilson	Z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Pasadena	Z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Riverside	Z.	37·5	102	i 7 19	+ 2	—	—	—	—	—
Boulder City		37·7	97	i 7 21	+ 2	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 24	+ 3	—	—	—	—	—
La Jolla		38·4	103	e 7 28	+ 3	—	—	—	—	—
Rapid City		39·5	78	e 7 35	+ 1	e 13 40	+ 3	e 9 20	PP	e 18·0
Tucson		42·6	98	i 8 1	+ 2	—	—	—	—	—
Florissant	Z.	50·3	76	i 8 57	− 3	—	—	—	—	—

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		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis		50·5	76	i 8 59	− 3	e 16 24	+ 8	i 9 9	pP	—
Irkutsk		52·0	309	e 11 6?	PP	—	—	—	—	—
Philadelphia		58·1	64	—	—	e 22 14	SS	—	—	e 28·2
Weston		58·4	59	e 9 54	− 6	—	—	—	—	—
Tacubaya	E.	59·1	98	e 10 2	− 2	—	—	—	—	—
Sverdlovsk		64·5	335	10 33	− 8	20 30	S_cS	—	—	—
Bermuda		69·3	63	—	—	e 21 9	S_cS	—	—	e 37·7
Andijan		74·8	319	e 11 3	−41	21 25	+ 5	—	—	—
Tashkent		75·4	322	e 11 41	− 6	e 22 39	PPS	—	—	—
Paris		77·4	11	e 11 58?	0	—	—	(e 17 39?)	PPP	e 17·7
Strasbourg		78·1	7	e 12 16	+14	e 26 38	SS	e 30 12	SSS	e 39·4
Basle		79·1	8	e 12 1	− 7	e 22 57	PS	—	—	—
Zürich		79·4	7	e 12 4	− 5	—	—	—	—	—
San Juan		79·5	73	e 12 9	− 1	e 22 11	0	i 22 20	S_cS	—
Clermont-Ferrand		80·5	11	e 12 14	− 1	—	—	—	—	e 46·7
Grozny		80·5	339	e 12 14	− 1	—	—	—	—	—
Erevan		83·8	339	e 12 41	+ 9	—	—	—	—	—
Rome		85·0	4	e 12 35k	− 3	e 23 5	− 2	e 23 59	PS	—
Toledo	Z.	85·3	16	i 12 38	− 2	—	—	—	—	—
Alicante		87·4	14	e 12 43	− 7	—	—	—	—	—
Granada		88·0	17	13 20	+27	—	—	—	—	44·8
Hyderabad	N.	91·9	303	e 13 9	− 2	24 9	− 2	23 44	SKS	—

Additional readings :—
Strasbourg e =20m.10s.
Rome ePPS? =25m.49s.
Long waves were also recorded at Sitka, Columbia, Chicago, Harvard, Uccle, and De Bilt.

April 2d. 14h. 27m. 28s. Epicentre 53°·4N. 163°·1W. (as at 13h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
College		13·9	28	e 3 15	− 6	—	—	—	—	e 6·3
Victoria		25·2	85	5 32	+ 3	10 8	+16	—	—	16·5
Grand Coulee		28·1	82	e 5 52	− 3	—	—	i 7 10	PPP	—
Shasta Dam		30·1	98	i 6 13	0	—	—	i 9 14	P_cP	—
Saskatoon		33·4	69	6 57	+15	12 9	+ 6	—	—	17·5
Fresno	N.	34·2	100	e 6 53	+ 4	—	—	—	—	—
Tinemaha	Z.	34·9	99	i 6 57	+ 1	—	—	—	—	—
Haiwee	Z.	35·7	100	i 7 3	+ 1	—	—	—	—	—
Pasadena	Z.	37·0	102	i 7 14	+ 1	—	—	—	—	—
Riverside	Z.	37·5	102	i 7 17	0	—	—	—	—	—
Boulder City		37·7	97	i 7 19	0	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 22	+ 1	—	—	—	—	—
Rapid City		39·5	78	e 7 32	− 2	e 13 36	− 1	e 9 2	PP	e 19·2
Tucson		42·6	98	i 8 0	+ 1	—	—	—	—	—
Chicago		49·9	71	—	—	e 15 59	− 8	—	—	e 20·2
Florissant		50·3	76	e 8 56	− 4	e 16 8	− 5	—	—	—
St. Louis		50·5	76	i 8 57	− 5	e 16 9	− 7	—	—	—
Irkutsk		52·0	309	—	—	e 20 50	SS	—	—	—
Ottawa		54·0	60	—	—	e 17 20	PPS	—	—	29·5
Weston		58·4	60	e 9 55	− 5	—	—	—	—	—
Sverdlovsk		64·5	335	10 35	− 6	19 13	− 6	—	—	—
Bermuda		69·3	63	—	—	e 20 12	− 5	e 25 7	SS	e 36·9
San Juan		79·5	73	e 12 17	+ 7	i 22 10	− 1	—	—	—
Rome		85·0	4	e 12 35a	− 3	e 23 0	− 7	e 26 12	?	—
Toledo		85·3	16	i 12 39	− 1	—	—	—	—	—
Alicante		87·4	14	e 16 4	PP	—	—	—	—	—
Granada		88·0	17	16 38	PP	26 15	?	—	—	43·5
Hyderabad	N.	91·9	303	—	—	24 10	− 1	—	—	—

St. Louis gives also iZ =9m.4s. and 9m.10s.
Long waves were also recorded at other American and European stations.

April 2d. 16h. 30m. 24s. Epicentre 53°·4N. 163°·1W. (as at 14h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 25	+ 4	e 5 59	+ 2	—	—	e 7·0
Sitka		16·2	64	i 3 54	+ 4	i 6 59	+ 8	—	—	e 8·4
Victoria		25·2	85	5 44	+15	10 10	+18	—	—	12·6
Grand Coulee		28·1	82	i 6 0	+ 5	—	—	e 8 50	PcP	—
Shasta Dam		30·1	98	i 6 18	+ 5	e 11 24	+12	e 7 18	PP	e 15·6
Ukiah		30·6	100	—	—	e 11 36	+16	—	—	e 12·1
Berkeley	Z.	32·0	102	i 6 35	+ 5	—	—	—	—	—
Santa Clara		32·5	102	e 7 3	+29	e 12 15	+26	—	—	e 14·8
Lick	E.	32·7	102	e 6 42	+ 6	—	—	—	—	—
Butte		32·9	81	e 6 40	+ 2	—	—	—	—	e 14·5
Saskatoon		33·4	69	6 54	+12	12 13	+10	14 48	SSS	16·6
Bozeman		34·0	81	—	—	e 12 24	+11	—	—	e 15·0
Tinemaha	Z.	34·9	99	i 7 1	+ 6	—	—	e 13 13	PcS	—
Haiwee	Z.	35·7	100	i 7 7	+ 5	—	—	—	—	—
Santa Barbara	Z.	35·8	103	e 7 9	+ 6	—	—	—	—	—
Salt Lake City		36·3	88	e 7 6	− 1	—	—	e 8 20	PP	e 15·8
Mount Wilson	Z.	37·0	102	i 7 18	+ 5	—	—	—	—	—
Pasadena		37·0	102	i 7 17	+ 4	—	—	—	—	e 16·8
Riverside	Z.	37·5	102	i 7 21	+ 4	—	—	—	—	—
Boulder City		37·7	97	i 7 22	+ 3	e 12 55	−15	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	e 13 26	+12	—	—	18·8
La Jolla		38·4	103	e 7 32	+ 7	—	—	—	—	—
Rapid City		39·5	78	e 7 36	+ 2	e 13 34	− 3	e 9 18	PP	e 26·8
Tucson		42·6	98	i 8 4	+ 5	—	—	(e 17 50)	SSS	e 17·8
Vladivostok		43·1	283	8 3	− 1	e 14 19	−11	—	—	—
Chicago		49·9	71	e 8 56	− 1	e 16 8	+ 1	e 18 6	?	e 20·8
Florissant		50·3	76	i 9 0	0	i 16 16	+ 3	—	—	—
St. Louis		50·5	76	i 9 1	− 1	e 16 15	− 1	e 16 30	PPS	—
Irkutsk		52·0	309	e 9 6	− 7	16 24	−12	—	—	—
Ottawa		54·0	60	e 9 27	− 1	17 6	+ 3	21 6	SS	25·6
Ivigtut		54·7	33	—	—	17 18	+ 5	—	—	26·6
Shawinigan Falls		54·7	57	e 8 38	−55	—	—	—	—	32·6
Seven Falls		55·3	56	9 42	+ 4	17 24	+ 3	21 30	SS	28·6
Fordham		58·1	63	9 59	+ 1	18 4	+ 6	—	—	—
Philadelphia		58·1	64	e 13 51	PPP	e 18 23	PPS	e 21 42	SS	e 22·4
Weston		58·4	59	e 9 59	− 1	e 18 2	0	—	—	—
Sverdlovsk		64·5	335	i 10 36	− 5	19 15	− 4	—	—	—
Aberdeen		68·7	12	i 18 46	?	—	—	—	—	—
Bermuda		69·3	63	—	—	e 20 21	+ 4	e 24 36	SS	e 29·9
Durham	E.	71·1	12	—	—	e 20 35	− 3	—	—	—
Copenhagen		71·2	3	11 19	− 4	—	—	—	—	—
Frunse		72·1	319	e 11 25	− 3	—	—	—	—	—
De Bilt		74·4	8	i 11 40	− 2	e 21 16	0	—	—	e 32·6
Tchimkent		74·5	322	e 11 38	− 4	—	—	—	—	—
Andijan		74·8	319	11 40	− 4	—	—	—	—	—
Tashkent		75·4	322	e 11 39	− 8	e 21 11	−16	—	—	—
Collmberg		75·6	3	i 11 45	− 3	—	—	i 12 0	PcP	e 48·6
Uccle		75·6	10	e 11 47a	− 1	e 21 28	− 1	e 26 19	SS	e 37·6
Cheb		76·8	4	—	—	e 21 36?	− 6	—	—	e 44·6
Prague		76·9	2	—	—	e 21 36?	− 7	e 29 18	?	—
Paris		77·4	11	e 11 36?	−22	e 21 47	− 2	e 35 36	Q	e 48·6
Samarkand		77·7	323	12 1	+ 1	21 46	− 6	—	—	—
Stalinabad		78·0	321	i 12 0	− 2	i 21 50	− 5	—	—	—
Strasbourg		78·1	7	e 12 0	− 2	e 21 55	− 1	e 14 51	PP	e 44·6
Basle		79·1	8	e 12 6	− 2	e 21 42	−25	—	—	—
Besançon		79·3	9	—	—	22 5	− 4	—	—	—
Zürich		79·4	7	e 12 6a	− 3	e 22 10	0	—	—	—
San Juan		79·5	73	e 12 21	+11	i 22 17	+ 6	—	—	e 41·6
Clermont-Ferrand		80·5	11	e 12 15	0	e 23 16	PS	e 27 40	SS	e 38·1
Grozny		80·5	339	i 12 15	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		81·3	3	e 12 18	− 2	e 22 27	− 3	e 22 52	sS	—
New Delhi	N.	83·1	310	e 12 23	− 6	i 22 38	−10	—	—	—
Florence		83·1	5	i 12 29	0	i 22 46	− 2	—	—	—
Rome		85·0	4	e 12 36	− 2	i 23 6	− 1	e 24 10	PS	—
Toledo		85·3	16	i 12 40	0	—	—	—	—	—
Alicante		87·4	14	13 40	+50	23 26	− 4	14 14	pP	40·9
Granada		88·0	17	i 14 9a	+76	i 23 39	+ 3	14 19	pP	44·7
Ksara		91·6	344	e 13 8	− 2	e 24 19	+ 9	—	—	—
Hyderabad	N.	91·9	303	13 11	0	23 37	[− 7]	—	—	—
Bombay		93·4	308	e 13 17	− 1	—	—	—	—	—
Riverview		95·5	217	—	—	e 24 9	[+ 5]	e 24 44	S	e 44·6
Helwan		96·1	347	e 13 30	− 1	e 24 3	[− 4]	e 17 42	PP	—
Kodaikanal	E.	98·5	300	—	—	e 26 14	PS	—	—	—
La Paz	Z.	106·0	96	e 24 54	SKS	(e 24 54)	[− 1]	—	—	66·6

Additional readings :—
Grand Coulee e =7m.56s.
Shasta Dam ePPP? =7m.34s., iP$_c$P? =9m.14s., iP$_c$S =12m.56s., eS$_c$S =16m.51s.
Salt Lake City eP$_c$P =9m.19s.
Boulder City i =7m.45s., e =10m.25s.
Rapid City e =11m.0s.
St. Louis iZ =9m.10s.
Collmberg eZ =12m.10s. and 12m.17s., eEN =12m.26s.
Uccle eSE =21m.24s., eN =28m.6s.
Rome e =13m.4s., eSKKSE =23m.48s.
Alicante PP =16m.56s., PPP =19m.8s., PS =25m.4s.
Granada SS =29m.36s.
Long waves were also recorded at Seattle, Harvard, Barcelona, Calcutta, Christchurch, and Wellington.

April 2d. List of aftershocks of the Aleutian-Alaskan earthquake recorded at Tinemaha.

h.	m.	s.
0	17	33
	18	52
	39	16
1	5	24
	35	39
	52	41
2	1	41
	22	41
	24	39
	46	26
3	11	36
	29	13
	34	6
	56	34
4	20	37
	56	27
	59	29
5	0	33
	31	58
	34	13
	45	10
6	4	3
	8	15
8	41	50
9	12	41
	58	45
	59	24
11	32	59
12	42	6
13	11	20
	29	12
	39	2
	43	16
14	34	25
15	27	0
	29	51
16	1	25
	22	6
	35	26
	37	25
	45	17
18	31	20
	36	26
19	38	34
20	5	2
	9	58
	15	13
	24	4
21	56	20
22	44	25
23	7	43
	49	27

April 2d. Readings also at 1h. (Grand Coulee, Shasta Dam, Pierce Ferry, Boulder City, and near Tacubaya), 2h. (Alicante, College, and near Stalinabad), 3h. (Weston, Granada, Alicante, Strasbourg, and Cheb), 4h. (Shasta Dam), 5h. (Huancayo, Berkeley, Pierce Ferry, Boulder City, and College), 7h. (Riverview), 8h. (Arapuni, Christchurch, Wellington, Auckland, and near Mizusawa), 10h. (near Mizusawa and near Bogota), 11h. (Basle, Boulder City, Pierce Ferry, Shasta Dam, and College), 12h. (Alicante, Berkeley, Bozeman, Chicago, Pierce Ferry, Boulder City, and College), 13h. (Weston, Tinemaha, Tucson, Mount Wilson, Riverside, Boulder City, Pierce Ferry, Strasbourg, Alicante, and Granada), 15h. (College, Shasta Dam, Bozeman, Pierce Ferry, Chicago, Philadelphia, Bermuda, La Paz, near Harvard, Alicante, and near Mizusawa), 16h. (Honolulu, Fresno, Boulder City, and Uccle), 18h. (Ksara, Huancayo and Riverview), 19h. (Boulder City and Pierce Ferry), 20h. (Weston), 21h. (Shasta Dam, Boulder City, and Pierce Ferry), 23h. (College, Shasta Dam, Pierce Ferry, Boulder City, and Granada).

April 3d. 3h. 12m. 46s. Epicentre 1°·0N. 98°·5E. (as on 1937 October 22d.).

$A = -\cdot1478$, $B = +\cdot9888$, $C = +\cdot0173$; $\delta = -13$; $h = +7$;
$D = +\cdot989$, $E = +\cdot148$; $G = -\cdot003$, $H = +\cdot017$, $K = -1\cdot000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo	E.	19·5	289	4 33	+ 2	(8 18)	+12	—	—	8·3
Kodaikanal	E.	22·8	296	i 5 9	+ 4	i 9 17	+ 6	—	—	10·7
Calcutta	N.	23·6	337	i 5 5	− 8	i 9 20	− 5	—	—	—
Hyderabad	N.	25·6	310	5 35	+ 3	10 3	+ 4	—	—	—
Bombay		30·8	307	i 6 23	+ 3	e 11 25	+ 2	—	—	—
New Delhi	N.	34·2	326	i 6 49	0	i 12 13	− 3	7 51	PP	i 15·5
Andijan		46·1	332	8 30	+ 2	—	—	—	—	—
Almata		46·3	339	8 34	+ 5	—	—	—	—	—
Stalinabad		46·3	328	i 8 29	0	—	—	—	—	—
Samarkand		48·0	327	e 8 42	− 1	—	—	—	—	—
Tashkent		48·0	331	e 8 41	− 2	e 15 41	0	—	—	—
Irkutsk		51·3	5	9 8	0	16 30	+ 4	—	—	—
Vladivostok		51·5	32	i 9 8	− 1	i 16 28	− 1	—	—	—
Erevan		62·5	316	e 10 38	+10	—	—	—	—	—
Grozny		63·0	320	e 10 31	0	—	—	—	—	—
Sverdlovsk		63·4	338	i 10 32	− 2	19 0	− 6	—	—	—
Ksara		66·9	306	i 10 56	0	e 19 52	+ 3	—	—	—
Helwan		69·8	302	e 11 11	− 3	20 16	− 7	e 11 50	P_cP	—
Triest		85·6	316	i 12 39	− 2	e 23 13?	0	i 14 0	pP	—
Rome		86·4	313	12 44 s	− 1	23 16	− 5	—	—	—
Copenhagen		86·9	326	11 48	−60	—	—	—	—	—
Chur		88·6	317	e 12 55 s	− 1	—	—	—	—	—
Zürich		89·2	318	e 12 57 s	− 2	e 23 44	− 3	—	—	—
Basle		89·9	318	e 13 0	− 2	e 23 42	{+ 1}	—	—	—
Shasta Dam		124·3	37	i 18 59	[− 2]	—	—	i 20 42	PP	—
Tinemaha	Z.	129·1	38	e 19 9	[− 1]	i 22 26	PKS	—	—	—
Haiwee	Z.	129·8	38	19 11	[− 1]	—	—	—	—	—
Pasadena		130·9	41	i 19 12	[− 2]	i 22 38	PKS	—	—	—
Mount Wilson	Z.	131·0	41	i 19 13	[− 1]	e 22 32	PKS	e 21 22	PP	—
Rapid City		131·1	20	e 19 18	[+ 4]	e 22 35	PKS	—	—	—
Riverside	Z.	131·6	40	i 19 15	[0]	e 22 34	PKS	—	—	—
Boulder City		131·9	36	e 19 14	[− 2]	i 22 36	PKS	e 21 6	PP	—
Pierce Ferry		132·3	35	i 19 15	[− 1]	i 22 36	PKS	—	—	—
Tucson		136·7	37	e 19 24	[− 1]	e 22 52	PKS	e 22 13	PP	—
St. Louis	Z.	139·7	10	e 20 18	[+48]	—	—	—	—	—
Bogota		170·7	307	e 20 9	[− 1]	—	—	e 29 31	PPP	—

Additional readings :—
New Delhi iN = 12m.35s.
Triest iSKKS?E = 23m.32s.
Pasadena iZ = 20m.56s. and 22m.55s.
Mount Wilson eZ = 22m.51s.
Tucson e = 23m.12s.
St. Louis eZ = 20m.23s.
Long waves were also recorded at Riverview, Uccle, De Bilt, Granada, and La Paz.

April 3d. 8h. 58m. 33s. Epicentre 53°·4N. 163°·1W. (as on 2d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
College	13·9	28	e 3 17	− 4	e 5 59	+ 2	—	—	e 6·7
Sitka	16·2	64	e 3 44	− 6	e 7 1	+10	i 7 10	SS	e 7·8
Victoria	25·2	85	5 38	+ 9	9 50	− 2	—	—	—
Grand Coulee	28·1	82	e 5 56	+ 1	e 10 41	+ 1	e 7 32	?	—
Shasta Dam	30·1	98	i 6 15	+ 2	e 16 49	S_cS	e 7 12	PP	—
Berkeley	32·0	102	6 33	+ 3	11 52	+10	9 6	P_cP	15·1
Santa Clara	32·5	102	—	—	e 13 45	SS	—	—	e 17·6
Butte	32·9	81	e 6 45	+ 7	e 11 35	−21	—	—	e 12·9
Saskatoon	33·4	69	6 46	+ 4	11 56	− 7	—	—	16·5
Bozeman	34·0	81	—	—	e 12 14	+ 1	—	—	e 14·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	34·2	100	e 7 5	+16	—	—	—	—	—
Tinemaha	Z.	34·9	99	i 6 58	+ 3	—	—	—	—	—
Haiwee	Z.	35·7	100	i 7 5	+ 3	—	—	—	—	—
Salt Lake City		36·3	88	e 7 29	+22	e 12 58	+10	—	—	e 28·9
Mount Wilson	Z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Pasadena		37·0	102	i 7 14	+ 1	—	—	—	—	e 15·8
Riverside	Z.	37·5	102	i 7 20	+ 3	—	—	—	—	—
Boulder City		37·7	97	i 7 21	+ 2	—	—	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	—	—	—	—	—
La Jolla	N.	38·4	103	e 7 34	+ 9	—	—	—	—	—
Rapid City		39·5	78	e 7 37	+ 3	e 13 35	− 2	e 9 13	PP	e 16·7
Tucson		42·6	98	e 8 3	+ 4	—	—	—	—	e 20·0
Chicago		49·9	71	e 8 55	− 2	i 16 3	− 4	e 20 5	SS	e 22·0
Florissant		50·3	76	e 8 58	− 2	i 16 11	− 2	—	—	—
St. Louis		50·5	76	i 8 55	− 7	i 16 8	− 8	—	—	—
Irkutsk		52·0	309	9 9	− 4	16 23	−13	—	—	—
Ottawa		54·0	60	e 13 27?	PPP	e 16 57	− 6	e 21 27?	SS	28·5
Ivigtut		54·7	33	9 29	− 4	—	—	—	—	27·4
Seven Falls		55·3	56	e 13 3	PPP	e 17 15	− 6	e 21 21	SS	26·5
Fordham		58·1	63	9 51	− 7	17 51	− 7	—	—	—
Philadelphia		58·1	64	e 10 42	P_cP	e 17 55	− 3	e 12 18	PP	e 23·7
Weston		58·4	59	e 9 59	− 1	e 17 59	− 3	—	—	—
Sverdlovsk		64·5	335	11 27?	P_cP	19 55	+36	—	—	—
Aberdeen		68·7	12	—	—	i 20 7	− 3	—	—	i 30·1
Bermuda		69·3	63	e 11 32	P_cP	e 20 17	0	e 24 37	SS	e 36·5
Copenhagen		71·2	3	11 20	− 3	—	—	—	—	—
De Bilt		74·4	8	i 11 39a	− 3	e 21 15	− 1	e 14 27	PP	e 33·5
Andijan		74·8	319	11 39	− 5	—	—	—	—	—
Collmberg		75·6	3	i 11 45	− 3	—	—	e 11 55	P_cP	e 53·5
Uccle		75·6	10	e 11 45a	− 3	e 21 25	− 4	e 14 41	PP	e 40·5
Cheb		76·8	4	—	—	e 21 27?	−15	—	—	e 40·5
Paris		77·4	11	i 11 56	− 2	e 21 44?	− 5	e 14 57	PP	e 41·5
Stalinabad		78·0	321	i 12 0	− 2	—	—	—	—	—
Strasbourg		78·1	7	e 12 2	0	e 22 9	+13	e 14 38	PP	e 39·5
Basle		79·1	8	e 12 5	− 3	e 22 3	− 4	e 23 20	PPS	—
Zürich		79·4	7	e 12 7	− 2	—	—	—	—	—
San Juan		79·5	73	—	—	i 22 12	+ 1	—	—	—
Neuchatel		79·6	8	e 12 8	− 2	—	—	—	—	—
Chur		79·9	6	e 12 11a	− 1	—	—	—	—	—
Clermont-Ferrand		80·5	11	e 12 13	− 2	e 21 41	−41	—	—	e 37·5
Grozny		80·5	339	e 12 2	−13	—	—	—	—	—
Triest		81·3	3	i 11 52	−28	e 22 29	− 1	e 23 5	PS	—
Belgrade		82·1	358	i 12 20	− 4	e 23 32	PS	—	—	—
Baku		82·3	335	e 12 9	−16	e 22 41	+ 1	—	—	—
Calcutta	N.	82·6	298	e 20 36	?	—	—	—	—	—
Florence		83·1	5	e 11 49	−40	e 22 18	−30	—	—	—
Erevan		83·8	339	e 12 31	− 1	e 22 54?	− 1	—	—	—
Rome		85·0	4	i 12 36a	− 2	23 1	− 6	—	—	—
Toledo		85·3	16	i 12 40	0	e 23 5	− 5	15 56	PP	—
Lisbon		85·5	20	e 12 40	− 1	23 13?	+ 1	—	—	44·0
Alicante		87·4	14	e 13 8	+18	e 24 4	+34	16 26	PP	e 40·0
Granada		88·0	17	i 12 38k	−15	i 22 38	−58	12 50	pP	46·2
Algiers		89·4	12	e 12 46	−14	e 24 4	+15	—	—	—
Ksara		91·6	344	i 13 10	0	—	—	e 16 44	PP	—
Hyderabad	N.	91·9	303	13 9	− 2	24 23	+12	23 55	SKS	44·9
Bombay		93·4	308	e 13 18	0	—	—	—	—	—
Riverview	E.	95·5	217	—	—	i 24 52	+10	—	—	e 44·8
Helwan		96·1	347	—	—	e 24 3	[− 4]	e 24 19	SKKS	—
Wellington		96·2	197	19 57	PPP	—	—	—	—	—

For Notes see next page.

NOTES TO APRIL 3d. 8h. 58m. 33s.

Additional readings :—
Sitka iP = 3m.52s.
Shasta Dam iPP = 6m.59s., iP_cP = 9m.13s.
Berkeley SS = 13m.47s., SSS? = 14m.7s.
Rapid City ePPP = 9m.47s.
Philadelphia eSS = 21m.43s.
Collmberg eZ = 12m.2s., 12m.15s., and 12m.57s.
Strasbourg ePS = 22m.39s., eSS = 27m.13s.
Belgrade e = 14m.9s. and 14m.54s.
Alicante PPP = 18m.10s., Q = 34m.7s.
Long waves were also recorded at Honolulu, Kew, Upsala, Barcelona, Christchurch, Auckland, and La Paz.

April 3d. 17h. 1m. 44s. Epicentre 39°·8N. 16°·0E. (as given by Strasbourg).

A = +·7406, B = +·2124, C = +·6376 ; δ = +13 ; h = −2 ;
D = +·276, E = −·961 ; G = +·613, H = +·176, K = −·770.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Rome		3·3	307	(i 1 6a)	P_g	(i 1 33)	− 2	(i 1 51)	S_g
Triest		6·0	346	e 1 47	P*	i 2 57	S*	—	—
Zagreb		6·0	359	e 1 43	P*	e 3 0	S*	—	—
Chur		8·4	328	e 2 9	+ 3	—	—	—	—
Zürich		9·3	326	e 2 17k	0	e 4 2	− 3	—	—
Neuchatel		9·7	320	e 2 21	− 1	—	—	—	—
Basle		9·8	325	e 2 23k	− 1	e 4 13	− 4	—	—
Strasbourg		10·6	329	e 2 38	+ 2	e 4 34	− 3	e 2 50	PPP
Jena	N.	11·5	346	e 2 50	+ 2	—	—	3 0	PP
Copenhagen		16·1	352	3 41	− 8	—	—	—	—
Ksara		17·0	104	e 2 53	−68	—	—	i 3 55	P

Additional readings :—
Rome iE = (1m.44s.) ; readings decreased by one minute.
Strasbourg e = 2m.59s.
Jena eE = 2m.53s.

April 3d. List of after-shocks of the Aleutian-Alaskan earthquake recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
2	0	36	6	14	29	11	17	14
3	19	21		19	52	16	15	56
4	8	14	7	22	24	17	55	11
	14	1		31	16	18	43	21
5	13	42	8	47	3	19	16	19
	52	57	9	5	31	21	47	35

April 3d. Readings also at 0h. (near Bogota), 4h. (Alicante, Strasbourg, Paris, Zürich, Basle, Tucson, Haiwee, Tinemaha, Riverside, Mount Wilson, Pasadena, Bermuda, Butte, Chicago, College, Philadelphia, Shasta Dam, San Juan, and near Mizusawa), 8h. (Harvard, Boulder City, and Pierce Ferry), 13h. (near Bogota), 14h. (near Stalinabad), 18h. (Shasta Dam, Boulder City, and Pierce Ferry), 19h. (Shasta Dam, Boulder City, Pierce Ferry, and Malaga (2)), 21h. (Granada, Alicante, Pierce Ferry, Boulder City, Shasta Dam, Sitka, and College), 22h. (Paris, Strasbourg, Uccle, Philadelphia, and near Berkeley (2)).

April 4d. 7h. 15m. 12s. Epicentre 53°·4N. 163°·1W. (as on 3d.).

A = −·5729, B = −·1741, C = +·8009 ; δ = −3 ; h = −7.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 19	− 2	e 6 21	SSS	—	—	e 7·4
Sitka		16·2	64	e 3 46	− 4	e 6 48	− 3	e 5 28	?	e 7·6
Shasta Dam		30·1	98	i 6 16	+ 3	—	—	—	—	—
Boulder City		37·7	97	e 7 20	+ 1	—	—	—	—	—
Pierce Ferry		38·0	96	e 7 24	+ 3	—	—	—	—	—
St. Louis	Z.	50·5	76	i 9 1	− 1	—	—	i 9 8	?	—
Santa Lucia	E.	117·4	110	—	—	35 40	SS	—	—	—

Long waves were also recorded at Philadelphia, Paris, and San Juan.

April 4d. 16h. 31m. 7s. Epicentre 53°·4N. 163°·1W. (as at 7h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 22	+ 1	e 6 4	+ 7	—	—	e 6·4
Sitka		16·2	64	i 3 49	− 1	e 7 19	+28	i 4 3	PP	e 8·1
Victoria		25·2	85	5 28	− 1	10 5	+13	—	—	13·9
Grand Coulec		28·1	82	e 5 55	0	—	—	—	—	—
Shasta Dam		30·1	98	i 6 15	+ 2	—	—	e 7 12	PP	—
Butte		32·9	81	—	—	e 12 13	+17	—	—	e 16·9
Tinemaha	z.	34·9	99	i 6 58	+ 3	—	—	—	—	—
Salt Lake City		36·3	88	e 7 29	+22	e 13 3	+15	e 9 9	PPP	e 16·2
Pasadena	z.	37·0	102	e 7 15	+ 2	—	—	—	—	—
Riverside	z.	37·5	102	e 7 18	+ 1	—	—	—	—	—
Boulder City		37·7	97	i 7 19	0	—	—	—	—	—
Pierce Ferry		38·0	96	e 7 24	+ 3	—	—	—	—	—
Palomar		38·3	102	e 7 28	+ 4	—	—	—	—	—
Rapid City		39·5	78	e 7 57	+23	e 13 45	+ 8	e 9 9	PP	e 17·2
Tucson		42·6	98	e 8 1	+ 2	—	—	—	—	e 22·6
Vladivostok		43·1	283	e 8 1	− 3	i 14 26	− 4	—	—	—
Florissant		50·3	76	e 8 59	− 1	i 16 23	+10	—	—	—
St. Louis		50·5	76	i 8 59	− 3	i 16 24	+ 8	e 9 5	?	—
Seven Falls		55·3	56	—	—	e 17 29	+ 8	—	—	28·9
Philadelphia		58·1	64	—	—	e 18 13	+15	e 22 22	SS	e 26·1
Weston		58·4	59	e 9 0	−60	—	—	—	—	—
Bermuda		69·3	63	—	—	e 20 23	+ 6	—	—	e 28·3
Tashkent		75·4	322	e 11 48	+ 1	e 21 28	+ 1	—	—	—
Uccle		75·6	10	e 12 10?	+22	e 21 29	0	e 21 24	?	e 38·9
Paris		77·4	11	e 11 53?	− 5	—	—	—	—	e 44·9
Stalinabad		78·0	321	e 12 2	0	—	—	—	—	—
Strasbourg		78·1	7	—	—	e 22 9	+13	e 31 4	?	i 47·9
San Juan		79·5	73	—	—	e 22 10	− 1	i 22 24	S_cS	e 46·9
Baku		82·3	335	—	—	e 22 50	+10	—	—	—
New Delhi	N.	83·1	310	e 9 47	?	e 22 37	−11	—	—	e 45·8
Leninakan		83·4	340	e 12 33	+ 3	—	—	—	—	—
Rome		85·0	4	e 12 37	− 1	e 23 7	0	—	—	—
Toledo		85·3	16	12 34	− 6	—	—	—	—	—
Lisbon	z.	85·5	20	12 47?	+ 6	—	—	—	—	—
Alicante		87·4	14	e 12 22	−28	—	—	—	—	e 38·5
Granada		88·0	17	13 41 s	+48	e 23 1	[−19]	—	—	—

Long waves were also recorded at Honolulu, Ivigtut, Auckland, Christchurch, Wellington, and at other American and European stations.

April 4d. 21h. 25m. 41s. Epicentre 53°·4N. 163°·1W. (as at 16h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 18	− 3	e 5 48	− 9	—	—	e 6·7
Sitka		16·2	64	i 3 47	− 3	e 7 8	+17	—	—	i 8·1
Victoria		25·2	85	5 31	+ 2	9 49	− 3	—	—	15·3
Grand Coulee		28·1	82	e 5 54	− 1	—	—	—	—	—
Shasta Dam		30·1	98	e 6 15	+ 2	e 10 19	−53	e 7 7	PP	—
Mineral	E.	30·8	98	e 6 21	+ 1	—	—	—	—	—
Berkeley		32·0	102	6 33	+ 3	12 3	+21	—	—	14·8
Fresno	N.	34·2	100	e 6 51	+ 2	e 12 22	+ 6	—	—	—
Tinemaha		34·9	99	i 6 58	+ 3	e 12 37	+10	—	—	—
Haiwee		35·7	100	i 7 5	+ 3	—	—	—	—	—
Santa Barbara	z.	35·8	103	i 7 5	+ 2	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 16k	+ 3	—	—	—	—	—
Pasadena		37·0	102	i 7 15k	+ 2	—	—	—	—	e 17·0
Riverside	z.	37·5	102	i 7 19k	+ 2	—	—	—	—	—
Boulder City		37·7	97	i 7 21	+ 2	e 13 12	+ 2	—	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pierce Ferry	38·0	96	i 7 24	+ 3	e 13 23	+ 9	i 7 36	?	—
Palomar	38·3	102	i 7 26	+ 2	—	—	—	—	—
La Jolla	38·4	103	e 7 28	+ 3	—	—	—	—	—
Rapid City	39·5	78	e 7 35	+ 1	e 13 37	0	e 9 23	PPP	e 16·7
Tucson	42·6	98	i 8 3	+ 4	—	—	—	—	e 24·8
Vladivostok	43·1	283	e 8 3	− 1	e 14 23	− 7	—	—	—
Chicago	49·9	71	—	—	e 16 0	− 7	e 18 50	S_eS	e 20·4
St. Louis	50·5	76	i 8 59	− 3	i 16 13	− 3	i 9 6	pP	—
Irkutsk	52·0	309	e 9 10	− 3	e 16 25	−11	—	—	—
Ottawa	54·0	60	e 9 25	− 3	—	—	—	—	25·3
Seven Falls	55·3	56	—	—	e 21 13	SS	—	—	29·3
Fordham	58·1	63	9 55	− 3	18 0	+ 2	—	—	—
Philadelphia	58·1	64	—	—	e 17 52	− 6	e 22 20	SS	e 24·6
Weston	58·4	59	e 9 56	− 4	—	—	—	—	—
Sverdlovsk	64·5	335	e 10 37	− 4	19 8	−11	—	—	—
Copenhagen	71·2	3	11 18	− 5	—	—	—	—	—
De Bilt	74·4	8	e 11 44	+ 2	e 21 13	− 3	—	—	e 38·3
Tashkent	75·4	322	e 11 40	− 7	—	—	—	—	—
Uccle	75·6	10	e 11 46	− 2	e 21 23	− 6	—	—	e 38·3
Paris	77·4	11	e 11 57	− 1	—	—	—	—	e 43·3
Strasbourg	78·1	7	e 12 24	+22	e 21 44	−12	e 34 14	Q	e 47·3
Zürich	79·4	7	e 12 8	− 1	—	—	—	—	—
San Juan	79·5	73	—	—	i 22 9	− 2	—	—	e 45·3
Chur	79·9	6	e 12 8	− 4	—	—	—	—	—
Clermont-Ferrand	80·5	11	e 12 19	+ 4	—	—	—	—	e 44·3
Grozny	80·5	339	e 12 9	− 6	—	—	—	—	—
Baku	82·3	335	—	—	e 22 30	−10	—	—	—
Florence	83·1	5	(12 32)	+ 3	(e 23 9)	+21	—	—	—
Leninakan	83·4	340	12 47	+17	—	—	—	—	—
Erevan	83·8	339	e 12 55	+23	—	—	—	—	—
Rome	85·0	4	12 36k	− 2	e 22 59	− 8	e 23 49	PS	—
Bogota	85·7	87	i 12 42	0	—	—	—	—	—
Riverview	95·5	217	(e 18 55)	?	—	—	—	—	e 18·9
Helwan	96·1	347	—	—	e 24 3	[− 4]	—	—	—

Additional readings :—
Grand Coulee iP =6m.2s., e =8m.6s.
Shasta Dam e =7m.37s., iP_cP =9m.9s., eS_cS =16m.47s.
Boulder City i =7m.35s., e =12m.20s.
Chicago e =18m.4s.
St. Louis esSE =16m.26s.
Florence readings increased by 10 minutes.
Rome eN =26m.22s.
Long waves were also recorded at Honolulu, Ukiah, Butte, Bermuda, Harvard, Kew, Cheb, and Ivigtut.

April 4d. List of after-shocks of Aleutian-Alaskan earthquake recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
0	52	28	9	1	49	12	18	47
	58	2	10	29	32	13	19	58
3	46	56		44	33	16	38	5
4	39	35		48	6	21	32	39
7	22	11	11	25	39			

April 4d. Readings also at 0h. (St. Louis, Christchurch, Arapuni, and Wellington), 9h. (Pierce Ferry, Boulder City, and Shasta Dam), 10h. (Almata, near Samarkand, Tchimkent, Tashkent, and Stalinabad), 11h. (near Fort de France), 12h. (Pierce Ferry, Boulder City, Shasta Dam, and College), 13h. (La Paz, Helwan, and Ksara), 14h. (Collmberg), 15h. (Bogota, La Paz, near Huancayo, and near Fresno), 18h, (Collmberg (2)), 20h. (Tinemaha).

April 5d. 6h. 55m. 45s. Epicentre 53°·4N. 163°·1W. (as on 4d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
College	13·9	28	e 3 22	+ 1	e 5 56	− 1	—	—	e 7·2
Grand Coulee	28·1	82	e 5 55	0	—	—	—	—	—
Shasta Dam	30·1	98	i 6 14	+ 1	—	—	—	—	—
Boulder City	37·7	97	i 7 19	0	—	—	—	—	—
Pierce Ferry	38·0	96	i 7 23	+ 2	—	—	—	—	—
Rapid City	39·5	78	e 7 33	− 1	—	—	—	—	—
Weston	58·4	59	e 9 55	− 5	—	—	—	—	—
Toledo	85·3	16	i 12 36	− 4	—	—	—	—	—

Long waves were also recorded at Honolulu, Chicago, and Philadelphia.

April 5d. 20h. 53m. 58s. Epicentre 35°·1N. 23°·4E. (as on 1944 September 3d.).

Felt at Héraclée (according to Athens).
Epicentre 35°·4N. 23°·8E. (Strasbourg).
Annales de l'Institute de Physique du Globe de Strasbourg pour l'Année, 1946, 2ème partie, Séismologie, Nouvelle Série, Tome XI, p. 50

$A = +\cdot7525$, $B = +\cdot3257$, $C = +\cdot5724$; $h = -2$; $h = 0$;
$D = +\cdot397$, $E = -\cdot918$; $G = +\cdot525$, $H = +\cdot227$, $K = -\cdot820$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	7·6	0	e 1 55	0	i 3 24	+ 1	i 2 8	P*	—
Helwan	8·5	125	e 2 6a	− 1	3 31	−14	2 24	P*	—
Bucharest	9·5	12	e 2 8	−12	i 4 16	+ 6	e 2 22	P	i 6·1
Belgrade	10·0	348	i 2 25	− 2	e 4 11	−11	e 2 53	P*	—
Ksara	10·4	93	i 2 29	− 5	i 4 23	− 9	—	—	—
Rome	10·9	312	i 2 40k	0	5 22	+38	2 48	PP	6·4
Kalossa	11·9	346	e 3 8	PPP	e 5 5	− 4	e 3 22	?	—
Zagreb	12·1	335	i 2 52a	− 5	i 5 13	− 1	i 3 13	PPP	—
Yalta	12·5	38	e 3 2	0	—	—	—	—	—
Florence	12·8	316	i 3 10	+ 4	i 5 34	+ 4	—	—	—
Triest	12·8	328	i 3 3	− 3	i 5 17	−13	i 7 13?	Q	—
Chur	15·7	323	e 3 46k	+ 2	e 6 51	+12	—	—	—
Prague	16·3	339	4 3?	PP	e 6 51	− 2	—	—	e 8·0
Zürich	16·5	322	e 3 56k	+ 2	e 7 2	+ 4	—	—	—
Algiers	16·6	283	i 4 0	+ 4	i 7 15	+15	i 4 12	pP	i 12·8
Leninakan	16·9	65	e 4 1	+ 2	i 7 12	+ 5	—	—	—
Cheb	17·0	335	e 4 0	− 1	e 7 7	− 3	—	—	e 9·9
Neuchatel	17·1	319	e 4 2	0	—	—	—	—	—
Basle	17·2	323	e 4 4k	+ 1	(e 7 15)	+ 1	—	—	e 7·3
Erevan	17·5	66	e 4 8	+ 1	7 22	+ 1	—	—	—
Barcelona	17·8	297	i 4 12	+ 1	i 7 37	+ 9	7 52	SS	e 13·0
Besançon	17·8	318	e 4 9	− 2	e 7 18	−10	—	—	—
Strasbourg	17·8	326	e 4 13	+ 2	i 7 27	− 1	i 4 28	PP	e 10·0
Collmberg	17·9	338	e 4 14	+ 2	e 7 30	0	e 4 32	PPP	e 9·0
Jena	18·0	337	e 4 14	+ 1	e 7 35	+ 3	i 4 27	PP	—
Clermont-Ferrand	18·7	311	i 4 23	+ 1	i 8 4	+16	—	—	—
Tortosa	18·9	295	i 4 26	+ 2	8 11	+18	4 48	PPP	e 9·6
Grozny	19·1	58	4 27	0	i 7 58	+ 1	—	—	—
Alicante	19·4	289	i 4 28	− 2	i 8 14	+10	4 36	pP	e 10·2
Paris	20·6	318	i 4 45	+ 2	i 8 27	− 2	i 5 5	pP	e 10·5
Uccle	20·9	325	e 4 47k	+ 1	i 8 41	+ 6	e 5 8	PP	e 11·6
De Bilt	21·4	330	i 4 53a	+ 2	e 8 46	+ 1	i 5 12k	pP	e 11·0
Baku	21·6	68	4 54	0	8 43	− 6	—	—	—
Copenhagen	21·9	344	i 4 56	− 1	i 8 51	− 3	—	—	11·0
Granada	21·9	284	i 5 0	+ 3	i 8 58	+ 4	5 15	pP	13·9

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toledo		22·3	291	i 5 2?	+ 1	i 9 4	+ 2	i 5 25	pP	10·9
Moscow		22·9	21	5 3	− 3	e 9 4	− 9	i 5 29	pP	—
Upsala		25·1	353	5 24	− 4	i 9 41	−10	e 6 21	PPP	e 14·0
Lisbon		26·2	289	i 5 41k	+ 3	—	—	5 53	PP	9·2
Bergen		27·9	342	—	—	e 12 2?	SS	—	—	—
Aberdeen		28·0	331	—	—	i 10 23	−15	i 16 30	S_cS	—
Sverdlovsk		33·2	37	i 6 36	− 4	i 11 47	−13	—	—	—
Stalinabad		36·2	70	i 7 6	0	e 12 39	− 8	i 7 38	pP	—
Tashkent		36·3	66	e 7 3	− 4	e 12 34	−14	—	—	—
New Delhi	N.	45·7	82	—	—	i 14 58	−10	i 15 25	PPS	—
Irkutsk		57·9	46	e 9 53	− 3	—	—	—	—	—
Weston		70·5	309	i 11 19a	+ 1	—	—	i 11 38	pP	—
Harvard		70·6	309	i 11 20	+ 1	—	—	—	—	—
Bermuda		70·8	297	—	—	e 20 40	+ 5	—	—	e 29·3
Fordham		72·9	308	i 11 33	0	e 20 59	0	—	—	—
Fort de France		77·3	279	e 13 22	?	—	—	—	—	—
Vladivostok		78·5	45	e 12 2	− 2	—	—	—	—	—
San Juan		79·3	285	—	—	e 22 10	+ 1	—	—	—
Florissant		84·3	314	i 12 36	+ 1	e 22 52	− 8	e 23 19	S_cS	—
Rapid City		87·5	325	e 12 50	− 1	—	—	—	—	—
Shasta Dam		98·3	335	e 13 44	+ 3	—	—	—	—	—
Pierce Ferry		98·8	326	i 13 43	0	—	—	—	—	—
Boulder City		99·3	327	i 13 45	0	—	—	—	—	—
Tinemaha	z.	99·8	329	i 13 49	+ 2	—	—	—	—	—
Tucson		100·4	322	i 13 50	0	—	—	e 17 11	PP	—
Riverside	z.	102·1	328	e 13 57	− 1	—	—	—	—	—
Mount Wilson	z.	102·2	328	i 13 59	+ 1	—	—	—	—	—
Pasadena	z.	102·3	328	e 17 56	PP	—	—	—	—	—

Additional readings :—
Sofia iE = 2m.50s., iS?EN = 3m.17s., iS*?N = 3m.47s.
Helwan P_g = 2m.44s.
Belgrade eS = 3m.36s.
Rome PPP = 2m.52s., iN = 5m.26s.
Zagreb eNE = 4m.29s., iS = 4m.58s., iNW = 5m.28s.
Algiers iPP = 4m.19s., iPPP = 4m.22s., i = 4m.33s.
Strasbourg i = 4m.22s. and 4m.32s., e = 4m.57s., i = 7m.57s.
Collmberg eN = 4m.48s., eE = 7m.38s., eSSEN = 7m.48s.
Jena iPP?E = 4m.30s., eSZ = 7m.38s., eN = 7m.52s.
Tortosa PPN = 4m.55s., SSEN = 8m.42s.
Alicante PP = 4m.56s., SS = 8m.32s., SSS = 8m.42s., P_cP = 8m.47s.
Paris iP = 4m.48s., i = 4m.57s., e = 5m.39s., and 6m.6s., esS? = 8m.53s., e = 9m.21s.
Uccle ePPP = 5m.13s., eSSE = 9m.11s.
De Bilt esS = 9m.13s.
Granada PP = 5m.25s., sS = 9m.15s.
Toledo SSE = 9m.41s., SSN = 9m.45s. and 9m.58s.
Upsala eN = 5m.38s. and 5m.48s., iN = 9m.48s., iE = 9m.59s., eN = 10m.12s.
Lisbon E = 8m.38s.?
Long waves were also recorded at College.

April 5d. 21h. 46m. 12s. Epicentre 33°·6N. 139°·3E. Depth of focus 0·015.

Intensity V at Hunatu, Mera ; IV at Kakioka, Misima, Yokohama, Tokyo, Tukubasan, Titibu, Onahama, Hukusima ; II-III at Osaka, Matumoto, Shizuoka, Morioka, Hatinohe.
Epicentre 33°·8N. 140°·3E. Focal depth 80km.
Macroseismic radius greater than 300km.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p. 11, isoseismic chart p. 11.

$A = -·6327$, $B = +·5442$, $C = +·5508$; $\delta = -16$; $h = +1$;
$D = +·652$, $E = +·758$; $G = -·418$, $H = +·359$, $K = -·835$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Omaesaki	1·3	318	0 29k	+ 3	0 48	+ 2	—	—
Mera	1·4	19	0 23a	− 5	0 38	−10	—	—
Shizuoka	1·5	331	0 30	+ 1	0 52	+ 2	—	—
Misima	1·6	349	0 28a	− 2	0 48	− 4	—	—
Yokohama	1·8	9	0 28a	− 4	0 49	− 7	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Hunatu		1·9	347	0 18a	−15	0 39	−19	—	—
Tokyo		2·1	10	0 30	− 6	0 51	−12	—	—
Kumagaya		2·5	1	0 37a	− 4	0 55	−17	—	—
Kakioka		2·7	16	0 37	− 7	1 4	−13	—	—
Owase		2·7	280	0 49	+ 5	1 23	+ 6	—	—
Tukubasan		2·7	14	0 35	− 9	1 1	−16	—	—
Hikone		3·0	304	0 48k	0	1 25	+ 1	—	—
Utunomiya		3·0	8	0 50	+ 2	1 18	− 6	—	—
Nagano		3·2	346	0 47a	− 3	1 26	− 2	—	—
Kyoto		3·3	297	0 54	+ 2	1 30	− 1	—	—
Osaka		3·3	289	0 30k	−22	1 11	−20	—	—
Toyama		3·5	332	0 53k	− 1	1 34	− 2	—	—
Kobe		3·6	291	1 1k	+ 5	1 44	+ 6	—	—
Onahama		3·6	21	0 44	−12	1 20	−18	—	—
Sumoto		3·8	285	1 2k	+ 4	—	—	—	—
Hukusima		4·3	12	0 55	−10	1 35	−20	—	—
Wazima		4·3	334	0 26k	−39	1 14	−41	—	—
Sendai		4·8	13	0 59	−13	1 46	−21	—	—
Mizusawa		5·7	13	1 12	−12	2 6	−22	—	—
Morioka		6·2	11	1 22	− 8	2 22	−19	—	—
Miyako		6·5	20	1 23	−12	2 22	−26	—	—
Miyazaki		6·9	257	1 50	+10	—	—	—	—
Hatinohe		7·2	15	1 34	−10	2 43	−22	—	—
Kumamoto		7·3	262	2 55k	S	(2 55)	−12	—	—
Hukuoka		7·4	261	1 54	+ 7	3 24	+14	—	—
Mori		8·6	7	1 55	− 8	3 19	−20	—	—
Sapporo		9·6	9	2 11	− 5	3 41	−21	—	—
Nemuro		10·9	25	2 19	−14	3 56	−37	—	—
Vladivostok		11·2	331	i 2 34	− 3	i 4 34	− 7	—	—
Irkutsk		31·3	318	i 6 9	− 1	i 11 9	+ 3	—	—
Frunse		50·5	301	e 8 48	+ 1	—	—	—	—
New Delhi	N.	52·7	283	—	—	i 16 18	− 2	i 18 39	ScS
Tashkent		54·7	300	e 9 14	− 4	e 16 50	+ 3	—	—
Stalinabad		55·9	297	i 9 29	+ 2	i 17 14	+12	—	—
Sverdlovsk		56·6	320	i 9 31	− 1	i 17 13	+ 1	—	—
Samarkand		56·9	299	e 9 36	+ 2	e 17 18	+ 2	—	—
Baku		68·8	305	—	—	19 46	+ 2	—	—
Grozny		70·2	309	e 11 2	+ 1	—	—	—	—
Leninakan		72·7	308	e 11 11	− 5	—	—	—	—
Grand Coulee		72·9	44	e 11 10	− 7	—	—	i 11 45	pP
Shasta Dam		74·6	52	i 11 26	− 1	—	—	i 11 54	pP
Berkeley		76·1	54	e 11 34	− 1	—	—	e 12 7	pP
Tinemaha	Z.	79·2	53	i 11 52	0	—	—	i 12 21	pP
Santa Barbara	Z.	79·7	56	i 11 54	− 1	—	—	—	—
Copenhagen		80·2	333	11 58	0	—	—	—	—
Pasadena	Z.	80·9	55	12 1	0	—	—	12 30	pP
Mount Wilson	Z.	81·0	55	i 12 2	0	—	—	i 12 28	pP
Riverside	Z.	81·6	55	i 12 4	− 1	—	—	—	—
Ksara		81·7	305	e 12 21	+15	22 18	+12	12 39	pP
Boulder City		82·1	52	i 12 7	− 1	—	—	i 12 35	pP
La Jolla	N.	82·3	56	e 12 9	0	—	—	—	—
Palomar		82·3	55	e 12 7	− 2	—	—	e 12 38	pP
Pierce Ferry		82·6	52	i 12 10	0	—	—	i 12 39	pP
Rapid City		84·0	40	e 12 18	+ 1	e 22 28	− 1	—	—
Triest	E.	87·0	326	—	—	i 22 46	[+ 2]	—	—
Tucson		87·0	53	i 12 32	0	—	—	i 13 5	pP
Helwan		87·2	304	e 13 6	pP	23 0	0	23 27	sS
Chur		88·0	329	e 12 29	− 8	—	—	—	—
Zürich		88·1	330	e 13 7	pP	—	—	—	—
Basle		88·3	330	e 12 29	− 9	—	—	e 15 16	?
Florence	E.	89·6	35	—	—	e 22 40	[−20]	—	—
Rome		90·4	324	e 16 24k	PP	e 23 30	+ 1	e 24 18	sS
La Paz	Z.	150·0	62	19 38	[+ 8]	—	—	—	—

For Notes see next page.

NOTES TO APRIL 5d. 21h. 46m. 12s.

Additional readings :—
Grand Coulee i = 12m.17s.
Shasta Dam i = 11m.40s.
Boulder City iPP? = 15m.44s.
Pierce Ferry iPP? = 15m.43s.
Helwan P_cP = 13m.15s., PP = 16m.0s.
Long waves were recorded at other European stations.

April 5d. List of after-shocks of Aleutians-Alaskan earthquake recorded at Tinemaha.

h.	m.	s.
1	29	8
3	8	51
4	47	43
6	6	26
7	2	42
	37	31
8	13	3
	46	21
9	33	42
10	2	6
11	27	22
12	12	35
16	8	58
18	37	33

April 5d. Readings also at 0h. (Columbia and near Apia), 1h. and 4h. (Pierce Ferry, Boulder City, Shasta Dam, and College), 5h. (Huancayo and Honolulu), 7h. (Weston, Pierce Ferry, Boulder City, Shasta Dam, and College), 12h. (College and La Paz), 13h. (Leninakan and near Grozny), 14h. (near Bogota), 16h. (College), 18h. (Pierce Ferry, Boulder City, Shasta Dam, and College), 20h. (Pierce Ferry, Boulder City, and Shasta Dam).

April 6d. 3h. 5m. 44s. Epicentre 24°·2S. 69°·6E.

A = +·3183, B = +·8559, C = −·4076 ; δ = +2 ; h = +4 ;
D = +·937, E = −·349 ; G = −·142, H = −·382, K = −·913.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tananarive		21·2	280	4 49	0	e 8 54	+13	—	—	e 9·9
Colombo	E.	32·5	19	6 37	+ 3	11 46	− 3	—	—	13·6
Kodaikanal	E.	35·1	13	e 6 46	−11	—	—	—	—	—
Bombay		42·9	4	e 8 4	+ 2	e 14 27	0	—	—	—
Calcutta	N.	49·9	23	e 9 8	+11	i 16 18	+11	—	—	—
New Delhi	N.	53·0	8	e 9 18	− 3	i 16 45	− 5	—	—	—
Samarkand		63·6	357	10 40	+ 5	—	—	—	—	—
Helwan		65·1	324	e 10 43	− 2	e 19 34	+ 7	e 13 4	PP	—
Tashkent		65·4	0	e 10 42	− 5	e 19 24	− 6	—	—	—
Ksara		66·0	330	e 10 53	+ 3	e 18 51	−47	—	—	—
Baku		66·8	344	e 10 58	+ 2	19 50	+ 2	—	—	—
Erevan		68·2	340	e 10 50	−14	—	—	—	—	—
Leninakan		69·0	339	e 11 4	− 5	—	—	—	—	—
Grozny		70·7	342	e 11 17	− 3	—	—	—	—	—
Yalta		75·6	335	e 11 48	0	—	—	—	—	—
Sverdlovsk		81·1	356	i 12 19	+ 1	—	—	—	—	—
Rome		84·3	321	12 34k	− 1	e 22 53	− 7	—	—	—
Triest	E.	86·0	325	e 12 44	+ 1	e 23 12	− 5	—	—	—
Vladivostok		88·1	41	e 12 54	0	i 24 38	PS	i 16 25	PP	—
Chur		89·1	323	e 12 58	0	—	—	—	—	—
Zürich		89·9	323	e 13 2k	0	—	—	—	—	—
Alicante		90·4	313	e 13 0	− 4	e 24 2	+ 4	—	—	e 41·8
Basle		90·5	323	e 12 58	− 7	—	—	e 15 19	PP	—
Strasbourg		91·1	324	e 13 24	+16	—	—	—	—	—
Granada		92·0	310	i 13 14a	+ 2	23 39	[− 5]	16 26	PP	45·6
Clermont-Ferrand		92·1	319	13 14	+ 2	—	—	—	—	—
Paris		94·1	322	e 13 35?	+13	—	—	—	—	e 62·3
San Juan		138·5	271	e 22 39	PP	—	—	—	—	—
Bogota		140·0	247	e 19 30	[0]	—	—	—	—	—
Grand Coulee		155·3	13	e 19 43	[−12]	—	—	—	—	—
St. Louis		157·6	314	e 20 1	[+ 3]	e 20 32	PKP,	e 24 9	PP	e 77·4
Rapid City		159·3	344	e 20 42	PKP,	e 26 38	[−26]	e 24 24	PP	—
Shasta Dam		160·7	27	e 20 3	[+ 2]	—	—	e 20 45	PKP,	—
Tinemaha	Z.	165·5	26	e 20 11	[+ 5]	e 21 7	PKP,	e 24 55	PP	—
Haiwee	Z.	166·4	27	e 20 11	[+ 4]	e 21 10	PKP,	—	—	—

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Barbara	Z.	167·0	36	e 20 12	[+ 5]	—	—	—	—	—
Boulder City		167·7	17	e 20 12	[+ 4]	i 25 2	PP	i 21 21	PKP_2	—
Pierce Ferry		167·7	14	i 20 14	[+ 6]	i 25 5	PP	i 21 23	PKP_2	—
Mount Wilson	Z.	168·0	32	e 20 14	[+ 6]	—	—	—	—	—
Pasadena	Z.	168·0	33	e 20 11	[+ 3]	e 25 2	PP	e 21 13	PKP.	—
Riverside	Z.	168·5	30	e 20 14	[+ 6]	—	—	—	—	—
Palomar	N.	169·3	30	e 20 17	[+ 8]	—	—	—	—	—
Tucson		172·0	2	e 20 15	[+ 5]	e 25 24	PP	e 21 35	PKP_2	e 31·0

Additional readings :—
Tananarive iP = 5m.0s., i = 9m.21s.
Helwan e = 11m.52s. and 13m.46s.
Vladivostok SS = 29m.40s.
Zürich e = 13m.8s.
St. Louis ePPPPP?N = 32m.26s., ePSKSN = 34m.39s., eN = 39m.39s.
Pasadena eZ = 29m.41s.
Long waves were also recorded at La Paz, Huancayo, Bermuda, and Riverview.

April 6d. 4h. 52m. 34s. Epicentre 53°·4N. 163°·1W. (as on April 5d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 25	+ 4	e 5 59	+ 2	—	—	e 7·1
Sitka		16·2	64	i 4 2	+12	i 6 58	+ 7	—	—	e 7·4
Victoria		25·2	85	(e 5 38)	+ 9	(9 26?)	−26	—	—	9·4
Grand Coulee		28·1	82	i 5 56	+ 1	e 10 31	− 9	—	—	—
Shasta Dam		30·1	98	i 6 15	+ 2	e 11 17	+ 5	e 7 15	PP	e 15·8
Ukiah		30·6	100	—	—	(e 11 26)	+ 6	—	—	e 11·4
Berkeley		32·0	102	6 43	+13	11 55	+13	13 55	SS	15·0
Butte		32·9	81	—	—	i 12 0	+ 4	—	—	e 14·4
Saskatoon		33·4	69	6 52	+10	11 59	− 4	—	—	16·4
Bozeman		34·0	81	—	—	e 12 14	+ 1	—	—	e 14·9
Fresno	N.	34·2	100	e 6 59	+10	e 12 23	+ 7	e 8 9	PP	—
Tinemaha		34·9	99	e 6 57	+ 2	e 12 34	+ 7	—	—	—
Haiwee	Z.	35·7	100	e 7 4	+ 2	—	—	—	—	—
Santa Barbara	Z.	35·8	103	e 7 14	+11	—	—	—	—	—
Salt Lake City		36·3	88	e 7 26	+19	e 12 56	+ 8	e 9 1	PP	e 15·6
Mount Wilson	Z.	37·0	102	i 7 14	+ 1	—	—	—	—	—
Pasadena		37·0	102	e 7 12	− 1	e 13 3	+ 4	—	—	e 15·7
Riverside	Z.	37·5	102	i 7 18	+ 1	—	—	—	—	—
Boulder City		37·7	97	i 7 20	+ 1	e 13 11	+ 1	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	e 13 21	+ 7	—	—	—
Palomar		38·3	102	e 7 27	+ 3	—	—	—	—	—
La Jolla	Z.	38·4	103	e 7 32	+ 7	—	—	—	—	—
Rapid City		39·5	78	e 7 32	− 2	e 13 34	− 3	e 9 20	PP	e 17·6
Tucson		42·6	98	e 8 2	+ 3	e 14 32	+ 9	—	—	e 20·0
Vladivostok		43·1	283	i 8 2	− 2	e 14 37	+ 7	—	—	—
Lincoln		45·3	77	—	—	e 14 0	−62	—	—	e 17·7
Chicago		49·9	71	—	—	i 16 3	− 4	—	—	e 20·1
Florissant		50·3	76	e 9 1	+ 1	i 16 8	− 5	—	—	—
St. Louis		50·5	76	i 9 1	− 1	e 16 11	− 5	—	—	—
Irkutsk		52·0	309	9 11	− 2	17 8	PS	20 39	SS	—
Ottawa		54·0	60	9 39	+11	17 6	+ 3	20 50	SS	27·4
Seven Falls		55·3	56	9 48	+10	17 24	+ 3	21 26?	SS	28·4
Fordham		58·1	63	9 58	0	17 57	− 1	—	—	—
Philadelphia		58·1	64	—	—	e 17 50	− 8	e 21 54	SS	e 24·4
Weston		58·4	59	e 9 59	− 1	e 17 56	− 6	—	—	—
Sverdlovsk		64·5	335	i 10 37	− 4	19 21	+ 2	—	—	—
Aberdeen		68·7	12	—	—	i 20 13	+ 3	—	—	39·6
Bermuda		69·3	63	—	—	i 20 25	+ 8	e 24 46	SS	e 32·7
Copenhagen		71·2	3	11 22	− 1	e 20 42	+ 2	—	—	—
De Bilt		74·4	8	i 11 41	− 1	e 21 24	+ 8	i 16 28	PPP	e 30·4

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tashkent		75·4	322	e 11 39	− 8	e 21 25	− 2	—	—	—
Uccle		75·6	10	e 11 48a	0	e 21 43	+14	—	—	e 37·4
Jena	N.	75·9	4	e 11 49	− 1	—	—	—	—	—
Cheb		76·8	4	e 11 53	− 2	e 21 46	+ 4	—	—	e 40·4
Stalinabad		78·0	321	i 12 4	+ 2	—	—	—	—	—
Strasbourg		78·1	7	e 12 3	+ 1	e 22 5	+ 9	e 27 50	SS	e 34·4
Basle		79·1	8	e 12 7	− 1	—	—	e 14 5	PP	—
Zürich		79·4	7	e 12 8a	− 1	—	—	—	—	—
Chur		79·9	6	e 12 12	0	—	—	—	—	—
Clermont-Ferrand		80·5	11	e 12 16	+ 1	e 22 24?	+ 2	—	—	e 37·4
Grozny		80·5	339	e 12 17	+ 2	—	—	—	—	—
Triest		81·3	3	e 12 16	− 4	e 22 45	+15	e 23 9	PS	—
Yalta		81·4	348	e 12 15	− 5	—	—	—	—	—
Belgrade		82·1	358	i 12 22	− 2	e 23 3	+25	—	—	—
Baku		82·3	335	12 26	+ 1	22 41	+ 1	—	—	—
Calcutta	N.	82·6	298	—	—	e 22 53	+10	—	—	—
Florence		83·1	5	e 12 36	+ 7	i 23 11	+23	—	—	—
Leninakan		83·4	340	e 12 32	+ 2	—	—	—	—	—
Erevan		83·8	339	e 12 29	− 3	—	—	—	—	—
Rome		85·0	4	12 38a	0	e 22 58	− 9	e 24 44	PPS	—
Tortosa		85·1	13	13 40	+61	—	—	13 53	?	—
Fort de France		85·3	71	—	—	e 27 14	?	—	—	—
Toledo		85·3	16	e 12 40	0	e 23 22	+12	25 11	PPS	37·4
Alicante		87·4	14	e 12 32	−18	e 24 8	+38	17 58	PPP	e 40·1
Granada		88·0	17	i 12 54	+ 1	22 29	−67	13 9	pP	36·5
Algiers		89·4	12	e 12 56	− 4	e 23 26?	[− 3]	—	—	47·4
Ksara		91·6	344	e 13 11	+ 1	e 24 22	+13	—	—	—
Hyderabad	N.	91·9	303	e 13 1	−10	23 57	[+13]	—	—	—
Riverview	E.	95·5	217	—	—	e 24 53	+11	—	—	e 48·8
Helwan		96·1	347	e 13 35	+ 4	e 25 26	PS	e 26 52	PPS	—

Additional readings and notes :—
Victoria P is recorded 10m. too early.
Grand Coulee i = 6m.14s.
Shasta Dam iP_cP? = 9m.16s., i = 12m.51s.
Berkeley SSS = 14m.7s.
Tucson e = 8m.33s.
St. Louis i = 9m.16s., iSN = 16m.18s.
Irkutsk S_cS = 18m.59s.
Belgrade e = 14m.44s. and 21m.47s.
Rome ePPS?N = 25m.20s.
Toledo i = 12m.49s.
Alicante SS = 29m.26s.
Granada PP = 17m.27s., sS = 22m.45s.
Helwan e = 16m.5s.
Long waves were also recorded at Seattle, Harvard, La Paz, Ivigtut, Barcelona, Collmberg, Upsala, Bergen, Bombay, and Kodaikanal.

April 6d. 13h. Undetermined shock probably far south.

La Paz iPZ = 55m.20s.a, SZ = 64m.29s., SSZ = 68m.44s., LZ = 72m.46s.
Huancayo eP = 57m.0s., e = 65m.46s., eL = 68m.0s.
Bogota e = 57m.45s.
Punta Arenas N = 60m.30s.
Helwan e = 60m.39s., 61m.24s., and 63m.33s., PP? = 64m.0s., SKS? = 70m.26s., S? = 71m.42s., PS? = 73m.6s.
San Juan e = 62m.10s., eS = 68m.55s., eL = 93m.0s.
Rome e = 64m.40s. and 71m.34s.?, eN = 73m.54s. and 79m.32s.
Tucson eP = 64m.48s.
Pierce Ferry iP = 64m.57s.
Boulder City iP = 64m.57s.
Pasadena iP = 64m.57s.
St. Louis eP?Z = 64m.57s., eE = 71m.26s., 72m.27s., and 74m.42s.
Palomar ePEN = 64m.58s.
Riverside iPZ = 64m.58s.
Mount Wilson ePZ = 64m.59s.
Tinemaha ePZ = 65m.2s.
Berkeley ePZ = 65m.8s.
Shasta Dam eP = 65m.11s.

Continued on next page,

Grand Coulee e =65m.18s. and 68m.41s.
Tananarive e =65m.35s., 66m.0s., and 66m.50s., L =76m.
New Delhi eN =66m.47s.
De Bilt eZ =69m. and 75m.5s., e =81m.30s. and 85m.30s., eL =104m.
Riverview eE =69m.35s. and 75m.32s., eEN =81m.56s., eE =92m.8s.
Bermuda e =70m.25s. and 82m.5s., eL =100m.30s.
Granada i? =70m.55s.k, i =77m.34s., L =79·1m.
Santa Lucia N =72m.18s.
Alicante e =72m.51s., eL =91m.7s.
Cheb e =73m., eL =107m.
Ksara e =74m.13s., L =102m.
Calcutta eN =77m.9s.
Brisbane iPN =80m.24s.
Long waves were also recorded at Bombay, Kodaikanal, Hyderabad, Bozeman, Weston, and other stations in New Zealand and Europe.

April 6d. Continuation of list of after-shocks of the Alaska-Aleutian earthquake of April 1 as recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
5	0	35	10	14	13	20	25	37
6	3	24	11	56	53			

April 6d. Readings also at 0h. (Ksara), 4h. (Ksara and near Mineral), 5h. (Bogota and near Andijan), 6h. (La Paz, Santa Lucia, Boulder City, Pierce Ferry, and Shasta Dam), 7h. (Ksara), 8h. (Bombay, Calcutta, near Stalinabad, and near Bogota), 10h. (Hyderabad, Kodaikanal, Riverview, Mount Wilson, Riverside, Tinemaha, Tucson, and St. Louis), 11h. (near Basle and Zürich), 12h. (Tashkent, near Almata, Andijan, and Samarkand), 14h. (Berkeley (2), Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Boulder City, Pierce Ferry, Shasta Dam, and Toledo), 20h. (Tucson), 22h. (near Branner), 23h. (near Berkeley).

April 7d. 22h. 52m. 55s. Epicentre 53°·4N. 163°·1W. (as on 6d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 35	+14	e 6 21	+24	—	—	e 8·6
Sitka		16·2	64	i 3 57	+ 7	e 6 33	−18	—	—	e 9·6
Grand Coulee		28·1	82	e 5 57	+ 2	—	—	—	—	—
Shasta Dam		30·1	98	i 6 14	+ 1	—	—	—	—	—
Berkeley		32·0	102	9 10	?	14 12	?	—	—	19·9
Bozeman		34·0	81	—	—	e 12 17	+ 4	—	—	e 16·8
Tinemaha		34·9	99	i 6 56	+ 1	—	—	—	—	—
Haiwee	z.	35·7	100	i 6 53	− 9	—	—	—	—	—
Mount Wilson	z.	37·0	102	e 7 13	0	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 20	+ 7	—	—	—	—	—
Riverside	z.	37·5	102	e 7 18	+ 1	—	—	—	—	—
Boulder City		37·7	97	i 7 19	·0	—	—	—	—	—
Pierce Ferry		38·0	96	e 7 23	+ 2	—	—	—	—	—
Palomar		38·3	102	e 7 25	+ 1	—	—	—	—	—
Rapid City		39·5	78	e 7 45	+10	—	—	e 9 7	PP	—
Tucson		42·6	98	i 7 59	0	—	—	e 11 7	PPP	e 26·6
St. Louis		50·5	76	i 8 59	− 3	e 16 23	+ 7	—	—	—
Weston		58·4	59	i 9 57a	− 3	—	—	—	—	—
Collmberg	z.	75·6	3	e 11 42	− 6	—	—	—	—	—
Basle		79·1	8	e 11 52	−16	—	—	—	—	—

Additional readings :—
Tinemaha iNZ =7m.6s.
St. Louis iZ =9m.10s.
Collmberg eZ =11m.48s. and 12m.27s.
Long waves were also recorded at Honolulu and other American and European stations.

April 7d. Continuation of the list of after-shocks of the Alaska-Aleutian earthquake of April 1st as recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
0	39	44	7	24	3	10	7	39
2	30	44	7	53	34	10	14	25
5	21	18	8	11	10	14	36	0
						22	59	51

April 7d. Readings also at 0h. (Tucson), 2h. (Tucson and near Tacubaya), 3h. (Tinemaha, Tucson, St. Louis, Bogota (2), and near Merida), 4h. (Boulder City and Pierce Ferry), 5h. (Boulder City, Pierce Ferry, Bozeman, Butte, Shasta Dam, St. Louis, Chicago, College, Philadelphia, Weston, and Honolulu), 6h. (Tucson), 7h. (Boulder City (2), Pierce Ferry (2), Bozeman, Grand Coulee, Shasta Dam, Sitka, College (2), Tucson (2), St. Louis (2), Weston, Chicago, Philadelphia, near Andijan, Samarkand, Stalinabad, and Tashkent), 8h. (College, Honolulu, St. Louis, near Boulder City (2), and Pierce Ferry (2)), 9h. (Mount Wilson, Riverside, Tinemaha, and Tucson), 10h. (Haiwee, Mount Wilson (2), Palomar, Tinemaha (2), Tucson (2), Pierce Ferry, and Shasta Dam), 14h. (Haiwee, Mount Wilson (2), Pasadena, Palomar, Riverside (2), Tinemaha (2), Tucson, Boulder City, Pierce Ferry, and Shasta Dam), 15h. (Tortosa), 22h. (Jena), 23h. (Boulder City and Pierce Ferry).

April 8d. 15h. 17m. 7s. Epicentre 53°·4N. 163°·1W. (as on 8d.).

$A = -\cdot 5729$, $B = -\cdot 1741$, $C = +\cdot 8009$; $\delta = -3$; $h = -7$;

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 18	− 3	e 5 54	− 3	—	—	6·4
Grand Coulee		28·1	82	e 5 55	0	—	—	e 6 46	PP	—
Shasta Dam		30·1	98	i 6 16	+ 3	—	—	i 9 23	P_cP	—
Tinemaha		34·9	99	i 6 58k	+ 3	—	—	—	—	—
Haiwee		35·7	100	i 7 4	+ 2	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Pasadena	z.	37·0	102	i 7 15	+ 2	—	—	—	—	—
Boulder City		37·7	102	i 7 21	+ 2	e 13 31	+21	—	—	—
Pierce Ferry		38·0	96	i 7 25	+ 4	e 13 23	+ 9	—	—	—
Palomar		38·3	102	i 7 27	+ 3	—	—	—	—	—
Rapid City		39·5	78	i 7 33	− 1	—	—	—	—	—
Tucson		42·6	98	i 8 1	+ 2	—	—	—	—	—
Weston		58·4	59	e 9 55	− 5	—	—	—	—	—
Collmberg	z.	75·6	3	e 11 44	− 4	—	—	—	—	—
Basle		79·1	8	e 12 4	− 4	—	—	e 16 15	PP	—
Zürich		79·4	7	e 12 5	− 4	—	—	—	—	—

Additional readings :—
Tinemaha iZ = 7m.12s.
Pasadena iZ = 7m.24s.
Tucson i = 8m.11s.
Collmberg eZ = 11m.58s. and 12m.7s.
Basle e = 18m.48s.
Long waves were also recorded at Philadelphia, San Juan, and Rome.

April 8d. 17h. 36m. 29s. Epicentre 53°·4N. 163·1W. (as at 15h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	i 3 16	− 5	e 5 48	− 9	—	—	e 7·0
Sitka		16·2	64	i 3 49	− 1	e 6 55	+ 4	—	—	e 7·4
Victoria		25·2	85	—	—	e 10 3	+11	—	—	14·5
Grand Coulee		28·1	82	e 5 43	−12	e 10 31	− 9	—	—	e 11·5
Shasta Dam		30·1	98	i 6 15	+ 2	—	—	—	—	—
Berkeley		32·0	102	6 32	+ 2	11 56	+14	—	—	14·9
Saskatoon		33·4	69	—	—	e 11 57	− 6	—	—	18·5
Bozeman		34·0	81	—	—	e 12 17	+ 4	—	—	e 13·2
Tinemaha	z.	34·9	99	i 6 59	+ 4	—	—	—	—	—
Haiwee		35·7	100	i 7 4	+ 2	—	—	—	—	—
Mount Wilson	z.	37·0	102	i 7 16	+ 3	—	—	—	—	—
Pasadena		37·0	102	i 7 16	+ 3	—	—	—	—	e 16·4
Riverside	z.	37·5	102	i 7 20	+ 3	—	—	—	—	—
Boulder City		37·7	97	e 7 19	0	e 13 14	+ 4	—	—	—
Pierce Ferry		38·0	96	e 7 24	+ 3	e 13 22	+ 8	—	—	—
Palomar		38·3	102	i 7 28	+ 4	—	—	—	—	—
Rapid City		39·5	78	e 7 41	+ 7	e 13 36	− 1	e 9 13	PP	e 16·9
Tucson		42·6	98	i 8 1	+ 2	—	—	e 9 42	PP	e 18·2
Vladivostok		43·1	283	i 8 2	− 2	i 13 50	−40	—	—	—
Chicago		49·9	71	—	—	e 16 3	− 4	e 19 38	SS	e 22·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis		50·5	76	i 9 4	+ 2	i 16 17	+ 1	—	—	—
Irkutsk		52·0	309	e 9 11?	− 2	e 16 21	−15	—	—	—
Ottawa		54·0	60	9 25	− 3	17 1	− 2	—	—	26·5
Seven Falls		55·3	56	—	—	e 17 19	− 2	—	—	29·5
Philadelphia		58·1	64	—	—	e 17 57	− 1	e 22 25	SS	e 28·2
Harvard		58·2	59	e 9 55	− 3	—	—	—	—	e 29·5
Weston		58·4	59	e 9 54	− 6	e 17 57	− 5	—	—	—
Sverdlovsk		64·5	335	—	—	i 20 1	+42	—	—	—
Bermuda		69·3	63	—	—	e 20 21	+ 4	e 24 51	SS	e 28·7
Tashkent		75·4	322	—	—	e 22 9?	+42	—	—	—
Collmberg	z.	75·6	3	e 11 43	− 5	—	—	—	—	—
Cheb		76·8	4	—	—	e 21 31?	−11	e 30 31?	Q	e 43·5
Strasbourg		78·1	7	—	—	e 21 31	−25	e 33 59	Q	e 45·5
Basle		79·1	8	e 12 6	− 2	—	—	—	—	—
Zürich		79·4	7	e 12 9	0	—	—	—	—	—
San Juan		79·5	73	—	—	i 22 13	+ 2	—	—	e 46·5
Baku		82·3	335	—	—	e 22 32	− 8	—	—	—
New Delhi	N.	83·1	310	e 12 24	− 5	e 22 38	−10	—	—	—
Rome		85·0	4	e 12 34	− 4	e 23 6	− 1	—	—	—

Additional readings :—
Sitka i =4m.39s., iS =7m.3s.
Grand Coulee e =5m.57s.
Boulder City i =7m.51s.
Bermuda e =20m.44s. and 22m.31s.
Collmberg eZ =11m.57s. and 12m.4s
Long waves were also recorded at Honolulu, Ivigtut, Christchurch, and other American and European stations.

April 8d. Continuation of list of after-shocks from the epicentre of the Alaska-Aleutian earthquake of April 1st recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
9	31	0	15	24	5	17	43	28

April 8d. Readings also at 0h. (Bogota, Huancayo, La Paz, and Tucson (2)), 1h. (Boulder City, Pierce Ferry, and Tucson), 8h. (Tucson, Tananarive, Colombo, Hyderabad, and near Andijan), 9h. (Haiwee, Mount Wilson, Riverside, Tinemaha (2), Tucson, and Shasta Dam), 14h. (Kodaikanal), 21h. (Tucson and near La Paz), 22h. (St. Louis, Tucson, and near Branner).

April 9d. 7h. 8m. 18s. Epicentre 53°·4N. 163°·1W. (as on 8d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

		△	Az.	P.	O−C.	L.
		°	°	m. s.	s.	m.
College		13·9	28	e 3 29	+ 8	e 6·8
Grand Coulee		28·1	82	e 5 53	− 2	—
Shasta Dam		30·1	98	e 6 12	− 1	—
Tinemaha	z.	34·9	99	i 6 55	0	—
Haiwee	z.	35·7	100	e 7 2	0	—
Mount Wilson	z.	37·0	102	i 7 12	− 1	—
Pasadena	z.	37·0	102	i 7 13	0	—
Riverside	z.	37·5	102	i 7 18	+ 1	—
Boulder City		37·7	97	i 7 18	− 1	—
Pierce Ferry		38·0	96	i 7 22	+ 1	—
Palomar		38·3	102	i 7 24	0	—
Tucson		42·6	98	i 7 59	0	—
St. Louis		50·5	76	e 9 2	0	e 24·7

St. Louis gives also eZ =9m.19s.

April 9d. 10h. 31m. 3s. Epicentre 44°·6N. 149°·4E. (as on 1940, June 12d.).

$A = -·6149$, $B = +·3637$, $C = +·6998$; $\delta = +10$; $h = -3$;
$D = +·509$, $E = +·861$; $G = -·603$, $H = +·356$, $K = -·714$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Mizusawa		8·2	231	e 2 2	− 1	3 25	−13	—	—
Vladivostok		12·7	269	e 3 4	− 1	e 5 38	+10	—	—
Irkutsk		30·5	301	e 7 14?	+57	—	—	—	—
Almata		50·6	296	e 9 3	+ 1	—	—	—	—
Stalinabad		58·3	295	(i 9 58)	− 1	—	—	—	—
Grand Coulee		59·7	51	e 10 8	− 1	—	—	—	—
Shasta Dam		61·9	60	i 10 23	− 1	—	—	i 10 36	?
Berkeley	Z.	63·6	62	e 10 36	+ 1	—	—	e 10 48	?
Tinemaha	Z.	66·6	61	e 10 55	+ 1	—	—	i 11 8	?
Haiwee	Z.	67·4	61	e 11 0	+ 1	—	—	i 11 12	?
Santa Barbara	Z.	67·4	64	e 11 13	?	—	—	—	—
Pasadena	Z.	68·5	63	i 11 18	?	—	—	—	—
Mount Wilson	Z.	68·6	63	e 11 7	0	—	—	i 11 19	?
Riverside	Z.	69·1	63	i 11 11	+ 1	—	—	i 11 22	?
Boulder City		69·5	60	i 11 13	+ 1	—	—	i 11 25	?
Palomar		69·9	63	i 11 29	+14	—	—	—	—
Pierce Ferry		69·9	59	i 11 16	+ 1	—	—	i 11 24	?
Rapid City		70·7	47	e 11 19	− 1	e 20 31	− 3	—	—
Leninakan		72·0	310	e 11 29	+ 1	—	—	—	—
Erevan		72·0	308	e 10 29	−59	—	—	—	—
Sotchi		72·2	314	11 33	+ 4	—	—	—	—
Tucson		74·4	60	i 11 40	− 2	—	—	i 11 55	?
Collmberg	Z.	77·3	334	i 11 57	− 1	—	—	e 12 5	?
Jena		78·1	333	e 12 2	0	—	—	—	—
Florissant	N.	81·0	43	e 12 19	+ 1	—	—	—	—
St. Louis		81·2	43	i 12 24	+ 5	e 22 28	− 1	i 12 37	pP
Ksara		81·3	309	i 12 22	+ 2	e 23 34	PPS	—	—
Strasbourg		81·3	335	e 12 19	− 1	—	—	—	—
Zürich		82·1	335	e 12 23a	− 1	—	—	—	—
Basle		82·3	335	e 12 25	0	—	—	—	—
Chur		82·3	334	e 12 25a	0	—	—	—	—
Rome		85·6	329	e 12 41	0	—	—	—	—
Harvard		85·9	28	i 12 43	0	—	—	—	—
Weston		86·1	28	i 12 44a	0	—	—	—	—
Helwan		86·9	309	i 12 48a	0	23 21	− 5	i 13 0	?
Toledo		92·6	340	i 13 14	− 1	—	—	—	—

Additional readings :—
Stalinabad reading increased by 2 minutes.
Tinemaha iZ = 11m.34s.
Collmberg eZ = 12m.15s.
St. Louis esSE = 22m.55s.
Long waves were recorded at other European stations.

April 9d. 20h. 40m. 18s. Epicentre 71°·5N. 8°·0W. (as on 1942 June 1d.).

$A = +·3161$, $B = -·0444$, $C = +·9477$; $\delta = +3$; $h = -13$;
$D = -·139$, $E = -·990$; $G = +·938$, $H = -·132$, $K = -·319$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen	N.	14·6	167	—	—	i 6 50	SSS	—	—	—
Durham		17·0	168	e 2 9	?	—	—	—	—	—
De Bilt		20·3	156	e 4 39	− 1	e 8 22	− 1	i 5 14	PPP	e 9·7
Uccle		21·5	161	e 5 0	+ 8	—	—	—	—	e 10·7
Collmberg		22·4	147	e 4 54	− 8	e 8 59	− 5	e 5 17	PP	e 12·7
Paris		23·3	163	e 5 11	+ 1	—	—	—	—	e 11·7
Cheb		23·4	147	e 6 1?	PPP	e 9 23	+ 2	—	—	e 13·7
Prague		23·8	143	—	—	e 9 12	−16	—	—	—
Strasbourg		24·1	154	e 5 23	+ 5	e 9 43	+ 9	e 5 52	PP	e 12·0
Basle		25·1	154	e 5 23	− 5	—	—	e 6 43	PPP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zürich		25·4	154	e 5 20	−11	—	—	—	—	—
Chur		26·1	153	e 5 32	− 5	—	—	—	—	—
Clermont-Ferrand		26·4	163	e 5 51	+11	—	—	—	—	e 13·7
Florence	E.	29·4	152	—	—	e 10 57	− 4	—	—	—
Rome	Z.	31·4	151	—	—	e 13 5	SS	—	—	—
Toledo		32·3	175	e 6 23	−10	e 11 38	− 8	13 5	SS	14·7
Lisbon		32·9	183	—	—	14 6	SS	—	—	15·8
Alicante		33·4	171	—	—	e 12 1	− 2	—	—	—
Ottawa	N.	40·7	269	—	—	e 14 12	+17	—	—	17·7
Philadelphia		45·5	264	—	—	e 15 22	+17	—	—	e 20·3
St. Louis		51·5	279	e 9 10	+ 1	e 20 30	SS	—	—	—
Tinemaha	Z.	61·3	302	e 10 24	+ 4	—	—	—	—	—
New Delhi	N.	61·7	86	e 10 24	+ 2	—	—	—	—	—
Tucson		63·7	294	e 10 37	+ 1	—	—	—	—	e 35·1

Collmberg gives also eZ = 4m.57s., 5m.0s., 5m.14s., 5m.40s., 5m.52s., and 6m.20s.
Long waves were also recorded at Ivigtut, College, Bermuda, San Juan, and at other American and European stations.

April 9d. Continuation of list of aftershocks from the epicentre of the Alaskan-Aleutian earthquake of April 1st, recorded at Tinemaha.

h.	m.	s.	h.	m.	s.	h.	m.	s.
3	58	51	7	15	13	10	30	41
			7	38	8			

April 9d. Readings also at 0h. (Oaxaca), 1h. (St. Louis, Tucson (2), Tinamaha, near Tacubaya (2), Merida, Vera Cruz (2), Oaxaca, and near Fort de France), 2h. (Shasta Dam, Mount Wilson, Pasadena, Palomar, Riverside, Haiwee, Tinemaha, Tucson, and Boulder City), 3h. (Pierce Ferry), 5h. (Pierce Ferry, Boulder City, and near Tananarive), 7h. (St. Louis, Tucson, Riverside, Mount Wilson, and Tinemaha), 8h. (Mizusawa), 10h. (St. Louis, Tucson, Riverside, Mount Wilson, Tinemaha, near Pierce Ferry and Boulder City), 14h. (Tinemaha, Tucson, and St. Louis), 15h. (Brisbane, Harvard, Weston, Bermuda, and San Juan), 16h. (Jena, Piatigorsk, and near Grozny), 18h. (near Tananarive), 19h. (Tucson, Mount Wilson, Tinemaha, and Vladivostok), 20h. (San Juan, St. Louis, Tucson (2), Palomar, Pierce Ferry, Boulder City, Riverside, Mount Wilson, Haiwee, Tinemaha (2), Shasta Dam, and Sitka), 23h. (Balboa Heights and Tucson).

April 10d. Readings at 0h. (near Stalinabad), 3h. (Ksara), 4h. (near Andijan, Samarkand, Stalinabad, and near Leninakan), 5h. (Basle and near Berkeley), 6h. (Palomar, Tinemaha, and Tucson), 7h. (Tinemaha and Tucson), 11h. (Tucson), 13h. (Bucharest, Sofia, Rome, Zagreb, La Plata, near Triest, and near Leninakan), 15h. (near Mizusawa), 17h. (New Delhi, Tinemaha, and Tucson), 18h. (Basle and near Stalinabad), 21h. (Mount Wilson, Riverside, Tinemaha, Tucson, and Rome), 23h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, College, and St. Louis.

April 11d. 1h. 52m. 17s. Epicentre 2°·0S. 13°·5W.

A = +·9718, B = −·2333, C = −·0347; δ = +3; h = +7;
D = −·233, E = −·972: G = −·034, H = +·008, K = −·999.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Granada	40·1	12	i 7 30a	− 9	i 14 1	PPS	i 8 25	pP	21·0
Lisbon	40·7	5	7 55	+11	i 14 10	+15	9 31	PP	19·2
Alicante	41·9	14	i 7 54	0	i 17 14	SS	8 2	pP	i 31·0
Toledo	42·6	10	i 8 0	+ 1	i 14 48	+25	9 55	PP	21·7
Tortosa	44·5	15	i 8 10	− 5	15 2	+11	10 2	PP	23·0
Barcelona	45·5	16	e 8 21	− 2	15 10	+ 5	11 2	PPP	21·8
Johannesburg	46·6	125	8 43	+11	16 1	+40	e 19 7	SS	e 22·4
Rome	49·6	24	i 8 56a	+ 1	e 16 3	0	i 10 7	PP	—
Clermont-Ferrand	49·8	15	i 8 57	+ 1	i 16 22	+16	—	—	e 24·2
Fort de France	50·0	290	i 8 55	− 3	i 16 18	+ 9	10 54	PP	e 24·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Florence		50·7	23	i 9 20	+17	i 17 7	+49	—	—	—
Besançon		51·9	17	e 9 20	+ 8	e 16 48	+13	—	—	e 25·1
Neuchatel		52·0	17	e 9 8	− 5	e 16 50	+14	—	—	—
Paris		52·5	13	i 9 25	+ 8	i 16 56	+13	i 12 1?	PPP	e 21·7
Basle		52·7	18	e 9 18	0	e 16 53	+ 7	e 20 11	SS	—
Chur		52·7	20	e 8 51?	−27	e 16 54	+ 8	—	—	—
La Plata	E.	52·7	226	9 19	+ 1	16 58	+12	11 37	PP	24·2
	N.	52·7	226	9 19	+ 1	17 3	+17	12 13	PPP	22·0
	Z.	52·7	226	9 32	+14	16 55	+ 9	11 49	PP	24·8
Zürich		52·8	18	e 9 15	− 4	e 16 57	+10	e 20 22	SS	—
Helwan		53·2	50	9 25	+ 3	17 5	+13	17 37	PPS	—
Triest		53·2	23	i 9 22	0	i 17 8	+16	i 12 24	PPP	—
Strasbourg		53·7	17	i 9 24	− 2	i 17 13	+14	i 12 15	PPP	e 25·2
Zagreb		54·3	25	e 9 30a	0	e 17 18	+11	e 13 4	PPP	e 26·2
Kew		54·4	10	e 9 27	− 4	i 17 13	+ 4	e 11 42	PP	e 26·7
Uccle		54·8	12	e 9 40k	+ 6	i 17 27	+13	e 11 55	PP	e 23·7
Sofia		55·5	32	e 9 42	+ 3	e 17 34	+10	e 12 44	PPP	31·7
Belgrade		55·6	29	e 9 38	− 2	e 17 34	+ 9	—	—	e 25·7
La Paz		55·6	252	i 9 39	− 1	i 17 29	+ 4	11 45	PP	24·9
San Juan		55·6	294	e 9 37	− 3	i 17 28	+ 3	—	—	i 23·6
De Bilt		56·2	13	i 9 43	− 1	i 17 47	+14	i 17 55	PS	e 26·7
Kalossa		56·2	27	9 49	+ 5	—	—	e 12 3	PP	—
Cheb		56·4	19	e 9 46	+ 1	e 17 54	+18	e 12 0	PP	e 30·7
Jena		56·9	19	e 9 47	− 2	e 17 44	+ 2	—	—	—
Prague		57·1	21	e 9 49a	− 1	e 18 31	PPS	e 18 55	?	e 26·7
Durham		57·4	8	10 2	+ 9	17 53	+ 4	13 9	PPP	24·0
Montezuma		57·4	244	e 9 49	− 4	e 17 45	− 4	—	—	e 23·5
Collmberg		57·7	19	e 10 1	+ 6	e 18 16	+23	e 12 26	PP	e 26·7
Bucharest		58·2	33	e 10 1	+ 3	i 18 5	+ 6	i 13 44	PPP	22·3
Edinburgh		58·3	7	10 43	+44	18 5	+ 4	—	—	—
Ksara		58·5	48	i 10 4	+ 4	i 18 36	+33	—	—	—
Bermuda		59·2	310	e 10 6	+ 1	e 18 26	+14	e 12 8	PP	e 24·2
Aberdeen	E.	59·7	7	i 10 49	+40	i 18 14	− 5	i 24 16	SSS	28·4
	N.	59·7	7	i 10 19	+10	i 18 6	−13	i 24 12	SSS	28·2
Bogota		60·9	277	i 10 13	− 4	e 18 47	+13	—	—	e 33·4
Copenhagen		61·3	16	e 10 19	− 1	i 18 48	+ 9	—	—	28·7
Santa Lucia	N.	61·9	232	10 38	+14	19 13	+26	13 13	PP	30·7
Tananarive		62·0	110	e 10 43	+19	19 27	+39	e 15 4	PcS	27·7
Huancayo		62·1	257	e 10 27	+ 2	e 18 44	− 5	e 14 13	PPP	e 26·0
Yalta		62·8	37	e 10 49	+19	—	—	e 14 33	PPP	—
Bergen		63·9	10	10 45	+ 8	19 28	+16	e 15 7	PPP	36·7
Halifax		64·3	323	—	—	e 19 13	− 4	—	—	25·7
Sotchi		65·7	39	e 10 46	− 2	—	—	e 14 7	PP	—
Upsala		66·3	16	e 10 59	+ 7	e 19 38	− 4	e 13 34	PP	e 36·0
Balboa Heights		66·7	281	e 10 55	0	e 19 53	+ 7	—	—	e 22·4
Erevan		67·5	45	e 11 5	+ 5	—	—	—	—	—
Piatigorsk		68·1	40	11 3	− 1	20 21	+18	i 11 21	PcP	—
Weston		68·2	318	e 11 8	+ 4	e 20 8	+ 4	e 11 20	PcP	—
Harvard		68·4	318	i 11 3	− 3	e 20 9	+ 2	e 13 28	PP	e 31·3
Ivigtut		68·4	343	11 22	+16	20 3	− 4	14 1	PP	—
Fordham		69·4	315	i 11 14	+ 2	i 20 24	+ 6	—	—	i 28·1
Grozny		69·6	42	11 19	+ 6	—	—	—	—	—
Seven Falls		69·9	323	11 18	+ 3	20 38	+14	27 43?	SSS	31·7
Philadelphia		70·0	314	e 11 10	− 5	e 20 30	+ 4	e 13 48	PP	e 28·4
Vermont		70·3	319	e 11 34	+17	e 20 11	−18	e 14 5	PP	i 28·5
Shawinigan Falls		70·9	321	11 28	+ 7	20 43	+ 7	—	—	29·7
Moscow		71·0	28	11 21	− 1	20 44	+ 7	—	—	—
Ottawa		72·3	319	11 25	− 4	20 55	+ 3	21 31	PS	32·7
Columbia		72·7	307	e 11 38	+ 6	e 21 4	+ 7	—	—	e 32·6
Cincinnati		76·6	311	e 11 57	+ 3	21 49	+ 9	14 52	PP	i 35·2
Merida		77·8	292	e 11 55	− 6	e 21 45	− 8	e 14 55	PP	e 36·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		79·5	313	e 12 15	+ 5	e 22 9	− 2	e 15 31	PP	e 32·6
Cape Girardeau	E.	80·1	308	e 12 17	+ 4	e 22 15	− 3	—	—	—
St. Louis		80·9	309	e 12 17	0	e 22 23	− 3	—	—	—
Florissant		81·0	309	e 12 19	+ 1	i 22 27	0	—	—	—
Sverdlovsk		83·0	32	i 12 32	+ 4	i 23 2	+15	i 15 54	PP	—
Vera Cruz		83·7	290	e 12 23	− 9	e 22 44	−10	e 23 39	PS	e 37·8
Samarkand		84·0	50	12 41	+ 8	23 8?	+11	—	—	—
Stalinabad		85·2	51	i 12 47	+ 8	i 23 41	PS	—	—	—
Tashkent		85·9	49	e 12 46	+ 3	e 24 37	PS	e 16 10	PP	—
Lincoln		86·1	311	i 12 49	+ 5	i 23 27	+ 9	i 24 35	PS	e 36·2
Tacubaya	E.	86·6	289	i 13 1	+15	e 23 33	+10	—	—	e 40·8
Bombay		87·2	71	e 12 58	+ 9	i 23 43	+15	—	—	40·2
Rapid City		91·2	314	i 13 17	+ 9	e 23 49	[+ 9]	e 16 49	PP	e 41·7
Kodaikanal	E.	91·3	79	e 13 28	+19	i 23 33	[− 7]	16 53	PP	—
New Delhi	N.	91·6	62	e 13 25	+15	e 24 26	+17	e 17 1	PP	i 41·0
Hyderabad	N.	92·5	73	e 13 50	+36	24 48	+31	17 37	PP	—
Saskatoon		93·5	322	e 13 42	+23	e 24 13	−12	e 17 21	PP	37·7
Colombo	E.	93·6	84	13 38	+19	24 19	− 7	—	—	47·0
Bozeman		96·7	315	e 13 50	+17	e 23 42	[−28]	17 50	PP	e 40·7
Tucson		97·3	303	e 13 34	− 2	e 25 0	+ 2	e 17 34	PP	e 39·4
Logan		97·5	312	e 13 59	+22	e 25 28	+29	e 18 2	PP	e 45·1
Salt Lake City		97·6	311	e 13 55	+17	e 25 3	+ 3	e 17 16	PP	e 40·9
Butte		97·7	317	e 13 49	+11	e 25 1	0	e 17 49	PP	e 38·3
Pierce Ferry		99·7	306	e 13 50	+ 3	—	—	e 17 56	PP	—
Boulder City		100·3	306	e 13 44	− 6	—	—	e 18 5	PP	—
Calcutta	N.	101·7	67	e 13 53	− 3	i 24 11	[−24]	e 18 58	PP	e 41·1
Grand Coulee		101·8	319	e 14 4	+ 8	e 24 21	[−15]	e 18 6	PP	—
Palomar	E.	102·3	304	e 18 0	PP	—	—	—	—	—
Riverside	Z.	102·6	305	e 14 23	+23	—	—	e 18 11	PP	—
Tinemaha	Z.	103·0	308	e 14 21	+19	—	—	—	—	—
Mount Wilson	Z.	103·1	305	e 14 19	+17	—	—	—	—	—
Pasadena		103·3	305	e 14 0	− 3	i 27 24	PS	e 18 20	PP	e 41·7
Victoria		104·6	320	e 16 1	?	e 26 38	+39	e 19 0	PP	40·7
Mineral	E.	105·0	311	—	—	e 28 25	PPS	e 33 31	SS	—
Lick		105·6	309	—	—	e 22 45	?	—	—	e 33·5
Shasta Dam		105·6	312	e 14 20	+ 7	—	—	e 18 36	PP	—
Santa Clara		105·8	309	i 18 50	PP	—	—	e 33 48	P_cSS_cP	e 43·6
Berkeley		106·0	309	e 14 35	+20	e 25 17	[+22]	e 19 4	PP	e 34·3
Branner		106·0	309	e 19 4	PP	e 33 53	SS	—	—	e 43·3
Ukiah		106·5	310	e 18 53	PP	e 27 19	PS	e 33 53	SS	—
Irkutsk		108·3	35	e 14 41	P	28 39	PS	34 39	SSP	—
Sitka		108·3	331	—	—	i 26 33	{+40}	i 28 36	PS	e 43·4
College		109·2	342	—	—	e 26 38	{+39}	e 34 12	SS	e 44·1
Christchurch		134·3	186	21 29	PP	28 37	{−10}	23 7	PKS	62·7
Wellington		136·3	189	19 35	[+11]	29 43	{+44}	22 29	PP	63·7
Arapuni		139·2	191	18 1	?	40 55	SS	e 23 19	PKS	67·2
Honolulu		140·3	302	e 23 18	PKS	e 26 23	[−17]	e 41 7	SS	e 58·2
Auckland		140·6	191	19 49	[+17]	30 14	?	22 48	PP	67·7
Riverview		141·5	159	i 20 13k	[+40]	e 41 33	SS	i 23 12	PKS	e 63·4
Brisbane		147·9	157	i 20 10	[+26]	e 30 25	{+18}	i 23 33	PKS	e 44·8

Additional readings and notes :—
Granada sP =8m.39s., iPP =9m.34s., pPP =10m.4s., pP_cP =10m.53s., S_cS =16m.55s.
Lisbon PE =8m.13s., PPEN =9m.41s., N =10m.27s., SE =14m.27s., SS?E =16m.31s.
Alicante P_cP =8m.14s., i =8m.50s. and 9m.34s., PP =10m.36s., PPP =12m.4s., P_cS = 12m.48s., PS =17m.30s., SS =21m.42s.
Toledo P_cSE =13m.15s., S_cSE =17m.33s., QE =19m.9s.
Tortosa P_cPN =9m.9s., PPPN =10m.51s., P_cSN =13m.49s., PSN =15m.39s., S_cSE = 18m.9s., SSN =18m.30s., QN =20m.51s.
Barcelona SS =18m.36s.
Johannesburg eN =11m.43s.
Rome i =9m.4s. and 9m.8s., iN =9m.29s. and 12m.7s., iSSS =20m.31s.
Fort de France PPP =11m.43s., SS? =19m.48s., SSS? =21m.15s.
Paris i =10m.1s.? and 13m.1s.?, iSS? =21m.1s.
La Plata P_cSE =14m.31s., S?E =16m.31s., S_cSN =19m.25s., SSEN =20m.25s.
Triest iSSSE =22m.34s.
Strasbourg i =9m.38s., iSS =20m.40s.

Continued on next page.

Zagreb e =9m.39s., eNE =13m.19s.
Kew iP$_c$P?EN =10m.18s., i =12m.24s., ePPPN =13m.0s., eP$_c$SE =14m.14s., iEN = 15m.26s., iN =16m.40s., iPSNZ =17m.20s., iN =17m.37s., eSSEN =21m.43s.?
Uccle i =10m.3s., iPPPN =12m.30s., iN =13m.31s., iEN =15m.2s., iSSN =21m.39s., iSSSN =22m.51s., iSSSE =23m.0s.
Belgrade e =10m.43s. and 13m.54s., ePS =19m.25s.
La Paz PPPN =12m.16s., iSSN =21m.22s.
San Juan i =9m.49s. and 10m.2s.
Kalossa ePN =9m.53s.
Cheb ePPP =13m.8s., ePSP =18m.46s., eSS =20m.38s., eSSS =22m.48s.
Jena iP =9m.55s., iZ =10m.1s., eSZ =17m.47s., eSE =17m.57s.
Durham eEN =10m.17s., N =10m.29s., EN =10m.35s., N =10m.38s., EN =12m.56s., N =18m.8s. and 18m.20s., E =18m.30s.
Collmberg eE =10m.10s. and 10m.15s., eP$_c$PN =10m.45s., eEN =14m.1s., eS$_c$SN = 20m.4s.
Bucharest iE =15m.15s.
Bermuda ePPP =13m.40s., e =15m.58s., iSS =22m.19s.
Aberdeen isPEN =18m.38s.
Bogota i =10m.34s. and 10m.47s., e =21m.45s.
Copenhagen 11m.9s.
Santa Lucia PPPN =13m.23s., N =19m.9s., E =21m.3s., SSN =23m.23s., SSSN = 25m.43s.?, N =30m.23s.
Tananarive i =10m.55s., e =11m.42s., 11m.51s., 15m.16s., and 19m.31s., PS =19m.53s., SSS =25m.54s.
Huancayo iP =10m.35s., iS =18m.57s., eSS =23m.12s.
Bergen eZ =11m.2s., eN =16m.2s. and 24m.19s.
Upsala eN =11m.5s., eE =11m.25s., eN =11m.30s., 11m.47s.?, 12m.28s., and 13m.12s., eE =14m.16s., ePPPN =15m.6s., eN =15m.18s., PSN =20m.2s., eE =20m.30s. and 21m.13s., eN =22m.59s., iSSN =24m.35s., eSSE =24m.46s., eSSSE =27m.19s., eSSSN =27m.25s., eN =28m.43s. and 34m.13s.
Harvard i =11m.10s., 11m.49s., 12m.7s., 12m.16s., 12m.33s., 14m.10s., and 16m.9s., ePS =20m.24s., e =23m.57s., eSS =24m.25s., eSSS =27m.35s.
Ivigtut 24m.25s., 27m.31s.
Fordham i =11m.36s. and 20m.52s.
Philadelphia e =12m.12s., iS =20m.36s., iS$_c$S? =21m.3s., eSS? =24m.33s.
Vermont ePPP =15m.57s., iS =20m.32s., iS$_c$S? =21m.8s., iSS =25m.34s.
Ottawa SSN =25m.29s., SSS =29m.13s.
Cincinnati i =12m.15s. and 13m.33s.
Merida iPSN =22m.13s., ePSE =22m.22s., eSSE =26m.55s., eN =33m.12s.
Chicago ePPP =17m.11s., eS$_c$S =22m.54s., i =26m.39s., e =29m.56s., eSSS =31m.21s.
St. Louis iZ =12m.25s., 12m.47s., and 13m.0s., iSE =22m.26s.
Florissant iZ =12m.48s. and 13m.0s., iE =22m.35s.
Vera Cruz eN =12m.33s., eE =21m.56s.
Tashkent PPS =24m.55s.
Lincoln e =26m.19s., eSS =30m.15s.
Tacubaya iE =20m.41s., eN =20m.50s., eE =36m.51s.
Rapid City i =13m.53s., ePPP? =19m.21s., eSS =30m.11s., eSSS? =33m.49s.
Kodaikanal SSE =29m.38s.
New Delhi S$_c$SN =24m.38s., iPSN =25m.20s., PPSN =25m.55s., SSN =30m.3s., SSSSN =36m.49s.
Hyderabad PS =25m.49s.
Saskatoon e =30m.43s.?
Bozeman e =14m.8s., ePPP? =19m.10s., e =24m.28s., eS =25m.14s., ePS =26m.28s., eSS =31m.12s., eSSS =35m.10s.
Tucson i =13m.49s., ePPP =19m.51s., eSKS =24m.11s., i =24m.37s., ePS =26m.31s., ePKKP =31m.7s., iSS =31m.25s., eSSS =35m.37s.
Logan i =15m.33s., e =26m.14s., eSS? =31m.41s.
Salt Lake City e =18m.12s., ePS =26m.28s., eSS =31m.53s.
Butte ePPP =19m.45s., iPPS? =28m.1s., i =33m.5s.
Boulder City e =14m.2s.
Calcutta iPSN =24m.59s., iSS =29m.44s., iSSSN =33m.15s.
Grand Coulee eSS =32m.45s.
Berkeley ePKP =18m.38s., ePPS?N =29m.22s., eSSNZ =33m.46s.
Ukiah ePS =28m.0s.
Irkutsk ePKP =18m.37s., SSS =39m.25s.
Sitka ePPS? =29m.31s., iSS =34m.19s.
College eSSS? =38m.24s.
Christchurch PPP?E =27m.13s., SKKS =30m.41s., PS =34m.7s., PPS =35m.35s., SS =40m.7s., SSS =45m.3s., SSSS =51m.21s., Q =55m.39s.
Wellington PPZ=25m.22s., PPPZ=28m.13s., S?=33m.3s., SS =41m.18s., SSS =45m.26s.
Arapuni SSS =46m.31s., e =55m.49s., Q =59·4m.
Honolulu eSKKS =28m.50s., e =30m.45s.
Auckland S? =35m.37s., SS =42m.28s., SSS =46m.43s., Q =64·5m.
Riverview iZ=20m.49s. and 21m.43s., eN =42m.56s., eSSS?N =46m.21s., eE =46m.52s., eQE =57m.19s.
Brisbane iPPPN =24m.51s., eSN =30m.43s., iSSN =35m.55s.
Long waves were also recorded at Apia.

April 11d. 13h. 20m. 42s. Epicentre 21°·8S. 170°·8E. (as on 1941, July 20d.).

$A = -·9173$, $B = +·1486$, $C = -·3693$; $\delta = -10$; $h = +4$;
$D = +·160$, $E = +·987$; $G = +·365$, $H = -·059$, $K = -·929$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		15·4	168	3 29	−11	6 37	+ 5	—	—	7·3
Brisbane	N.	17·1	247	i 3 59	− 3	i 7 27	+15	—	—	e 9·0
Wellington		19·7	172	4 37	+ 3	8 27	+17	—	—	9·5
Riverview		21·0	230	e 4 49	+ 2	i 8 50	+13	i 8 45	P_cP	e 9·8
Christchurch		21·7	176	4 54	− 1	8 49	− 2	9 25	Q	10·9
Berkeley		86·4	47	e 12 52	+ 7	—	—	—	—	e 41·6
Pasadena	Z.	87·5	52	e 12 50	− 1	—	—	—	—	e 39·0
Mount Wilson	Z.	87·6	52	e 12 43	− 8	—	—	—	—	—
Shasta Dam		87·8	44	e 12 59	+ 7	—	—	—	—	—
Riverside	Z.	88·0	52	i 12 53	0	—	—	—	—	—
Palomar	N.	88·1	53	e 13 19	+25	—	—	—	—	—
Tinemaha	E.	88·8	50	e 13 0	+ 3	—	—	—	—	—
Boulder City		90·7	51	e 13 1	− 5	—	—	—	—	—
Pierce Ferry		91·4	52	e 13 9	0	—	—	—	—	—
Tucson		92·1	56	e 13 15	+ 3	—	—	e 17 26	PP	e 42·8
Collmberg	Z.	145·8	335	e 19 42	[+ 1]	—	—	—	—	—
Basle		151·0	337	e 19 45	[− 4]	e 27 30	[+35]	—	—	—

Additional readings :—
Riverview iZ = 4m.56s., iNZ = 5m.24s., iEN = 8m.58s., eQN = 9m.36s.
Pierce Ferry e = 13m.16s.
Tucson e = 13m.40s.
Collmberg eZ = 19m.47s., 19m.50s., 20m.7s., and 20m.19s.
Long waves were also recorded at Arapuni and other European stations.

April 11d. Readings also at 1h. (Mount Wilson, Tinemaha, Tucson (2), Boulder City, Pierce Ferry, Shasta Dam, and St. Louis (2)), 2h. (St. Louis), 3h. (Tucson, Vera Cruz, and near Tacubaya), 4h. (Mizusawa), 6h. (Basle, De Bilt, and Uccle), 8h. (Erevan, Grozny, Leninakan, and Ksara), 9h. (Collmberg, Uccle, Strasbourg, Basle, Granada, Bogota, and St. Louis), 10h. (De Bilt, Cheb, Paris, Bermuda, and La Paz), 11h. (Basle and Barcelona), 18h. (Basle), 21h. (Mizusawa), 23h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City (2), Pierce Ferry (2), Shasta Dam, St. Louis, and near Berkeley).

April 12d. 7h. 36m. 43s. Epicentre 35°·5N. 26°·5E. (as on 1944, August 17d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		6·9	143	2 4	P*	3 26	S*	2 23	P_g	—
Sofia		7·6	343	e 1 53	− 2	e 3 13	−10	—	—	—
Ksara		7·9	99	e 2 9?	+10	e 4 10	S_g	—	—	—
Bucharest		8·9	357	e 2 35	P*	e 3 41	−14	i 4 31	S*	—
Belgrade		10·4	335	e 2 35	+ 1	e 5 9	SSS	—	—	—
Kalossa		12·4	335	e 3 17?	PPP	—	—	e 3 57	?	—
Rome		12·7	304	e 3 7	+ 2	5 30	+ 2	i 7 1	Q	—
Sotchi		13·0	48	e 2 43	−26	—	—	—	—	—
Zagreb		13·0	326	e 3 10k	+ 1	—	—	—	—	—
Triest	E.	14·0	320	e 3 21	− 1	e 5 51	− 8	i 7 48	Q	—
Florence		14·3	310	e 3 21	− 5	e 5 52	−14	—	—	—
Leninakan		14·5	64	e 3 37	+ 9	—	—	—	—	—
Erevan		15·0	66	e 3 36	+ 1	—	—	—	—	—
Grozny		16·8	57	4 4	+ 6	7 16	+11	—	—	—
Chur		17·0	317	e 4 3	+ 2	—	—	—	—	—
Prague		17·0	333	e 3 51	−10	e 6 59	−11	—	—	e 9·3
Zürich		17·9	317	e 4 14	+ 2	e 7 29	− 1	—	—	—
Basle		18·5	318	e 4 21	+ 2	—	—	—	—	e 10·3
Collmberg		18·5	332	e 4 20	+ 1	—	—	—	—	e 14·3
Neuchatel		18·6	316	e 4 22	+ 1	e 7 56	+10	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Jena		18·8	330	e 4 23	0	—	—	—	—	—
Strasbourg		19·0	320	e 4 27	+ 1	e 7 56	+ 1	e 4 46	PP	e 10·7
Baku		19·1	67	4 24	− 3	8 0	+ 3	—	—	—
Besançon		19·3	314	e 4 31	+ 2	—	—	—	—	e 12·3
Clermont-Ferrand		20·4	307	e 4 45	+ 4	—	—	—	—	e 11·0
Tortosa	E.	21·1	293	—	—	i 7 40	−59	—	—	—
Alicante		21·7	286	e 4 29	−26	e 9 7	+16	5 9	PP	e 12·7
Paris		22·1	315	e 5 1	+ 2	e 9 10	+12	e 9 44	SSS	e 12·3
Uccle		22·1	321	i 4 59k	0	e 9 10	+12	—	—	e 12·3
Copenhagen		22·4	339	e 4 59	− 3	i 9 2	− 2	—	—	11·3
De Bilt		22·5	325	e 5 4	+ 2	e 9 9	+ 4	—	—	e 12·3
Granada		24·2	284	5 35k	+16	9 39	+ 4	6 8	pP	—
Toledo		24·5	289	i 5 49	+27	e 10 3	+23	6 39	pP	—
Upsala		25·0	349	e 5 21	− 6	e 9 49	0	—	—	e 12·8
Sverdlovsk		31·3	36	6 21	− 3	11 26	− 5	—	—	—
Tashkent		33·8	66	e 6 31	−15	—	—	—	—	—
St. Louis		85·9	315	i 12 47	+ 4	—	—	e 13 1	?	e 41·3
Tucson		101·6	323	e 13 59	+ 3	—	—	—	—	—

Additional readings :—
Bucharest iE =4m.40s.
Strasbourg e =5m.34s.
Alicante Q =10m.25s.
Granada PP =6m.27s., eS =11m.9s.
Toledo sSE =12m.9s.
Upsala eSN =9m.46s.
Long waves were also recorded at Aberdeen.

April 12d. 8h. Undetermined shock.

Ksara eP? =5m.1s., eS? =7m.0s.
Sofia ePEN =5m.7s., eS?EN =6m.52s.
Bucharest EN =6m.0s.?
Florence eP =6m.45s., eS =9m.13s.
Basle eP =7m.51s.
Triest eS?E =9m.19s., eQE =11m.24s.
Zagreb e =10m.43s.
De Bilt e =16m.30s.

April 12d. Readings also at 0h. (Santa Lucia), 3h. (Cheb), 5h. (Zürich), 10h. (Lick, near Berkeley, Fresno, Pierce Ferry, Boulder City, and near Leninakan), 11h. Tucson, Palomar, Pierce Ferry, Riverside, Boulder City, Mount Wilson, and Tinemaha),14h. (Tucson, Palomar, Pierce Ferry, Riverside, Rapid City, Boulder City, Mount Wilson, Pasadena, Haiwee, Tinemaha, and Shasta Dam), 15h. (near Harvard), 16h. (near Basle and Zürich), 19h. (Tucson), 20h. (near Pierce Ferry, Overton, and Boulder City), 23h. (Tucson).

April 13d. 5h. 19m. 14s. Epicentre 53°·4N. 163°·1W. (as on 9d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

		△	Az.	P.	O−C.
		°	°	m. s.	s.
Shasta Dam		30·1	98	i 6 13	0
Tinemaha	Z.	34·9	99	i 6 55	0
Mount Wilson	Z.	37·0	102	i 7 12	− 1
Overton		37·5	96	e 7 20	+ 3
Riverside		37·5	102	e 7 16	− 1
Boulder City		37·7	97	e 7 18	− 1
Pierce Ferry		38·0	96	e 7 22	+ 1
Palomar	N.	38·3	102	e 7 25	+ 1
Tucson		42·6	98	e 7 59	0
St. Louis	Z.	50·5	76	i 8 59	− 3

St. Louis gives also iZ =9m.13s.
Long waves were recorded at College.

April 13d. 6h. 44m. 58s. Epicentre 19°·8S. 168°·5E.

A = −·9227, B = +·1877, C = −·3367; $\delta = -3$; $h = +5$;
D = +·199, E = +·980; G = +·330, H = −·067, K = −·942.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	16·1	239	i 3 48	− 1	—	—	—	—	—
Auckland		17·9	163	3 57	−15	7 9	−21	—	—	8·7
Riverview		20·8	224	i 4 47k	+ 2	i 8 43	+10	i 5 4	PP	e 10·1
Wellington	Z.	22·1	169	4 55	− 4	8 57	− 1	i 6 36	?	12·0
Christchurch		23·9	174	5 18	+ 2	9 23	− 7	9 58	Q	11·4
Berkeley		86·7	48	e 12 47	0	—	—	—	—	41·6
Pasadena	Z.	87·9	53	e 12 53	0	—	—	—	—	40·4
Shasta Dam		87·9	46	e 12 53	0	—	—	—	—	—
Mount Wilson	Z.	88·1	53	i 12 54	0	—	—	—	—	—
Riverside	Z.	88·5	53	i 12 57	+ 1	—	—	—	—	—
Palomar		88·6	54	i 12 58	+ 2	—	—	—	—	—
Haiwee	Z.	88·9	52	e 12 58	0	—	—	—	—	—
Tinemaha	Z.	89·1	50	i 12 59	+ 1	—	—	—	—	—
Boulder City		91·2	52	e 13 8	0	—	—	—	—	—
Overton		91·7	52	e 13 14	+ 4	—	—	—	—	—
Pierce Ferry		91·9	53	e 13 12	+ 1	—	—	—	—	—
Tucson		92·8	57	i 13 17	+ 1	—	—	—	—	e 43·3
San Juan		128·6	81	i 23 29	PPP	—	—	—	—	e 66·0
Belgrade		143·6	321	e 16 37	?	—	—	e 19 27	PKP	—
De Bilt		145·2	342	i 19 43a	[+ 3]	—	—	e 23 10	PP	e 71·0
Zagreb		145·6	325	e 19 44	[+ 4]	—	—	—	—	—
Uccle	Z.	146·6	343	e 19 48	[+ 6]	—	—	—	—	e 74·0
Strasbourg		147·4	336	e 19 49	[+ 6]	—	—	e 20 21	?	e 79·0
Chur		148·0	333	e 19 50	[+ 6]	—	—	—	—	—
Zürich		148·0	335	e 19 50	[+ 6]	—	—	—	—	—
Basle		148·3	335	e 19 43	[− 2]	—	—	—	—	—
Paris		148·9	342	e 19 54	[+ 8]	—	—	e 23 2?	PP	85·0
Neuchatel		149·0	335	e 19 53	[+ 7]	—	—	—	—	—
Rome	Z.	150·0	324	e 19 49	[+ 2]	—	—	—	—	—
Clemont-Ferrand		151·4	338	e 20 0	PKP_2	—	—	—	—	—

Additional readings·—
Riverview i = 4m.52s., iPcP = 8m.47s., isSEN = 8m.57s.
Christchurch e = 5m.59s., iE = 9m.36s.
Long waves were also recorded at Arapuni, Fort de France, Huancayo, La Paz, Copenhagen, and at other American stations.

April 13d. 8h. 7m. 37s. Epicentre 53°·4N. 163°·1W. (as at 5h.).

		△	Az.	P.	O−C.
		°	°	m. s.	s.
Shasta Dam		30·1	98	i 6 13	0
Tinemaha	Z.	34·9	99	i 6 55	0
Haiwee	Z.	35·7	100	i 7 3	+ 1
Mount Wilson	Z.	37·0	102	i 7 13	0
Overton		37·5	96	e 7 18	+ 1
Riverside	Z.	37·5	102	e 7 15	− 2
Boulder City		37·7	97	i 7 19	0
Pierce Ferry		38·0	96	i 7 27	+ 6
Palomar		38·3	102	i 7 24	0
Tucson		42·6	98	e 7 59	0
St. Louis	Z.	50·5	76	i 8 59	− 3

Long waves were recorded at College,

April 13d. 18h. 57m. 50s. Epicentre 19°·08. 175°·5W. Depth of focus 0·030.

A = −·9433, B = −·0742, C = −·3236; δ = +4; h = +5;
D = −·078, E = +·997; G = +·323, H = +·025, K = −·946.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		6·3	35	—	—	e 2 37	− 7	—	—	—
Auckland		19·7	204	i 3 16	−58	8 32	+53	i 4 15	P	—
Arapuni		20·5	201	1 22	?	7 58	+ 5	—	—	—
Wellington		23·7	199	4 52	− 1	8 45	− 4	15 32	S_cS	—
Christchurch		26·4	200	6 32	PPP	9 14	−19	7 32	?	10·9
Riverview		33·1	237	i 6 16k	− 1	i 11 13	− 5	i 7 34	pP	—
Santa Barbara	Z.	75·1	46	e 11 17	− 2	—	—	—	—	—
Pasadena		75·9	47	i 11 25	+ 1	i 20 46	0	i 12 24	pP	—
Mount Wilson		76·1	47	i 11 27	+ 2	—	—	i 12 26	pP	—
Palomar	Z.	76·4	48	i 11 28	+ 2	—	—	i 12 29	pP	—
Riverside	Z.	76·4	47	i 11 28	+ 2	—	—	i 12 29	pP	—
Shasta Dam		77·2	39	i 11 31	0	e 21 5	+ 5	i 12 32	pP	—
Tinemaha		77·6	45	i 11 44	+11	e 21 43	SP	i 12 45	pP	—
Boulder City		79·2	46	i 11 44	+ 2	e 21 26	+ 5	i 12 46	pP	—
Overton		79·8	46	e 11 39	− 6	—	—	—	—	—
Pierce Ferry		79·9	47	i 11 47	+ 2	e 21 34	+ 6	i 12 49	pP	—
Tucson		80·1	51	i 11 48	+ 2	—	—	i 12 49	pP	—
Grand Coulee		83·6	34	i 12 4	0	—	—	i 13 7	pP	—
St. Louis		98·1	52	e 14 14	+62	e 24 24	+ 8	e 26 10	PS	e 42·2
La Paz	Z.	100·4	112	i 17 38	PP	—	—	—	—	—
San Juan		113·6	77	—	—	i 24 36	[+ 1]	—	—	—
Tashkent		121·1	307	e 19 43	PP	e 25 0	[− 2]	—	—	—
Sverdlovsk		124·1	326	e 20 11	PP	—	—	—	—	—
Baku		135·8	309	e 22 7	PP	—	—	—	—	—
Leninakan		140·1	311	e 18 59	[− 3]	—	—	—	—	—
Yalta		144·5	322	19 9	[− 1]	—	—	—	—	—
De Bilt		147·0	358	i 19 16k	[+ 1]	e 41 10?	SS	i 20 23	pPKP	e 60·2
Collmberz	N.	147·1	350	e 19 16	[+ 1]	—	—	—	—	—
Jena		147·6	350	e 19 14	[− 2]	—	—	—	—	—
Uccle		148·3	1	e 19 21k	[+ 4]	e 41 28	SS	e 20 33	pPKP	—
Cheb		148·4	350	e 12 10?	?	—	—	—	—	—
Ksara		148·4	304	i 19 19	[+ 2]	—	—	i 20 32	pPKP	—
Strasbourg		150·4	355	e 19 26	[+ 7]	—	—	—	—	e 85·2
Basle		151·4	356	e 19 23	[+ 3]	25 44	[− 19]	—	—	—
Zürich		151·5	356	e 19 29k	[+ 8]	—	—	—	—	—
Zagreb		151·6	343	e 19 26	[+ 5]	—	—	e 20 36	pPKP	—
Chur		151·9	353	e 19 22k	[+ 1]	—	—	—	—	—
Clermont-Ferrand		153·3	2	e 19 33	[+10]	—	—	—	—	—
Helwan		153·3	297	19 31	[+ 8]	29 45	?	—	—	—
Rome		156·2	346	e 19 29	[+ 2]	—	—	—	—	—

Additional readings·—
Wellington PcP = 6m.31s., ScP = 9m.26s., SS = 11m.4s.
Riverview iEZ = 7m.43s., isS?N = 13m.50s., iSSZ = 14m.2s., iSSN = 14m.5s., iScS?EN = 16m.21s.
Pasadena iPcPZ = 11m.50s., esSN = 22m.42s.
Mount Wilson iPcPZ = 11m.52s.
Palomar iZ = 11m.56s.
Riverside iPcPZ = 11m.53s.
Shasta Dam eS = 21m.20s.
Tinemaha iPcPZ = 12m.10s.
Boulder City e = 21m.40s., ePS = 23m.14s.
Tucson i = 12m.14s., esP = 13m.24s., epPP? = 15m.57s., ePPP = 16m.41s.
St. Louis eSKSE = 23m.22s., esSKS?E = 25m.24s., eN = 27m.22s., eSSN = 31m.12s.
Collmberg eE = 19m.19s. and 19m.35s.
Jena eEN = 19m.18s., eN = 19m.30s., eE = 19m.37s.
Uccle ePS? = 30m.59s.?
Ksara ipPP = 23m.54s.
Strasbourg e = 19m.30s.
Zagreb e = 20m.41s.
Chur i = 19m.30s. s.
Helwan i = 19m.45s.
Rome e = 32m.34s.
Long waves were also recorded at Sofia.

April 13d. Readings also at 0h. (near Overton, Pierce Ferry, and Boulder City), 1h. (College, St. Louis, Tucson, Overton, Pierce Ferry, Boulder City, Tinemaha, Bogota, and Balboa Heights), 4h. (Mizusawa, Tucson, Overton, Pierce Ferry, Boulder City and near Neuchatel), 6h. (College), 7h. (Tucson (2), Palomar, Riverside, Mount Wilson, Berkeley), 9h. (Tucson (3), Ksara and near Oaxaca), 14h. (Alicante, Overton, near Pierce Ferry and Boulder City (3)), 17h. (La Paz), 20h. (near Berkeley), 21h. (Ksara and near Bogota), 23h. (Bogota, Strasbourg, near Basle, Zürich, Zagreb, and Triest).

April 14d. 4h. 24m. 47s. Epicentre 53°·4N. 163°·1W. (as on 13d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

		△	Az.	P	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.		m.
Grand Coulee		28·1	82	e 5 55	0	—	—	—
Shasta Dam		30·1	98	i 5 52	−21	i 7 53	PPP	—
Tinemaha	z.	34·9	99	i 6 56	+ 1	—	—	—
Haiwee	z.	35·7	100	e 7 1	− 1	—	—	—
Mount Wilson	z.	37·0	102	i 7 13	0	—	—	—
Overton		37·5	96	e 7 18	+ 1	—	—	—
Riverside	z.	37·5	102	e 7 16	− 1	—	—	—
Boulder City		37·7	97	e 7 18	− 1	—	—	—
Pierce Ferry		38·0	96	e 7 21	0	—	—	—
Palomar		38·3	102	i 7 24	0	—	—	—
Tucson		42·6	98	e 7 58	− 1	e 10 3	PP	—
St. Louis		50·5	76	e 8 57	− 5	—	—	e 24·6

Long waves were also recorded at College and Chicago.

April 14d. Readings also at 0h. (St. Louis, Tucson (2), Palomar, Riverside, Mount Wilson, Haiwee, Tinemaha, Ksara and near Rome), 1h. (Helwan, near Tashkent, Samarkand, Andijan, and Stalinabad), 2h. (San Juan), 4h. (Basle, Cheb, New Delhi, Bombay, and Hyderabad), 5h. (Zürich), 10h. (Tucson, Pierce Ferry, Overton, Boulder City, Palomar, Tinemaha, Riverside, Mount Wilson, Shasta Dam, Ksara, Bombay, Riverview, Christchurch, Auckland, Wellington, Arapuni, and near Bogota), 11h. (near Mizusawa), 12h. (Tucson, Tinemaha, Riverside, and near Triest), 15h. (near Irkutsk), 17h. (Harvard), 21h. (St. Louis), 22h. (near Erevan), 23h. (near Florence).

April 15d. 7h. 6m. 13s. Epicentre 53°·4N. 163°·1W. (as on 14d.).

$A = -\cdot5729$, $B = -\cdot1741$, $C = +\cdot8009$; $\delta = -3$; $h = -7$.

		△	Az.	P.	O−C.	S.
		°	°	m. s.	s.	m. s.
College		13·9	28	e 3 19	− 2	e 7·3
Shasta Dam		30·1	98	e 6 18	+ 5	—
Tinemaha	z.	34·9	99	i 6 55	0	—
Haiwee	E.	35·7	100	e 7 7	+ 5	—
Pasadena	z.	37·0	102	e 7 12	− 1	—
Mount Wilson	z.	37·0	102	i 7 13	0	—
Overton		37·5	96	e 7 17	0	—
Riverside	z.	37·5	102	e 7 16	− 1	—
Boulder City		37·7	97	i 7 17	− 2	—
Pierce Ferry		38·0	96	i 7 21	0	—
Palomar		38·3	102	i 7 23	− 1	—
Tucson		42·6	98	e 7 59	0	—
St. Louis		50·5	76	e 8 56	− 6	e 27·9

Tucson gives also e = 9m.3s.

April 15d. 9h. Undetermined shock.

Zagreb eP = 53m.55s., e = 54m.29s., 54m.39s., and 54m.47s.
Chur eP = 54m.31s., eS? = 55m.42s.
Triest eS? = 54m.36s., eS_g? = 54m.45s.
Zürich eP = 54m.37s., e = 56m.
Basle e = 54m.50s., 56m.11s., and 56m.39s.
Belgrade iP = 55m.28s., iS_g = 56m.14s., i = 56m.38s., e = 56m.52s. and 57m.8s.
Collmberg eZ = 56m.37s., 56m.52s., 57m.4s., 57m.40s., 58m.4s., 58m.13s., and 58m.24s.

April 15d. 17h. Undetermined shock.

Bombay eE =59m.43s., eN =62m.0s.
Kodaikanal eE =59m.44s. and 63m.34s., LE =65m.14s.
Hyderabad ePN =60m.0s., eSN =63m.23s., SSN =63m.32s.
New Delhi iN =60m.10s. and 64m.30s.
Stalinabad iP =60m.44s.
Ksara e =60m.51s. and 66m.16s.
Tashkent eP =61m.7s., eS =65m.57s.
Leninakan P =61m.11s.
Grozny P =61m.43s.
Sverdlovsk P =63m.0s., S =69m.22s.
Collmberg eZ =64m.4s., 64m.15s., 65m.20s., 66m.8s.
Copenhagen eP =64m.23s.

April 15d. Readings also at 1h. (Sverdlovsk, Tashkent, Andijan, Bombay, La Paz, St. Louis, Weston, Harvard, Sitka, near Pierce Ferry, Overton, and Boulder City), 2h. (near Berkeley, Branner, and Lick), 8h. (Zürich, Triest, Zagreb, and Rome), 9h. (Tucson (2), Riverside, and Tinemaha), 14h. (near Almata), 18h. (Tucson), 19h. (near Fort de France), 21h. (Christchurch), 22h. (Brisbane), 23h. (Riverview, Auckland, Christchurch, Wellington, and Arapuni).

April 16d. 11h. 43m. 50s. Epicentre 41°·2N. 19°·9E.

Epicentre 41°·3N. 20°·6E. (Strasbourg).

A = +·7095, B = +·2569, C = +·6561; δ = −14; h = −2;
D = +·340, E = −·940; G = +·617, H = +·223, K = −·755.

	Δ	Az.	P.	O−C.	S.	O−C	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	3·0	58	e 0 50	0	i 1 29	+ 2	i 0 56	P*	—
Belgrade	3·7	6	i 1 0	0	i 1 47	+ 2	i 2 3	S_g	e 2·4
Kalossa	5·4	354	e 1 30	+ 6	i 2 29	+ 1	1 47	P_g	3·0
Zagreb	5·5	330	1 24	− 1	i 2 39	+ 9	i 1 46	P_g	i 3·4
Bucharest	5·6	52	e 1 29	+ 2	i 2 38	+ 5	e 1 34	P*	—
Rome	5·7	281	e 1 24	− 4	e 2 36	+ 1	e 1 39	P*	e 2·7
Triest	6·4	317	i 1 34	− 4	1 2 44	− 9	i 2 1	P_g	—
Florence	6·9	295	i 1 47	+ 2	i 3 4	− 1	—	—	—
Chur	9·4	311	e 2 18	0	e 4 4	− 3	—	—	—
Prague	9·7	339	e 2 18	− 4	e 4 17	+ 2	—	—	e 4·8
Zürich	10·2	311	e 2 27	− 4	e 4 34	+ 7	—	—	—
Cheb	10·3	332	e 2 40	+ 8	e 4 34	+ 4	—	—	e 5·8
Basle	10·9	310	e 2 37	− 3	e 4 47	+ 3	—	—	—
Neuchatel	11·0	306	e 2 39	− 3	e 4 31	−16	—	—	—
Collmberg	11·2	337	e 2 42	− 2	e 4 58	+ 6	—	—	e 6·2
Jena	11·3	332	e 2 42	− 4	e 5 14	SS	e 2 56	PP	e 6·1
Strasbourg	11·4	315	e 2 40	− 7	e 5 6	+10	e 2 46	P	e 5·4
Besançon	11·7	306	e 2 56	+ 5	e 4 57	− 7	—	—	e 6·4
Clermont-Ferrand	13·0	296	e 3 2?	− 7	e 6 2	SSS	—	—	e 7·2
Algiers	13·8	256	3 18	− 1	5 58	+ 4	i 5 21	?	7·2
Uccle	14·4	317	e 3 34	+ 7	e 6 35	SS	e 3 44	PP	7·1
Paris	14·5	308	e 3 38	+10	e 6 45	SS	—	—	—
Ksara	14·7	115	e 3 29	− 2	e 6 25	+ 9	—	—	—
Tortosa	14·7	276	3 37	+ 6	6 39	SS	3 47	PP	8·4
De Bilt	14·9	322	e 3 35	+ 1	i 6 30	+10	—	—	e 7·7
Copenhagen	15·3	344	e 3 37	− 2	e 6 35	+ 5	—	—	—
Alicante	15·9	267	3 45	− 2	i 7 9	SS	3 50	pP	e 8·4
Toledo	18·2	273	i 4 16	0	e 8 55	P_cP	—	—	11·2
Granada	18·6	266	i 4 24k	+ 3	i 7 59	+13	4 28	pP	10·3
Moscow	18·6	32	4 19	− 2	7 37	− 9	—	—	—
Upsala	18·7	357	e 4 20	− 2	e 7 51	+ 3	e 8 4	SS	e 9·4
Grozny	19·2	76	4 26	− 2	—	—	—	—	—
Durham	19·7	322	e 6 27	?	8 21	+11	—	—	9·8
Edinburgh	21·1	323	e 5 10	PP	—	—	—	—	—
Bergen	21·2	341	e 4 48	− 1	e 8 30	−11	—	—	e 12·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lisbon		22·4	274	5 8k	+ 6	8 55?	− 9	12 25	PeS	13·0
Baku		22·7	83	e 5 7	+ 3	—	—	—	—	—
Sverdlovsk		30·4	45	i 6 13	− 3	i 11 18	+ 2	—	—	—
Tashkent		36·7	73	e 7 41	+31	e 13 24	+30	—	—	—
Irkutsk		55·8	48	e 9 10	−31	—	—	—	—	—
St. Louis		78·2	311	i 12 6	+ 3	—	—	—	—	e 36·2
Rapid City		80·9	323	e 12 16	− 1	—	—	—	—	—
Shasta Dam		91·6	332	e 13 5	− 5	—	—	—	—	—
Overton		92·1	325	e 13 12	0	—	—	—	—	—
Pierce Ferry		92·2	324	i 13 12	− 1	—	—	—	—	—
Boulder City		92·7	325	i 13 14	− 1	—	—	—	—	—
Tinemaha	z.	93·2	327	i 13 17	0	—	—	—	—	—
Tucson		94·0	320	e 13 20	− 1	—	—	—	—	—
Riverside	z.	95·5	326	e 13 26	− 2	—	—	—	—	—
Mount Wilson	z.	95·6	326	i 13 27	− 1	—	—	—	—	—
Pasadena	z.	95·7	326	i 13 27	− 2	—	—	—	—	—
Palomar	z.	95·8	324	e 13 28	− 1	—	—	—	—	—

Additional readings :—
Sofia iEN = 1m.1s., iS$_g$EN = 1m.38s.
Kalossa iE = 2m.1s.
Zagreb e = 1m.31s., iZ = 1m.35s., iNE = 2m.18s. and 2m.46s., iNW = 2m.55s., iS$_g$ = 2m.59s.
Bucharest eP$_g$N = 1m.57s., iS*?N = 3m.3s., iS$_g$N = 3m.25s.
Rome eSNZ = 2m.13s.
Triest iS$_g$S$_g$ = 3m.19s.
Collmberg eE = 2m.46s., eEN = 3m.40s., eN = 4m.28s., eSE? = 4m.44s.
Jena eN = 2m.45s., eZ = 2m.52s.
Strasbourg e = 3m.31s. and 3m.37s.
Uccle eE = 4m.5s., eSS = 7m.8s.
Tortosa PPP?E = 4m.2s., SSE = 7m.19s.
Alicante PP = 4m.3s., PPP = 4m.15s., SS = 7m.23s., SSS = 7m.27s., P$_c$P = 7m.59s.
Granada iPP = 4m.52s., pPP = 5m.19s., sS = 8m.26s.
Upsala iN = 4m.27s., eE = 5m.8s.
Lisbon E = 9m.25s.
Long waves were also recorded at Aberdeen and Bozeman.

April 16d. 13h. 36m. 44s. Epicentre 42°·1S. 73°·3W. (as on 1940 Oct. 11d.).

Pasadena suggests deep focus.

A = +·2139, B = −·7128, C = −·6679 ; δ = −7 ; h = −2 :
D = −·958, E = −·287 ; G = −·192, H = +·640, K = −·744.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Lucia	E.	8·9	14	2 12	0	3 59	+ 4	4 13	SS	—
La Plata	E.	14·0	64	i 3 24	+ 2	6 12	+13	3 36	PP	6·9
	N.	14·0	64	3 25	+ 3	5 55	− 4	3 35	PP	6·9
	Z.	14·0	64	3 35	+13	—	—	—	—	7·4
La Paz	Z.	25·9	12	i 5 32	− 3	i 10 8	+ 4	i 6 6	PP	12·9
Huancayo		30·0	356	e 6 12	0	e 11 4	− 6	e 7 16	PP	e 12·9
Bogota		46·5	359	e 8 29	− 2	—	—	—	—	—
Tucson		81·6	329	e 12 20	− 1	—	—	i 12 38	pP	—
St. Louis		81·8	347	i 12 23	+ 1	e 22 28	− 7	e 12 41	pP	—
Palomar		85·1	325	e 12 38	− 1	e 22 27	−41	i 12 56	pP	—
Riverside	z.	85·8	324	e 12 42	0	—	—	i 13 1	pP	—
Mount Wilson	z.	86·3	325	e 12 45	0	—	—	i 13 2	pP	—
Pasadena	z.	86·3	325	e 12 46	+ 1	—	—	i 13 2	pP	—
Pierce Ferry		86·3	329	i 12 43	− 2	—	—	i 13 1	pP	—
Boulder City		86·5	328	i 12 44	− 2	—	—	i 13 2	pP	—
Overton		86·8	328	e 12 48	+ 1	—	—	i 13 6	pP	—
Tinemaha	z.	88·9	326	e 12 56	− 2	—	—	i 13 15	pP	—

Additional readings :—
Santa Lucia E = 2m.46s., 3m.2s., 3m.22s., 3m.35s., 3m.39s., and 4m.5s., SE = 4m.19s.
La Paz SSZ = 11m.1s.
Huancayo e = 7m.1s. and 12m.16s.
Palomar iNZ = 13m.16s.

April 16d. 15h. Undetermined shock.

Bombay ePEN =19m.30s.?
Stalinabad iP =19m.50s., iS =23m.24s.
Hyderabad ePN =20m.0s., eSN =23m.22s. and 23m.39s., LN =25m.21s.
New Delhi eN =21m.20s., iN =22m.17s.
Kodaikanal eE =24m.52s.
Calcutta eN =25m.27s., iN =28m.21s.
Ksara eP? =23m.5s.?, eS? =27m.29s.
Long waves were recorded at some European stations.

April 16d. Readings also at 0h. (Tucson), 1h. (Ksara, Tucson, Riverside, Mount Wilson, Tinemaha, near Grand Coulee, and College), 2h. (St. Louis, Rapid City, Butte, Bozeman, near Balboa Heights, and near Almata), 5h. (near Triest), 8h. (Rome, Tucson, Palomar, Riverside, and Mount Wilson), 10h. (Lick, near Pierce Ferry, Overton, Boulder City, near Samarkand, Tashkent, Andijan, and Stalinabad), 13h. (Ksara), 14h. (near Bogota), 15h. (Tinemaha, Riverside, and Tucson), 16h. (Tucson), 17h. (Kodaikanal), 19h. (Mount Wilson, Pasadena, Palomar, Tinemaha, and Shasta Dam), 21h. (Riverview), 22h. (Granada, near Tashkent, Andijan, Samarkand, and Stalinabad, near Overton, Pierce Ferry, and Boulder City).

April 17d. 14h. Probably not a repetition of April 1d. 12h.

Grand Coulee eP =12m.37s., e =16m.48s., 18m.21s., and 20m.26s.
Shasta Dam e =13m.35s.
Boulder City eP =13m.38s.
Overton eP =13m.59s.
Tinemaha ePZ =14m.15s.
Haiwee ePEN =14m.23s.
Pierce Ferry eP =14m.26s.
Mount Wilson iPZ =14m.38s.
Pasadena ePZ =14m.38s., eLEN =26·3m.
Palomar iPNZ =14m.45s.
Tucson eP =15m.4s.
Sverdlovsk P =16m.28s., S =24m.2s.
Saskatoon e =16m.30s., L =19m.
Victoria e =16m.36s., L =19m.
Collmberg eZ =17m.8s. and 17m.22s.
Rapid City e =19m.58s., i =21m.30s., iSS? =24m.28s., eL =27m.16s.
Logan e =21m.42s., eL =24m.29s.
Lincoln e =24m.14s., eL =24m.50s.
Shawinigan Falls e =24m.24s., L =29m.
Seven Falls e =25m.48s., L =28m.
Philadelphia e =26m.47s., eL =29m.38s.
Bermuda e =28m.30s., eL =36m.
Harvard e =30m.45s. and 33m.48s.
Calcutta eN =34m.27s., iN =35m.27s.
De Bilt e =38m.
Long waves were also recorded at other American and European stations.

April 17d. 15h. 50m. 22s. Epicentre 23°·3S. 170°·9E. (as on 1940 Sept. 19d.).

A = −·9078, B = +·1454, C = −·3933 ; δ = −7 ; h = +4 ;
D = +·158, E = +·987 ; G = +·388, H = −·062, K = −·919.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Auckland		13·9	167	3 14	− 7	7 5	L	3 53 PP	(7·1)
Arapuni		15·3	166	—	—	6 44	+14	— —	—
Tuai		16·4	163	3 55	+ 2	7 3	+ 7	— —	—
Brisbane	N.	16·7	252	i 3 51	− 6	i 6 58	− 5	— —	—
Wellington		18·2	172	4 15	− 1	7 48	+11	— —	i 8·7
Christchurch		20·2	177	4 36	− 3	8 21	0	4 45 pP	e 10·0
Riverview		20·2	234	i 4 41	+ 2	i 8 29	+ 8	i 5 5 PP	e 9·4
Pasadena	Z.	88·3	52	e 13 0	+ 5	—	—	— —	—
Mount Wilson	Z.	88·4	52	i 13 3	+ 8	—	—	— —	—
Palomar	Z.	88·9	53	e 12 57	− 1	—	—	— —	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha	Z.	89·7	49	e 13 2	+ 1	—	—	—	—	—
Pierce Ferry		92·3	52	i 13 13	0	—	—	—	—	—
Tucson		92·9	56	e 13 15	− 1	—	—	—	—	—
Helwan		143·4	289	e 19 32	[− 4]	e 27 35	?	—	—	—
Collmberg	Z.	147·2	333	e 19 44	[+ 1]	—	—	—	—	—
Jena	N.	148·1	334	e 19 48	[+ 4]	—	—	—	—	—
Zagreb		149·7	324	e 19 52	[+ 5]	—	—	—	—	—
Basle		152·4	335	e 19 0	[−51]	—	—	—	—	—
Rome	Z.	154·1	320	e 19 51	[− 2]	—	—	—	—	—

Additional readings:—
Auckland gives L as S, also ScP? =10m.14s., PcS =10m.38s., i =11m.38s., ScS =14m.22s.
Brisbane eSN =7m.3s.
Wellington iZ =5m.53s., 6m.29s. and 8m.17s.
Christchurch EZ =7m.49s., sS =8m.35s., Q =9m.14s.
Riverview iN =4m.47s., eN =8m.32s., iE =8m.38s., iPcPE =8m.50s.
Helwan e =20m.2s.
Collmberg iZ =19m.48s., 19m.52s., and 20m.2s., eZ =20m.50s. and 21m.57s.
Jena eN =20m.25s.
Basle e =20m.24s.
Long waves were also recorded at Perth, De Bilt and Paris.

April 17d. Readings also at 1h. (Bogota), 4h. (Basle), 7h. (San Juan), 8h. (near Shasta Dam. near Berkeley, Branner, Lick, Fresno, and San Francisco), 11h. (Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, Basle, Toledo and near Tortosa), 12h. (Bozeman), 13h. (near Berkeley, Branner, Lick, Fresno, and San Francisco), 14h. (near Weston), 15h. (near Leninakan, Erevan, and near Tananarive (2)), 18h. (near Alicante), 19h. (Strasbourg and Chur), 20h. (Colombo and Tucson), 21h. (Tinemaha, Shasta Dam, Tucson, Boulder City and Pierce Ferry), 22h. (Tucson), 23h. (Basle).

April 18d. 7h. Undetermined shock.

Auckland e =7m.36s., L =12·3m.
Riverview eZ =9m.18s., eEN =10m.52s., iS?E =14m.55s., iSS?N =17m.31s., eREZ =19·1m.
Christchurch eZ =11m.27s., EN =13m.26s., L =15m.10s.
Wellington eZ =13m.42s., L =16m.24s.
Santa Clara ePEN =14m.0s.
Pasadena ePZ =14m.4s., eSE =24m.1s., eLZ =35·8m.
Mount Wilson iPZ =14m.6s.
Palomar iPNZ =14m.8s.
Shasta Dam iP =14m.8s., e =24m.15s.
Haiwee ePEN =14m.13s.
Tinemaha ePZ =14m.17s.
Boulder City iP =14m.22s.
Pierce Ferry eP =14m.26s.
Tucson iP =14m.29s., e =15m.4s. and 15m.49s., eS? =24m.33s., eL =37m.32s.
Overton eP =14m.30s.
Grand Coulee e =14m.42s.
Berkeley ePZ =15m.0s., eS?NZ =23m.36s., eL?EN =33·8m.
St. Louis eP?Z =15m.59s., eSKSE =26m.24s., eSS?E =33m.21s., eLE =47m.0s.
Clermont-Ferrand e =21m.15s., eL =83·2m.
Ksara iPKP =22m.6s., ePP? =25m.38s.
Rome ePKP?Z =22m.9s.
Strasbourg ePKP =22m.9s., e =22m.44s., ePP =26m.18s., eL =78m.
Paris ePKP =22m.10s., e =22m.48s., and 24m.42s., eL =81m.
Zagreb e =22m.11s.
Helwan ePKP? =22m.15s., PKP_2? =22m.51s., e =23m.47s., and 24m.44s., SKS? =29m.0s.
Granada PKP =22m.51s.k, PP =26m.36s., L =83·4m.
Ukiah e =24m.0s. and 29m.2s., eL? =33m.8s.
Victoria e =24m.34s., L =38m.
Alicante e =24m.39s., eL =82m.36s.
Salt Lake City eS? =25m.0s., eL? =40m.12s.
College eS =25m.11s., e =36m.21s., eL =38m.31s.
Florissant eSKS?E =26m.40s., eLE =47m.0s.
Ottawa eE =30m.42s., e =36m.18s., L =49m.
Bermuda e =32m.15s., 38m.30s., and 47m.5s., eL =57m.0s.
Weston e =32m.18s., eSS =37m.34s., eL =54m.48s.,
Seven Falls e =37m.30s., L =54m.
Bozeman e =39m.38s.?, eL =43m.26s.?
Long waves were also recorded at Apia, Arapuni, Honolulu, La Paz, Kodaikanal, Colombo, Sitka, and at other American and European stations,

April 18d. 11h. 27m. 16s. Epicentre 22°·5S. 33°·0E. (as on 1940 May 19d.).

$A = +\cdot7756$, $B = +\cdot5037$, $C = -\cdot3805$; $\delta = +5$; $h = +4$;
$D = +\cdot545$, $E = -\cdot839$; $G = -\cdot319$, $H = -\cdot207$, $K = -\cdot925$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Johannesburg		5·8	230	i 1 26	− 3	e 2 32	− 6	—	—	2·8
Tananarive		14·1	78	e 3 32	+ 9	i 6 9	+ 7	i 6 22	SS	e 8·0
Helwan		52·1	358	9 15	+ 1	e 16 56	+18	—	—	i 28·9
Ksara		56·1	3	e 9 47	+ 4	—	—	e 15 32	?	—
Rome		66·8	343	e 10 56	0	—	—	—	—	—
Alicante		68·2	332	e 21 4	S_cS	e 27 22	SSS	22 31	?	33·1
Granada		68·7	329	21 23	S_cS	27 32	SSS	21 38	?	35·6
Zagreb		69·7	348	e 11 23	+ 9	—	—	—	—	—
Toledo		71·0	330	i 10 21	−61	—	—	—	—	—
Zürich		72·9	343	e 11 33k	0	—	—	—	—	—
Neuchatel		73·1	342	e 11 34	0	—	—	—	—	—
Basle		73·4	343	e 11 36	0	—	—	—	—	—
Jena	N.	75·5	347	e 11 42	− 6	—	—	—	—	—
Collmberg	Z.	75·6	348	e 11 48	0	—	—	e 12 4	P_cP	—
St. Louis	Z.	129·3	302	e 19 13	[+ 2]	—	—	—	—	—
Grand Coulee		146·2	325	i 19 43	[+ 2]	—	—	i 19 55	PKP_2	—
Tucson		146·6	295	i 19 46	[+ 4]	—	—	e 20 57	?	—
Pierce Ferry		148·4	303	i 19 47	[+ 2]	—	—	i 19 50	PKP_2	—
Overton		148·6	304	i 19 53	[+ 8]	—	—	—	—	—
Boulder City		149·0	303	i 19 49	[+ 3]	—	—	—	—	—
Tinemaha		151·3	305	e 19 57	[+ 8]	—	—	i 20 3	PKP_2	—
Haiwee		151·4	304	e 19 59	[+10]	—	—	—	—	—
Palomar		151·4	298	i 19 58	[+ 9]	—	—	i 20 6	PKP_2	—
La Jolla	Z.	151·8	298	e 20 0	[+10]	—	—	—	—	—
Mount Wilson	Z.	152·1	301	e 20 0	[+10]	—	—	i 20 10	PKP_2	—
Pasadena	Z.	152·2	301	i 20 0	[+10]	—	—	i 20 9	PKP_2	—
Shasta Dam		152·4	316	e 19 52	[+ 1]	—	—	—	—	—

Additional readings:—
Alicante PPP = 22m.49s.
Collmberg eZ = 11m.52s. and 11m.58s.
Tinemaha iEZ = 20m.14s.
Palomar iN = 20m.11s.
Pasadena iZ = 20m.20s.
Long waves were also recorded at Paris and Kew.

April 18d. 19h. Undetermined shock.

Mizusawa PE = 50m.50s., SE = 51m.49s., SN = 52m.44s.
Shasta Dam iP = 61m.17s., i = 61m.25s.
Pasadena iPZ = 61m.54s.
Mount Wilson ePZ = 61m.55s.
Copenhagen iP = 61m.56s., L = 90m.
Riverside ePZ = 61m.56s., iZ = 62m.5s.
Tinemaha iPZ = 61m.58s.
Palomar iPZ = 62m.1s.
Collmberg eZ = 62m.12s., 62m.17s., 62m.25s., 62m.43s., and 65m.20s.
Tucson iP = 62m.26s., i = 63m.17s.
Basle e = 62m.36s.
St. Louis ePZ = 63m.0s.
New Delhi eN = 66m.38s. and 79m.43s.
Long waves were also recorded at Weston, Sitka and at other European stations.

April 18d. Readings also at 1h. (Tucson and College), 3h. (Tucson, Pasadena, and Tinemaha), 7h. (Tucson, Palomar, Mount Wilson, and Tinemaha), 8h. (Huancayo, Bogota, Collmberg, and Uccle), 9h. (near Triest), 10h. (Tucson), 11h. (near Bogota), 14h. (near Triest), 17h. (Auckland), 18h. (Pierce Ferry, Tucson, Tinemaha, Palomar, Pasadena, and Mount Wilson), 21h. (Triest, near Florence and Rome), 22h. (Rome and near Triest), 23h. (near La Paz).

April 19d. 12h. 4m. 21s. Epicentre 53°·4N. 163°·1W. (as on 15d.).

A = −·5729, B = −·1741, C = +·8009; $\delta = -3$; $h = -7$.

		△	Az.	P.	O−C.
		°	°	m. s.	s.
Shasta Dam		30·1	98	e 6 12	− 1
Tinemaha	z.	34·9	99	e 6 55	0
Mount Wilson	z.	37·0	102	e 7 14	+ 1
Riverside	z.	37·5	102	e 7 16	− 1
Overton		37·5	96	e 7 18	+ 1
Boulder City		37·7	97	i 7 19	0
Pierce Ferry		38·0	96	i 7 22	+ 1
Palomar		38·3	102	e 7 24	0
Tucson		42·6	98	i 8 1	+ 2
St. Louis	z.	50·5	76	i 8 59	− 3

Additional readings:—
Tucson e = 8m.59s.
St. Louis iZ = 9m.14s.
Long waves were also recorded at College.

April 19d. Readings also at 0h. (Basle, Zürich, Chur, and near Mizusawa), 2h. (near Mizusawa), 3h. (near Fort de France), 4h. (near Irkutsk), 6h. (La Paz, near Erevan and Leninakan), 8h. (College), 9h. (St. Louis, Tucson, Palomar, Tinamaha, near Overton, Pierce Ferry, Boulder City, and near Frunse), 12h. (Granada, Triest, and Rome), 14h. (St. Louis, Tucson, Palomar, and Tinemaha), 19h. (near Branner), 20h. (near Lick), 21h. (Tucson, and near Shasta Dam), 22h. and 23h. (Tucson).

April 20d. Readings at 5h. (near Mizusawa), 6h. (Christchurch and near Irkutsk), 7h. (Rome), 10h. (Tucson), 14h. (near Mizusawa), 21h. (La Paz), 22h. (Tucson, Tinemaha, Riverview, Auckland, and near Samarkand).

April 21d. 10h. Undetermined shock.
Belgrade i = 28m.26s., iS = 29m.54s., e = 30m.17s.
Sofia ePEN = 29m.17s., eEN = 29m.48s., iSEN = 30m.3s.
Prague eP? = 29m.35s., eS? = 32m.42s.
Rome eP? = 29m.47s., eS? = 31m.21s.
Zagreb eP = 30m.11s., e = 30m.30s. and 30m. 42s., eS = 31m.51s.
Triest eP = 30m.17s., eS = 31m.29s., iQ = 32m.25s.
Bucharest eEN = 30m.18s., iEN = 31m.36s.
Kalossa ePEN = 30m.30s., eS?E = 31m.50s., eE = 32m.35s.
Chur eP = 30m.52s., eS? = 32m.37s.
Zürich eP = 31m.6s.
Collmberg eZ = 31m.15s., 31m.22s., 35m.18s., and 35m.38s.
Basle eP = 31m.25s., e = 34m.52s.
Florence eP = 31m.50s., eS = 33m.19s.
Cheb e = 33m.
Strasbourg e = 33m.33s., 35m.21s., 35m.28s., and 36m.22s.

April 21d. Readings also at 0h. (Uccle, St. Louis, Tinemaha, Tucson, and Pehpei), 2h. (Mount Wilson, Tinemaha, and Shasta Dam), 4h. (Tucson, Overton, Boulder City, Tinemaha, Shasta Dam, Tchimkent, near Andijan, and Stalinabad), 5h. (near Ottawa), 6h. (Riverview, Arapuni, Wellington, Auckland, and La Paz), 7h. (Paris Uccle, De Bilt, and Bermuda), 11h. (Tucson, Palomar, Tinemaha, College, and near Andijan), 14h. (near Strasbourg), 17h. (Santa Lucia), 18h. (Tucson, La Paz, Huancayo, San Juan, near Bogota, and near Leninakan), 20h. (near Santa Lucia), 23h. (Bucharest, Sofia, Tashkent, near Samarkand, and Stalinabad).

April 22d. Readings at 1h. (Tucson and College), 2h. (Rapid City), 3h. (Tucson, Palomar, Tinemaha, and St. Louis), 5h. (Aberdeen), 6h. (Tinemaha, Tucson, Christchurch, and Wellington), 7h. (Shasta Dam, near Fresno, San Francisco, Berkeley, Santa Clara, Branner, and Lick), 9h. (Shasta Dam, Tinemaha, Palomar, Pasadena, Mount Wilson, Riverside, and Riverview), 10h. (Wellington, Christchurch, St. Louis, and near San Francisco), 13h. (near Berkeley).

April 23d. 4h. 56m. 0s. Epicentre 50°·0S. 140°·0E. Rough.

A = −·4943, B = +·4148, C = −·7639; δ = −7; h = −5;
D = +·643, E = +·766; G = +·585, H = −·491, K = −·645.

		Δ	Az.	P.	O − C.	S.	O − C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		18·1	32	i 4 19a	+ 5	i 7 52	+17	i 4 27	pP	e 8·7
Christchurch		23·1	87	5 6	− 2	9 25	+ 9	8 31	PcP	i 10·9
Brisbane	N.	24·6	29	i 5 21	− 2	i 10 35	SS	i 6 9	PP	i 12·5
Perth		25·5	307	5 30	− 2	i 9 35	−22	i 6 5	PP	—
Wellington		25·6	83	5 41	+ 9	9 0	−59	6 35	PP	9·9
Arapuni		28·0	79	e 4 6	?	e 10 6	−32	—	—	12·5
Auckland		28·2	76	e 7 0	PP	10 27	−14	11 24	Q	12·8
Colombo	E.	76·8	298	12 5	+10	21 39	− 3	—	—	35·5
Tananarive		77·3	256	e 13 38	PP	22 56	PS	—	—	e 36·0
Kodaikanal	E.	80·9	298	e 12 21	+ 4	i 22 36	+10	24 31	?	37·6
Hyderabad	N.	86·2	303	12 39	− 5	23 9	−10	—	—	40·1
Bombay		90·5	299	e 13 5	0	e 24 5	+ 6	—	—	40·1
La Plata	E.	94·0	165	—	—	23 54	[− 2]	24 18	SKKS	42·8
	N.	94·0	165	17 48	PP	23 47	[− 9]	19 54	PPP	40·7
New Delhi	N.	96·0	308	e 16 20	?	i 23 57	[− 9]	i 24 45	SKKS	—
Irkutsk		106·3	337	e 18 28	PP	i 24 57	[+ 1]	e 27 46	PS	—
La Paz		109·3	152	e 14 36	P	26 16	{+16}	18 34	PKP	51·3
Tashkent		110·0	311	e 20 22	PP	e 28 48	PS	—	—	—
Huancayo		110·9	142	e 20 13	PP	e 22 58	PKS	e 29 0	PS	e 46·2
Baku		119·6	298	32 0	PPS	—	—	—	—	—
Berkeley		122·4	68	e 20 37	PP	e 34 50	?	37 26	SS	e 52·9
Pasadena		122·4	73	e 18 59	[+ 2]	—	—	e 37 24	SS	e 50·5
Mount Wilson	Z.	122·6	73	e 18 56	[− 2]	—	—	—	—	—
Palomar	Z.	122·7	75	e 18 59	[+ 1]	—	—	—	—	—
Riverside	Z.	122·8	73	e 18 50	[− 8]	—	—	—	—	—
Leninakan		123·4	295	19 15	[+16]	—	—	—	—	—
Ksara		123·7	284	e 18 44	[−16]	—	—	e 20 45	PP	—
Helwan		123·9	277	e 19 7	[+ 7]	27 38	{− 2}	20 45	PP	—
Shasta Dam		124·1	65	e 18 57	[− 4]	—	—	—	—	—
Tinemaha	Z.	124·3	71	i 19 0	[− 1]	—	—	—	—	—
Sverdlovsk		124·9	318	e 19 3	[+ 1]	38 25	SS	e 32 21	PPS	—
Boulder City		125·7	74	e 19 1	[− 3]	—	—	—	—	—
Tucson		125·8	80	e 19 4	[0]	—	—	—	—	e 56·7
Overton		126·3	74	e 18 56	[− 9]	—	—	—	—	—
Pierce Ferry		126·3	74	e 19 1	[− 4]	—	—	—	—	—
Victoria		128·3	57	e 21 30	PP	e 23 33	PPP	e 38 52	SS	59·0
Grand Coulee		130·4	59	i 18 50	[−23]	e 22 36	PKS	e 21 32	PP	—
Salt Lake City		130·5	71	—	—	e 22 54	PKS	—	—	e 61·0
Logan		131·1	70	e 19 23	[+ 9]	22 44	PKS	—	—	e 61·2
Butte		133·0	64	e 22 58	PP	—	—	e 24 20	PPP	e 65·0
Bozeman		133·8	67	e 23 0	PP	e 26 28	[− 1]	e 23 26	PKS	e 62·5
Moscow		135·1	308	19 21	[− 1]	26 36	[+ 5]	22 19?	PP	—
Rapid City		137·7	72	e 19 28	[+ 2]	e 31 44	PS	e 23 6	PP	e 65·1
Saskatoon		139·4	60	e 22 41	PP	—	—	—	—	64·0
Belgrade		139·7	286	e 20 26	?	e 23 49	PKS	e 25 31	PPP	—
San Juan		142·2	137	e 19 30	[− 4]	—	—	e 22 17	PP	e 68·0
St. Louis		143·0	88	e 19 29	[− 7]	e 31 9	?	e 41 0	SS	e 60·4
Florissant	Z.	143·0	88	e 19 33	[− 3]	e 23 38	PKS	e 32 49	PS	—
Zagreb		143·0	285	e 19 41	[+ 5]	—	—	—	—	—
Rome		143·3	278	e 19 40	[+ 4]	e 23 31	PKS	e 24 47	?	—
Triest		144·3	284	i 19 44	[+ 6]	e 29 52	{+ 6}	e 40 1	SS	—
Florence		145·0	280	e 19 46	[+ 7]	i 23 8	PKS	i 23 20	PP	—
Prague		145·7	292	19 44	[+ 4]	e 29 9	{−45}	e 35 0	PS	—
Chicago		146·4	84	e 20 35	[+53]	e 34 11	PS	e 42 5	SS	e 60·0
Algiers		146·5	263	19 48	[+ 6]	e 29 0?	{−58}	23 17	PKS	e 65·0
Upsala		146·5	309	e 19 53	[+11]	e 30 0?	{+ 1}	e 53 0?	Q	e 67·0
Cheb		146·9	291	e 19 52	[+10]	e 30 15	{+14}	—	—	e 61·0
Collmberg		147·0	292	e 19 38	[− 5]	e 33 37	PS	—	—	e 64·0
Chur		147·5	283	e 19 40	[− 3]	—	—	—	—	—
Zürich		148·3	284	19 41a	[− 4]	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen	148·5	301	i 19 49	[+ 4]	i 42 33	SS	e 27 5	PPP	—
Basle	148·9	285	e 19 45	[− 1]	e 30 42	{+30}	—	—	—
Strasbourg	149·2	286	e 19 49	[+ 3]	e 42 30	SS	e 23 40	PP	e 77·0
Alicante	149·7	263	19 58	[+11]	27 2	[+ 9]	23 42	PP	e 71·0
Tortosa	150·4	267	20 8	[+20]	27 51	[+57]	24 5	PP	e 83·0
Granada	151·0	258	i 19 51	[+ 2]	30 21	{− 3}	23 37	PP	74·4
Clermont-Ferrand	151·1	278	e 20 2	[+13]	—	—	—	—	e 64·0
De Bilt	151·9	292	i 19 55	[+ 5]	e 43 19	SS	i 20 13	PKP_3	e 74·0
Uccle	152·0	289	e 20 4	[+14]	e 43 2	SS	e 27 8	PPP	e 72·0
Paris	152·6	284	e 19 56	[+ 5]	e 31 8	{+35}	e 24 29	PP	e 73·0
Bergen	152·7	310	e 18 32	?	e 21 36	?	—	—	e 75·0
Toledo	152·9	262	i 19 58	[+ 6]	49 28	SSS	20 19	PKP_3	71·0
Philadelphia	153·4	99	e 20 29	[+37]	e 30 10	{−27}	e 24 27	PP	e 57·0
Bermuda	154·6	125	e 20 18	[+24]	e 27 0	[+ 1]	e 43 58	SS	e 60·4
Fordham	154·7	97	e 19 56	[+ 2]	e 21 54	PKP_3	i 24 1	PP	64·0
Lisbon	155·4	255	20 0	[+ 5]	50 0	SSS	24 17?	PP	74·0
Ottawa	155·7	86	e 19 54	[− 1]	—	—	e 44 0?	SS	66·0
Durham	156·3	296	e 32 54	?	—	—	—	—	—
Harvard	157·1	96	e 19 59	[+ 2]	e 27 29	[+27]	e 24 4	PP	e 76·5
Weston	157·1	96	e 19 58	[+ 1]	—	—	e 44 13	SS	e 64·5

Additional readings :—
Riverview iPPPN =4m.46s., iN =6m.25s., isSE =8m.5s., eQE =8m.12s., iSS?N = 8m.15s., iSSS?E =8m.21s.
Christchurch Z =7m.55s., SS =10m.10s.
Brisbane iSSN =12m.3s.
Perth i =7m.40s., 10m.13s., and 11m.30s.
Wellington PPP? =6m.52s., i =7m.20s., P_cP =10m.24s., S_cS =17m.46s.
Arapuni e =6m.24s.
Auckland e =8m.15s. and 9m.36s.
Tananarive e =23m.31s.
La Plata E =26m.48s., PPSN =27m.24s., E =28m.24s. and 29m.24s., SSN =31m.12s., SSE =37m.48s.
Irkutsk eSS =33m.38s.
La Paz PPP =21m.12s., PPS =28m.30s., SS =33m.36s., SSS =37m.48s.
Tashkent ePPP =23m.26s., PS =30m.9s., PPS =32m.12s.
Huancayo iPSPS =35m.25s., eSSS? =39m.45s.
Berkeley eEN =52m.9s.
Helwan SKP =22m.9s., eS =28m.48s.
Tinemaha iZ =19m.12s.
Sverdlovsk SSS =42m.24s.
Bozeman ePPP? =24m.10s., e =43m.12s.
Moscow PPP =25m.32s., PS =32m.34s.
Rapid City ePPP =24m.48s., e =30m.4s.
St. Louis iZ =19m.49s. and 19m.56s., eSSSE? =47m.0s.
Florissant iZ =21m.19s., eZ =32m.18s.
Triest ePPS? =35m.49s., iSSS? =47m.22s.
Chicago e =21m.28s.
Algiers PKP_3 =20m.5s., i =20m.48s., e =21m.35s., PP? =23m.47s. , i =24m.31s., SKKS? =30m.12s., PPS? =37m.22s., SS? =42m.0s.?.
Upsala eN =20m.0s.?
Cheb eP?E =19m.57s., e =21m.18s., 25m.3s., and 42m.21s.
Collmberg eZ =19m.43s., iZ =19m.56s. and 20m.5s., eZ =20m.16s. and 20m.29s., ePKPZ? =21m.51s., eZ =22m.17s., ePP?Z =25m.19s., eZ =31m.22s. and 32m.25s.
Copenhagen i =41m.14s.
Strasbourg $ePKP_3$ =20m.7s., e =21m.29s., 22m.9s., and 24m.14s., ePP =27m.11s., e =31m.7s., ePSKS =33m.55s.
Alicante PKP_3 =20m.24s., PPP =27m.44s., PPS =37m.34s., Q =60m.24s.
Granada PKP_3 =20m.13s., SS =43m.37s., Q =67m.48s.
Uccle eN =31m.54s., eSSSEN =48m.48s., eN =50m.20s.
Paris e =20m.0s., i =20m.7s., e =26m.11s., ePPP =27m.16s., e =29m.8s. and 31m.50s., PS? =36m.0s., eSS =44m.8s., eSSS =49m.0s.?
Toledo PPZ =23m.55s., P_cP,PKPN =28m.20s., P_cS,PKP,NZ =31m.52s., PPS?E = 44m.11s., QE =64m.24s.
Philadelphia e =25m.22s. and 35m.30s., eSS =43m.28s., eSSS =48m.31s.
Bermuda e =21m.5s., and 33m.28s., eSKSP =34m.30s., e =44m.35s., eSSS =49m.0s.
Lisbon PKP_3Z =20m.33s.?, SSP?E =44m.54s.?, SSP?N =45m.0s., Q =65m.42s.
Ottawa e =31m.48s., eE =36m.0s.?, eN =44m.0s.?.
Harvard $ePKP_3$ =20m.15s., e =22m.19s., 25m.59s., and 28m.0s.
Long waves were also recorded at Punta Arenas, Honolulu, Ukiah, College, Sitka, Barcelona, and Besançon.

April 23d. 10h. 39m. 51s. Epicentre 15°·5S. 173°·0W.

Intensity III-IV at Apia. Suggested epicentres 16°·2S. 173°·6W. J.S.A.
15°·5S. 173°·5W. Strasbourg.

Annales de l'Institut de Physique du Globe de Strasbourg pour l'année, 1946, 2e partie, Séismologie, Nouvelle Série, Tome XI, p. 52.

$A = -\cdot9569$, $B = -\cdot1175$, $C = -\cdot2656$; $\delta = +1$; $h = +6$;
$D = -122$, $E = +\cdot993$; $G = +264$, $H = +\cdot032$, $K = -964$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		2·1	35	i 0 34	− 3	i 0 58	− 6	—	—	—
Auckland		23·9	205	6 15	+59	10 30	+60	6 34	PP	11·7
Wellington		27·8	201	5 53	0	10 49	+14	6 9	PP	14·1
Christchurch		30·5	201	6 17	0	11 28	+10	12 46	Q	14·8
Riverview		37·1	234	e 7 14	0	e 13 15	+14	i 8 45	PP	e 15·6
Santa Barbara	z.	70·9	45	i 11 26	+ 5	—	—	—	—	—
Santa Clara	z.	71·2	41	e 11 22	− 1	—	—	—	—	—
Berkeley		71·3	41	i 11 27	+ 4	e 20 45	+ 4	—	—	e 32·2
La Jolla		71·7	47	e 11 30	+ 4	—	—	—	—	—
Pasadena		71·8	46	i 11 29	+ 3	—	—	—	—	e 32·6
Mount Wilson	z.	71·9	46	i 11 30	+ 3	—	—	i 14 11	PP	—
Palomar		72·3	47	i 11 32	+ 3	—	—	—	—	—
Riverside	z.	72·3	46	e 11 32	+ 3	—	—	—	—	—
Shasta Dam		73·0	38	i 11 35	+ 2	—	—	—	—	—
Haiwee		73·1	44	e 11 38	+ 4	—	—	—	—	—
Tinemaha	z.	73·4	43	e 11 39	+ 3	—	—	—	—	—
Boulder City		75·1	45	i 11 48	+ 2	e 21 27	+ 3	—	—	—
Overton		75·7	45	i 11 54	+ 5	e 21 24	− 6	—	—	—
Pierce Ferry		75·7	46	i 11 52	+ 3	e 21 38	+ 8	—	—	—
Tucson		76·1	51	i 11 55	+ 4	e 21 37	+ 2	e 15 25	PP	e 34·4
Victoria		77·5	32	—	—	e 21 39	−11	—	—	34·2
Grand Coulee		79·4	34	e 12 10	+ 1	—	—	e 15 12	PP	—
Salt Lake City		79·6	43	e 12 18	+ 8	e 22 21	+ 9	—	—	e 36·9
Logan		80·1	42	e 12 19	+ 6	i 22 22	+ 4	—	—	e 36·8
Butte		81·9	38	e 12 47	+24	—	—	—	—	e 37·3
College		82·4	11	—	—	e 22 36	− 5	—	—	e 36·5
Bozeman		82·6	39	—	—	i 22 45	+ 2	—	—	e 37·6
Rapid City		86·8	43	e 12 53	+ 6	e 24 19	PS	e 16 25	PP	e 41·2
Saskatoon		88·3	35	—	—	e 23 38	− 1	—	—	41·2
Florissant		94·0	51	e 13 37	+16	e 24 1	[+ 5]	—	—	—
St. Louis		94·0	51	e 13 25	+ 4	i 23 59	[+ 3]	e 13 47	pP	e 43·6
Huancayo		94·1	104	—	—	i 24 7	[+11]	e 31 14	SS	e 50·6
Chicago		96·8	49	—	—	e 24 56	+ 2	e 24 12	SKS	e 45·7
Irkutsk		97·7	323	16 9	PP	26 9	PPS	31 9	SS	—
Philadelphia		105·7	53	—	—	e 24 58	[+ 4]	e 26 14	S	e 49·0
Ottawa		105·9	47	—	—	e 24 57	[+ 2]	—	—	49·2
Fordham		106·8	52	—	—	e 25 4	[+ 5]	e 28 8	PS	—
Weston		108·8	50	—	—	e 25 13	[+ 6]	e 28 24	PS	e 50·9
San Juan		110·4	76	—	—	i 25 17	[+ 3]	e 26 59	S	e 52·2
Bermuda		113·4	62	—	—	e 27 14	{+45}	e 29 19	PS	e 52·6
Tashkent		120·8	310	19 18	[+24]	30 7	PS	28 29	?	—
Sverdlovsk		122·4	329	e 19 2	[+ 5]	26 1	[+ 4]	20 30	PP	—
Upsala		135·0	354	—	—	e 26 33	[+ 2]	—	—	e 62·2
Bergen		135·2	2	—	—	—	—	e 39 9?	SS	—
Baku		135·3	313	e 20 45	?	e 31 32	PS	e 30 53	?	—
Leninakan		139·4	316	e 19 0	[−29]	—	—	—	—	—
Copenhagen		139·7	356	e 19 51	[+21]	e 35 33	PPS	1 23 8	PP	65·2
De Bilt		143·5	3	—	—	e 33 9?	PS	—	—	e 70·2
Collmberg		144·0	354	e 19 39	[+ 2]	—	—	e 22 18	PP	e 75·2
Uccle		144·7	5	e 19 40	[+ 1]	e 32 57	PS	e 42 9?	SS	e 68·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Prague		145·0	352	—	—	e 29 44	{− 6}	—	—	—
Cheb		145·2	354	e 22 9?	?	e 26 9?	[−38]	e 29 9?	SKKS	e 68·2
Paris		146·6	6	e 19 36	[− 6]	e 33 9?	PS	e 23 24	PP	e 70·2
Strasbourg		147·0	359	e 19 46	[+ 3]	e 30 44	{+42}	e 23 12	PP	e 68·2
Kalossa		147·5	344	20 9	[+26]	—	—	—	—	—
Basle		148·0	0	e 19 49	[+ 5]	—	—	—	—	—
Zürich		148·2	359	e 19 50	[+ 5]	—	—	—	—	—
Ksara		148·2	310	e 19 51	[+ 6]	—	—	e 23 17	PP	—
Neuchatel		148·6	0	e 19 48	[+ 3]	—	—	—	—	—
Belgrade		148·6	342	i 19 47	[+ 2]	—	—	e 20 39	PKP_2	—
Chur		148·7	358	e 19 48	[+ 3]	—	—	—	—	—
Zagreb		148·8	349	e 19 46	[+ 1]	e 26 48	[− 4]	—	—	—
Triest		149·4	351	e 19 46	[− 1]	—	—	—	—	—
Sofia		149·5	336	e 19 59	[+12]	e 34 9?	PS	e 23 9?	PP	—
Clermont-Ferrand		149·7	6	e 20 11	[+24]	—	—	—	—	78·4
Florence		151·6	354	e 24 56	?	e 26 39	[−17]	—	—	e 75·5
Rome		153·3	353	e 19 56	[+ 4]	e 27 5	[+ 7]	—	—	—
Helwan		153·5	307	19 54	[+ 1]	26 49	[− 9]	20 24	PKP_2	—
Toledo	z.	153·9	21	e 20 5	[+12]	—	—	—	—	—
Alicante		156·3	15	20 41	[+45]	28 9	PPP	24 41	PP	e 69·9
Granada		156·4	23	20 30k	[+34]	—	—	i 24 14	PP	75·6
Algiers		158·5	9	20 9	[+10]	—	—	—	—	—

Additional readings:—
Auckland ScS =18m.8s.
Wellington PcP =8m.20s.
Riverview iE =9m.0s., ePSE =13m.32s.
Berkeley eZ =11m.45s.
Pasadena iZ =11m.40s. and 11m.50s.
Mount Wilson eZ =11m.41s., iZ =11m.49s., and 14m.21s.
Palomar iNZ =11m.52s. and 12m.7s.
Riverside iZ =11m.42s. and 11m.53s.
Tinemaha iEZ =11m.52s.
Pierce Ferry i =12m.2s.
Tucson e =12m.9s., 12m.15s. and 12m.47s., ePS =22m.21s.
Logan e =12m.30s.
St. Louis eZ =13m.57s., esSKSN =24m.37s.
Huancayo i =24m.54s.
Philadelphia eSS =33m.43s., eSSS =38m.5s.
Sverdlovsk SS =37m.7s.
Upsala eN =36m.9s.?.
Collmberg eZ =19m.45s., 19m.51s., 19m.55s., 20m.1s., 22m.50s., 25m.16s., 25m.20s., 25m.27s., 25m.32s., 25m.37s., 25m.42s., and 26m.4s.
Cheb e =47m.44s. and 56m.9s.?
Paris ePKP_2 =19m.48s., i =20m.2s., ePPS =36m.16s.
Strasbourg iPKP_2 =20m.1s., i =20m.20s.
Basle e =24m.51s. and 31m.35s.
Zagreb e =19m.52s. and 20m.6s., iNE =20m.21s., e =25m.56s., and 27m.29s.
Triest eS =20m.49s.
Rome e =26m.5s., eSKP =26m.15s.
Helwan PKP_2 =20m.13s., PP =23m.36s., pPP =24m.1s., pPS =34m.56s.
Alicante PKP =21m.3s., Q =58m.19s.
Granada PKP_2 =20m.53s.
Long waves were also recorded at Arapuni, Honolulu, Ukiah, Sitka, Harvard, La Paz, Aberdeen, Kew and Barcelona.

April 23d. Readings also at 0h. (Almata and Riverview), 1h. (Auckland, Christchurch, Wellington, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Overton, Pierce Ferry, Shasta Dam, Harvard, La Paz, Collmberg, Helwan, Ksara, and near Andijan), 2h. (Uccle), 4h. (Andijan, Tchimkent, near Samarkand and Stalinabad), 5h. (Tucson, Boulder City, Overton, Pierce Ferry, Granada, Chur, Zürich, and Neuchatel), 6h. (Tananarive), 7h. (Boulder City, Overton, and Pierce Ferry), 10h. (Triest, near Berkeley, Branner, and Lick), 11h. (St. Louis, Triest, Toledo, and near Alicante), 12h. (Kew), 13h. (Riverview), 17h. (La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinamaha, Tucson, Grand Coulee, College. Boulder City, Overton, Pierce Ferry, Shasta Dam, St. Louis, Weston, and Collmberg) 20h. (Bombay, Calcutta, and near Balboa Heights), 23h. (Tucson, and near Bogota).

April 24d. 3h. Undetermined shock.

Balboa Heights e =51m.47s.
Merida PE =52m.19s., LE =55m.11s.
Bogota e =53m.32s.?
San Juan eP? =54m.29s., iS =58m.58s., eL =63m.0s.
St. Louis iPZ =55m.29s., eSN =60m.31s.
Tucson eP =56m.0s., i =58m.58s., eL =67m.16s.
Weston eP? =56m.27s.
Rapid City eP =56m.36s., e =58m.8s. and 63m.6s.
Ottawa eZ =56m.37s., eN =62m.36s., L =68m.
Pierce Ferry eP =56m.37s.
Boulder City eP =56m.41s.
Palomar iPNZ =56m.42s., iNZ =56m.50s., iPcPZ =59m.14s.
Overton eP =56m.46s.
Riverside iPZ =56m.47s., iPcPZ =59m.14s.
Mount Wilson iPZ =56m.53s., iPcP =59m.16s.
Pasadena iPZ =56m.53s.
Tinemaha ePZ =57m.6s., iPcPEZ =59m.26s.
La Paz ePZ =58m.25s., LZ =69m.0s.
Philadelphia e =61m.23s., eL =66m.54s.
Bermuda e =61m.25s. and 62m.8s., eL =64m.0s.
Long waves were also recorded at Huancayo, Harvard, Cheb, and Ucclo.

April 24d. 11h. Undetermined shock.

La Paz PZ =22m.48s., LZ =37m.0s.
St. Louis ePZ =25m.16s., iZ =25m.28s., eLZ =31·4m.
Helwan P =25m.39s., i =25m.57s.
Ksara e =26m.9s. and 31m.8s.
Rapid City eP =26m.26s.
Tucson eP =26m.54s., i =27m.0s.
Pierce Ferry eP =27m.9s.
Overton eP =27m.12s.
Boulder City eP =27m.13s.
Grand Coulee e =27m.13s. and 27m.23s.
Palomar ePZ =27m.21s.
Riverside ePZ =27m.24s.
Mount Wilson ePZ =27m.26s.
Tinemaha ePZ =27m.32s.
Long waves were also recorded at Bermuda.

April 24d. Readings also at 4h. (Pierce Ferry), 7h. (near Overton, Boulder City, Pierce Ferry and Fresno), 9h. (near Shasta Dam), 11h. (Helwan, Bermuda, San Juan, Tucson (2), St. Louis, La Paz, and Huancayo), 12h. (Tinemaha, Riverside, Tucson, St. Louis, La Paz, Wellington, and Granada), 13h. (Tucson and La Paz), 14h. (Tashkent and Riverview), 18h. (near Piatigorsk), 20h. (near Samarkand, Andijan, and Stalinabad), 23h. (near Grand Coulee).

April 25d. 0h. 46m. 35s. Epicentre 34°·8N. 141°·1E.

A = −·6404, B = +·5168, C = +·5681 ; δ = −7 ; h = 0 ;
D = +·628, E = +·778 ; G = −·442, H = +·357, K = −·823.

		△	Az.	P.	O − C.	S.	O − C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		4·3	1	e 1 8	0	1 54	− 6	—	—	—
Almata		49·5	301	e 8 55	+ 1	—	—	—	—	—
Andijau		53·4	299	e 9 24	0	e 16 57	+ 2	—	—	—
New Delhi	N.	53·9	283	—	—	e 16 54	− 8	—	—	i 24·2
Tashkent		55·4	300	e 9 53	+15	e 17 40	+18	—	—	—
Stalinabad		56·7	298	e 9 46	− 2	—	—	—	—	—
Sverdlovsk		56·7	320	9 52	+ 4	e 17 44	+ 4	—	—	—
Grand Coulee		71·0	45	e 11 20	− 2	—	—	—	—	—
Shasta Dam		72·7	53	i 11 30	− 2	—	—	—	—	—
Erevan		73·0	308	e 11 37	+ 4	—	—	—	—	—
Leninakan		73·1	309	e 11 45	+11	—	—	—	—	—
Tinemaha	Z.	77·3	54	i 11 58	0	—	—	—	—	—
Santa Barbara	Z.	77·8	57	i 12 1	0	—	—	—	—	—
Pasadena	Z.	79·0	56	e 12 6	− 1	—	—	e 12 22	PcP	—
Mount Wilson	Z.	79·1	56	i 12 6	− 2	—	—	i 12 18	PcP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside	z.	79·7	56	e 12 10	− 1	—	—	—	—	—
Copenhagen		79·8	334	12 10	− 2	—	—	—	—	e 35·1
Overton		80·1	53	e 12 15	+ 2	—	—	—	—	—
Boulder City		80·2	53	e 12 12	− 2	—	—	—	—	—
Palomar	z.	80·4	56	i 12 13	− 2	—	—	—	—	—
Pierce Ferry		80·7	53	i 12 15	− 1	—	—	—	—	—
Rapid City		82·1	42	e 12 25	+ 1	—	—	—	—	—
Collmberg	z.	82·9	330	e 12 27	− 1	—	—	e 12 36	P_cP	—
Cheb		84·1	331	—	—	e 31 25?	SSS	—	—	e 35·4
Tucson		85·1	54	e 12 38	− 1	—	—	e 13 43	?	—
St. Louis	z.	92·8	39	e 13 15	− 1	—	—	—	—	—
La Paz	z.	148·1	62	e 20 13	[+29]	—	—	—	—	—

Additional readings:—
Mount Wilson iZ = 12m.28s.
Collmberg eZ = 12m.42s., 12m.45s., 13m.12s., 15m.36s., and 15m.48s.
Long waves were also recorded at Riverview and at other European stations.

April 25d. 21h. 50m. 34s. Epicentre 37°·6N. 121°·9W. (as on 1945 November 13d.).

Intensity VI at Milpitas and Pleasanton, V at Alvisuo, Mission San Jose, Moraga, Newark, IV at Centerville, Hayward, Niles and Warm Springs.
Epicentre 37°33'N. 121°55'W. Macroseismic area 400 sq. miles.

R. R. Bodle and L. M. Murphy.
United States Earthquakes 1946, Serial No. 714, Washington 1948, p. 13.

$A = -·4197$, $B = -·6743$, $C = +·6076$; $\delta = +1$; $h = -1$;
$D = -·849$, $E = +·528$; $G = -·321$, $H = -·516$, $K = -·794$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		
		°	°	m. s.	s.	m. s.	s.	m. s.		
Santa Clara		0·3	189	i 0 4	P_g	i 0 11	P	i 0 7		P*
Branner		0·3	231	i 0 10	− 1	i 0 14	− 4	—		—
Lick		0·3	138	i 0 11	0	—	—	—		—
Berkeley		0·4	313	i 0 12	− 1	i 0 18	− 3	—		—
San Francisco		0·4	291	i 0 14	+ 1	i 0 20	− 1	—		—
Fresno	N.	1·9	117	e 0 42	P_g	e 0 59	0	—		—
Tinemaha		2·9	100	i 0 53	P*	i 1 36	S_g	—		—
Shasta Dam		3·1	353	i 0 37	−14	e 1 26	− 3	e 0 55		P
Santa Barbara	z.	3·7	150	e 0 57	− 3	—	—	—		—
Pasadena	z.	4·6	138	i 1 15	+ 3	i 2 6	− 1	—		—
Boulder City		5·9	105	e 1 54	P_g	i 3 16	S_g	—		—
Overton		6·1	100	—	—	i 3 14	S*	—		—
Pierce Ferry		6·5	101	i 2 11	P_g	—	—	—		—

April 25d. Readings also at 0h. (Brisbane), 1h. (Tucson, Palomar, La Jolla, Pierce Ferry, Overton, Boulder City, Riverside, Pasadena, Mount Wilson, Haiwee, Tinemaha, and Shasta Dam), 5h. (Ksara), 8h. (Harvard, near Samarkand, Tchimkent, Tashkent, Andijan, and Stalinabad), 10h. (near Shasta Dam), 11h. (near San Francisco, Berkeley, Lick, and Branner), 16h. (near Santa Lucia), 17h. (near Bogota), 21h. (Tucson, St. Louis, Oaxaca, Tacubaya, Merida, and near Berkeley), 22h. (Tucson, San Juan, Arapuni, Wellington, Auckland, Riverview, and near Alicante),

April 26d. 8h. 9m. 19s. Epicentre 50°·1N. 147°·7E. Depth of focus 0·080.

$A = -·5443$, $B = +·3441$, $C = +·7650$; $\delta = -11$; $h = -5$;
$D = +·534$, $E = +·845$; $G = -·647$, $H = +·409$, $K = -·644$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Nemuro	6·9	193	2 16	+29	—	—	—	—
Sapporo	8·3	204	2 3	+ 2	3 37	− 1	—	—
Mori	9·4	205	2 14	+ 2	3 55	− 3	—	—
Morioka	11·4	207	2 33	0	4 32	− 4	—	—
Mizusawa	11·9	206	2 40	+ 2	4 47	+ 2	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Sendai		12·8	205	2 48	+ 1	5 1	− 1	—	—
Hukusima		13·4	206	2 53	0	5 12	− 1	—	—
Mito		14·7	204	3 5	− 1	5 36	0	—	—
Nagano		15·1	211	3 13	+ 3	5 47	+ 3	—	—
Tokyo		15·5	205	3 15	+ 1	5 54	+ 3	—	—
Misima		16·3	207	3 27	+ 5	6 23	+18	—	—
Shizuoka		16·6	208	3 25	0	6 7	− 3	—	—
Irkutsk		27·0	291	5 1	+ 1	—	—	—	—
Almata		47·4	290	e 7 48	+ 1	—	—	—	—
Sverdlovsk		48·9	313	i 8 3	+ 5	i 14 24	+ 2	i 9 53	pP
Andijan		51·6	290	i 8 20	+ 2	e 14 58	0	—	—
Tashkent		53·1	292	e 8 27	− 2	e 15 17	− 1	—	—
Stalinabad		55·1	290	i 8 43	0	i 15 41	− 3	—	—
Samarkand		55·5	292	8 44	− 2	15 45	− 5	—	—
Grand Coulee		57·2	53	i 8 57	0	i 17 9	PS	9 42	PcP
Moscow		59·6	322	i 9 13	− 1	i 16 40	− 2	i 11 11	pP
Shasta Dam		60·2	61	i 9 17	0	i 16 50	0	i 11 7	pP
Berkeley	z.	62·1	63	e 9 30	0	—	—	—	—
Baku		64·7	303	9 55	+ 9	17 49	+ 5	—	—
Tinemaha		65·0	61	i 9 51	+ 3	e 17 50	+ 2	i 10 16	PcP
Haiwee		65·8	61	i 9 55	+ 2	e 17 59	+ 1	—	—
Santa Barbara	z.	66·0	64	i 9 56	+ 2	—	—	—	—
Bombay		66·1	271	e 9 52	− 3	e 17 56	− 5	—	—
Mount Wilson	z.	67·1	63	i 10 1	0	—	—	i 12 4	pP
Pasadena		67·1	63	i 10 1	0	i 18 11	− 2	i 12 3	pP
Overton		67·5	59	i 10 5	+ 1	i 18 19	+ 1	e 12 10	pP
Leninakan		67·6	307	e 10 7	+ 3	—	—	—	—
Sotchi		67·6	311	e 10 7	+ 3	—	—	—	—
Boulder City		67·7	60	i 10 5	0	i 18 19	− 1	e 12 4	pP
Erevan		67·7	306	i 10 9	+ 4	—	—	—	—
Riverside		67·7	63	i 10 4	− 1	e 18 17	− 3	e 12 4	pP
Rapid City		67·8	47	e 10 7	+ 1	e 18 19	− 2	e 12 9	pP
Pierce Ferry		68·1	59	i 10 7	0	i 18 24	0	e 12 7	pP
Copenhagen		68·2	335	10 8	0	e 18 21	− 5	i 12 9	pP
Palomar		68·4	63	i 10 8	− 1	e 18 27	− 1	i 12 9	pP
La Jolla		68·6	64	e 10 11	+ 1	—	—	—	—
Collmberg	z.	71·9	332	e 10 29	− 1	—	—	e 12 26	pP
Jena	n.	72·6	332	e 12 37	pP	—	—	—	—
Tucson		72·7	60	i 10 34	0	e 19 13	− 3	e 10 59	PcP
Zürich		76·7	333	e 10 56a	− 1	—	—	e 13 4	pP
Basle		76·8	333	e 10 58	+ 1	e 20 1	+ 1	e 13 3	pP
Chur		76·9	332	e 13 3a	pP	—	—	—	—
Ksara		77·0	307	e 14 3	PP	e 20 3	0	—	—
Florissant	n.	77·8	42	i 11 2	− 1	e 20 5	− 6	e 23 46	sS
St. Louis		78·0	42	i 11 4	0	e 20 8	− 5	e 13 11	pP
Cape Girardeau	e.	79·4	43	e 11 11	0	e 20 23	− 5	—	—
Weston		81·8	27	i 11 24	+ 1	—	—	e 13 37	pP
Helwan		82·5	308	i 11 27a	0	e 20 49	−10	13 37	pP
La Paz	z.	135·8	53	18 27	[+ 7]	—	—	—	—

Additional readings :—
Sverdlovsk isS =17m.41s.
Shasta Dam i =9m.36s. and 18m.7s.
Mount Wilson iZ =10m.17s. and 12m.17s.
Pasadena iZ =10m.22s.
Rapid City e =19m.5s.
Copenhagen i =19m.8s.
Palomar iZ =11m.9s. and 12m.58s.
Collmberg eZ =10m.33s., 10m.46s., and 12m.32s., iZ =12m.36s., eZ =12m.39s., 12m.44s., 13m.22s., and 13m.34s.
Tucson i =11m.27s., ePPP =13m.23s., e =19m.13s. and 37m.59s.
St. Louis iZ =11m.11s., esS?N =23m.48s.
Helwan PPP =14m,49s., e =16m,32s,

April 26d. 19h. Undetermined shock.

Arapuni e =40m.0s.
Brisbane iPN =40m.11s., eS?E =43m.16s.
Riverview eZ =42m.18s., eN =43m.17s., iSN =46m.33s., eLEN =47·8m.
Wellington i =42m.21s., 44m.25s., 46m.10s., and 48m.19s., L =50·5m.
Christchurch P =42m.39s., S =46m.23s., Q =47m.15s., RZ =48m.48s.
Riverside ePZ =49m.53s.
Mount Wilson ePZ =49m.54s.
Palomar ePZ =49m.55s.
Pasadena iPZ =49m.57s.
Tucson e =50m.18s.
Zürich e =56m.47s.
Chur e =56m.49s.
Long waves were also recorded at other European stations.

April 26d. Readings also at 0h. (Guadalajara), 2h. (Tucson, Mount Wilson, Palomar, and Tinemaha), 3h. (near Tucson), 4h. (Riverview and Bucharest), 7h. (near Leninakan), 9h. (Tucson), 11h. (near Leninakan and Erevan), 14h. (Irkutsk, Sverdlovsk, Riverview, Shasta Dam, Tinemaha, Mount Wilson, Pasadena, Riverside, Palomar, Tucson, and near Pierce Ferry), 15h. (Strasbourg and Copenhagen), 20h. (near Sotchi), 21h. (near Stalinabad).

April 27d. 0h. 11m. 6s. Epicentre 50°·5N. 177°·0W.

$A = -·6377$, $B = -·0334$, $C = +·7695$; $\delta = -9$; $h = -6$;
$D = -·052$, $E = +·999$; $G = -·768$, $H = -·040$, $K = -·639$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
College		21·0	36	e 4 47	0	(e 8 27)	−10	→	—	e 8·4
Victoria		34·2	72	—	—	e 12 5	−11	—	—	14·9
Grand Coulee		37·2	70	e 7 14	− 1	—	—	—	—	—
Shasta Dam		38·6	82	i 7 26	0	—	—	—	—	—
Berkeley		40·3	86	e 7 53	+13	—	—	—	—	—
Tinemaha	z.	43·4	84	i 8 6	0	—	—	—	—	—
Haiwee		44·1	85	e 8 23	+11	—	—	—	—	—
Santa Barbara	z.	44·1	88	i 8 25	+13	—	—	—	—	—
Pasadena	z.	45·2	87	e 8 21	+ 1	—	—	—	—	—
Mount Wilson	z.	45·3	87	i 8 22	+ 1	—	—	—	—	—
Riverside	z.	45·9	87	i 8 25	− 1	—	—	—	—	—
Overton		46·1	82	i 8 31	+ 3	—	—	—	—	—
Boulder City		46·2	83	i 8 28	0	—	—	—	—	—
Palomar		46·6	87	i 8 31	− 1	—	—	—	—	—
La Jolla	z.	46·7	88	e 8 46	+14	—	—	—	—	—
Pierce Ferry		46·7	82	e 8 30	− 2	—	—	—	—	—
Rapid City		48·6	67	e 8 58	+11	e 15 38	−11	e 10 50	PP	—
Tucson		51·2	84	e 9 5	− 2	—	—	e 10 21	P_cP	—
St. Louis		59·6	65	e 10 3	− 5	e 18 6	−11	i 10 17	pP	e 29·9
Sverdlovsk		62·9	329	10 30	0	18 58	− 2	—	—	—

Additional readings :—
Shasta Dam i =7m.38s., e =9m.20s.
Tinemaha iZ =8m.18s., 8m.34s., and 10m.8s.
Pasadena iEZ =8m.33s., iZ =8m.51s., eZ =9m.28s.
Mount Wilson iEZ =8m.35s.
Riverside iZ =8m.38s.
Overton i =8m.41s.
Boulder City i =8m.41s.
Palomar iNZ =8m.44s., iZ =9m.8s.
Pierce Ferry i =8m.42s.
Rapid City e =9m.21s.
Tucson i =9m.17s., ePPP =11m.30s.
Long waves were also recorded at Sitka, Uccle, and Strasbourg.

April 27d. 2h. 18m. 19s. Epicentre 38°·8N. 118°·0W.

A = −·3668, B = −·6899, C = +·6240; δ = −12; h = −1;
D = −·883, E = +·469; G = −·293, H = −·551, K = −·781.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tinemaha	Z.	1·7	187	i 0 29	− 2	i 0 46	− 8	—	—	—
Fresno	N.	2·5	214	e 0 41	− 2	e 1 7	− 7	—	—	—
Haiwee	N.	2·7	179	e 0 45	0	i 1 14	− 5	—	—	—
Lick		3·2	243	e 0 54	+ 2	e 1 32	0	—	—	—
Santa Clara		3·4	246	e 1 7	+12	e 1 47	+10	—	—	—
Berkeley		3·5	256	i 0 57	0	e 1 40	0	e 1 1	P*	—
Branner		3·6	248	e 0 59	+ 1	e 1 42	0	e 1 9	P_g	—
Overton		3·6	129	i 0 58	0	e 2 8	S_g	i 1 21	P_g	—
Boulder City		3·8	138	i 1 1	0	e 1 59	S*	i 1 11	P*	—
Shasta Dam		3·9	300	i 1 4	+ 2	i 2 3	S*	i 1 12	P*	—
Pierce Ferry		4·2	129	i 1 7	0	e 2 10	S*	i 1 15	P*	—
Mount Wilson		4·6	181	i 1 13	+ 1	i 2 17	S*	i 1 22	P*	—
Pasadena		4·7	182	i 1 22	P*	i 2 18	S*	—	—	—
Riverside	Z.	4·8	174	e 1 16	+ 1	—	—	—	—	—
Tucson		8·8	136	e 2 9	− 2	e 3 39	−14	—	—	4·8
Grand Coulee		9·1	355	e 5 3	S_g	—	—	—	—	—

Tucson gives also e = 2m.35s., 2m.52s., 3m.17s., 3m.55s., and 4m.6s.

April 27d. Readings also at 12h. (Mount Wilson, Palomar, Tucson, and Tinemaha), 13h. (near Mizusawa), 15h. (Tucson and Palomar), 16h. (Uccle and near Algiers), 17h. (near Boulder City, Overton, and Pierce Ferry), 18h. (Mount Wilson (2), Palomar (2), Riverside (2), Tucson (2), and La Paz), 19h. (Copenhagen), 20h. (near Bogota), 22h. (near Fresno, Boulder City, Overton, and Pierce Ferry).

April 28d. Readings at 3h. (Palomar (2), Riverside, Tucson (2), near Boulder City, Overton, and Pierce Ferry), 7h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 10h. (near Mizusawa), 12h. (near Bogota), 14h. (Collmberg), 15h. (near Berkeley, Branner, and Lick), 17h. (Tucson, near Boulder City, Overton, and Pierce Ferry), 19h. (Strasbourg), 20h. (Mount Wilson, Tucson, and Strasbourg), 21h. (near Malaga).

April 29d. 0h. Undetermined shock.

Felt at Pomarence (Pisa). Epicentre 42°·8N. 13°·2E. (Strasbourg).

Annales de l'Institut de Physique du Globe de Strasbourg pour l'année, 1946, 2ème partie, Séismologie, Nouvelle Série, Tome XI, p. 52.

Florence iP_gZ = 6m.0s., iS_g = 6m.5s.
Rome ePZ = 6m.23s., eP_g = 6m.30s., eS = 7m.0s., eS_g = 7m.7s.
Triest eP? = 6m.49s., eS? = 7m.46s.
Zürich eP = 6m.58s. k, eS? = 7m.50s.
Zagreb eP = 7m.5s., eP_g = 7m.14s., e = 8m.10s., eZ = 8m.20s.
Neuchatel eP = 7m.3s.
Basle eP = 7m.4s., e = 7m.40s.
Strasbourg e = 7m.42s. and 7m.51s., iS = 8m.31s., iL? = 9m.18s.
Collmberg eZ = 7m.47s., 7m.50s., 7m.55s., 9m.3s., 9m.28s., 9m.36s., and 10m.4s.
Long waves were recorded at Copenhagen.

April 29d. 1h. Undetermined shock. Repetition of 0h. shock ?

Florence iP_gZ = 2m.30s., iS_g = 2m.36s.
Rome ePZ = 2m.55s., eP_g = 3m.2s., eS = 3m.31s., eS_g = 3m.39s.
Triest eP? = 3m.14s., eS? = 4m.14s.
Zürich eP = 3m.28s. k, eS = 4m.21s.
Basle eP = 3m.30s., eS = 4m.27s.
Neuchatel eP = 3m.32s.
Zagreb eP = 3m.38s., eP_g = 3m.45s., eNW = 4m.24s., eNE = 4m.31s.
Collmberg eZ = 4m.18s., 4m.22s., 4m.25s., 5m.33s., 6m.29s., and 6m.47s.
Strasbourg eP_g = 4m.23s., e = 4m.41s. and 5m.42s.
Long waves were recorded at Copenhagen.

April 29d. 1h. 31m. 31s. Epicentre 19°·4N. 70°·4W. (as on 1945 November 22d.).

A = +·3166, B = −·8892, C = +·3302; δ = −6; h = +5;
D = −·942, E = −·335; G = +·111, H = −·311, K = −·944.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	4·2	103	i 1 10	+ 3	i 2 9	S*	e 1 17	P*	i 2·3
Bogota	15·1	194	e 3 40	+ 4	e 6 40	+15	i 3 46	PP	—
Fordham	21·6	353	e 4 51	− 3	e 8 32	−17	—	—	—
Weston	22·9	359	e 5 4	− 2	e 9 0	−13	—	—	—
Harvard	23·1	359	i 5 6	− 2	e 9 5	−11	i 5 14	?	—
St. Louis	25·8	322	e 5 34	0	e 10 1	− 1	e 10 21	?	e 12·8
Tucson	38·4	298	e 7 24	− 1	—	—	—	—	—

San Juan gives also i = 1m.24s. and 1m.48s.
Long waves were also recorded at Fort de France, Bermuda, Philadelphia, and Chicago.

April 29d. 16h. 30m. 42s. Epicentre 36°·8N. 69°·4E. Depth of focus 0·015.
Epicentre 36°50′N. 69°25′E. Depth 100 kms. (U.S.S.R.).

A = +·2824, B = +·7513, C = +·5964; δ = −11; h = 0;
D = +·936, E = −·352; G = +·210, H = +·558, K = −·803.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Stalinabad		1·8	344	i 0 42	+10	i 1 6	+10
Samarkand		3·5	327	1 0	+ 6	1 40	+ 4
Andijan		4·6	30	i 1 9	0	i 2 2	0
Tchimkent		5·5	1	i 1 23	+ 2	i 2 26	+ 2
New Delhi	N.	10·5	139	i 2 17	−11	i 3 58	−26
Bombay		18·1	169	e 3 7	−57	—	—
Grozny		19·2	297	e 4 16	0	e 7 50	+ 8
Hyderabad	N.	20·9	155	e 4 22	−12	e 7 54	−20

Bombay gives also eN = 3m.56s.

April 29d. Readings also at 0h. (Uccle), 1h. (Tucson, Collmberg, and Jena), 5h. (Santa Lucia), 7h. (near Stalinabad), 11h. (College, near Andijan, Samarkand and Stalinabad), 13h. (St. Louis, Tucson, Palomar, Pierce Ferry, Overton, Boulder City, Riverside, Mount Wilson, and Shasta Dam), 15h. (Cheb, Collmberg, and near Shasta Dam), 19h. (near Berkeley, Lick, and Branner), 22h. (near Branner).

April 30d. 2h. Undetermined shock.

Tacubaya PE = 18m.43s. SE = 20m.19s., SEN = 20m.22s.
Merida ePN = 18m.56s., eLZ = 21m.6s.
St. Louis iPZ = 21m.30s., iZ = 21m.46s., eS?N = 25m.44s., eZ = 25m.50s., eN = 29m.0s.
Tucson iP = 21m.39s., e = 21m.54s. and 23m.22s., eS? = 29m.48s., eL = 33m.16s.
Pierce Ferry eP = 22m.20s., i = 22m.34s.
Boulder City eP = 22m.24s., i = 22m.39s.
Long waves were also recorded at San Juan.

April 30d. 7h. Undetermined shock.

Brisbane iPN = 23m.55s., iSN = 27m.51s.
Riverview eNZ = 24m.56s. eS?N = 29m.39s., iNZ = 29m.58s., eLE = 32m.0s.
Christchurch P = 27m.9s., S = 33m.39s., SS = 36m.40s., Q = 37m.29s., RZ = 40m.2s.
Arapuni P? = 27m.12s., S = 36m.54s., L = 39m.30s.
Mount Wilson ePZ = 32m.37s.
Pasadena ePZ = 32m.37s., eZ = 33m.12s., eLZ = 63·3m.
Wellington P? = 33m.24s., S? = 36m.35s.
Copenhagen e = 49m.15s., L = 76m.
Paris e = 52m.0s. eL = 85m.
Strasbourg e = 73m.0s., L = 88·3m.
Long waves were also recorded at Auckland, Philadelphia, Harvard, Bermuda, San Juan, Uccle, and Clermont-Ferrand.

April 30d. Readings also at 1h. (Zürich, Tucson, near Tacubaya and near Granada), 2h. (near Tacubaya), 3h. (Helwan), 4h. (near Stalinabad), 5h. (near Overton, Pierce Ferry and Boulder City), 7h. (La Paz and Tucson), 12h. (Mount Wilson, Riverside, St. Louis and Tucson), 9h. (Irkutsk and near Leninakan), 15h. (near Stalinabad), 16h. (Tucson), 18h. (near Malaga), 19h. (Guadalajara), 23h. (Tucson),

May 1d. 23h. 35m. 42s. Epicentre 42°·6N. 65°·7E.

A = +·3039, B = +·6730, C = +·6744 ; δ = +10 ; h = −3 ;
D = +·911, E = −412 ; G = +·278, H = +·615, K = −·738.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Tchimkent	2·9	95	e 0 48	0	i 1 22	− 2	—	—
Tashkent	3·0	113	e 0 49	− 1	e 1 24	− 3	e 1 41	S_g
Samarkand	3·0	165	1 23	+33	1 58	+31	i 2 17	S_g
Stalinabad	4·6	149	i 1 35	P_g	i 2 31	S_g	—	—
Andijan	5·3	108	e 1 32	P*	i 2 54	S_g	—	—
Almata	8·3	82	e 2 40	P_g	—	—	—	—

May 1d. Readings also at 0h. (near Oaxaca and near Andijan), 2h. and 3h. (Tucson), 10h. (Paris, Strasbourg, De Bilt, Copenhagen and Tucson), 12h. (near Grozny, Erevan, Piatigorsk, and near Samarkand), 15h. (near Samarkand), 16h. (Malaga), 17h. (Collmberg, Tucson, Tinemaha, Haiwee, Riverside, Palomar, Pasadena, Mount Wilson, La Jolla, Shasta Dam, near Pierce Ferry (2), Overton (2), Boulder City (2), Branner and Fresno). 18h. (La Paz and near Huancayo), 19h. (near Lick), 22h. (Arapuni and Collmberg), 23h. (Strasbourg).

May 2d. 1h. 26m. 7s. Epicentre 37°·9N. 121°·7W. (as on 1945 July 9d.).

Intensity VI at Tracy, V at Byron and Moraga, IV at Irvington, Lafayette, Mission San José, and Niles.
Epicentre 37°41'N. 121°33'W. Macroseismic area 3000 square miles.

R. R. Bodle and L. M. Murphy.
United States Earthquakes 1946, Serial No. 714, Washington 1948, p. 13.

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		0·5	266	i 0 16	+ 2	e 0 26	+ 3	—	—	—
Branner		0·6	218	i 0 16	+ 1	e 0 23	− 3	—	—	—
Lick	E.	0·6	176	i 0 12	− 3	—	—	—	—	—
Santa Clara		0·6	203	i 0 12	− 3	—	—	—	—	—
Ukiah		1·7	316	i 0 45	+14	i 1 11	+17	—	—	e 2·1
Fresno	N.	1·9	127	e 0 35	+ 1	e 0 53	− 6	—	—	—
Tinemaha		2·8	106	i 1 0	P_g	i 1 37	S_g	—	—	—
Shasta Dam		2·9	349	e 0 53	+ 5	e 1 28	+ 4	i 1 1	P_g	i 2·1
Haiwee		3·5	119	i 1 9	P_g	i 1 18	−22	—	—	—
Santa Barbara		3·8	153	i 1 1	0	i 2 0	S*	—	—	—
Mount Wilson	Z.	4·7	140	i 1 14	0	—	—	—	—	—
Pasadena		4·7	141	i 1 14	0	i 2 6	− 4	—	—	—
Riverside		5·2	136	i 1 15	− 6	—	—	—	—	—
Boulder City		5·8	106	e 1 31	+ 2	e 2 42	+ 4	i 3 5	S_g	—
Overton		6·0	100	e 1 39	+ 7	—	—	e 1 44	P*	—
Palomar		6·0	139	i 1 31	− 1	—	—	—	—	—
Pierce Ferry		6·4	102	e 1 41	+ 3	e 2 57	+ 4	e 2 3	P_g	—
Logan		8·5	61	e 2 43	P_g	e 4 14	S*	i 4 34	S_g	e 4·8
Grand Coulee		10·2	10	e 3 36	+65	e 4 58	+31	—	—	e 5·6
Tucson		10·5	119	e 2 37	+ 2	—	—	—	—	e 5·1
Philadelphia		35·9	71	—	—	e 17 30	S_cS	—	—	e 18·9

Additional readings:—
Berkeley eEN = 1m.48s.
Lick iE = 1m.8s.
Shasta Dam i = 1m.7s., e = 1m.34s., i = 1m.45s.
Boulder City i = 2m.16s.
Overton i = 1m.54s.
Long waves were also recorded at Butte, Bozeman, Bermuda and Kew.

May 2d. 5h. 40m. 48s. Epicentre 53°·4N. 163°·1W. (as on 1946 April 19d.).

$A = -·5729$, $B = -·1741$, $C = +·8009$; $\delta = -3$; $h = -7$;
$D = -·291$, $E = +·957$; $G = -·766$, $H = -·233$, $K = -·599$.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
College		13·9	28	e 3 10	−11	(e 5 56)	− 1
Shasta Dam		30·1	98	i 6 12	− 1	—	—
Tinemaha		34·9	99	i 6 56	+ 1	—	—
Haiwee		35·7	100	e 7 2	0	—	—
Mount Wilson	z.	37·0	102	i 7 11	− 2	—	—
Pasadena	z.	37·0	102	e 7 11	− 2	—	—
Overton		37·5	96	e 7 22	+ 5	—	—
Riverside	z.	37·5	102	e 7 16	− 1	—	—
Boulder City		37·7	97	i 7 18	− 1	—	—
Pierce Ferry		38·0	96	e 7 23	+ 2	—	—
Palomar		38·3	102	i 7 23	− 1	—	—
Weston		58·4	59	e 9 53	− 7	—	—
Sverdlovsk		64·5	335	e 10 38	− 3	e 19 17	− 2
Andijan		74·8	319	e 11 45	+ 1	e 21 21	+ 1
Baku		82·3	335	e 12 28	+ 3	e 22 30	−10

College S given as L.
Boulder City gives also i = 7m.31s.
Long waves were also recorded at Paris and Kew.

May 2d. Readings also at 0h. (Tucson and Shasta Dam), 2h. (near Berkeley, Branner and Lick), 5h. (near Mizusawa), 7h. (Copenhagen, Strasbourg, Triest, Palomar, Riverside, Mount Wilson, and Tinemaha), 8h. (near Balboa Heights), 9h. (Palomar, Riverside, Pasadena, Mount Wilson, Tinemaha and near Berkeley), 10h. (near Bogota), 11h. (near Balboa Heights), 15h. (Harvard), 17h. (Copenhagen), 19h. (near Berkeley, Branner, and Lick), 20h. (near Grozny), 22h. (near Harvard and Ottawa).

May 3d. 21h. Undetermined shock.

Brisbane iPN = 53m.57s., eN = 63m.21s.
Riverview eP?Z = 54m.38s, iZ = 54m.48s, eLE = 61·1m.
Almata eP = 59m.22s.
Andijan eP = 59m.40s., eS = 69m.12s.
Tashkent eP = 59m.50s., eS = 69m.33s.
Stalinabad iP = 59m.51s.
Sverdlovsk eP = 60m.39s., eS = 71m.9s.
Baku eP = 61m.13s., iS = 72m.9s.
Leninakan eP = 61m.29s.
Calcutta eN = 65m.21s.
Irkutsk eS = 66m.43s.
New Delhi iN = 67m.35s.
Bogota e = 67m.50s.

May 3d. 22h. 0m. 56s. Epicentre 21°·5S. 170°·2E. (as on 1944 June 25d.).

$A = -·9177$, $B = +·1585$, $C = -·3644$; $\delta = +8$; $h = +4$;
$D = +·170$, $E = +·985$; $G = +·359$, $H = -·062$, $K = -·931$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	
Auckland		15·8	167	3 50	+ 5	6 49	+ 7	4 4 PP	—
Brisbane	N.	16·7	246	i 4 5	+ 8	—	—	—	i 8·3
Wellington	z.	20·1	172	4 37	− 1	8 18	− 1	15 49 SeS	8·8
Riverview		20·8	230	i 4 50k	+ 5	i 8 43	+10	i 5 10 pP	—
Christchurch		22·1	177	4 59	0	8 51	− 7	5 28 PP	11·1
Honolulu		52·8	38	—	—	e 17 39	+52	e 21 13 SS	24·5
Branner		86·4	48	e 13 24	?	—	—	—	—
Berkeley		86·6	48	e 13 34	?	24 48	PS	e 28 25 SS	e 44·6
Ukiah		86·6	46	—	—	e 26 52	?	—	e 44·2
Santa Barbara	z.	86·7	52	i 13 31	?	—	—	e 16 52 PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena	Z.	87·7	52	e 12 47	− 5	—	—	i 16 31	PP	—
Mount Wilson	Z.	87·8	52	i 12 47	− 5	—	—	i 16 32	PP	—
Shasta Dam		88·0	45	i 13 0	+ 7	i 32 54	SSS	e 16 52	PP	—
Riverside	Z.	88·2	52	i 12 48	− 6	—	—	i 16 33	PP	—
Palomar		88·3	54	i 12 50	− 5	—	—	e 16 33	PP	—
Haiwee	E.	88·8	50	i 13 37	?	—	—	—	—	—
Sitka		90·9	26	e 15 54	?	i 24 36	PS	e 16 49	PP	i 42·1
Boulder City		91·0	51	i 13 2	− 5	—	—	i 16 45	PP	—
Calcutta	N.	91·0	293	—	—	e 23 35	[− 4]	e 28 55	SS	—
Victoria		91·4	37	16 16	PP	e 24 59	PS	33 35	SSS	41·1
Overton		91·5	51	e 13 11	+ 1	—	—	i 17 6	PP	—
Pierce Ferry		91·7	52	i 13 5	− 5	—	—	—	—	—
College		91·9	16	e 15 38	?	e 24 40	+29	e 26 10	PS	—
Tucson		92·4	56	e 13 7	− 7	e 24 57	PS	e 17 6	PP	—
Grand Coulee		93·7	39	e 13 54	+34	—	—	e 17 21	PP	—
Salt Lake City		95·1	48	—	—	e 26 58	PPS	—	—	—
Kodaikanal	E.	96·2	278	e 15 14	?	e 24 49	+ 1	—	—	—
Butte		96·8	42	e 13 37	+ 3	e 27 58	PPS	e 18 43	PP	e 44·3
Bozeman		97·6	44	e 18 28	PP	e 24 29	[+14]	i 27 54	PPS	e 44·3
Hyderabad	N.	97·8	286	18 30	PP	24 59	− 3	—	—	—
New Delhi	N.	102·5	296	—	—	i 25 23	−18	i 25 43	S	—
Bombay		103·4	285	e 15 42	?	e 26 0	+11	—	—	—
Almata		106·7	311	e 16 20	?	26 54	+38	e 27 12	PS	—
Huancayo		107·6	111	e 22 35	?	e 25 54	{+ 6}	e 29 40	PPS	—
Andijan		109·5	307	e 16 5	?	e 26 41	S	—	—	—
Florissant		110·3	55	e 22 52	?	e 29 5	PS	—	—	—
St. Louis	E.	110·4	55	—	—	i 29 7	PS	—	—	—
La Paz	Z.	111·5	119	i 22 42a	?	i 26 16	{ 0}	—	—	—
Tashkent		111·9	307	i 16 13	?	e 26 52	{+34}	28 16	PS	—
Chicago		112·9	52	—	—	e 28 16	PS	e 38 19	SSS	e 59·4
Bogota		115·6	95	e 22 46	PPP	e 26 15	{−29}	—	—	—
Columbia		116·8	61	—	—	e 29 22	PS	e 37 33	SSS	—
Sverdlovsk		118·4	324	i 16 45	?	27 33	{+30}	i 20 38	PP	—
Philadelphia		122·1	55	e 22 56	PPP	e 28 16	{+48}	e 36 12	SS	e 54·5
Harvard		124·8	52	e 22 24	PKS	—	—	e 39 1	SS	—
Weston		125·0	52	e 18 56	[− 6]	—	—	i 22 26	PKS	—
Seven Falls		125·0	46	—	—	e 29 40	?	e 33 53	?	e 40·6
Baku		126·4	305	21 44	PP	28 18	{+22}	e 30 42?	PS	—
San Juan		127·2	82	e 21 28	PP	e 26 13	[+ 1]	e 22 41	PKS	—
Grozny		129·3	309	e 17 39	[−92]	28 18	{+ 3}	—	—	—
Bermuda		130·4	65	e 19 29	[+16]	e 26 16	[− 5]	e 22 31	PKS	e 70·1
Moscow		131·1	327	22 13	PKS	24 12	PPP	e 31 32	PS	—
Upsala		137·0	340	e 23 21	?	e 28 4?	?	e 29 9?	SKKS	—
Ksara		138·0	296	e 20 11	[+44]	e 22 37	PKS	e 32 45	PS	—
Bergen		139·7	349	e 28 50	?	e 29 15	{− 4}	e 33 27	PS	—
Copenhagen		142·0	340	19 26	[− 8]	i 29 31	{− 2}	i 23 39	PP	—
Helwan		142·2	291	e 20 14	?	—	—	e 22 16	PKS	—
Bucharest	N.	142·6	317	e 20 10	?	—	—	e 43 11	SSP	53·1
Aberdeen		143·9	354	e 24 4	?	i 29 36	{− 7}	—	—	—
Sofia		145·2	315	e 19 39	[− 1]	—	—	e 34 4?	PS	—
Collmberg	Z.	145·3	335	e 19 36	[− 4]	—	—	e 43 31	SS	—
Edinburgh		145·3	353	—	—	e 25 41	PPP	—	—	—
Prague		145·7	333	e 25 22	PPP	e 29 36	{−18}	e 34 4	PPS	e 62·1
Kalocsa	N.	145·8	325	e 19 44	[+ 3]	e 40 54	SS	—	—	—
Belgrade		145·9	320	i 19 38	[− 3]	—	—	i 23 4	PP	61·6
Durham		146·2	351	e 25 41	PPP	31 22	?	—	—	—
Cheb		146·5	335	e 24 9	PP	e 25 32	PPP	e 34 9	PS	84·1
De Bilt		147·3	343	i 19 42k	[− 1]	e 24 4	PP	e 25 47	PPP	—
Zagreb		147·9	325	e 19 41	[− 3]	e 29 42	{−24}	—	—	—
Uccle		148·7	344	e 19 46a	[+ 1]	e 42 3	SS	e 25 53	PPP	e 82·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew		149·2	349	e 20 31	[+45]	e 29 18?	{−56}	e 26 8	PPP	e 68·1
Triest		149·2	327	i 19 46	[0]	e 25 42	[−71]	e 34 32	PS	—
Strasbourg		149·5	337	e 19 49	[+ 2]	e 29 51	{−24}	e 37 16	PS	—
Chur		150·2	334	e 19 44	[− 4]	—	—	—	—	—
Zürich		150·2	335	e 19 48s	[0]	—	—	—	—	—
Basle		150·5	336	e 19 49	[+ 1]	—	—	e 22 42	PKS	—
Paris		151·0	343	e 20 4?	[+15]	e 25 54	[−61]	e 31 4?	SKKS	—
Neuchatel		151·2	336	e 19 51	[+ 2]	—	—	—	—	—
Florence		151·7	326	i 19 31	[−19]	i 25 54	[−62]	—	—	—
Rome		152·3	323	e 19 54	[+ 3]	44 1	SSP	—	—	67·2
Clermont-Ferrand		153·6	340	e 20 38?	[+45]	e 26 4	[−54]	e 22 36?	PKS	—
Tortosa	E.	158·9	337	—	—	26 19	[−45]	—	—	—
Toledo		161·0	347	e 20 42	[+40]	e 26 31	[−35]	22 55	PKS	—
Algiers		161·1	326	—	—	e 26 25	[−41]	i 31 40	SKKS	—
Alicante		161·4	337	21 24	PKP_2	e 27 36	[+30]	24 20	PP	—
Granada		163·5	343	21 19k	PKP_2	—	—	25 46	PP	—

Additional readings :—
Auckland ScS =16m.28s.
Riverview iE =5m.28s. and 6m.5s., iN =8m.38s., 8m.50s., 9m.5s., and 9m.14s., isSE = 9m.27s.
Christchurch eN =3m.40s., e =8m.12s., QEN =9m.26s., PcS =11m.24s.
Honolulu e =19m.51s.
Pasadena iZ =12m.59s. and 13m.26s.
Mount Wilson iZ =13m.29s.
Shasta Dam i =13m.28s.
Riverside iZ =13m.1s. and 13m.31s.
Palomar iZ =13m.2s. and 13m.30s.
Sitka ePS =25m.49s., eSS =31m.44s.
Boulder City i =13m.15s.
Victoria PP =20m.2s., eE =24m.40s., S =27m.4s.
Overton i =13m.47s.
Pierce Ferry i =13m.46s., e =20m.30s.
College e =26m.54s., eSS =31m.30s.
Tucson i =13m.50s.
Grand Coulee e =14m.18s.
Salt Lake City e =27m.52s.
Bozeman e =39m.30s.
Hyderabad SN =25m.30s.
Florissant iE =30m.15s., eE =32m.36s.
St. Louis eE =30m.13s. and 32m.29s.
Tashkent eS =27m.12s.
Chicago e =32m.37s.
Sverdlovsk PS =29m.22s., eSS =34m.34s.
Philadelphia e =29m.42s., eSSS =41m.27s.
Weston e =24m.16s.
Baku SS =37m.4s.
San Juan e =36m.27s., eSS =38m.44s.
Bermuda ePKS =23m.32s., e =31m.39s.
Upsala eN =33m.4s.?
Copenhagen i =30m.55s., 33m.22s., and 39m.22s.
Helwan e =20m.23s., 21m.6s., 24m.48s., and 28m.8s.
Aberdeen iEN =31m.16s.
Collmberg iZ =19m.39s. and 19m.43s., eZ =19m.49s., and 20m.19s., ePKPZ =22m.16s., eZ =22m.34s. and 25m.17s., eSKKKS?Z =32m.22s., eZ =38m.56s., eSSSN =48m.43s.
Kalossa eP =19m.54s.
Belgrade iPP? =20m.29s.
Cheb e =29m.44s., 31m.20s., and 36m.20s.
De Bilt eZ =20m.23s., ePP =22m.14s., e =31m.34s.
Zagreb e =19m.44s., e =20m.24s., eNW =20m.32s.
Uccle ePP =22m.30s., eEN =31m.42s.
Kew eNZ =24m.36s., eEN =31m.48s.?, iSS =45m.23s., eQZ =61·1m.
Triest eS? =28m.18s.
Strasbourg e =20m.48s., 24m.26s., 25m.47s., 31m.42s., and 33m.37s.
Chur e =19m.48s.
Paris e =29m.4s?
Rome ePKP$_2$Z =20m.39s.
Clermont-Ferrand e =24m.57s.
Toledo ePcS =26m.44s.
Alicante PPP =21m.48s., eS =25m.34s., 26m.24s., eL =28m.44s., ScS =31m.40s, phrases wrongly identified,

May 3d. 22h. 23m. 52s. Epicentre 4°·3S. 153°·8E. Focus at the base of the superficial layers.

Felt at Rabaul. Epicentre 4°S. 155°E. (Strasbourg).
5°S. 153°E. (Pasadena).

Annales de l'Institut de Physique du Globe de Strasbourg pour l'année 1946, 2ème partie, Séismologie, Nouvelle Série, Tome XI, p.52.

$A = -·8947$, $B = +·4403$, $C = -·0745$; $\delta = -10$; $h = +7$;
$D = +·442$, $E = +·897$; $G = +·067$, $H = -·033$, $K = -·997$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	23·1	182	i 4 48	−16	—	—	—	—	—
Riverview		29·5	185	i 6 2	− 1	—	—	i 12 48	SSS	e 12·9
Auckland		37·7	152	—	—	13 3	+ 1	15 38	SS	18·1
Arapuni		39·1	153	7 38	+12	13 26	+ 3	i 10 14	?	17·1
New Plymouth		39·2	154	7 36	+ 9	14 38	+74	—	—	—
Mera		41·2	343	e 7 45	+ 2	15 27	+93	—	—	—
Wellington		41·4	156	7 45	0	13 51	− 6	i 7 56	pP	17·1
Hunatu		42·0	342	e 7 47	− 3	13 37	−29	—	—	—
Christchurch		42·5	160	7 43	−11	—	—	i 8 5	pP	—
Kobe		42·6	338	7 55	0	14 6	− 9	—	—	—
Utunomiya		42·7	344	e 7 57	+ 2	14 26	+10	—	—	—
Kumamoto		42·9	332	e 7 56	− 1	14 20	+ 1	—	—	—
Toyama		43·6	341	e 8 9	+ 6	15 1	+31	—	—	—
Hukuoka		43·7	332	8 2	− 2	14 28	− 3	—	—	—
Sendai		44·0	346	9 1	+55	15 6	+31	—	—	—
Mizusawa	E.	44·8	347	8 15	+ 3	15 22	+35	—	—	—
Morioka		45·3	347	e 8 16	0	14 59	+ 5	—	—	—
Honolulu		53·8	60	e 9 53	+31	i 17 13	+21	i 11 50	PP	e 22·7
Pehpei		56·6	310	e 9 40	− 2	e 17 38	+ 8	—	—	—
Calcutta	N.	69·2	297	e 10 45	−20	i 20 59	PPS	e 11 24	pP	29·0
Irkutsk		70·2	330	11 12	+ 1	20 20	+ 1	15 53	PPP	—
Hyderabad	N.	77·4	289	11 56	+ 3	22 41	+61	—	—	—
Kodaikanal	E.	77·4	282	i 11 38	−15	i 21 30	−10	e 14 33	PP	—
New Delhi		80·3	300	i 12 7	− 2	i 22 2	− 9	i 33 28	?	—
College		81·0	22	e 12 10	− 3	e 22 22	+ 4	e 22 44	sS	e 34·1
Bombay		82·9	290	i 12 23	0	i 22 31	− 7	i 28 31	SS	37·2
Sitka		83·5	32	i 12 29	+ 3	i 22 53	+ 9	i 15 44	PP	i 34·6
Frunse		85·0	314	e 12 26	− 7	e 23 1	+ 3	—	—	—
Andijan		86·3	311	i 12 48	+ 8	i 23 14	+ 3	—	—	—
Ukiah		87·3	51	e 12 50	+ 5	i 23 24	+ 3	—	—	e 36·7
Berkeley		87·8	53	e 12 55	+ 8	(e 23 23)	− 3	e 16 23	PP	e 23·4
Branner		87·8	53	e 12 15	−32	e 23 21	− 5	e 12 20	P	e 40·3
Santa Clara	E.	88·0	53	e 13 37	+49	e 23 28	+ 1	e 22 7	?	e 40·7
Shasta Dam		88·1	56	e 12 47	− 1	e 23 23	− 5	—	—	—
Lick		88·3	53	e 12 22	−27	e 23 24	− 6	e 16 44	PP	e 59·2
Victoria		88·4	42	12 52	+ 2	23 39	+ 8	16 26	PP	—
Seattle		89·0	43	e 13 51	+58	e 23 45	+ 9	e 30 17	SS	e 40·4
Fresno	N.	89·7	53	e 13 32	+36	—	—	—	—	e 37·7
Samarkand		90·3	310	—	—	23 46	− 2	—	—	—
Pasadena		90·8	56	i 12 59	− 2	i 23 44	− 9	i 13 6	pP	e 38·1
Mount Wilson	Z.	90·9	56	i 13 1	− 1	—	—	—	—	—
Grand Coulee		91·3	42	e 13 0	− 4	e 23 41	[+ 9]	e 13 4	P	—
Riverside	Z.	91·4	56	e 13 2	− 2	—	—	—	—	—
Palomar		91·8	57	i 13 11	+ 5	—	—	—	—	—
Boulder City		93·6	54	e 13 10	− 4	e 23 55	[+11]	i 17 24	PP	—
Overton		93·9	54	e 13 26	pP	—	—	e 13 47	sP	—
Pierce Ferry		94·3	54	e 13 17	0	e 24 2	−21	e 13 45	sP	—
Sverdlovsk		95·3	327	e 13 12	−10	i 24 16	−16	i 23 51	SKS	—
Butte		95·6	44	—	—	e 24 9	[+13]	e 31 56	SS	e 40·4
Logan		96·1	49	e 14 5	+40	e 26 8	PS	e 17 38	PP	e 44·9
Salt Lake City		96·1	50	e 17 0	PP	i 24 3	[+ 5]	e 25 42	PS	e 40·5
Bozeman		96·7	45	e 13 35	+ 7	i 24 8	[+ 6]	—	—	e 40·2
Tucson		96·8	59	e 13 32	+ 3	e 23 48	[−14]	e 16 46	PP	e 40·6
Saskatoon		99·3	38	13 42	+ 2	24 4	[−11]	17 51	PP	41·1
Tananarive		103·9	250	—	—	e 25 39	− 5	e 33 57	SS	42·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grozny		106·0	314	e 14 1	P	e 24 41	[− 5]	18 37	PP	—
Ercvan		107·5	311	e 14 19	P	—	—	e 18 47	PP	—
Tacubaya		107·5	71	i 19 6	PP	i 27 48	PS	i 29 18	PPS	e 52·6
Lincoln		107·6	48	i 18 51	PP	e 28 47	PPS	e 34 30	SS	i 49·6
Leninakan		107·9	312	e 14 40	P	—	—	18 26	PKP	—
Vera Cruz		110·3	71	e 18 8	[−21]	e 24 52	[−12]	e 21 42	PPP	e 54·3
Sotchi		110·3	315	18 54	[+25]	—	—	—	—	—
Florissant		112·7	50	e 19 27	PP	i 26 31	SKKS	e 19 43	pPP	56·1
St. Louis		112·8	50	i 18 39	[+ 5]	e 26 23	SKKS	i 19 29	PP	—
Yalta		113·9	317	19 20	PP	—	—	—	—	—
Chicago		114·0	46	e 18 58	pPKP	e 25 27	[+ 8]	i 29 13	PS	e 47·4
Upsala	E.	115·3	337	e 19 41	PP	e 25 27	[+ 3]	e 39 55	SSS	e 57·1
	N.	115·3	337	e 19 32	PP	e 25 21	[− 3]	e 26 33	SKKS	e 56·1
Ksara		115·5	306	e 19 27	PP	e 29 47	PS	—	—	—
Merida	E.	116·3	69	e 20 11	PP	e 25 10	[−18]	e 22 50	PPP	—
Bergen		119·1	343	20 10	PP	25 45	[+ 7]	22 55	PPP	e 56·4
Helwan		120·1	302	e 18 44	[− 4]	e 25 48	[+ 7]	20 51	PP	—
Copenhagen		120·2	336	e 18 46	[− 2]	i 27 14	SKKS	i 20 8	PP	—
Ottawa		120·6	38	18 50	[+ 1]	27 22	SKKS	20 24	PP	56·1
Ivigtut		120·9	12	20 18	PP	30 9	PS	—	—	—
Columbia		121·2	52	—	—	e 25 56	[+11]	e 30 22	PS	e 51·3
Shawinigan Falls		121·8	36	18 57	[+ 5]	30 20	PS	—	—	50·1
Sofia		121·8	319	e 19 5?	[+13]	e 30 15	PS	e 20 27	PP	—
Belgrade		122·6	322	i 18 50	[− 3]	—	—	i 20 24	PP	38·2
Kalossa	E.	122·6	325	e 18 58	[+ 5]	—	—	e 20 34	PP	—
Seven Falls		122·6	34	18 55	[+ 2]	25 45	[− 5]	21 8	pPP	46·1
Collmberg		122·9	332	e 18 47	[− 7]	e 30 21	PS	i 18 59	pP	39·1
Prague		123·0	330	e 20 32	PP	e 30 38	PS	e 22 20	PKS	e 39·1
Philadelphia		123·4	44	e 15 16	P	e 26 23	[+31]	i 20 41	PP	e 52·1
Santa Lucia		123·6	136	26 1	SKS	(26 1)	[+ 8]	27 58	SKKS	60·3
Jena		123·8	331	18 54	[− 2]	e 26 0	[+ 7]	e 20 40	PP	—
Aberdeen		123·9	345	i 20 42	PP	i 30 33	PS	i 38 15	SSP	54·1
Fordham		123·9	42	i 19 2	[+ 6]	e 37 58	SSP	i 20 45	PP	—
Cheb		124·0	331	e 18 40	[−16]	e 25 36	[−18]	e 20 44	PP	e 61·1
Harvard		124·6	40	e 18 53	[− 4]	e 26. 5	[+ 9]	i 19 2	pPKP	e 46·6
Weston		124·8	40	e 16 5	P	—	—	18 57	PKP	—
Zagreb		124·8	325	e 18 54	[− 3]	e 30 38	PS	e 19 2	pPKP	e 58·6
Edinburgh		125·3	344	18 42	[−16]	22 17	PKS	30 31	PS	—
De Bilt		125·7	337	i 19 1	[+ 3]	e 22 13	PKS	i 20 46	PP	e 59·1
Durham		125·9	342	20 53	PP	22 17	PKS	30 54	PS	—
Triest		126·1	326	i 19 0	[+ 1]	e 26 5	[+ 5]	i 21 36	pPP	—
Uccle		126·3	337	e 19 1a	[+ 1]	e 22 16	PKS	i 21 2	PP	e 64·1
Strasbourg		127·2	332	e 19 0	[− 1]	i 22 20	PKS	i 20 55	PP	63·1
Chur		127·6	330	e 16 8	P	—	—	e 18 54	PKP	—
Zürich		127·7	331	e 16 8	P	—	—	e 19 2	PKP	—
Basle		128·0	332	e 18 56	[− 7]	—	—	e 20 44	PP	—
Halifax		128·2	33	—	—	e 22 25	PKS	—	—	39·1
Kew		128·3	340	i 19 6	[+ 2]	e 22 43	PKS	i 21 11	PP	59·1
Huancayo		128·5	109	e 19 10	[+ 6]	i 26 13	[+ 6]	i 20 55	PP	e 53·1
Florence		128·7	326	i 18 58	[− 6]	i 28 30	SKKS	i 31 16	PS	—
Neuchatel		128·7	331	e 18 57	[− 7]	—	—	—	—	—
Besançon		129·0	332	e 19 44	[+39]	e 22 31	PKS	—	—	e 48·1
Rome		129·1	323	e 19 5	[0]	e 22 26	PKS	—	—	—
Paris		129·4	336	e 19 5	[− 1]	i 26 19	[+10]	21 17	PP	e 57·1
La Plata	E.	130·9	146	19 32	[+23]	26 20	[+ 7]	22 28	PKS	54·6
	N.	130·9	146	19 50	[+41]	26 14	[+ 1]	21 56	PP	54·8
	Z.	130·9	146	19 17	[+ 8]	22 35	PKS	—	—	—
Clermont-Ferrand		131·5	333	e 19 9	[− 1]	i 22 37	PKS	i 21 30	PP	e 64·1
Bogota		132·3	87	i 16 24	?	e 25 51	[−26]	i 19 14	PKP	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Paz	133·7	118	16 17	?	26 38	[+18]	i 19 18 PKP	63·1
Bermuda	134·4	48	e 19 16	[+ 1]	i 22 48	PKS	e 21 51 PP	e 57·2
Barcelona	135·2	330	e 18 40	[−36]	22 52	PKS	e 33 52 PPS	e 40·3
Tortosa	136·4	330	16 15	?	22 57	PKS	19 20 PKP	47·0
Algiers	138·0	324	16 40	?	26 30	[+ 3]	19 30 PKP	64·1
San Juan	138·6	67	e 18 40	[−43]	i 27 28	[+60]	e 19 26 PKP	e 58·5
Alicante	138·8	329	i 19 0	[−23]	26 15	[−13]	19 16 PKP	e 71·7
Toledo	139·3	333	e 19 16	[− 8]	i 26 19	[−10]	i 22 51 PKS	65·4
Granada	141·3	331	i 19 32k	[+ 4]	25 44	[−48]	19 47 pPKP	i 68·9
Lisbon	142·4	338	19 23	[− 7]	42 26	SSP	i 19 29a PKP	46·5

Additional readings :—
Wellington i=8m.16s. and 8m.21s., SS=15m.47s.
Christchurch i=7m.50s. and 8m.21s.
Mizusawa ePN=8m.18s.
Honolulu eSS=21m.10s.
Calcutta eN=12m.19s. and 12m.44s., iN=17m.9s.
Irkutsk SS=25m.14s.
Kodaikanal eE=22m.10s. and 26m.27s.
College e=23m.28s., eSS=28m.18s.
Sitka i=13m.23s. and 24m.24s., eSS=28m.40s., iSSS=31m.58s.
Branner eE=24m.55s., eN=36m.59s.
Berkeley eE=13m.54s.
Shasta Dam e=13m.30s., i=36m.35s.
Lick eN=13m.15s.
Victoria eE=22m.8s., SSN=29m.38s., SSSN=33m.50s.
Seattle e=33m.45s.
Pasadena iZ=13m.45s., and 16m.49s., eZ=17m.29s., iN=30m.20s.
Grand Coulee i=13m.44s., ePP=16m.45s.
Boulder City i=13m.42s.
Butte eSSS=35m.12s.
Logan ePS=26m.14s., iSS=31m.8s.
Salt Lake City i=24m.11s. and 32m.42s.
Tucson i=14m.5s., ePS=26m.5s., e=32m.13s.
Saskatoon PSEN=25m.21s., PPSNW=26m.54s., SS=32m.44s., SSSEN=36m.12s.
Tananarive e=29m.37s. and 31m.41s.
Tacubaya ePPE=19m.12s., eN=51m.28s.
Lincoln eSSS=38m.53s.
Vera Cruz eSKPE=20m.50s., eS?=26m.50s., ePS?=28m.36s., eN=40m.42s., eE=40m.46s.
Florissant iPSE=29m.7s., eE=38m.26s.
St. Louis iZ=20m.21s., iSKKSE=26m.33s., iPSE=29m.7s., iE=32m.33s.
Chicago iSS=35m.46s., eSSS=40m.33s.
Upsala ePS=29m.11s.?, eSS=36m.8s.?, eE=46m.8s.?
Merida eE=26m.48s., ePPS?E=31m.48s., eE=35m.38s., eN=50m.38s.
Bergen PSN=29m.45s., eE=30m.2s.?, eSSEN=36m.17s., eE=41m.2s.?
Helwan e=21m.14s. and 27m.41s.
Copenhagen 27m.40s. and 30m.5s.
Ottawa S=28m.18s., PS=30m.12s., PPS=31m.44s., SS=37m.11s., SSS=42m.8s.
Columbia e=42m.44s.
Sofia eN=24m.38s., eE=37m.38s.
Belgrade iPPP=22m.59s.
Seven Falls SKKS=27m.38s., PS=30m.25s., SS=37m.38s., SSS=42m.0s.
Collmberg iZ=18m.55s., 19m.6s., and 19m.8s., eZ=20m.33s., ePKPZ=21m.34s., eSKSZ=28m.51s., eSKSPN=34m.35s., eN=38m.7s., eSSN=42m.25s.
Philadelphia e=23m.42s., ePS=31m.14s., iSS=37m.33s., eSS=42m.29s.
Santa Lucia PPE=30m.45s., SE=37m.55s., PSE=40m.35s. Readings wrongly identified.
Jena eN=18m.57s., 19m.0s., 19m.27s., 21m.17s., 26m.3s., and 30m.28s., eE=38m.8s., eN=38m.18s.
Aberdeen iN=41m.48s., iE=49m.41s.
Fordham i=33m.4s.
Cheb i=23m.13s., e=30m.24s., 38m.22s., 41m.50s., and 56·1m.
Harvard iPKP=18m.57s., ePP=20m.48s., e=21m.9s., ePS?=30m.49s., eSS=38m.39s.
Weston iPP=20m.51s.
Zagreb ePP=20m.45s., ePPSZ=32m.32s., eSSNE=37m.50s., eSSSNE=42m.38s.
Edinburgh SS=38m.31s., SSS=42m.8s.
De Bilt iPS=30m.47s., eSS=38m.34s.
Durham EN=33m.21s., N=38m.31s., E=38m.42s.
Triest iE=22m.36s., iPPZ=23m.35s., iSKKSE=30m.52s. Readings wrongly identified.
Uccle i=19m.4s., eSKKS?N=28m.20s., eSE=29m.8s., eSN=29m.19s., iPSE=31m.20s., iPPSEN=32m.50s., i=33m.0s., i=33m.45s., eE=37m.32s., iSS=38m.49s., iSSEN=38m.52s.
Strasbourg ePPP=23m.48s., eS?=28m.25s., ePPS=32m.27s., e=37m.55s., iSS=38m.55s., eSSS=42m.59s.

Continued on next page.

Zürich ePP =21m.1s.
Basle e =28m.25s.
Kew iZ =20m.32s. and 21m.40s., ePPPEN =27m.52s.?, eSKKSNZ =31m.22s.?, eZ = 34m.38s.?, eEZ =47m.8s., eSSSN =50m.8s.?
Huancayo i =19m.40s., iPKS =22m.29s., i =28m.11s., iPS =31m.6s., iSS? =38m.29s.
Paris iSKP =22m.31s., e =23m.41s., SKKS =28m.14s., SKSP =35m.8s.?, SS? =38m.8s.?
La Plata PKSN =22m.30s., N =23m.44s., PPPN =24m.32s., SKKSE =28m.15s., SKKSN =28m.18s., E =28m.44s., SKSPE =31m.8s., E =37m.2s. and 38m.44s., SSN =38m.56s., SSE =40m.50s., SSSN =43m.56s., N =47m.32s.
Clermont-Ferrand ePPP? =25m.17s., eSSS? =45m.41s.
Bogota ePP =20m.46s., iSKP =22m.48s.
La Paz PPZ =22m.4s., iSKP =22m.48s., PPP =24m.28s., SKKS =28m.8s., SS = 40m.24s., SSS =44m.26s.
Bermuda eSKKS =28m.26s., ePS =32m.8s., e =35m.16s., eSS =39m.48s.
Tortosa SKKSEN =29m.0s., SSE =30m.42s., SSS?N =45m.45s.
Algiers i =20m.38s., ePP =22m.13s., iSKP =22m.55s., i =23m.18s., SKKS =28m.51s., eS =30m.31s., PSKS =32m.29s., e =33m.30s., PPS =34m.30s., SS =40m.41s., SSS =45m.9s.
San Juan ePP =21m.36s., e =23m.56s., eSS =40m.14s., eSSS =45m.18s.
Alicante i =22m.20s., PP =23m.10s., SKKS =29m.52s., PSKS =33m.42s., PPS = 36m.46s., Q =62·4m.
Toledo iPKSZ =23m.53s., iPPPZ =25m.25s., iSKSPE =32m.38s., iPPSEN =34m.58s., iSSE =40m.54s., iSSPEN =41m.41s., SSSN =46m.19s.
Granada iPP =22m.56s., pPP =23m.14s., SKKS =29m.22s., PPS =35m.54s., SS = 41m.42s., SSS =47m.14s.
Lisbon PPEN =23m.15s., E =24m.56s., and 29m.20s.?
Long waves were also recorded at Guadalajara.

May 3d. Readings also at 0h. (Tucson, near Lick and near Mizusawa), 10h. (Collmberg, near Tashkent, Andijan, Samarkand, and Stalinabad), 13h. (near Zagreb), 17h. (Balboa Heights and Strasbourg), 19h. (near Santa Lucia), 20h. (Copenhagen), 21h. (Perth), 22h. (La Paz, Palomar, Riverside, Pasadena, Mount Wilson, Arapuni, Riverview, and Brisbane (2)), 23h. (La Paz, Tucson, Palomar, Riverside (2), Pasadena, Mount Wilson (2), and Brisbane).

May 4d. 15h. Undetermined shock.
Collmberg eZ =28m.50s., 31m.58s., and 32m.13s.
Florence eP =29m.36s., eS =32m.50s.
Triest iPZ =29m.46s., eS =33m.0s.
Zagreb e =29m.48s.
Bucharest EN =30m. and 40m.
Rome eP? =30m.43s., e =32m.50s.
Belgrade e =33m.5s. and 38m.
Strasbourg e =34m.41s.
Prague e =36·5m.
Copenhagen 36m.35s., L =41m.
Cheb e =37m., eL =38·1m.
Long waves were also recorded at Warsaw, De Bilt, Paris, and Kew.

May 4d. Readings also at 0h. (Tucson, Arapuni, near Mizusawa, and near Leninakan), 5h. (Tucson and Palomar), 7h. (near Tacubaya), 8h. (near Andijan, Stalinabad, and Samarkand), 11h. (near Tacubaya), 12h. (Cheb), 13h. (Riverview, Christchurch, La Paz, and Bogota), 14h. (Cheb), 17h. (Kew), 18h. (Cheb), 19h. (Zagreb, Bucharest, Rome, and near Mizusawa), 20h. (Kew and Triest), 22h. (near Samarkand, Andijan, and Stalinabad), 23h. (Brisbane, near Pierce Ferry, Boulder City, and Overton).

May 5d. Readings at 1h. (Tucson), 5h. (near Tananarive (2)), 6h. (near Sofia), 7h. (near Alicante (2)), 8h. (Alicante, Riverview, Riverside, Mount Wilson, Tucson, near Pierce Ferry, Overton, and Boulder City), 9h. (Weston, Paris, Riverview, Wellington, Arapuni, Christchurch, Auckland, Tucson, Shasta Dam (2), Mount Wilson, Pasadena, Riverside, Palomar, near Pierce Ferry (2), Overton (2), Boulder City (2), near Fresno, and near Andijan), 10h. (Granada), 11h. (Almata), 14h. (Stalinabad, Samarkand, near Almata, and Andijan), 16h. (Paris, Strasbourg, Zürich, Bucharest, Triest, Rome, and Zagreb), 17h. (near Andijan, Stalinabad, Samarkand, and Tchimkent), 18h. (Rome), 19h. (near Harvard).

May 6d. 16h. 34m. 50s. Epicentre 35°·3N. 76°·7E.

Epicentre 35°20′N. 76°40′E (U.S.S.R.).

A = +·1882, B = +·7960, C = +·5752 ; δ = −11 ; h = 0 ;
D = +·973, E = −·230 ; G = +·132, H = +·560, K = −·818.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Andijan	6·5	328	e 1 48	P*	3 5	S*	—	—
Stalinabad	7·2	300	2 1?	P*	e 3 25?	S*	—	—
Frunse	7·8	347	e 2 0	+ 2	e 3 32	+ 4	e 2 39	P_g
Almata	8·0	3	e 2 1	+ 1	e 3 33	0	—	—
Tchimkent	8·9	324	e 2 10?	− 2	3 55?	0	—	—

Frunse also gives eS_g =4m.10s.

May 6d. Readings also at 0h. (Riverview), 1h. (Overton, Pierce Ferry, and Boulder City), 2h. (San Juan, Mount Wilson, Riverside, Palomar. Overton, Pierce Ferry, Boulder City, and Tucson), 5h. (Bogota and near Tacubaya), 8h. (Cheb), 9h. (near Bogota), 11h. (Pierce Ferry, Overton, and Boulder City), 18h. (Brisbane and Riverview), 19h. (Tucson), 21h. (near Tacubaya), 22h. (Malaga, near Leninakan, Grozny, and Erevan), 23h. (Tucson and near Mizusawa).

May 7d. 4h. 52m. 28s. Epicentre 40°·4N. 125°·1W. (as on 1944 January 16d.).

A = −·4391, B = −·6248, C = +·6456 ; δ = −2 ; h = −2 ;
D = −·818, E = +·575 ; G = −·371, H = −·528, K = −·764.

		△	Az.	P.	O−C.	S.	O−C.	Scpp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		1·9	131	e 0 34	0	(e 0 59)	0	—	—	e 1·0
Shasta Dam		2·1	82	i 0 37	0	i 1 4	0	i 0 53	?	—
Berkeley		3·4	138	e 0 53	− 2	e 1 34	− 3	e 1 17	?	—
San Francisco	E.	3·4	140	e 0 54	− 1	e 1 32	− 5	—	—	—
Branner		3·8	141	e 1 0	− 1	e 1 44	− 3	e 1 27	?	—
Santa Clara		3·9	139	e 1 45	S	(e 1 45)	− 5	—	—	e 2·6
Lick		4·1	137	e 1 4	− 1	e 1 54	− 1	e 1 35	?	—
Fresno	N.	5·5	129	e 1 25	0	e 2 40	S*	—	—	—
Haiwee	N.	7·0	125	e 1 50	+ 4	—	—	—	—	—
Mount Wilson	Z.	8·4	134	e 2 3	− 3	—	—	—	—	—
Pasadena		8·4	136	e 2 3	− 3	—	—	—	—	—
Grand Coulee		8·7	28	e 2 10	0	i 4 26	S*	e 3 9	?	—
Riverside	Z.	8·9	133	e 2 12	0	—	—	—	—	—
Overton		9·2	111	e 2 22	+ 6	—	—	—	—	—
Boulder City		9·2	115	e 2 19	+ 3	e 4 51	S*	—	—	—
Palomar		9·6	134	e 2 21	0	—	—	—	—	—
Pierce Ferry		9·7	112	e 2 28	+ 6	—	—	—	—	—
Tucson		14·1	121	i 3 26	+ 3	e 5 49	−13	i 3 43	PPP	e 7·5
St. Louis		26·9	83	i 5 45	0	e 10 54	+34	—	—	e 13·8

Long waves were also recorded at Butte, Bozeman, and Florissant.

May 7d. 14h. Undetermined shock.

Bombay ePN =48m.38s.
Stalinabad iP =48m.41s., iS =52m.58s.
Hyderabad ePN =49m.54s., eSN =54m.2s., SSN =54m.21s.
Grozny eP =50m.2s., eS =55m.12s.
New Delhi iN =50m.16s., 51m.50s., and 52m.41s.
Baku eS =53m.43s.
Calcutta eN =54m.38s., iN =57m.10s.
Helwan e =57m.29s.
Colombo eE =58m.0s.?.
Long waves were recorded at some European stations.

May 7d. Readings also at 4h. (Ksara, Grozny, Leninakan, and Erevan), 12h. (Tucson and Palomar), 15h. (near Andijan), 18h. (Malaga), 20h. (near Branner), 21h. (La Paz and near Mizusawa).

May 8d. 5h. 20m. 20s. Epicentre 0°·68. 99°·3E.

A = −·1616, B = +·9868, C = −·0104 ; δ = 0 ; h = +7 ;
D = +·987, E = +·162 ; G = +·002, H = −·010, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo	E.	20·8	291	4 45	0	8 31	− 2	—	—	—
Kodaikanal	E.	24·2	297	i 5 8	−11	i 9 24	−11	5 39	PP	11·9
Calcutta	E.	25·4	336	e 5 40	+ 9	i 10 12	+16	i 6 29	PPP	—
Hyderabad	N.	27·3	313	5 49	+ 1	9 59	−28	—	—	—
Pehpei		31·0	13	6 21	0	11 29	+ 3	—	—	—
Bombay	N.	32·4	308	i 6 36	+ 2	i 11 48	0	7 44	PP	15·7
Perth		34·9	155	7 25	+30	12 33	+ 6	8 20	PP	—
New Delhi		35·9	326	i 7 3	− 1	i 12 37	− 5	14 42	SS	—
Dehra Dun	N.	36·8	329	e 7 19	+ 8	e 13 4	+ 8	—	—	e 20·3
Zi-ka-wei	N.	38·0	33	e 7 22	+ 1	13 18	+ 4	i 7 48	?	22·7
Miyazaki		44·4	41	8 15	+ 1	14 56	+ 7	—	—	e 15·5
Kumamoto		44·5	40	8 16	+ 1	13 52	−59	—	—	—
Hukuoka		44·9	39	8 16	− 2	15 41	+45	e 18 29	SS	22·2
Andijan		47·9	332	i 8 42	0	—	—	—	—	—
Stalinabad		48·0	329	i 8 44	+ 1	i 15 33	− 8	—	—	—
Kobe		48·6	41	8 48	+ 1	15 32	−17	—	—	—
Frunse		48·7	336	8 48	0	15 48	− 2	—	—	—
Hikone		49·6	41	8 54	− 1	16 1	− 2	—	—	—
Samarkand		49·8	327	9 10?	+14	15 55?	−11	—	—	—
Tashkent		49·8	331	e 8 54	− 2	e 16 3	− 3	e 11 1	PP	—
Tchimkent		50·4	332	i 9 0	− 1	i 16 16	+ 2	—	—	—
Misima		51·3	42	e 9 9	+ 1	16 25	− 1	—	—	—
Nagano		51·7	40	9 6	− 5	16 32	0	—	—	—
Mera		51·8	43	9 18	+ 6	17 16	+43	—	—	—
Yokohama		52·0	42	e 9 8	− 5	e 16 42	+ 6	10 47	PP	e 26·0
Irkutsk		52·9	4	i 9 21	+ 1	16 45	− 3	11 23	PP	—
Hukisima		53·8	42	9 24	− 2	17 1	0	—	—	—
Tananarive		53·9	247	e 9 28	+ 1	17 2	0	11 33	PP	e 24·9
Sendai		54·4	41	9 33	+ 2	—	—	—	—	—
Mizusawa	E.	55·0	40	9 37	+ 2	17 25	+ 8	—	—	—
Morioka		55·4	39	9 38	0	17 27	+ 5	—	—	—
Mori		56·5	36	9 46	0	e 17 45	+ 8	—	—	27·8
Sapporo		57·5	35	e 9 52	− 1	(e 17 55)	+ 5	—	—	e 17·9
Brisbane	N.	58·0	123	i 9 56	− 1	i 18 5	+ 8	—	—	—
Riverview		58·7	130	i 10 2k	0	i 18 4	− 2	i 10 11	pP	e 26·6
Grozny		64·8	320	10 42	− 1	i 19 18	− 5	—	—	—
Leninakan		65·0	316	10 44	0	i 19 23	− 3	—	—	—
Sverdlovsk		65·1	338	i 10 45	0	i 19 21	− 6	i 11 14	P_cP	—
Piatigorsk		66·8	320	11 3	+ 7	19 50	+ 2	—	—	—
Ksara		68·5	306	i 11 7	+ 1	20 10	+ 2	—	—	—
Sotchi		68·9	318	11 9	0	i 20 8	− 5	—	—	—
Helwan		71·3	302	i 11 22k	− 1	i 20 34	− 7	11 42	P_cP	—
Yalta		72·9	317	e 11 34	+ 1	20 52	− 7	—	—	—
Moscow		74·9	330	11 43	− 1	21 14	− 8	14 17?	PP	—
Christchurch		77·5	135	12 0	+ 1	21 51	+ 1	15 3	PP	37·2
Auckland		78·1	128	12 19	+17	21 46	−10	26 51	SS	34·7
Bucharest		78·5	316	e 12 6	+ 2	i 21 54	− 7	—	—	32·7
Wellington		78·7	132	12 6	0	21 55	− 8	22 22	S_cS	38·2
Arapuni		78·9	129	12 16	+ 9	21 58	− 7	26 52	SS	39·7
Sofia		80·1	314	e 12 13	0	e 22 9	− 9	e 15 27	PP	e 34·2
Tuai		80·2	129	12 17	+ 3	22 7	−12	—	—	—
Belgrade		82·5	315	i 12 24	− 2	i 22 35	− 7	—	—	e 34·7
Kalossa	E.	83·8	317	12 34	+ 2	23 12	+17	—	—	55·7
Zagreb		85·8	316	12 42	0	e 23 8	− 7	e 23 26	S_cS	e 50·7
Upsala		86·3	330	e 12 40	− 5	i 23 16	− 4	i 24 41	PPS	e 43·7
Prague		87·2	321	12 49	0	23 22	− 6	e 16 10	PP	35·7
Triest		87·3	316	i 12 50	0	i 23 35	+ 6	i 13 23	P	—
Rome		88·0	312	i 12 53a	0	i 23 32	− 4	24 26	PS	—
Collmberg		88·1	322	i 12 54	0	e 23 38	+ 1	e 16 7	PP	e 36·7
Cheb		88·5	321	e 12 59	+ 3	e 23 44	+ 3	—	—	e 52·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		88·7	326	i 12 57	0	i 23 41	− 2	32 55	SSS	41·7
Florence		89·0	314	i 13 7	+ 9	i 23 49	+ 4	i 17 7	PP	—
Jena	E.	89·0	321	i 12 59	+ 1	e 23 41	− 4	e 25 24	PPS	—
Chur		90·3	317	i 13 4	0	e 23 48	− 9	—	—	e 53·7
Zürich		90·9	317	e 13 7	0	e 23 59	− 4	e 16 43	PP	—
Strasbourg		91·5	318	e 13 9	− 1	i 24 4	− 4	e 16 51	PP	i 37·7
Basle		91·6	317	e 13 11	+ 1	e 24 5	− 4	e 16 47	PP	—
Neuchatel		92·0	317	e 13 12	0	e 24 5	− 7	—	—	—
Bergen		92·5	331	i 13 15	+ 1	24 14	− 3	17 2	PP	36·7
Besançon		92·7	316	e 13 27	+12	e 24 17	− 1	e 16 40	PP	e 47·7
De Bilt		93·0	322	i 13 17a	0	i 24 18	− 3	e 17 10	PP	e 44·7
Uccle		93·6	321	13 19a	0	i 24 24	− 2	e 17 7	PP	e 42·7
Clermont-Ferrand		94·8	315	i 13 25a	0	—	—	—	—	e 39·7
Paris		94·9	319	i 13 24a	− 1	i 24 25	−12	e 16 47	PP	e 40·7
Algiers		95·4	307	13 39	+11	i 24 40	− 2	17 40	PP	38·7
Barcelona		95·8	312	e 13 34	+ 5	24 25	{+ 1}	i 28 51	?	e 47·2
Kew		96·5	322	i 13 28	− 4	i 24 46	− 5	i 17 26	PP	e 43·7
Aberdeen		96·7	328	i 13 18	−15	i 24 25	{− 6}	i 19 25	PPP	54·7
Durham		96·8	325	e 13 32	− 2	25 0	+ 6	17 30	PP	—
Tortosa		97·1	311	17 5	PP	24 53	− 3	19 17	PPP	e 56·7
Edinburgh		97·5	326	e 13 40	+ 3	e 24 32	{− 5}	e 17 40	PP	—
Alicante		98·1	309	e 13 26	−14	i 25 2	− 2	13 26	P	e 50·0
College		100·1	23	e 13 46	− 3	e 24 16	[−11]	e 17 46	PP	e 43·0
Granada		100·6	308	i 13 55k	+ 4	i 25 38	+13	i 17 36	PP	54·4
Toledo		100·6	310	e 14 0	+ 9	i 25 24	− 1	i 27 28	PS	48·5
Honolulu		102·2	68	e 18 7	PP	e 25 0	{−10}	e 27 41	PS	e 42·7
Reykjavik		103·7	338	e 18 22	PP	e 25 58	+ 7	e 33 15	SS	e 57·6
Lisbon		104·7	310	14 42?	+33	26 7	+ 7	18 30	PP	46·6
Sitka		108·7	27	e 14 44	P	i 25 4	[− 3]	e 18 19	PKP	i 45·2
Victoria		119·8	31	19 10	[+18]	30 8	PS	20 32	PP	54·7
Seattle		120·1	31	e 21 40	?	e 30 50	PS	e 31 44	PPS	e 52·5
Grand Coulee		122·4	29	e 18 56	[− 1]	—	—	e 20 42	PP	—
Saskatoon		124·2	19	19 13	[+12]	26 8	[+ 4]	20 48	PP	54·7
Shasta Dam		125·1	38	i 19 3	[0]	e 26 1	[− 5]	e 20 57	PP	—
Ukiah		125·4	40	e 20 53	PP	e 31 10	PS	e 23 52	PPP	e 50·1
Berkeley		126·8	40	e 19 8	[+ 2]	e 26 40	[+ 29]	e 20 52	PP	—
Butte		126·8	26	e 19 18	[+12]	e 27 51	{− 8}	e 21 16	PP	e 56·4
Santa Clara	E.	127·3	40	—	—	e 22 22	PKS	—	—	—
Logan		130·4	30	i 19 16	[+ 3]	i 22 55	PKS	i 21 35	PP	e 63·5
Santa Barbara		130·4	43	e 19 16	[+ 3]	i 22 34	PKS	e 21 25	PP	—
Haiwee	Z.	130·6	40	e 19 16	[+ 3]	—	—	—	—	—
Salt Lake City		131·1	31	e 19 16	[+ 2]	e 26 29	[+ 6]	i 21 30	PP	e 52·1
Mount Wilson	Z.	131·6	41	e 19 17	[+ 2]	i 32 12	SKKP	i 22 26	PKS	—
Pasadena		131·6	41	e 16 4	P	e 31 40	SKSP	i 19 16	PKP	e 55·7
Riverside	Z.	132·2	41	e 19 6	[−10]	—	—	i 19 17	PKP	—
Overton		132·5	37	e 19 14	[− 3]	—	—	e 23 0	PKS	—
Boulder City		132·6	38	e 19 6	[−11]	—	—	e 19 19	PKP	—
Seven Falls		132·9	351	19 19	[+ 1]	32 16	PS	21 42	PP	53·7
La Jolla		133·0	43	e 19 21	[+ 3]	—	—	—	—	—
Palomar		133·0	42	e 19 8	[− 10]	e 32 6	SKKP	i 19 19	PKP	—
Pierce Ferry		133·1	37	e 19 19	[+ 1]	—	—	e 23 2	PKS	—
Halifax		133·4	343	e 21 48	PP	i 22 51	PKS	e 39 40?	SS	50·7
Shawinigan Falls		133·7	352	19 22	[+ 3]	28 46	{+ 3}	21 42	PP	64·7
Ottawa		135·2	355	19 22	[0]	28 58	{+ 6}	21 54	PP	60·7
Lincoln		137·4	18	e 19 50	[+24]	e 29 3	{− 2}	e 22 15	PP	e 64·8
Harvard		137·5	349	i 19 27	[+ 1]	e 23 6	PKS	e 22 25	PP	e 68·7
Tucson		137·6	39	i 19 19	[− 7]	e 27 31	[+56]	e 22 12	PP	e 60·6
Weston		137·6	349	e 16 28	P	23 8	PKS	e 19 29	PKP	56·5
Chicago		138·5	8	e 19 35	[+ 7]	e 27 20	[+43]	e 22 11	PP	e 54·4
La Plata	E.	138·8	209	19 46	[+18]	41 10	SSP	23 2	PKS	63·7
	N.	138·8	209	20 22	[+54]	29 22	{+ 8}	32 40	PS	63·8
	Z.	138·8	209	25 58	PPP	—	—	27 58	?	67·0

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		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fordham		139·5	351	i 19 32	[+ 2]	i 23 24	PKS	i 22 29	PP	65·4
Pennsylvania	N.	139·9	356	e 22 27	PP	e 29 27	{+ 7}	e 23 17	PKS	—
Philadelphia		140·5	352	e 19 27	[− 4]	e 22 42	PKS	e 22 12	PP	e 51·7
Florissant		141·0	11	e 19 23	[− 9]	i 29 50	{+23}	i 22 22	PP	e 69·2
St. Louis		141·1	11	i 19 27	[− 5]	e 29 49	{+21}	i 22 30	PP	—
Georgetown		141·7	354	i 19 31	[− 2]	—	—	i 22 35	PP	—
Santa Lucia	N.	144·9	194	19 40?	[+ 1]	29 40?	{− 9}	41 40?	SS	67·7
Bermuda		145·0	336	i 19 48	[+ 9]	e 30 27	{+37}	e 23 10	PP	e 61·7
Columbia		146·8	0	e 19 44	[+ 2]	e 26 45	[− 4]	e 23 6	PP	e 60·7
Mobile		149·2	13	19 48	[+ 2]	—	—	—	—	—
Tacubaya		154·0	43	i 19 59	[+ 6]	—	—	—	—	—
Fort de France		156·1	305	e 20 0	[+ 4]	—	—	—	—	—
Vera Cruz		156·1	38	i 19 47	[− 9]	i 26 31	[−30]	e 20 3	PKP_2	e 74·6
San Juan		157·3	321	e 20 2	[+ 4]	e 26 56	[− 6]	i 20 25	PKP_2	e 58·0
La Paz		159·0	217	i 20 4	[+ 4]	26 44	[−20]	i 20 22	PKP_2	84·7
Huancayo		166·4	203	e 20 22	[+15]	e 31 43	{− 2}	i 45 3	SS	i 63·7
Balboa Heights		171·6	354	e 20 16	[+ 6]	—	—	(e 46 31)	SS	e 46·5
Bogota		172·3	302	i 18 40?	?	(39 40)	PPS	e 23 40?	PKS	39·7

Additional readings :—
Kodaikanal SSE =10m.8s.
Pehpei P =6m.24s.
Bombay SSN =13m.11s.
Perth PPP =8m.53s., SSS =14m.40s.
New Delhi SSE =14m.45s.
Tashkent ePPP =11m.51s., eS_cS =18m.38s., eSS =19m.58s.
Yokohama eS =15m.2s.
Irkutsk PPP =12m.33s., S_cS =19m.8s., SSS =22m.11s.
Tananarive P =9m.35s., iP =9m.44s., P_cP =10m.32s., PPP =12m.25s., S =16m.56s., i =17m.17s., ePS =17m.25s., S_cS =19m.17s., SS =20m.23s., SSS =22m.26s.
Mizusawa eSN =17m.28s.
Riverview iP_cPN =10m.46s., iPSEN =18m.15s., iS_cSN =19m.57s., eN =22m.45s., eQE =24m.52s.
Sverdlovsk PPP =14m.57s.
Helwan PPS =21m.13s., SS =25m.10s., SSS =28m.12s.
Christchurch iEZ =12m.8s., PPP =17m.5s., SEN =22m.1s., EN =25m.46s., SS =26m.51s., SSS =30m.15s., Q =31m.40s., SSSSZ =32m.20s.
Auckland PP =14m.25s., SSS? =29m.26s., Q =32m.40s.?
Wellington e =12m.35s., SS =27m.1s., SSS =29m.59s., Q =31m.58s.
Sofia eE =14m.34s. and 18m.57s.
Belgrade i =14m.21s., SS =29m.50s.
Kalossa eN =12m.40s.?, eE =13m.10s.
Zagreb e =35m.40s.?
Upsala iE =12m.52s., eE =15m.8s., eSKSE =23m.9s., iSN =23m.13s., SKKSN =23m.25s., iSKKSE =23m.32s., ePSE =23m.52s., e =25m.38s., eSSE =29m.1s., eSSN =29m.22s., eN =30m.10s., eSSS?N =34m.4s., eSSS?E =34m.22s., eN =34m.40s. and 35m.16s.
Prague eSS =28m.40s.
Triest iSKSE =23m.17s., iSSSE =33m.2s.
Rome SS =29m.29s.
Collmberg iZ =13m.4s., 13m.11s., and 13m.14s., iNZ =13m.21s., eZ =17m.54s., ePPPZ =18m.19s., eZ =18m.44s., iSKSN =23m.33s., eZ =24m.49s., eN =29m.24s.
Copenhagen 30m.21s., 34m.55s., and 36m.47s.
Jena eS?E =23m.59s., eS?N =24m.7s.,eN =25m.42s.
Zürich eSKS =23m.30s.
Strasbourg i =13m.32s., e =15m.39s., ePPS =25m.24s., iSSS =33m.54s.
Bergen eSKS =23m.54s., PPSE =25m.42s., eSSEN =30m.21s., eN =34m.6s.
De Bilt iPS =25m.33s., iSS =30m.56s., eSSS =34m.10s.
Uccle eE =13m.40s., eSKKSE =24m.13s., eSE =24m.32s., ePPS =26m.4s., eSSN =31m.10s., eSSSN =34m.31s.
Paris e =16m.27s., 18m.21s., 21m.7s., 21m.59s., 22m.23s., and 23m.1s., ePS =25m.54s., iPPS =26m.29s., S =30m.59s., eSS =31m.8s., eSSS? =35m.0s., e =37m.4s., and 38m.40s.
Algiers iS =25m.4s., i =25m.17s., iPS =26m.12s., PPS? =27m.8s., i =29m.15s., SS =31m,14s., e =36m.40s?.
Kew ePPP?Z =19m.21s., eSKSE =24m.1s., eSSE =31m.11s.?, ePS =26m.21s., ePPS =28m.51s., eSSSN =35m.40s.?, eQZ =40·7m.?.
Aberdeen eN =13m.40s.?, iPPE =16m.48s., iN =37m.40s. and 44m.30s.
Durham EN =14m.6s., N =17m.20s., SE =24m.19s., EN =24m.24s., SSN =31m.10s., E =31m.32s., N =31m.44s.
Tortosa PPSN =26m.59s., SSN =31m.49s., SSSN =35m.36s., eQN =45m.17s.
Edinburgh ePPP =19m.40s., PS =26m.13s.
Alicante PP =17m.36s., SKS =23m.36s., SKKS =24m.40s., SS =32m.28s., Q =43m.40s.

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College ePS =27m.10s., eSS =32m.58s.
Granada pPP =18m.16s., SKS =24m.43s., SS =32m.16s., SSS =36m.57s., Q =44·4m.
Toledo iSKSEN =25m.34s., PPSN =28m.33s., SSEN =32m.45s., iSSSN =36m.40s.
Honolulu eSS =32m.49s.
Reykjavik eN =23m.34s., eSSS?N =37m.10s., eN =43m.10s.
Lisbon PP?Z =18m.38s. and 18m.58s., PPS?E =28m.11s.?, SS?N =32m.34s.
Sitka iPP? =18m.52s., ePPP =21m.25s., iPS =28m.40s., i =29m.56s., iSS =34m.31s., iSSS =38m.39s.
Victoria SS =36m.40s.?, SSS =41m.40s.?
Seattle e =39m.52s.
Grand Coulee iPKP =19m.7s.
Saskatoon PS =31m.9s., SS =38m.13s., SSS =43m.15s.
Shasta Dam ePKS =22m.41s.
Ukiah eSS =38m.4s.
Berkeley eE =19m.14s., ePKS?E =22m.38s., ePS?Z =32m.43s., eSSE =38m.47s.
Butte eSS? =39m.12s., eSSS =43m.22s.
Logan ePS =31m.50s., eSS =40m.8s.
Salt Lake City iPKP =19m.26s., iPKS =22m.53s., e =28m.33s., 31m.35s., and 34m.13s., eSS =39m.39s., eSSS =44m.20s.
Mount Wilson iZ =19m.18s.
Pasadena ePKPZ =19m.3s., eZ =19m.11s., iZ =19m.25s., ePPNZ =21m.28s., iEZ =22m.1s., iSKPEZ =22m.36s., i =22m.45s., eSKKPZ =32m.7s., ePPSN =33m.22s., eSSN =40m.6s., eN =43m.44s.
Boulder City ePP? =22m.51s.
Seven Falls PPS =34m.16s., SS =39m.33s., SSS =44m.28s.
Palomar ePPZ =21m.44s.
Shawinigan Falls SKP =22m.49s., e =26m.34s., SKKS =31m.46s., PS =45m.40s.?
Ottawa PPSZ =34m.0s., SS =40m.14s., SSS =45m.4s.
Lincoln eSS? =40m.10s.
Harvard i =19m.57s., e =22m.4s., ePKS =23m.28s., e =25m.17s., eSS =40m.42s., eSSS =46m.30s.
Tucson i =19m.29s. and 19m.39s., iPP =22m.20s., iPKS =23m.15s., ePPS =34m.47s., eSSS =45m.11s.
Weston ePKP =19m.9s., PP =22m.4s., PS =26m.13s., SS =27m.12s., SSS =40m.48s.; readings wrongly identified.
Chicago e =22m.59s. and 32m.28s., eSS =40m.24s., e =46m.46s.
La Plata N =21m.10s. and 23m.41s., SSSN =41m.12s., QN =45m.28s., QE =45m.40s.
Fordham iSSS =47m.12s.
Pennsylvania ePPSN =35m.13s., eSS?N =40m.52s.
Philadelphia e =28m.2s., ePPS =32m.28s., iSSS =41m.36s., e =47m.3s.
Florissant iZ =19m.43s., ePPPE =25m.24s., eE =25m.57s. and 31m.53s., iPPSE =34m.53s., iE =37m.56s., eSSE =41m.10s.
St. Louis iZ =19m.34s. and 20m.1s., eE =23m.32s., iE =33m.39s., iN =36m.30s.
Bermuda e =21m.9s. and 33m.0s., eSS =41m.42s., eSSS =47m.20s.
Columbia eSKSP =33m.29s., ePPS =37m.7s., eSSS =47m.38s.
Mobile 25m.42s., 32m.22s., and 35m.35s.
Tacubaya iE =21m.50s., eN =24m.50s. and 25m.50s., eE =25m.57s., eSKPEN =34m.6s.
Vera Cruz eSKPE =23m.4s., iPPN =23m.53s., ePPN =24m.0s., iN =25m.28s., eE =26m.16s., eSKKSE =30m.28s., iE =70m.49s.
San Juan i =21m.56s., iPP =24m.14s., i =25m.21s., iSKKS =32m.16s., e =39m.5s., iPPS =39m.25s., iSS =43m.40s., i =49m.50s., iSSS =51m.51s.
La Paz iPPZ =24m.4s., SKKS =30m.52s., PSKS =34m.22s., PPS =37m.46s., SS =45m.20s., SSS =50m.8s.
Huancayo e =30m.6s., i =35m.54s. and 41m.32s., eSSS =51m.6s.

May 8d. 9h. 45m. 24s. Epicentre 3°·7S. 142°·2E. Focus at the base of superficial layers.

$A = -\cdot7896$, $B = +\cdot6103$, $C = -\cdot0641$; $\delta = +4$; $h = +7$;
$D = +\cdot611$, $E = +\cdot791$; $G = +\cdot051$, $H = -\cdot039$, $K = -\cdot998$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	N.	25·8	158	i 5 29	− 1	i 10 16	+22	i 6 0	PP —
Riverview		31·1	165	e 6 20	+ 3	i 11 28	+ 8	i 6 27	pP e 14·3
Miyazaki		36·9	345	7 13	+ 6	12 47	− 3	—	— e 14·8
Perth		37·5	218	7 21	+ 9	13 13	+14	i 9 1	PPP —
Hukuoka		38·7	345	7 24	+ 2	e 13 13	− 4	—	— 16·2
Misima		38·7	356	e 7 26	+ 4	13 10	− 7	—	— —
Yokohama		39·0	358	e 7 28	+ 3	13 11	−10	—	— e 16·6
Tokyo		39·2	358	e 7 32	+ 5	13 14	−10	—	— —
Nagano		40·3	355	7 41	+ 5	13 33	− 8	—	— —
Sendai		41·8	359	7 49	0	—	—	—	— —

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	42·6	359	7 53	− 2	13 58	−17	—	—	—
	N.	42·6	359	7 47	− 8	14 7	− 8	—	—	—
Morioka		43·2	358	e 8 2	+ 2	14 16	− 8	—	—	—
Auckland		44·5	142	9 27	PP	14 36	− 6	13 22	PcS	18·2
Mori		45·6	358	e 7 19	−60	—	—	—	—	—
Arapuni		45·8	143	—	—	e 15 48	+47	e 20 36	?	24·0
Sapporo		46·6	359	e 8 22	− 5	(e 15 2)	−11	—	—	e 15·0
Tuai		47·2	143	8 11	−20	8 38	P	—	—	—
Wellington	Z.	47·4	147	e 3 6	?	—	—	e 28 36	?	35·8
Christchurch		47·9	150	8 39	+ 2	15 16	−15	8 45	pP	22·9
Colombo	E.	63·2	279	10 26	− 1	18 56	+ 1	—	—	—
Honolulu		63·7	64	e 10 47	pP	i 19 0	− 1	—	—	e 27·4
Irkutsk		64·4	335	10 30	− 5	i 19 9	− 1	—	—	—
Kodaikanal	E.	66·0	283	i 10 41	− 4	i 19 31	+ 2	13 6	PP	32·4
Hyderabad	N.	66·4	291	10 47	− 1	19 34	0	20 2	PS	32·6
Dehra Dun	N.	70·0	304	e 11 18	+ 8	e 20 34	+17	—	—	—
New Delhi	N.	70·2	302	i 11 8	− 3	i 20 18	− 1	20 41	PS	—
Bombay	N.	71·9	292	e 11 24	+ 2	e 20 45	+ 6	—	—	36·7
Frunse		76·4	315	e 11 45	− 3	e 21 31	+ 2	—	—	—
Andijan		77·4	312	e 11 52	− 1	e 21 43	+ 3	—	—	—
Stalinabad		79·5	310	i 12 7	+ 2	i 22 7	+ 4	—	—	—
Tashkent		79·8	313	i 12 4?	− 2	e 22 5?	− 1	e 15 8	PP	—
Tchimkent		79·8	314	i 12 3	− 3	—	—	—	—	—
Samarkand		81·1	311	12 6	− 7	22 13	− 6	—	—	—
College		84·9	24	e 12 24	− 9	i 22 46	[− 5]	—	—	e 34·5
Sverdlovsk		88·5	327	i 12 45	− 5	23 10	[− 5]	i 15 53	PP	—
Sitka		89·0	32	i 12 48	− 5	i 23 16	[− 2]	i 23 38	S	e 36·7
Tananarive		93·3	251	i 17 28	PP	23 50	[+ 7]	25 48	PS	49·8
Victoria		95·6	42	13 10	−13	23 52	[− 4]	30 54	SS	43·6
Ukiah		95·8	51	e 16 56	PP	e 23 53	[− 4]	e 24 40	S	e 31·2
Shasta Dam		96·4	49	e 13 20	− 7	e 24 36	− 5	e 17 21	PP	—
Berkeley		96·6	52	e 13 28	0	e 23 55	[− 6]	e 26 2	PS	e 43·1
Santa Clara	E.	96·8	52	—	—	e 24 0	[− 2]	—	—	—
Grozny		97·3	313	17 10	PP	—	—	—	—	—
Grand Coulee		98·6	42	e 17 41	PP	—	—	—	—	—
Santa Barbara		98·7	56	e 13 38	+ 1	—	—	e 17 40	PP	—
Leninakan		98·9	311	e 13 48	+10	—	—	—	—	—
Piatigorsk		99·2	314	18 46	?	—	—	—	—	—
Tinemaha	Z.	99·8	53	e 13 44	+ 2	—	—	—	—	—
Mount Wilson	Z.	100·0	56	e 13 38	− 5	—	—	—	—	—
Pasadena		100·0	56	e 13 38	− 5	i 24 18	[0]	i 13 43	P	e 40·7
Riverside	Z.	100·6	56	e 13 44	− 2	—	—	—	—	—
Palomar		101·1	57	e 13 52	+ 4	e 24 27	[+ 3]	e 17 51	PP	—
Boulder City		102·6	54	e 13 54	− 1	—	—	e 18 2	PP	—
Overton		102·8	53	e 13 57	+ 1	—	—	—	—	—
Pierce Ferry		103·2	54	e 14 0	+ 3	—	—	e 18 9	PP	—
Logan		104·3	47	e 18 17	PP	e 24 41	[+ 3]	e 27 34	PS	e 48·1
Salt Lake City		104·4	48	e 18 27	PP	i 24 33	[− 6]	e 20 25	PPP	e 55·3
Ksara		105·7	304	e 18 33	PP	e 27 55	PS	—	—	—
Saskatoon		105·8	37	—	—	e 24 45	[0]	e 27 40	PS	43·3
Tucson		106·2	57	e 14 12	P	e 24 42	[− 5]	e 18 33	PP	e 41·9
Helwan		110·0	300	e 14 27	P	28 42	PS	19 6	PP	—
Upsala		110·0	333	e 18 36?	[+ 8]	e 28 15	PS	e 30 3	PPS	e 52·6
Bucharest		111·1	316	23 36?	?	—	—	—	—	—
Bergen		114·3	338	e 15 25	?	e 29 5	PS	e 19 32	PP	—
Copenhagen		114·5	332	i 19 31	PP	i 28 56	PS	35 31	SS	55·6
Belgrade		114·8	318	e 19 31	PP	e 29 59	PS	—	—	58·6
Prague		116·3	326	e 15 4	?	e 29 17	PS	e 19 36	PP	e 59·6
Collmberg		116·5	327	e 18 39	[− 2]	—	—	e 19 48	PP	e 53·6
Zagreb		117·3	321	e 18 36?	[− 7]	—	—	e 19 53	PP	e 60·6
Cheb		117·5	327	e 17 54	[−49]	e 29 39	PS	e 19 51	PP	e 59·6
Jena	N.	117·5	327	e 19 25	PP	—	—	—	—	—
Triest	E.	118·8	322	e 20 7	PP	—	—	—	—	—
Aberdeen	E.	119·7	338	i 20 11	PP	i 36 36	SS	i 22 41	PPP	e 54·1
De Bilt		120·1	331	e 18 46?	[− 2]	e 29 59	PS	e 20 14	PP	e 56·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Strasbourg		120·8	327	e 20 10	PP	e 30 0	PS	—		—	e 59·6
Florissant		120·9	46	i 20 22	PP	e 25 42	[− 2]	e 30 8		PS	e 59·0
St. Louis		121·0	46	e 20 16	PP	e 25 46	[+ 2]	e 30 1		PS	e 59·1
Edinburgh		121·1	338	e 20 13	PP	—	—	—		—	—
Durham		121·3	336	e 20 18	PP	30 13	PS	22 59		PPP	—
Florence		121·3	320	e 20 7	PP	i 31 19	PPS	—		—	—
Rome		121·3	318	e 15 16	P	25 45	[0]	18 50		PKP	—
Uccle		121·3	331	e 20 21	PP	e 27 19	SKKS	22 56		PPP	e 54·6
Chicago		121·5	42	—	—	e 25 40	[− 6]	e 30 4		PS	e 49·7
Kew		123·1	333	e 15 24?	?	e 25 41?	[−10]	e 18 57?		PKP	e 64·1
Paris		123·5	329	e 18 49	[− 6]	e 28 19	SKKS	i 20 31		PP	e 33·0
Clermont-Ferrand		125·1	326	i 20 48	PP	—	—	—		—	e 60·3
Ottawa		126·8	32	18 58	[− 3]	27 48	SKKS	20 54		PP	54·6
Seven Falls		128·1	28	e 22 0	?	—	—	e 33 36		?	37·6
Barcelona		128·2	323	e 21 0	PP	—	—	—		—	e 63·9
Tortosa	E.	129·6	322	18 43	[−23]	22 29	PKS	—		—	e 66·6
Algiers		130·2	316	i 14 21	?	i 22 32	PKS	e 21 16		PP	e 36·6
Philadelphia		130·5	37	e 21 1	PP	e 26 8	[− 4]	e 21 31		PP	e 51·7
Harvard		131·0	32	e 19 1	[− 8]	e 22 31	PKS	e 21 28		PP	e 64·6
Weston		131·2	32	e 19 5	[− 4]	e 22 30	PKS	i 21 33		PP	—
Alicante		131·6	321	19 32	[+22]	26 24	[+ 9]	21 39		PP	e 67·4
Toledo		132·9	324	e 19 15	[+ 2]	i 22 42	PKS	21 36		PP	60·6
Granada		134·3	322	e 19 20a	[+ 5]	i 22 47	PKS	i 21 48		PP	i 68·1
Lisbon	Z.	136·5	327	19 23k	[+ 4]	22 54	PKS	22 1		PP	—
Huancayo		139·4	113	e 22 22	PP	e 26 29	[0]	i 23 12		PKS	e 53·8
Bermuda		141·9	38	e 19 6	[−23]	e 32 42	PS	e 22 43		PP	e 55·4
La Paz		143·8	125	i 19 32	[0]	27 24	[+48]	23 6		PKS	69·3
San Juan		148·6	59	e 19 41	[+ 1]	e 26 45	[+ 2]	e 23 43		PP	e 69·1
Fort de France		154·4	63	e 19 53	[+ 4]	—	—	—		—	—

Additional readings :—
Riverview iSSN =13m.11s., iSSSN =13m.38s.
Perth i =14m.54s.
Auckland P_cS =16m.24s., S_cS? =20m.16s.
Christchurch PPZ =10m.34s., E =11m.24s., P_cSEZ =13m.57s., S_cSEN =18m.13s., SSEZ =18m.54s., QEN =19m.15s.
Kodaikanal SSE =23m.43s.
Hyderabad SSN =24m.6s.
New Delhi S_cSN =21m.5s.
Tashkent ePPP =17m.2s.
College e =27m.22s., eSSS =31m.18s.
Sverdlovsk ePS =24m.27s.
Sitka i =24m.36s., e =24m.55s. and 28m.55s., eSS =29m.10s., eSSS =32m.54s.
Tananarive SS? =30m.32s.
Victoria SSSE =34m.30s.
Ukiah e =25m.56s. and 30m.8s.
Shasta Dam iP =13m.23s., eSKS =23m.56s.
Berkeley ePPS?N =26m.46s., eSSE =31m.19s., eSSS?Z =34m.42s.
Pasadena ePPEZ =17m.44s., iE =26m.40s.
Boulder City ePS =17m.34s.
Logan eSS? =33m.21s.
Salt Lake City ePS =27m.20s., eSS? =33m.4s.
Saskatoon e =33m.36s.
Tucson iPP =18m.40s., ePS =27m.42s., eSS? =33m.18s.
Helwan e =18m.0s., PPS =29m.48s.
Upsala eN =28m.21s., 34m.24s., and 44m.36s.?
Bergen eE =27m.21s., eN =35m.36s.?
Copenhagen 27m.10s., SSS =39m.48s.
Belgrade e =22m.52s. and 27m.53s.
Prague e =23m.12s., 26m.36s., and 30m.36s.
Cheb e =22m.31s.
Aberdeen iE =27m.58s.
De Bilt ePPP =22m.46s., eSS =36m.58s.
Strasbourg ePPP =22m.32s., e =44m.34s.
Florissant iSKKSE =27m.12s., eSN =28m.9s., eSSE =37m.11s., eSSSE =41m.2s.
St. Louis iSKKSE =27m.13s., eSN =28m.11s., eSSE =36m.40s., eSSSN =41m.13s., iN =43m.10s.
Durham N =36m.37s., E =37m.52s., EN =40m.10s.
Rome PP =20m.12s., SSS =22m.42s., SKKS =27m.2s., PS =30m.6s., PPS =31m.24s.
Uccle eSKP =21m.52s., eN =24m.51s., eSN =28m.16s., eEN =30m.0s., ePSN =30m.10s., eSSE =37m.0s., eN =37m.37s.

Continued on next page.

Chicago e =27m.8s., eSS =36m.52s.
Kew iPP =20m.34s., iPPP =23m.6s., eZ =23m.53s. and 26m.41s.?, eSKKS =27m.27s.?, ePS =30m.28s., ePPSZ =31m.41s., ePPSEN =32m.3s., eSSE =36m.21s.?, eSSNZ = 37m.21s.?, eQN =48m.36s.?
Paris iPPP =23m.12s., e =26m.35s., ePS =30m.32s., ePPS =31m.50s.
Ottawa PPS =32m.36s.?, SS =38m.0s.
Algiers i =27m.56s., iPS? =32m.26s.
Philadelphia e =25m.38s., ePS =31m.13s., e =32m.51s. and 36m.9s., eSS =38m.1s., e =48m.57s.
Harvard e =31m.31s. and 34m.28s.
Weston i =19m.13s.
Alicante SKP =22m..36s., PPP =24m.28s., PS =32m.26s., SS =39m.6s., Q =56m.4s.
Toledo PSE =32m.44s., iPPSE =33m.24s., QE =54m.54s.
Granada pPKP =22m.19s., iPP =24m.11s., pPP =24m.49s., sPP =25m.41s., SKKS = 30m.20s., ePPS =37m.29s., SS =41m.21s. : readings wrongly identified.
Lisbon E =25m.18s., Z =25m.22s., N =25m.54s. and 34m.37s., E =35m.47s., 62m.0s., and 68m.12s.
Huancayo iSKKS =29m.18s., e =32m.40s., ePPS =35m.12s., iSS =40m.55s.
Bermuda ePKP =19m.46s., eSS =40m.56s.
La Paz PPP =25m.48s., SKKS =30m.16s., PSKS =34m.10s., PS =42m.36s.
San Juan eSKKS =29m.59s., eSS =42m.20s., e =55m.3s.
Long waves were also recorded at Malaga, Neuchatel, Besançon, and La Plata.

May 8d. 15h. 53m. 52s. Epicentre 19°·5S. 69°·4W. (as on 1943, March 14d.).

A = +·3319, B = −·8830, C = −·3318 ; δ = −6 ; h = +4 ;
D = −·936, E = −·352 ; G = −·117, H = +·311, K = −·943.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		3·1	169	i 0 48	− 3	i 1 19	−10	i 0 26	?	i 1·5
La Paz	Z.	3·2	22	i 1 20	+28	i 1 58	+26	—	—	—
Santa Lucia		13·9	184	3 19	− 2	—	—	3 25	?	5·9
La Plata	E.	18·4	150	4 10	− 8	7 40	− 1	8 14	SSS	10·8
	N.	18·4	150	4 7	−11	7 40	− 1	8 21	SSS	10·2
Bogota		24·4	349	i 5 26	+ 5	e 9 49	+10	i 5 48	PP	e 13·1
Fort de France		35·0	15	e 6 55	− 1	—	—	—	—	—
San Juan		37·8	6	e 7 15	− 5	i 13 0	−11	e 8 52	PP	e 16·4
St. Louis		61·0	342	i 10 17	− 1	i 18 29	− 6	i 19 10	PPS	—
Florissant	E.	61·2	342	—	—	e 18 32	− 6	e 19 10	PPS	—
Harvard		61·7	358	i 10 22	0	—	—	—	—	—
Tucson		64·9	322	i 10 45	+ 2	—	—	e 11 54	?	—
Palomar	N.	69·4	319	i 11 14	+ 2	—	—	—	—	—
Riverside	Z.	70·1	319	i 11 18	+ 2	—	—	i 11 47	PcP	—
Mount Wilson	Z.	70·7	319	i 11 21	+ 1	—	—	—	—	—
Pasadena		70·7	319	i 11 20	0	—	—	—	—	—
Haiwee	Z.	71·9	321	e 11 27	0	—	—	i 11 34	PcP	—
Tinemaha	Z.	72·7	321	e 11 55	PcP	—	—	—	—	—
Shasta Dam		77·5	322	i 11 58	− 1	—	—	—	—	—
Granada		83·7	47	i 12 32k	0	i 22 48	− 6	12 58	pP	e 40·0
Toledo	Z.	84·8	45	i 12 34	− 3	—	—	—	—	—
Alicante		86·5	47	—	—	e 22 40	[−31]	—	—	e 38·4
Chur		96·7	42	e 17 24	PP	—	—	—	—	—

Additional readings :—
Santa Lucia PE =3m.22s.
La Plata N =4m.15s., E =7m.13s. and 7m.25s.
Bogota e =10m.24s.
San Juan e =7m.41s., 13m.42s., and 15m.48s.
St. Louis iZ =10m.50s., esS?E =20m.0s., eE =20m.43s.
Florissant eE =20m.45s.
Granada PcP =12m.41s., SS =27m.53s.

May 8d. 19h. Undetermined shock.

Sitka eP? =22m.41s., i =22m.55s., eL =28m.17s.
College e =24m.52s., eL =25m.47s.
Shasta Dam iP =24m.56s.
Tinemaha iPZ =25m.39s., eZ =25m.46s. and 25m.53s.
Haiwee ePZ =25m.45s.
Mount Wilson iPZ =25m.55s., eZ =26m.13s.
Pasadena iPZ =25m.55s., eZ =26m.12s.
Riverside iPZ =26m.0s.
Boulder City iP =26m.2s., i =26m.24s.
Overton e =26m.4s.
Pierce Ferry iP =26m.5s.
Palomar iP =26m.7s., eZ =26m.18s.
Tucson iP =26m.43s.
St. Louis iPZ =27m.41s., iZ =27m.48s.

May 8d. Readings also at 0h. (Shasta Dam and near Pierce Ferry), 2h. (near Mizusawa), 5h. (Ksara), 7h. (near Granada), 8h. (near Mizusawa), 9h. (Bogota), 12h. (Tucson, Pierce Ferry, Boulder City, Overton, Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, and Brisbane), 13h. (Erevan), 15h. (Riverview, Brisbane, near Leninakan, and Grozny), 17h. (San Juan), 18h. (La Plata, Tinemaha, Haiwee, Mount Wilson, Pasadena, Riverside, Palomar, Tucson (2), near Overton, Pierce Ferry, and Boulder City, near Tacubaya, Oaxaca, and near Santa Lucia), 20h. (near Mizusawa).

May 9d. 4h. 10m. 33s. Epicentre 40°·6S. 177°·0E. (as given by Wellington).

Wellington suggest a focal depth less than 25km.

A = −·7605, B = +·0399, C = −·6482 ; δ = +12 ; h = −2 ;
D = +·052, E = +·999 ; G = +·647, H = −·034. K = −·762.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hastings		1·0	355	0 17?	− 4	0 29	− 7	—	—	—
Bunnythorp		1·1	287	0 21	− 1	0 37	− 2	—	—	—
Wellington		1·8	248	0 31	− 1	0 54	− 2	—	—	—
Tuai		1·8	4	0 33	+ 1	0 55	− 1	—	—	—
New Plymouth		2·7	304	0 53	P_g	1 33?	S_g	—	—	—
Christchurch		4·4	227	—	—	1 52	−10	—	—	—
Kaimata		4·6	243	—	—	1 59	− 8	—	—	—
Riverview		21·6	280	e 4 53	− 1	e 8 58	+ 9	i 9 12	SS	e 9·5
Brisbane	N.	23·7	296	i 5 17	+ 3	e 9 50	+23	—	—	—

Riverview gives also iE =9m.9s.
Long waves were also recorded at Kodaikanal.

May 9d. 19h. 49m. 12s. Epicentre 42°·9N. 44°·5E.

Epicentre 42°44′N. 44°22′E. Depth 25km. (U.S.S.R.).

A = +·5241, B = +·5150, C = +·6782 ; δ = −14 ; h = −3 ;
D = +·701, E = −·713 · G = +·484, H = +·475, K = −·735.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grozny	1·0	66	i 0 20	− 1	i 0 37	+ 1	i 0 24	P*	—
Piatigorsk	1·5	317	e 0 29	+ 1	i 0 55	+ 6	—	—	—
Leninakan	2·2	193	0 34	− 4	i 1 0	− 6	i 0 42	P*	—
Erevan	2·7	180	0 42	− 3	i 1 16	− 3	0 48	P*	—
Sotchi	3·5	281	1 6	P*	i 1 54	S_g	—	—	—
Ksara	11·3	220	e 2 50?	+ 4	e 5 30	SSS	—	—	—
Bucharest	13·4	282	2 48?	−26	—	—	—	—	—
Moscow	13·6	344	3 16	− 1	5 47	− 3	—	—	—
Sofia	15·5	276	e 3 46	+ 4	—	—	e 12 24	P_gS	—
Helwan	16·8	223	e 3 51	− 7	e 7 14	+ 9	e 7 32	SS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Samarkand		17·2	94	4 6	+ 3	—	—	—	—	—
Belgrade		17·4	285	i 4 9	+ 3	—	—	—	—	—
Kalossa	N.	18·5	293	e 4 22	+ 3	—	—	e 4 38	PP	—
Tashkent		18·5	86	e 4 11	− 8	e 7 42	− 2	—	—	—
Stalinabad		18·9	94	i 4 21?	− 3	i 7 49?	− 4	—	—	—
Zagreb		20·6	289	e 4 42	− 1	—	—	—	—	—
Andijan		20·8	87	e 4 45?	0	—	—	—	—	—
Prague		21·8	301	e 4 21	−35	e 9 20	SS	—	—	—
Collmberg	Z.	22·9	303	e 5 8	+ 2	—	—	e 6 2	PPP	—
Almata		23·6	76	5 22?	+ 9	—	—	—	—	—
Rome		23·6	280	e 5 13	0	9 37	+12	e 6 29	PPP	—
Upsala		23·6	325	e 9 20	S	(e 9 20)	− 5	i 12 41	P_eS	e 12·8
Jena	E.	23·7	302	e 5 16	+ 2	—	—	—	—	—
Copenhagen		24·3	314	i 5 22	+ 2	9 58	+21	—	—	12·8
Chur		25·0	292	e 5 26	− 1	—	—	—	—	—
Zürich		25·6	294	e 5 31	− 1	—	—	—	—	—
Strasbourg		26·1	297	e 6 12	PP	e 10 53	+46	—	—	16·8
Basle		26·3	294	e 5 34	− 5	—	—	—	—	—
De Bilt		27·8	305	—	—	e 9 48?	−47	—	—	—
Toledo	Z.	36·1	282	i 7 4	− 1	—	—	—	—	—
Granada		36·9	278	7 20	+ 8	e 16 58	S_eS	—	—	23·6
St. Louis	Z.	89·0	326	e 12 57	− 1	—	—	—	—	—

Additional readings :—
Leninakan i = 0m.54s.
Erevan iP_g = 0m.51s.
Sotchi i = 1m.21s., iS_g = 2m.7s.
Belgrade i = 4m.13s., e = 5m.38s.
Kalossa eE = 5m.19s.
Collmberg iZ = 5m.15s.
Upsala eE = 9m.34s.
Long waves were also recorded at other European stations.

May 9d. 22h. 27m. 29s. Epicentre 38°·6N. 143°·1E. Depth of focus 0·005.
(as on 1939, October 10d.).

Intensity IV at Matsuo (Iwate Pref.); II-III at Miyako and Morioka.
Epicentre 39°·0N. 143°·3E. Focal depth 40km.
Macroseismic radius between 200-300km.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p. 12, isoseismic chart, p. 12.

A = −·6266, B = +·4704, C = +·6213; δ = −8; h = −1;
D = +·600, E = +·800; G = −·497, H = +·373, K = −·784.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Miyako		1·4	320	0 14a	−10	0 31	−12	—	—	—
Mizusawa	E.	1·6	289	i 0 25	− 2	0 39	− 8	—	—	—
Sendai		1·8	259	0 29a	− 1	1 3	+11	—	—	—
Morioka		1·9	306	0 24a	− 7	0 48	− 6	—	—	—
Hukusima		2·3	248	0 38	+ 1	1 15	+11	—	—	—
Onahama		2·5	226	0 38	− 1	1 22	+13	—	—	—
Mito		3·0	223	0 48	+ 1	1 42	+20	—	—	—
Kakioka		3·3	224	0 53a	+ 2	—	—	—	—	—
Utunomiya		3·3	231	0 50	− 1	—	—	—	—	—
Tukubasan		3·4	227	0 52a	0	1 35	+ 3	—	—	—
Kumagaya		3·8	232	0 29	−29	1 18	−24	—	—	—
Maebasi		3·9	237	1 3	+ 4	—	—	—	—	—
Tokyo		3·9	225	1 8	+ 9	2 18	+34	—	—	—
Mori		4·1	332	0 53	− 9	—	—	—	—	—
Yokohama		4·2	223	1 8	+ 5	2 5	+13	—	—	—
Nagano		4·3	246	1 9	+ 4	2 1	+ 7	—	—	—
Mera		4·4	217	1 15	+ 9	1 47	−10	—	—	—
Hunatu		4·7	230	1 16	+ 6	2 17	+13	—	—	—
Sapporo		4·7	343	0 53	−17	1 55	− 9	—	—	—
Misima		4·8	226	1 14	+ 2	2 24	+17	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toyama		5·0	250	1 19	+ 5	2 56	+44	—	—	—
Nemuro		5·1	21	1 8	− 8	1 46	−28	—	—	—
Wazima		5·1	258	1 25	+ 9	2 41	+27	—	—	—
Shizuoka		5·3	228	1 21	+ 2	2 48	+29	—	—	—
Omaesaki		5·6	227	1 44	+21	3 7	+40	—	—	—
Hikone		6·4	241	1 38	+ 4	3 3	+17	—	—	—
Kameyama		6·5	237	1 48	+13	3 30	+41	—	—	—
Owase		7·2	234	1 57	+12	3 19	+13	—	—	—
Osaka		7·3	240	2 7	+21	4 27	?	—	—	—
Kobe		7·5	241	1 51k	+ 1	3 34	+20	—	—	—
Hukuoka		11·4	248	2 55	+13	6 2	?	—	—	—
Kumamoto		11·6	244	2 47	+ 2	—	—	—	—	—
Miyazaki		11·6	239	3 13	+28	5 49	+55	—	—	—
Irkutsk		30·1	311	6 2	− 4	—	—	e 8 43	PcP	—
College		47·1	33	—	—	e 15 9	− 5	—	—	e 21·9
Almata		49·0	300	e 8 43	+ 1	—	—	—	—	—
Calcutta	N.	49·1	268	e 5 32	?	i 15 21	−21	—	—	—
Andijan		53·1	296	e 9 14	+ 1	e 16 44	+ 7	—	—	—
Sitka		54·3	41	—	—	e 16 56	+ 3	e 22 39	SSS	e 28·7
New Delhi	N.	54·8	281	—	—	e 17 1	+ 1	—	—	—
Sverdlovsk		54·9	319	i 9 21	− 5	i 17 2	+ 1	—	—	—
Tashkent		55·0	299	e 9 25?	− 2	e 17 4?	+ 2	—	—	—
Stalinabad		56·5	296	i 9 36	− 2	e 17 23	+ 1	—	—	—
Samarkand		57·3	297	9 38	− 6	—	—	—	—	—
Bombay		63·2	274	e 10 26	+ 2	—	—	—	—	—
Moscow		66·8	324	10 41	− 6	19 31	− 2	—	—	—
Shasta Dam		69·1	55	e 10 48	−13	—	—	—	—	—
Grozny		69·4	310	11 2	− 1	—	—	—	—	—
Leninakan		72·0	309	11 17	− 2	—	—	—	—	—
Tinemaha	Z.	73·8	56	e 11 25	− 4	—	—	—	—	—
Mount Wilson	Z.	75·6	58	e 11 39	− 1	—	—	—	—	—
Pasadena	Z.	75·6	58	e 11 41	+ 1	—	—	—	—	—
Riverside	Z.	76·2	58	e 11 43	0	—	—	—	—	—
Palomar	Z.	77·0	58	e 11 38	−10	—	—	—	—	—
Copenhagen		77·1	335	11 48	0	21 41	+11	—	—	38·5
Collmberg	Z.	80·4	332	e 12 3	− 3	—	—	e 12 12	PcP	e 42·5
Prague		80·5	330	—	—	e 22 1?	− 6	—	—	e 44·5
Ksara		81·3	306	e 11 59?	−12	e 22 22?	+ 7	—	—	—
Tucson		81·6	55	e 12 10	− 2	—	—	—	—	—
De Bilt		82·5	336	i 12 14s	− 3	e 22 29	+ 2	e 15 22	PP	e 40·5
Kew		84·8	338	i 12 48	+19	e 22 50	0	e 15 46?	PP	e 46·5
Chur		85·3	330	e 12 25	− 6	—	—	—	—	—
Basle		85·5	332	e 12 30	− 2	—	—	—	—	—
Paris		86·2	336	e 12 31?	− 4	—	—	—	—	e 46·5
Helwan		86·8	306	i 12 37k	− 1	e 23 8	− 1	12 48	PcP	—
Rome		88·1	326	e 12 42	− 3	23 11	[+ 5]	16 38	PP	48·9
Florossant		88·7	39	e 12 49	+ 2	i 23 27	0	—	—	—
St. Louis		88·9	39	e 12 47	− 1	i 23 29	0	e 29 23	SS	—

Additional readings :—
Collmberg eZ =13m.6s.
Helwan PP? =15m.58s., PS? =23m.55s.
Rome eN =24m.55s.
St. Louis iPZ =12m.50s.
Long waves were also recorded at Weston, and at other European stations.

May 9d. 23h. 34m. 25s. Epicentre 22°·8N. 108°·0W.

$A = -2852$, $B = -\cdot8776$, $C = +\cdot3853$; $\delta = -2$; $h = +4$;
$D = -\cdot951$, $E = +\cdot309$; $G = -\cdot119$, $H = -\cdot366$, $K = -\cdot923$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mazatlan	Z.	1·5	76	0 30	+ 2	(0 49)	0	—	—	0·8
Guadalajara	N.	4·8	115	e 1 15	0	—	—	—	—	i 2·4
Chihuahua	Z.	6·1	16	i 1 36	+ 2	—	—	—	—	i 3·1
Tacubaya		8·9	111	e 2 19	+ 7	i 4 29	S*	—	—	i 4·7
Tucson		9·7	347	i 2 21	− 1	i 4 10	− 5	i 2 42	PPP	i 4·4
Vera Cruz		11·7	106	i 2 51	0	e 5 14	+10	—	—	e 5·9
La Jolla		12·9	323	e 3 13	+ 6	—	—	—	—	—
Palomar		13·1	325	i 3 7	− 3	—	—	—	—	—
Riverside		13·9	326	e 3 19	− 2	—	—	—	—	—
Pierce Ferry		14·2	340	i 3 24	0	—	—	—	—	i 8·0
Boulder City		14·4	337	i 3 26	− 1	—	—	i 3 53	PPP	e 7·0
Mount Wilson		14·4	324	i 3 26	− 1	—	—	—	—	—
Pasadena		14·4	324	i 3 26k	− 1	i 6 11	+ 2	e 6 33	SSS	—
Overton		14·8	339	i 3 30	− 2	—	—	i 3 49	PPP	—
Santa Barbara		15·5	321	i 3 39	− 3	—	—	—	—	—
Haiwee		15·8	329	i 3 45	0	—	—	—	—	—
Tinemaha		16·8	331	e 3 55	− 3	—	—	—	—	—
Merida		17·2	94	i 3 56	− 7	e 7 12	− 2	e 7 30	SS	—
Salt Lake City		18·2	352	i 4 15	− 1	e 7 53	+16	e 4 37	PPP	i 8·6
Lick	E.	18·7	324	e 4 24	+ 2	e 7 58	+10	e 9 14	L	(e 9·2)
Santa Clara		18·8	324	e 4 47	PPP	e 8 5	+15	—	—	e 9·0
Branner		19·0	324	e 3 49	−37	—	—	e 4 28	P	e 9·3
Logan		19·2	352	i 4 28	0	e 8 50	SSS	i 5 3	PPP	e 10·1
Berkeley		19·4	324	4 30	0	8 11	+ 7	—	—	8·9
Mobile		19·4	61	4 23	− 7	8 16	+12	—	—	—
Lincoln		20·4	25	i 4 44	+ 3	i 8 26	+ 1	e 5 48	?	i 11·0
Ukiah		20·8	326	e 4 47	+ 2	e 8 44	+11	—	—	e 9·8
Cape Girardeau	N.	21·5	44	e 4 54	+ 2	e 8 58	+11	—	—	—
Shasta Dam		21·6	330	e 4 49	− 5	e 8 58	+ 9	—	—	—
Florissant		21·9	40	e 4 55	− 2	i 8 59	+ 5	i 9 57	SSS	i 10·7
St. Louis		21·9	40	i 4 56	− 1	i 8 59	+ 5	i 5 21	PP	i 10·6
Bozeman		23·0	355	e 5 3	− 4	i 9 22	+ 8	e 5 43	PP	e 11·0
Butte		23·5	353	e 5 10	− 2	e 9 21	− 2	e 5 38	PP	e 12·3
Chicago		25·5	36	e 5 35	+ 3	e 10 5	+ 8	e 6 20	PPP	e 11·6
Columbia		26·2	58	e 6 14	PP	e 10 13	+ 4	—	—	e 12·3
Grand Coulee		26·6	344	e 5 41	− 1	e 10 20	+ 4	e 11 30	SS	—
Seattle		27·3	339	e 9 27	PcP	e 10 27	0	e 14 5	?	e 15·5
Victoria		28·4	339	6 5	+ 7	10 49	+ 4	6 59	PPP	14·1
Saskatoon		29·3	2	5 59	− 7	11 6	+ 7	—	—	14·6
Georgetown		30·8	51	e 6 19	− 1	i 11 34	+11	—	—	16·1
Philadelphia		32·6	51	e 6 37	+ 2	e 11 30	−21	e 7 47	PP	e 13·4
Fordham		33·8	50	e 7 0	+14	e 12 9	− 1	—	—	e 17·0
Ottawa		34·6	41	6 51	− 2	12 19	− 3	—	—	15·6
Harvard		36·1	48	e 7 4	− 1	e 12 51	+ 6	—	—	e 19·1
Weston		36·2	48	e 6 57	− 9	e 12 48	+ 1	—	—	—
Seven Falls		38·4	41	e 7 35	+10	e 13 11	− 9	e 9 1	PP	16·1
Bermuda		39·3	66	e 7 37	+ 5	e 13 45	+11	e 9 11	PP	e 18·9
San Juan		39·8	88	i 7 32	− 4	i 13 48	+ 6	e 9 3	PP	e 18·6
Sitka		40·0	337	e 7 42	+ 4	i 13 43	− 1	e 9 26	PP	e 16·8
Huancayo		47·1	133	—	—	e 15 35	+ 7	i 15 45	PPS	e 19·6
Kew		82·8	37	e 12 56	+29	e 22 50?	+ 5	—	—	e 34·6
De Bilt		85·5	34	i 13 6	+25	e 23 16	+ 4	—	—	e 39·6
Paris		85·7	39	e 14 35?	?	—	—	e 16 55?	PP	e 33·6
Uccle		85·7	36	—	—	e 23 18	+ 4	—	—	e 35·6
Copenhagen		87·0	29	—	—	i 23 35	+ 8	i 29 11	SS	43·6
Strasbourg		88·8	37	e 12 45	−12	e 23 53	+ 9	29 43	SS	e 41·2
Basle		89·2	38	e 21 14	?	—	—	—	—	—
Collmberg	Z.	89·9	33	e 21 1	?	—	—	e 21 6	?	—
Zürich		89·9	38	e 21 9	?	—	—	—	—	e 50·6
Cheb		90·3	34	—	—	e 25 35?	PPS	—	—	e 38·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		90·7	38	e 21 10	?	—	—	—	—	—
Triest		93·8	37	i 16 8	?	—	—	—	—	e 44·1
Rome		95·3	41	—	—	e 27 56	?	—	—	e 48·5
Bombay	N.	138·5	358	e 22 35?	PP	—	—	e 56 55	Q	e 71·3

Additional readings :—
Pierce Ferry i =3m.56s.
Pasadena iEN =4m.11s.
Overton i =4m.23s.
Salt Lake City e =5m.50s., iS =8m.1s.
Branner eN =5m.6s.
Logan e =6m.48s.
Shasta Dam eP_cP =8m.27s., iS_cS =14m.16s., e =15m.4s.
Florissant iZ =5m.6s. and 7m.25s.
St. Louis eZ =7m.10s.
Chicago iS =10m.15s.
Philadelphia e =11m.13s. and 11m.59s.
San Juan e =7m.48s., 10m.23s., and 16m.35s.
Copenhagen 32m.35s.?
Strasbourg e =36m.51s.
Long waves were also recorded at New Delhi, Pennsylvania, Honolulu, College, Arapuni, Auckland, Wellington, and at other European stations.

May 9d. Readings also at 0h. (Tinemaha, Mount Wilson, Pasadena, Palomar, Tucson, near Overton, and Boulder City), 3h. (Florsisant, St. Louis, Tucson, Riverside, Mount Wilson, and Pasadena), 4h. (Bogota and La Paz), 5h. (Huancayo, Tucson, Palomar, Calcutta, Samarkand, Paris, and near Granada), 6h. (Clermont-Ferrand), 7h. (Tucson, Palomar, Mount Wilson, and Tinemaha), 10h. (Weston and New Delhi), 11h. (Basle), 13h. (near Erevan), 15h. (Huancayo, Palomar, Riverside, Tinemaha, Pasadena, Mount Wilson, Haiwee, Riverview, and Brisbane), 18h. (San Juan and near Mizusawa), 19h. (Tinemaha (2), Mount Wilson, Riverside, Palomar (2), Tucson (2), St. Louis, and Huancayo), 21h. (Cheb), 22h. (near Tananarive), 23h. (Kodaikanal, Helwan, Brisbane, Bogota, Tucson, Tinemaha, Haiwee, Palomar, Riverside, La Jolla, Santa Barbara, Pasadena, Mount Wilson, and Oaxaca).

May 10d. 2h. Undetermined shock.

Belgrade eP =51m.18s., eS =52m.23s., e =53m.18s.
Prague eP? =52m.37s., eL =59·6m.
Sofia ePEN =53m.50s.?, iE =54m.13s., 54m.40s., 55m.8s., and 55m.45s.
Rome eE =54m.54s. and 57m.18s.
Zagreb eP =55m., eS? =57m.20s.?
Bucharest eN =55m.6s., 55m.48s., and 56m.18s.
Kalossa eN =55m.30s., eE =55m.40s.
Chur e =55m.40s.
Basle e =56m.3s.
Collmberg eZ =56m.6s. and 56m.13s.
Triest eP?E =56m.39s., eS?E =57m.36s.
Zürich e =56m.55s.
Florence eP? =57m.37s., eS =58m.27s.
Strasbourg e =58m.3s., eL =61·1m.
Copenhagen e =60m.36s., eL =64m.
Long waves were also recorded at Cheb, De Bilt, and Paris.

May 10d. 3h. Undetermined shock.

Sofia ePEN =22m.12s., iS_g?EN =23m.48s.?.
Zagreb eP =22m.49s., eS =25m.28s.?
Chur e =23m.47s.
Collmberg eZ =24m.6s., 24m.18s., and 28m.1s.
Bucharest eN =24m.22s. and 25m.14s., iN =25m.42s.
Rome eZ =24m.28s. and 25m.31s.
Belgrade eP? =24m.35s., e =26m.23s.
Zürich e =25m.2s.
Florence iP? =25m.39s., iS? =26m.21s.
Basle e =26m.4s.
Strasbourg e =27m.0s., eL =28·8m.
Long waves were also recorded at Kalossa, Cheb, Prague, De Bilt, and Paris.

May 10d. 13h. Undetermined shock.

Reykjavik eP?N = 24m.16s., eLEN = 27m.8s.
Durham eEN = 26m.35s.
Kew ePEZ = 26m.50s.k, eSEZ = 30m.54s., eL = 32·5m.
Paris e = 27m.12s., 28m.20s., and 31m., eL = 33m.
Uccle eP? = 27m.15s., eSE = 31m.37s., eL = 34m.
De Bilt eP = 27m.16s.k?, eS = 31m.41s., eL = 34m.
Toledo ePZ = 27m.35s., eSE = 31m.39s., SSN = 32m.18s., LEN = 34m.0s.
Collmberg e = 27m.58s. and 28m.6s.
Strasbourg e = 28m.2s. and 32m.18s., eL = 34·5m.
Rome eP = 28m.46s., S = 34m.12s.
Prague e = 29·0m., eL = 35m.
St. Louis iP?Z = 29m.35s., eSE = 35m.47s., eLN = 42·2m.
Tucson eP = 31m.43s.
Tinemaha ePZ = 31m.46s.
Riverside ePZ = 31m.56s.
Palomar ePZ = 32m.1s.
Clermont-Ferrand e = 32m.11s.?, eL = 34·7m.
Weston e = 32m.21s., eL = 35m.5s.
Cheb e = 33m., eL = 38m.
Florence eE = 35m.31s., eL = 39m.33s.
Alicante e = 36m.30s.
Sitka e = 38m.20s., eL = 48m.24s.
Long waves were also recorded at Granada, Bergen, Besançon, Bermuda, Philadelphia, Chicago, Butte, and Bozeman.

May 10d. 23h. 32m. 1s. Epicentre 24°·7S., 70°·2W. (as on 1942, July 8d.).

Pasadena suggests deep focus.

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·4	31	e 0 42	+ 1	i 1 2	−10	—	—	e 1·2
La Paz		8·4	14	2 4	− 2	i 3 39	− 4	—	—	4·0
Santa Lucia		8·7	183	2 26	PPP	4 8	SS	4 13	SSS	—
La Plata	E.	14·7	137	3 30	− 1	—	—	4 17	?	7·5
	N.	14·7	137	3 23	− 8	6 47	SSS	4 17	?	7·8
	Z.	14·7	137	3 33	+ 2	—	—	—	—	8·3
Fort de France		40·2	15	e 7 38	− 2	—	—	—	—	—
San Juan		43·0	6	e 9 22	PP	e 14 2	−27	e 14 40	PS	17·4
St. Louis	z.	65·7	343	i 11 8	+20	—	—	—	—	—
Tucson		68·6	324	i 11 8	+ 1	—	—	i 11 32	pP	—
Palomar	z.	72·8	321	i 11 37	+ 5	—	—	e 11 52	PcP	—
Pierce Ferry		73·3	325	i 12 5	+30	—	—	e 12 29	pP	—
Boulder City		73·6	324	i 11 37	0	—	—	e 12 0	pP	—
Riverside	z.	73·6	321	i 11 38k	+ 1	—	—	i 12 2	?	—
Overton		73·8	325	i 11 41	+ 3	—	—	e 12 3	pP	—
Mount Wilson	z.	74·2	321	i 11 42	+ 2	—	—	i 12 5	?	—
Pasadena	z.	74·2	321	i 11 42	+ 2	—	—	e 12 6	?	—
Tinemaha	z.	76·3	322	i 11 52	0	—	—	—	—	—
Shasta Dam		81·1	323	i 12 19	+ 1	—	—	i 12 33	pP	—
Malaga		87·0	48	12 44	− 4	—	—	—	—	—

Additional readings :—
Santa Lucia PE = 2m.49s., SN = 4m.25s., E = 4m.30s. and 5m.22s.
Tucson ePKP,PKP = 39m.22s.
Palomar iZ = 12m.0s.

May 10d. Readings also at 1h. (near Santa Lucia and near Mizusawa), 4h. (Riverview, Christchurch, and Wellington), 5h. (Fordham and near Mizusawa), 6h. (near Rome and near Mizusawa), 7h. (Arapuni, Tananarive, De Bilt, and Strasbourg), 9h. (near Mizusawa (4)), 10h. (Arapuni, Strasbourg, Collmberg, Rome, Helwan, Ksara, Grozny, Erevan, near Sotchi, near Stalinabad, and near Mizusawa (5)), 11h. (Brisbane, Philadelphia, Sitka, Tinemaha, Tucson, and near Mizusawa (2)), 12h. (near Mizusawa), 14h. (Rome, New Delhi, Malaga, and near Tortosa), 17h. (near Mizusawa (2)), 18h. (Rome and near Mizusawa (2)), 19h. (near Mizusawa), 20h. (Rome and near Santa Lucia).

May 11d. 16h. 25m. 29s. Epicentre 65°·7N. 0°·9W.

A = +·4143, B = −·0065, C = +·9101 ; δ = −3 ; h = −11 ;
D = −·016, E = −·999 ; G = +·910, H = −·014, K = −·414.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bergen	z.	6·0	149	1 28?	− 4	3 10	+27	e 3 37	SSS	—
Aberdeen	E.	8·5	185	—	—	i 3 59	SSS	—	—	—
Upsala		10·3	116	—	—	e 4 7	−23	(e 4 53)	SS	e 4·9
Copenhagen		11·9	141	e 2 57	+ 3	e 5 59	+50	—	—	7·5
De Bilt		13·9	165	i 3 21	0	—	—	—	—	7·5
Uccle		15·2	170	e 3 36a	− 2	—	—	—	—	8·5
Collmberg	z.	16·1	147	e 3 46	− 3	—	—	—	—	e 9·7
Paris		17·0	172	e 4 1	0	—	—	e 7 31?	SSS	10·5
Cheb		17·1	150	—	—	—	—	e 7 31	SSS	e 12·5
Warsaw		17·4	130	e 4 11	+ 5	e 7 24	+ 5	—	—	e 11·5
Strasbourg		17·7	161	e 4 9	− 1	—	—	e 7 40	SSS	e 11·1
Neuchatel		19·2	163	e 4 27	− 1	—	—	—	—	—
Chur		19·7	160	e 4 35	+ 1	—	—	—	—	—
Clermont-Ferrand		20·1	173	e 4 38	0	e 8 26	+ 7	—	—	—
Moscow		21·0	100	4 43	− 4	8 28	− 9	—	—	—
Triest	E.	21·6	153	e 4 58	+ 4	e 9 8	+19	—	—	—
Zagreb		21·9	148	e 4 58	+ 1	—	—	—	—	—
Kalossa	E.	22·0	142	e 5 51	+53	—	—	—	—	—
Florence		23·0	158	i 6 0	+53	i 10 1	+47	—	—	—
Belgrade		23·9	140	i 5 18	+ 2	e 8 43	−47	e 9 52	SS	—
Rome		25·0	156	e 5 27	0	e 10 14	+25	6 12	PP	—
Toledo	z.	25·9	186	i 5 36	+ 1	—	—	6 10	PP	—
Granada		28·6	185	i 6 10k	+10	11 19	+31	6 19	pP	e 15·1
Sverdlovsk		29·7	78	e 6 11	+ 1	e 10 56	−10	—	—	—
Grozny		33·9	108	6 49	+ 2	—	—	—	—	—
Ksara		38·7	128	e 7 28	+ 1	e 13 59	+34	—	—	—
Tashkent		45·2	87	e 8 12?	− 8	—	—	—	—	—
St. Louis		55·4	289	i 9 37	− 1	—	—	—	—	e 28·5
Shasta Dam		64·7	315	i 10 38	− 4	—	—	—	—	—
Overton		66·0	307	e 10 51	+ 1	—	—	—	—	—
Pierce Ferry		66·3	306	i 10 52	0	—	—	—	—	—
Tinemaha	z.	66·8	310	i 10 55	− 1	—	—	—	—	—
Boulder City		67·3	307	i 10 53	− 6	—	—	—	—	—
Tucson		68·7	302	i 11 7	0	—	—	—	—	—
Mount Wilson	z.	69·3	308	i 11 11	0	—	—	—	—	—
Riverside	z.	69·3	308	i 11 11	0	—	—	—	—	—
Pasadena	z.	69·5	308	i 11 11	− 1	—	—	—	—	—
Palomar		69·7	307	i 11 13	− 1	—	—	—	—	—
La Jolla	z.	70·3	307	e 11 18	+ 1	—	—	—	—	—

Additional readings :—
Collmberg eZ = 3m.52s., 3m.59s., and 4m.40s.
Strasbourg e = 5m.54s.
Warsaw eP?N = 4m.8s.
Granada sP = 6m.40s.
Long waves also at Reykjavik, Alicante, Weston, Harvard, and Philadelphia.

May 11d. 17h. Undetermined shock.

Auckland P = 23m.5s., S = 26m.36s., PcP = 27m.35s., ScS? = 35m.16s.
Wellington P = 23m.21s., S = 27m.45s., Q = 29m.?, RZ = 32m.?
Christchurch P?N = 24m.8s., QN = 28m.24s., REZ = 30m.8s.
Riverview iPZ = 24m.16s.a, iSN = 29m.52s., iSE = 29m.55s., eQN = 32m.24s., iSSSN = 32m.42s., eE = 34m.0s.
Brisbane iS?E = 24m.42s., eLE = 28m.58s.
Tinemaha ePZ = 28m.6s.
Haiwee ePZ = 28m.24s.
Mount Wilson iPZ = 28m.47s.
Pasadena ePZ = 28m.48s., eLZ = 49·7m.
Riverside ePZ = 28m.49s.
Palomar iP = 28m.51s.
Shasta Dam eP = 28m.53s.

Continued on next page.

Santa Clara eZ =28m.56s.
Boulder City eP =29m.6s., e =29m.28s., i =30m.39s.
Overton i =29m.9s.
Pierce Ferry iP =29m.11s., e =29m.22s.
Tucson iP =29m.15s., e =29m.24s., e =29m.30s. and 32m.11s., eS =39m.14s., eL = 52m.7s.
St. Louis eZ? =30m.41s., eE =41m.18s., LE =61·7m.
Clermont-Ferrand e =31m.10s.?
Sitka e =36m.7s., 39m.22s., and 40m.25s., eL =49m.46s.
De Bilt ePKP =36m.49s., eL =84m.
Paris ePKP =36m.52s., eSS =59m., eL =95m.
Ksara ePKP? =36m.57s., e =39m.11s.
Belgrade ePKP? =37m.0s., e =40m.30s.
Kew e =37m.
Sofia eN =37m.
Triest eE =37m.11s., iZ =66m.42s.
Helwan eP =37m.12s., e =38m.33s., e =39m.24s.
Zagreb e =37m.14s.
Granada iPKP$_1$ =37m.15s.k, PKP$_2$ =38m.6s., eL =100·7m.
Rome ePKP =37m.15s., pPKP =38m.55s., e =40m.57s. and 41m.47s.
Ukiah e =38m.18s., eL =47m.32s.
San Juan e =39m.33s., 42m.41s., and 47m.28s., eL =70m.33s.
Upsala eN =40m.
Warsaw eN =40m.0s., eE =40m.46s., eLN =87m.30s.
Butte e =40m.4s., eL =52m.32s.
Bozeman e =40m.8s., eL =53m.42s.
Alicante e =40m.40s.
Weston e =45m.57s., eL =67m.0s.
Long waves also at Arapuni, Honolulu, Kodaikanal, Philadelphia, Harvard, Bermuda, La Paz, Bucharest, Prague, Cheb, Uccle, Copenhagen, and Edinburgh.

May 11d. 18h. 39m. 25s. Epicentre 65°·7N. 0°·9W. (as at 16h.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bergen	6·0	149	1 26	− 6	2 41	− 2	1 29	PP	2·9
Aberdeen	8·5	185	i 2 7	0	i 4 4	+19	i 4 46	SSS	i 6·6
Reykjavik	9·1	270	i 1 24	−50	i 3 24	−36	—	—	e 3·9
Upsala	10·3	116	e 2 28	− 4	e 4 7	−23	i 4 29	SS	e 5·2
Durham	11·0	184	2 20	−22	4 35	−12	—	—	—
Copenhagen	11·9	141	e 2 49	− 5	e 4 58	−11	i 2 58	PP	5·9
De Bilt	13·9	165	i 3 20	− 1	—	—	—	—	e 8·3
Kew	14·2	179	i 3 34	+10	e 6 28	+24	i 3 41	PP	e 6·7
Uccle	15·2	170	e 3 33	− 5	e 6 33	+ 5	e 3 59	PPP	e 7·3
Jena	16·1	151	e 3 46	− 3	e 7 1	+12	e 3 51	PP	e 13·8
Collmberg	16·1	147	e 3 45	− 4	e 7 3	+14	e 4 1	PP	e 11·6
Paris	17·0	172	i 4 1	0	e 7 19	+ 9	e 7 33	SS	e 9·6
Cheb	17·1	150	e 4 1	− 1	e 7 23	+11	—	—	e 14·6
Warsaw	17·4	130	e 4 5	− 1	e 7 25	+ 6	—	—	e 8·6
Prague	17·6	146	4 8	0	e 7 28	+ 5	—	—	e 8·6
Strasbourg	17·7	161	e 4 14	+ 4	i 7 40	+14	i 8 4	SSS	e 9·4
Basle	18·7	163	e 4 23k	+ 1	—	—	—	—	—
Zürich	19·0	162	e 4 27	+ 1	e 8 12	+17	—	—	—
Neuchatel	19·2	163	e 4 29	+ 1	—	—	—	—	—
Besançon	19·6	165	e 5 5	PPP	e 8 0	− 8	—	—	e 16·6
Chur	19·7	160	e 4 33	− 1	—	—	—	—	—
Clermont-Ferrand	20·1	173	i 4 40k	+ 2	e 8 27	+ 8	—	—	—
Moscow	21·0	100	i 4 43	− 4	i 8 28	− 9	—	—	—
Triest	21·6	153	i 4 55	+ 1	i 9 9	+20	—	—	e 14·9
Zagreb	21·9	148	e 4 57	0	—	—	—	—	e 16·3
Kalossa	22·0	142	e 5 5	+ 7	—	—	e 5 35?	PPP	—
Florence	23·0	158	i 5 13	+ 6	i 10 15	SSS	—	—	—
Belgrade	23·9	140	i 5 18	+ 2	—	—	e 6 59	PPP	8·6
Barcelona	24·4	175	—	—	e 9 43	+ 4	—	—	e 14·9
Tortosa	24·9	177	i 5 29	+ 3	i 10 5	+18	i 5 48	PP	13·6
Rome	25·0	156	e 5 28	+ 1	10 4	+15	5 56	pP	—
Toledo	25·9	186	i 5 36	+ 1	e 10 10	+ 6	i 6 18	PP	12·8
Sofia	26·8	138	5 45	+ 1	10 38?	+19	—	—	18·9
Alicante	27·3	180	5 51	+ 3	e 10 58	+31	6 47	PPP	e 15·6
Lisbon	27·4	194	5 22?	−27	10 58?	+30	11 14	SS	14·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Granada		28·6	185	i 6 3k	+ 3	10 53	+ 5	6 11	pP	14·4
Yalta		29·2	121	e 6 1	− 4	—	—	—	—	—
Sverdlovsk		29·7	78	i 6 7	− 3	11 2	− 4	—	—	—
Grozny		33·9	108	6 48	+ 1	12 12	+ 1	—	—	—
Leninakan		35·3	112	e 7 9	+10	—	—	—	—	—
Baku		38·1	106	e 7 29	+ 7	e 13 17?	+ 1	—	—	—
Ksara		38·7	128	i 7 26	− 1	—	—	—	—	—
Helwan		41·0	136	i 7 47k	+ 1	—	—	e 9 53	PPP	e 18·9
Ottawa		43·8	281	8 10	+ 1	14 41	+ 1	—	—	22·6
Weston		44·4	275	i 8 16a	+ 2	—	—	—	—	—
Harvard		44·6	275	i 8 15	− 1	—	—	i 10 6	PP	22·6
Tashkent		45·2	87	e 8 19	− 1	e 14 36	−25	—	—	—
Almata		46·7	79	e 8 53	+21	—	—	—	—	—
Andijan		47·0	85	8 35	0	—	—	—	—	—
Stalinabad		47·3	89	i 8 30	− 7	i 15 29	− 2	—	—	—
Philadelphia		48·0	276	i 8 49	+ 6	e 15 52	+11	e 10 53	PP	e 22·8
Irkutsk		49·4	52	8 52	− 1	15 57	− 3	—	—	—
Sitka		52·4	331	9 20	+ 4	—	—	e 18 43	S_cS	e 27·6
Florissant		55·2	289	i 9 36	− 1	e 17 20	0	—	—	28·9
St. Louis		55·4	289	i 9 37	− 1	i 17 35	+13	—	—	e 28·2
Butte		56·9	310	e 9 49	0	—	—	—	—	e 30·1
Grand Coulee		57·1	316	i 9 50	0	—	—	—	—	—
New Delhi		59·4	88	—	—	i 18 13	− 2	—	—	—
San Juan		63·3	256	e 10 18	−15	—	—	—	—	28·8
Shasta Dam		64·7	315	i 10 41	− 1	—	—	—	—	—
Overton		66·0	307	i 10 52	+ 2	—	—	—	—	—
Pierce Ferry		66·3	306	i 10 53	+ 1	—	—	e 13 13	PP	—
Tinemaha	z.	66·8	310	i 10 56a	0	—	—	e 39 27	P′P′	—
Boulder City		67·3	307	i 10 54	− 5	—	—	e 13 14	PP	—
Haiwee		67·6	309	e 11 1	0	—	—	—	—	—
Tucson		68·7	302	i 11 8	+ 1	—	—	e 20 27	PS	34·8
Mount Wilson	z.	69·3	308	i 11 11a	0	—	—	39 23	P′P′	—
Riverside	z.	69·3	308	i 11 10	− 1	—	—	39 16	P′P′	39·4
Pasadena		69·5	308	11 12a	0	—	—	e 39 16	P′P′	40·6
Palomar	z.	69·7	307	i 11 14a	0	—	—	e 39 17	P′P′	—
Santa Barbara	z.	69·7	309	e 11 14	0	—	—	—	—	—
Hyderabad		69·9	93	11 17	+ 2	20 20	− 4	13 40	PP	32·7

Additional readings :—
Bergen iZ = 2m.30s.
Reykjavik iEN = 3m.42s.
Upsala LN = 4m.22s.
Durham E = 2m.36s.
Kew eZ = 4m.50s.?
Uccle i = 3m.37s., e = 3m.44s., i = 3m.51s., e = 6m.43s., e = 6m.49s.
Collmberg iN = 3m.52s., iZ = 3m.56s., eZ = 4m.49s.
Paris i = 4m.6s., e = 4m.21s.
Strasbourg i = 4m.17s., 5m.2s., and 5m.52s.
Rome PP = 6m.11s., PPP = 6m.26s., SS = 10m.51s.
Toledo P_cP = 8m.51s.
Sofia eN = 13m.21s.?
Alicante PPP = 7m.5s., Q = 12m.13s.
Lisbon PE = 5m.25s.?, SE = 10m.46s.?
Granada sP = 6m.25s., PP = 6m.53s., P_cP = 8m.55s., SS = 13m.13s.
Ksara e = 11m.48s.
Helwan i = 8m.15s. and 9m.6s., e = 10m.58s. and 18m.6s.
Sitka e = 9m.54s., 12m.59s., and 24m.56s.
St. Louis iZ = 9m.45s.
Grand Coulee i = 10m.53s.
San Juan e = 21m.39s.
Overton e = 11m.12s.
Pierce Ferry i = 11m.4s.
Boulder City i = 11m.9s.
Tucson e = 12m.49s., e = 14m.23s., ePKP,PKP = 39m.12s.
Pasadena eZ = 12m.17s. and 13m.49s., iZ = 39m.23s.
Hyderabad SS = 24m.43s.
Long waves were also recorded at Bozeman, Bermuda, and Algiers.

May 11d. Readings also at 0h. (Erevan, Piatagorsk, Grozny, and Leninakan), 3h. (Santa Lucia), 5h. (Cheb), 6h. (Bombay and Hyderabad) 8h. (near Mizusawa (2)), 10h. (Riverview, Stalinabad, Andijan, Tashkent, and Tchimkent), 13h. (Santa Lucia and Sitka), 15h. (Misuzawa), 16h. (Rome, Tashkent, Sverdlovsk, Baku, Grozny, Ksara, and Helwan), 17h. (near Mizusawa), 18h. (Mizusawa and Upsala), 19h. (La Paz), 21h.(4). and 22h.(2) (near Mizusawa), 23h. (Riverview and near Mizusawa).

May 12d. 13h. 20m. 11s. Epicentre 39°·0N. 29°·0W.

Intensity V-VI at Horta (Faial, Azores), slight damage at Capelo, Praia do Norte, and Capelinhos.

Anais do Observatorio central meteorologico do Infante D. Luis, Observaçiones seismologicas, vol. 84, ano de 1946, Lisbon, 1950, p. 18.

$A = +·6815$, $B = -·3778$, $C = +·6268$; $\delta = +5$; $h = -1$;
$D = -·485$, $E = -·875$; $G = +·548$, $H = -·304$, $K = -·779$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Lisbon		15·5	85	3 39	− 3	—	—	3 48	PP	6·9
Toledo		19·3	80	i 4 31	+ 2	i 7 21	−41	i 4 37	PP	8·3
Granada		20·1	87	i 4 39a	+ 1	i 8 31	+12	4 48	pP	10·0
Alicante		22·2	83	i 5 9	+ 9	i 9 10	+10	5 50	PPP	10·8
Tortosa	N.	22·6	76	i 5 7	+ 4	i 9 15	+ 8	5 26	PP	10·9
Kew		23·6	49	i 5 14a	+ 1	e 9 37	+12	e 6 10	PP	12·3
Barcelona		23·8	73	e 5 21	+ 6	9 40	+12	11 3	SSS	12·1
Edinburgh		24·1	38	e 5 19	+ 1	i 9 49	+15	—	—	—
Durham		24·3	42	i 5 23	+ 3	i 9 45	+ 8	—	—	—
Clermont-Ferrand		24·5	64	i 5 23	+ 1	e 9 54	+14	—	—	e 12·5
Paris		24·6	56	i 5 20	− 3	e 9 41	− 1	5 53	PP	e 11·3
Aberdeen		25·3	36	i 5 29	− 1	10 2	+ 8	—	—	11·8
Algiers		25·3	86	i 5 29	− 1	e 9 49	− 5	i 6 23	PPP	10·8
Uccle		26·2	52	e 5 38a	0	e 10 12	+ 3	e 6 12	PP	e 11·8
Besançon		26·7	62	e 5 43	0	e 10 32	+15	—	—	e 12·8
De Bilt		27·0	50	i 5 47a	+ 2	e 10 32	+10	—	—	e 12·8
Neuchatel		27·3	60	e 5 48	0	—	—	—	—	—
Basle		27·8	60	e 5 53	0	e 10 30	− 5	—	—	—
Strasbourg		28·0	58	e 5 54	− 1	e 10 45	+ 7	e 6 54	PPP	e 12·6
Zürich		28·4	60	e 5 58	0	e 10 49	+ 4	—	—	—
Chur		29·0	61	e 6 5	+ 1	—	—	—	—	—
Bermuda		29·6	268	e 5 56	−13	—	—	e 6 54	PP	e 10·2
Bergen		30·3	34	6 15	0	11 20	+ 5	—	—	—
Florence		30·4	68	i 6 26	+10	i 11 28	+12	—	—	—
Cheb		31·1	55	e 6 21	− 1	e 11 44	+16	e 7 31	PP	e 14·8
Seven Falls		31·3	299	6 25	+ 1	11 33	+ 2	—	—	15·8
Rome		31·5	71	e 6 16	−10	e 11 37	+ 3	7 17	PP	—
Collmberg	Z.	31·6	54	e 6 27	+ 1	—	—	e 7 51	PPP	—
Trieste		32·0	64	e 6 22	− 8	e 11 46	+ 4	—	—	—
Weston		32·0	290	e 6 30	0	e 11 47	+ 5	—	—	—
Copenhagen		32·1	45	6 32	+ 1	11 49	+ 6	13 37	SS	15·8
Harvard		32·2	290	e 6 30	− 2	—	—	e 7 39	PP	e 15·8
Prague		32·4	55	e 6 30	− 4	e 11 49?	+ 1	e 7 32	PP	e 13·8
Zagreb		33·5	63	e 6 41	− 2	e 12 6	+ 1	—	—	e 16·8
Fordham		34·2	288	e 6 48	− 1	e 12 17	+ 1	e 8 2	PP	18·0
Ottawa		34·8	297	6 53	− 1	12 25	0	8 7	PPP	16·8
Philadelphia		35·3	287	e 7 3	+ 4	e 12 40	+ 7	e 8 16	PPP	e 15·0
Kalossa	E.	35·6	61	e 7 3	+ 2	—	—	—	—	—
Upsala		35·8	39	—	—	—	—	e 8 23	PPP	e 14·8
Warsaw		36·7	52	e 7 4	− 6	e 12 50	− 4	e 8 43	PPP	e 17·8
Belgrade		36·8	65	e 7 10	− 1	—	—	e 9 54	P_cP	e 14·8
San Juan		38·1	249	i 7 20	− 2	e 13 10	− 6	—	—	e 15·8
Sofia		39·2	67	e 6 35	−56	e 12 38	−54	—	—	19·8
Bucharest		40·8	64	7 48	+ 3	e 13 58	+ 2	—	—	21·8
Columbia		41·7	280	—	—	e 14 4	PPS	e 17 26	SS	e 20·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		44·0	294	e 9 54	PP	—	—	e 14 49	PS	e 21·5
Moscow		46·2	46	8 30	+ 2	15 20	+ 5	—	—	—
Florissant	z.	46·9	291	i 8 33	− 1	e 15 33	+ 8	i 10 25	PP	—
Saint Louis		46·9	291	i 8 34	0	e 15 26	+ 1	e 10 23	PP	e 19·1
Helwan		49·8	82	8 56	0	e 16 13	+ 7	10 13	PeP	—
Ksara		51·5	75	i 9 11	+ 2	e 16 38	+ 9	—	—	—
Saskatoon		53·4	312	—	—	e 17 4	+ 9	—	—	24·8
Leninakan		54·4	63	e 9 35	+ 4	—	—	—	—	—
Grozny		54·7	60	e 9 39	+ 6	e 17 19	+ 6	—	—	—
Sverdlovsk		58·2	40	i 9 59	+ 1	18 6	+ 7	—	—	—
Bozeman		58·5	306	—	—	—	—	e 18 4	PS	e 28·0
Tucson		64·7	292	i 10 41	− 1	e 19 30	+ 8	e 39 23	P′P′	e 30·7
Pierce Ferry		65·0	297	i 10 44	0	—	—	—	—	—
Overton		65·1	298	e 10 45	0	—	—	—	—	—
Boulder City		65·6	298	i 10 47	− 1	—	—	i 13 27	PP	—
La Paz	z.	66·2	221	10 49	− 3	—	—	—	—	32·9
Huancayo		66·6	230	—	—	—	—	27 41	Q	e 31·6
Tinemaha	z.	67·4	300	e 11 0	+ 1	—	—	e 39 30	P′P′	—
Haiwee	z.	67·7	299	e 11 2	+ 1	—	—	—	—	—
Shasta Dam		68·2	305	e 11 0	− 4	—	—	—	—	—
Palomar	z.	68·5	297	i 11 6	0	—	—	—	—	—
Riverside	z.	68·5	298	e 11 5	− 1	—	—	e 39 24	P′P′	—
Mount Wilson	z.	68·8	298	i 11 7	− 1	—	—	e 39 23	P′P′	—
Pasadena	z.	68·9	298	e 11 9	0	—	—	—	—	e 33·7
Samarkand		70·4	55	e 11 14	− 4	—	—	—	—	—
Tashkent		70·9	52	e 11 19	− 2	e 20 39	+ 3	—	—	—
Stalinabad		72·2	54	11 26	− 3	—	—	—	—	—
Irkutsk		80·4	27	e 12 18	+ 3	e 22 24	+ 3	—	—	—

Additional readings :—
Lisbon Q?N =6m.36s.
Granada sP =4m.51s.
Alicante PP =5m.30s., PcP =9m.14s., SS =9m.30s., SSS =9m.38s., Q =9m.42s.
Tortosa PPPN =5m.39s., SS?N =9m.50s.
Kew ePcPEZ =8m.42s., eS?Z =9m.50s.,? eQEN =11m.4s.
Paris ePPP =6m.19s., ePcP? =7m.47s., e =8m.0s. and 8m.33s., eSS =10m.27s.
Algiers iPP? =5m.57s., L =6m.39s., eS? =9m.49s., eSS? =10m.22s.
Uccle ePPPE =6m.23s.
Strasbourg e =6m.6s., 9m.32s., and 10m.3s., i =11m.53s.
Rome eZ =11m.47s.
Collmberg eZ =6m.34s.
Upsala eN =12m.41s., eE =12m.45s.
Warsaw ePE =7m.12s., eSE =13m.1s.
Chicago e =18m.17s.
St. Louis iZ =8m.44s., eN =18m.29s.
Helwan PPP? =11m.43s.
Boulder City e =14m.0s.
Long waves were also recorded at Calcutta, New Delhi, Ukiah, Salt Lake City, Butte, and College.

May 12d. Readings also at 0h.(Mizusawa), 2h. (near Pierce Ferry, Overton, and Boulder City), 4h. (Tashkent, Harvard, Weston, Palomar, Riverside, Tinemaha, Pasadena, Tucson, Mount Wilson, La Plata, and near Santa Lucia), 5h. (Fordham), 7h. (Tucson and near Mizusawa), 8h. (La Paz and near Mizusawa), 11h. (Tucson, Riverside, Tinemaha, Mount Wilson, and near Sofia), 12h. (Malaga), 18h. (near Overton, Pierce Ferry, and Boulder City), 20h. (Tucson, Palomar, Tinemaha, and near Mizusawa).

May 13d. Readings at 1h. (near Pierce Ferry (3), Overton (2), and Boulder City (3)), 2h. (Tucson, Tinemaha, Palomar, Riverside, and Mount Wilson), 6h. (Upsala, Basle, Strasbourg, Paris, De Bilt, Copenhagen, Weston, St. Louis (2), Tucson (2), Palomar, Boulder City, Overton, Riverside (2), Pasadena, Mount Wilson (2), Haiwee (2), Tinemaha (2), Shasta Dam (2), and College), 7h. (Cheb and Collmberg), 9h. (near Mizusawa), 10h. (Riverview), 12h. (near Mizusawa), 13h. (Tucson, Palomar, Tinemaha, Mount Wilson, Riverside, Wellington, Arapuni, Auckland, Christchurch, Riverview, Brisbane, and near Santa Lucia), 14h. (near Leninakan and near Grozny), 15h. (2) and 16h. (near Grozny), 18h. (Mizusawa), 21h. (Harvard), 22h. (Mizusawa).

May 14d. 6h. 3m. 47s. Epicentre 64°·6N. 147°·1W. Depth of focus 0·025.
(as on 1937, July 24d.).

$A = -·3621$, $B = -·2343$, $C = +·9022$; $\delta = -2$; $h = -10$;
$D = -·543$, $E = +·840$; $G = -758$, $H = -·490$, $K = -·431$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		0·4	311	i 0 26	0	i 0 49	+ 3	—	—	e 1·0
Sitka		9·5	137	e 2 3	−11	e 3 40	−18	i 2 43	pP	e 4·3
Grand Coulee		22·5	124	i 4 47	+ 3	—	—	i 5 28	sP	e 12·1
Saskatoon		24·1	102	—	—	e 10 1	+61	—	—	e 11·6
Butte		26·5	117	e 5 23	+ 2	e 11 51	SS	—	—	e 14·7
Shasta Dam		27·9	137	i 5 30	− 4	—	—	—	—	i 13·2
Tinemaha		32·4	134	i 6 14k	0	e 12 27	S_cP	i 6 42	pP	—
Haiwee		33·4	134	i 6 21k	− 1	e 12 29	S_cP	i 6 48	pP	—
Overton		34·2	129	i 6 29	0	—	—	i 6 57	pP	—
Santa Barbara	z.	34·5	137	i 6 28	− 4	—	—	—	—	—
Boulder City		34·6	130	i 6 31	− 2	i 12 34	S_cP	i 6 55	pP	—
Pierce Ferry		34·7	129	i 6 33	0	—	—	i 6 59	pP	—
Mount Wilson		35·2	135	i 6 35k	− 3	e 12 37	S_cP	i 7 3	pP	—
Pasadena		35·2	135	i 6 35k	− 3	e 12 36	S_cP	i 7 3	pP	—
Riverside		35·6	135	i 6 39k	− 2	e 12 37	S_cP	i 7 6	pP	—
Palomar		36·3	134	i 6 45k	− 2	e 12 41	S_cP	i 7 6	pP	—
La Jolla	z.	36·7	135	e 6 47	− 3	—	—	—	—	—
Tucson		39·3	127	i 7 11	− 1	i 12 52	S_cP	i 9 15	P_cP	—
St. Louis		41·8	100	i 7 38	+ 6	e 13 29	− 6	i 7 52	pP	—
Ottawa		42·5	81	e 7 47	+ 9	—	—	e 9 32	P_cP	—
Weston		46·8	80	i 8 22k	+10	—	—	—	—	—

Additional readings :—
Tinemaha iZ = 6m.29s., eP_cPZ = 8m.54s.
Haiwee eP_cP = 8m.57s.
Boulder City i = 8m.57s.
Riverside iZ = 6m.55s.
Palomar iZ = 6m.55s.
Tucson i = 7m.20s. and 27m.13s.
St. Louis ePPZ = 8m.46s., eZ = 9m.20s., esSE = 13m.55s.
Weston e = 8m.25s.
Long waves were also recorded at Paris.

May 14d. 12h. 21m. 21s. Epicentre 37°·9N. 1°·2W.

Scale VI near the Epicentre ; V at Ceuti, Lorqui, Sierra Columbreras, near Fuente Alhama.
Resumen de las Observaciones solares, meteorologicas, y seismologicas efectuadas durante el año 1946, Vol. 34, Series A. Tortosa, 1948, p. 206.
Epicentre 37°55′N. 1°13′W.

A. Rey Pastor.
Estudio sismotectónico de la Región Sureste de España, Madrid, 1951. Macroseismic chart fig. 11a.

Epicentre 37°55′N. 1°10′W. Macroseismic radius 45km.

$A = +·7909$, $B = -·0166$, $C = +·6117$; $\delta = -2$; $h = -1$;

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Alicante	0·7	51	i 0 15	− 2	0 37	+ 9	—	—
Almeria	1·5	224	i 0 28	0	—	—	—	—
Granada	2·0	249	0 34a	− 1	i 1 4	+ 2	0 40	P_g
Malaga	2·8	245	0 44	− 3	—	—	—	—
Toledo	3·0	312	i 0 55	+ 5	1 41	S_g	1 3	P_g
Tortosa	3·2	24	e 0 55	+ 3	1 28	− 4	1 1	P_g

Additional readings :—
Alicante P_g = 21s., 26s. and 30s., P_gS_g = 44s., S_g = 48s., P_gS_g = 55s.
Granada P_g = 46s.
Toledo EN = 1m.55s., E = 2m.0s.
Tortosa P_gS_gN = 1m.40s., S_gN = 1m.47s., P_gS_gEN = 1m.52s., S_gN = 2m.1s., S_gS_gN = 2m.4s.

May 14d. Readings also at 0h. (Tucson, Shasta Dam, near Pierce Ferry, Overton, and Boulder City), 2h. (near Pierce Ferry, Overton, and Boulder City), 3h. (near Samarkand), 5h. (Ksara), 6h. (Tucson and near Mizusawa), 8h. (Tucson), 9h. (near Mizusawa), 10h. (Erevan, Tucson, St. Louis, and Cape Girardeau), 11h. (near Mizusawa), 17h. (near Tananarive), 18h. (near Mizusawa), 20h. (College), 21h. (Sitka).

May 15d. 22h. 10m. 34s. Epicentre 15°·5N. 96°·7W.

Epicentre 15°37′N. 96°59′W. (Tacubaya).

$A = -\cdot1125$, $B = -\cdot9575$, $C = +\cdot2656$; $\delta = +1$; $h = +6$;
$D = -993$, $E = +\cdot117$; $G = -\cdot030$, $H = -\cdot264$, $K = -\cdot964$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		1·5	358	0 29	+ 1	(0 45)	− 4	i 0 36	P_g	0·8
Vera Cruz		3·7	8	1 6	P*	—	—	—	—	2·0
Puebla		3·8	337	1 4	+ 3	1 48	+ 1	i 2 7	S_g	—
Tacubaya		4·5	329	1 11	0	—	—	—	—	2·2
Guadalajara		8·1	310	e 2 7	+ 5	i 3 43	+ 8	i 3 56	S*	i 4·1
Merida		8·6	50	e 2 21	P*	i 3 51	+ 3	i 4 6	S*	—
Chihuahua	z.	15·7	328	e 3 45	+ 1	—	—	—	—	i 8·4
Balboa Heights		18·0	109	e 4 16	+ 3	—	—	—	—	—
Tucson		21·1	326	i 4 48	0	i 8 48	+ 9	i 9 24	SSS	i 10·4
Cape Girardeau		22·6	15	e 5 2	− 1	e 9 8	+ 1	i 5 32	PP	—
Columbia		23·2	34	e 5 5	− 4	e 9 20	+ 2	—	—	e 12·5
St· Louis		23·8	12	i 5 12	− 3	i 9 28	0	i 5 24	pP	—
Florissant	z.	23·9	12	e 5 13	− 3	—	—	—	—	—
Bogota		24·7	114	i 5 32	+ 8	e 10 16	+32	i 5 37	?	—
Lincoln		25·2	0	i 5 31	+ 2	i 10 5	+13	e 6 24	PPP	—
La Jolla	z.	25·4	317	e 5 33	+ 2	—	—	—	—	—
Palomar		25·5	319	i 5 32	0	e 10 13	+16	—	—	—
Pierce Ferry		25·7	327	i 5 33	0	—	—	i 6 2	PP	e 13·5
Boulder City		26·0	326	i 5 37	+ 1	e 10 9	+ 3	i 6 5	PP	e 13·5
Overton		26·2	327	i 5 42	+ 4	e 13 57	L	—	—	(e 14·0)
Riverside		26·2	319	i 5 38	0	—	—	—	—	—
Mount Wilson		26·8	319	i 5 45	+ 1	—	—	—	—	—
Pasadena		26·8	319	i 5 45a	+ 1	e 10 21	+ 2	i 6 42	PPP	i 12·5
Chicago		27·4	14	i 5 44	− 5	e 10 31	+ 3	i 6 38	PP	e 19·1
Haiwee		28·0	322	e 5 55	0	—	—	—	—	—
Santa Barbara	z.	28·0	317	e 5 57	+ 2	—	—	—	—	—
Salt Lake City		28·4	336	i 5 57	− 1	i 10 48	+ 3	e 7 1	PPP	i 14·4
Tinemaha		28·8	323	e 6 3	+ 1	—	—	—	—	—
Georgetown		29·0	33	e 6 0	− 4	11 7	+13	—	—	15·4
Logan		29·2	337	e 6 6	+ 1	i 11 7	+ 9	e 7 15	PPP	i 15·7
San Juan		29·4	79	e 6 4	− 3	—	—	i 6 56	PP	e 11·4
Fresno	N.	29·5	321	e 6 18	+10	—	—	—	—	e 17·1
Pennsylvania	N.	30·1	29	e 6 7	− 6	e 11 12	0	e 6 36	?	—
Philadelphia		30·8	34	e 6 15	− 5	e 10 14	−69	e 7 12	PP	e 11·6
Lick	N.	31·0	320	e 6 23	+ 2	—	—	—	—	e 15·3
Santa Clara		31·2	320	e 6 26	+ 3	e 11 42	+13	—	—	e 15·6
Berkeley		31·7	320	e 6 25	− 2	e 11 47	+10	e 8 2	PPP	e 15·1
Fordham		32·1	34	e 6 29	− 2	e 11 49	+ 6	e 10 41	?	e 17·4
Bozeman		32·4	342	e 6 34	0	e 11 48	0	—	—	e 14·9
Ukiah		33·1	321	e 6 41	+ 1	e 12 2	+ 3	—	—	e 13·5
Butte		33·2	340	e 6 42	+ 2	e 12 8	+ 8	e 7 54	PP	e 15·2
Bermuda		33·6	54	e 6 37	− 7	e 12 11	+ 5	e 7 26	PP	e 15·1
Shasta Dam		33·6	324	e 6 43	− 1	—	—	e 8 1	PP	e 17·5
Fort de France		34·3	87	e 6 49	− 1	—	—	—	—	—
Harvard		34·5	34	e 6 49	− 3	e 12 40	+20	e 13 24	P_cS	e 20·4
Weston		34·5	34	i 6 50a	− 2	(e 12 25)	+ 5	e 7 34	PP	e 12·4
Huancayo		34·6	141	e 7 0	+ 7	i 12 42	+20	e 8 2	PP	i 14·9
Ottawa		34·6	26	6 50	− 3	12 21	− 1	7 48	PP	16·9
Shawinigan Falls		36·8	28	7 9	− 2	12 53	− 3	—	—	—
Grand Coulee		37·2	336	i 7 14	− 1	e 12 53	− 9	e 8 48	PP	e 19·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Saskatoon		37·4	350	7 19	+ 3	13 16	+11	15 50	SSS	18·4
Seven Falls		38·2	29	7 19	− 4	13 18	+ 1	8 55	PP	21·4
Victoria		39·6	333	7 39	+ 4	13 53	+15	9 23	PPP	18·4
Halifax		40·3	38	e 7 42	+ 2	—	—	—	—	19·4
La Paz	Z.	42·5	137	i 7 8	−51	i 13 50	−32	—	—	19·4
Sitka		51·0	334	e 9 3	− 3	i 16 20	− 2	e 11 1	PP	e 20·2
Honolulu		58·0	286	—	—	e 17 55	− 2	e 21 50	SS	e 25·1
College		60·1	338	—	—	e, 18 28	+ 4	e 22 30	SS	e 29·6
La Plata	E.	62·2	144	10 32	+ 6	18 38	−13	14 38	PPP	31·4
	N.	62·2	144	10 8	−18	18 50	− 1	—	—	31·3
Lisbon		78·6	53	12 6	+ 1	22 23?	+21	18 0?	PP	35·8
Edinburgh		79·3	35	e 13 26	?	22 11	+ 2	—	—	—
Aberdeen		79·6	33	e 12 6	− 4	i 22 17	+ 5	e 12 56	?	37·9
Durham		80·4	36	e 12 27	+12	e 22 30	+ 9	—	—	—
Kew		81·9	39	i 12 22a	− 1	e 22 40	+ 4	i 12 35	PcP	e 39·4
Toledo		82·2	51	i 12 26	+ 2	e 27 51	SS	28 24	?	39·4
Bergen		82·5	29	12 23?	− 3	22 48	+ 6	17 15	PPP	37·4
Granada		83·2	54	i 12 36k	+ 7	i 23 1	+12	13 23	pP	i 40·2
Paris		84·4	41	i 12 34	− 2	e 23 1	0	e 16 1	PP	e 39·4
De Bilt		85·0	37	e 12 38a	0	e 23 19	+12	e 16 3k	PP	e 40·4
Uccle		85·0	39	e 12 39a	+ 1	e 23 12	+ 5	e 16 2	PP	e 39·4
Alicante		85·3	52	e 12 47	+ 7	i 23 19	+ 9	13 0	PcP	e 39·9
Tortosa	N.	85·3	49	13 1	+21	23 25	+15	—	—	e 39·4
Clermont-Ferrand		85·7	44	e 12 44	+ 2	e 23 19	+ 5	i 13 3a	PcP	e 42·0
Barcelona		86·3	48	—	—	e 23 25	+ 5	—	—	e 41·2
Besançon		87·1	42	e 12 52	+ 3	e 24 43	PS	—	—	e 43·4
Copenhagen		87·7	33	i 12 52	0	e 23 32	− 1	16 21	PP	—
Strasbourg		87·8	40	e 12 54	+ 2	e 23 31	− 3	e 16 26	PP	e 40·7
Basle		88·0	41	e 12 57	+ 4	—	—	—	—	—
Upsala		88·3	28	e 16 26?	PP	e 23 31	− 8	e 23 22	SKS	e 45·4
Zürich		88·7	41	e 13 4	+ 7	—	—	—	—	—
Chur		89·5	42	e 13 2	+ 2	—	—	—	—	—
Collmberg		89·8	36	e 13 1	− 1	—	—	e 13 12	PcP	—
Cheb		90·0	38	e 13 8	+ 5	e 23 56	+ 2	e 16 48	PP	e 43·4
Prague		91·2	37	e 16 11	?	e 23 45	[+ 5]	e 16 48	PP	e 41·4
Florence		91·8	44	i 13 35	+24	i 23 58	{+ 3}	i 24 55	?	i 44·6
Triest	E.	92·7	41	e 12 59	−16	i 24 0	{− 2}	e 17 4	PP	—
Rome		93·4	45	e 13 21	+ 3	e 24 4	{− 3}	e 25 51	PS	—
Warsaw		93·8	33	e 17 10	PP	e 24 8	{− 2}	25 37	PS	e 47·9
Zagreb		94·0	41	e 13 28?	+ 7	e 24 26?	− 4	—	—	—
Moscow		99·3	24	13 45	0	24 3	[−21]	17 43	PP	—
Christchurch		101·0	228	14 16	+23	24 44	[+12]	18 42	PP	46·9
Sverdlovsk		105·5	13	e 14 25	P	25 4	[+11]	e 18 35	PP	—
Irkutsk		110·1	347	e 19 18	PP	25 25	[+12]	28 26	PS	—
Grozny		112·1	28	e 19 18	PP	e 28 47	PS	—	—	—
Helwan		112·6	48	19 23	PP	—	—	—	—	—
Leninakan		113·1	31	e 18 39	[0]	—	—	e 33 15	?	—
Ksara		113·3	42	e 18 17	[−23]	e 30 19	PPS	e 19 39	PP	—
Baku		116·3	28	e 19 54	PP	e 27 0	{+11}	e 29 44	PS	—
Riverview		116·7	240	e 18 53	[+ 7]	e 25 52	[+14]	e 20 5	PP	e 54·0
Tashkent		122·0	12	20 23	PP	26 10	[+13]	30 23	PS	—
Andijan		123·1	10	e 20 10	PP	22 1	PKS	30 35	PS	—
New Delhi	N.	135·8	7	22 9	PP	31 52	PS	25 5	PPP	—
Calcutta	N.	141·9	352	e 23 12	PP	—	—	e 36 10	?	—
Bombay		144·3	17	e 19 42	[+ 4]	—	—	—	—	—
Hyderabad	N.	146·9	9	19 51	[+ 9]	33 27	SKSP	—	—	—

Additional readings :—
Tucson e =7m.40s. and 9m.46s.
Cape Girardeau iN =5m.11s.
St. Louis iPZ =5m.16s., iZ =6m.54s., iS =9m.20s., isS =9m.38s.
Pierce Ferry i =6m.18s.
Pasadena iN =5m.56s., iPcPZ =9m.14s., eSNZ =10m.37s.
Chicago i =6m.12s., iS =10m.35s.
Salt Lake City e =13m.31s.
Georgetown S =10m.27s.

Continued on next page.

Logan i =6m.13s., e =11m.35s.
San Juan iP =6m.11s., i =8m.54s., e =9m.15s. and 10m.23s.
Berkeley iZ =12m.38s.
Bermuda e =12m.27s.
Shasta Dam i =13m.48s.
Harvard i =6m.57s.
Huancayo e =9m.48s.
Ottawa SS =14m.26s.?
Seven Falls e =17m.26s.
Victoria SSS =17m.9s.
Sitka iSS? =19m.4s.
Lisbon Z =12m.19s., 13m.2s., and 25m.48s.
Kew eZ =13m.28s., ePPZ =15m.42s., ePPPZ =17m.22s.?, eSNZ =22m.49s., ePS = 23m.32s.?, eSSZ =29m.0s., eQEN =36m.32s.?
Granada P_eP =13m.2s.
Paris e =13m.44s., eSKS? =23m.2s., e =23m.8s., i =26m.16s., eSS? =27m.26s.?, e = 36m.34s.
De Bilt eSS =28m.56s.?, eSSS =32m.16s., eE =37m.1s.
Uccle e =13m.49s., eSKS?E =22m.28s., ePS =24m.9s.
Alicante PP =15m.43s., PPP =17m.27s., PS =23m.41s., SS =28m.41s., Q =34m.28s.
Copenhagen 24m.39s. and 29m.26s.
Strasbourg e =14m.50s., 20m.42s., and 20m.58s., iS =23m.52s.
Collmberg eZ =13m.36s., 13m.54s., 16m.31s., and 19m.32s.
Cheb ePPS =25m.18s.
Prague e =25m.26s.
Triest ePPPE =18m.54s., iSE =24m.35s., iPSE =25m.51s.
Warsaw ePPE? =17m.18s., PSN =25m.4s., PSE =25m.7s., PPSN =25m.54s.
Moscow S_eS =25m.27s., PS =26m.37s.
Christchurch PS =27m.10s., PPS =28m.7s., SS =32m.9s., SSS =36m.46s., SSSS?E = 39m.18s., QEN =39m.50s.
Sverdlovsk PS =27m.45s., PPS =28m.53s.
Irkutsk PPS =29m.43s., eSS =34m.32s.
Helwan e =19m.38s. and 19m.57s.
Baku ePPS =30m.54s.
Riverview eSKKSE =26m.51s., ePSE =29m.58s., eSSE =35m.50s.
Tashkent PPS =31m.38s., SS =37m.17s.
Andijan eSS =44m.2s.
New Delhi iN =22m.56s., PPN =24m.5s., PSN =24m.15s., PPSN =35m.29s., SSSN = 45m.11s.
Long waves were also recorded at Branner, Seattle, Arapuni, Auckland, Wellington, Bucharest, Kodaikanal, and Colombo.

May 15d. 22h. 24m. 17s. Epicentre 15°·5N. 96°·7W. (as at 22h. 10m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	Z.	1·5	358	1 42	?	—	—	i 1 51	?	2·0
Vera Cruz	Z.	3·7	8	1 15	P_g	—	—	—	—	2·1
Puebla	N.	3·8	337	1 17	P_g	2 1	S*	—	—	—
Tacubaya	E.	4·5	329	1 24	P*	—	—	—	—	2·4
Guadaljara		8·1	310	e 2 11	+ 9	e 3 46	+11	—	—	—
Merida		8·6	50	e 2 21	P*	i 3 54	+ 6	e 2 27	P_g	—
Balboa Heights		18·0	109	e 4 13	0	—	—	—	—	—
Tucson		21·1	326	i 4 48	0	i 8 58	+19	—	—	i 11·2
Cape Girardeau		22·6	15	i 5 2	− 1	e 9 6	− 1	i 5 10	?	—
Columbia		23·2	34	e 5 18	+ 9	e 9 21	+ 3	—	—	e 12·4
St. Louis	Z.	23·8	12	i 5 12	− 3	i 9 27	− 1	—	—	—
Florissant		23·9	12	e 5 12	− 4	e 9 28	− 2	—	—	—
Bogota		24·7	114	i 5 31	+ 7	e 10 16	+32	i 5 40	?	—
La Jolla	Z.	25·4	317	e 5 30	− 1	—	—	—	—	—
Palomar		25·5	319	i 5 32	0	—	—	—	—	—
Pierce Ferry		25·7	327	i 5 34	+ 1	—	—	e 7 14	?	e 13·6
Boulder City		26·0	326	i 5 37	+ 1	e 10 43	+37	—	—	e 13·7
Overton		26·2	327	i 5 39	+ 1	—	—	—	—	e 14·0
Riverside	Z.	26·2	319	i 5 38	0	—	—	—	—	—
Mount Wilson		26·8	319	i 5 45	+ 1	—	—	—	—	—
Pasadena		26·8	319	i 5 44	0	e 10 33	+14	i 6 0	?	e 12·7
Chicago		27·4	14	e 5 50	+ 1	i 11 3	+35	—	—	e 13·4
Haiwee	Z.	28·0	322	i 5 54	− 1	—	—	—	—	—
Santa Barbara	Z.	28·0	317	e 5 57	+ 2	—	—	—	—	—
Tinemaha	Z.	28·8	323	e 6 3	+ 1	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	29·5	321	e 6 15	+ 7	—	—	—	—	e 16·1
Lick		31·0	320	e 6 23	+ 2	—	—	—	—	e 16·0
Branner	N.	31·4	320	e 6 47	+22	—	—	—	—	—
Fort de France		34·3	87	e 6 46	− 4	—	—	—	—	—
Harvard		34·5	34	e 6 45	− 7	e 11 53	−27	—	—	e 17·0
Weston		34·5	34	e 6 48	− 4	—	—	—	—	—
Shawinigan Falls		36·8	28	7 8	− 3	12 58	+ 2	14 43	?	17·8
Grand Coulee		37·2	336	i 7 14	− 1	—	—	i 8 42	PP	—
Seven Falls		38·2	29	7 17	− 6	13 17	0	—	—	17·7
La Paz		42·5	137	9 9	PP	—	—	—	—	—
Toledo		82·2	51	i 12 24	0	i 22 49	+10	—	—	—
Bergen		82·5	29	12 27	+ 1	22 35	− 7	—	—	—
Granada		83·2	54	i 12 29k	0	i 22 43	− 6	13 22	pP	—
Uccle		85·0	39	e 12 38a	0	e 23 8	+ 1	—	—	—
Tortosa	E.	85·3	49	12 46	+ 6	23 16	+ 6	13 15	pP	—
Clermont-Ferrand		85·7	44	e 12 41	− 1	e 23 23	+ 9	—	—	—
Copenhagen		87·7	33	i 12 53	+ 1	—	—	16 13	PP	—
Strasbourg		87·8	40	e 12 51	− 1	e 23 35	+ 1	e 12 55	PcP	—
Basle		88·0	41	e 13 55	+62	—	—	—	—	—
Upsala		88·3	28	—	—	e 23 19	[− 3]	e 23 43	S	—
Zürich		88·7	41	e 13 1	+ 4	—	—	—	—	—
Chur		89·5	42	e 12 59	− 1	—	—	—	—	—
Collmberg		89·8	36	e 13 1	− 1	—	—	e 13 14	PcP	e 20·7
Triest	E.	92·7	41	—	—	e 24 23	+ 5	—	—	—
Rome		93·4	45	—	—	e 23 41	[−11]	—	—	—
Warsaw	E.	93·8	33	e 13 37	+17	—	—	—	—	—
Zagreb		94·0	41	e 13 25	+ 4	—	—	—	—	—
Helwan		112·6	48	e 19 23	PP	—	—	e 22 23	PPP	—
Ksara		113·3	42	e 18 52	[+12]	e 29 18	PS	e 19 30	PP	—

Additional readings ·—
Merida iN =4m.1s., iSZ =4m.5s.
Granada PcP =12m.58s.
Strasbourg e =13m.21s. and 13m.43s., eSKS =23m.3s.
Collmberg eZ =13m.20s., 13m.53s., 14m.47s., and 16m.52s.
Helwan e =19m.37s. and 20m.7s.
Long waves were also recorded at Sofia and Chihuahua.

May 15d. Readings also at 3h. (near Tashkent, Stalinabad, and Andijan), 4h. (near Frunse), 6h. (near Florissant, St. Louis, and Cape Girardeau), 8h. (Tucson, Palomar, Riverside, Mount Wilson, and Tinemaha), 9h. (Zagreb), 11h. (near Fort de France), 13h. (near Apia), 14h. (near New Delhi), 15h. (near Mizusawa), 17h. (Andijan, near Samarkand, and Stalinabad), 22h. (Palomar, Riverside, Mount Wilson, Pasadena, Haiwee, and Tinemaha).

May 16d. 5h. 25m.19s. Epicentre 10°·0S. 161°·1E. (as on 1943, February 16d.).

A = −·9319, B = +·3191, C = −·1725; δ = +2; h = +7;
D = +·324, E = +·946; G = +·163, H = −·056, K = −·985.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	19·0	202	i 4 22	− 4	i 7 57	+ 2	i 4 46	PP	i 9·8
Riverview		25·4	199	i 5 31k	0	i 9 59	+ 3	i 6 12	PP	e 12·2
Arapuni		30·9	157	e 4 35	?	13 29	SSS	—	—	15·4
Wellington		33·4	162	—	—	11 51	−12	8 51	PcP	16·4
Christchurch		34·9	165	—	—	12 23	− 4	14 50	SS	17·0
Perth		47·1	235	16 36	?	20 36	SSS	17 19	?	23·4
Honolulu		50·9	51	—	—	—	—	e 16 27	PS	e 20·5
Mizusawa	E.	52·3	341	9 16	+ 1	15 0	?	—	—	—
Irkutsk		78·7	329	11 55	−11	1 22 0	− 3	—	—	—
Sitka		84·5	29	—	—	e 23 5	+ 3	—	—	e 38·6

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		85·7	50	i 12 43	+ 1	—	—	e 24 36	PS	e 40·7
Shasta Dam		86·4	47	i 12 46	+ 1	—	—	e 16 3	PP	—
Santa Barbara	z.	86·8	54	i 12 49	+ 2	—	—	—	—	—
Mount Wilson		88·0	54	i 12 55a	+ 2	—	—	—	—	—
Pasadena		88·0	54	i 12 53	0	e 23 36	0	—	—	40·1
Victoria		88·0	40	—	—	e 23 56	+20	—	—	39·7
La Jolla	z.	88·4	56	i 12 57	+ 2	—	—	—	—	—
Haiwee		88·6	52	i 12 57a	+ 1	—	—	—	—	—
Riverside		88·6	54	i 12 56a	0	—	—	—	—	—
Tinemaha		88·6	51	i 12 58a	+ 2	—	—	—	—	—
Palomar		88·9	56	i 12 58a	0	—	—	—	—	—
Grand Coulee		90·7	40	i 13 6	0	—	—	—	—	—
Boulder City		91·1	53	i 13 8	0	e 23 41	[+ 2]	i 16 44	PP	—
Overton		91·5	53	i 13 10	0	e 23 43	[+ 1]	—	—	—
Pierce Ferry		91·7	53	i 13 11	+ 1	e 23 46	[+ 3]	i 16 49	PP	—
Tucson		93·6	57	i 13 21	+ 2	e 24 53	+27	e 23 30	SKS	40·2
Andijan		95·5	309	i 13 32	+ 4	—	—	—	—	—
Tashkent		97·9	311	e 13 34	− 5	e 24 55	− 8	i 19 48	PPP	—
Sverdlovsk		104·0	327	e 14 4	− 2	e 25 46	− 8	—	—	—
Florissant		110·6	52	e 19 9?	PP	e 28 44	PS	—	—	—
St. Louis		110·7	52	e 19 13	PP	e 25 38	[+23]	e 28 42	PS	e 51·4
Grozny		115·2	313	e 19 46	PP	—	—	—	—	—
Moscow		116·7	328	19 45	PP	—	—	—	—	—
Ottawa		120·5	42	e 18 51	[− 3]	—	—	—	—	57·7
Harvard		123·9	45	e 19 0	[0]	—	—	—	—	62·7
Weston		124·1	45	e 18 59	[− 2]	—	—	—	—	53·0
Ksara		124·6	304	e 20 50	PP	e 34 15	S_cSPKP	e 23 30	PPP	—
Warsaw		126·9	330	e 20 49	PP	e 37 58	SS	e 38 21	SSP	67·7
Copenhagen		128·2	338	e 19 6	[− 2]	—	—	21 11	PP	—
Helwan		129·3	301	19 10	[− 1]	—	—	i 21 20	PP	—
Collmberg	z.	131·3	335	19 13	[− 1]	—	—	e 21 29	PP	—
Bermuda		132·3	55	e 22 42	PKS	—	—	—	—	63·0
De Bilt		133·7	340	e 21 43	PP	e 32 11	PS	—	—	59·7
Uccle		135·0	340	e 21 56a	PP	e 22 53	SKP	31 59	PS	60·7
Strasbourg		135·5	335	e 21 58	PP	e 32 53	PS	—	—	67·7
Kew		135·9	343	e 19 12?	[−11]	—	—	e 22 3	PP	67·7
Zürich		136·1	333	e 21 41	PP	—	—	—	—	—
Paris		137·4	339	e 19 20	[− 6]	—	—	e 22 6	PP	67·7
Rome		137·9	326	e 19 25	[− 2]	—	—	—	—	—
Clermont-Ferrand		139·7	336	i 19 23	[− 7]	e 22 33	SKP	—	—	68·2
Tortosa		144·8	333	i 19 40	[+ 1]	22 59	SKP	—	—	—
Alicante		147·3	333	19 53	[+10]	—	—	—	—	—
Toledo		147·4	339	i 19 45	[+ 2]	—	—	i 23 15	PP	—
Granada		149·6	340	i 19 57a	[+10]	—	—	20 17	pPKP	78·3

Additional readings :—
Brisbane iPN =4m.25s.
Riverview iNZ =5m.47s., iE =5m.52s., iPPPZ =6m.38s., iP_cPN =8m.56s., isSEN = 10m.13s., eQN =10m.47s.
Arapuni e =10m.11s.
Wellington i =10m.51s.
Christchurch QEN =14m.25s.
Perth PP =17m.19s. ; readings wrongly identified.
Berkeley eE =19m.10s., iN =23m.19s.
Pasadena iZ =13m.15s., eZ =15m.41s. and 16m.17s., eEN =23m.54s.
Palomar iZ =13m.4s., iE =13m.53s.
Boulder City i =13m.27s.
Overton i =13m.31s.
Pierce Ferry i =13m.23s.
Tucson i =14m.47s., ePS =25m.55s.
Tashkent ePP =17m.10s., SKS =24m.29s., S_cS =25m.20s., ePS =26m.30s.
St. Louis eSKKS?E =26m.32s., eSE =27m.16s., eSS?E =35m.18s.
Moscow SKS =25m.34s.
Warsaw ePN =21m.1s.
Helwan e =22m.2s.
Collmberg eZ =21m.45s., 22m.55s., and 23m.6s.
Rome SKS =22m.58s., eN =23m.51s.
Tortosa N =21m.37s.
Alicante PP =21m.22s., PPP =23m.54s., PS =33m.6s.
Granada PP =23m.22s.
Long waves were also recorded at Cheb, Prague, Upsala, Auckland, College, Philadelphia, and Salt Lake City.

May 16d. Readings also at 0h. (Merida, Balboa Heights, San Juan, Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, Tucson, Bermuda, and Philadelphia), 1h. (Paris), 4h. (Uccle), 7h. (near Almata, Frunse, Andijan, Samarkand, Stalinabad, and Grozny), 8h. (Rome and Triest) 9h., 10h., and 12h. (Triest), 15h. (Harvard), 16h. (Copenhagen), 19h. (Harvard), 20h. (Tucson), 22h. (near Almata and Tucson), 23h. (Cheb).

May 17d. Readings at 0h. (near Ksara), 2h. (near Bogota), 7h. (Auckland, Christchurch, Wellington, Brisbane, and Riverview), 12h. (Riverside, Mount Wilson, Pasadena, St. Louis, Tinemaha, and Tucson), 13h. (La Paz and near Samarkand), 22h. (Boulder City, Overton, and Pierce Ferry).

May 18d. 3h. 55m. 14s. I
6h. 45m. 34s. II } Epicentre 37°·6N. 118°·9W. (as on 1941, Dec. 31d.).

$A = -\cdot3839$, $B = -\cdot6954$, $C = +\cdot6076$; $\delta = +14$; $h = -1$;
$D = -875$, $E = +\cdot483$; $G = -\cdot294$, $H = -\cdot532$, $K = -\cdot794$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Fresno	N.	1·1	219	e 0 23	+ 1	e 0 40	+ 1	—	—	
II	N.	1·1	219	e 0 21	− 1	e 0 40	+ 1	e 0 25	P_g	
I Lick		2·2	263	e 0 43	+ 5	e 1 17	S_g	—	—	
II		2·2	263	e 0 42	+ 4	e 1 15	S_g	—	—	
II Berkeley		2·6	267	e 0 50	P_g	e 1 34	S_g	—	—	
I Boulder City		3·7	116	i 0 55	− 5	i 1 46	+ 1	i 1 9	P*	
II		3·7	116	i 0 59	− 1	e 1 43	− 2	—	—	
I Overton		3·7	106	e 0 56	− 4	e 1 41	− 4	i 1 3	P*	
II		3·7	106	i 1 1	+ 1	e 1 49	+ 4	i 1 4	P*	
I Shasta Dam		4·1	319	e 1 13	P*	e 2 14	S_g	—	—	
II		4·1	319	e 1 8	+ 3	e 2 18	S_g	—	—	
I Pierce Ferry		4·2	110	i 0 59	− 8	i 2 2	+ 5	i 1 25	P_g	
II		4·2	110	i 0 59	− 8	e 1 59	+ 2	—	—	

Additional readings :—
Lick I eEN = 1m.20s.
Berkeley II eZ = 55s.
Boulder City I i = 58s., eS = 1m.39s., II i = 1m.2s.
Pierce Ferry I i = 1m.10s., II i = 1m.10s.

May 18d. 13h. 13m. 34s. Epicentre 35°·1N. 23°·4E. (as on April 5d.).

$A = +\cdot7525$, $B = +\cdot3257$, $C = +\cdot5724$; $\delta = -2$; $h = 0$;
$D = +\cdot397$, $E = -\cdot918$; $G = +\cdot525$, $H = +\cdot227$, $K = -\cdot820$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		7·6	0	e 1 56	+ 1	e 4 50	?	—	—	—
Bucharest		9·5	12	e 2 26	+ 6	—	—	—	—	—
Rome		10·9	312	e 3 3	+23	—	—	—	—	e 5·9
Zagreb		12·1	335	e 2 54	− 3	e 5 14	0	—	—	e 6·7
Triest		12·8	328	e 3 4	− 2	e 5 22	− 8	—	—	—
Zürich		16·5	322	e 3 52	− 2	e 7 9	+11	—	—	—
Basle		17·2	323	e 4 2	− 1	e 7 24	+10	—	—	—
Strasbourg		17·8	326	e 4 32	+21	e 7 41	+13	—	—	e 10·4
Collmberg	Z.	17·9	338	e 4 10	− 2	—	—	—	—	—
Tortosa	N.	18·9	295	e 4 0	−24	—	—	—	—	—
Grozny		19·1	59	e 4 38	+11	8 16	+19	—	—	—
Alicante		19·4	288	e 4 55	+25	e 8 44	+40	9 16	Q	e 11·1
Paris		20·6	318	e 4 42	− 1	e 8 26?	− 3	—	—	e 10·4
Uccle		20·9	325	e 4 46	0	e 8 39	+ 4	—	—	e 11·9
Baku		21·6	68	e 5 37?	+43	—	—	—	—	—
Granada		21·9	284	i 4 59a	+ 2	i 8 56	+ 2	5 38	PP	11·0
Toledo		22·3	291	e 5 1	0	(e 9 12)	+10	—	—	—

Additional readings :—
Zagreb eNE = 3m.8s.?, and 5m.4s.
Collmberg eZ = 4m.45s., 5m.33s., and 5m.54s.
Toledo True S given as PP.
Long waves were also recorded at Cheb, De Bilt, and Kew.

May 18d. Readings also at 1h. (Columbia, New Delhi, and Kodaikanal), 2h. (Samarkand near Andijan and Stalinabad), 5h. (Granada and near New Delhi), 7h. (near Boulder City, Overton, and Pierce Ferry), 8h. (Rome), 10h. (Santa Lucia and near Panimavida), 11h. (Andijan, Samarkand, and near Stalinabad), 13h. (near Berkeley), 14h. (Andijan and Granada), 18h. (Malaga), 19h. (near Balboa Heights), 21h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Shasta Dam), 23h. (Tucson).

May 19d. 0h. 31m. 16s. Epicentre 55°·5N. 165°·0E. (as on 1941, Feb. 7d.).

$A = -\cdot5496$, $B = +\cdot1473$, $C = +\cdot8223$; $\delta = -7$; $h = -7$;
$D = +\cdot259$, $E = +\cdot966$; $G = -\cdot794$, $H = +\cdot213$, $K = -\cdot569$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		19·7	241	e 4 29	− 5	—	—	—	—	—
Mori		20·8	241	4 43	− 2	—	—	—	—	—
Morioka		22·4	234	4 59	− 3	8 44	−20	—	—	—
Miyako		22·6	234	e 4 58?	− 5	8 48	−19	—	—	—
Mizusawa	N.	22·8	233	e 5 4	− 1	9 9	− 2	—	—	—
College		24·7	49	e 5 29	+ 5	e 9 48	+ 4	e 6 10	PPP	11·0
Kakioka		25·6	233	e 5 5	−27	—	—	—	—	—
Nagano		26·2	236	5 40	+ 2	—	—	—	—	—
Misima		27·1	232	e 5 48	+ 2	10 25	+ 1	—	—	—
Sitka		32·3	63	e 6 33	0	e 11 32	−14	e 6 46	?	e 13·8
Irkutsk		34·9	292	i 6 53	− 2	12 22	− 5	—	—	—
Victoria		42·8	69	8 12	+11	14 28	+ 2	17 56	SSS	21·7
Honolulu		44·0	125	—	—	(e 18 7)	SS	—	—	e 18·1
Grand Coulee		45·5	66	e 7 22	−61	i 15 3	− 2	—	—	—
Shasta Dam		48·4	76	i 8 45	− 1	i 15 46	0	e 18 33	S_cS	—
Saskatoon		48·9	55	—	—	e 15 56	+ 3	—	—	23·7
Butte		50·1	63	e 9 9	+10	e 16 7	− 3	—	—	e 21·8
Berkeley		50·5	79	e 9 6	+ 4	e 16 15	− 1	—	—	e 21·3
Sverdlovsk		52·5	318	i 9 11	− 6	i 16 39	− 4	—	—	—
Tinemaha		53·3	76	e 9 24	+ 1	e 16 56	+ 2	—	—	—
Haiwee	Z.	54·1	76	e 9 28	− 1	—	—	—	—	—
Salt Lake City		54·1	69	e 9 34	+ 5	16 56	− 9	e 17 4	PS	e 23·9
Santa Barbara	Z.	54·4	79	e 9 32	+ 1	—	—	—	—	—
Almata		54·8	298	9 34	0	17 33	+19	—	—	—
Mount Wilson		55·5	78	i 9 38	− 1	e 17 23	− 1	—	—	—
Pasadena	N.	55·5	78	i 9 37	− 2	i 17 24	0	—	—	e 23·0
Overton		55·8	74	i 9 43	+ 2	e 17 31	+ 3	10 17	P_cP	—
Boulder City		56·0	75	i 9 42	− 1	i 17 32	+ 2	—	—	—
Riverside	Z.	56·0	78	i 9 41	− 2	—	—	—	—	—
Pierce Ferry		56·3	74	i 9 45	0	e 17 36	+ 2	—	—	—
Palomar	N.	56·8	78	i 9 52a	+ 4	i 17 41	0	—	—	—
La Jolla	Z.	56·9	79	e 9 55	+ 6	—	—	—	—	—
Andijan		59·0	298	e 10 3	− 1	18 10	0	—	—	—
Tashkent		60·1	300	e 10 8	− 3	e 18 17	− 7	—	—	—
Tucson		60·9	74	i 10 17	0	e 18 31	− 3	39 46	P'P'	e 25·6
Moscow		61·1	149	10 18	0	18 37	0	—	—	—
Lincoln		61·8	59	—	—	e 18 43	− 3	—	—	e 59·2
Upsala		62·1	343	—	—	e 18 44?	− 5	e 19 44	PPS	e 33·7
Samarkand		62·5	301	e 10 24	− 4	e 18 49	− 5	—	—	—
Stalinabad		62·5	299	i 10 25	− 3	i 19 5	+11	—	—	—
Chicago		65·1	53	—	—	e 19 22	− 5	—	—	e 26·9
Florissant		66·4	57	i 10 52	− 1	i 19 41	− 2	i 19 58	PS	—
St. Louis		66·6	57	i 10 53	− 1	i 19 44	− 1	11 7	pP	—
Copenhagen		66·9	345	e 11 8	+12	i 19 50	+ 1	13 53	PP	29·7
Aberdeen		67·2	353	—	—	i 19 48	− 4	—	—	34·4
Ottawa		67·2	43	e 10 56	− 2	e 19 44	− 8	—	—	29·7
Seven Falls		67·5	38	—	—	e 19 50	− 6	—	—	30·7
Grozny		69·0	317	e 11 10	+ 1	e 20 17	+ 3	—	—	—
Durham		69·5	352	—	—	i 20 22	+ 2	—	—	—
Baku		69·7	313	i 11 20	+ 6	i 20 25	+ 3	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vermont		69·9	41	e 22 42	?	—	—	e 24 56	SS	e 30·5
Collmberg	Z.	71·1	342	e 11 20	− 2	—	—	e 11 41	PcP	e 38·7
Harvard		71·2	41	e 11 22	− 1	—	—	—	—	e 38·7
Weston		71·4	41	i 11 22	− 2	e 20 44	+ 2	i 11 37	pP	—
De Bilt		71·5	348	e 11 24	0	e 20 44	+ 1	28 44	SSS	e 32·7
Leninakan		71·9	317	e 11 27	0	20 51	+ 3	—	—	—
Philadelphia		72·0	44	—	—	e 20 42	− 7	e 25 15	SS	e 29·8
Prague		72·0	341	—	—	e 20 44	− 5	e 25 26	SS	e 34·7
Cheb		72·3	343	—	—	e 20 57	+ 5	e 25 34	SS	e 37·7
Kew		72·7	351	e 11 40?	+ 8	(e 21 14?)	+17	—	—	e 21·2
Uccle		72·9	349	e 11 31	− 2	e 20 57	− 2	21 37	PS	e 34·7
Hyderabad	N.	73·9	277	11 39	0	21 7	− 3	14 14	PP	—
Strasbourg		74·5	345	e 11 48	+ 6	e 21 8	− 9	14 42	PP	e 29·3
Paris		75·0	348	e 11 55?	+10	e 21 47?	+24	—	—	e 42·7
Basle		75·6	345	e 11 48	0	—	—	14 16	PP	—
Zürich		75·6	345	e 12 0	+12	—	—	—	—	—
Zagreb		75·7	338	e 11 54?	+ 5	e 21 32	+ 2	—	—	e 41·7
Bombay		75·9	283	e 11 54	+ 4	e 21 24	− 8	—	—	—
Chur		75·9	344	e 11 50	0	—	—	—	—	—
Triest		76·3	340	e 11 52?	0	e 21 37	0	—	—	e 34·0
Clermont-Ferrand		78·0	347	—	—	e 22 4	+ 9	—	—	e 35·8
Florence		78·6	341	e 23 57	?	i 32 34	?	—	—	—
Rome		80·2	339	e 12 29	+15	i 22 21	+ 2	e 27 27	SS	e 37·1
Ksara		81·0	319	e 12 21	+ 3	22 40	+13	e 15 32	PP	—
Bermuda		82·7	41	—	—	e 22 50	+ 6	—	—	e 34·2
Tortosa		83·1	348	12 29	0	22 49	+ 1	12 44	PcP	46·7
Toledo		84·5	352	i 12 35	− 1	e 23 38	+36	23 3	SKS	—
Alicante		85·7	349	e 12 58	+16	e 23 16	+ 2	13 13	pP	e 40·5
Helwan		86·2	321	12 44	0	23 20	+ 1	16 5	PP	—
Granada		87·2	352	i 12 51k	+ 2	i 23 30	+ 2	13 12	pP	42·4
San Juan		94·7	48	—	—	i 24 34	− 2	e 25 8	ScS	e 37·2

Additional readings :—
Mizusawa SE =9m.5s.
Shasta Dam e =11m.23s.
Cheb e =29m.30s.
Mount Wilson iZ =9m.46s.
Boulder City i =10m.5s.
Pierce Ferry i =9m.51s.
Florissant iZ =11m.0s.
St. Louis iZ =11m.0s., eE =20m.2s., eN =23m.3s., eSSSSE =27m.33s., esSSE =27m.59s.
Collmberg eZ =11m.28s., iZ =11m.34s., ePP?Z =14m.12s.
Uccle eSSE =25m.44s., eSS =25m.49s.
Hyderabad SSN =25m.48s.
Strasbourg e =12m.10s., eSS =26m.4s.
Toledo iPP?Z =12m.50s., PPSN =25m.42s.
Alicante PP =16m.15s., PS =23m.59s., SS =28m.7s.
Helwan e =14m.59s., i =24m.19s.
Granada PP =16m.14s.
San Juan e =27m.7s., e =30m.56s.
Long waves were also recorded at Bergen, Bucharest, Sofia, New Delhi, Colombo, Arapuni, Christchurch, Wellington, and La Paz.

May 19d. 18h. 45m. 33s. Epicentre 37°·0S. 175°·0W. Depth of focus 0·070.

A = −·7976, B = −·0698, C = −·5992 ; δ = +8 ; h = −1 ;
D = −·087, E = +·996 ; G = +·597, H = +·050, K = −·801.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Tuai	6·5	251	1 39	− 2	2 59	− 3
Auckland	8·1	269	—	—	3 38	+ 6
New Plymouth	8·9	253	1 57	−10	3 34	−14
Wellington	9·1	239	2 11	+ 2	3 58	+ 7
Christchurch	11·5	232	2 44	+ 9	4 54	+16

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Kaimata		11·8	238	2 43	+ 5	4 54	+10
Santa Barbara	z.	87·7	44	e 11 57	− 1	—	—
La Jolla	z.	88·0	46	e 12 0	+ 1	—	—
Pasadena	z.	88·4	44	i 12 0k	− 1	—	—
Mount Wilson	z.	88·5	44	i 12 1k	− 1	—	—
Palomar		88·5	46	e 12 3k	+ 1	—	—
Riverside	z.	88·7	44	i 12 2k	− 1	—	—
Haiwee	z.	90·0	43	i 12 8	− 1	—	—
Tinemaha	z.	90·5	42	i 12 9k	− 2	—	—
Tucson		91·5	50	i 12 18	+ 2	—	—
Basle		169·3	353	e 20 2	[+51]	—	—

May 19d. Readings also at 2h. (near Samarkand, Stalinabad, and Andijan), 4h. (near Mizusawa), 5h. (Almata, Samarkand, Andijan, Stalinabad, and New Delhi), 9h. (Riverside, Tinemaha, and Mount Wilson), 13h. (Bogota and near Almata), 15h. (Calcutta, New Delhi, Bombay, Ksara, Rome, Tchimkent, Tashkent, Samarkand, and Stalinabad), 16h. (De Bilt and Copenhagen), 17h. (Basle, Tucson, Overton, Pierce Ferry, Boulder City, Tinemaha, Haiwee, Santa Barbara, Pasadena, Mount Wilson, Riverside, La Jolla, Palomar, near Apia, and near La Paz), 21h. (Sitka, Tucson, Palomar, Mount Wilson, and Tinemaha), 22h. (Overton, Pierce Ferry, and Boulder City), 23h. (Triest).

May 20d. 14h. 14m. 35s. Epicentre 15°·5N. 96°·7W. (as on 15d.).

$A = -\cdot1125$, $B = -\cdot9575$, $C = +\cdot2656$; $\delta = +1$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		1·5	358	0 32	+ 4	(0 50)	+ 1	—	—	0·8
Puebla		3·8	337	1 3	+ 2	—	—	—	—	1·9
Tacubaya	N.	4·5	329	1 14	+ 3	—	—	—	—	2·3
Merida		8·6	50	e 2 17	+ 8	i 4 4	+16	i 4 34	P*	—
Tucson		21·1	326	e 4 48	0	e 8 53	+14	—	—	e 10·8
St. Louis		23·8	12	i 5 14	− 1	e 9 35	+ 7	i 5 20	pP	—
Florissant		23·9	12	i 5 15	− 1	i 9 42	+12	—	—	—
Palomar		25·5	319	i 5 32	0	—	—	—	—	—
Pierce Ferry		25·7	327	i 5 34	+ 1	—	—	—	—	e 13·8
Boulder City		26·0	326	i 5 37	+ 1	—	—	—	—	e 13·8
Riverside	z.	26·2	319	e 5 38	0	—	—	—	—	—
Mount Wilson	z.	26·8	319	e 5 45	+ 1	—	—	—	—	—
Pasadena	z.	26·8	319	e 5 44	0	—	—	—	—	e 14·4
Chicago		27·4	14	e 5 48	− 1	(e 10 29)	+ 1	—	—	e 10·5
Tinemaha		28·8	323	e 6 2	0	—	—	—	—	—

Tacubaya PE = 1m.17s.
St. Louis iSN = 9m.39s.
Long waves were also recorded at Bermuda, Bozeman, Ukiah, Salt Lake City, Saskatoon, Sitka, College, and Kew.

May 20d. Readings also at 0h. (near Florissant and St. Louis, and near Tacubaya), 2h. (Brisbane), 3h. (Riverview, Arapuni, Auckland, Wellington, and Christchurch), 6h. (near Overton, Boulder City, and Pierce Ferry), 8h. (Bogota), 9h. (Tinemaha, Riverside, Palomar, Tucson, Florissant, and St. Louis), 13h. (Weston, Tucson, Tinemaha, Riverside, Mount Wilson, St. Louis, Brisbane, Riverview, Tashkent, Andijan, Sofia, Tacubaya, and near Oaxaca), 14h. (Uccle and Samarkand), 17h. (Malaga), 18h. (Collmberg, near Stalinabad, Almata, Frunse, and Andijan), 19h. (Wellington), 21h. (Tinemaha, Palomar, and Tucson), 22h. (Riverview, Zürich, Jena, Collmberg, De Bilt, Tucson, Pierce Ferry, Boulder City, Tinemaha, Riverside, Mount Wilson, Pasadena, and Shasta Dam), 23h. (Sofia, Bucharest, Rome, and Collmberg).

May 21d. 4h. 37m. 37s. Epicentre 37°·8N. 141°·4E. Depth of focus 0·010.
(as on 1945, January 1d.).

Intensity V at Shizuoka and Furukawa (Miyagi Prefecture); IV at Miyako; II-III at Sendai and Tukubasan. Depth 50km. Macroseismic radius 200-300km.

Seismo. Bull. Cent. Met. Obs., Japan, 1946, Tokyo, 1951, p. 13, with Macroseismic chart. Epicentre 37°·8N. 141°·6E.

$A = -·6191$, $B = +·4942$, $C = +·6103$; $\delta = -2$; $h = -1$;
$D = +·624$, $E = +·782$; $G = -·477$, $H = +·381$, $K = -·792$.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Sendai		0·6	320	0 16	− 1	0 26	− 3
Onahama		0·9	205	0 25	+ 6	0 43	+ 9
Mizusawa	N.	1·4	351	e 0 20	− 5	0 41	− 3
Mito		1·6	208	0 31	+ 3	0 53	+ 4
Kakioka		1·8	212	0 34	+ 4	0 56	+ 3
Utunomiya		1·8	224	0 31	+ 1	—	—
Tukubasan		1·9	213	0 35	+ 3	0 58	+ 3
Miyako		1·9	14	0 31	− 1	0 54	− 1
Morioka		1·9	355	0 28	− 4	0 48	− 7
Kumagaya		2·3	224	0 40	+ 3	1 5	0
Maebasi		2·3	233	0 37	0	1 5	0
Yokohama		2·7	211	1 2	S	(1 2)	−12
Nagano		2·8	246	0 42	− 2	1 19	+ 2
Hunatu		3·1	223	0 48	0	1 25	+ 1
Mera		3·1	204	1 22	S	(1 22)	− 2
Misima		3·3	216	0 45	− 6	1 17	−12
Mori		4·3	352	1 2	− 3	1 51	− 3
Tucson		83·1	55	e 12 17	+ 1	—	—

May 21d. 8h. 30m. 50s. Epicentre 6°·2N. 82°·4W. (as on 1942, October 8d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		3·9	45	i 0 59	− 3	i 1 43	− 7	—	—	—
Huancayo		19·4	159	e 4 36	+ 6	—	—	i 5 0	PPP	9·8
San Juan		20·0	51	e 4 35	− 2	i 8 25	+ 8	—	—	10·3
Tacubaya	N.	21·0	311	e 4 50	+ 3	—	—	—	—	—
St. Louis		33·0	349	i 6 35	− 4	e 11 54	− 3	e 7 51	PP	—
Florissant	E.	33·3	349	—	—	e 11 58	− 4	—	—	—
Tucson		37·1	318	e 7 14	0	e 12 53	− 8	e 7 39	pP	e 18·6
Pierce Ferry		41·5	321	e 7 49	− 1	—	—	—	—	—
Palomar		41·9	316	e 7 55	+ 1	—	—	—	—	—
Boulder City		42·0	320	i 7 57	+ 3	—	—	—	—	—
Riverside	Z.	42·6	315	e 7 59	0	—	—	—	—	—
Pasadena	Z.	43·2	315	e 8 3	− 1	—	—	—	—	—
Mount Wilson	Z.	43·2	315	e 8 6	+ 2	—	—	—	—	—
Tinemaha	Z.	44·9	319	e 8 18	0	—	—	—	—	—

Additional readings :—
San Juan iP = 4m.38s., e = 5m.41s.
Tucson e = 8m.41s.
Long waves also at Merida and Weston.

May 21d. 9h. 16m. 43s. Epicentre 14°·7N. 60°·5W. Focus at base of the superficial layers.

Intensity IX at Marigot and Lorrain ; VIII in the north part of La Martinique ; slight at Guadeloupe and St. Lucia.
Epicentre 14°·2N. 61°·0W. (Strasbourg). Despatch from French Colonial Secretary.

$A = +·4765$, $B = -·8422$, $C = +·2522$; $\delta = -4$; $h = +6$;
$D = -·870$, $E = -·492$; $G = +·124$, $H = -·219$, $K = -·968$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		0·7	273	i 0 16	+ 3	—	—	—	—	—
San Juan		6·5	303	i 1 40	+ 4	i 2 44	− 6	i 1 55	pP	i 3·1
Bogota		16·7	234	i 3 58	+ 5	e 7 3	+ 7	i 4 10	PP	9·8
Bermuda		18·2	348	i 4 12	0	i 7 29	− 2	i 4 30	PP	e 8·3
Balboa Heights		19·5	255	i 4 29	+ 2	e 7 59	− 1	—	—	—
Columbia		26·7	320	e 5 36	− 2	e 10 7	− 2	i 6 29	PP	e 12·6
Georgetown		28·2	333	i 5 51	− 1	i 10 34	0	—	—	—
Philadelphia		28·3	336	i 5 51	− 2	i 10 33	− 2	i 6 27	PP	i 11·6
Merida		28·4	287	i 5 42	−12	i 11 41	SS	i 6 20	PP	e 13·7
Fordham		28·5	339	i 5 55	+ 1	i 10 39	+ 1	—	—	—
Weston		29·1	344	i 5 58a	− 2	e 10 45	− 3	e 7 10	PP	—
Harvard		29·3	344	i 6 1	− 1	i 10 49	− 2	e 12 5	SSS	e 14·0
Halifax		29·9	356	6 14	+ 7	11 1	0	—	—	13·3
Mobile		29·9	307	5 57	−10	10 53	− 8	—	—	—
Huancayo		30·4	209	i 6 12	+ 1	i 10 58	−10	i 6 49	PP	12·3
Pennsylvania		30·6	333	i 6 9	− 4	i 11 5	− 7	i 7 11	PP	—
Vermont		31·6	342	i 6 26	+ 4	e 11 28	+ 1	i 6 39	pP	e 13·6
La Paz		31·9	193	i 6 27	+ 3	i 11 37	+ 5	i 7 35	PP	15·6
Ottawa		33·2	340	6 36	0	11 52	0	13 17	PcS	15·7
Shawinigan Falls		33·4	346	6 37	− 1	11 55	0	—	—	16·3
Seven Falls		33·5	348	6 38	0	11 55	− 2	—	—	15·3
Cape Girardeau		34·2	317	e 6 35	− 9	e 11 55	−13	e 8 7	PP	—
St. Louis		35·4	318	i 6 54	− 1	i 12 27	+ 1	i 7 3	pP	i 15·2
Florissant		35·6	318	i 6 56	0	i 12 27	− 3	i 7 8	pP	—
Chicago		35·8	324	i 6 51	− 7	i 12 25	− 7	7 4	pP	15·0
Tacubaya		37·2	282	e 7 11	+ 1	—	—	—	—	—
Lincoln		40·8	317	i 7 36	− 4	i 13 42	− 6	e 9 36	PPP	e 18·6
Santa Lucia		48·9	191	8 45	0	15 41	− 4	19 25	SS	28·9
Tucson		48·9	300	i 8 44	− 1	i 15 47	+ 2	i 10 25	PP	e 22·8
La Plata	E.	49·4	177	8 59	+11	16 47	+55	9 59	PcP	24·9
	N.	49·4	177	8 49	+ 1	16 17	+25	10 47	PP	24·4
Lisbon		51·0	52	i 8 59a	− 2	i 16 11	− 3	—	—	23·2
Salt Lake City		51·5	311	i 9 5	+ 1	i 16 20	− 1	i 16 43	PPS	e 20·5
Logan		51·7	312	i 9 7	+ 1	i 16 24	0	e 11 4	PP	e 24·5
Pierce Ferry		52·1	304	i 9 10	+ 1	e 16 33	+ 4	—	—	—
Saskatoon		52·3	326	9 11	0	16 31	− 1	20 41	SS	25·3
Bozeman		52·4	317	e 9 7	− 4	i 16 29	− 4	—	—	e 21·1
Overton		52·5	305	i 9 15	+ 3	e 16 29	− 6	—	—	—
Boulder City		52·8	304	i 9 16	+ 2	i 16 42	+ 3	9 44	pP	—
Butte		53·5	318	e 9 22	+ 3	i 16 50	+ 2	e 11 10	PP	e 22·4
La Jolla		54·4	300	e 9 5a	−21	e 17 0	0	e 19 2	ScS	—
Riverside		54·6	302	i 9 26a	− 2	i 17 3	0	i 9 42	pP	—
Granada		55·0	55	i 9 31a	+ 1	i 17 10	+ 2	9 48	pP	i 25·1
Mount Wilson		55·2	302	i 9 32a	0	e 17 11	0	i 9 43	pP	—
Haiwee		55·3	304	e 9 34	+ 2	e 17 15	+ 3	i 19 20	ScS	—
Pasadena		55·3	302	i 9 33a	+ 1	i 17 11	− 1	i 9 44	pP	e 23·1
Toledo		55·6	52	i 9 28	− 7	17 5?	−11	9 40	pP	25·7
Tinemaha		55·7	305	i 9 35a	0	e 17 13	− 5	39 5	P′P′	—
Santa Barbara		56·5	302	i 9 42a	+ 1	e 17 32	+ 4	e 19 30	ScS	—
Alicante		57·6	54	i 9 47	− 2	i 17 43	0	9 53	pP	e 27·1
Grand Coulee		58·2	318	i 9 52	− 1	e 17 48	− 3	—	—	—
Lick		58·4	305	e 9 54	− 1	—	—	e 10 12	PcP	—
Santa Clara		58·6	305	i 9 58	+ 2	e 18 0	+ 4	—	—	—
Tortosa		58·6	51	i 10 0	+ 4	17 58	+ 2	10 52	PcP	e 26·3
Branner		58·8	305	e 10 1	+ 4	—	—	10 34	PcP	—
Berkeley		58·9	305	i 9 59	+ 1	e 18 2	+ 2	e 10 10	pP	e 27·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Shasta Dam		59·3	309	e 9 57	− 4	e 18 2	− 3	e 19 40	S_cS	e 39·6
Edinburgh		59·8	34	10 4	0	18 16	+ 4	14 36	P_cS	—
Ukiah		59·8	307	e 10 4	0	e 18 14	+ 2	e 22 59	SS	—
Barcelona		59·9	50	e 10 1	− 4	18 12	− 1	—	—	e 26·7
Algiers		60·2	56	i 10 7	0	—	—	i 10 24	pP	—
Durham		60·3	35	i 10 7	− 1	i 18 17	− 1	19 54	S_cS	—
Kew		60·3	39	i 10 23?	+15	i 18 15	− 3	i 19 49	S_cS	e 28·3
Aberdeen		60·8	32	i 10 8	− 3	i 18 20	− 4	i 22 32	SS	27·7
Victoria		61·2	318	10 21	+ 7	18 39	+10	—	—	27·3
Paris		61·3	42	i 10 14k	0	i 18 31	0	e 12 18	PP	e 26·3
Uccle		62·9	40	e 10 24	− 1	i 18 50	− 1	e 10 42	pP	e 29·3
Besançon		63·3	45	e 10 29	+ 1	e 18 58	+ 2	—	—	e 29·9
De Bilt		63·6	39	i 10 29k	− 1	i 19 2	+ 2	i 12 36	PP	e 29·3
Neuchatel		64·0	44	e 10 32	0	—	—	—	—	—
Basle		64·5	44	e 10 35	− 1	e 19 12	+ 1	—	—	—
Strasbourg		64·8	43	i 10 36	− 2	i 19 14	0	i 10 49	pP	e 29·6
Zürich		65·2	44	i 10 38k	− 2	e 19 17	− 3	—	—	—
Bergen		65·4	30	10 41	− 1	19 40	+18	19 25	PS	30·0
Chur		65·8	45	e 10 43	− 1	e 19 27	0	—	—	—
Florence		66·8	48	i 11 1	+11	i 19 38	− 1	—	—	—
Jena		67·5	41	e 10 53	− 2	e 19 47	0	—	—	—
Cheb		67·9	41	e 10 59	+ 2	e 20 12	+20	e 13 36	PP	e 31·3
Rome		68·2	50	i 10 56k	− 3	i 19 51	− 5	e 11 22	pP	—
Collmberg		68·4	40	e 10 59	− 1	e 19 57	− 1	e 13 37	PP	e 27·3
Triest		68·7	46	i 11 3	+ 1	i 20 1	− 1	i 11 42	pP	e 32·1
Prague		69·2	42	11 6	+ 1	20 9	+ 1	20 34	PS	e 28·3
Sitka		69·6	326	i 11 4	− 4	e 20 10	− 2	21 4	PS	28·2
Zagreb		70·2	46	e 11 12k	+ 1	e 20 19	0	e 21 14	PPS	e 33·3
Upsala		71·4	31	e 11 18	− 1	i 20 31	− 2	i 21 18	PS	e 31·3
Kalossa		72·3	45	e 11 27	+ 3	i 20 41	− 3	e 11 37	P_cP	—
Belgrade		73·4	48	i 11 28	− 2	i 20 58	+ 2	21 37	PS	33·3
Warsaw		73·4	39	e 12 31	+61	e 20 54	− 2	e 21 19	PS	31·8
College		75·1	334	e 11 42	+ 2	e 21 17	+ 2	e 26 36	SS	34·6
Sofia		75·7	49	e 11 46	+ 2	i 21 24	+ 2	—	—	—
Moscow		82·5	34	12 19	− 2	22 26	− 8	12 30	P_cP	—
Yalta		83·1	46	e 12 28	+ 4	—	—	—	—	—
Helwan		84·4	61	i 12 32a	+ 2	i 22 55	+ 2	15 47	PP	—
Ksara		87·1	56	e 12 45	+ 1	i 23 27	+ 8	16 14	PP	—
Leninakan		91·0	48	e 13 18	+16	23 34	[+ 4]	—	—	—
Grozny		91·4	44	e 13 12	+ 8	23 30	[− 2]	—	—	—
Sverdlovsk		93·7	28	e 13 15	+ 1	i 23 40	[− 5]	i 16 58	PP	—
Baku		95·4	46	e 13 35?	+13	e 24 0	[+ 6]	e 17 19	PP	—
Tchimkent		107·1	36	18 22	[+ 3]	24 52	[+ 1]	—	—	—
Tashkent		107·5	37	e 14 22	P	26 10	− 4	27 46	PS	—
Stalinabad		108·9	39	e 28 15	PS	29 18	PPS	—	—	—
Frunse		109·4	33	e 18 8	[−19]	25 58	SKKS	e 19 4	PP	—
Andijan		109·6	36	e 18 37	[+10]	25 6	[+ 5]	19 37	PP	—
Irkutsk		112·1	10	e 18 56	PP	25 12	[0]	28 42	PS	—
New Delhi	N.	120·6	43	i 20 11	PP	i 25 43	[0]	29 55	PS	—
Bombay		123·2	55	e 20 36	PP	—	—	—	—	—
Christchurch		126·6	226	32 11	PPS	—	—	—	—	65·1
Kodaikanal	E.	131·4	61	e 12 27	?	—	—	—	—	—
Riverview		145·6	230	i 19 39a	[+ 4]	i 29 47	SKKS	i 20 1	pPKP	e 70·4
Brisbane		146·3	242	i 19 40	[+ 3]	—	—	—	—	—

Additional readings :—
San Juan i = 2m.17s.
Bogota i = 4m.4s. and 7m.14s., eSS = 7m.24s., iP_cP = 8m.16s.
Columbia e = 10m.31s.
Philadelphia i = 5m.2s., 6m.58s., 7m.8s., and 11m.6s.
Harvard i = 6m.12s., ePP = 6m.39s., e = 11m.16s.
Huancayo i = 7m.11s.
Pennsylvania eEN = 11m.27s.
Vermont e = 7m.9s., iS = 11m.32s.
La Paz SS = 13m.29s.

Continued on next page.

St. Louis iPPZ =8m.10s., iZ =8m.27s., isSE =12m.45s., iE =13m.13s., iN =14m.27s., isSS?E =15m.1s.
Florissant iZ =7m.25s., iE =8m.41s., isSE =12m.49s., eN =14m.29s.
Chicago ePP =8m.9s.
Tacubaya eN =7m.14s.
Lincoln e =14m.6s., i =17m.41s.
Santa Lucia E =16m.5s. and 28m.45s.
Tucson i =9m.2s., isS =16m.13s., e =16m.46s., eSS =19m.11s.
La Plata PP?E =10m.17s., PPPE =11m.17s., PPPN =11m.23s., E =11m.59s., S_cSN = 18m.34s., SSE =20m.41s.
Salt Lake City esS =16m.50s.
Logan i =18m.48s.
Pierce Ferry e =9m.57s. and 18m. 58s.
Saskatoon e =18m.55s., eEN =23m.5s.
Bozeman e =18m.55s., i =19m.21s.
Overton e =13m.17s.
Boulder City e =10m.8s. and 14m.42s., esS =17m.2s., eS_cS =19m.1s., e =19m.27s.
Butte esS =17m.14s., i =19m.5s. and 19m.33s.
Riverside eS_cSN =19m.13s., esS_cSN =19m.38s., ePKP,PKPZ =39m.23s.
Granada P_cP =10m.28s., iPP =11m.7s., pPP =13m.18s., sS =17m.51s., SS =20m.56s.
Mount Wilson ePKP,PKPZ =39m.27s.
Pasadena isSN =17m.30s., iS_cSN =19m.18s., isS_cSN =19m.43s., eSSN =21m.5s., ePKP,PKPZ =39m.37s.
Toledo sPZ =10m.0s., P_cP =10m.25s., pP_cPZ =10m.36s., PPZ =11m.37s., SSE = 21m.5s.?
Tinemaha iZ =9m.53s. and 34m.38s..
Alicante P_cP =10m.42s., PP =11m.59s., PPP =13m.9s., PS =17m.49s., S_cS =19m.57s., Q =23m.37s.
Tortosa iPE =9m.55s., iN =10m.15s., PPN =12m.15s., PPPEN =13m.15s., P_cSN = 14m.58s., PPSE =18m.22s., S_cSEN =19m.44s., SSN =21m.56s., SSSN =24m.56s.
Berkeley ePP? =12m.12s., eP_cS? =14m.43s., eS_cSN =19m.28s.
Shasta Dam i =10m.46s., i =10m.57s., e =18m.46s.
Edinburgh PP =12m.18s., S_cS =19m.48s., SS =22m.13s.
Algiers isP? =10m.31s., P_cP =11m.3s., i =11m.25s., e =11m.50s., ePPP =13m.45s.
Kew ePPZ =12m.33s., iPPPZ =13m.47s., iP_cSZ =14m.43s.?, eZ =17m.3s.?, eZ = 19m.28s.?, eSS =22m.13s., eQ =24m.57s.
Paris i =14m.49s.. eSS? =21m.41s., SS =22m.30s., i =22m.40s., eQ =25·3m., iPKP,PKP =39m.29s.
Uccle eE =10m.32s., ePPP =13m.54s., eSE =18m.46s., esS =19m.17s., eEN =19m.40s.?, iS_cS =20m.13s., eN =21m.22s., eE =21m.47s., eSSE =22m.59s., eSSSEN =26m.11s.
De Bilt eZ =14m.47s.
Strasbourg iP_cP =11m.23s., e =12m.18s., ePP? =13m.24s., eSeS? =20m.34s., eSS = 22m.58s.
Bergen S_eS =20m.32s., SSN =23m.26s.
Jena eEN =11m.9s., eSN =19m.44s.
Cheb e =18m.19s., ePS =20m.19s., e =21m.1s.
Rome iZ =11m.9s., eN =15m.10s., iPS?E =20m.17s., esSE =20m.33s.
Collmberg iZ =11m.16s. and 11m.23s., eZ =12m.13s. and 13m.58s., eN =14m.50s., eZ =15m.23s., ePKP,PKPZ =39m.14s., $ePKP_3$,PKP_3Z =39m.40s.
Triest iPPZ =13m.29s., iPSE =20m.30s., isSE =20m.59s.
Prague SS =24m.36s.
Sitka e =25m.1s.
Upsala eN =11m.35s., eN =13m.48s.
Belgrade i =16m.9s., SS =25m.35s.
Warsaw ePN =12m.39s., eN =21m.39s.
College e =21m.39s.
Helwan i =12m.59s., PPS =24m.14s.?
Leninakan iP_cP =13m.45s.
Sverdlovsk i =13m.27s., iPS =25m.24s.
Tashkent PKP =18m.24s., ePP =18m.41s.
Irkutsk SKKS =26m.11s., eSS =34m.31s.
New Delhi iSKKSN =27m.10s.
Christchurch E =39m.7s. SKS =44m.5s., PSZ =46m.29s., SSEN =51m.17s., SSS = 54m.24s., QEN =60m.17s., readings wrongly identified.
Riverview iPPZ =22m.56s., eN =27m.33s., iSKKKSE =30m.10s., iSKSPZ =33m.12s., eE =33m.52s., ePPSZ =35m.55s., ePPSE =36m.5s., ePPPSE =37m.19s., eE = 38m.47s., ePSPSE =43m.1s., eE =54m.41s.
Long waves were also recorded at Honolulu, Arapuni, and Wellington.

May 21d. Readings also at 2h. (Tucson, Merida, and Tacubaya), 4h. (Ksara), 6h. (Fort de France, Mount Wilson, Palomar, Pasadena, Riverside, Tinemaha, and Tucson), 7h. (Bermuda and Weston), 9h. (Weston, Basle, Zurich, Neuchatel, Triest, Rome, Zagreb, Strasbourg, Granada, and Tortosa), 12h. (Mount Wilson, Riverside, Tucson, Palomar, Pierce Ferry, Overton, Tinemaha, and Boulder City), 16h. (near Pierce Ferry, Boulder City, and Overton), 17h. (Weston and Harvard), 19h. (St. Louis), 20h. (Palomar. Mount Wilson, Tinemaha, Tucson, and near Fort de France), 22h. (Ksara and Branner), 23h. (Mount Wilson and Tucson).

May 22d. 9h. Undetermined shock.

Brisbane ePN =37m.30s., iSN =42m.37s., eEN =42m.57s.
Auckland P =37m.40s., S =41m.14s., P_cP =42m.25s., P_cS? =45m.54s., S_cS =49m.52s.
Wellington P =38m.29s., PP =39m.11s., i =39m.58s., S =42m.46s., P_cS? =45m.56s., S_cS? =50m.0s.
Christchurch PEZ =38m.56s., eNZ =41m.6s., SNZ =41m.48s., L =43m.10s.
Riverview iP =39m.13s.k, iPPZ =39m.50s., iE =42m.56s., eN =43m.7s., iSS?E =44m.51s., iSSS?N =45m.13s., eLN =45·4m.
Arapuni S =41m.36s.
Pasadena ePZ =45m.56s.
Mount Wilson ePZ =45m.58s.
Palomar ePNZ =46m.1s.
Riverside ePZ =46m.1s.
Tucson e =46m.21s. and 46m.41s., eL =70m.19s.
De Bilt i =53m.
Collmberg ePZ =53m.10s., iZ =53m.16s., eZ =53m.19s., 53m.26s., and 54m.11s.
Helwan P =53m.14s., e =53m.33s., 54m.22s., 55m.15s., and 57m.5s.]
Jena eN =53m.14s.
Basle e =53m.20s.
Uccle eP =53m.20s. a.
Kew iPKPZ =53m.21s. a, iKP_2Z =53m.37s., eSKS?Z =60m.17s.!, eL =120m.
Paris ePKP =53m.22s., L =120m.
Strasbourg ePKP =53m.22s., eL =113m.
Rome ePKP?Z =53m.26s., eN =59m.18s., eSKKS? =63m.40s.
Warsaw PN =53m.42s., PE =53m.46s., eN =63m.37s., eE =65m.41s., eL =111m.30s.
Granada PKP =54m.15s. a, PP =58m.49s., L =120m.48s.
Florissant eSKKS?E =59m.11s., eLE =85m.
St. Louis eSKKS?E =59m.12s., eLE =85m.
Long waves were also recorded at Colombo, Alicante, Weston, and Harvard.

May 22d. Readings also at 0h. (near Shasta Dam), 3h. (near Fort de France), 5h. (Brisbane and Riverview), 6h. (near Fort de France), 8h. (Almata, near Frunse and Andijan), 9h. (Tucson and near Tacubaya), 12h. (Overton and Boulder City (2)), 13h. (Tucson, Tinemaha, Palomar, Riverside, Mount Wilson, and Pasadena), 14h. (Paris, Strasbourg, Huancayo, Tinemaha, Pasadena, Mount Wilson, Riverside, Harvard, St. Louis, near Ottawa (2), and near La Paz), 15h. (New Delhi), 18h. (Triest and near Fort de France), 22h. (near San Francisco and Berkeley).

May 23d. 1h. 28m. 31s. Epicentre 5°·6S. 153°·6E. Rough. (as on 1943, Dec. 30d.).

A = −8915, B = +·4426, C = −·0969; δ = +6; h = +7;
D = +·445, E = +·896; G = +·087, H = −·043, K = −·995.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		21·8	182	i 4 55	− 1	i 8 57	+ 5	i 5 15	PP	i 11·2
Riverview		28·2	184	i 5 59k	+ 3	e 10 46	+ 5	i 11 8	?	e 12·7
Auckland		36·7	152	—	—	14 6	P_cS	17 1	S_cS	21·5
Arapuni		38·0	152	—	—	e 12 35	−39	—	—	20·9
Wellington		40·3	156	—	—	13 54	+ 5	16 24	SS	20·1
Christchurch		41·3	159	8 13	+24	13 58	− 6	16 49	SS	19·7
Irkutsk		71·2	330	e 11 27	+ 4	e 20 23	−17	e 14 7	PP	—
Kodaikanal	E.	77·4	282	e 12 4	+ 6	—	—	—	—	—
Bombay		83·1	290	e 12 29	0	e 22 34	−14	—	—	—
Almata		83·8	315	e 12 32	0	—	—	—	—	—
Frunse		85·8	313	e 12 41	− 1	—	—	—	—	—
Tashkent		89·4	311	e 12 53	− 7	e 23 40	− 9	e 16 0	PP	—
Victoria		89·5	42	—	—	e 23 39	−11	—	—	38·5
Samarkand		90·9	309	13 19	+12	e 24 56	PS	—	—	—
Pasadena	Z.	91·6	56	e 13 36	+26	—	—	—	—	e 42·0
Mount Wilson	Z.	91·7	56	e 13 15	+ 5	—	—	e 13 38	?	—
Tinemaha	Z.	91·9	53	e 12 47	−24	—	—	e 13 39	?	—
La Jolla	Z.	92·3	57	e 13 21	+ 8	—	—	—	—	—
Riverside	Z.	92·3	56	e 13 14	+ 1	—	—	e 13 40	?	—
Boulder City		94·6	54	e 13 23	− 1	—	—	e 17 14	PP	—
Overton		94·6	54	e 14 0	+36	—	—	e 14 7	?	—
Pierce Ferry		95·2	54	e 13 37	+10	—	—	e 14 20	?	—
Sverdlovsk		96·3	327	13 23	− 9	i 23 57	[−11]	e 17 18	PP	—
Bozeman		97·7	45	—	—	e 24 13	[− 2]	e 24 47	SKKS	e 45·6
Tucson		97·7	59	e 14 14	+36	—	—	—	—	e 42·8

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Baku	104·0	310	—	—	e 24 52	[+ 6]	—	—	—
Grozny	106·8	314	e 18 58	PP	e 25 13	[+14]	—	—	—
Leninakan	108·6	311	—	—	26 22	{+27}	—	—	—
St. Louis	113·8	50	e 19 50	PP	e 25 24	[− 3]	e 26 28	SKKS	e 53·0
Ksara	116·0	305	e 19 57	PP	e 25 49	[+13]	—	—	—
Copenhagen	121·3	336	—	—	25 41	[−13]	27 17	SKKS	—
Weston	126·0	40	e 19 4	[0]	—	—	—	—	—
De Bilt	126·8	337	e 21 14	PP	—	—	e 22 15	PKS	e 57·5
Triest	127·1	326	e 20 53	PP	e 28 8	{+ 7}	—	—	e 56·5
Uccle	128·2	337	e 19 23	[+14]	e 28 0	{− 8}	—	—	e 58·5
Strasbourg	128·3	332	e 19 36	[+27]	e 27 58	{−11}	e 21 46	PP	e 64·5
Chur	128·6	329	e 19 6	[− 3]	—	—	—	—	—
Zürich	128·7	330	e 19 7	[− 3]	—	—	—	—	—
Basle	129·1	331	e 19 4	[− 6]	—	—	—	—	—
Kew	129·4	340	i 22 27 s	PKS	e 32 46	PPS	—	—	e 64·5
Florence	129·6	325	e 21 57	PP	e 29 1	{+44}	—	—	—
Rome	130·0	323	e 19 24	[+12]	—	—	e 22 30	PKS	e 66·5
Paris	130·4	335	e 19 25	[+12]	—	—	e 22 33?	PKS	e 70·5
Clermont-Ferrand	132·5	332	e 22 40	PKS	—	—	e 23 2	?	e 68·5
La Paz z.	133·3	119	i 22 49	PKS	—	—	—	—	85·5
San Juan	139·2	68	e 23 6	PKS	—	—	—	—	e 67·8

Additional readings :—
Wellington SS =17m.12s.
Christchurch QEN =17m.32s.
Irkutsk eSS =25m.5s.
Tashkent ePPP =18m.6s., eSKS =23m.16s., eSS =29m.5s.
Boulder City e =13m.48s.
St. Louis eS?E =27m.7s., eSP?E =29m.18s., eSSE =35m.8s.
Copenhagen 30m.26s.
Strasbourg e =20m.41s. and 41m.6s.
Kew iZ =22m.52s., ePS?Z =36m.46s.?, eZ =40m.56s.?, eSSSZ =49m.59s.?, readings wrongly identified.
Rome iSKPE =22m.53s.
Paris i =22m.53s.
Long waves were also recorded at Alicante, Granada, Honolulu, Sitka, Bermuda, and at other American stations.

May 23d. Readings also at 1h. (near Branner), 2h. (near Samarkand, Tashkent, Almata, Stalinabad, Frunse, and Andijan), 6h. (Shasta Dam), 8h. (Rome (2)), 11h. (Collmberg, Weston, Sitka, Bozeman, Tucson (2), Pierce Ferry, Overton, Tinemaha (2), Haiwee, Riverside (2), Pasadena (2), Mount Wilson, (2), Christchurch, Riverview (2), and Brisbane), 12h. (Philadelphia, Bermuda, Ksara, Collmberg, De Bilt, Uccle, Kew, Strasbourg, and Paris), 13h. (near Tananarive), 20h. (near Ottawa), 21h. (near Stalinabad), 23h (New Delhi and Ksara).

May 24d. Readings at 1h. (San Juan), 6h. (Ksara, Wellington, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, near Boulder City (2), Overton (2), Pierce Ferry (2), near Grozny, and near Leninakan), 8h. (near Leninkan), 9h. (Tucson), 10h. (near Fort de France), 11h. (Boulder City, Overton, and Pierce Ferry), 12h. (Haiwee, Mount Wilson, Palomar, Riverside, Tinemaha, and Tucson), 14h. (Collmberg and near Mizusawa (2)), 15h. (Collmberg and Wellington), 16h. (near Basle, Chur, and Zürich), 17h. (Collmberg), 18h. (Riverview, Auckland, Christchurch, Wellington, Huancayo, La Paz, Sitka, and near Harvard), 19h. (Kew, Paris, Tashkent, near Andijan, Samarkand, and Stalinabad), 20h. (Boulder City, near Pierce Ferry, and near Tananarive), 21h. (Andijan, Samarkand, and near Stalinabad).

May 25d. Readings at 0h. (near Fort de France and near Mizusawa), 1h. (St. Louis, Boulder City, Pierce Ferry, Tucson, Mount Wilson, Pasadena, Palomar, Tinemaha, Sitka, and College), 4h. (near Basle, Neuchatel, and Zürich), 5h. (Strasbourg), 6h. (Boulder City, Overton, Pierce Ferry, and Tucson), 7h. (near Shasta Dam), 8h. (near Mizusawa), 9h. (Ksara and near Mizusawa), 11h. (Haiwee, Mount Wilson, Pasadena, Santa Barbara, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, and Ksara), 12h. (De Bilt, Uccle, Strasbourg, Kew, Copenhagen, Triest, near Berkeley, Branner, Fresno, and Lick), 13h. (near Mizusawa), 14h. (near Fort de France), 16h. (near Grozny), 20h. (near Grozny and Leninakan), 21h. (Tucson), 23h. (Boulder City).

May 26d. 14h. 48m. 47s. Epicentre 39°·4N. 76°·3E. (as on 1939, May 30d.).

$A = +\cdot1835$, $B = +\cdot7528$, $C = +\cdot6322$; $\delta = +6$; $h = -1$;
$D = +\cdot972$, $E = -\cdot237$; $G = +\cdot150$, $H = +\cdot614$, $K = -\cdot775$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Andijan	3·3	294	e 0 58	+ 5	i 1 55	S_g
Frunse	3·7	342	1 2	+ 2	e 1 47	+ 2
Almata	3·9	8	1 2	0	e 1 48	− 2
Tashkent	5·7	292	e 1 48?	P_g	e 2 57?	S*
Tchimkent	5·8	302	e 1 31	+ 2	—	—
Stalinabad	5·9	264	e 1 21	−10	i 2 33	− 7
Samarkand	7·2	275	e 2 1?	P*	3 31	S*

May 26d. 15h. Central Asia. U.S.S.R. suggests 36°40′N. 70°50′E.
Stalinabad iP = 40m.56s., iS = 41m.31s.
Andijan iP = 41m.16s., iS = 42m.6s.
Samarkand P = 41m.20s., S = 42m.10s.
Tashkent eP = 41m.20s.
Frunse P = 41m.53s., S = 43m.6s.
Almata P = 42m.2s., S = 43m.32s.
Baku eP = 43m.39s.

May 26d. 18h. 20m. 5s. Epicentre 41°·6N. 142°·0E. (as on 1944, Oct. 15d.).

Intensity V at Shichinohe (Iwate Pref.); IV at Hatinohe; II-III at Morioka and Tomakomai. Shallow.
Seismo. Bull. Cent. Met. Obs., Japan, 1946, Tokyo, 1951. Isoseismic Chart, p. 14
Epicentres 41°·8N. 142°·0E. Macroseismic radius 200-300 km.

$A = -\cdot5910$, $B = +\cdot4617$, $C = +\cdot6614$; $\delta = -10$; $h = -2$;
$D = +\cdot616$, $E = +\cdot788$; $G = -\cdot521$, $H = +\cdot407$, $K = -\cdot750$.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Hatinohe		1·1	198	0 37 a	S	0 54	?
Mori		1·2	295	0 25 a	+ 1	0 44	+ 3
Sapporo		1·6	342	0 27	− 3	0 46	− 5
Miyako		1·8	180	0 33	+ 1	0 56	0
Morioka		2·0	198	0 34 a	− 1	1 0	− 2
Mizusawa	E.	2·6	195	0 43	− 1	1 18	+ 1
Nemuro		3·2	57	0 56	+ 4	—	—
Sendai		3·4	194	0 55	0	1 34	− 3
Hukusima		4·0	198	1 2	− 2	1 49	− 3
Kakioka		5·5	194	1 12	−13	—	—

May 26d. Readings also at 2h. (Collmberg), 6h. (Almata, Tashkent, near Andijan and Stalinabad), 10h. (near Fort de France), 12h (Collmberg), 13h. (Mount Wilson (2), Palomar (2), Riverside, Tinemaha (2), Tucson (2), Boulder City, Overton, Pierce Ferry, St. Louis, Sitka, College, Collmberg, near Apia, and near Frunse), 14h. (Collmberg), 18h. (Strasbourg and near Fort de France), 20h. (near Bogota), 21h. (Palomar, Tinemaha, and Tucson).

May 27d. 1h. 18m. 20s. Epicentre 16°·1N. 119°·8E. (as on 1937, Feb. 20d.).

$A = -\cdot4777$, $B = +\cdot8342$, $C = +\cdot2756$; $\delta = +4$; $h = +6$;
$D = +\cdot868$, $E = +\cdot497$; $G = -\cdot137$, $H = +\cdot239$, $K = -\cdot961$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Calcutta	N.	30·3	288	—	—	e 12 22	+67	—
Bombay	N.	44·8	281	—	—	e 13 27	?	—
Tashkent		50·1	311	e 8 58	− 1	e 16 8	− 2	—
Sverdlovsk		59·9	328	i 10 11	+ 1	18 25	+ 4	—
Baku		64·5	308	e 10 43	+ 2	e 19 19	0	—
Leninakan		69·1	309	e 11 11	+ 1	—	—	—
Moscow		72·5	324	e 11 30	0	e 20 55	+ 1	—
Copenhagen		86·3	328	—	—	23 16	[+ 7]	41·7
Triest	E.	89·4	318	—	—	e 23 49	0	e 48·7
Strasbourg		91·9	323	—	—	e 24 20	+ 9	e 48·7
Paris		94·9	324	—	—	e 24 40?	+ 3	e 56·7

Long waves were also recorded at New Delhi, Rome, De Bilt, Uccle, and Kew.

May 27d. 8h. 39m. 3s. Epicentre 14°·4N. 93°·7W. (as on 1945, July 17d.).

$A = -·0625$, $B = -·9670$, $C = +·2471$; $\delta = +5$; $h = +6$;
$D = -·998$, $E = +·065$; $G = -·016$, $H = -·247$, $K = -·969$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		3·9	312	e 1 15	P_g	i 1 48	− 2	—	—	—
Tacubaya	E.	7·2	314	1 55	+ 6	3 23	+10	—	—	—
Merida	N.	7·5	30	i 1 49	− 4	(i 3 29)	+ 9	—	—	i 3·5
Tucson		23·7	322	i 5 15	+ 1	—	—	—	—	e 15·2
St. Louis		24·3	7	i 5 15	− 5	e 9 6	−31	i 5 56	PP	—
Florissant		24·5	7	e 5 14	− 8	e 9 50	+10	e 5 36	PP	—
Palomar		28·2	316	i 5 56	0	—	—	—	—	—
Pierce Ferry		28·2	324	i 5 56	0	—	—	—	—	—
Boulder City		28·6	323	i 5 59	− 1	—	—	—	—	—
Riverside	Z.	29·0	316	i 6 2	− 2	—	—	—	—	—
Mount Wilson	Z.	29·6	316	i 6 8	− 1	—	—	—	—	—
Haiwee	Z.	30·7	319	e 6 17	− 2	—	—	—	—	—
Tinemaha		31·5	320	i 6 19	− 7	—	—	—	—	—

Additional readings :—
Tucson i = 5m.29s., e = 7m.10s. and 12m.48s.
St. Louis iN = 5m.27s.
Palomar iNZ = 6m.9s.
Pierce Ferry i = 6m.10s.
Boulder City i = 6m.13s.
Mount Wilson iZ = 6m.41s.

May 27d. Readings also at 1h. (near Mizusawa (2)), 3h. (Oaxaca and Tacubaya), 6h. (near Samarkand), 10h. (near Fort de France), 11h. (College and Tacubaya), 14h. (Palomar, Riverside, Shasta Dam, Bermuda, Harvard, Weston, and near Fort de France), 19h. (Tucson and near Tacubaya), 20h. (near Mizusawa), 21h. (near Triest), 22h. (near Branner).

May 28d. Readings at 0h. and 2h. (near Fort de France), 4h. (near Lick), 5h. (near Branner), 6h. (near Mizusawa), 8h. and 9h. (near Triest), 10h. (near Fort de France and Triest), 12h. (Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 13h. (Palomar, Riverside, Tucson, Tinemaha, and Shasta Dam). 14h. (near Andijan and near Fort de France), 16h. (near Strasbourg and near Leninakan), 18h. (Rome), 20h. (Leninakan, Piatigorsk, and near Baku), 23h. (near Mizusawa).

May 29d. 17h. 51m. 3s. Epicentre 36°·9N. 121°·7W. (as on 1945, March 19d).

Intensity V in the vicinity of the epicentre, IV at Hollister and San Martin.
Epicentre 36°48′N. 121°34′W.

R. R. Bodle and L. M. Murphy.
United States Earthquakes, 1946, Serial No. 714, Washington, 1948, p. 14.

$A = -·4213$, $B = -·6821$, $C = +·5978$; $\delta = +12$; $h = -1$;
$D = -·851$, $E = +·525$; $G = -·314$, $H = -·509$, $K = -·802$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		
		°	°	m. s.	s.	m. s.	s.	m. s.		
Lick		0·4	6	i 0 12	− 1	e 0 20	− 1	—	—	
Santa Clara		0·5	336	e 0 13	− 1	i 0 22	− 1	—	—	
Branner		0·6	323	i 0 16	+ 1	e 0 31	+ 5	—	—	
San Francisco		1·0	325	e 0 22	+ 1	e 0 38	+ 2	e 0 26		?
Berkeley		1·1	335	i 0 21	− 1	e 0 39	0	—	—	
Fresno	N.	1·5	96	e 0 28	0	e 0 43	− 6	e 0 35		P_g
Shasta Dam		3·8	352	i 0 48	−13	e 2 8	S_g	i 1 6		P^*
Boulder City		5·6	98	e 1 30	+ 3	e 2 45	S^*	i 1 44		P^*
Pierce Ferry		6·2	94	e 1 36	+ 1	e 3 37	S_g	i 1 58		P_g

Additional readings :—
Shasta Dam i = 1m.18s.
Boulder City iS = 3m.2s.
Pierce Ferry i = 2m.13s.

May 29d. 19h. 24m. 18s. Epicentre 17°·0N. 121°·5E. Depth of focus 0·015.

$A = -·5000$, $B = +·8159$, $C = +·2906$; $\delta = +14$; $h = +5$;
$D = +·853$, $E = +522$; $G = -·152$, $H = +·248$, $K = -·957$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	31·6	286	e 6 5	− 8	i 11 5	− 6	—	—	—
Irkutsk		37·7	343	7 6?	+ 1	—	—	—	—	—
Hyderabad	N.	41·1	287	8 56	PP	13 52	+16	17 1	SS	—
Colombo	E.	41·9	262	e 5 42?	?	—	—	—	—	—
New Delhi	N.	42·2	295	e 10 13	PPP	i 14 37	+45	i 17 26	SS	e 23·0
Kodaikanal	E.	43·2	268	—	—	e 14 42	+36	—	—	—
Almata		45·9	316	8 10	− 1	—	—	—	—	—
Bombay		46·2	280	i 8 14	0	—	—	i 10 5	PP	—
Andijan		48·3	310	8 30	0	—	—	—	—	—
Stalinabad		50·6	307	i 8 48	0	e 15 46	− 5	—	—	—
Tashkent		50·7	310	e 8 47	− 1	e 15 46	− 6	—	—	—
Samarkand		52·2	307	9 2	+ 2	—	—	—	—	—
Brisbane	N.	53·8	145	i 9 10	− 2	—	—	—	—	—
Riverview	Z.	57·9	151	i 9 46	+ 5	—	—	i 10 20	pP	—
Sverdlovsk		60·1	327	i 9 54	− 2	i 17 54	− 3	i 10 26	pP	—
Baku		65·3	308	i 10 33	+ 3	—	—	—	—	—
Leninakan		69·8	308	e 11 0	+ 2	—	—	—	—	—
Piatigorsk		70·1	312	11 9?	+ 9	—	—	—	—	—
Moscow		72·7	324	i 11 14	− 2	i 20 23	− 6	i 11 47	pP	—
College		75·1	26	—	—	e 20 56	0	—	—	e 30·2
Ksara		77·2	301	i 11 43	+ 2	i 21 20	+ 1	12 19	pP	—
Bucharest		82·1	314	e 12 9	+ 1	e 22 10	0	—	—	—
Upsala		82·2	331	e 12 7	− 1	e 22 6	− 5	e 12 42	pP	e 40·7
Sitka		82·7	33	—	—	i 22 22	+ 6	—	—	e 28·8
Sofia		84·5	313	e 12 21	+ 1	e 22 29	− 5	e 16 25	PP	—
Belgrade		85·8	316	i 12 24	− 2	e 22 37	− 9	e 23 54	PS	—
Kalossa	E.	86·2	318	e 12 28	0	e 22 43	− 7	—	—	—
Copenhagen		86·4	328	i 12 29	0	i 22 41	[+ 1]	—	—	—
Bergen	E.	87·6	334	e 12 36	+ 1	23 3	− 1	22 46	SKS	—
Prague		87·6	323	—	—	e 22 47	[− 1]	e 23 37	S	—
Collmberg	Z.	88·0	324	i 12 36	− 1	—	—	i 13 11	pP	—
Zagreb		88·4	318	e 12 40k	+ 1	e 22 53	[0]	—	—	—
Cheb		88·8	323	e 13 19	pP	e 23 1	[+ 5]	e 16 11	PP	—
Triest		89·9	318	e 12 46	0	i 22 59	[− 3]	e 13 20	pP	—
De Bilt		91·9	327	i 12 55	0	i 23 17	[+ 3]	i 13 28	pP	—
Strasbourg		92·2	323	e 12 56	0	e 23 14	[− 1]	i 23 46	S	46·7
Rome		92·3	316	e 12 56	− 1	i 23 16	[0]	e 13 32	pP	—
Zürich		92·3	321	e 12 57k	0	e 23 15	[− 1]	e 13 31	pP	—
Basle		92·8	322	e 12 59	0	e 22 59	[−20]	—	—	—
Uccle		93·0	326	e 13 1	+ 1	e 23 21	[+ 1]	e 13 35	pP	e 47·7
Besançon		93·9	322	—	—	e 23 26	[+ 1]	—	—	—
Paris		95·1	325	i 13 10	0	i 23 32	[0]	i 16 57	PP	—
Clermont-Ferrand		96·4	322	e 17 5	PP	e 24 41	+20	e 17 43	pPP	—
Shasta Dam		97·6	44	i 13 24	+ 3	—	—	i 14 0	pP	—
Alicante		102·7	317	—	—	e 25 9	− 5	—	—	—
Overton		105·0	44	e 18 4	PKP	—	—	—	—	—
Boulder City		105·1	45	e 18 25	PP	—	—	—	—	—
Granada		105·3	318	17 47k	?	24 16	[− 6]	18 9	PKP	—
Pierce Ferry		105·6	44	e 17 57	PKP	—	—	—	—	—
Tucson		109·9	46	e 18 51	PP	e 29 34	PPS	—	—	—
San Juan		144·1	12	e 19 12	[− 8]	—	—	—	—	e 23·7
Bogota		153·6	37	e 19 43	[+ 7]	—	—	e 19 50	?	—

Additional readings :—
Sverdlovsk isP = 10m.39s., isS = 18m.47s.
Moscow PP = 14m.2s., esS = 21m.18s.
Upsala ePS?E = 23m.6s.
Bergen SE = 22m.20s.
Collmberg eZ = 12m.42s., 16m.4s., and 16m.38s.
Cheb e = 23m.21s. and 24m.18s.
Triest ePP = 16m.8s.
Strasbourg e = 13m.1s., i = 24m.30s., sP = 24m.48s., ePS? = 25m.28s., e = 26m.23s., eSPS? = 26m.41s., iSS = 30m.51s.

Continued on next page.

Rome ePP?Z = 16m.38s., eSKKSN = 23m.46s., eS?E = 23m.55s., ePS?N = 24m.42s., ePPS?E = 25m.34s.
Uccle e = 16m.35s.
Shasta Dam e = 16m.39s.
Granada PS = 27m.36s., SS = 43m.12s.

May 29d. 23h. 14m. 31s. Epicentre 30°·5N. 54°·5E. Rough.

$A = +\cdot5012$, $B = +\cdot7027$, $C = +\cdot5050$; $\delta = +1$; $h = +2$;
$D = +\cdot814$, $E = -\cdot581$; $G = +\cdot293$, $H = +\cdot411$, $K = -\cdot863$.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Baku	10·5	340	2 22	−13	i 4 12	−23
Leninakan	13·4	323	e 3 24?	+10	—	—
Samarkand	13·7	45	—	—	6 6?	+14
Stalinabad	14·2	52	e 3 29	+ 5	e 6 13	+ 9
Tashkent	16·1	44	e 3 41	− 8	e 6 35	−14
Piatigorsk	16·3	329	e 3 58?	+ 6	—	—
Andijan	17·7	50	e 4 11	+ 1	—	—
Moscow	27·9	340	5 51	− 3	e 10 30	− 7

Long waves were recorded at Ksara and New Delhi.

May 29d. Readings also at 0h. (Uccle), 1h. (Collmberg, Tucson, Palomar, Mount Wilson, Riverside, and Tinamaha), 5h. (near San Francisco and Berkeley), 7h. (Collmberg and New Delhi), 9h. (Bermuda, Collmberg, Helwan, and near Mizusawa), 11h. (near Mizusawa), 12h. (Malaga), 15h. (Granada and near Fort de France), 16h. (near Andijan), 18h. (Collmberg, Tucson, Pierce Ferry, Boulder City, Tinemaha, Haiwee, Palomar, Riverside, Mount Wilson, and near Mizusawa), 21h. (near Mizusawa (2)), 23h. (Tinemaha).

May 30d. 0h. Probably the same as for undetermined shock on 26d. 15h.

Samarkand P = 34m.12s.?, S = 35m.30s.?.
Stalinabad iP = 34m.20s., iS = 34m.54s.
Andijan P = 34m.39s., iS = 35m.29s.
Tashkent eP = 34m.44s., eS = 35m.40s.
Frunse eP = 35m.9s., eS = 36m.24s.
Almata P = 35m.27s., iS = 36m.57s.

May 30d. 0h. 35m. 22s. Epicentre 46°·3N. 7°·5E. (as on 1946, Feb. 4d.).

Felt in Haute-Savoie and Switzerland.

Annales de l'Institut de Physique du Globe de Strasbourg pour l'année, 1946, 2e partie, Séismologie, Nouvelle Série, Tome XI, p. 55. Epicentre as adopted.

$A = +\cdot6874$, $B = +\cdot0905$, $C = +\cdot7206$; $\delta = -3$; $h = -4$;
$D = +\cdot131$, $E = -\cdot991$; $G = +\cdot714$, $H = +\cdot094$, $K = -\cdot693$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Besançon		1·4	312	i 0 28	+ 1	i 0 46	0	—	—	—
Strasbourg		2·3	5	e 0 41	+ 1	e 1 7	− 2	e 0 47	P_g	—
Clermont-Ferrand		3·1	260	e 1 1	P	i 1 47	S_g	—	—	—
Paris		4·2	308	i 1 6	− 1	e 2 1	+ 4	i 1 23	P_g	—
Triest		4·4	97	e 1 11	+ 1	i 2 1	− 1	e 1 22	P_g	—
Cheb		5·0	39	e 1 59	P_g	e 2 52	S_g	—	—	—
Uccle		5·0	336	e 1 31	P*	i 2 33	S*	e 1 55	P_g	—
Jena		5·3	29	e 1 31	P*	e 2 51	S_g	—	—	—
Rome	N.	5·7	139	e 1 38	P*	e 3 21	S_g	—	—	e 3·7
Zagreb		5·9	92	e 1 51	P*	e 3 16	S_g	e 1 59	P_g	e 3·4
De Bilt		6·0	346	—	—	e 3 13?	S_g	—	—	—
Prague		6·0	48	e 1 44	P*	e 3 9	S*	—	—	—
Collmberg		6·2	34	e 1 34	− 1	e 2 50	+ 2	i 1 57	P_g	i 4·0
Tortosa		7·5	225	—	—	e 3 13	− 7	i 4 6	S_g	—
Belgrade		9·2	95	i 2 52	P*	e 3 58	− 5	—	—	—

For Notes see next page.

Additional readings :—
Strasbourg iS_g = 1m.22s.
Paris i = 1m.38s. and 2m.5s., iS_g = 2m.20s., e = 2m.38s. and 2m.48s., i = 3m.16s.
Triest iS_g = 2m.22s.
Cheb e = 3m.18s.
Uccle iS_g = 2m.39s., iEN = 2m.44s., i = 3m.14s., eN = 3m.19s. and 3m.44s.
Jena eE = 1m.35s.
Collmberg eZ = 1m.43s., 1m.51s., and 2m.1s., iZ = 2m.24s., eZ = 2m.28s., iZ = 2m.32s., eP_gS = 2m.36s., eZ = 2m.55s., 3m.12s., and 3m.15s., eS_gZ = 3m.20s., eN = 3m.28s., and 3m.35s.
Tortosa iEN = 4m.23s. and 4m.31s., iN = 5m.3s.
Long waves were also recorded at Kew.

May 30d. 3h. 41m. 14s. Epicentre 46°·3N. 7°·5E. (as at 0h.).

Felt throughout Switzerland. Damage at Valais. Fall of rock at Ravilhorn estimated at between four and five cubic hectametres. Lac de Luchet was blocked with fallen boulders. Maximum intensity VIII, macrosiesmic radius 200km.

Frédéric Montandon.
Les trois recénts séismes du Valais Central. Extract from La Revue pour l'étude des Calamities Tome IX, fasc. 24. Geneva, 1946, pp. 50-63.

Frédéric Montandon.
Les trois recénts séismes du Valais Central. Actes Soc. Helv. Sciences Naturelles, 1946, No. 126, p.p. 207, 208.

E. Wanner.
Jahresbericht des Erdbebendienstes der Schweiz im Jahre, 1946. Zürich, 1947, p. 2 with isoseismic chart p. 27, Fig. 4.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Neuchatel		0·8	332	i 0 16	− 2	—	—	—	—	—
Basle		1·3	3	i 0 25a	0	—	—	—	—	—
Zürich		1·3	35	i 0 25a	0	i 0 45	+ 1	—	—	—
Besançon		1·4	312	i 0 29	+ 2	i 0 46	0	—	—	—
Chur		1·5	68	i 0 29	+ 1	i 0 50	+ 1	—	—	—
Strasbourg		2·3	5	i 0 38	− 2	i 1 7	− 2	i 0 49	P_g	—
Clermont-Ferrand		3·1	260	i 0 52	+ 1	i 1 21	− 8	i 1 12	P_g	—
Florence		3·7	133	i 1 3	+ 3	i 1 48	+ 3	—	—	—
Paris		4·2	308	i 1 7	0	i 1 52	− 5	i 1 25	P_g	—
Triest		4·4	97	e 1 11	+ 1	2 2	0	i 1 26	P_g	i 2·6
Cheb		5·0	39	e 1 17	− 1	e 2 46	S_g	e 1 39	P_g	e 3·2
Uccle		5·0	336	i 1 16a	− 2	i 2 12	− 6	i 1 40	P_g	—
Jena	N.	5·3	29	e 1 19	− 3	i 2 54	S_g	i 1 40	P_g	—
Rome		5·7	139	i 1 28k	0	i 2 36	+ 1	i 1 54	P_g	i 3·4
Zagreb		5·9	92	e 1 30	− 1	i 2 37	− 3	i 1 55	P_g	—
De Bilt		6·0	346	i 1 31a	− 1	i 2 48	+ 5	—	—	e 3·3
Prague		6·0	48	e 1 24	− 8	e 3 6	S*	e 1 49	P*	e 3·4
Collmberg		6·2	34	e 1 30	− 5	e 2 53	+ 5	i 1 53	P_g	i 4·0
Barcelona		6·2	220	1 35	0	3 12	S*	i 3 24	S_g	—
Kew		7·3	317	i 1 51	+ 1	i 3 12	− 3	i 2 20	P_g	i 3·8
Tortosa		7·5	225	1 55	+ 2	3 23	+ 3	2 27	P_g	—
Kalossa		7·9	84	e 2 23	P*	i 4 32	S_g	—	—	4·8
Belgrade		9·2	95	e 2 24	+ 8	e 3 54	− 9	—	—	e 5·0
Alicante		9·9	220	2 32	+ 7	i 4 41	+21	2 41	PP	—
Copenhagen		9·9	16	2 21	− 4	e 4 17	− 3	—	—	4·9
Algiers		10·1	201	i 2 34	+ 6	i 4 27	+ 2	4 51	SS	i 5·7
Durham		10·3	329	e 2 29	− 3	e 4 14	−16	—	—	5·4
Toledo		10·6	237	i 2 36	0	4 57	+20	—	—	6·2
Edinburgh		11·7	329	—	—	e 4 46	−18	—	—	e 5·6
Sofia		11·9	102	e 1 54?	−60	e 5 58	+49	—	—	e 6·6
Granada		12·3	226	i 2 59k	0	6 41	+83	—	—	—
Aberdeen		12·4	335	i 2 56	− 5	i 5 45	+24	—	—	i 6·8
Bucharest		13·2	92	e 3 14	+ 3	e 7 28	?	—	—	—
Bergen	N.	14·2	355	3 21	− 3	6 27	+23	—	—	e 7·2
Lisbon		14·4	244	—	—	6 16	+ 7	—	—	7·5

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		14·9	20	e 3 31	− 3	e 6 32	+12	—	—	e 7·9
Moscow		21·0	52	i 4 44	− 3	i 8 31	− 6	—	—	—
Helwan		24·8	124	i 5 28k	+ 3	e 9 52	+ 6	6 7	PP	e 11·3
Ksara		24·9	111	i 5 27	+ 1	e 9 53	+ 6	—	—	—
Piatigorsk		25·1	80	e 5 40	+12	e 11 4	+73	—	—	—
Leninakan		26·7	88	e 5 44	+ 1	—	—	—	—	—
Baku		31·1	84	e 6 26	+ 4	e 11 27	− 1	—	—	—
Sverdlovsk		33·8	51	i 6 46	0	i 12 4	− 6	—	—	—
Tashkent		43·9	73	e 8 7	− 3	—	—	—	—	—
Stalinabad		44·9	77	i 8 18	0	—	—	—	—	—
Andijan		46·2	72	e 8 28	0	—	—	—	—	—
Almata		47·9	65	e 8 54	+12	—	—	—	—	—
Florissant	N.	67·9	303	—	—	1 20 2	+ 1	—	—	e 31·5
St. Louis		68·0	303	e 10 59	− 4	e 20 2	0	—	—	e 31·6
Bozeman		73·6	319	—	—	—	—	e 34 23	Q	e 39·3
Overton		82·4	316	e 12 28	+ 3	—	—	—	—	—
Pierce Ferry		82·6	315	e 12 27	+ 1	—	—	—	—	—
Boulder City		83·1	316	e 12 29	0	—	—	—	—	—
Tinemaha	Z.	83·8	319	e 12 34	+ 2	—	—	—	—	—
Tucson		84·0	311	i 12 35	+ 2	—	—	—	—	e 44·8
Palomar	Z.	86·2	315	e 12 42	− 2	—	—	—	—	—

Additional readings :—
Strasbourg i = 1m.3s., S_g = 1m.17s.
Clermont-Ferrand iP = 1m.2s.
Paris iS_g = 2m.20s.
Cheb e = 1m.21s.
Uccle i = 1m.20s., iP*Z = 1m.30s., iN = 1m.52s., iS = 2m.6s., iS* = 2m.31s., iS_g = 2m.39s.
Jena iS?Z = 2m.50s.
Zagreb e = 1m.33s., i = 1m.37s. and 1m.41s., iNE = 2m.9s., iNN = 2m.15s. and 2m.30s., iNE = 3m.4s., i = 3m.7s., iSSNE = 3m.23s., iSSSNW = 3m.26s.
Prague e = 2m.32s.
Collmberg eZ = 1m.35s., i = 1m.59s., iS_g?N = 3m.17s., eE = 3m.24s.
Kew iEZ = 2m.1s., i = 2m.26s. and 2m.37s., iEN = 2m.47s. and 3m.7s.
Tortosa P_gEN = 2m.31s., P_gS_gEN = 2m.57s. and 3m.13s., P_gS_gE = 3m.29s., P_gS_gEN = 3m.44s., P_gS_gE = 3m.51s., S_gN = 4m.5s., S_gEN = 4m.8s. and 4m.14s.
Alicante P_g = 5m.28s. and 5m.40s., P_gS_g = 6m.4s., S_g = 7m.24s.
Copenhagen 2m.24s.
Algiers i = 2m.52s. and 3m.12s.
Durham N = 2m.33s.
Granada P_g = 4m.2s., P_gS_g = 4m.29s., iS_g = 6m.36s.
Bergen eN = 5m.38s.
Lisbon Z = 6m.57s., N = 7m.4s.
Upsala eE = 7m.31s.
St. Louis eZ = 11m.2s., eN = 21m.5s.
Tucson e = 13m.37s.
Long waves were also recorded at Weston.

May 30d. Readings also at 0h. (Shasta Dam), 2h. (Mount Wilson, Rome, Zagreb, Bucharest, near Sofia, and near Triest), 3h. (Haiwee, Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and Butte), 4h. (Almata and near Andijan), 5h. (Malaga and San Juan), 7h. (near Ksara), 8h. (Andijan, Boulder City, Overton, Pierce Ferry, and Tinemaha), 10h. (Huancayo), 11h. (Arapuni, Auckland, Christchurch, Wellington, Brisbane, Riverview, Almata, Andijan, Frunse, Stalinabad, Tashkent, and Sverdlovsk), 12h. (near Almata, Andijan, Stalinabad, Tashkent, De Bilt, Paris, Strasbourg, Rome, and Tucson), 14h. (Perth), 17h. (near Boulder City, Pierce Ferry, Tucson, and near Mizusawa), 18h. (Ksara), 21h. (Strasbourg), 22h. (Palomar, Riverside, Tinemaha, and Tucson).

May 31d. 3h. 12m. 41s. Epicentre 39°·3N. 41°·2E.

A = +·5838, B = +·5111, C = +·6308 ; δ = −5 ; h = −1 ;
D = +·659, E = −·752 ; G = +·475, H = +·416, K = −·776.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Leninakan		2·6	54	(i 0 44)	0	—	—	—	—	—
Sotchi		4·5	324	0 59	−12	2 19	+14	—	—	—
Grozny		5·3	39	e 1 24	+ 2	—	—	—	—	—
Baku		6·8	78	1 48	+ 4	—	—	—	—	—
Ksara		7·0	220	i 1 46	0	3 41	− 4	—	—	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Yalta		7·4	317	—	—	e 2 50	−28	—	—	—
Bucharest		12·4	299	e 3 4	+ 3	e 5 35	SS	—	—	—
Helwan		12·6	224	i 3 0a	− 3	5 22	− 4	e 3 24	PP	—
Sofia		13·9	290	i 2 25	−56	e 6 19	+22	i 2 49	PPP	7·2
Belgrade		16·4	297	e 3 56	+ 3	i 8 20?	L	—	—	(i 8·3)
Moscow		16·6	354	i 3 54	− 2	7 2	+ 2	—	—	—
Kalossa	E.	17·8	301	i 4 16	+ 5	—	—	—	—	—
Warsaw		19·0	321	i 4 25k	− 1	7 59	+ 4	4 44	PP	e 11·3
Zagreb		19·6	298	e 4 33a	+ 1	e 7 51	−17	e 5 3	PP	e 9·6
Trieste		21·2	298	i 4 50	+ 1	i 8 38	− 3	i 5 3	PP	—
Stalinabad		21·5	82	i 4 51	− 1	e 8 54	+ 7	—	—	—
Tashkent		21·5	75	i 4 52	0	e 8 59	+12	—	—	—
Sverdlovsk		21·7	30	i 4 51	− 4	i 8 56	+ 5	—	—	—
Tchimkent		21·7	72	i 4 52	− 3	i 8 55	+ 4	—	—	—
Prague		21·8	310	i 4 52a	− 4	9 2	+10	—	—	e 10·8
Rome		21·9	288	i 4 55	− 2	i 9 9	+15	i 5 25	PP	e 11·9
Florence		22·8	292	i 5 5	0	i 9 16	+ 5	—	—	—
Cheb		23·0	309	e 5 10	+ 3	e 9 26	+12	—	—	—
Collmberg		23·0	311	e 5 9	+ 2	i 9 28	+14	e 10 25	SSS	12·9
Jena		23·8	310	e 5 15	0	e 9 37	+ 9	9 47	SS	—
Andijan		23·9	77	e 5 19	+ 3	—	—	—	—	—
Chur		24·2	299	e 5 20	+ 1	e 9 47	+12	—	—	—
Zürich		24·9	301	e 5 25a	− 1	e 10 1	+14	—	—	—
Copenhagen		25·2	321	5 30	+ 1	i 10 1	+ 9	—	—	—
Upsala		25·4	332	5 31	0	i 9 57	+ 1	i 11 4	SS	e 13·1
Basle		25·6	301	e 5 32a	0	e 10 25	+26	—	—	—
Strasbourg		25·6	304	e 5 33	+ 1	i 10 23	+24	e 6 21	PP	12·5
Neuchatel		26·0	301	e 5 36	0	e 10 17	+11	—	—	—
Besançon		26·7	299	e 5 43	0	e 10 36	+19	—	—	e 17·3
De Bilt		27·9	310	i 5 55a	+ 1	i 10 41	+ 4	—	—	e 13·8
Uccle		28·2	308	e 5 57a	+ 1	e 10 38	− 3	e 12 38	SSS	e 13·3
Clermont-Ferrand		28·6	296	i 5 59	− 1	i 11 17	+29	—	—	e 14·4
Paris		29·5	303	i 6 4	− 4	e 11 11	+ 9	i 7 13	PP	e 17·3
Barcelona		29·7	288	e 6 58	PP	e 11 25	+19	—	—	e 13·6
Bergen	E.	30·7	327	6 16	− 3	11 21?	0	—	—	13·8
Tortosa		31·0	287	i 6 22	+ 1	11 28	+ 2	7 57	PPP	15·4
New Delhi	N.	31·5	98	i 6 26	0	i 11 36	+ 2	13 10	SS	—
Alicante		32·3	283	i 6 31	− 2	i 11 53	+ 7	6 42	pP	e 15·5
Durham		32·4	313	6 34	0	11 57	+ 9	—	—	—
Aberdeen		33·2	315	i 6 43	+ 3	i 12 0	0	—	—	20·2
Edinburgh		33·5	315	—	—	11 57	− 8	—	—	—
Bombay		34·0	117	e 6 50	+ 2	12 19	+ 6	—	—	—
Toledo		34·6	286	i 6 50	− 3	e 12 29	+ 7	8 15	PP	18·2
Granada		35·0	282	i 6 50k	− 6	i 12 24	− 4	8 9	PP	15·5
Lisbon		38·6	287	7 27k	+ 1	13 32	+ 9	—	—	18·1
Hyderabad	N.	39·0	113	5 1	?	11 2	?	6 35	PP	—
Calcutta		43·3	98	e 9 13	+68	i 14 23	−10	—	—	—
Kodaikanal		43·3	121	e 6 56	−69	13 26	−67	16 28	SS	20·4
Irkutsk		44·5	51	7 54	−21	—	—	—	—	—
Colombo	E.	47·4	122	—	—	15 29	− 3	—	—	27·3
Tananarive		58·2	173	—	—	21 20	SS	—	—	28·5
College		75·9	5	—	—	e 21 29	− 3	e 26 14	SS	34·7
Harvard		78·3	316	e 13 4	+61	—	—	—	—	e 42·3
Weston		78·3	316	i 12 4a	+ 1	e 21 53	− 6	—	—	—
Ottawa		78·5	320	12 5	+ 1	22 19	+18	30 49	SSS	41·3
Fordham		80·7	316	e 12 17	+ 1	e 22 34	[+ 3]	—	—	—
Bermuda		81·0	304	—	—	e 22 39	[+ 6]	—	—	e 39·6
Sitka		83·5	358	—	—	i 23 3	PPS	—	—	e 34·5
Florissant		90·5	324	e 13 4	− 1	e 24 9	+10	e 16 44	PP	e 36·9
St. Louis		90·6	324	i 13 3	− 2	e 24 13	+13	e 16 44	PP	e 36·9
San Juan		91·2	295	e 13 11	+ 3	e 23 34	[− 6]	e 16 49	PP	e 50·6
Victoria		91·6	350	—	—	e 23 14	[−28]	—	—	45·3
Bozeman		91·8	341	—	—	e 24 30	ScS	—	—	e 32·4
Salt Lake City		96·6	340	e 17 31	PP	e 24 17	[+ 8]	e 26 36	PS	e 47·9
Shasta Dam		99·0	348	e 13 45	+ 1	—	—	17 43	PP	—

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Overton		101·3	340	e 14 0	+ 6	—	—	—	—	—
Pierce Ferry		101·5	339	e 13 57	+ 2	—	—	e 18 5	PP	—
Berkeley		101·7	347	i 18 6	PP	i 27 16	PS	e 40 14	Q	e 47·8
Tinemaha	z.	101·7	343	e 13 56	0	—	—	e 18 5	PP	—
Boulder City		101·9	340	e 13 58	+ 1	—	—	e 17 58	PP	—
Tucson		104·2	336	e 14 12	+ 5	e 27 54	PS	e 18 26	PP	e 38·1
Mount Wilson	z.	104·4	342	e 17 57	PP	—	—	—	—	—
Riverside	z.	104·4	342	e 18 30	PP	—	—	—	—	—
Pasadena		104·5	342	i 18 27	PP	—	—	—	—	e 49·3
Palomar	z.	104·9	341	e 14 42	+32	—	—	e 18 27	PP	—
La Paz		115·1	269	19 41	PP	—	—	—	—	68·3
Arapuni		144·7	103	e 18 31	[−68]	—	—	—	—	77·4
Wellington		144·9	109	i 19 32	[− 7]	—	—	—	—	—

Additional readings :—
Leninakan reading increased by 1m.
Bucharest eE =4m.33s., iE =5m.38s., iE =7m.14s.
Helwan e =4m.26s. and 6m.33s.
Belgrade e =5m.6s.
Kalossa eE =5m.19s., iN =5m.34s.
Warsaw PPN =4m.47s., iSZ =8m.3s., iSE =8m.11s., iZ =8m.19s., SSN =8m.29s., SSE =8m.36s.
Zagreb e =5m.45s., eNE =6m.19s., e =6m.42s., 8m.21s., and 9m.17s.
Triest iSSE =8m.53s.
Rome iPPPE =5m.37s., iSN =9m.13s., iSS?E =9m.59s.
Cheb e =15m.19s.
Collmberg eN =5m.13s., iZ =5m.17s., iPZ =5m.35s., iPPZ =5m.47s., iZ =5m.51s., 6m.6s., and 6m.18s., eN =6m.20s., eZ =6m.59s., 7m.13s., and 9m.4s., eN =9m.32s. and 10m.44s., eZ =10m.51s.
Upsala eN =5m.47s., ePP?E =5m.57s., ePPP?E =6m.31s., eE =6m.46s., iE =10m.12s., iN =10m.21s.
Strasbourg e =7m.17s. and 7m.28s., i =11m.39s.
Paris i =8m.4s. and 11m.30s., e =12m.18s., SS =12m.32s., i =14m.55s.
Tortosa PPN =7m.41s.
Alicante sP =6m.51s., PPP =8m.6s., P_cP =9m.20s., P_cS =12m.50s., SS =13m.54s., SSS =14m.20s., Q =14m.30s., S_cS =16m.54s.
Durham N =12m.3s.
Aberdeen eN =5m.57s., iN =12m.7s.
Toledo P_cP =8m.49s.
Granada PP =7m.41s., P_cP =9m.50s.
Lisbon Z =8m.10s.
Hyderabad SSN =14m.13s., readings wrongly identified.
College e =30m.0s.
Sitka e =27m.49s.
Florissant eSKSN =23m.39s.
St. Louis eSKSN =23m.39s., eSKKSE =24m.3s., ePSN =25m.9s., ePPSE =25m.27s.
San Juan e =27m.32s. and 38m.44s.
Shasta Dam e =17m.9s.
Tucson e =22m.15s.
Long waves also recorded at Christchurch and Philadelphia.

May 31d. 17h. Undetermined shock.

Sotchi eP =51m.12s., eS =51m.51s.
Leninakan P =51m.31s., P_g =51m.49s.
Ksara e =52m.38s.?, and 54m.36s.
Baku eP =52m.12s.
Sverdlovsk P =54m.41s., eS =58m.33s.
Andijan eP =56m.2s., eS =60m.32s.
Tashkent eP =55m.25s., eS =59m.37s.
Bucharest EN =57m.0s., e =65m.0s.

May 31d. Readings also at 1h. (Riverview, Christchurch, San Juan, Arapuni, Auckland, Wellington, and Pasadena), 2h. (De Bilt, St. Louis, Weston, Bermuda, Leninakan (2) Tucson, Mount Wilson, Palomar, Riverside, Boulder City, Pierce Ferry, Tinemaha, and Shasta Dam), 3h. (near Mizusawa), 4h. (Tucson, Ksara, and Huancayo), 5h. (Strasbourg), 6h. (Ksara, Shasta Dam, Tinemaha, Mount Wilson, Riverside, Palomar, Riverview, Christchurch, and Wellington), 8h. (Piatagorsk, Leninakan, Ksara, Collmberg, Boulder City, Pierce Ferry, and Overton), 9h. (Jena), 10h. (Prague), 15h. (Uccle), 16h. (Weston, Ksara, Tucson, Kew, De Bilt, and near Leninakan), 17h. (Collmberg and near Andijan), 22h. (Uccle),

June 1d. 16h. 11m. 49s. Epicentre 25°·0N. 124°·0E.

$A = -·5074$, $B = +·7523$, $C = +·4203$; $\delta = +6$; $h = +3$;
$D = +·829$, $E = +·559$; $G = -·235$, $H = +·348$, $K = -·907$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		31·1	336	e 6 24	+ 2	—	—	—	—	—
Calcutta	N.	32·7	273	—	—	i 10 48	−64	—	—	e 16·0
New Delhi	N.	41·7	286	—	—	i 14 12	+ 2	i 14 53	PPS	—
Hyderabad	N.	43·0	269	e 7 24	−39	14 13	−16	9 2	PP	—
Frunse		44·0	306	e 8 12	+ 1	—	—	—	—	—
Andijan		45·5	303	e 8 27	+ 4	—	—	—	—	—
Bombay		47·6	273	e 8 45	+ 6	e 15 41	+ 6	—	—	—
Tashkent		47·8	304	e 8 42	+ 1	e 15 41	+ 3	e 10 40	PP	—
Stalinabad		48·2	300	i 8 48	+ 4	—	—	i 10 45	PP	—
Sverdlovsk		54·9	323	i 9 35	0	17 18	+ 2	17 35	PPS	—
Baku		62·5	304	10 33	+ 5	e 18 57	+ 3	—	—	—
Riverview		63·9	155	i 10 38	+ 1	e 19 13	+ 1	—	—	—
Grozny		65·0	308	e 10 47	+ 3	—	—	—	—	—
College		66·9	27	—	—	e 19 43	− 6	e 32 43	?	e 41·2
Leninakan		67·0	306	e 10 57	0	—	—	—	—	—
Moscow		67·7	323	i 11 1	0	19 57	− 1	—	—	—
Sotchi		69·3	309	e 11 26	+15	—	—	—	—	—
Ksara		75·1	300	i 11 47	+ 1	e 21 33	+ 9	—	—	—
Helwan		80·1	298	12 14	+ 1	22 17	− 1	12 41	pP	—
Copenhagen		80·9	328	i 12 17	0	—	—	—	—	42·2
Collmberg	Z.	82·9	323	e 12 27	− 1	—	—	e 12 33	P_cP	—
Zagreb		84·0	318	e 12 33	0	—	—	—	—	—
Triest	E.	85·5	319	e 24 53	PPS	—	—	—	—	e 48·7
Strasbourg		87·3	323	—	—	e 24 33	PS	e 24 51	PPS	e 46·4
Uccle		87·7	327	e 22 53	SKS	(e 22 53)	[−26]	—	—	e 46·2
Rome	Z.	88·2	316	e 13 20	+26	e 24 44	PS	—	—	e 50·7
Besançon		89·0	322	—	—	e 26 29	?	—	—	e 59·2
Kew		89·5	329	—	—	(23 11?)	[−19]	—	—	e 23·2
Paris		89·9	325	—	—	e 24 58	PS	e 26 2	PPS	e 55·2
Shasta Dam		90·2	44	e 13 0	− 4	e 23 54	− 2	—	—	—
Clermont-Ferrand		91·5	323	—	—	e 25 33	PS	e 51 45	?	e 58·7
Tinemaha	Z.	94·9	46	i 13 24	− 1	—	—	i 13 33	P_cP	—
Mount Wilson	Z.	96·7	48	e 13 32	− 1	—	—	—	—	—
Pasadena	Z.	96·7	48	e 13 33	0	—	—	—	—	—
Riverside	Z.	97·3	48	e 13 41	+ 5	—	—	—	—	—
Overton		97·7	44	e 13 55	+17	—	—	e 14 10	?	—
Boulder City		97·8	45	e 13 34	− 4	—	—	e 17 35	PP	—
Palomar	Z.	98·0	48	e 13 39	0	—	—	—	—	—
Pierce Ferry		98·2	44	e 13 39	− 1	—	—	e 17 25	PP	—
Tucson		102·7	45	e 18 7	PP	—	—	—	—	e 53·6
St. Louis	N.	109·0	28	—	—	e 28 25	PS	—	—	—

Additional readings :—
Hyderabad SSN = 17m.47s.
Tashkent eS_cS = 18m.41s.
Sverdlovsk eSSS = 22m.47s.
Helwan P_cP? = 12m.20s., SKS? = 22m.25s.
Collmberg eZ = 12m.43s. and 13m.44s.
Strasbourg e = 24m.54s. and 24m.57s.
Paris e = 26m.5s., 40m.3s., 41m.18s.?, and 50m.11s.?, eQ = 54m.11s.
Long waves were also recorded at Bermuda, Weston, and at other European stations.

June 1d. Readings also at 1h. (New Delhi, Tucson, Palomar, Riverside, Mount Wilson, and Boulder City), 3h. (near Fort de France), 5h. (near Bogota and Balboa Heights), 6h. (Tucson), 8h. (Brisbane, near Malaga, Almeria, and Granada, near Mizusawa and near La Paz), 9h. (Tucson, Shasta Dam, Overton, Pierce Ferry, Boulder City, Palomar, Mount Wilson, Haiwee, Tinemaha, Pasadena, Riverview, and near Basle), 11h. (near Pierce Ferry, Overton, and Boulder City), 15h. (near La Paz), 16h. (Riverside, Tucson, and Collmberg), 17h. (Florence), 18h. (Ksara, Grozny, and near Leninakan), 20h. (near Overton, Pierce Ferry, and Boulder City), 23h, (near Oaxaca).

June 2d. 1h. 8m. 58s. Epicentre 23°·8N. 121°·8E.

$A = -·4826$, $B = +·7784$, $C = +·4013$; $\delta = -15$; $h = +4$;
$D = +·850$, $E = +·527$; $G = -·211$, $H = +·341$, $K = -·916$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Miyazaki		11·8	44	2 47k	− 6	4 58	− 8	—	—	—
Kumamoto		11·9	39	e 2 51	− 3	—	—	—	—	—
Hukuoka		12·3	36	i 2 56k	− 3	i 5 22	+ 4	—	—	—
Kôti		14·2	44	e 3 21	− 3	6 26	+22	—	—	—
Sumoto		15·5	44	i 3 49	+ 7	—	—	—	—	—
Kobe		15·9	44	3 47	0	6 57	+13	—	—	—
Hunatu		18·8	47	e 4 11	−12	7 44	− 6	—	—	—
Nagano		19·1	42	e 4 34	+ 7	—	—	—	—	—
Mera		19·2	51	e 4 39	+11	—	—	—	—	—
Yokohama		19·4	50	e 4 28	− 2	e 7 53	−11	—	—	—
Maebasi		19·5	46	e 4 48	+17	—	—	—	—	—
Kumagaya		19·6	47	4 38	+ 6	—	—	—	—	—
Tokyo		19·6	49	e 4 35	+ 3	e 8 33	+25	—	—	—
Utunomiya		20·1	45	e 4 42	+ 4	—	—	—	—	—
Sendai		21·8	44	5 9	+13	—	—	—	—	—
Mizusawa	E.	22·4	42	5 1	− 1	8 54	−10	—	—	—
Morioka		22·8	42	e 5 6	+ 1	8 56	−15	—	—	—
Sapporo		25·1	34	e 5 11	−17	—	—	(e 10 51)	SS	e 10·9
Calcutta		30·8	275	(i 9 6)	PcP	(i 10 51)	−32	(12 53)	SS	12·9
Irkutsk		31·4	339	6 22	− 3	11 25	− 7	—	—	—
New Delhi	N.	40·1	287	6 16	?	i 13 29	−17	7 43	P	21·4
Hyderabad	N.	40·9	270	e 7 48	+ 2	e 14 1	+ 3	—	—	—
Almata		41·6	310	7 56	+ 5	—	—	—	—	—
Frunse		43·2	308	e 8 6	+ 2	—	—	—	—	—
Colombo	E.	43·6	255	8 18	+10	14 48	+10	—	—	23·0
Kodaikanal	E.	44·3	262	e 2 16	?	—	—	—	—	—
Andijan		44·5	305	8 19	+ 4	—	—	e 18 11	SS	—
Bombay		45·7	274	e 7 13	−71	—	—	—	—	—
Tashkent		46·9	306	e 8 33	− 1	e 15 20	− 5	—	—	—
Samarkand		48·5	303	8 40	− 6	—	—	—	—	—
Sverdlovsk		54·7	324	i 9 32	− 1	17 6	− 7	—	—	—
Riverview	E.	63·8	154	—	—	e 19 10	− 1	i 20 32	ScS	e 32·4
Grozny		64·2	309	10 40	+ 1	—	—	i 20 30	ScS	—
Leninakan		66·0	307	e 10 51	+ 1	e 19 39	+ 1	—	—	—
Moscow		67·4	323	i 10 57	− 2	i 19 49	− 6	—	—	—
Sotchi		68·4	310	e 11 4	− 2	20 0	− 7	—	—	—
College		68·9	28	—	—	e 20 4	− 9	e 25 19	SS	e 31·4
Ksara		73·9	301	e 11 40	+ 1	e 21 18	+ 8	14 29	PP	—
Upsala		76·5	330	—	—	e 21 30	− 9	e 26 2?	SS	e 37·0
Sitka		76·8	33	—	—	i 21 35	− 7	e 28 18	?	e 38·3
Bucharest	E.	77·6	314	e 12 2	+ 2	e 21 53	+ 2	—	—	—
Warsaw		77·8	322	11 59a	− 2	e 21 51	− 2	e 12 17	PcP	e 37·0
Helwan		78·9	298	i 12 8k	+ 1	22 8	+ 3	12 37	pP	—
Sofia		80·1	312	e 12 16	+ 3	e 22 9	− 9	—	—	—
Copenhagen		80·9	328	i 12 14a	− 3	22 17	− 9	31 2	SSS	39·0
Belgrade		81·2	315	e 12 23	+ 4	21 42	−47	e 14 7	?	34·0
Prague		82·5	323	e 12 21	− 5	e 22 38	− 4	—	—	e 32·6
Collmberg	Z.	82·7	324	e 12 26	− 1	e 22 38	− 6	e 12 32	PcP	—
Cheb		83·6	323	—	—	e 22 54	+ 1	33 19	?	e 51·0
Zagreb		83·6	318	e 12 32a	+ 1	e 22 49	− 4	—	—	—
Triest		85·0	319	i 12 37	− 1	i 22 57	−10	—	—	e 43·5
De Bilt		86·4	327	i 12 44a	− 1	e 23 2?	−19	e 16 5	PP	e 41·0
Aberdeen		86·7	333	—	—	i 23 20	− 4	—	—	43·4
Strasbourg		87·0	323	e 12 47	− 1	e 23 27	0	e 24 47	PPS	e 42·0
Zürich		87·2	322	e 12 48	− 1	—	—	—	—	—
Florence		87·5	317	i 12 45	− 6	i 23 15	[− 2]	—	—	—
Victoria		87·5	38	12 42	− 9	23 10	[− 7]	—	—	36·0
Uccle		87·6	326	e 13 2	+11	—	—	—	—	e 45·0
Basle		87·7	322	e 12 45	− 7	—	—	e 20 11	?	—
Rome		87·7	316	i 12 50a	− 2	i 23 14	[− 5]	i 16 4	PP	e 40·8

Continued on next page.

		Δ	Az.	P.	O−C.	S	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kew		89·5	328	(e 16 2?)	PP	—	—	—	—	e 16·0
Paris		89·7	325	e 16 29	PP	e 23 2?	[−29]	—	—	e 48·0
Shasta Dam		92·4	44	e 13 9	− 5	e 24 8	− 8	e 23 39	SKS	—
Saskatoon		93·4	28	—	—	e 24 20	− 4	—	—	49·0
Butte		94·8	35	—	—	e 24 33	− 3	—	—	e 39·2
Tinemaha	z.	97·2	45	e 13 31	− 5	—	—	—	—	—
Alicante		97·9	318	e 21 25	?	24 29	[+13]	e 31 31	SS	e 52·1
Mount Wilson	z.	99·0	47	e 13 40	− 4	—	—	—	—	—
Palomar	z.	100·3	47	e 13 52	+ 2	—	—	e 17 50	PP	—
Granada		100·5	319	(e 14 6k)	+15	(e 24 53)	{− 5}	(e 32 59)	SS	(e 46·6)
Rapid City		100·9	32	e 23 30	?	i 24 26	[− 5]	e 25 22	S	e 52·4
Tucson		104·9	44	e 18 20	PP	e 25 6	[+16]	e 33 45	SS	e 50·1
Bermuda		123·8	7	—	—	e 32 20	PPS	—	—	e 51·8
San Juan		137·4	11	e 21 48	PP	e 28 6	{−59}	—	—	e 55·6
La Paz		168·1	54	i 20 10	[+ 2]	31 52	{− 2}	—	—	88·0

Additional readings :—
Calcutta P_cP given as S, S given as SS, SS given as L.
New Delhi PPN =7m.58s., iN =13m.50s.
Hyderabad S_cSN =17m.46s.
Bombay iE =7m.31s. and 9m.23s.
Riverview eN =20m.36s.
Upsala e =31m.2s.
Warsaw ePE =12m.20s., ePS?E =22m.15s., ePS?Z =22m.18s., PPS? =22m.42s., eSSS?N =30m.56s.
Helwan sP =12m.53s., sS =22m.58s.
Collmberg eZ =12m.42s., 12m.45s., and 13m.20s., ePPZ =15m.45s., eZ =16m.9s.
Cheb eSS =39m.2s.?, eSSS =43m.2s., readings wrongly identified.
De Bilt eSSS =34m.2s.?
Shasta Dam e =24m.22s.
Alicante PPP =26m.13s., PS =32m.21s., SS =36m.49s., SSS =40m.33s., readings wrongly identified.
Granada readings reduced by 7 minutes.
Tucson i =18m.30s.
San Juan ePPS =35m.16s., e =37m.26s.
Long waves were also recorded at Honolulu, Christchurch, Wellington, and other American and European stations.

June 2d. 11h. 38m. 39s. Epicentre 38°·8N. 142°·0E. (as on 1941, May 19d.).
Intensity V at Yahagi, Monma (Iwate Pref.), Hurukawa (Miyagi Pref.); IV at Sendai, Mizusawa, Miyako, Hatinohe; II-III at Hukusima, Onahama.
Epicentre 38°·8N. 141°·7E. Shallow. Macroseismic radius between 200 and 300 kms.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p.15, isoseimic chart p.15.

$A = -·6157$, $B = +·4811$, $C = +·6240$; $\delta = -8$; $h = -1$;
$D = +·616$, $E = +·788$; $G = -·492$, $H = +·384$, $K = -·781$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Mizusawa	0·8	296	0 20	+ 2	0 29	− 2
Sendai	1·0	238	0 20a	− 1	0 37	+ 1
Morioka	1·1	324	0 23	+ 1	0 35	− 4
Hatinohe	1·8	348	0 33a	+ 1	0 53	− 3
Onahama	2·1	205	0 39	+ 2	0 59	− 5
Mito	2·7	207	0 46	+ 1	1 7	−12
Utunomiya	2·8	217	0 47	0	1 19	− 3
Kakioka	3·0	209	0 49	− 1	1 20	− 7
Tukubasan	3·0	210	0 48	− 2	1 23	− 4
Kumagaya	3·4	220	0 53	− 2	—	—
Maebasi	3·4	224	0 55a	0	1 33	− 4
Mori	3·5	342	0 57	0	1 35	− 5
Tokyo	3·6	210	0 59	+ 1	1 41	− 1
Nagano	3·7	236	0 57	− 3	1 46	+ 1
Yokohama	3·9	210	1 12	P*	1 47	− 3
Hunatu	4·2	218	1 7	0	1 54	− 3
Mera	4·2	204	1 25	P_g	2 2	+ 5
Wazima	4·2	252	1 12	+ 5	1 50	− 7
Misima	4·4	214	0 25	?	0 39	?
Hukuoka	10·7	244	0 31	?	0 48	?

June 2d. Readings also at 0h. (Bermuda, Columbia, Leninakan, Sverdlovsk, Tashkent, Andijan (2), Almata, Irkutsk, Wellington, Auckland, Christchurch, and Riverview), 6h. (Ksara and Helwan), 7h. (La Paz, Tucson (2), near Balboa Heights and Bogota), 8h. (Tucson, Mount Wilson, Riverside, and Tinemaha), 11h. (Tucson and near Mizusawa), 12h. (Rome, Triest, Zagreb, Bucharest, and near Sofia), 14h. (Riverview, Auckland, Wellington, Christchurch, and near Fresno), 15h. (near Granada), 17h. (Tinemaha, Mount Wilson, Pasadena, Palomar, Tucson, St. Louis, and near Balboa Heights), 19h. (near Balboa Heights), 20h. (Prague, Tucson, Palomar, Riverside, and Pasadena), 21h. (near Mizusawa), 23h. (Tucson).

June 3d. 13h. 44m. 8s. Epicentre 52°·1N. 171°·2W. (as on 1944, May 23d.).

$A = -\cdot6096$, $B = -\cdot0944$, $C = +\cdot7871$; $\delta = +5$; $h = -6$;
$D = -\cdot153$, $E = +\cdot988$; $G = -\cdot778$, $H = -\cdot120$, $K = -\cdot617$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		17·5	34	e 4 15	+ 8	—	—	—	—	e 7·6
Sitka		21·2	93	i 4 52	+ 3	i 8 44	+ 3	—	—	i 10·5
Shasta Dam		34·9	88	i 6 55	0	e 12 26	− 1	—	—	i 13·6
Tinemaha	Z.	39·7	91	e 7 36	0	—	—	—	—	—
Haiwee	Z.	40·4	91	e 7 42	+ 1	—	—	—	—	—
Salt Lake City		41·3	81	e 7 48	− 1	—	—	—	—	e 17·6
Mount Wilson	Z.	41·6	93	i 7 51	0	—	—	—	—	—
Pasadena		41·6	93	e 7 51	0	—	—	—	—	e 17·5
Riverside	Z.	42·2	93	e 7 55	− 1	—	—	—	—	—
Overton		42·4	88	e 7 59	+ 1	e 14 21	+ 1	—	—	—
Boulder City		42·5	89	i 7 58	− 1	e 14 19	− 3	—	—	—
Pierce Ferry		42·9	88	i 8 2	0	e 14 26	− 1	—	—	—
Palomar		43·0	93	i 8 2	− 1	i 14 30	+ 1	—	—	—
La Jolla	N.	43·1	95	e 8 4	0	—	—	—	—	—
Rapid City		44·6	71	e 8 26	+10	e 14 34	−18	e 18 24	SS	e 24·7
Tucson		47·4	90	i 8 37	− 1	e 14 10	−82	—	—	e 19·5
Chicago		55·0	65	—	—	e 17 10	− 7	—	—	e 24·9
St. Louis		55·6	69	e 9 37	− 3	i 17 18	− 7	i 9 53	pP	—
Ottawa		58·9	55	—	—	e 18 2	− 6	—	—	29·9
Seven Falls		60·1	50	—	—	e 18 12	−12	—	—	27·9
Harvard		63·0	54	i 10 29	− 2	—	—	—	—	—
Philadelphia		63·0	58	—	—	e 18 55	− 6	—	—	e 29·4
Weston		63·2	54	i 10 31	− 1	—	—	—	—	e 31·4
Sverdlovsk		63·4	331	i 10 31	− 3	18 55	−11	—	—	—
Andijan		72·4	314	e 11 29	− 1	—	—	—	—	—
Copenhagen		72·5	358	e 11 30	0	—	—	—	—	33·9
Tashkent		73·2	317	e 11 25	−10	—	—	—	—	—
Bermuda		74·3	57	—	—	e 21 13	− 2	e 26 0	SS	e 39·2
Stalinabad		75·7	315	e 11 51	+ 2	—	—	—	—	—
Paris		79·3	4	e 12 7	− 2	—	—	—	—	e 46·9
Grozny		79·7	333	e 12 10	− 1	—	—	—	—	—
Basle		80·7	0	e 12 4	−12	—	—	—	—	—
Zürich		80·9	0	e 12 2	−15	—	—	—	—	—
Baku		81·2	329	e 12 29	+10	e 22 27	− 2	—	—	—
Clermont-Ferrand		82·4	3	e 12 23	− 2	—	—	—	—	e 47·9
Triest	E.	82·5	356	e 10 23	?	—	—	—	—	e 48·5
Leninakan		82·6	334	e 13 4	+38	—	—	—	—	—
Belgrade		82·7	351	e 13 52?	?	—	—	—	—	—
Rome	N.	86·3	357	e 16 45?	PP	e 33 59	SSS	—	—	—
Ksara		91·2	337	e 13 9	+ 1	e 23 44	[+ 4]	—	—	—
La Paz	Z.	110·8	89	28 46	PS	—	—	—	—	54·9

Additional readings:—
Tinemaha iZ = 7m.47s.
Mount Wilson iZ = 8m.5s.
Riverside iZ = 8m.8s.
Overton iP = 8m.4s., i = 8m.24s.
Boulder City i = 13m.36s.
Pierce Ferry i = 8m.7s. and 13m.39s.
Palomar i = 8m.16s., iEN = 8m.33s.
Tucson i = 8m.49s. and 11m.17s.
St. Louis iZ = 10m.1s.
Basle e = 12m.15s.
Long waves were also recorded at Honolulu, Ukiah, Bozeman, Bombay, New Delhi, and other European stations.

June 3d. 17h. 3m. 30s. Epicentre 25°·0N. 124°·0E. (as on 1d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zi-ka-wei		6·6	340	e 0 54	?	i 3 22	S*	—	—	i 3·6
Irkutsk		31·1	336	6 25	+ 3	e 11 33	+ 5	—	—	—
Calcutta	N.	32·7	273	—	—	e 11 46	− 6	—	—	e 16·2
Almata		42·4	308	7 57	− 1	—	—	—	—	—
Frunse		44·0	306	e 8 12	+ 1	—	—	—	—	—
Andijan		45·5	303	e 8 21	− 2	—	—	—	—	—
Tashkent		47·8	304	e 8 38	− 3	e 15 38	0	—	—	—
Stalinabad		48·2	300	e 8 48	+ 4	—	—	i 10 44	PP	—
Sverdlovsk		54·9	323	i 9 34	− 1	i 17 15	− 1	—	—	—
Baku		62·5	304	10 32	+ 4	—	—	—	—	—
Grozny		65·0	308	10 44	0	—	—	—	—	—
Leninakan		67·0	306	e 11 6	+ 9	—	—	—	—	—
Moscow		67·7	323	i 11 0	− 1	19 51	− 7	e 11 13	pP	—
Ksara		75·1	300	e 11 44	− 2	e 21 18?	− 6	—	—	—
Upsala		76·5	330	—	—	e 21 30	− 9	—	—	e 37·5
Copenhagen		80·9	328	e 12 18	+ 1	i 22 26	0	—	—	35·5
Collmberg	Z.	82·9	323	i 12 28	0	—	—	—	—	—
Zagreb		84·0	318	e 12 32	− 1	—	—	—	—	—
Triest	E.	85·5	319	e 22 38	S	(e 22 38)	−34	—	—	e 44·4
Basle		88·0	322	e 13 53a	+60	—	—	—	—	—
Rome		88·2	316	—	—	(e 23 30)	− 8	—	—	e 23·5
Paris		89·9	325	e 9 30?	?	—	—	—	—	e 46·5
Shasta Dam		90·2	44	i 13 11	+ 7	—	—	—	—	—
Tinemaha	Z.	94·9	46	i 13 34	+ 9	—	—	—	—	—
Mount Wilson	Z.	96·7	48	i 13 41	+ 8	—	—	—	—	—
Riverside	Z.	97·3	48	e 13 43	+ 7	—	—	—	—	—
Tucson		102·7	45	e 18 14	PP	—	—	—	—	—

Moscow gives also esP =11m.22s., ePP =13m.21s., epPP =13m.40s.
Collmberg eZ =12m.34s., iZ =12m.43s., eZ =13m.26s.
Long waves were also recorded at New Delhi, Weston, and other European stations.

June 3d. Readings also at 2h. (near Balboa Heights), 3h. (Kew), 7h. (Tinemaha and Tucson), 8h. (near Shasta Dam), 15h. (Copenhagen), 16h. (near Tacubaya), 17h. (near Malaga), 18h. (near Alicante and near La Paz), 19h. (near Almata, near Grozny and Piatigorsk), 21h. (near La Paz).

June 4d. 4h. 45m. 10s. Epicentre 17°·5S. 179°·5W. Depth of focus 0·080.

Doubtful determination.

A = −·9543, B = −·0083, C = −·2989; δ = +10; h = +5;
D = −·009, E = +1·000; G = +·299, H = +·003, K = −·954.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	27·2	243	i 5 1	− 1	(i 8 59)	− 5	—	—	—
Riverview		30·9	232	—	—	i 9 59	− 2	i 15 4	S_gS	—
Santa Barbara	Z.	76·8	47	i 10 59	+ 2	—	—	—	—	—
La Jolla	Z.	77·7	49	e 11 3	+ 1	—	—	—	—	—
Pasadena		77·7	48	i 11 3	+ 1	—	—	e 13 9	pP	—
Mount Wilson	Z.	77·8	48	i 11 3k	0	—	—	i 13 9	pP	—
Palomar		78·2	49	i 11 6k	+ 1	i 20 17	+ 2	i 13 13	pP	—
Riverside	Z.	78·2	48	i 11 6k	+ 1	—	—	i 13 12	pP	—
Shasta Dam		78·5	40	i 11 7	+ 1	—	—	i 13 13	pP	—
Tinemaha	Z.	79·2	46	i 11 11k	+ 1	—	—	i 13 22	pP	—
Boulder City		81·0	48	i 11 20	+ 1	i 20 44	0	i 13 28	pP	—
Overton		81·5	47	e 11 23	+ 1	—	—	—	—	—
Pierce Ferry		81·7	48	i 11 24	+ 1	i 20 52	+ 1	i 13 33	pP	—
Tucson		82·2	52	i 11 27	+ 2	e 20 57	+ 1	e 13 34	pP	—
College		85·6	12	e 21 24	S	(e 21 24)	− 4	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		117·0	78	—	—	i 24 41	SKKS	e 29 14	PPS	—
Tashkent		117·2	308	e 18 49	PP	—	—	—	—	—
Sverdlovsk		120·7	327	19 23	PP	—	—	—	—	—
Baku		131·9	310	e 18 20	[+ 8]	—	—	—	—	—
Moscow		132·6	333	i 18 12	[− 1]	—	—	—	—	—
Groznv		134·0	314	e 18 16	[0]	—	—	—	—	—
Leninakan		136·2	312	e 18 31	[+11]	—	—	—	—	—
Ksara		144·4	304	i 18 36	[+ 1]	—	—	20 59	pPKP	—
Collmberg	Z.	144·8	347	e 18 35	[− 1]	—	—	e 19 34	PP	—
De Bilt		145·3	355	i 18 39k	[+ 2]	—	—	—	—	—
Jena	N.	145·5	347	e 18 39	[+ 2]	—	—	—	—	—
Budapest		146·4	338	i 18 52	[+13]	—	—	—	—	—
Kalossa	E.	147·3	337	e 18 46	[+ 6]	—	—	—	—	—
	N.	147·3	337	e 18 50?	[+10]	—	—	—	—	—
Strasbourg		148·4	351	e 18 47?	[+ 5]	—	—	—	—	—
Paris		148·7	358	e 18 43	[+ 1]	—	—	—	—	e 37·8
Zagreb		149·0	340	e 18 49	[+ 6]	—	—	—	—	—
Helwan		149·3	300	18 29	[−14]	—	—	e 21 8	pPKP	—
Basle		149·5	351	e 18 44	[+ 1]	—	—	—	—	—
Zürich		149·5	350	e 18 42k	[− 1]	—	—	—	—	—
Triest	z.	149·8	343	i 18 50	[+ 7]	—	—	—	—	—
Neuchatel		150·1	351	e 18 44	[+ 1]	—	—	—	—	—
Clermont-Ferrand		151·8	357	e 18 38?	[− 8]	—	—	e 22 46	PP	—
Granada		160·1	10	i 18 58k	[+ 1]	—	—	23 21	PP	—
Malaga	z.	160·4	12	i 18 57k	[0]	e 25 57	[+47]	i 23 28	PP	74·0

Additional readings and notes :—
Brisbane readings are given as Ps for separate shocks.
Overton i = 11m.48s.
Tucson i = 11m.44s., eSKP,PKP = 40m.27s.
College e = 25m.19s.
Ksara PP? = 21m.54s.
Collmberg i = 18m.44s. and 18m.54s., eNZ = 19m.1s. and 19m.59s., ePKP?NZ = 21m.20s., eNZ = 21m.37s., 21m.58s., and 22m.25s.
Paris e = 18m.11s., 18m.48s., 19m.22s., and 20m.57s.?
Zagreb e = 19m.5s.
Helwan e = 22m.26s.
Basle e = 18m.49s. and 23m.41s.
Zürich i = 18m.48s.
Clermont-Ferrand e = 18m.56s.
Granada PKP_2 = 19m.45s.
Malaga PKP_2Z = 19m.44s., P_cP,PKPZ = 29m.13s., SKKSZ = 30m.21s., SKSPZ = 33m.29s., iSSZ = 43m.20s.
Long waves were also recorded at Alicante.

June 4d. 15h. Undetermined European shock.

Besançon iP = 2m.42s., iS = 3m.0s.
Strasbourg eP = 2m.57s.?, eP_g = 3m.5s., eS_g = 3m.27s., iS_g = 3m.33s.
Clermont-Ferrand eP = 3m.13s., eS = 3m.52s.
Paris e = 3m.21s. and 4m.14s., eS_g = 4m.39s.
Uccle eP = 3m.33s., eP*E = 3m.49s., eN = 3m.58s. and 4m.13s., eE = 5m.2s., iN = 5m.8s. and 5m.32s., i = 5m.37s., eN = 5m.55s.
Collmberg ePZ = 3m.44s., eZ = 3m.48s. and 3m.56s., eP_gZ = 4m.4s., eZ = 4m.10s., iZ = 4m.20s., eZ = 4m.35s., ePSZ = 4m.44s., eZ = 4m.51s., 5m.11s., and 5m.19s., eS_gZ = 5m.27s., eZ = 5m.31s., eN = 5m.38s., eEN = 6m.2s., eLN = 6m.13s.
Jena eE = 3m.53s., iE = 5m.6s., iN = 5m.9s.
Zagreb eP = 4m.16s., e = 5m.18s., 5m.35s., and 6m.6s.
Triest eS? = 4m.16s.
Prague eP_g = 4m.37s.?, eS_g = 5m.59s.
De Bilt e = 6m.
Tortosa eN = 6m.25s., iN = 6m.45s. and 7m.3s.
Warsaw eE = 7m.56s., eN = 8m.2s., eZ = 8m.23s. and 8m.36s., eEN = 8m.40s., eE = 8m.54s., eZ = 8m.58s. and 10m.12s.

June 4d. Readings also at 0h. (near Boulder City (2), Overton (2), and Pierce Ferry (2)), 1h. (Belgrade, Collmberg, Jena, Prague, Clermont-Ferrand, Paris, Uccle, and near Strasbourg), 6h. (Ksara, Overton, and near Boulder City), 9h. (Tucson and Apia), 10h. (Bucharest, near Balboa Heights, and Bogota), 12h. (Salt Lake City, Shasta Dam, near Tucson, and near Tacubaya), 13h. (near Andijan (2) and Stalinabad), 14h. (near Oaxaca and Tacubaya), 16h. (Mount Wilson, Palomar, Riverside, Tinemaha, Sitka, Granada (4), and near Malaga), 17h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, near Boulder City, and Pierce Ferry, St. Louis, College, Brisbane, Riverview, Auckland, Wellington, and near Triest; several shocks), 18h. (Ksara, near Granada (2), and Malaga), 20h. (La Paz), 21h. (Moscow and Sverlovsk), 22h. (Harvard, near Fresno, and near San Juan).

June 5d. 0h. 52m. 38s. Epicentre 5°·2S. 152°·4E. (as 1945, Sept. 6d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	22·2	179	i 5 2	+ 2	i 9 57	+57	—	—	—
Riverview		28·5	183	e 6 11	+12	i 10 54	+ 8	i 7 5	PP	e 14·3
Auckland		37·6	150	—	—	12 52	−16	—	—	22·4
Arapuni		39·0	151	13 52	PcS	—	—	—	—	—
Wellington		41·1	155	9 50	PPP	17 32	SSS	13 57	PcS	19·9
Christchurch		42·1	158	8 20	+25	14 19	+ 3	9 42	PP	17·1
Perth		43·3	228	—	—	i 18 2	SSS	—	—	24·3
Mizusawa		45·3	348	8 20	− 1	12 22	?	—	—	—
Honolulu		55·4	60	e 15 50	?	e 17 23	+ 1	e 21 4	SS	e 23·9
Almata		83·0	315	12 30	+ 2	—	—	—	—	—
Sitka		85·0	32	i 12 36	− 2	i 23 1	− 6	e 28 36	SS	e 35·1
Andijan		85·9	311	e 12 47	+ 4	—	—	e 24 48	PPS	—
Stalinabad		88·2	309	i 13 14	+20	—	—	i 16 36	PP	—
Tashkent		88·2	312	e 12 54	0	23 23	− 5	e 16 11	PP	—
Ukiah		88·9	51	—	—	e 29 54	SS	—	—	e 40·6
Berkeley		89·5	53	i 24 48	PS	i 30 5	SS	e 23 53	ScS	e 40·3
Shasta Dam		89·7	49	e 13 0	− 1	e 23 54	+ 2	—	—	—
Victoria		90·0	41	—	—	23 19	[−14]	—	—	37·4
Pasadena	Z.	92·4	56	e 13 14	0	—	—	e 13 39	?	e 42·4
Mount Wilson	Z.	92·5	56	i 13 15	+ 1	—	—	i 13 40	?	—
Tinemaha	Z.	92·6	53	e 13 14	− 1	—	—	—	—	—
Riverside	Z.	93·1	57	e 13 16	− 1	—	—	—	—	—
Palomar		93·4	57	i 13 19	+ 1	—	—	—	—	—
Boulder City		95·3	54	e 13 27	0	—	—	e 17 15	PP	—
Sverdlovsk		95·3	326	13 26	− 1	24 7	[+ 4]	i 17 19	PP	—
Overton		95·6	53	e 14 20	+52	—	—	—	—	—
Pierce Ferry		95·9	54	e 13 31	+ 1	—	—	—	—	—
Salt Lake City		97·7	50	—	—	e 24 30	[+14]	e 26 6	SP	e 44·5
Bozeman		98·3	44	—	—	i 24 50	−16	e 24 22	SKS	e 45·5
Tucson		98·5	58	e 13 42	0	—	—	e 17 32	PP	41·3
Baku		102·9	310	—	—	—	—	e 18 1	PP	—
Rapid City		103·9	46	—	—	25 10	{−12}	—	—	49·2
Grozny		105·7	313	e 18 8	PP	25 19	{−16}	—	—	—
Leninakan		107·5	311	—	—	25 14	[+12]	—	—	—
Moscow		108·1	327	e 14 23	?	e 26 25	− 5	24 56	SKS	—
St. Louis		114·5	50	e 19 33	PP	e 26 32	{− 4}	e 29 16	PS	—
Ksara		114·8	304	19 45	PP	29 45	PS	—	—	—
Chicago		115·6	46	e 29 22	PS	e 35 30	SS	e 40 18	SSS	e 48·8
Upsala		115·6	336	e 27 4	SKKS	29 22?	PS	e 39 22?	SSS	e 57·4
Warsaw		118·4	328	—	—	e 25 59	[+15]	e 30 6	PS	e 61·4
Ottawa		122·2	38	e 18 58	[+ 1]	e 26 22	[+25]	—	—	48·4
Belgrade		122·5	321	—	—	e 28 1	{+30}	—	—	60·4
Columbia		122·9	52	e 31 29	PPS	—	—	—	—	e 54·1
Collmberg		123·0	331	e 19 0	[+ 2]	—	—	e 21 6	PP	e 62·4
Prague		123·1	329	—	—	e 27 52	{+17}	—	—	e 63·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Cheb		124·1	330	e 20 48	PP	e 30 38	PS	e 37 52	SSP	62·4
Philadelphia		125·0	44	e 19 26	[+24]	e 37 50	SS	e 32 56	PPS	e 51·5
De Bilt		126·0	336	e 21 2	PP	e 31 2	PS	e 38 22?	SS	e 60·4
Triest		126·1	325	e 21 4	PP	e 31 4	PS	—	—	60·4
Harvard		126·2	39	e 19 6	[+ 1]	—	—	e 20 34	PP	e 60·4
Weston		126·4	39	i 19 6	[+ 1]	e 37 44	SS	i 20 56	PP	e 63·5
Strasbourg		127·3	331	—	—	e 27 48	{−14}	—	—	65·7
Uccle		127·3	335	e 19 12	[+ 5]	e 38 22	SS	—	—	65·4
Zürich		127·8	330	e 19 10	[+ 2]	—	—	—	—	—
Basle		128·2	330	e 19 11	[+ 3]	—	—	—	—	—
Kew		128·6	339	e 22 31?	PP	e 22 53	PKS	e 29 51	?	e 56·4
Rome		129·0	322	e 21 40?	PP	e 23 0	PKS	—	—	65·5
Paris		129·6	334	e 21 22	PP	e 22 54	SKP	—	—	e 53·4
Clermont-Ferrand		131·6	331	e 19 18	[+ 3]	e 22 46	SKP	—	—	e 64·5
Bogota		133·7	88	e 19 17	[− 2]	e 22 48	SKP	—	—	—
La Paz	z.	134·5	119	i 19 25a	[+ 5]	22 52	SKP	40 22	SSP	64·4
Bermuda		136·1	47	e 23 2	PKS	—	—	e 40 22	SS	e 57·9
Alicante		138·8	327	23 42	PKS	26 34	[− 3]	27 42	?	e 73·0
Toledo		139·5	331	e 19 26	[− 4]	23 4	SKP	i 23 11	PKS	—
San Juan		140·2	67	e 19 36	[+ 5]	e 47 30	SSS	i 23 9	PKS	e 66·4
Granada		141·3	328	i 19 56a	[+23]	29 24	{− 5}	23 42	PKS	—
Malaga	z.	142·1	329	i 19 28a	[− 6]	i 26 23	[−20]	i 22 40	PP	66·0

Additional readings :—
Riverview iZ = 6m.21s., iN = 10m.35s., iNZ = 11m.15s., iE = 11m.18s., iE = 13m.18s.
Christchurch e = 13m.2s.
Mizusawa PE = 8m.23s., SE = 12m.28s.
Perth i = 19m.57s.
Honolulu e = 17m.47s.
Sitka iS_cS = 23m.28s., e = 28m.12s., eSSS? = 32m.28s.
Tashkent SKS = 23m.18s., S_cS = 24m.3s., PPS = 25m.7s.
Boulder City e = 14m.19s., i = 14m.46s.
Sverdlovsk PS = 26m.13s., eSS = 32m.3s.
Pierce Ferry e = 13m.57s., i = 14m.25s.
Moscow PP = 18m.50s., PS = 27m.59s., SS = 33m.35s.
St. Louis eE = 19m.36s., eZ = 20m.27s., eE = 25m.53s. and 27m.5s., eZ = 29m.31s., iE = 29m.39s., eSSN = 35m.21s.
Upsala eN = 41m.22s.
Warsaw eN = 26m.5s., eE = 26m.17s., eN = 30m.26s., eZ = 32m.54s., eE = 36m.23s., eN = 36m.40s., eZ = 36m.44s.
Collmberg eZ = 19m.20s., 19m.32s., and 19m.42s., eN = 28m.55s.
Cheb ePPP = 26m.33s., e = 32m.30s., eSSS = 42m.4s.
Philadelphia ePS? = 31m.30s., e = 39m.4s.
Kew eZ = 30m.11s.?
Rome e = 22m.34s., eNZ = 35m.42s.
Paris e = 46m.0s.?
Granada iPP = 23m.30s.
Malaga PKSZ = 23m.32s., iPPPZ = 25m.48s., PKKPZ = 28m.34s., SKKSZ = 29m.28s., P_cPPKPZ = 31m.3s., SKSPZ = 32m.34s., PPSZ = 35m.4s., QZ = 60m.22s.
Long waves also at Copenhagen, Santa Clara, and Tananarive.

June 5d. 22h. Undetermined shock (epicentre in California).

Boulder City iP = 0m.19s., i = 0m.25s., iS = 1m.4s.
Lick ePEN = 0m.23s., eSN = 1m.9s.
Pierce Ferry iP = 0m.28s., i = 0m.38s., iS = 1m.21s.
Branner ePEN = 0m.30s., eN = 1m.10s., eE = 1m.13s.
Overton eP = 0m.32s., iP = 0m.35s., iS = 1m.13s.
Santa Clara eEN = 1m.2s.
Shasta Dam e = 1m.8s., i = 1m.16s. and 1m.32s., eS = 2m.18s., e = 2m.22s., iS = 2m.34s.
Tucson iP = 1m.16s., i = 1m.37s., e = 1m.47s., eS? = 2m.37s., i = 3m.1s., iL = 3m.23s.

June 5d. Readings also at 0h. (near Tananarive), 1h. (Granada), 2h. (near Branner), 3h. (Tucson and Balboa Heights), 6h. (near Pierce Ferry), 7h. (Balboa Heights), 10h. (Tucson, Helwan, Granada, San Juan, La Paz, and near Grand Coulee), 13h. (Shasta Dam, Riverside, Palomar, Pasadena, Mount Wilson, Tucson, Tinemaha, and near Bogota), 15h. (Palomar and Tucson), 16h. (near Stalinabad, Andijan, Samarkand, Tchimkent, Tashkent, and Frunse), 22h. (New Delhi, San Juan, Harvard, and near Branner), 23h. (Shasta Dam and near Malaga).

June 6d. 10h. 37m. 52s. Epicentre 0°·3S. 18°·9W. (as on 1941, July 21d.).

$A = +\cdot9461$, $B = -\cdot3239$, $C = -\cdot0052$; $\delta = +4$; $h = +7$;
$D = -\cdot324$, $E = -\cdot946$; $G = -\cdot005$, $H = +\cdot002$, $K = -1\cdot000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga	z.	39·2	18	i 7 35	+ 4	e 13 48	+16	17 8	S_cS	17·5
Granada		39·9	18	i 7 42k	+ 5	i 13 58	+15	8 7	pP	18·6
Alicante		42·0	21	e 8 3	+ 9	e 14 21	+ 7	9 31	PP	e 21·1
Algiers		42·2	26	e 8 48	+52	e 14 8	− 9	—	—	e 20·1
Toledo	z.	42·2	16	i 7 52	− 4	—	—	—	—	—
Clermont-Ferrand		49·8	20	9 19	+23	e 16 28	+22	e 11 2	PP	e 22·1
San Juan		49·9	294	e 8 44	−13	i 16 1	− 6	e 18 33	S_cS	e 22·1
La Plata		50·1	222	12 26	PPP	16 2	− 8	18 50	S_cS	21·3
Rome		50·7	29	e 8 58	− 5	e 16 14	− 4	e 10 50	PP	e 24·3
La Paz		51·1	248	i 9 12a	+ 6	i 16 36	+12	i 11 16	PP	22·7
Florence		51·5	27	i 9 39	+30	i 17 50	+81	—	—	—
Paris		52·3	17	e 10 28?	P_cP	e 16 56	+16	e 13 28	?	e 24·1
Zürich		53·2	23	e 9 14	− 8	—	—	—	—	—
Strasbourg		53·9	21	e 10 18	P_cP	e 17 22	+20	—	—	24·6
Bermuda		54·0	311	e 9 29	+ 1	e 17 8	+ 5	e 22 8	SSS	e 24·9
Triest		54·1	28	e 9 32	+ 3	i 17 20	+15	—	—	—
Uccle		54·6	16	—	—	i 17 24	+13	e 24 6	?	e 26·1
Zagreb		55·2	29	e 9 35	− 2	—	—	—	—	—
Bogota		55·3	276	e 9 32	− 6	—	—	—	—	33·8
De Bilt		56·0	17	—	—	e 17 8?	−22	—	—	—
Helwan		56·4	53	e 9 50	+ 5	—	—	e 12 16	PP	—
Belgrade		56·9	33	e 9 41	− 8	—	—	e 12 24	PP	—
Cheb		56·9	23	e 13 21	PPP	e 22 59	?	e 18 33	PPS	e 42·1
Prague		57·7	24	—	—	e 18 8	+15	—	—	e 27·6
Collmberg	N.	58·1	23	—	—	e 18 7	+ 9	—	—	e 27·1
Copenhagen		61·4	19	—	—	(15 8?)	P_cS	—	—	15·1
Ksara		61·5	51	e 10 35?	+14	—	—	e 17 15	?	—
Weston		63·4	319	e 10 32	− 2	e 18 58	− 8	26 0	SSS	—
Harvard		63·6	319	e 10 28	− 7	e 19 17	+ 9	e 10 45	?	e 28·1
Philadelphia		64·9	315	e 11 3	+20	e 19 35	+11	e 12 53	PP	e 26·4
Upsala		66·3	18	e 22 8?	?	—	—	—	—	e 29·1
Columbia		67·3	308	—	—	e 20 0	+ 6	e 20 53	S_cS	e 23·9
Ottawa		67·5	320	—	—	e 20 0	+ 4	—	—	27·1
Leninakan		69·9	46	e 11 15?	0	—	—	—	—	—
Moscow		72·0	30	e 10 50?	−38	e 20 37	−12	—	—	—
Baku		74·2	47	e 10 53	−47	e 20 11	−63	—	—	—
Chicago		74·4	313	—	—	e 21 11	− 5	e 25 2	?	e 29·3
St. Louis		75·7	310	e 11 47	− 2	e 21 22	− 8	e 22 2	PS	—
Sverdlovsk		84·5	33	e 12 31	− 5	23 17?	+15	e 23 57	PS	—
Rapid City		86·1	314	e 13 24	+40	e 24 36	PPS	e 20 20	?	e 29·3
Saskatoon		88·8	322	23 32	SKS	(23 32)	[+ 6]	29 40	SS	39·1
Tashkent		88·8	49	e 12 11	−46	23 39	− 5	e 15 36	PP	—
Bozeman		91·7	315	—	—	e 23 44	[+ 1]	e 24 12	S	e 41·4
Tucson		91·8	302	e 13 26	+15	e 25 24	PS	e 30 16	SS	e 46·4
Salt Lake City		92·4	311	—	—	e 24 22	+ 6	e 30 28	SS	e 37·7
Butte		92·8	316	—	—	e 30 29	SS	—	—	e 37·4
Victoria		99·8	319	24 27	SKS	(24 27)	[+ 1]	32 2	SS	39·9
Berkeley		100·7	308	24 40	SKS	(24 40)	[+10]	26 54	PS	47·1
Riverview	z.	144·8	166	e 21 26	?	—	—	—	—	e 63·9

Additional readings :—
Malaga $iP_cPZ = 8m.20s.$, $S_cPZ = 12m.50s.$
Granada $PP = 9m.26s.$, $pP_cP = 10m.9s.$, $SS = 16m.40s.$, $S_cS = 17m.41s.$
Alicante $P_cP = 10m.6s.$, $SS = 17m.14s.$, $S_cS = 18m.13s.$, $SSS = 18m.35s.$
San Juan $e = 19m.18s.$, $i = 20m.8s.$
La Plata $E = 15m.50s.$, $N = 20m.14s.$
Rome $eEN = 16m.40s.$
Belgrade $e = 10m.10s.$
Cheb $eSS = 27m.34s.$
Philadelphia $e = 19m.18s.$ and $23m.25s.$
Saskatoon S given as P, SS given as S.

Continued on next page.

Tashkent PPP = 23m.56s.
Bozeman e = 30m.20s.
Tucson e = 14m.58s. and 37m.32s.
Victoria SKS given as P, SS given as S, SSSN = 37m.32s.
Berkeley PS = 32m.33s., SSS = 40m.9s., readings wrongly identified.
Long waves were also recorded at Santa Lucia, Sitka, College, Pasadena, Ukiah, Christchurch, and Auckland.

June 6d. Readings also at 0h. (College, Sitka, St. Louis, Shasta Dam (2), Tinemaha, Tucson, Haiwee, Riverside, Mount Wilson, Palomar, Tucson, near Boulder City (2), Overton (2), and Pierce Ferry (2)), 1h. (near Boulder City, Overton, Pierce Ferry, and Shasta Dam), 2h. (La Paz), 5h. (St. Louis, Tucson, Palomar, Tinemaha, and Bucharest), 6h. (Fort de France, near Balboa Heights (2), and Bogota), 7h. (near Balboa Heights and Bogota (2)), 10h. (La Plata, Paris, and near Granada), 13h. (near Samarkand, Tashkent, Andijan, and Stalinabad), 15h. (Riverview and near Santa Lucia), 16h. and 17h. (Granada), 18h. (near Boulder City, Overton, Pierce Ferry, and Shasta Dam), 19h. (Grozny, Sverdlovsk, Tchimkent, Stalinabad, Tashkent, Andijan, near Frunse, and Almata), 22h. (Tucson, and near Berkeley), 23h. (near Andijan, Samarkand, Stalinabad, and near Tacubaya).

June 7d. 4h. 13m. 22s. Epicentre 16°·9N. 94°·2W. Depth of focus 0·010.

Appreciable damage at Ixtepec. Intensity III throughout the South-East States of Mexico. Epicentre 16°51′N. 95°02′W. (Tacubaya). Depth 70km.

Catalogo de Temblores, Instituto de Geofisica de la Universidad nacional de Mexico, Année, 1946, Mexico, 1949, p. 28.

$A = -·0701$, $B = -9548$, $C = +·2889$; $\delta = +2$; $h = +6$;
$D = -·997$, $E = +·073$; $G = -·021$, $H = -·288$. $K = -·957$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	2·5	273	i 0 39	− 1	i 0 59	−10	—	—	—
Puebla		4·4	299	i 1 3	− 3	i 1 49	− 7	—	—	i 1·9
Tacubaya		5·3	298	1 18	0	2 10	− 8	—	—	2·2
Merida		5·9	46	i 1 44	+18	i 3 5	+32	i 2 48	SS	i 3·3
Guadalajara		9·4	296	2 21	+ 7	i 3 22	−37	i 2 24	PP	i 4·5
Manzanillo		9·9	285	i 2 22	+ 1	i 4 13	+ 2	—	—	i 4·6
Chihuahua	Z.	16·0	319	i 3 48	+ 8	i 6 46	+11	i 4 13	PPP	—
Balboa Heights		16·3	117	i 3 45	+ 1	i 6 48	+ 7	—	—	—
Columbia		20·7	32	e 4 35	+ 1	i 8 20	+ 5	i 4 42	PP	e 9·1
Tucson		21·5	320	e 4 39	− 3	i 8 33	+ 3	i 5 5	pP	i 10·0
St. Louis		21·9	8	e 4 44	− 2	i 8 46	+ 9	i 5 8	pP	—
Florissant	N.	22·1	8	e 4 44	− 4	i 8 48	+ 8	i 5 7	pP	—
Bogota		23·2	118	e 4 58	− 1	e 10 33	SSS	i 5 14	PP	—
Lincoln		24·0	356	i 5 4	− 2	i 9 24	+10	i 5 46	PP	i 9·9
Chicago		25·5	11	i 5 20	− 1	i 9 38	− 1	i 5 46	PP	i 10·3
Pierce Ferry		26·0	323	e 5 23	− 3	e 10 10	+23	i 6 9	PP	e 14·2
La Jolla	Z.	26·2	313	e 5 29	+ 2	—	—	—	—	—
Palomar		26·2	315	e 5 24	− 3	—	—	i 5 47	pP	—
Boulder City		26·4	321	i 5 27	− 2	e 10 7	+13	i 5 48	pP	—
Overton		26·5	322	e 5 30	0	e 9 48	− 7	e 6 9	PP	—
New Kensington		26·7	25	e 5 41	+ 9	e 10 39	+41	e 6 42	PPP	i 12·2
San Juan		26·8	82	e 5 34	+ 1	i 10 14	+14	i 6 6	sP	i 11·6
Riverside		26·9	314	i 5 33	− 1	—	—	i 6 0	pP	—
Mount Wilson	Z.	27·5	314	i 5 39	0	—	—	—	—	—
Pasadena		27·5	314	i 5 29	−10	e 10 1	−10	i 6 11	pP	i 12·8
Pennsylvania		27·7	27	e 5 58	+17	e 10 10	− 4	i 6 21	PP	—
Philadelphia		28·3	33	e 5 50	+ 4	i 10 29	+ 5	i 6 14	pP	i 11·4
Rapid City		28·3	347	i 6 52?	PP	e 12 28?	SSS	e 7 18?	PPP	e 13·6
Salt Lake City		28·3	332	e 5 32?	−14	i 10 15?	− 9	e 6 6?	pP	e 11·7
Haiwee	Z.	28·5	318	e 5 48	0	—	—	—	—	—
Santa Barbara		28·7	314	e 5 51	+ 1	—	—	—	—	—
Tinemaha	Z.	29·3	319	i 5 52	− 3	i 12 52	SSS	—	—	—
Fresno	N.	30·0	318	e 6 3	+ 1	e 10 30	−21	e 6 38	PP	—
Bermuda		30·8	55	e 6 8	− 1	e 10 30	−34	e 7 0	PP	e 12·0
Lick		31·6	316	e 6 24	+ 8	—	—	—	—	e 18·5

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		31·8	89	e 5 41	−36	e 10 41	−38	—	—	—
Santa Clara		31·8	316	e 6 16	− 1	i 11 25	+ 6	—	—	e 16·1
Bozeman		32·0	338	e 6 10	− 9	i 11 18	− 4	e 6 40	pP	e 12·8
Branner		32·0	316	e 6 21	+ 2	e 11 33	+11	e 6 59	PP	e 16·7
Harvard		32·0	33	e 6 14	− 5	e 11 16	− 6	e 13 9	SS	e 17·6
Weston		32·0	33	e 6 18	− 1	i 11 26	+ 4	i 12 58	Q	i 14·1
Berkeley		32·3	316	i 6 22	0	i 11 34	+ 7	i 6 54	pP	e 15·9
Ottawa		32·4	25	i 6 21	− 1	i 11 28	− 1	7 23	PP	e 15·1
Butte		32·8	337	i 6 28	+ 2	e 11 38	+ 3	e 6 52	pP	e 13·4
Ukiah		33·6	318	e 6 34	+ 1	e 11 48	+ 1	e 7 8	pP	e 13·0
Shasta Dam		34·0	321	i 6 33	− 3	—	—	e 9 10	PcP	e 15·3
Shawinigan Falls		34·5	27	6 40	− 1	12 2	+ 1	e 7 6	pP	19·6
Seven Falls		35·8	28	6 55	+ 3	12 22	+ 1	8 11	PPP	16·6
Saskatoon		36·5	348	7 5	+ 7	12 34	+ 2	8 49	PPP	17·6
Grand Coulee		37·0	333	i 6 59	− 3	e 12 47	+ 7	13 27	sS	21·2
Halifax		37·8	37	7 14	+ 6	12 49	− 3	8 46	PPP	15·6
Seattle		38·4	330	e 7 51	+38	e 13 11	+10	—	—	e 16·5
Victoria		39·5	330	7 11	−11	13 19	+ 2	9 15	PPP	19·6
La Paz		42·0	140	e 7 38	− 5	i 13 53	− 1	i 8 10	pP	19·6
Sitka		50·8	333	i 8 50	− 2	i 16 4	+ 5	i 9 24	pP	e 20·7
Santa Lucia	N.	54·8	156	9 31	+ 9	16 57	+ 3	11 42	PP	26·0
College		59·7	337	e 9 53	− 4	e 18 0	+ 2	e 10 26	pP	e 27·1
Honolulu		59·9	286	e 9 59	+ 1	e 18 8	+ 8	e 18 54	sS	e 24·8
La Plata	E.	62·0	147	(9 55)	−17	(18 15)	−12	(12 8)	PP	(31·9)
	N.	62·0	147	(i 9 58)	−14	(18 18)	− 9	(12 32)	PP	(30·2)
	Z.	62·0	147	(10 2)	−10	—	—	(11 38)	PcP	—
Reykjavik		67·2	27	—	—	e 19 32	+ 1	27 8	SSS	e 30·1
Punta Arenas	N.	72·6	166	15 38?	PPP	24 38?	SS	—	—	30·6
Lisbon		75·8	53	11 38a	+ 1	i 21 10	0	16 33	PPP	34·5
Edinburgh		76·7	36	11 38	− 4	21 18	− 2	14 21	PP	—
Aberdeen		77·1	34	i 12 12	+28	21 26	+ 2	i 31 5	SSS	34·6
Durham		77·9	37	e 11 55	+ 6	i 21 33	0	21 40	ScS	—
Toledo		79·5	52	i 11 56	− 2	i 21 50	0	12 2	PcP	33·0
Malaga	Z.	79·9	54	i 11 57	− 3	i 21 48	− 6	22 35	sS	37·8
Bergen		80·1	30	12 2	+ 1	22 0	+ 4	e 27 39?	SS	e 32·6
Granada		80·5	54	i 12 1a	− 2	i 22 1	+ 1	12 30	pP	37·7
Paris		81·4	42	e 12 9	+ 1	i 22 11	+ 2	e 23 2	PS	e 36·6
Uccle		82·4	39	e 12 9	− 4	i 22 22	+ 3	i 12 41	pP	e 33·6
Alicante		82·5	53	i 12 20	+ 7	i 22 14	− 6	12 31	PcP	e 38·4
De Bilt		82·5	37	i 12 15k	+ 2	i 22 26	+ 6	i 12 39	pP	39·6
Tortosa		82·6	50	12 22	+ 8	22 21	0	12 52	pP	e 36·6
Clermont-Ferrand		83·0	45	e 12 13	− 3	22 25	0	i 12 46	pP	e 38·6
Barcelona		83·6	49	e 12 22	+ 3	22 32	+ 1	—	—	e 43·6
Besançon		84·5	43	e 12 22	− 1	e 22 37	− 3	—	—	e 35·6
Neuchatel		85·2	42	e 12 24	− 3	e 22 43	− 4	—	—	—
Strasbourg		85·2	40	e 12 23	− 4	i 22 43	− 4	e 13 3	pP	35·6
Copenhagen		85·3	33	12 26	− 1	i 22 42	− 6	i 23 48	SP	—
Basle		85·4	42	e 12 24	− 4	e 22 45	− 4	—	—	—
Upsala		86·0	28	e 12 28	− 3	e 22 46	− 9	e 23 51	SP	e 35·6
Zürich		86·1	42	e 12 29	− 2	e 22 44	−12	—	—	—
Jena		86·6	38	e 12 31	− 3	e 23 7	+ 6	e 22 52	ScS	—
Collmberg		87·3	37	e 12 34	− 3	i 23 9	+ 2	e 15 58	PP	e 35·5
Cheb		87·6	38	e 12 44	+ 6	e 22 57	−13	e 15 54	PP	e 51·6
Prague		88·6	37	e 13 11	+28	23 0	−19	—	—	e 35·6
Florence		89·2	44	i 12 50	+ 4	i 23 41	+16	i 23 14	SKS	—
Trieste		90·1	42	i 12 54	+ 4	i 23 39	+ 6	i 13 19	pP	—
Rome		90·7	46	e 12 54a	+ 1	i 23 49	+11	i 13 1	PcP	—
Warsaw		91·3	34	12 56	0	i 23 20	−24	i 29 37	SS	e 40·6
Zagreb		91·4	41	e 12 56	0	i 23 52	+ 7	e 23 32	SKS	e 36·6
Kalossa	E.	92·9	39	e 13 8	+ 5	e 23 38	−20	—	—	—
Belgrade		95·2	40	e 13 9	− 5	e 22 39	[−60]	e 16 41	PP	35·6

Continued on next page,

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Moscow		97·1	25	13 22	0	i 24 33	− 1	i 13 49	pP	—
Sofia		97·5	41	e 13 27	+ 3	i 23 53	[+ 1]	e 24 23	S_eS	39·6
Bucharest		98·3	38	—	—	i 24 48	+ 4	i 23 56	SKS	38·6
Arapuni		100·4	233	e 18 8	PP	27 38	PPS	—	—	46·6
Auckland		100·7	235	19 28	PP	25 18	+14	—	—	40·6
Wellington		101·7	230	e 23 48	?	25 2	−10	27 34	PPS	41·6
Christchurch		102·7	228	13 53	+ 5	25 22	+ 2	27 12	PS	47·7
Yalta		102·9	35	—	—	e 25 14	− 8	—	—	—
Irkutsk		109·3	348	e 18 2?	[−16]	24 50	[+ 4]	e 18 46	PP	—
Grozny		109·7	30	e 18 18	[− 1]	—	—	—	—	—
Helwan		109·9	49	e 19 28	PP	24 51	[+ 2]	28 10	PS	—
Leninakan		110·6	33	18 44	[+23]	—	—	—	—	—
Ksara		110·7	43	e 14 55	P	28 23	PS	19 1	PP	—
Baku		114·0	29	18 42	[+14]	25 17	[+12]	e 19 33	PP	—
Riverview		119·5	240	e 20 2	PP	e 29 55	PS	e 20 30	pPP	55·0
Tashkent		120·1	14	18 53	[+13]	25 37	[+10]	20 37	pPP	—
Andijan		121·3	11	18 48	[+ 5]	—	—	—	—	—
New Delhi	N.	134·0	10	i 22 35	PP	i 33 38	PPS	—	—	i 66·0
Tananarive		143·6	99	—	—	41 38?	SS	—	—	70·1
Hyderabad	N.	145·1	12	19 27	[+ 1]	—	—	—	—	—
Kodaikanal	E.	151·8	17	e 19 46	[+ 9]	—	—	—	—	—

Additional readings :—
Tucson iP = 4m.43s., isP = 5m.15s., i = 8m.47s. and 9m.4s., isS = 9m.23s.
St. Louis iPZ = 4m.49s., isSZ = 9m.24s.
Florissant iPN = 4m.50s.
Bogota iP = 5m.3s., i = 6m.5s. and 7m.7s.
Lincoln iP_cP = 8m.34s.
Chicago e = 7m.12s. and 7m.45s.
Palomar iENZ = 5m.27s.
Boulder City i = 6m.14s., esS = 10m.23s.
Overton iP = 5m.35s.
New Kensington e = 6m.9s., iS = 10m.53s.
San Juan i = 6m.14s., isS = 10m.44s.
Riverside iZ = 6m.14s., iP_cPZ = 8m.51s., eN = 10m.47s., iZ = 12m.44s. and 14m.37s.
Pasadena i = 5m.39s., iEN = 6m.21s., iEZ = 6m.26s., iP_cPZ = 8m.55s., ipP_cP = 9m.27s.
Pennsylvania isPN = 6m.13s., eP_cPN = 8m.50s.
Philadelphia iP = 5m.56s., isP = 6m.20s., iPP = 6m.48s., i = 6m.59s., isS = 11m.12s.
Rapid City e = 7m.36s.? and 11m.42s.?
Salt Lake City i = 7m.22s.?
Fresno eN = 6m.18s.
Lick eEN = 6m.43s.
Bozeman e = 7m.8s. and 7m.40s.
Branner eN = 6m.30s.
Harvard i = 6m.24s., 6m.51s., 7m.35s., and 8m.11s.
Weston iSS = 13m.18s.
Berkeley iP_cPZ = 9m.6s., eZ = 13m.23s.
Ottawa i = 6m.47s. and 12m.14s., SS = 13m.20s.
Butte esP = 7m.8s., iPP = 7m.43s.
Shasta Dam i = 8m.42s.
Saskatoon SS = 15m.20s.
Grand Coulee iP_cP = 9m.11s.
Halifax SS = 14m.38s.?
Victoria SSS = 17m.11s.
La Paz iPZ = 7m.42s., isPZ = 8m.28s., PPZ = 9m.24s., iSN = 13m.59s., iSS = 16m.35s., iS_cS = 17m.12s.
Sitka isPP = 11m.22s., isS = 16m.55s.
Santa Lucia N = 13m.17s., SSN = 18m.52s., N = 23m.27s.
College e = 14m.10s., esS = 18m.53s., e = 19m.52s. and 20m.35s., eSS = 22m.13s., esSS = 22m.52s.
La Plata E = (12m.50s.), S_eSE = (19m.14s.), SSE = (22m.8s.), SSSE = (25m.26s.), E = (29m.2s.), N = (18m.56s.) and (21m.44s.), SSN = (22m.20s.), SSSN = (25m.26s.), N = (27m.38s.), Z = (10m.26s.) ; all readings have been increased by 4m.
Revkjavik eN = 25m.14s.
Lisbon iPZ = 11m.41s.k, E = 12m.33s., SZ = 21m.17s., N = 22m.26s., QN = 31m.32s.
Edinburgh PPP = 16m.9s., eS = 20m.55s., eSS = 25m.55s.
Aberdeen iN = 33m.21s.
Durham eN = 12m.1s., iN = 22m.21s.
Toledo iS_cSE = 22m.10s., PPSEN = 22m.59s., iSSE = 26m.57s.
Malaga P_cPZ = 12m.4s., iPPZ = 15m.16s., iPPPZ = 16m.46s., SSZ = 26m.37s., QZ = 32m.4s.
Bergen EN = 31m.38s.
Granada P_cP = 12m.7s., PP = 15m.4s., pPP = 15m.36s., eSS = 27m.14s.

Continued on next page.

Paris e =26m.10s., eSS =27m.55s., e =31m.38s.?
Uccle iP$_c$PE =12m.14s., i =12m.17s. and 12m.20s., iE =12m.36s., ipP$_c$PE =12m.46s., iN =12m.51s., i =13m.12s., epSN =23m.0s., eSSEN =28m.8s., esSSE =29m.10s.
Alicante PP =15m.14s., PPP =16m.46s., PS =23m.2s., S$_c$S =23m.30s., SS =27m.22s., SSS =30m.38s., Q =33m.6s.
De Bilt ePP =15m.24s., eZ =16m.22s., isS =23m.4s.
Tortosa P$_c$PN =12m.33s., PPN =15m.18s., PPPEN =15m.32s., S$_c$SN =22m.52s., PSN = 23m.13s., PPSE =23m.25s., SSN =27m.14s., SSSE =31m.16s., QN =33m.21s.
Clermont-Ferrand i =12m.17s.k
Strasbourg iP =12m.30s., isP =13m.20s., ePP =15m.18s., i =23m.33s. and 23m.43s., iSS =28m.20s., iSSS =31m.18s.
Copenhagen i =12m.30s. and 27m.38s.
Upsala ePN =12m.37s.?, iE =23m.0s., eN =23m.5s., eN =29m.30s. and 32m.38s.
Collmberg iZ =12m.40s., 12m.44s., 13m.5s., 13m.16s., and 13m.26s., eZ =13m.39s., 15m.18s., and 15m.36s., ePPPZ =17m.59s., eSKSN =22m.56s., eN =23m.13s., eZ =23m.49s., ePSN =24m.5s., eZ =27m.48s., eSSN =28m.52s., ePKP,PKPZ = 39m.1s.
Cheb eP$_c$P? =13m.17s., ePS =24m.3s., eSS =29m.49s., e =36m.40s. and 39m.43s.
Triest iSKS =23m.13s., isS =24m.22s.
Rome iZ =13m.29s., iSKSEN =23m.0s., iPSN =24m.47s., iPPSN =25m.23s.
Warsaw eE =12m.31s. and 17m.11s., iSS?N =29m.13s.
Zagreb eZ =13m.0s., e =13m.27s.
Belgrade e =18m.36s.
Moscow iSKS =23m.48s., sS =25m.24s.
Sofia iPSEN =24m.43s.
Auckland SS? =29m.17s.
Wellington SS? =32m.2s., S$_c$S? =34m.27s.
Christchurch PP =18m.8s., PPP?Z =21m.12s., SKSN =24m.36s., PPSN =27m.41s., SSEN =32m.8s., SSS =36m.23s., SSSS =39m.18s., QEN =40m.58s.
Irkutsk PPP =21m.23s., PS =28m.6s., sPS =28m.38s., SS =33m.54s., SSS =38m.6s.
Helwan SKKS =25m.50s.
Ksara PPS =29m.17s.
Baku SP =28m.56s.
Riverview eSKKSE =26m.18s., eSE =27m.43s., iE =27m.51s., epPSE =30m.16s., iSPP?E =30m.43s., ePPS?N =30m.58s., iSSN =36m.12s., iE =36m.30s., esSSE = 37m.6s., eE =39m.49s., eQE =47m.56s.
Tashkent SP =29m.48s.
New Delhi i =23m.5s., 28m.18s., and 41m.7s.
Hyderabad S$_c$S =29m.16s.

June 7d. Readings also at 1h. (near Fort de France), 3h. (near Tananarive), 4h. (Bombay Pasadena, Mount Wilson, Riverside, Palomar, St. Louis, and Tucson), 6h. (Tucson, Palomar, and Tinemaha), 7h. (Bogota, Tucson, Riverside, Mount Wilson, Tinemaha, Triest, Alicante, and Malaga), 8h. (near Tananarive), 9h. (near Mizusawa), 10h. (near Tananarive), 14h. (near Frunse), 16h. (near Stalinabad, Samarkand, and Andijan), 18h. and 19h. (Leninakan), 21h. (near Almata, Frunse, and Andijan), 23h. (San Juan).

June 8d. Readings at 6h. (near Tananarive), 15h. (Uccle), 17h. (near Triest), 19h. (near Mizusawa), 21h. (near La Paz), 22h. (near Mizusawa), 23h. (Arapuni, Auckland, Christchurch, Wellington, Riverview, Palomar, Riverside, Tucson, New Delhi, Strasbourg, Grozny, Almata, Tashkent, near Andijan, Samarkand, and Stalinabad).

June 9d. 6h. 56m. 11s. Epicentre 54°·0N. 162°·4W. (as on 1939, February 24d.).

$A = -·5628$, $B = -·1785$, $C = +·8071$; $\delta = +2$; $h = -7$;
$D = -·302$, $E = +·953$; $G = -·769$, $H = -·244$, $K = -·590$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·1	28	e 3 10	0	e 5 36	− 2	—	—	e 6·1
Sitka		15·6	68	i 3 41	− 2	e 6 47	+10	e 3 47	PPP	e 8·3
Victoria		24·9	86	e 4 55	−31	—	—	—	—	9·8
Shasta Dam		29·8	100	i 6 8	− 3	i 12 49	SS	—	—	—
Bozeman		33·6	83	—	—	e 14 21	SSS	—	—	e 27·8
Tinemaha	z.	34·6	100	i 6 53	0	—	—	—	—	—
Haiwee	z.	35·4	102	i 6 57	− 3	—	—	—	—	—
Mount Wilson	z.	36·7	103	e 7 9	− 1	—	—	—	—	—
Pasadena	z.	36·7	103	i 7 8	− 2	—	—	—	—	—
Overton		37·2	98	e 7 13	− 2	—	—	i 7 16	pP	—

Continued on next page.

		Δ	Az.	P	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside	z.	37·3	103	e 7 14	− 2	—	—	—	—	—
Boulder City		37·4	99	i 7 15	− 1	—	—	i 7 23	pP	—
Pierce Ferry		37·7	98	i 7 8	−11	—	—	i 7 18	pP	—
Palomar		38·0	104	i 7 21	0	—	—	i 7 29	pP	—
Rapid City		39·0	80	e 7 35	+ 5	e 17 37	S_cS	e 9 1	PPP	e 22·9
Tucson		42·3	98	i 7 56	− 1	—	—	e 9 47	PP	e 22·0
Chicago		49·3	72	—	—	e 15 52	PS	—	—	e 23·2
St. Louis		50·0	77	i 8 54	− 4	e 16 4	− 5	i 9 1	pP	e 23·8
Ottawa		53·4	61	e 9 21	− 3	e 16 49	− 6	—	—	20·8
Philadelphia		57·4	65	—	—	e 17 43	− 6	e 23 30	SSS	e 27·4
Fordham		57·5	63	e 9 59	+ 6	e 17 52	+ 2	—	—	—
Weston		57·7	61	—	—	e 17 52	− 1	—	—	e 27·2
Sverdlovsk		64·1	336	i 10 31	− 7	19 8	− 6	i 20 26	S_cS	—
Collmberg		75·0	3	i 11 40	− 5	—	—	e 11 49	P_cP	—
Tashkent		75·2	323	e 10 43	−63	e 19 20	?	—	—	—
San Juan		78·9	74	e 12 5	− 2	i 22 2	PS	—	—	e 39·2
Baku		82·0	336	12 3	−20	22 30	PS	—	—	—
Ksara		91·1	347	e 13 1	− 7	e 23 59	− 5	e 16 48	PP	—

Additional readings :—
Tucson i = 8m.2s.
St. Louis eSSN = 20m.3s.
Philadelphia e = 19m.25s.
Collmberg eZ = 12m.16s. and 13m.6s.
Long waves also at Honolulu, Ukiah, Salt Lake City, Columbia, Bermuda, Kew, Paris, Malaga, and Strasbourg.

June 9d. 9h. 52m. 26s. Epicentre 49°·5N. 93°·5E.

A = −·0398, B = +6508, C = +·7582 ; δ = −1 ; h = −5 ;
D = +·998, E = +·061 ; G = −·046, H = +·757, K = −·652.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		7·4	68	3 22	+90	—	—	—	—	—
Almata		13·0	248	3 5	− 4	—	—	—	—	—
Andijan		17·3	247	e 4 3	− 1	e 7 8	− 8	—	—	—
Tashkent		18·8	254	e 4 14	− 9	e 7 29	−21	—	—	—
Stalinabad		20·8	248	i 4 28	−17	i 8 4	−29	—	—	—
Sverdlovsk		20·9	304	i 4 40	− 6	8 7	−28	—	—	—
Samarkand		21·2	253	4 52	+ 3	—	—	—	—	—
Baku		31·8	271	6 32	+ 4	e 11 40	+ 2	—	—	—
Grozny		33·0	279	e 6 42	+ 3	14 2	SSS	16 46	S_cS	—
Moscow		33·7	303	6 45	0	e 12 6	− 2	—	—	—
Bombay		35·0	216	e 10 34?	P_cP	e 15 34?	SSS	—	—	—
Leninakan		35·5	276	e 7 14	+14	—	—	—	—	—
Warsaw		44·1	302	—	—	e 17 35	SS	—	—	23·6
Ksara		44·7	272	e 8 20	+ 4	e 14 53	− 1	—	—	—
Copenhagen		47·0	311	—	—	e 18 31	SS	—	—	22·6
Collmberg	z.	48·6	306	e 8 53	+ 6	—	—	e 10 40	PP	25·7
Zürich		53·5	303	e 9 29	+ 5	—	—	—	—	—
Uccle		53·7	308	e 9 36	+10	—	—	—	—	e 27·6
Rome		54·5	296	e 9 34	+ 2	—	—	—	—	e 30·6

Additional readings :—
Warsaw eN = 19m.10s., eZ = 19m.25s. and 22m.18s., eN = 22m.23s., eE = 22m.28s.
Collmberg eZ = 8m.56s., 9m.11s., 9m.19s., 9m.50s., 10m.54s., 11m.6s., 13m.46s., and 14m.58s.
Long waves also at Upsala, Bergen, De Bilt, Kew, Bucharest, Strasbourg, Clermont-Ferrand, Alicante, and Malaga,

June 9d. 13h. 11m. 7s. Epicentre 37°·3N. 3°·2W.

Intensity V at Guadix, Benalua, Alquife, Albuñan, Policaz, Beas, Graena, and Lugros. Epicentre as adopted (Almeria).
Resumen de las Observaciones solares meteorológicas y sismológicas efectuadas durante el año 1946, vol. 34, series A, Tortosa, 1948, p. 207.

$A = +\cdot7962$, $B = -\cdot0440$, $C = +\cdot6034$; $\delta = -4$; $h = -1$;
$D = -\cdot055$, $E = -\cdot998$; $G = +\cdot603$, $H = -\cdot033$, $K = -\cdot797$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Granada		0·4	252	i 0 7k	P_g	i 0 13	S_g	—	—
Almeria		0·7	129	0 12	P_g	—	—	—	—
Malaga		1·2	243	i 0 20	− 4	i 0 40	− 1	0 45	SS
Alicante		2·4	65	i 0 45	+ 4	1 18	+ 6	1 21	SS
Toledo		2·7	345	0 45	0	1 21	+ 2	0 50	PP
Tortosa	N.	4·5	39	1 22	P*	2 42	S_g	1 40	PPP

Additional readings :—
Granada P_g =0m.18s. and 0m.22s., P_gS_g =0m.25s., S_g =0m.32s., 0m.35s., and 0m.42s.
Malaga SP =0m.25s., i =0m.54s.
Alicante P_g =0m.51s. and 0m.57s., PPS =1m.4s., P_gS_g =1m.8s.
Toledo PPPPZ =0m.57s., PSZ =1m.10s., S_gZ =1m.25s., PSSSZ =1m.35s., SSSS = 1m.46s.
Tortosa P_gS_g?N =2m.14s., P_gS_giN =2m.20s., S_gS_gN =2m.37s., P_gS_gN =2m.47s., S_gN = 2m.58s.

June 9d. 16h. Undetermined shock.

Leninakan iP =29m.2s.
Grozny P =29m.37s., iP_g =29m.40s., iPsPs =29m.46s., iS_g =30m.12s.
Sotchi eP =30m.15s.?, eP_g? =30m.26s., eS =31m.1s., eS_g =31m.13s.
Baku P =30m.16s., S =31m.17s.
Piatigorsk iS =30m.40s.?
Ksara e =32m.11s., eS? =34m.10s.
Moscow eP =32m.31s., eS =35m.23s.?
Sverdlovsk P =33m.9s., S =36m.45s.
Andijan P =33m.46s.
Collmberg ePZ =34m.4s., eZ =34m.9s. and 34m.38s.
Warsaw eN =35m.30s., eE =37m.30s., eZ =39m.30s.

June 9d. Readings also at 1h. (Tucson), 3h. (Overton and Cheb), 4h. (Collmberg), 5h. (Tinemaha (2), Mount Wilson, and Tucson (2)), 9h. (Triest and near Shasta Dam), 10h. (Bucharest, Bergen, Rome, Riverview, Shasta Dam, Santa Barbara, Pasadena, Mount Wilson, Palomar, Riverside, and Tinemaha), 13h. (Alicante), 14h. (Warsaw, Pierce Ferry, Overton, near Tananarive, and near Granada), 15h. (Bogota), 16h. (near Leninakan and Grozny), 17h. (Pierce Ferry, Boulder City, Tucson, near Leninakan, and Grozny), 20h. (College, Sitka, and Tucson), 21h. (Tucson).

June 10d. Readings at 0h. (Collmberg), 3h. (Boulder City and Pierce Ferry), 6h. (near Overton and Boulder City), 7h. (Granada and Alicante), 9h. (Cheb and near Santa Lucia), 11h. (Auckland and Collmberg), 14h. (Upsala, Paris, Clermont-Ferrand, near Overton, Pierce Ferry, and Boulder City), 17h. (Alicante, Malaga, Tinemaha, Mount Wilson, Riverside, Palomar, Tucson, San Juan, Bogota, and La Paz), 21h. (near Berkeley), 23h. (Tinemaha, Riverside, Tucson, St. Louis, La Plata, and near Santa Lucia).

June 11d. 8h. Undetermined shock.

Victoria e =0m.42s., L =2m.
Shasta Dam eP =2m.28s.
Tinemaha ePZ =3m.36s.
Grand Coulee eP =3m.50s., iP =3m.55s.
Boulder City e =3m.59s.
Overton eP =4m.0s.
Mount Wilson ePZ =4m.4s.
Pasadena ePZ =4m.4s.
Pierce Ferry iP =4m.5s.
Riverside ePZ =4m.9s.
Rapid City eP =4m.12s., e =7m.56s. and 10m.4s., eL =11m.44s.
Palomar ePZ =4m.19s.
Tucson eP =4m.54s., iP =4m.57s., e =11m.36s., eL =14m.28s.
St. Louis eP?Z =5m.56s., eE =10m.59s., eLN =15·6m.
Long waves were also recorded at Sitka, College, and at other American statiops,

June 11d. Readings also at 0h. (Tucson, near Almata, Samarkand (2), Tashkent, Stalinabad (2), Andijan (2), and near Mizusawa), 3h. (Tinemaha, Riverside, Tucson, and La Plata), 6h. (Bogota), 7h. (near Tacubaya and near Oaxaca), 9h. (near Pierce Ferry, Overton, and Boulder City), 14h. (Tinemaha, Mount Wilson, Pasadena, Riverside, Palomar, Tucson, and Fort de France), 15h. (near Andijan), 18h. (Tinemaha, Riverside, Palomar, Tucson, St. Louis, and Balboa Heights), 21h. (near San Francisco), 22h. (Paris, Uccle, Collmberg, Strasbourg, and Besançon), 23h. (Santa Lucia and near Mizusawa).

June 12d. 4h. 35m.38s. Epicentre 42°·9N. 44°·5E. (as on 1946, May 9d.).

Epicentre 43°·1N. 45°·0E. Depth 25km. (U.S.S.R.).

A = +·5241, B = +·5150, C = +·6782; δ = −14; h = −3;
D = +·701, E = −·713; G = +·484, H = +·475, K = −·735.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Grozny	1·0	66	i 0 18	− 3	i 0 26	−10
Piatigorsk	1·5	317	0 52	+24	1 14	+25
Leninakan	2·2	193	0 52	+14	i 1 30	+24
Sotchi	3·5	281	e 1 1	+ 4	e 2 4	S_g
Baku	4·8	121	1 2?	−13	—	—
Ksara	11·3	220	—	—	e 4 41	−13
Moscow	13·6	344	e 3 17	0	i 5 47	− 3
Sverdlovsk	17·3	31	4 4	0	7 0?	−16
Tashkent	18·5	86	—	—	e 7 32	−12
Andijan	20·8	87	4 45	0	—	—

Leninakan iP_g = 58s.
Ksara e = 7m.45s.
Long waves recorded at Copenhagen.

June 12d. 10h. Undetermined shock.

Zi-ka-wei eE = 6m.0s., iE = 8m.42s., 8m.48s., and 9m.28s.
Andijan eP = 13m.32s.
Tashkent eP = 13m.43s., eS = 20m.41s.
Sverdlovsk P = 14m.46s., SS = 26m.31s.
Leninakan eP = 16m.7s.
Moscow eP = 16m.13s., eS = 22m.33s., ePS = 25m.44s.
Ksara eP = 16m.54s., eS? = 26m.59s.
Collmberg eZ = 17m.40s. and 17m.57s.
New Delhi eN = 22m.27s.
Malaga iPKPZ = 25m.30s., PPZ = 27m.8s., PPPZ = 29m.34s., SKS?Z = 32m.26s., QZ = 53m.11s., RZ = 66m.45s.
Strasbourg e = 51m.40s., eL = 58m.
Paris e = 53m., eL = 58m.
Long waves were recorded at other European stations.

June 12d. 16h. 8m. 20s. Epicentre 12°·4N. 144°·1E.

A = −·7914, B = +·5729, C = +·2134; δ = +7; h = +6;
D = +·586, E = +·810; G = −·173, H = +·125, K = −·977.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Miyazaki	22·6	332	5 6	+ 3	e 9 14	+ 7	—	—	10·0
Mera	22·7	351	e 4 52	−12	9 17	+ 8	—	—	—
Owase	22·7	343	e 5 7	+ 3	—	—	—	—	—
Kôti	23·2	336	e 5 4	− 5	9 27	+ 9	—	—	10·2
Yokohama	23·3	352	5 11	+ 1	e 9 31	+11	—	—	e 10·7
Sumoto	23·4	342	e 4 56	−15	9 8	−13	—	—	10·3
Hunatu	23·5	350	5 11	− 1	9 26	+ 3	—	—	12·2
Tokyo	23·5	351	e 5 13	+ 1	e 9 15	− 8	i 10 48	SSS	—
Kobe	23·6	342	5 10	− 3	—	—	—	—	—
Kumamoto	23·7	332	5 9	− 5	—	—	—	—	—
Hikone	23·8	346	e 5 12	− 3	9 39	+11	—	—	12·3
Kakioka	24·0	351	e 5 17	0	—	—	—	—	—
Maebasi	24·3	350	e 5 20	0	e 9 48	+11	—	—	—
Utunomiya	24·3	351	e 5 22	+ 2	—	—	—	—	—
Hukuoka	24·5	332	5 21a	− 1	9 44	+ 4	—	—	12·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toyama		25·0	347	e 5 29	+ 2	—	—	—	—	—
Sendai		25·9	355	5 36	+ 1	e 10 16	+12	—	—	10·7
Miyako		27·2	357	5 38	− 9	—	—	—	—	—
Morioka		27·3	354	e 6 2	+14	—	—	—	—	—
Sapporo		30·6	356	e 6 18	0	—	—	—	—	—
Brisbane	N.	40·6	168	i 7 35	− 8	—	—	—	—	—
Riverview		46·5	172	i 8 28a	− 3	15 16	− 3	i 10 17	PP	e 21·2
Irkutsk		51·0	329	e 9 4	− 2	19 44	SS	e 9 32	pP	—
Calcutta	N.	53·9	289	e 9 30	+ 3	i 17 2	0	i 19 17	SeS	—
Honolulu		56·0	72	e 9 47	+ 4	(e 17 16)	−14	—	—	e 17·3
Auckland		56·9	151	—	—	25 40	?	—	—	31·7
Arapuni		58·3	151	—	—	e 18 16	+15	—	—	31·1
Wellington		60·5	154	16 24	?	26 16	?	—	—	36·5
Christchurch		61·5	157	16 12	?	23 0	SS	26 40	Q	29·6
Colombo	E.	63·4	271	10 10	−24	19 24	+18	—	—	37·2
Hyderabad	N.	63·4	283	—	—	19 4	− 2	—	—	—
New Delhi	N.	64·0	296	e 10 52	+14	e 19 4	− 9	19 14	PS	—
Almata		65·0	312	10 44	0	—	—	—	—	—
Kodaikanal	E.	65·2	276	e 10 0	−45	e 18 37	−51	12 22	PP	31·1
Andijan		67·5	309	11 4	+ 4	—	—	—	—	—
Bombay		68·6	285	e 11 6	− 1	e 20 11	+ 2	—	—	—
College		69·6	25	e 14 16	PP	e 20 6	−15	e 21 8	PPS	e 27·6
Tashkent		70·5	310	e 11 17	− 1	e 20 21	−11	11 46	pP	—
Stalinabad		70·9	307	i 11 21	0	—	—	—	—	—
Samarkand		72·3	308	11 18	−11	—	—	—	—	—
Sitka		74·6	34	e 11 46	+ 3	e 21 10	− 8	e 21 49	PS	e 31·6
Victoria		82·5	42	13 0	+34	22 20	−22	27 40	SS	36·7
Ukiah		84·3	51	—	—	e 23 0	0	—	—	e 33·8
Shasta Dam		84·7	49	i 12 34	− 3	e 22 54	−10	e 14 52	?	—
Baku		85·2	310	e 12 40	+ 1	—	—	—	—	—
Berkeley		85·3	53	i 12 39	− 1	i 23 10	0	e 22 49	SKS	e 35·4
Grand Coulee		85·5	42	e 14 39	?	—	—	—	—	—
Santa Clara		85·7	53	e 12 45	+ 3	e 23 22	+ 8	—	—	—
Grozny		87·6	314	e 12 51	0	—	—	—	—	—
Santa Barbara	Z.	88·1	55	e 12 58	+ 4	—	—	—	—	—
Tinemaha	Z.	88·6	52	e 12 55	− 1	—	—	—	—	—
Moscow		88·9	327	i 12 55	− 3	i 23 22	[− 4]	e 13 26	pP	—
Haiwee	Z.	89·1	53	e 12 58	0	—	—	—	—	—
Pasadena		89·4	55	i 12 58	− 2	—	—	—	—	e 41·1
Mount Wilson	Z.	89·5	55	e 12 58	− 2	—	—	—	—	—
Leninakan		89·6	312	e 12 52	− 9	—	—	—	—	—
Riverside	Z.	90·1	55	e 13 1	− 2	—	—	—	—	—
La Jolla	Z.	90·5	56	e 13 3	− 2	—	—	—	—	—
Palomar	Z.	90·7	55	i 13 5	− 1	—	—	—	—	—
Bozeman		91·4	42	—	—	e 23 56	{+ 4}	—	—	e 48·1
Boulder City		91·6	53	i 13 8	− 2	—	—	i 13 13	PcP	—
Overton		91·7	52	e 13 19	+ 9	—	—	i 13 27	PcP	—
Saskatoon		91·8	36	—	—	e 24 4	− 7	—	—	49·7
Pierce Ferry		92·2	52	i 13 9	− 4	—	—	i 13 12	PcP	—
Salt Lake City		92·4	47	e 12 54	−20	e 23 54	{− 5}	e 30 14	SS	e 39·3
Tucson		95·8	55	i 13 31	+ 2	e 24 49	+ 4	e 17 19	PP	e 42·3
Upsala		96·3	335	—	—	e 24 3	[− 5]	—	—	e 50·7
Rapid City		97·1	42	e 17 45	PP	e 24 8	[− 4]	—	—	e 51·1
Ksara		97·8	307	e 13 37	− 1	26 3	PS	17 33?	PP	—
Warsaw		99·2	328	13 43	− 2	e 24 23	[0]	e 17 39	PP	e 50·7
Bucharest		100·4	320	e 16 40?	?	e 24 25	[− 4]	—	—	—
Copenhagen		101·1	335	—	—	i 24 30	[− 2]	32 46	SS	51·7
Helwan		102·9	305	e 14 0	− 1	24 38	[− 3]	18 19	PP	—
Sofia		103·0	319	e 18 10?	PP	e 24 39	[− 2]	—	—	—
Belgrade		103·6	322	e 17 41	PP	e 23 58	[−46]	e 26 6	S	e 52·7
Collmberg		103·7	331	e 14 2	− 3	e 24 44	[− 1]	e 18 8	PP	—
Prague		103·8	329	—	—	e 25 36?	−16	e 28 34	PPS	e 54·7
Cheb		104·8	331	e 24 49	SKS	(e 24 49)	[− 1]	e 37 30	SSS	e 53·7
De Bilt		106·6	335	e 18 40	PP	e 24 56	[− 2]	—	—	e 54·7
Triest		107·0	326	e 19 3	PP	i 24 57	[− 2]	i 25 47	SKKS	—

Continued on next page,

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Strasbourg	108·0	331	e 18 53	PP	e 25 2	[− 2]	e 27 45	PS	e 56·7
Uccle	108·0	335	e 18 50a	PP	e 25 2	[− 2]	e 28 6	PS	e 54·7
St. Louis	108·3	42	e 18 52	PP	e 26 25	S	e 28 39	PS	—
Florence	109·5	326	e 20 48	?	e 31 8	?	—	—	—
Rome	110·0	324	e 14 28	P	e 24 55	[−17]	e 19 5	PP	e 52·7
Paris	110·2	334	e 19 6	PP	e 26 40?	{+34}	e 57 40?	Q	e 58·7
Clermont-Ferrand	112·3	331	e 19 22	PP	e 28 51	PS	—	—	e 58·2
Seven Falls	113·0	25	e 38 40?	?	—	—	—	—	52·7
Weston	116·5	28	—	—	e 29 57	PS	—	—	e 51·0
Alicante	119·6	328	e 5 0	?	—	—	46 38	Q	e 58·2
Granada	122·1	330	20 31k	PP	31 42	PPS	40 37	?	64·2
Malaga	122·8	330	e 20 39k	PP	—	—	23 15	PPP	e 67·3
Bermuda	127·6	31	e 21 2	PP	e 28 52	{+48}	e 38 0	SS	e 66·3
San Juan	137·3	45	e 19 20	[− 6]	e 23 0	PKS	i 40 14	SS	e 56·2
La Paz	148·5	101	e 19 50	[+ 5]	26 34	[−18]	22 55	PP	70·2

Additional readings :—
Tokyo i =6m.32s. and 8m.8s.
Riverview ePS?E =15m.23s., ePPS?N =15m.31s., iSSE =18m.29s., iN =18m.52s., iE =20m.44s.
Calcutta iSSS?N =23m.8s.
Wellington SS =29m.35s., SSS =32m.37s.
Christchurch eZ =19m.4s., P_cS?N =21m.58s.
College eSS =24m.45s.
Tashkent sP =12m.33s., ePP =13m.56s., ePPP =15m.41s.
Moscow esS =24m.14s.
Pierce Ferry i =13m.34s.
Tucson e =23m.49s., 26m.3s., 31m.2s., and 38m.47s.
Warsaw eZ =16m.31s., eSS?N =30m.15s., eE =32m.49s., and 35m.11s.
Copenhagen 36m.16s.
Collmberg ePKPZ =17m.55s., ePKKPZ =29m.54s.
Cheb e =31m.51s., eS =34m.6s., eSS =39m.30s., readings wrongly identified.
Strasbourg e =24m.37s. and 27m.8s., ePPS? =28m.40s.
St. Louis eE =30m.1s., eSSE =34m.8s.
Rome ePS =28m.29s., ePPSN =29m.31s., eSSN =34m.1s.
Paris e =20m.11s.
Bermuda e =38m.18s.
La Paz iPKPZ =19m.54s., SS =43m.12s.
Long waves were also recorded at other European and American stations.

June 12d. Readings also at 0h. (Brisbane and Prague), 3h. (near Tashkent, Andijan, and Almata), 4h. (Collmberg, Uccle, Paris, near Strasbourg, and Besançon), 6h. (near Triest (3), near Bogota, and near Mizusawa), 7h. (near Triest (3)), 8h. (Brisbane), 9h. (near Triest), 10h. (Zi-ka-wei), 11h. (Tucson, Palomar, Tinemaha, Strasbourg, Paris, and near Malaga), 13h. (Tucson and near Mizusawa), 14h. (near Tacubaya and Oaxaca), 15h. (Uccle), 18h. (Sofia, near Tacubaya, near Merida, near Overton, Pierce Ferry, and Boulder City), 19h. (Copenhagen), 20h. (Ksara, Grozny, Leninakan, Tashkent, Kalossa, Uccle, Collmberg, Clermont-Ferrand, near Paris, Strasbourg, Besançon, and near Overton, Pierce Ferry, Boulder City, and Fresno), 21h. (near Andijan).

June 13d. Readings at 0h. (Balboa Heights), 2h. (near Mizusawa), 5h. (Collmberg, Tucson, Palomar, Tinemaha, Brisbane), 9h. (Andijan and near Stalinabad), 11h. (near Fort de France), 12h. (La Paz, Tucson, near Andijan, and Stalinabad), 16h. (Tucson), 19h. (Uccle, Paris, and Strasbourg), 21h. (De Bilt and Riverview).

June 14d. Readings at 1h. (Tucson, Tinemaha, Riverside, and Palomar), 5h. (St. Louis, Tucson, Pierce Ferry, Palomar, Riverside, Mount Wilson, and Tinemaha), 6h. (Ksara), 9h. (near Tortosa), 14h. (Bucharest, and near Andijan), 15h. (Kew and near Tananarive), 17h. (Basle, near Leninakan, Grozny, and Piatigorsk), 20h. (near La Paz), 21h. (near Samarkand, Stalinabad, Almata, and Andijan).

June 15d. 18h. 29m. 16s. Epicentre 2°·8S. 127°·7E. Depth of focus 0·010.
(as on 1942, July 29d.).

$A = -6108$, $B = +\cdot7903$, $C = -\cdot0485$; $\delta = 0$; $h = +7$;
$D = +\cdot791$, $E = +\cdot612$; $G = +\cdot030$. $H = -\cdot038$, $K = -\cdot999$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		31·1	199	7 24	PP	11 19	+11	7 44	PPP	i 13·3
Brisbane	N.	34·5	138	i 6 41	0	—	—	—	—	—
Miyazaki		34·7	7	(6 45)	+ 3	(e 11 56)	− 8	(e 8 14)	PP	—
Hukuoka		36·3	4	e 7 10	+14	e 12 13	−16	—	—	15·0
Kôti		36·6	8	e 6 57	− 1	12 26	− 7	—	—	15·0
Owase		37·5	12	e 7 3	− 3	—	—	—	—	—
Riverview		37·9	148	e 7 16a	+ 7	i 13 5	+12	i 7 26	pP	e 17·1
Kobe		38·0	12	7 11	+ 1	—	—	—	—	—
Osaka		38·0	12	e 7 22	+12	—	—	—	—	—
Shizuoka		38·9	15	7 13	− 5	13 4	− 4	—	—	—
Hunatu		39·5	15	7 17	− 5	—	—	—	—	—
Yokohama		39·7	15	e 7 18	− 6	e 13 19	− 1	—	—	e 16·8
Tokyo		39·9	15	e 7 20	− 6	e 9 39	PPP	—	—	e 16·8
Maebasi		40·4	14	e 7 29	− 1	—	—	—	—	—
Kakioka		40·5	16	e 7 30	− 1	—	—	—	—	—
Wazima		40·9	12	e 7 34	0	13 34	− 4	—	—	—
Sendai		42·6	15	7 50	+ 2	14 5	+ 2	—	—	20·2
Mizusawa	E.	43·5	15	7 55	0	14 13	− 3	—	—	—
Calcutta	N.	45·9	305	e 9 3	?	i 16 13	?	i 9 56	pP	—
Mori	E.	46·2	13	8 16	− 1	14 55	0	—	—	—
Sapporo		47·3	13	8 26	0	15 11	0	i 10 16	PP	—
Colombo	E.	48·7	281	8 40	+ 4	15 41	+11	10 36	PP	—
Kodaikanal	E.	51·7	286	i 9 15	+16	i 16 28	+16	11 8	PP	25·0
Hyderabad	N.	52·6	294	e 9 6	0	16 22	− 2	—	—	25·5
Auckland		55·0	134	9 36	+12	17 15	+19	9 46	pP	23·7
Christchurch		56·8	142	9 14	−22	17 35	+15	9 40	pP	28·6
Wellington		57·0	139	9 41	+ 3	17 34	+11	9 58	pP	24·7
Bombay		58·1	293	i 9 56	+10	e 17 48	+11	—	—	25·9
Irkutsk		58·3	343	9 46	− 1	17 57	PS	11 54	PP	—
Almata		64·6	322	10 30	+ 1	19 6?	+ 6	—	—	—
Andijan		66·4	317	e 10 40	− 1	—	—	—	—	—
Stalinabad		68·0	314	i 10 51	0	i 20 28	PS	—	—	—
Tashkent		68·8	316	e 10 52	− 4	e 19 40	−10	—	—	—
Samarkand		69·7	314	e 11 4?	+ 3	—	—	—	—	—
Honolulu		76·6	67	e 11 52	+10	e 21 27	+ 9	e 26 12	SS	e 35·7
Tananarive		79·8	251	12 13	+14	22 7	+14	i 12 19	P_cP	—
Sverdlovsk		80·0	330	12 0	0	21 53	− 2	—	—	—
Baku		82·5	311	i 12 21	+ 8	i 22 30	+10	—	—	—
Grozny		86·0	313	e 12 28	− 3	e 22 55	0	—	—	—
Leninakan		87·2	311	e 12 42	+ 6	23 48	SP	e 23 26	S_cS	—
College		90·2	25	e 16 16	PP	e 23 35	+ 1	e 24 30	S_cS	e 36·1
Moscow		92·3	325	i 13 0	0	23 28	[+ 5]	i 16 42	PP	—
Ksara		93·0	302	e 13 8	+ 4	24 25	+26	17 2	PP	—
Sitka		96·1	33	e 17 20	PP	e 23 54	[+10]	—	—	e 38·5
Helwan		96·9	299	e 13 35	+14	24 49	+17	17 31	PP	—
Bucharest		100·2	314	14 4	+28	—	—	—	—	—
Upsala		102·4	330	e 18 17	PKP	e 24 38	[+22]	—	—	e 47·7
Warsaw		102·4	322	e 13 47	+ 1	e 24 45	[+29]	e 18 12	PP	e 48·7
Belgrade		104·2	315	e 21 54	PKS	—	—	—	—	50·7
Victoria		104·5	40	e 18 32	PP	e 24 32	[+ 7]	—	—	52·7
Copenhagen		106·3	328	18 30	PP	24 47	[+14]	27 42	PS	48·7
Ukiah		106·5	50	18 16	PKP	e 25 4	[+30]	e 33 8	SS	e 43·1
Prague		106·9	322	e 18 57	PP	e 24 32	[− 4]	e 27 44	PS	e 52·7
Shasta Dam		106·9	48	e 14 10	P	—	—	e 18 29	PKP	—
Zagreb		107·0	317	e 17 44?	?	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Collmberg		107·4	323	e 14 12	P	e 26 15	?	e 17 33	PKP	e 47·7
Berkeley		107·5	51	e 18 48	PP	e 24 49	[+11]	e 33 51	SS	e 48·9
Santa Clara	Z.	107·8	51	e 18 43	PP	—	—	—	—	—
Bergen	E.	107·9	334	—	—	e 25 24	SKKS	e 27 44?	PS	—
Cheb		108·2	322	18 58	PP	e 24 55	[+13]	e 27 26	PS	e 56·7
Triest		108·6	317	e 17 50	PKP	e 28 12	PS	e 18 53	PP	e 54·1
Rome		110·5	314	e 14 26	P	e 29 6	PS	e 17 54	PKP	—
Florence		110·8	316	i 19 24	PP	i 29 33	PPS	—	—	—
Pasadena		111·4	54	e 14 43	P	—	—	e 18 31	PKP	e 44·7
Mount Wilson	Z.	111·5	54	e 14 51	P	—	—	—	—	—
Strasbourg		111·5	321	e 18 4	[−19]	e 27 15	PS	e 19 7	PP	e 57·7
De Bilt		111·7	326	e 14 44	P	e 28 24	PS	e 19 9	PP	e 53·7
Basle		112·0	320	e 18 51	PP	e 28 44	PS	e 22 48	PKS	—
Riverside	Z.	112·1	54	e 14 44	P	—	—	e 29 35	PPS	—
Uccle		112·7	325	e 18 37	[+12]	e 28 36	PS	e 19 15	PP	e 45·7
Aberdeen		112·9	333	i 19 31	PP	—	—	—	—	e 53·5
Bozeman		113·5	40	—	—	e 29 12	PS	e 30 8	PPS	e 47·1
Durham	E.	114·0	330	e 22 4	PKS	—	—	—	—	—
Paris		114·6	323	e 18 14	[−15]	e 29 44	PS	i 19 28	PP	e 56·7
Salt Lake City		114·6	46	e 19 46	PP	e 27 4	?	e 34 48	SS	e 46·4
Kew		115·0	327	i 20 25?	PP	e 28 36?	PS	i 22 9	PPP	e 55·7
Clermont-Ferrand		115·6	320	e 19 15?	[+44]	e 29 4	PS	e 22 15	PPP	e 59·3
Tucson		117·9	54	e 18 46	[+10]	e 29 59	PS	e 20 2	PP	e 46·8
Rapid City		119·2	40	e 19 52	PP	e 23 4	PPP	e 37 22	SS	e 49·2
Tortosa	N.	119·3	316	20 39	PP	—	—	22 59	PPP	—
Alicante		121·0	314	19 41	PP	30 21	PS	22 33	PKS	e 58·1
Toledo		122·9	316	i 19 4	[+18]	37 8	SS	20 39	PP	51·2
Granada		123·8	314	18 59k	[+11]	26 21	[+42]	19 30	pPKP	56·9
Malaga	Z.	124·5	314	19 33	?	26 13	[+31]	34 41	?	—
Lisbon		126·9	318	i 20 58a	PP	23 49?	PPP	—	—	63·3
Chicago		129·9	34	—	—	—	—	e 38 21	SS	e 53·1
Florissant		130·1	39	e 19 42	[+43]	i 22 37	PKP	e 21 26	PP	—
St. Louis		130·3	39	e 19 9	[+ 9]	e 26 24	[+24]	e 21 28	PP	—
Ottawa		132·9	22	19 18	[+13]	22 44	SKP	21 32	PP	53·7
Seven Falls		133·0	16	e 22 2	PP	—	—	—	—	55·7
Pennsylvania	E.	135·7	27	e 20 58	?	e 22 58	SKP	—	—	—
Harvard		136·9	20	e 19 18	[+ 6]	e 23 0	SKP	e 21 57	PP	e 67·7
Weston		137·1	20	e 19 16	[+ 4]	e 23 3	SKP	e 21 53	PP	—
Fordham		137·4	23	—	—	e 22 51	SKP	e 40 0	SS	—
Philadelphia		137·6	25	e 22 6	PP	e 32 8	SKSP	e 23 6	SKP	e 53·3
Columbia		139·0	36	e 23 11	PKS	32 12	SKSP	e 39 54	SS	e 58·0
Bermuda		148·4	20	e 19 54	[+22]	—	—	e 42 10	SS	e 58·2
La Paz		155·2	142	i 19 51	[+ 9]	33 15	SKSP	i 20 14	pPKP	73·9
San Juan		159·4	39	e 19 56	[+ 9]	e 43 36	SS	e 22 2	?	e 70·0

Additional readings and notes :—
Miyazaki readings have been diminished by 2m.
Riverview iPP =8m.44s., iZ =8m.52s., iSE =13m.9s., eE =13m.41s., iN =14m.0s., iSSZ =15m.42s., iSSN =15m.48s., iZ =15m.52s., iS_cSE =17m.26s.
Mizusawa ePN =7m.58s.
Calcutta isSN =16m.38s.
Auckland PP =11m.44s., P_cS =14m.14s., S_cS =19m.4s.
Christchurch PPZ =12m.21s., SSEZ =21m.32s., QEN =23m.46s.
Wellington P_cP =10m.44s., sP_cP?Z =11m.9s., iZ =18m.38s., S_cS =19m.34s.
Bombay iSE =17m.54s.
Irkutsk P_cP =10m.46s., S_cS =19m.49s., SS =21m.25s., SSS =22m.46s.
Tananarive PS =23m.28s.
College eSS =29m.28s., eSSS =33m.45s.
Sitka e =29m.45s.
Helwan PS =26m.20s., i =31m.20s.
Upsala eN =24m.44s., e =32m.44s.?
Warsaw eE =17m.19s., eZ =18m.15s., eN =31m.16s. and 37m.29s.
Belgrade e =23m.10s.
Copenhagen 20m.34s.
Collmberg eZ =15m.0s., ePPZ =18m.39s., eZ =19m.3s. and 19m.53s., ePPPZ =21m.5s., eZ =24m.21s. and 30m.11s., eSSZ =34m.3s.
Cheb eS =29m.2s., eSS =33m.53s., eSSS =40m.38s., e =49m.14s.

Continued on next page.

Triest eSKP?E =21m.9s., ePPP?E =21m.48s., iPS =28m.53s.
Rome ePPZ =19m.15s., eSKKP? =26m.26s.
Strasbourg e =16m.29s., ePPP =21m.46s., ePS =28m.47s., ePPS =29m.47s., eSS = 34m.41s.
De Bilt ePPS =29m.32s.
Uccle e =23m.31s., ePPSE =29m.53s., eSSSN =38m.38s.
Bozeman e =31m.20s., eSS =34m.56s., e =38m.8s.
Paris eP =14m.44s.?, e =16m.44s.?, i =19m.42s., e =23m.46s. and 28m.20s., i =28m.44s.?
Tucson ePKKP =29m.20s., ePPS =31m.4s., eSS =36m.1s.
Alicante PP =20m.26s., SS =37m.51s., SSS =41m.29s., Q =49m.57s.
Toledo iSSPE =37m.22s., SSSE =41m.31s.
Granada PP =20m.40s., PS =30m.58s., SS =37m.34s., SSS =41m.5s.
Lisbon Z =23m.52s.?
Florissant eZ =21m.13s., eSSN =38m.30s.
St. Louis iSKPE =22m.39s., eS?N =29m.49s., eSSE =38m.24s.
Ottawa SS =31m.44s.?, SSSN =39m.14s.
Harvard e =19m.34s.
Pennsylvania eE =23m.36s.
Weston eSS =39m.58s.
Philadelphia ePPP? =25m.9s., e =34m.4s. and 38m.22s., eSS =39m.55s., e =43m.30s.
La Paz PPZ =23m.51s., PPP =27m.16s., PPS =36m.56s.
San Juan e =51m.36s.

June 15d. 19h. 46m. 51s. Epicentre 32°·6N. 116°·3W.

Intensity V at Hipass and less pronounced around San Diego. Epicentre as adopted.

R. R. Bodle and L. M. Murphy.
U.S.A. Earthquakes, 1946, Serial No. 714, Washington, 1948, p. 14.

A = −·3740, B = −·7567, C = +·5362; δ = −2; h = +1;
D = −·896, E = +·443; G = −·238, H = −·481, K = −·844.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla		0·8	288	i 0 17a	− 1	i 0 31	0	—	—	—
Palomar		0·9	328	i 0 20a	0	—	—	—	—	—
Riverside		1·7	328	i 0 32a	+ 1	i 0 55	+ 1	—	—	—
Mount Wilson	z.	2·2	318	i 0 39a	+ 1	—	—	—	—	—
Pasadena		2·2	315	i 0 38	0	i 1 11	+ 5	—	—	—
Boulder City		3·6	19	i 0 50	− 8	i 1 52	+10	i 1 9	P_g	—
Pierce Ferry		4·0	27	i 1 4	0	i 1 53	+ 1	i 2 12	S_g	—
Overton		4·2	21	e 1 8	+ 1	i 2 12	S*	i 1 19	P_g	—
Tucson		4·6	93	e 1 10	− 2	—	—	i 1 21	P*	e 2·4
St. Louis	z.	22·0	67	e 4 57	− 1	—	—	—	—	—

Boulder City gives also i =1m.2s.

June 15d. Readings also at 1h. (Bogota and Calcutta), 3h. (Weston), 10h. (near Tortosa), 13h. (Basle), 20h. (Tashkent, near Andijan, Samarkand, and Stalinabad), 23h. (Granada).

June 16d. 10h. 4m. 55s. Epicentre 14°·0N. 52°·0E. (as on 1942, Dec. 21d.).

Rough.

A = +·5976, B = +·7649, C = +·2404; δ = −1; h = +5;
D = +·788, E = −·616; G = +·148, H = +·189, K = −·971.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay		20·6	73	e 4 41	− 2	—	—	—	—	—
Ksara		24·6	325	e 5 14	− 9	e 9 31	−11	10 31	SS	—
Helwan		24·8	313	e 5 17	− 8	9 35	−11	5 53	PP	—
Baku		26·3	356	5 45	+ 6	10 11	0	—	—	—
New Delhi	N.	27·5	54	—	—	i 10 35	+ 5	i 11 3	?	—
Leninakan		27·6	346	e 6 3	+12	—	—	—	—	—
Samarkand		28·8	28	e 6 6	+ 4	—	—	—	—	—
Grozny		29·7	351	e 6 34	+24	—	—	—	—	—
Tashkent		31·2	26	e 6 21	− 2	e 11 7?	−22	—	—	—
Andijan		32·0	30	e 6 28	− 2	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sverdlovsk	43·4	7	—	—	e 14 24	−11	—	—	—
Rome	44·0	317	e 7 25	−46	e 14 37	− 6	—	—	—
Triest	45·1	322	—	—	e 14 48	−11	—	—	—
Warsaw	45·5	333	14 42	S	(14 42)	−23	—	—	(e 22·0)
Basle	49·7	322	e 8 40	−16	—	—	—	—	—
Strasbourg	50·1	323	e 9 11	+12	e 17 0	+50	e 20 15	SS	e 30·1
Copenhagen	51·5	333	—	—	i 16 21	− 8	20 13	SS	27·1
Alicante	52·2	309	e 16 16	S	(e 16 16)	−23	—	—	e 29·9
Paris	53·3	322	9 12	−11	—	—	e 12 25	PPP	31·1
Granada	54·4	306	—	—	(17 6)	− 3	—	—	29·8

Additional readings and notes :—
Warsaw eP?N =14m.46s., S is given as PE? and L as S.
Strasbourg eSSS? =22m.32s., e =24m.44s.
Alicante PP =18m.10s., PPP =18m.46s., eS =23m.0s., SS =26m.10s. ; phases wrongly identified.
Granada eS_cS =23m.44s., SS =26m.19s., S is given as PPP and other phases wrongly identified.
Long waves were also recorded at De Bilt.

June 16d. Readings also at 0h. (St. Louis, Boulder City, Overton, Pierce Ferry, and near Tucson), 2h. (Ksara), 3h. (near Mizusawa), 4h. (near Grand Coulee), 5h. (Calcutta), 8h. (Tucson), 15h. (Palomar, Tinemaha, and Tucson), 17h. (Ksara and New Delhi) 18h. (near Malaga).

June 17d. Readings at 3h. (Brisbane), 4h. (Potsdam), 6h. (near Tananarive), 8h. (Tucson, Brisbane, near Andijan, and Almata), 10h. (Santa Lucia, near Andijan, Almata, and near Mizusawa), 11h. (Cheb and near La Paz), 13h. (Cheb), 14h. (near Samarkand, Tashkent, Stalinabad, Andijan, and near La Paz), 19h. (Harvard), 20h. (near Ottawa), 22h. (near Mizusawa), 23h. (Paris, Granada, and Warsaw).

June 18d. Readings at 2h. (Collmberg), 3h. (Alicante, Granada, Tucson, Tinemaha, and Palomar), 4h. (near Baku), 8h. (near Collmberg (2) and Jena), 10h. (La Paz, San Juan, near Overton, Pierce Ferry, and Boulder City), 11h. (La Paz), 12h. (Helwan), 14h. (Granada), 16h. (Tucson, near Tacubaya, and Merida), 17h. (near Mizusawa and near Tacubaya), 20h. (near Branner), 21h. (near Mizusawa).

June 19d. Readings at 0h. (Helwan, Ksara, Rome, Shasta Dam, Tinemaha, Haiwee, Mount Wilson, Pasadena, Palomar, La Jolla, Overton, Pierce Ferry, Boulder City, Rapid City, Tucson, Christchurch, and Wellington), 1h. (Arapuni, Auckland, Triest, Florence, Cheb, Clermont-Ferrand, Strasbourg, De Bilt, Paris, Kew, and near Pierce Ferry), 2h. (Tucson, Mount Wilson, and Tinemaha), 4h. (Strasbourg), 8h. (Tucson and Alicante), 11h. (Tinemaha, Haiwee, Mount Wilson, Pasadena, Palomar, Overton, Pierce Ferry, Boulder City, and Tucson), 12h. (Arapuni, Honolulu, St. Louis, Tucson, Mount Wilson, Palomar, Tinemaha, and College), 13h. (Tucson), 14h. (Basle, Uccle, and near Tacubaya), 15h. (Collmberg, Tucson, and Tinemaha), 16h. (Basle and near Tacubaya).

June 20d. 0h. 34m. 51s. Epicentre 29°·5N. 66°·0E.

A = +·3546, B = +·7964, C = +·4899 ; δ = 0 ; h = +2 ;
D = +·913, E = −·407 ; G = +·199, H = +·448, K = −·872.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stalinabad		9·4	14	i 2 21	+ 3	—	—	—	—	—
New Delhi		9·8	92	e 2 20	− 4	i 4 3	−14	5 11	S_g	—
Samarkand		10·2	4	i 2 17	−14	e 4 39?	+12	—	—	—
Tashkent		12·1	12	e 2 55	− 2	e 5 23	+ 9	—	—	—
Bombay		12·2	148	e 4 9	?	7 6	?	e 5 55	SSS	—
Andijan		12·4	24	e 3 4	+ 3	—	—	—	—	—
Almata		16·3	30	3 51	− 1	7 17	+24	—	—	—
Hyderabad	N.	16·6	134	—	—	7 55	+55	—	—	—
Baku		17·1	314	e 4 6	+ 4	e 7 13	+ 1	—	—	—
Calcutta	N.	21·2	104	—	—	i 7 33	−68	i 9 13	SS	—
Grozny		21·3	315	e 4 52	+ 2	—	—	—	—	—
Leninakan		21·3	308	e 4 53	+ 3	—	—	—	—	—
Sotchi		25·2	311	e 5 24	− 5	—	—	—	—	—
Ksara		25·9	286	e 5 38	+ 3	e 11 15	SS	—	—	—
Colombo	E.	26·0	148	9 52	S	(9 52)	−14	—	—	14·3
Sverdlovsk		27·6	354	5 21	−30	10 40	+ 8	—	—	—
Helwan		30·1	279	e 6 9	− 4	e 11 35	+23	—	—	e 13·8
Irkutsk		36·2	40	e 7 2	− 4	e 15 34	SSS	—	—	—
Warsaw		40·0	316	e 7 40	+ 2	e 13 57	+13	e 9 13	PP	e 25·2
Triest		43·7	307	e 7 47	−21	e 14 43	+ 4	e 18 16?	SS	—
Upsala	N.	44·3	327	—	—	e 15 9?	+21	—	—	e 22·2
Rome		44·5	302	e 8 11	− 4	e 14 51	0	—	—	—
Collmberg	Z.	44·7	314	e 8 16	0	e 15 44	+50	e 10 47	PPP	—
Cheb		44·9	313	e 15 1	S	(e 15 1)	+ 5	e 22 35	?	e 28·2
Florence		45·4	304	e 15 3	S	(e 15 3)	− 1	e 21 20	?	—
Copenhagen		45·8	321	i 8 28	+ 3	15 15	+ 6	—	—	22·2
Zürich		47·3	309	e 8 34	− 3	—	—	—	—	—

Additional readings :—
Bombay eN = 6m.46s.
Calcutta iN = 9m.48s. and 10m.13s.
Warsaw eE = 9m.42s., eN = 9m.49s., eZ = 10m.11s. and 14m.15s., eN = 17m.56s., eZ = 18m.13s., eE = 18m.32s.
Collmberg eZ = 8m.22s., 8m.27s., 8m.50s., 9m.9s., 9m.21s., and 10m.31s.
Long waves were also recorded at Sitka, Weston, Tucson, Wellington, and at other European stations.

June 20d. Readings also at 0h. (Uccle), 2h. (Palomar and Tucson), 7h. (Tucson and Collmberg), 9h. (near Mizusawa), 12h. (near Andijan and Almata), 13h. (Bucharest, Wellington, and near Tananarive), 14h. (Tananarive), 19h. (near Bogota), 20h. (near Tananarive), 21h. (near Berkeley), 23h. (Auckland).

June 21d. 3h. 34m. 9s. Epicentre 40°·5N. 122°·0W.

A = −·4041, B = −·6467, C = +·6469 ; δ = 0 ; h = −2 ;
D = −·848, E = +·530 ; G = −·343, H = −·549, K = −·763.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		
		°	°	m. s.	s.	m. s.	s.	m. s.		
Berkeley		2·6	185	e 0 45	+ 1	e 1 16	− 1	e 0 55	P_g	
San Francisco		2·7	187	e 0 48	+ 3	e 1 22	+ 3	—	—	
Branner		3·1	183	e 0 51	0	e 1 27	− 2	—	—	
Lick	N.	3·2	175	e 0 52	0	e 1 28	− 4	—	—	
Fresno	N.	4·1	154	e 1 10	+ 5	e 1 57	+ 2	e 2 3	S*	
Overton		7·1	121	e 1 47	− 1	e 3 33	S*	—	—	
Boulder City		7·2	126	i 1 48	− 1	e 3 40	S*	e 2 12	P*	
Pierce Ferry		7·7	122	e 1 51	− 5	i 3 55	S*	i 2 23	P*	

Additional readings :—
Fresno eSN = 2m.0s.
Overton e = 2m.48s. and 4m.36s.

June 21d. 9h. 22m. 59s. Epicentre 40°·5N. 122°·0W. (as at 3h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		2·6	185	e 0 45	+ 1	e 1 16	− 1	e 0 53	P_g	—
San Francisco		2·7	187	e 0 47	+ 2	e 1 20	+ 1	—	—	—
Branner	N.	3·1	183	e 0 50	− 1	e 1 27	− 2	e 0 53	P*	—
Lick		3·2	175	e 0 53	+ 1	e 1 31	− 1	—	—	—
Fresno	N.	4·1	154	e 1 11	P*	e 1 57	+ 2	e 1 21	P_g	—
Tinemaha		4·4	138	e 1 6	− 4	e 2 15	S*	—	—	—
Haiwee	Z.	5·4	143	e 1 36	P*	e 2 51	S*	—	—	—
Mount Wilson	Z.	7·0	152	e 1 53	+ 7	—	—	—	—	—
Pasadena	Z.	7·0	153	e 1 47	+ 1	—	—	—	—	—
Overton		7·1	121	e 1 48	0	e 2 35	−35	—	—	—
Boulder City		7·2	126	i 1 48	− 1	e 3 47	S*	e 2 11	P*	—
Grand Coulee		7·7	14	—	—	e 3 24	− 1	e 4 7	S_g	—
Pierce Ferry		7·7	122	i 1 51	− 5	e 3 51	S*	i 1 54	?	—
Salt Lake City		7·7	87	—	—	e 3 37	+12	—	—	—
Logan		7·8	77	—	—	e 3 51	S*	e 4 11	S_g	e 4·3

Additional readings :—
Fresno eN =2m.1s.
Logan e =4m.0s.
Long waves were also recorded at Bozeman.

June 21d. 12h. Undertermined shock.

Auckland e =27m.36s.?, S =30m.0s., L =32m.0s.
Palomar ePEN =31m.56s.
Riverview eE =32m.6s., eLN =35·5m.
Christchurch S?NZ =32m.16s., QE =33m.30s., REZ =35m.25s.
Mount Wilson ePZ =32m.22s.
Pasadena ePZ =32m.22s., eLZ =54m.7s.
Shasta Dam eP =32m.23s., eS? =43m.2s.
Haiwee ePZ =32m.29s.
Tinemaha iPZ =32m.29s.
Boulder City iP =32m.42s.
Overton eP =32m.48s.
Tucson iP =32m.48s., eL =56m.46s.
Wellington S? =33m.0s., Q =33m.54s., RZ =35m.
Pierce Ferry eP =33m.43s.
St. Louis ePZ =34m.14s., eSKKS?E =45m.15s., eSSE =52m.16s., eLE =66m.12s.
De Bilt ePKP =40m.20s., eL =86m.
Ksara iPKP =40m.25s., PP =44m.12s.
Paris e =40m.25s., 40m.32s., 41m.5s., 41m.23s., and 50m., eL =94m..
Strasbourg ePKP =40m.25s., e =40m.35s. and 51m.36s., L =90·4m.
Rome ePKP =40m.27s., eSKS =47m.20s., eSKKS? =50m.57s., ePSKS =54m.34s., ePPS =57m.35s.
Basle e =40m.29s.
Clermont-Ferrand e =40m.33s.
Zagreb e =40m.35s.
Sitka e =43m.0s., eL =54m.48s.
College e =43m.23s., eL =60m.27s.
Bozeman e =44m.32s., eL =57m.32s.
Granada e =64m.54s., L =98·8m.
Weston e =69m.54s. and 74m.0s.
Long waves were also recorded at Arapuni, Brisbane, Honolulu, Ukiah, Uccle, and Kew.

June 21d. Readings also at 2h. (Tucson), 4h. (St. Louis, Rapid City, Bozeman, Logan, Salt Lake City (2), Pasadena, and near Tucson (2)), 5h. (St. Louis, Bozeman, Salt Lake City, Pierce Ferry, Boulder City, and Overton), 7h. (La Paz), 8h. (Tucson, Palomar, La Jolla, Mount Wilson, Pasadena, Haiwee, and Tinemaha), 12h. (near Almata), 14h. and 15h. (near Mizusawa), 16h. (Paris), 17h. (near Almata), 22h. (near Berkeley).

June 22d. Readings at 1h. (Auckland and near Andijan), 4h. (Weston), 15h. (Tucson and Sitka), 22h. (near Mizusawa).

June 23d. 17h. 13m. 19s. Epicentre 49°·9N. 125°·3W.

Intensity VIII at many places near the Epicentre. Damage at Courtenay Comox, Goose Spit, Nerville, Campbell River, Maple Guard, etc. Very strong at Port Alberni and Franklin River. Felt at Portland (Oregon) at a distance of 500km. Fissures opened in many regions from 25m. at Deep Bay to 3m. on Read Island. Several rock falls occurred with flooding of fields and roads. Macroseismic area 55,000 sq. miles.

R. R. Bodle and L. M. Murphy.
United States Earthquakes, 1946, Serial No. 714, Washington, 1948, pp. 19-21, and macroseismic chart.

E. A. Hodgson
British Columbia Earthquake, June 23, 1946. Reprint from Journal of Royal Astronomical Society of Canada, Vol. 40, October, 1946, pp. 275-319. Plates X-XX.

$A = -\cdot3737$, $B = -\cdot5278$, $C = +\cdot7628$; $\delta = +9$; $h = -5$;
$D = -\cdot816$, $E = +\cdot578$; $G = -\cdot441$, $H = -\cdot623$, $K = -\cdot647$.

		△	Az.	P.	O−C.	S.	O−C.		Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Victoria		1·8	138	e 0 29	− 3	—	—	—	—	—
Seattle		3·0	139	e 0 31	−19	—	—	—	—	—
Grand Coulee		4·6	113	i 1 44	P_g	i 2 21	S*	—	—	—
Butte		9·4	110	i 2 16	− 2	i 3 53	−14	—	—	i 4·4
Shasta Dam		9·4	166	i 2 18	0	e 4 29	+22	—	—	—
Sitka		9·7	326	i 2 20	− 2	i 3 45	−30	—	—	i 4·7
Bozeman		10·5	108	i 2 29	− 6	e 4 13	−22	—	—	i 4·8
Ukiah		10·9	171	i 2 37	− 3	—	—	—	—	i 4·9
Saskatoon		12·0	72	2 56	+ 1	5 13	+ 2	—	—	6·7
Berkeley		12·2	169	2 56	− 2	i 5 28	+12	—	—	e 6·3
Logan		12·4	126	i 3 4	+ 3	i 5 19	− 2	—	—	i 6·2
Santa Clara		12·8	168	i 3 5	− 1	—	—	—	—	—
Salt Lake City		13·1	129	i 3 11	+ 1	i 5 30	− 8	—	—	i 6·4
Tinemaha		13·8	156	i 3 20k	+ 1	—	—	—	—	—
Haiwee		14·7	156	i 3 33k	+ 2	—	—	—	—	—
Overton		15·5	145	i 3 42	0	—	—	—	—	e 8·1
Boulder City		15·9	147	i 3 45	− 2	e 6 41	− 3	—	—	e 7·9
Pierce Ferry		16·0	145	i 3 49	+ 1	—	—	—	—	e 8·6
Santa Barbara		16·0	163	i 3 47k	− 1	—	—	—	—	—
Mount Wilson		16·5	158	i 3 54k	0	—	—	—	—	—
Pasadena		16·6	159	i 3 54k	− 2	—	—	—	—	—
Riverside	Z.	16·9	157	i 3 59k	0	—	—	—	—	—
Palomar		17·7	156	i 4 9k	− 1	—	—	—	—	—
La Jolla		18·0	157	i 4 13	0	—	—	—	—	—
College		19·1	330	i 4 28	+ 1	i 8 6	+ 9	i 4 38	PP	i 8·9
Tucson		20·7	144	i 4 43	− 1	i 8 35	+ 4	e 5 8	PP	i 10·1
Lincoln		22·0	103	i 4 54	− 4	i 8 53	− 3	i 5 16	PP	i 10·3
Chihuahua	Z.	25·8	139	i 5 34	0	e 10 12	+10	i 5 56	PP	—
Chicago		27·2	93	i 5 45	− 2	i 10 14	−11	i 6 31	PP	i 11·5
St. Louis		27·3	101	i 5 48	0	i 10 37	+10	—	—	i 13·7
Cincinnati		30·7	95	i 6 16	− 3	i 12 19	+58	i 7 26	PP	—
Ottawa		33·2	78	6 38	− 2	12 0	0	7 41	PP	16·4
Pennsylvania		34·0	87	e 6 50	+ 2	i 11 52	−21	e 8 47	PP	—
Guadalajara	N.	34·0	142	i 6 48	0	e 12 19	+ 6	i 7 36	PP	e 16·6
Shawinigan Falls		34·6	75	6 49	− 4	12 20	− 2	7 48	PP	17·1
Manzanillo	E.	35·0	144	e 7 22	+26	i 12 33	+ 5	—	—	—
Vermont		35·2	78	i 6 56	− 2	i 12 31	0	i 8 19	PP	i 14·5
Seven Falls		35·5	73	6 58	− 2	12 40	+ 4	8 28	PP	17·5
Georgetown		35·6	89	i 6 58	− 3	i 12 30	− 8	—	—	—
Columbia		36·0	99	i 7 1	− 4	e 12 33	−11	i 8 13	PP	e 14·8
Philadelphia		36·2	86	e 7 8	+ 2	i 12 41	− 6	i 8 29	PP	i 14·5
Fordham		36·6	84	i 7 6	− 4	i 12 37	−16	i 8 28	PP	—
Tacubaya	N.	36·9	136	i 7 10	− 2	i 13 6	+ 8	—	—	—
Harvard		37·2	80	i 7 10	− 5	e 12 55	− 7	i 8 33	PP	e 16·7
Weston		37·4	80	i 7 14	− 2	i 12 58	− 7	8 34	PP	i 16·8
Honolulu		38·4	234	i 7 27	+ 2	i 13 18	− 2	e 8 58	PP	i 15·8
Oaxaca		40·0	133	e 7 38	0	e 13 39	− 5	i 8 53	PP	e 19·5
Merida		40·3	122	i 7 22	−18	i 13 53	+ 4	i 7 47	pP	—
Halifax		41·2	73	7 47	− 1	14 2	0	9 30	PP	18·7
Bermuda		47·5	88	i 8 36	− 2	e 15 36	+ 2	e 10 11	PP	e 18·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Reykjavik		51·7	33	e 9 23	+12	i 16 45	+13	e 11 16	PP	e 23·4
Balboa Heighta		55·7	120	e 9 45	+ 5	e 17 28	+ 2	—	—	—
San Juan		56·4	101	i 9 43	− 2	i 17 27	− 9	i 13 7	PPP	i 27·2
Fort de France		62·2	100	e 10 33	+ 7	—	—	—	—	—
Bogota		62·3	118	i 10 30	+ 4	e 19 1	+ 9	e 13 14	PP	—
Bergen		63·1	25	i 10 29	− 3	19 1	− 1	23 25	SS	30·5
Mizusawa	E.	63·4	300	10 29	− 5	e 18 28	−38	—	—	—
	N.	63·4	300	e 10 32	− 2	e 18 31	−35	—	—	—
Aberdeen		63·5	31	i 10 35	+ 1	i 19 7	0	i 23 24	SS	27·4
Edinburgh		64·1	32	10 39	+ 1	19 13	− 1	13 1	PP	—
Durham		65·6	32	10 49	+ 1	19 34	+ 1	19 58	PS	—
Upsala	E.	66·5	20	e 11 14	+20	e 19 50	+ 6	e 13 43?	PP	e 28·7
	N.	66·5	20	i 11 0	+ 6	i 19 43?	− 1	e 13 52	PP	—
Kew		68·7	33	i 11 8k	+ 1	i 20 10	0	i 13 55	PP	e 30·7
Copenhagen		69·0	24	i 11 9	0	i 20 23	+ 9	25 27	SS	31·2
Irkutsk		69·9	331	11 13	− 2	i 20 21	− 3	—	—	—
Jersey		69·9	37	e 11 13	− 2	e 20 23	− 1	e 25 5	SS	29·7
De Bilt		70·0	30	i 11 16k	+ 1	i 20 27	+ 1	i 14 0	PP	e 29·7
Uccle		70·9	32	e 11 18k	− 3	e 20 34	− 2	i 14 16	PP	e 30·7
Paris		71·9	34	i 11 27k	0	i 20 43	− 5	e 14 16	PP	e 33·2
Potsdam		72·2	26	e 11 27	− 2	e 20 51	0	—	—	e 30·7
Jena		73·0	27	e 11 32	− 1	e 21 1	+ 1	—	—	—
Sverdlovsk		73·5	357	i 11 36	0	i 21 3	− 3	—	—	—
Moscow		73·8	10	i 11 37	− 1	e 21 9	0	—	—	—
Strasbourg		73·9	30	e 11 39	0	e 21 3	− 7	e 14 21	PP	e 31·7
Cheb		74·0	27	e 11 42	+ 3	e 21 14	+ 3	e 14 32	PP	e 30·5
Warsaw		74·3	21	11 40a	− 1	21 17	+ 2	14 23	PP	e 36·7
Besançon		74·5	33	e 11 40	− 2	e 21 23	+ 6	—	—	e 31·7
Prague		74·6	26	11 48	+ 5	e 21 12	− 6	e 13 47	PP	e 31·7
Clermont-Ferrand		74·7	35	e 11 43	0	i 21 22	+ 3	i 25 32	SS	e 32·2
Basle		74·8	31	e 11 43k	− 1	e 21 20	0	—	—	—
Neuchatel		75·0	32	e 11 46	+ 1	e 21 44	+21	—	—	—
Zürich		75·2	31	e 11 46k	0	e 21 20	− 5	—	—	—
Lisbon		75·4	47	11 48	+ 1	i 21 27	0	i 21 53	PS	31·2
Toledo		76·8	43	i 11 54	− 1	i 21 42	0	i 12 12	pP	36·3
Tortosa		77·9	39	i 12 7	+ 6	21 53	− 1	15 4	PP	e 33·7
Barcelona		78·1	38	i 12 10	+ 8	i 22 4	+ 8	22 26	PS	33·3
Budapest	E.	78·2	24	12 3	0	21 57	0	14 48	PP	e 32·7
	N.	78·2	24	12 5	+ 2	22 10	+13	15 3	PP	e 36·2
Triest		78·4	29	e 12 6	+ 2	i 22 0	0	i 15 25	PP	i 32·9
Zagreb		78·9	27	e 12 5	− 2	e 22 11	+ 6	i 12 26	PcP	e 38·7
Kalocsa	E.	79·1	25	e 12 16	+ 8	i 22 31	+24	i 12 48	PcP	—
Malaga	Z.	79·2	45	i 12 10a	+ 2	i 22 12	+ 4	15 20	PP	39·4
Granada		79·2	44	i 12 8a	0	i 22 8	0	i 15 17	PP	38·1
Florence		79·3	31	i 12 11	− 2	i 22 22	[+ 1]	i 22 44	PS	—
Alicante		79·6	42	i 12 15	+ 5	i 22 15	+ 3	15 6	PP	i 40·2
Belgrade		81·1	25	e 12 18	0	e 22 27	− 1	14 21	PP	e 30·7
Rome		81·4	31	i 12 19k	− 1	i 22 33	+ 2	i 15 40	PP	34·8
Algiers		82·4	40	i 12 31	+ 6	22 41	0	i 15 41	PP	34·7
Bucharest	E.	82·8	21	e 12 42	+15	e 22 28	−17	i 15 50	PP	33·7
La Paz		83·0	126	12 31	+ 3	i 22 44	− 3	i 16 13	PP	36·7
Sofia		83·8	23	e 12 32	0	e 22 49	− 6	e 16 5	PP	36·7
Almata		85·2	344	—	—	23 16	+ 7	—	—	—
Grozny		86·8	7	e 12 47	0	e 23 14	[+ 1]	—	—	—
Tashkent		88·3	350	i 12 58	+ 3	e 23 20	[− 2]	—	—	—
Andijan		88·4	347	e 12 57	+ 2	—	—	—	—	—
Leninakan		89·2	9	e 13 5	+ 6	e 23 58	+11	13 14	PcP	—
Baku		90·0	4	e 13 5	+ 2	23 58	+ 4	16 56	PP	—
Samarkand		90·2	351	13 8	+ 4	i 24 6?	+10	—	—	—
Stalinabad		91·0	349	i 13 7	0	23 36	[− 3]	i 24 10	S	—
Ksara		95·0	16	i 13 25	− 1	24 48	+10	26 31	PPS	—
Santa Lucia		96·0	137	17 25	PP	26 26	PS	—	—	44·1
Helwan		97·9	21	e 13 44	+ 5	24 31	{− 8}	14 11	pP	—
New Delhi	N.	99·3	344	e 13 43	− 2	24 18	[− 6]	27 0	PS	e 50·8
Auckland		101·3	226	—	—	24 6?	[−27]	33 41	SSS	46·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Calcutta	N.	102·0	329	e 12 36	−81	25 26	−11	i 24 11 SKS	47·2
La Plata	E.	103·3	129	18 17	PP	27 23	PS	32 47 SS	43·7
	N.	103·3	129	18 27	PP	27 23	PS	33 5 SS	44·1
Wellington		104·9	223	—	—	24 49	[− 1]	32 41 SS	42·7
Christchurch		107·7	223	e 19 27	PP	28 17	PS	33 31 SS	49·1
Bombay		109·7	342	19 2	PP	i 27 0	S	e 34 36 SS	45·3
Hyderabad	N.	109·8	336	21 35	PPP	28 41	PS	— —	—
Riverview		111·2	243	i 19 38 a	PP	e 25 28	[+11]	e 28 47 SS	e 51·4
Kodaikanal	E.	116·9	335	e 19 54	PP	e 30 21	PPS	35 51 SS	48·8
Colombo	E.	119·4	331	20 30	PP	28 29	PS	36 43 SS	52·7
Tananarive		148·6	14	19 20	[−25]	42 39	SS	23 30 PP	69·7

Additional readings :—
Grand Coulee i = 2m.5s. and 2m.16s.
Berkeley iN = 4m.4s., iS?E = 4m.41s.
College i = 5m.23s. and 5m.33s.
Lincoln e = 7m.41s.
Chihuahua iZ = 10m.32s., iSS?Z = 11m.42s.
Chicago e = 8m.5s., iP_cP = 8m.35s.
Cincinnati i = 6m.26s. and 7m.17s.
Ottawa PPPN = 8m.1s., i = 12m.13s., SS = 14m.21s.
Guadalajara eN = 14m.54s., eE = 15m.3s.
Shawinigan Falls PPP = 8m.12s., SS = 14m.20s.
Vermont i = 7m.7s. and 7m.53s.
Seven Falls SS = 14m.43s.
Philadelphia i = 7m.17s. and 8m.51s., iP_cP = 9m.15s.
Fordham i = 8m.39s., 11m.35s., and 12m.4s.
Harvard iPPP = 8m.54s., iS = 13m.4s.
Weston iQ = 15m.26s., iSS = 15m.29s.
Honolulu ePPP = 9m.39s.
Oaxaca iN = 8m.24s., iPPPEN = 9m.45s., eSEN = 14m.0s., eSSSN = 17m.10s.
Merida iZ = 7m.53s., iPP?E = 9m.6s., iSE = 13m.29s., isSN = 13m.58s., iSS?N = 16m.29s.
Halifax SS = 17m.6s.
Reykjavik eN = 12m.25s., iPSN = 17m.9s., eN = 20m.23s.
San Juan i = 10m.4s., 12m.12s., 18m.3s., and 18m.47s., iS_cS = 19m.51s., eSS? = 21m.50s.
Bogota i = 10m.46s., iP_cP = 11m.13s., e = 19m.35s., eS_cS = 20m.1s.
Bergen iZ = 10m.44s.?, eZ = 11m.14s., SN = 19m.15s., SN = 19m.15s., QN = 27m.41s.
Aberdeen iEN = 15m.9s., iPSN = 21m.32s., iSSS = 25m.57s.
Edinburgh P_cP = 11m.14s., PPP = 14m.33s., P_cS = 15m.16s., SKS = 20m.30s., SSS = 26m.12s.
Durham pP = 11m.58s., N = 12m.14s. and 12m.32s., EN = 15m.16s.
Upsala iE = 11m.37s., ePPP?N = 15m.43s., ePPP?E = 15m.46s., iPSN = 20m.1s., eE = 21m.19s., eN = 21m.25s., iSSN = 24m.22s., eSSE = 24m.27s., eSSSE = 27m.14s., eSSSN = 27m.38s.
Kew iP_cPZ = 11m.32s., i = 11m.46s., iPPPEZ = 15m.36s., iPSEZ = 20m.28s., iPPSZ = 20m.40s., iS_cSEZ = 21m.16s., eSSNZ = 24m.46s.?, eSSS = 28m.6s.?
Copenhagen i = 11m.24s. and 15m.1s., SSS = 28m.35s.
De Bilt iPPP = 15m.41s., ePS = 20m.46s., eSS = 25m.41s.?
Uccle iP_cP?Z = 11m.33s., i = 11m.59s., ePPP = 15m.36s., eS = 20m.56s., eS_cS = 21m.18s., eSS = 25m.24s.?, eSSS = 28m.23s.
Paris i = 11m.40s. and 11m.56s., iPP? = 12m.32s., PPP = 15m.54s., PS = 19m.41s.?, e = 21m.44s. and 23m.54s., eSS = 24m.54s., e = 26m.12s., eSSS = 29m.12s., eQ = 29·7m.
Potsdam iN = 20m.57s.?
Jena eN = 11m.48s., eS?N = 21m.8s.
Strasbourg i = 11m.53s., 12m.5s., and 12m.24s., e = 14m.42s., ePPP = 16m.23s., i = 16m.48s., e = 20m.59s., iPS = 21m.31s., e = 25m.47s., iSS = 26m.22s., eSSS? = 29m.22s.
Cheb e = 12m.3s., eP_cP = 12m.20s., e = 12m.59s. and 13m.35s., ePPP = 18m.31s., ePS = 21m.38s., ePPS = 22m.49s., eSS = 25m.32s., e = 26m.51s., eSSS = 29m.31s.
Warsaw eN = 15m.7s., SZ = 21m.27s., PS = 21m.46s., iZ = 22m.27s., SSN = 25m.35s., SSSN = 28m.56s.
Prague eSS = 26m.41s.
Clermont-Ferrand i = 11m.56s.k.
Basle e = 11m.55s. and 12m.52s.
Lisbon iPN = 11m.59s., SE = 22m.21s.
Toledo isSE = 22m.11s., PSE = 22m.29s., SSE = 27m.0s., QEN = 32m.32s.
Tortosa iP_cPEN = 12m.19s., PPPN = 16m.36s., S_cSN = 22m.3s., PSN = 22m.23s., PPSE = 22m.40s., SSN = 26m.48s., SSSE = 29m.45s., QN = 32m.43s.
Budapest iE = 12m.13s., iN = 12m.16s., iE = 22m.22s., PSEN = 22m.57s., PPSN = 23m.22s., eSSEN = 27m.11s., SSSN = 29m.35s.
Triest iPS = 22m.44s., iSS = 27m.3s.
Zagreb e = 12m.18s., i = 12m.35s., iNE = 12m.51s., iNW = 12m.58s., eNE = 13m.14s., eNW = 13m.58s., ePP = 15m.18s., eNE = 15m.28s. and 15m.58s., ePSNE = 22m.54s., ePPSNE = 23m.23s., eSSSNE = 32m.41s.?

Continued on next page.

Kalossa iS?N =22m.50s.
Malaga PPPZ =16m.54s., PSZ =23m.31s., SSZ =28m.9s., QZ =37m.1s.
Granada P_cP =12m.23s., pP =12m.34s., sP =12m.52s., PPP =16m.58s., sS =22m.44s., PS =23m.0s., sPS =23m.41s., SS =27m.14s., Q =28m.5s.
Alicante pP =12m.19s., P_cP =12m.27s., PPP =16m.55s., PS =23m.15s., SS =27m.54s., SSS =31m.15s., Q =33m.31s.
Belgrade SS =25m.51s.
Rome iP_cP =12m.29s., i =12m.35s., ipP =12m.56s., iS =22m.56s., iS_cS =23m.11s., iPS =23m.47s., isS =24m.1s.
Algiers i =12m.38s., 13m.0s., and 16m.12s., PS? =23m.9s., i =23m.58s., eSS? =27m.41s., eSSS? =29m.41s.
Bucharest iE =13m.31s. and 24m.11s.
La Paz SSN =27m.44s.
Sofia eE =16m.20s. and 22m.59s.
Helwan sP =14m.20s., PP =17m.29s., pPP =17m.47s., sPP =18m.5s., SKS =24m.5s., sS =25m.19s.
New Delhi iN =17m.49s., iSKSN =21m.58s., iSKKSN =23m.17s., PSN =25m.42s., SSN =32m.14s.
Auckland Q? =41·7m.
Calcutta PPSN =26m.8s., iN =27m.7s., SSN =31m.4s., iN =32m.45s., SSSN =35m.6s.
La Plata E =19m.49s., PPPN =20m.36s., N =21m.27s., E =22m.53s., EN =31m.29s., SSSE =36m.59s., SSSN =37m.35s.
Christchurch eZ =22m.51s., PPS =29m.16s., SSSEN =37m.21s., QEN =43m.57s.
Riverview eN =25m.50s., eS?E =27m.11s., iEN =27m.26s., eN =29m.17s., iN =29m.45s., iPPS?N =30m.17s., eSSE =34m.44s., eEN =35m.17s., eQE =45m.17s.
Kodaikanal eE =23m.14s.
Tananarive $iPKP_2$ =20m.4s., PPP =26m.14s., SSS =48m.31s., e =64m.56s.

June 23d. Readings also at 3h. (near Guadalajara), 4h. (Mount Wilson, Pasadena, Tucson, St. Louis, and Tacubaya), 5h. (Santa Lucia), 6h. (La Plata), 7h. (Mount Wilson, Tucson, Kew, and Helwan), 10h. (near Irkutsk), 15h. (Arapuni, Auckland, Christchurch, Wellington, Riverview, Haiwee, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson, Shasta Dam, and Ksara), 16h. (Weston), 17h. (Copenhagen and La Paz), 18h. (Granada and Helwan), 19h. (Alicante), 20h. (Irkutsk, Samarkand, Tashkent, Sverdlovsk, Ksara, Cheb, Rome, Mount Wilson, Pasadena, Palomar, Santa Barbara, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, near Berkeley, and Lick ; readings for three different earthquakes appear to be among these), 21h. (Belgrade, Warsaw, Prague, Copenhagen, De Bilt, Paris, Strasbourg, Clermont-Ferrand, Alicante, and Granada).

June 24d. 4h. 11m. 17s. Epicentre 42°·7N. 75°·0E.

A = +·1908, B = +·7121, C = +·6757 ; δ = +6 ; h = −3 ;
D = +·966, E = −·259 ; G = +·175, H = +·653, K = −·737.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almata		1·5	68	0 29	+ 1	0 51	+ 2	—	—	—
Andijan		2·8	225	0 45	− 2	1 18	− 4	—	—	—
Tashkent		4·4	251	e 1 9	− 1	e 2 26?	S_g	—	—	—
Stalinabad		6·3	231	e 1 34	− 2	i 2 52	+ 2	—	—	—
Samarkand		6·7	246	1 47	+ 5	3 9	+ 9	—	—	—
New Delhi	N.	14·2	172	e 3 18	− 6	—	—	i 8 51	P_cP	—
Sverdlovsk		16·9	332	3 57	− 2	7 15	+ 8	—	—	—
Baku		18·9	273	e 4 32	+ 8	e 8 5	+12	—	—	—
Grozny		21·4	283	e 4 51	0	—	—	—	—	—
Irkutsk		21·9	54	e 5 19?	PP	e 9 1?	+ 7	—	—	—
Leninakan		23·3	277	e 5 8	− 2	e 9 39	+19	—	—	—
Bombay		23·8	186	e 5 19	+ 4	—	—	—	—	—
Moscow		27·3	312	e 5 50	+ 2	10 29	+ 2	e 6 9	pP	—
Ksara		31·7	267	—	—	e 12 31	+54	e 17 50	S_cS	—
Warsaw		36·9	305	—	—	e 15 26	SS	e 15 58	SSS	e 17·0
Upsala	N.	38·4	317	—	—	e 16 1	SS	e 17 37	S_cS	e 19·8
Belgrade		38·8	292	—	—	e 17 53	S_cS	—	—	e 20·7
Prague		41·4	303	—	—	e 16 59	SS	—	—	e 22·1
Copenhagen		41·5	312	—	—	e 14 13	+ 6	17 1	SS	20·7
Strasbourg		46·0	302	—	—	e 18 32	SS	—	—	e 22·2
De Bilt		46·5	307	—	—	e 18 43?	SS	—	—	e 24·7

Additional readings :—
Moscow sS =10m.55s.
Copenhagen 17m.56s.
Long waves were also recorded at other European stations.

June 24d. 12h. Undetermined shock.

Tacubaya iPE =26m.37s., ePN =26m.40s., eSN =29m.13s., eSEN =29m.18s.?, iLE = 30m.3s.
Tucson iP =27m.17s., eS? =29m.49s., eL =30m.30s.
Palomar ePE =27m.50s.
Pasadena ePEZ =28m.8s., eL?EZ =31m.4s.
Mount Wilson ePZ =28m.9s.
Pierce Ferry iP =28m.13s.
Boulder City iP =28m.14s.
Overton iP =28m.21s.
Haiwee ePZ =28m.27s.
Santa Barbara ePZ =28m.32s.
Salt Lake City eP =28m.36s., eS =32m.38s., eL =34m.41s.
Tinemaha iPZ =28m.39s.
Santa Clara ePZ =29m.2s., eS?E =35m.4s.
Berkeley ePZ =29m.3s., eSEN =33m.7s.
Logan eP =29m.17s., eS =33m.21s., eL =35m.31s.
Shasta Dam iP =29m.26s.
St. Louis eSE =33m.12s., eSSN =34m.3s., iSSN =34m.19s., iL?N =37m.13s.
Bozeman eS =34m.20s., eL =37m.25s.
Philadelphia e =35m.53s?, eL =39m.20s.?
Weston eS? =37m.47s., e =40m.33s.
Cheb e =52m.
Long waves were also recorded at Honolulu, Kew, and at other American stations.

June 24d. 15h. 48m. 17s. Epicentre 14°·4N. 89°·6W. Depth of focus 0·030.

A = +·0068, B = −·9690, C = +·2471 ; δ = +7 ; h = +6 ;
D = −1·000, E = −·007 ; G = +·002, H = −·247, K = −·969.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Merida		6·5	0	i 1 39	+ 4	i 2 53	+ 4	i 2 29	sP	—
Tacubaya		10·4	300	2 30	+ 5	4 20	+ 2	—	—	—
Mobile		16·3	5	4 2	+24	7 4	+33	—	—	—
San Juan		22·9	77	i 5 53	+68	—	—	—	—	—
St. Louis	N.	24·2	358	i 4 57	− 1	i 8 52	− 5	i 5 35	pP	—
Florissant		24·3	358	i 4 59	+ 1	e 9 6	+ 7	e 5 39	pP	—
Tucson		26·3	316	i 5 17	0	—	—	i 6 8	pP	e 11·0
Georgetown		26·8	23	i 5 23	+ 2	e 9 58	+19	i 6 14	pP	—
Chicago		27·3	2	i 5 26	0	e 9 31	−16	i 6 19	pP	e 11·3
Philadelphia		28·4	25	i 5 41	+ 5	e 10 6	+ 1	i 6 36	pP	e 12·8
Bermuda		28·9	48	e 5 43	+ 3	e 12 10	SS	e 7 3	PPP	—
Fordham		29·7	25	e 5 47	0	e 10 26	+ 1	e 6 40	pP	—
Pierce Ferry		30·7	319	5 56	0	—	—	i 6 48	pP	—
Palomar		31·1	312	i 5 59	− 1	e 12 6	sS	i 6 50	pP	—
Boulder City		31·2	318	e 5 35	−25	—	—	i 6 0	P	—
La Jolla	z.	31·2	311	e 6 9	+ 9	—	—	—	—	—
Harvard		32·0	26	e 6 7	0	e 12 40	sS	e 7 29	PP	—
Weston		32·0	26	i 6 9	+ 2	i 11 3	+ 2	i 7 0	pP	—
Mount Wilson	z.	32·4	315	e 6 10	− 1	—	—	i 7 2	pP	—
Pasadena		32·5	315	i 6 10	− 2	e 11 4	− 5	i 7 1	pP	e 12·4
Salt Lake City		32·7	328	e 6 12	− 1	—	—	e 7 34	PP	e 13·1
Ottawa		33·1	18	6 17	0	11 16	− 2	12 43?	pS	15·0
Haiwee	z.	33·3	316	e 7 12	pP	—	—	—	—	—
Tinemaha		34·1	317	i 6 26	+ 1	—	—	e 7 19	pP	—
Bozeman		36·0	334	e 8 59	PcP	e 11 57	− 6	—	—	e 14·5
Berkeley		37·2	315	i 7 44	pP	e 12 17	− 4	—	—	—
La Paz		37·3	144	e 6 55	+ 3	12 59	+36	e 7 51	pP	—
Shasta Dam		38·8	319	i 7 1	− 4	—	—	i 7 52	pP	—
Sitka		55·1	332	—	—	(e 16 23)	−11	—	—	e 16·4
Toledo	z.	77·5	52	e 11 33	+ 1	—	—	i 12 36	pP	—
Malaga	z.	77·7	55	i 11 35k	+ 2	e 21 27	+22	14 34	PP	e 33·5
Kew		78·4	40	(e 12 43?)	pP	—	—	—	—	e 12·7
Paris		80·7	42	i 11 48	− 1	e 26 43?	SS	e 12 53	pP	e 38·7
De Bilt	z.	81·7	38	i 11 54a	− 1	—	—	—	—	—
Basle		84·3	42	e 12 7	− 1	—	—	—	—	—
Zürich		85·0	42	e 12 11	0	—	—	—	—	—
Triest		88·9	43	—	—	e 22 32	[− 4]	—	—	—
Rome		89·3	47	e 12 32	0	e 23 53	+53	e 13 31	pP	—

For Notes see next page.

NOTES TO JUNE 24d. 15h. 18m. 17s.

Additional readings :—
Merida iZ =3m.3s.
San Juan i =6m.9s. and 6m.26s.
St. Louis iSN =9m.10s. isSN =10m.14s.
Florissant iPPZ =5m.48s., iZ =6m.16s., eSN =9m.10s., iE =9m.39s., isSE =10m.19s.
Tucson i =5m.41s., isP =6m.40s.
Georgetown i =6m.46s. and 11m.16s.
Chicago e =6m.9s., isP =6m.51s., ePcS? =12m.23s.
Philadelphia e =6m.32s. and 11m.16s.
Fordham e =7m.10s. and 12m.6s.
Pierce Ferry i =6m.7s.
Palomar isPZ =7m.24s., eZ =8m.22s.
Boulder City iPP =6m.52s., i =7m.22s.
Mount Wilson esPZ =7m.34s.
Pasadena esPZ =7m.32s., eScP?Z =9m.54s., iScS? =12m.43s.
Tinemaha eEZ =7m.46s., iZ =8m.56s. and 12m.16s.
Berkeley eE =9m.38s., iN =13m.47s.
La Paz SS =15m.35s.
Shasta Dam i =9m.59s.
Malaga PPPZ =16m.21s., PSZ =22m.13s., SSZ =26m.33s.
Paris ePP? =14m.54s.

June 24d. 23h. 55m. 1s. Epicentre 6°·5S. 130°·0E. Depth of focus 0·025.

A = −·6387, B = +·7612, C = −·1125; δ = +2; h = +7;
D = +·766, E = +·643; G = +·072, H = −·086, K = −·994.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	30·2	137	i 5 50	− 5	—	—	—	—	—
Riverview		33·5	147	i 6 24	+ 1	i 14 4	SS	i 7 1	pP	i 16·9
Mizusawa	E.	46·6	12	8 11	+ 1	9 6	?	—	—	—
New Delhi	N.	61·7	307	—	—	e 18 1	− 5	—	—	—
Irkutsk		62·5	343	i 10 7	+ 2	i 18 24	+ 8	i 10 43	pP	—
Almata		68·9	322	10 48	+ 2	—	—	—	—	—
Andijan		70·7	317	11 0	+ 3	—	—	—	—	—
Stalinabad		72·2	314	i 11 0	− 6	i 20 9	− 2	—	—	—
Tashkent		73·0	317	e 11 9	− 1	e 20 19	− 1	—	—	—
Samarkand		73·9	314	11 26	+10	—	—	—	—	—
Sverdlovsk		84·3	329	i 12 13	+ 1	i 22 18	− 1	i 12 53	pP	—
Baku		86·7	311	e 12 32	+ 9	22 41	− 1	e 13 10	pP	—
Grozny		90·2	313	e 12 42	+ 2	e 22 54	[+ 3]	—	—	—
Leninakan		91·3	311	e 12 43	− 2	e 22 59	[+ 1]	—	—	—
Moscow		96·7	325	e 13 10	0	e 24 15	+ 4	13 48	pP	—
Ksara		97·0	303	e 13 12	+ 1	e 25 49	PS	—	—	—
Bucharest		104·4	314	—	—	e 24 13	[+ 8]	—	—	—
Warsaw		106·7	322	—	—	e 24 33	[+19]	e 35 3	SS	—
Shasta Dam		107·6	49	i 14 2	− 1	e 18 30	PP	e 14 46	pP	—
Tinemaha	z.	111·2	53	i 19 5	PP	—	—	—	—	—
Mount Wilson	z.	111·8	56	i 18 16	[+ 4]	—	—	e 19 0	PP	—
Cheb		112·5	321	—	—	e 26 59?	?	—	—	—
Triest		112·9	317	e 19 9	PP	e 25 44	SKKS	e 29 32	SPP	—
Pierce Ferry		114·8	53	i 18 21	[+ 3]	—	—	i 19 21	PP	—
Strasbourg		115·9	321	e 19 35	PP	e 28 52	PS	—	—	e 58·0
De Bilt	z.	116·0	326	e 19 35	PP	—	—	—	—	—
Tucson		118·0	57	i 18 29	[+ 5]	—	—	—	—	—
Paris		119·0	323	e 19 52	PP	e 29 12	SP	e 35 59?	SS	e 66·0
Kew		119·3	326	(e 19 59?)	PP	—	—	—	—	e 20·0
Clermont-Ferrand		119·9	319	e 19 53	PP	—	—	—	—	—
St. Louis		131·6	42	e 23 7	?	e 32 17	PPS	e 39 13	SS	—
Harvard		139·4	24	e 19 58	pPKP	—	—	e 22 27	PP	—
La Paz		150·9	143	19 34	[+10]	—	—	—	—	—

Additional readings :—
Riverview iN =14m.34s.
Mizusawa readings are given as for a local shock.
New Delhi iN =19m.6s.
Irkutsk eS =19m.34s.
Moscow PP =17m.10s., SKS =23m.33s.
Warsaw eZ =25m.1s., eN =25m.10s., eZ =27m.21s. and 28m.30s., eN =28m.37s.
Shasta Dam e =19m.8s.
Long waves were also recorded at New Zealand stations and at Copenhagen.

June 24d. Readings also at 0h. (Bogota), 1h. (Tucson, Palomar, and Mount Wilson), 4h. (Auckland), 7h. (La Plata, Santa Lucia (2), and near Tacubaya), 10h. (near Mizusawa), 12h. (near Tananarive), 13h. (near Tacubaya), 16h. (near Andijan), 17h. (Auckland, Christchurch, Wellington, Arapuni, Honolulu, Sitka, Shasta Dam, Mount Wilson, Palomar, Boulder City, Pierce Ferry, Overton, Tucson, Weston, Upsala, Paris, Rome, and Ksara), 18h. (Warsaw, Strasbourg, De Bilt, Uccle, and Kew), 19h. (near Mizusawa (2)), 21h. (near Berkeley), 22h. (Ksara).

June 25d. 14h. 5m. 19s. Epicentre 37°·0S. 72°·5W.

Intensity VIII with damage at Chillan and Bulnes. Macroseismic area lies between Juncal and La Paz.

Frederico Greve.
Determinación del Coeficiente de Seguridad Anti-Sísmico para las Diferentes Zonas de Chile, p. 46.

$A = +·2407$, $B = -·7635$, $C = -·5992$; $\delta = -9$; $h = -1$;
$D = -·954$, $E = -·301$; $G = -·180$, $H = +·571$, $K = -·801$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Lucia	E.	3·8	23	1 1	0	1 46	− 1	1 9	PP	—
	N.	3·8	23	0 57	− 4	(1 37)	−10	1 12	PP	1·6
La Plata		12·0	84	2 57	+ 2	5 9	− 2	3 9	pP	6·1
La Paz		20·8	13	4 44	− 1	9 40	+67	—	—	11·2
St. Louis	N.	77·0	346	i 11 54	− 2	i 21 36	− 9	e 12 5	pP	—
Florissant		77·2	346	e 11 54	− 3	e 21 38	− 9	e 12 6	pP	—
Tucson		77·6	327	i 11 59	− 1	—	—	i 12 11	pP	—
Harvard		79·1	2	i 12 6	− 2	—	—	—	—	—
Palomar		81·3	324	i 12 21a	+ 1	—	—	i 12 33	pP	—
Ottawa		82·1	358	e 12 22	− 2	(22 41?)	+ 3	—	—	22·7
Pierce Ferry		82·3	327	i 12 25	0	—	—	—	—	—
Boulder City		82·5	326	i 12 26	0	—	—	—	—	—
Mount Wilson		82·6	323	i 12 28a	+ 2	—	—	—	—	—
Pasadena		82·6	323	i 12 26a	0	—	—	—	—	e 40·4
Overton		82·8	327	i 12 29	+ 2	—	—	—	—	—
Santa Barbara	Z.	83·6	322	e 12 31	0	—	—	—	—	—
Haiwee	Z.	84·1	325	i 12 35	+ 1	—	—	—	—	—
Tinemaha		85·0	325	i 12 45	+ 7	—	—	—	—	—
Berkeley		87·5	323	e 12 51	0	e 23 33	+ 2	i 13 4	pP	e 42·0
Shasta Dam		89·8	324	i 13 1	− 1	—	—	—	—	—
Rome		110·3	51	e 18 44	PP	—	—	—	—	—
Ksara		122·8	70	e 15 55	?	—	—	—	—	—

Additional readings and notes :—
La Plata Z = 3m.26s., isPN = 3m.45s., SE = 5m.13s., N = 5m.29s.
Punta Arenas (△ = 16°·2). PN = 14h. 13m. 53s. SN = 14h. 16m. 26s.
Harvard i = 12m.18s.
Pasadena iZ = 12m.38s.
Berkeley eZ = 22m.16s.
Long waves were also recorded at other European stations.

June 25d. Readings also at 2h. (near Pierce Ferry), 8h. (Mount Wilson, Palomar, Tinemaha, Tucson, and near Triest), 11h. (near Bogota), 15h. (near Boulder City, Overton, and Pierce Ferry), 19h. (near Reykjavik), 20h. (near Boulder City, Overton, Pierce Ferry, and Fresno), 21h. (near Lick).

June 26d. 4h. Undetermined shock.

Shasta Dam eP = 41m.24s., e = 49m.46s.
Tinemaha ePZ = 41m.48s.
Mount Wilson ePZ = 42m.13s.
Palomar ePZ = 42m.22s.
Tucson eP = 42m.58s.
Berkeley eP?Z = 43m.47s., eS?Z = 49m.20s., iN = 50m.2s., eLE = 56·4m.
St. Louis ePE = 43m.54s., eE = 44m.5s., eSE = 51m.7s., eL?E = 54m.13s,

June 26d. 4h. Undetermined shock.

Tucson iP =47m.34s., eL =50m.48s.
Palomar ePZ =48m.6s.
Pasadena ePZ =48m.29s.
Mount Wilson ePZ =48m.29s.
Pierce Ferry iP =48m.30s.
Boulder City iP =48m.32s.
Overton iP =48m.38s.
Tinemaha ePZ =48m.57s.
Logan e =49m.47s. and 53m.51s., eL =57m.31s.
Salt Lake City e =49m.0s., eL =56m.0s.
Philadelphia e =59m.24s., eL =63m.51s.
Long waves also at Granada, Bozeman, Chicago, Butte, and Weston.

June 26d. 7h. 53m. 33s. Epicentre 14°·7N. 91°·2W. (as on 1942, Sept. 4d.).

Pasadena suggests deep focus.

$A = -\cdot0203,\ B = -\cdot9674,\ C = +\cdot2522;\quad \delta = -12;\quad h = +6;$
$D = -1\cdot000,\ E = +\cdot021;\quad G = -\cdot005,\ H = -\cdot252,\ K = -\cdot968.$

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		5·8	294	i 1 33	+ 4	i 2 34	− 4	—	—	—
Merida	z.	6·4	13	i 1 40	+ 2	i 2 54	+ 1	—	—	—
Puebla		8·0	304	i 2 5	+ 5	i 3 33	0	i 3 25	SS	—
Tacubaya		9·0	303	i 2 17	+ 4	i 3 58	0	2 20	PP	4·3
Balboa Heights		12·8	115	i 3 7	+ 1	—	—	—	—	—
Guadalajara		13·0	299	e 3 55	PPP	—	—	—	—	i 7·3
Mobile		16·2	10	4 14	PP	7 7	SS	—	—	—
Bogota		19·7	120	i 4 33	− 1	e 8 33	+23	i 4 43	PP	e 16·3
Columbia		21·3	24	i 4 54	+ 4	e 8 50	+ 7	e 5 15	pP	e 10·5
St. Louis		23·9	2	e 5 15	− 1	i 9 25	− 5	i 5 34	pP	—
Florissant		24·0	2	e 5 17	0	e 9 30	− 2	5 37	pP	—
San Juan		24·3	78	e 5 18	− 2	e 9 40	+ 3	e 5 47	sP	—
Tucson		25·0	318	i 5 28	+ 1	e 9 54	+ 5	i 5 49	pP	i 11·5
Georgetown		27·1	26	i 5 51	+ 5	—	—	—	—	10·5
Chicago		27·2	6	e 5 46	− 1	e 10 17	− 8	i 10 55	SS	e 12·8
Pennsylvania	N.	28·5	22	i 5 54	− 5	e 10 33	−13	e 6 36	PP	—
Philadelphia		28·8	28	i 6 10	+ 8	e 10 49	− 2	i 6 57	PP	e 12·3
Pierce Ferry		29·5	321	i 6 9	+ 1	—	—	—	—	e 16·3
Palomar		29·8	314	i 6 11	0	i 16 45	S_cS	e 6 26	pP	e 17·2
Bermuda		29·9	49	e 6 11	− 1	(e 12 20)	SS	—	—	e 12·3
Boulder City		29·9	320	i 6 13	+ 1	i 6 52	sP	e 6 29	pP	—
Overton		30·0	321	i 6 15	+ 3	e 16 27	S_cS	—	—	—
Fordham		30·1	27	i 6 16	+ 3	i 11 13	+ 1	i 6 58	PP	—
Riverside	N.	30·5	314	e 6 19	+ 2	—	—	—	—	—
Mount Wilson	Z.	31·1	314	i 6 23a	+ 1	e 6 55	sP	e 6 40	pP	—
Pasadena		31·1	314	i 6 22a	0	i 11 28	0	i 6 40	pP	e 14·5
Salt Lake City		31·6	330	e 6 27	+ 1	e 11 27	− 8	e 7 6	PP	e 14·4
Haiwee		32·1	317	i 6 42	+11	e 17 7	S_cS	i 9 30	P_cP	—
Logan		32·3	332	i 6 33	0	e 12 20	sS	e 7 16	PP	e 14·1
Santa Barbara	Z.	32·4	313	e 6 33	− 1	—	—	—	—	—
Harvard		32·5	28	i 6 33	− 1	i 11 46	− 3	e 12 23	sS	e 17·3
Weston		32·5	28	i 6 35	+ 1	i 11 48	− 1	—	—	—
Tinemaha		32·8	318	i 6 39a	+ 2	i 17 0	S_cS	i 7 10	pP	—
Ottawa		33·3	20	6 42	+ 1	11 59	− 3	8 4	PPP	16·1
Vermont		33·4	24	e 6 49	+ 7	e 12 14	+11	e 8 34	sPP	e 14·1
Fresno	N.	33·6	317	e 6 42	− 2	e 11 49	−17	—	—	—
Bozeman		35·1	337	e 6 49	− 8	e 12 23	− 7	e 12 55	P_cS	e 15·1
Shawinigan Falls		35·3	23	e 7 0	+ 1	—	—	e 8 27	PPP	17·5
Santa Clara		35·4	317	e 7 2	+ 2	e 12 36	+ 2	e 17 13	S_cS	—
Berkeley		35·9	316	i 7 3	− 1	i 12 33	− 9	i 9 28	P_cP	e 17·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Butte		36·0	336	i 7 2	− 3	e 12 36	− 8	i 7 43	sP	e 15·9
Seven Falls		36·5	24	7 12	+ 3	12 47	− 4	15 45	SSS	18·5
Ukiah		37·2	317	e 7 7	− 8	e 12 59	− 3	—	—	e 15·9
Shasta Dam		37·5	320	i 7 15	− 2	i 17 22	S_cS	i 7 55	sP	e 20·1
Halifax		37·9	33	e 7 27	+ 7	—	—	e 8 57	PPP	—
La Paz		38·5	142	i 7 23	− 3	13 25	+ 3	9 23	PPP	17·5
Saskatoon		39·3	345	e 9 2	PP	—	—	—	—	16·5
Grand Coulee		40·3	332	e 7 40	0	—	—	e 8 19	sP	—
Victoria		42·9	329	e 8 2	0	—	—	—	—	18·4
Sitka		54·1	333	e 9 26	− 3	e 16 59	− 6	e 17 45	sS	e 22·8
College		62·9	337	e 10 48	+18	e 18 50	−10	e 26 32	SSS	e 33·8
Toledo		78·6	52	i 12 1	− 4	e 22 13	+11	—	—	—
Malaga	z.	78·8	55	i 12 7k	− 1	i 22 29	+25	23 9	sS	37·2
Granada		79·4	54	12 6k	− 3	22 17	+ 7	22 53	sS	38·2
Alicante		81·6	53	e 12 17	− 4	e 22 53	+20	23 17	PS	40·8
Uccle		82·2	40	e 12 21	− 3	e 22 16	−23	e 23 5	PS	e 38·5
De Bilt		82·4	38	i 12 23a	− 2	e 22 32	− 9	—	—	e 39·5
Basle		85·1	42	e 12 36	− 3	—	—	—	—	—
Copenhagen		85·5	33	15 57	PP	i 23 38	+26	32 33	SSS	36·5
Zürich		85·8	42	e 12 36	− 6	—	—	—	—	—
Upsala		86·1	29	—	—	e 23 23	+ 5	e 23 53	PS	—
Collmberg	z.	87·3	327	e 12 47	− 3	—	—	e 16 12	PP	—
Triest		89·7	43	(e 12 53)	− 8	(e 23 8)	[−23]	(i 14 59)	PP	(e 42·8
Rome		90·2	46	e 13 0a	− 4	e 30 19	SSP	e 16 34	PP	—
Zagreb		91·7	42	e 13 4	− 6	—	—	—	—	—
Moscow		97·2	26	13 33	− 3	e 24 49	− 8	e 17 27	PP	—
Sverdlovsk		105·0	15	e 18 31	PP	24 37	[−13]	25 20	SKKS	—
Ksara		110·2	45	e 19 4	PP	e 28 45	PS	—	—	—
Leninakan		110·9	35	e 19 23	PP	—	—	—	—	—
Tashkent		121·4	17	e 20 23	PP	31 50	PPS	21 6	sPP	—
Andijan		122·8	14	18 59	[+ 1]	—	—	—	—	—
Stalinabad		123·8	18	19 3	[+ 3]	31 42	PPS	e 20 43	PP	—

Additional readings :—
Tacubaya iSZ = 3m.55s.
Bogota e = 12m.26s.
Columbia e = 8m.15s.
St. Louis iE = 9m.47s., isS?E = 9m.56s.
Florissant iZ = 5m.51s., iE = 9m.52s., isS?E = 10m.3s.
San Juan iPP = 6m.4s., e = 7m.5s., e = 7m.41s.
Tucson isP = 5m.57s., iPP = 6m.27s., iP_cP? = 9m.1s., i = 10m.38s., iP_cS = 12m.34s.
Pennsylvania iN = 6m.21s., eN = 11m.9s.
Palomar iE = 6m.38s., iP_cPZ = 9m.13s.
Bermuda e = 11m.49s.
Boulder City iP_cP = 9m.4s.
Mount Wilson iP_cPZ = 9m.15s., eS_cPZ = 12m.52s.
Pasadena esPZ = 6m.54s., iP_cP = 9m.15s., iS_cP = 13m.2s., i = 13m.30s., iS_cSEN = 17m.19s.
Haiwee eS_cPZ = 13m.7s.
Logan i = 9m.31s.
Tinemaha iP_cP = 9m.22s.
Ottawa e = 12m.27s., SS = 13m.55s.
Bozeman e = 12m.17s.
Berkeley iS_cSE = 17m.14s.
Seven Falls PPP = 8m.39s.
Shasta Dam e = 7m.28s., iP_cP = 9m.32s., iP_cS = 13m.20s., i = 14m.1s.
Sitka e = 10m.9s. and 20m.55s., esSS = 21m.6s.
College e = 18m.28s.
Malaga PPZ = 15m.29s., PPPZ = 17m.23s., SSZ = 28m.5s.
Granada PP = 15m.20s.
Alicante PP = 15m.45s.
Basle e = 21m.55s.
Copenhagen 28m.33s.
Collmberg eZ = 13m.16s., 13m.31s., and 13m.40s.
Triest readings reduced by 2 minutes.
Rome ePS = 24m.24s., eNZ = 24m.52s.
Moscow SKS = 23m.57s., PS = 26m.12s.
Tashkent ePPP = 23m.11s., ePS = 30m.20s., SKS = 30m.47s.
Long waves were also recorded at Christchurch.

June 26d. 12h. 34m. 34s. Epicentre 43°·3S. 171°·6E.

Intensity VII in the region of Lake Coleridge and in the greater part of South Island.
Epicentre as adopted. Depth less than 40km.
Earthquakes in New Zealand during the Year 1946, New Zealand Journal of Science and Technology, vol. 29, No. 2 (Section B), Wellington, 1947, p. 92, isoseismic chart p. 91.

$A = -\cdot7223$, $B = +\cdot1067$, $C = -\cdot6834$; $\delta = +14$; $h = -4$;
$D = +\cdot146$, $E = +\cdot989$; $G = +\cdot676$, $H = -\cdot100$, $K = -\cdot730$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		0·8	108	0 18	0	0 31	0	—	—	—
Kaimata		0·8	350	0 18	0	0 31	0	—	—	—
Wellington		3·1	49	0 50	− 1	1 28	− 1	—	—	—
Bunnythorp		4·3	46	1 17	+ 9	2 11?	+11	—	—	—
New Plymouth		4·6	25	1 13	+ 1	2 6	− 1	—	—	—
Arapuni		6·0	31	—	—	2 44	+ 1	—	—	—
Tuai		6·2	45	—	—	2 52	+ 4	—	—	—
Riverview		18·5	294	i 4 19k	0	e 7 43	− 1	i 7 57	sS	e 8·6
Brisbane	N.	21·8	311	i 4 52	− 4	—	—	—	—	—
Perth		44·8	265	—	—	(i 14 56)	+ 1	—	—	(i 21·1)
Punta Arenas		70·0	145	20 37	PS	—	—	29 56	?	33·9
Honolulu		70·1	30	e 23 16	?	e 25 54	SS	—	—	e 30·4
La Paz		99·2	123	e 13 42	− 3	26 2	+48	e 17 54	PP	46·4
Pasadena	Z.	100·2	53	e 17 55	PP	—	—	—	—	e 47·1
Mount Wilson	Z.	100·3	53	e 17 54	PP	—	—	—	—	—
Palomar	Z.	100·4	54	e 17 50	PP	—	—	—	—	—
Berkeley		100·6	47	e 18 1	PP	e 26 41	PS	—	—	e 42·2
Tinemaha	Z.	102·3	51	e 18 14	PP	—	—	—	—	—
Tucson		103·3	59	e 18 16	PP	e 27 8	PS	e 20 29	PPP	e 42·1
Hyderabad	N.	104·0	281	—	—	25 59	+ 5	—	—	—
Victoria		107·8	39	—	—	e 26 50	ScS	—	—	52·4
Salt Lake City		108·4	51	—	—	27 51	PS	—	—	43·9
Bombay		109·0	278	—	—	38 26?	SSS	—	—	—
Sitka		109·8	27	—	—	e 27 42?	PS	e 34 30	SS	e 46·4
Butte		111·4	46	—	—	e 28 47	PS	—	—	e 49·7
New Delhi	N.	112·0	289	e 28 50	PS	39 17	SSS	e 30 2	PPS	—
Bozeman		112·1	47	e 19 10	PP	e 28 48	PS	e 34 42	SS	e 46·0
College		112·4	17	—	—	e 29 1	PS	—	—	45·7
Florissant		120·4	64	e 20 21	PP	e 29 10	PS	—	—	—
St. Louis	N.	120·4	64	(e 20 34)	PP	(e 31 8)	PPS	(e 21 18)	?	—
Chicago		123·8	61	—	—	e 27 29	{−11}	e 37 34	SS	e 53·9
San Juan		125·8	98	—	—	—	—	e 35 0	?	59·1
Philadelphia		131·2	70	e 21 38	PP	e 26 26	[+ 3]	e 28 27	SKKS	e 62·9
Fordham		132·5	69	e 19 15	[− 2]	e 39 29	SS	e 21 40	PP	—
Weston		134·9	68	e 21 56	PP	—	—	e 16 56	?	—
Vermont		134·4	64	—	—	e 39 45	SS	—	—	e 57·5
Seven Falls		136·9	62	e 22 8	PP	—	—	39 26	Q	—
Ksara		144·5	269	i 19 36	[− 2]	29 58	{+11}	22 55	PP	—
Helwan		145·7	260	19 40	[0]	—	—	e 20 2	?	—
Warsaw		158·4	303	e 18 6	?	e 23 9	PKS	e 19 34	PKP	e 88·4
Belgrade		159·3	283	—	—	e 52 26?	SSSS	—	—	—
Copenhagen		161·7	319	i 19 57	[− 5]	27 17	[+11]	43 44	SS	73·4
Zagreb		162·5	286	e 19 58	[− 5]	—	—	e 20 51	?	—
Prague		163·0	302	—	—	e 51 26	SSS	—	—	e 84·4
Collmberg	Z.	163·5	306	e 20 1	[− 3]	—	—	e 28 38	PPP	—
Triest		164·0	286	—	—	e 31 30	{− 3}	51 58	SSS	e 89·0
Cheb		164·3	303	e 30 26?	?	e 35 41	SKSP	—	—	80·4
Rome		164·6	273	20 3	[− 2]	35 29	PSKS	e 28 38	PPP	e 73·4
De Bilt		167·3	318	e 20 6	[− 2]	—	—	e 24 56	PP	e 75·4
Zürich		167·4	294	e 21 9	[+61]	—	—	—	—	e 105·6
Uccle		168·5	315	e 20 5	[− 3]	—	—	e 25 5	PP	e 80·4
Paris		170·6	309	e 20 6	[− 4]	e 35 42	SKSP	i 25 17	PP	e 80·4
Clermont-Ferrand		171·5	290	e 19 38?	[−32]	—	—	—	—	e 76·4
Alicante		172·3	233	e 20 10	[− 1]	27 4	[− 8]	25 38	PP	e 80·0
Malaga	Z.	172·8	206	i 20 12a	[+ 1]	26 48	[−25]	25 25	PP	83·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Granada		172·9	213	i 20 10 a	[− 1]	27 4	[− 9]	25 32	PP	87·5
Tortosa	E.	173·0	254	e 21 41?	[+90]	32 27	{+ 9}	—	—	89·4
Toledo		175·3	220	20 13	[+ 1]	32 34	{+ 5}	47 17	SS	—
Lisbon		175·4	173	25 38	PP	—	—	77 20	Q	84·9

Additional readings :—
Riverview i =4m.23s., iPPEZ =4m.31s., iEZ =7m.53s., iSSSE =8m.21s.
Perth readings increased by 2 minutes.
La Paz PS =26m.48s., SS =32m.6s.
Tucson e =27m.30s., 27m.42s., 28m.59s., and 34m.4s.
Chicago e =36m.48s.
Philadelphia e =22m.44s., ePPS =33m.34s., e =36m.42s., eSS =39m.0s., eSSS =44m.3s.
Fordham eSKP =22m.45s.
St. Louis readings increased by 1m.
Ksara PSKS =33m.14s.
Warsaw eZ =18m.54s. and 21m.19s., eN =22m.2s., eZ =25m.59s., 26m.9s., 36m.0s., and 43m.21s.
Copenhagen iPKP$_2$ =20m.44s. and 23m.59s., SKSP =34m.46s., SSS =49m.44s., SSSS = 55m.26s.?
Collmberg eZ =20m.54s., eZ =21m.26s., eZ =25m.0s.
Cheb e =32m.56s., 42m.46s., 47m.46s., 49m.26s.?, and 56m.26s.?
Rome ePKP$_2$ =21m.1s., PP =24m.43s., eN =34m.40s., e =55m.49s.
De Bilt ePKP$_2$ =21m.11s.
Uccle eEN =29m.53s.
Paris ePKP? =20m.25s., e =33m.26s., e =38m.4s., eSS? =47m.24s., eQ =76m.26s.
Alicante PKP$_2$ =21m.36s., SKKS =32m.6s., PSKS =36m.20s., SS =46m.46s., SSS = 53m.47s., Q =71m.56s.
Malaga PKP$_2$Z =21m.39s., P$_c$PPZ =28m.2s., PPPZ =29m.24s., SKSPZ =35m.53s., PPSZ =39m.43s., SKKSSKSZ =46m.11s., QZ =72m.38s.
Granada PKP$_2$ =21m.40s., PPP =29m.42s., SKKS =32m.32s., SKSP =36m.20s., iSS =47m.0s., SSS =54m.16s., Q =79m.2s.
Toledo PKP$_2$ =21m.48s., PPZ =25m.39s.
Long waves were recorded at Kodaikanal, Tananarive, Algiers, Harvard, Barcelona, Aberdeen, Upsala, Basle, Ukiah, and Logan.

June 26d. 15h. 21m. 34s. Epicentre 36°·3N. 71°·0E. Depth of focus 0·030.
(as on 1946, February 7d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Stalinabad		2·9	322	0 44	− 6	1 15	−14	—	—
Andijan		4·6	14	1 9	− 2	2 1	− 4	—	—
Samarkand		4·6	319	i 1 12	+ 1	2 5	0	—	—
Tashkent		5·2	347	i 1 14	− 4	1 57?	−22	—	—
Almata		8·3	32	1 58	0	3 30	0	—	—
New Delhi	N.	9·3	144	e 2 11	0	i 3 52	− 1	—	—
Baku		17·0	290	e 4 37	+51	—	—	—	—
Bombay	N.	17·4	174	i 3 59	+ 9	i 7 14	+19	e 4 44	PP
Hyderabad	N.	19·9	159	e 4 27	+11	7 58	+16	—	—
Grozny		20·6	299	e 4 24	+ 1	8 3	+ 8	—	—
Leninakan		21·6	292	e 4 26	− 7	—	—	—	—
Sverdlovsk		21·7	345	i 4 34	0	i 8 22	+ 7	5 10	pP
Irkutsk		28·4	44	5 38	+ 2	—	—	—	—
Ksara		28·8	275	e 6 21	PP	e 11 53	SS	—	—
Moscow		29·8	321	i 5 47	− 1	—	—	—	—
Upsala		41·2	322	e 10 6	PPP	e 16 45	SS	—	—
Collmberg	z.	43·2	310	e 7 40	0	—	—	e 10 2	PP
Copenhagen		43·6	315	i 7 44	0	i 13 56	0	i 15 13	sS
Rome		45·0	296	e 7 53	− 2	e 15 39	PPS	—	—
Basle		47·3	304	8 55	+42	—	—	—	—

Additional readings :—
Sverdlovsk isP =5m.36s.
Collmberg eZ =7m.55s., 8m.5s., 8m.26s., 8m.35s., e =8m.50s., 8m.54s., 9m.21s., 10m.25s., and 10m.28s.
Copenhagen i =8m.50s. and 10m.32s., SS =17m.14s.

June 26d. 19h. 28m. 53s. Epicentre 33°·1N. 139°·3E. Depth of focus 0·015.

Intensity II-III at Tokyo and Mito. Epicentre as adopted. Rather deep. Macroseismic radius more than 300km. Seismo. Bull. Cent. Met. Obs., Japan, for 1946. Tokyo 1951, p. 15, with isoseismic chart.

A = −·6364, B = +·5474, C = +·5435; δ = +4; h = +1;
D = +·652, E = +·758; G = −·412, H = +·354, K = −·839.

		△	Az.	P.	O−C.	S.	O−C.		L.
		°	°	m. s.	s.	m. s.	s.		m.
Omaesaki		1·7	329	0 41	+10	1 5	+11		
Mera		1·9	14	0 40	+ 7	1 3	+ 5		
Misima		2·0	8	0 40	+ 6	1 7	+ 7		
Yokohama		2·3	7	0 43	+ 5	1 12	+ 5		
Hunatu		2·4	350	0 42	+ 2	1 10	0		
Tokyo		2·6	8	0 45	+ 3	1 16	+ 2		
Kakioka		3·2	13	0 49	− 1	1 21	− 7		
Maebasi		3·3	357	0 47	− 5	1 21	−10		
Mito		3·4	16	0 55	+ 2	1 28	− 5		
Utunomiya		3·5	7	0 51	− 3	1 27	− 9		
Osaka		3·5	297	0 50	− 4	—	—		
Kobe		3·8	296	0 53a	− 5	1 31	−12		
Sumoto		3·9	290	0 54a	− 5	1 33	−12		
Hukusima		4·7	11	1 5	− 5	1 52	−12		
Sendai		5·3	14	1 17	− 1	2 3	−16		
Mizusawa	E.	6·2	13	—	—	e 2 26	−15		

June 26d. Readings also at 1h. (near Tananarive), 2h. (Mizusawa, Balboa Heights, Bogota, Santa Lucia, La Plata, Fresno, near Boulder City, and Overton), 4h. (College, Palomar, Tinemaha, and Tacubaya), 5h. (Weston), 6h. (Almata, Tashkent, near Granada, Almeria, Malaga, Toledo, and Alicante), 7h. (near Grozny and Leninakan), 10h. (Triest, Bucharest, Sofia, Santa Lucia, La Plata, and La Paz), 13h. (near Fresno, Pierce Ferry, Boulder City, Overton, and near Mizusawa), 15h. (near Andijan), 17h. (Potsdam and Cheb), 18h. (near Andijan), 20h. (Palomar, Mount Wilson, Tinemaha, Tucson (2), Honolulu, Auckland, Wellington, Christchurch, Granada, and Ksara), 21h. (Strasbourg, Malaga, Sitka, and near Berkeley), 22h. (Paris, Alicante, and near Balboa Heights).

June 27d. 21h. 39m. 39s. Epicentre 29°·3S. 178°·2W. (as on 1943, November 28d.).

A = −·8730, B = −·0274, C = −·4869; δ = −5; h = +2;
D = −·031, E = +1·000; G = +·487, H = +·015, K = −·873.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		9·6	216	(2 21?)	0	(4 3?)	− 9	—	—	4·0
Wellington		13·3	203	3 11	− 2	5 14	−28	—	—	6·4
Brisbane		25·4	267	i 5 30	− 1	e 9 51	− 5	—	—	e 12·7
Riverview		26·4	251	i 5 41a	+ 1	e 10 11	− 1	i 5 55	pP	e 12·6
Santa Barbara	z.	84·1	46	e 12 35	+ 1	—	—	—	—	—
Pasadena	z.	84·8	47	e 12 38	+ 1	—	—	e 16 12	PP	e 38·7
Berkeley		84·9	42	e 12 40	+ 2	23 11	+ 5	i 12 54	pP	e 38·8
Mount Wilson	z.	85·0	47	12 38	0	—	—	—	—	—
Palomar		85·2	48	i 12 39	0	—	—	—	—	—
Shasta Dam		86·7	39	i 12 47	0	—	—	—	—	—
Boulder City		88·1	46	i 12 54	0	—	—	—	—	—
Tucson		88·5	51	i 12 56	0	—	—	—	—	—
Overton		88·7	46	e 12 57	0	—	—	—	—	—
Pierce Ferry		88·7	47	i 12 58	+ 1	—	—	—	—	—
Sitka		93·7	22	e 9 53	?	(e 24 1)	[+ 7]	—	—	e 24·0
La Paz		98·6	115	i 14 15	+33	i 26 33	PS	—	—	46·8
Florissant	E.	106·2	55	—	—	e 25 39	{+ 1}	e 28 58	PPS	e 51·4
St. Louis	E.	106·2	55	—	—	e 25 40	{+ 2}	—	—	—
Ksara		150·7	287	e 19 50	[+ 2]	33 48	PS	23 33	PP	—
Copenhagen		152·6	347	e 19 48	[− 3]	—	—	e 23 41	PP	74·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Collmberg	z.	156·5	342	e 19 52	[− 4]	—	—	—	—	—
De Bilt		157·1	354	e 19 56	[− 1]	—	—	e 24 11	PP	e 79·4
Strasbourg		160·2	348	e 24 24	PP	e 30 27	{−46}	e 34 49	PS	e 77·4
Paris		160·5	359	e 20 1	[0]	e 38 1	PPS	e 24 28	PP	e 79·4
Basle		161·2	348	e 19 43	[−19]	—	—	—	—	—
Zürich		161·2	346	e 19 44	[−18]	—	—	—	—	—
Rome		164·7	328	e 20 7	[+ 1]	e 45 43	SS	e 21 21	PKP_2	—
Toledo		168·4	22	e 20 6	[− 2]	e 45 36	SS	25 16	PP	—
Alicante		170·8	11	25 35	PP	—	—	—	—	—
Granada		170·9	29	e 20 9a	[− 1]	43 42	SS	e 24 21	PP	83·6
Malaga	z.	170·9	34	i 20 5k	[− 5]	31 29	{−38}	21 31	PKP_2	81·2

Additional readings :—
Riverview iE =5m.44s., iZ =6m.4s., iEZ =6m.43s., esSE =10m.37s., iEN =11m.0s.
Pasadena iZ =12m.55s.
Mount Wilson eZ =12m.50s., iZ =12m.56s.
Palomar i =12m.53s., iZ =12m.57s.
Boulder City i =13m.8s.
Tucson i =13m.14s.
Overton i =13m.11s.
Ksara PPS =37m.14s.
Collmberg eZ =20m.7s., 20m.26s., 20m.44s., 20m.48s., 20m.58s., 21m.6s., and 22m.35s.
Paris i =20m.3s. and 20m.14s., ipPKP? =20m.47s., e =30m.6s. and 32m.26s.
Basle e =19m.50s.
Rome ePP? =25m.19s.
Malaga PPZ =25m.17s., PPPZ =29m.25s., SSZ =45m.49s.
Long waves were also recorded at Christchurch, Harvard, and other European stations.

June 27d. Readings also at 0h. (Copenhagen, Cheb, Strasbourg, Rome, Triest, Sofia, and Ksara), 3h. (near Boulder City, Overton, and Pierce Ferry), 8h. (Tucson), 9h. (Logan), 12h. (Copenhagen), 13h. (College), 14h. (Rome), 15h. (Tucson), 19h. (Tucson and near Fort de France), 21h. (near Ottawa), 23h. (Tucson).

June 28d. 7h. 12m. 38s. Epicentre 43°·3S. 171°·6E. (as on June 26d.).

Intensity VI near the Epicentre. The macroseismic area extends from Karamea to Dunedin.

R. C. Hayes.
Earthquakes in New Zealand during the year 1946. New Zealand Journal of Science and Technology, Vol. 29, No. 2, Sect. B., Wellington, 1947, p. 92, Map page 91.

A = −·7223, B = +·1067, C = −·6834 ; δ = +14 ; h = −4 ;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		0·8	108	0 23	+ 5	0 35	+ 4	—	—	—
Kaimata		0·8	350	0 19	+ 1	0 29	− 2	—	—	—
Wellington		3·1	49	0 53	+ 2	1 32	+ 3	—	—	—
Morowai		3·8	228	1 2?	+ 1	1 47?	0	—	—	—
Bunnythorp		4·3	46	—	—	2 14	+14	—	—	—
New Plymouth		4·6	25	1 14	+ 2	2 6	− 1	—	—	—
Tuai		6·2	45	1 38	+ 3	2 46	− 2	—	—	—
Auckland		6·9	22	1 34?	−11	2 50?	−15	—	—	—
Riverview		18·5	294	i 4 19k	0	e 7 43	− 1	i 4 25	pP	e 8·5
Brisbane		21·8	311	i 4 53	− 3	i 8 59	+ 7	i 10 0	SS	i 11·9
Berkeley		100·6	47	—	—	32 43	SS	38 26	?	46·9
Tucson		103·3	59	e 10 37	?	—	—	—	—	e 46·0
Sitka		109·8	27	—	—	e 28 22	PS	—	—	e 45·4
St. Louis	N.	120·4	64	—	—	—	—	e 41 5	SSS	e 51·4
Bermuda		135·0	84	—	—	e 39 57	SS	—	—	e 67·0
Ksara		144·5	269	e 19 39	[+ 1]	36 3	PPS	22 41	PP	—
Warsaw	N.	158·4	303	—	—	e 32 30	?	e 44 10	SS	e 92·9
Rome		164·6	273	e 24 12	PP	e 40 24	?	e 46 51	SSP	—
Paris		170·6	309	e 24 22?	PP	e 35 22?	PS	e 37 35	?	e 86·4
Malaga	z.	172·8	206	e 27 55	SKS	(e 27 55)	[+42]	31 24	SKKS	90·5
Granada		172·9	213	e 22 1a	?	e 27 31	[+18]	46 53	SS	86·9
Toledo	z.	175·3	220	e 22 0	?	—	—	—	—	—

For Notes see next page.

Notes to June 28d. 7h. 12m. 38s.

Additional readings :—
Riverview iPPZ = 4m.31s., iZ = 7m.50s., isSN = 7m.55s., isSE = 7m.58s.
St. Louis eN = 41m.33s.
Malaga PKP_2Z = 29m.35s., PPZ = 33m.19s., SKSZ = 34m.40s., QZ = 77m.28s.
Long waves were also recorded at San Juan, La Paz, New Delhi, and other American and European stations.

June 28d. Readings also at 0h. (Ksara and near Irkutsk), 4h. (near San Juan), 6h. (Tucson), 16h. (Harvard), 17h. (Tortosa), 19h. (near Baku and Grozny), 20h. (Apia and Wellington), 21h. (Ksara, near Berkeley, Branner, and San Francisco).

June 29d. Readings at 0h. (Copenhagen), 1h. (Almata, Andijan, Tashkent, near Samarkand (2), and Stalinabad), 8h. (Tananarive), 9h. (Palomar and Tucson), 10h. (near Almata), 15h. (near Andijan), 16h. (Basle and near Zürich), 17h. (Apia), 20h. (Mizusawa).

June 30d. 4h. 59m. 24s. Epicentre 16°·9N. 94°·2W. (as on 7d.). Depth of focus 0·020

A = −·0701, B = −·9548, C = +·2889 ; δ = +2 ; h = +6.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		2·5	273	0 48	+ 6	—	—	—	—	1·2
Puebla		4·4	299	1 4	− 2	—	—	—	—	1·6
Tacubaya		5·3	298	1 18	0	—	—	i 1 54	?	2·2
Merida		5·9	46	1 55	+29	2 55	+22	—	—	3·1
Mobile		14·8	21	3 21	− 1	5 49	−13	—	—	—
Columbia		20·7	32	e 4 46	pP	e 8 13	+ 7	—	—	e 9·1
Tucson		21·5	320	i 4 34	− 3	e 8 13	− 7	i 5 2	pP	e 8·9
St. Louis	E.	21·9	8	e 4 43	+ 2	i 8 28	+ 1	i 9 17	SS	—
Florissant		22·1	8	e 4 43	0	e 8 29	− 2	e 5 14	pP	—
Bogota		23·2	118	e 5 28	PP	e 9 2	+12	—	—	—
Chicago		25·5	11	5 18?	+ 3	e 10 6	sS	i 5 43?	pP	i 10·4
Pierce Ferry		26·0	323	i 5 19	− 1	—	—	e 5 50	pP	e 14·0
Palomar		26·2	315	i 5 21k	− 1	—	—	i 5 49	pP	—
Boulder City		26·4	321	i 5 23	0	—	—	e 5 52	pP	e 14·2
Overton		26·5	322	i 5 24	0	—	—	e 5 57	pP	e 13·5
Riverside	Z.	26·9	314	i 5 28	0	—	—	i 5 59	pP	—
Mount Wilson	Z.	27·5	314	i 5 33k	0	—	—	i 6 4	pP	—
Pasadena		27·5	314	i 5 33	0	—	—	i 6 4	pP	—
Philadelphia		28·3	33	e 6 36	PP	e 10 19	+ 5	e 7 14	pPP	e 11·3
Rapid City		28·3	347	e 5 44	+ 3	e 11 0	sS	e 6 14	pP	e 12·3
Haiwee	Z.	28·5	318	e 5 43	+ 1	—	—	e 6 13	pP	—
Tinemaha		29·3	319	e 5 50	0	—	—	i 6 20	pP	—
Fordham		29·6	32	e 6 46	PP	e 10 44	+10	—	—	—
Bermuda		30·8	55	—	—	e 11 14	+21	—	—	e 18·6
Bozeman		32·0	338	—	—	e 11 8	− 4	—	—	e 13·7
Harvard		32·0	33	e 6 19	+ 6	—	—	—	—	—
Weston		32·0	33	e 7 15	+62	e 11 16	+ 4	—	—	—
Ottawa		32·4	25	6 21	+ 4	11 16	− 2	6 58	pP	14·6
Shasta Dam		34·0	321	i 6 27	− 3	—	—	i 6 58	pP	—
Seven Falls		35·8	28	e 8 0	PP	e 12 11	+ 1	—	—	15·6
Grand Coulee		37·0	333	e 6 55	− 1	—	—	—	—	—
Collmberg	Z.	87·3	37	e 12 42	+12	—	—	e 13 17	pP	—
Triest		90·1	42	—	—	e 22 9	[−46]	—	—	—
Ksara		110·7	43	e 20 13	?	e 29 49?	PPS	—	—	—

Additional readings :—
Tucson eP_cP = 8m.46s.
St. Louis iE = 9m.39s.
Florissant iSN = 8m.32s., eP_cPE = 8m.50s., eE = 9m.3s., isSN = 9m.25s., iE = 9m.41s.
Chicago eP_cP = 9m.26s.?
Palomar iN = 6m.40s., iZ = 8m.55s., eN = 17m.1s.
Boulder City i = 5m.32s.
Riverside iZ = 6m.19s. and 8m.57s.

Continued on next page.

Mount Wilson eZ =8m.56s.
Pasadena iZ =8m.58s.
Philadelphia e =7m.23s.
Tinemaha iZ =9m.3s.
Ottawa PPP =7m.18s.
Shasta Dam iP_cP =9m.13s.
Long waves were also recorded at Lincoln.

June 30d. 21h. 7m. 39s. Epicentre 43°·3S. 171°·6E. (as on 28d.).

Epicentre 43°·1S. 171°·3E. Depth 30kms. (Wellington).

A = −·7223, B = +·1067, C = −·6834 ; δ = +14 ; h = −4.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Christchurch	0·8	108	0 17	− 1	0 20	−11	—	—	—
Kaimata	0·8	350	0 12	− 6	0 19	−12	—	—	—
Wellington	3·1	49	0 48	− 3	1 29	0	—	—	—
Bunnythorp	4·3	46	1 28?	P_g	—	—	—	—	—
New Plymouth	4·6	25	1 1	−11	1 53	−14	—	—	—
Tuai	6·2	45	1 38	+ 3	2 45	− 3	—	—	—
Auckland	6·9	22	2 41?	+56	—	—	—	—	—
Riverview	18·5	294	i 4 21 a	+ 2	i 7 53	+ 9	—	—	e 8·2

Riverview gives also iE =7m.57s.
Long waves were also recorded at Paris, Malaga, and Granada.

June 30d. Readings also at 1h. (Zürich), 2h. (near Pierce Ferry, Overton, and Boulder City), 3h. (Weston), 10h. (Toledo, near Bucharest, and Sofia), 13h. (Toledo, Warsaw, and near Leninakan), 14h. (near Stalinabad), 15h. (near Suva), 18h. (Suva), 19h. (near Overton, Boulder City, Pierce Ferry, and near Fort de France), 23h. (Saskatoon).

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

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

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

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.