The International Seismological Summary.
1943 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 1943 contains 116 epicentres, 80 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

April	1d.	14h.	6·5S.	106·0E.	Suggested Deep
	5d.	1h.	42·0N.	142·8E.	” ”
	5d.	3h.	7·5S.	77·0W.	0·040
	9d.	8h.	18·7N.	145·4E.	0·010
	12d.	4h.	22·5N.	123·5E.	Suggested Deep
	20d.	15h.	36·3N.	71·0E.	0·020
	28d.	23h.	24·5S.	180	0·060
	29d.	15h.	43·0N.	147·2E.	0·025
	29d.	19h.	29·3S.	178·2W.	0·030
May	2d.	17h.	6·9N.	80·4W.	Suggested Deep
	3d.	10h.	18·1N.	95·1W.	” ”
	12d.	8h.	19·7S.	175·9W.	0·030
	15d.	2h.	Undetermined shock		Suggested Deep
	26d.	10h.	17·9N.	105·8W.	” ”
	28d.	20h.	21·5S.	179·0W.	0·080
June	3d.	12h.	24·5S.	180	0·090
	9d.	4h.	Undetermined shock		Suggested Deep
	13d.	5h.	40·9N.	142·7E.	” ”
	13d.	17h.	41·0N.	143·3E.	” ”
	14d.	22h.	20·5S.	177·5W.	0·010
	21d.	10h.	41·9N.	143·6E.	0·005
	23d.	17h.	30·9S.	72·0W.	Suggested Deep
	24d.	12h.	21·0S.	65·5W.	0·025
	24d.	20h.	16·1S.	168·3E.	0·010
	25d.	19h.	17·8S.	178·8W.	0·070

June	29d.	9h.	3·0°N.	125·2°E.	0·020
	30d.	10h.	7·0°S.	123·0°E.	0·100
	30d.	20h.	15·1°S.	73·9°W.	0·005

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

KEW OBSERVATORY,
RICHMOND, SURREY.

May 1953.

1943 APRIL, MAY, JUNE.

April 1d. 14h. 18m. 12s. Epicentre 6°·5S. 106°·0E.

Bombay suggests depth of focus 35km., epicentre 7°·4N. 104°·5E.

A = −·2739, B = +·9552, C = −·1125; δ = +8; h = +7;
D = +·961, E = +·276; G = +·031, H = −·108, K = −·994.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		26·9	161	5 43	− 2	10 28	+ 8	6 8	PP	—
Colombo		29·3	297	5 51	−15	10 51	− 8	—	—	13·6
Kodaikanal	E.	32·9	301	(i 6 43e)	+ 5	(i 11 53)	− 3	(7 38)	PP	(16·1)
Calcutta	N.	33·6	330	e 6 44	0	i 12 13	+ 7	e 8 3	PP	17·2
Hyderabad	E.	36·1	312	7 4	− 1	12 36	− 9	8 35	PP	—
Bombay	E.	41·3	309	i 7 39	−10	i 13 48	−16	9 17	PP	—
	N.	41·3	309	e 7 38	−11	13 53	−11	i 7 48	pP	—
Nake		41·4	32	e 7 52	+ 2	14 14	+ 9	—	—	—
Kagosima		44·5	30	e 8 9	− 6	15 1	+10	—	—	—
New Delhi	E.	44·6	323	i 8 13	− 3	i 14 41	−11	—	—	21·1
	N.	44·6	323	e 8 1k	−15	i 14 37	−15	9 59	PP	20·8
Miyazaki		45·2	32	8 26	+ 6	15 4	+ 3	—	—	19·9
Dehra Dun	N.	45·4	326	e 8 26	+ 4	e 14 53	−11	e 21 0	?	e 22·6
Hukuoka		46·1	29	i 8 24	− 4	15 19	+ 5	19 3	SSS	21·1
Koti		47·6	31	e 8 42	+ 3	15 28	− 7	—	—	—
Zinsen		47·8	22	(e 8 32)	− 9	—	—	—	—	—
Keizyo		48·0	23	e 8 44	+ 1	—	—	—	—	—
Brisbane	E.	49·2	121	i 8 51	− 1	i 15 54	− 4	—	—	i 27·6
	N.	49·2	121	e 8 50	− 2	i 15 50	− 8	—	—	—
Kôbe		49·4	33	e 8 55	+ 2	16 1	+ 1	—	—	—
Riverview		49·8	130	i 8 58	+ 2	i 16 9	+ 3	i 16 18	PPS	e 23·8
Sydney		49·8	130	e 9 9	+13	e 17 6	+60	—	—	e 26·3
Kameyama		50·2	34	e 9 1	+ 1	—	—	—	—	—
Nagano		52·5	34	e 9 29	+12	—	—	—	—	—
Tokyo		52·6	35	e 10 21	P_cP	18 39	S_cS	—	—	30·5
Sendai		55·1	34	e 9 9?	−27	17 23	+ 5	—	—	—
Mizusawa	E.	55·8	33	e 9 35	− 6	17 23	− 5	—	—	—
	N.	55·8	33	e 10 24	P_cP	e 17 39	+11	—	—	—
Frunse		56·8	333	9 44	− 4	17 34	− 7	—	—	—
Mori		57·7	30	e 9 49	− 6	e 18 6	+13	—	—	e 28·1
Tananarive		58·1	252	i 9 58	0	17 48	−10	12 6	PP	e 26·7
Tashkent		58·3	328	i 9 51	− 8	17 46	−15	—	—	—
Sapporo		58·8	29	—	—	e 18 8	+ 1	(e 22 0)	SS	e 22·0
Tchimkent		58·8	330	i 9 55	− 7	i 17 59	− 8	—	—	—
Christchurch		68·7	134	11 9	+ 2	20 10	0	12 0	P_cP	32·7
Auckland		69·2	127	—	—	20 30	+14	28 48?	Q	36·8
Wellington		69·8	132	11 5	− 9	20 17	− 6	11 25	P_cP	35·8
Arapuni		70·0	128	10 12	−63	20 24?	− 2	29 48?	Q	35·8
Johannesburg	N.	76·3	245	—	—	21 36?	− 1	—	—	e 31·4
Ksara		77·3	306	e 11 57?	− 1	e 21 55	+ 7	—	—	—
Helwan		80·1	301	12 3	−10	22 0	−18	15 0	PP	—
Yalta		81·8	316	e 12 21	− 1	—	—	—	—	—
Moscow		83·5	328	12 21	−10	22 39	−13	—	—	—
Istanbul		84·5	312	22 15	?	—	—	—	—	(40·8)
Bacau		87·2	317	e 12 54?	+ 5	e 23 18	−10	—	—	—
Bucharest		87·3	315	e 12 55	+ 5	e 23 37	+ 8	e 15 40	pP	37·8
Cernauti		88·2	319	e 12 55	+ 1	e 23 32	− 6	—	—	—
Sofia		89·0	313	e 12 56	− 2	e 23 24	[− 3]	e 24 2	S_eS	e 42·8
Belgrade		91·4	313	e 13 4	P_cP	e 23 58	− 9	e 16 38	PP	e 47·3
Upsala	E.	94·8	329	—	—	e 24 9	{− 8}	e 34 48?	SSS	e 39·8
		94·8	329	—	—	e 24 12	{− 5}	e 30 48	SS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		96·2	315	e 17 18	PP	i 23 55	[−13]	25 50	PS	—
Potsdam		96·9	321	e 17 32	PP	e 24 21	[+10]	—	—	e 45·8
Cheb		97·3	319	e 15 49	?	e 24 17	[+ 3]	—	—	e 53·8
Copenhagen		97·3	325	—	—	24 53	− 5	24 16	SKS	—
Jena		97·8	320	e 17 36	PP	e 25 5	+ 3	e 24 6?	SKS	e 41·8
Florence		97·9	312	i 17 34	PP	i 24 54	− 9	i 27 47	PPS	e 41·1
Honolulu		98·1	69	e 16 25	?	e 24 29	[+11]	—	—	—
Stuttgart		99·3	317	e 13 44	− 1	e 25 14	0	e 17 44	PP	e 48·0
Milan	E.	99·4	314	e 23 14	?	e 31 27	?	—	—	—
Zürich		99·8	316	e 17 32	PP	—	—	—	—	—
Basle		100·4	316	e 17 45	PP	—	—	—	—	—
Bergen		100·9	329	—	—	e 24 18	[−13]	—	—	e 44·8
Neuchatel		100·9	316	e 17 37	PP	—	—	—	—	—
De Bilt		101·7	321	—	—	e 24 43	[+ 8]	e 32 28	SS	e 45·8
Uccle		102·4	320	e 24 6?	?	i 24 42	[+ 4]	e 25 32	SKKS	i 42·9
College		102·7	24	e 20 7	PPP	e 25 26	{+12}	—	—	e 42·0
Clermont-Ferrand		103·6	314	e 18 42	PP	—	—	e 27 38	PS	e 56·6
Paris		103·8	317	e 21 48?	?	—	—	e 27 18	PS	55·8
Aberdeen		105·2	327	i 25 7	SKS	35 27	?	i 28 2	PS	55·1
Kew		105·2	321	e 23 28	?	e 29 26	?	e 24 56	SKS	—
Stonyhurst		106·1	323	15 32	?	25 18	{−20}	27 48	PS	53·7
Scoresby Sund		108·1	343	—	—	e 25 19	[+15]	e 34 12	SS	44·1
Almeria		108·6	306	18 50	[+20]	25 22	[+16]	19 24	PP	47·0
Granada		109·5	306	19 27	PP	i 29 27	PPS	21 10	PPP	55·3
Sitka		110·6	30	e 19 18	PP	e 25 16	[+ 1]	e 35 0	SS	e 47·9
San Fernando		111·7	305	e 19 14	PP	29 2	PS	29 36	PPS	48·8
Lisbon		113·6	308	—	—	24 14	?	29 22	PS	55·1
Victoria		120·9	35	e 25 18?	?	—	—	—	—	51·8
Ivigtut		122·1	344	e 36 22	?	—	—	—	—	e 52·3
Ukiah		125·1	45	e 36 8	?	—	—	—	—	e 58·7
Berkeley	E.	126·3	47	e 25 42	?	—	—	—	—	—
Bozeman		129·5	32	e 34 4	?	—	—	e 43 5	SSS	e 59·1
Tinemaha	Z.	129·5	46	i 19 12	[+ 1]	—	—	i 22 18	SKP	—
Santa Barbara	Z.	129·6	50	e 19 9	[− 2]	e 22 22	SKP	e 21 32	PP	—
Haiwee	Z.	130·2	47	e 19 9	[− 3]	e 22 28	SKP	—	—	—
Pasadena		130·8	49	e 19 13	[0]	i 22 34	SKP	e 32 1	SKKP	e 53·9
Mount Wilson	Z.	130·9	49	i 19 13	[− 1]	i 22 33	SKP	e 21 33	PP	—
Logan		131·5	37	e 19 16	[+ 1]	e 22 40	SKP	e 31 32	PS	e 54·8
Riverside		131·5	49	e 19 13	[− 2]	i 22 38	SKP	—	—	—
Salt Lake City		132·0	38	e 22 49	SKP	—	—	—	—	e 56·2
La Jolla		132·1	50	e 22 45	SKP	—	—	—	—	—
Palomar	Z.	132·2	49	e 19 20	[+ 4]	e 22 43	SKP	—	—	—
La Plata	E.	136·1	199	22 48	PKS	28 48	{−10}	—	—	53·9
	N.	136·1	199	22 54	PKS	28 48	{−10}	—	—	62·7
Tucson		137·2	47	i 19 22	[− 3]	e 28 45	{−19}	e 22 12	PP	e 52·0
Seven Falls		139·4	356	—	—	—	—	e 40 28	SS	59·8
Shawinigan Falls		140·1	357	e 19 51	[+20]	—	—	—	—	88·8
Ottawa		141·2	1	e 19 36	[+ 3]	—	—	e 41 24	SSP	e 57·8
Vermont		142·2	358	e 35 15	PPS	—	—	—	—	e 60·1
Chicago		142·8	17	e 23 32	?	—	—	e 41 23	SS	54·2
Buffalo		143·5	5	19 36	[0]	—	—	—	—	—
Florissant	N.	144·6	21	e 33 20	PS	—	—	—	—	e 65·8
St. Louis	Z.	144·8	21	i 18 31	?	—	—	i 19 40	PKP	—
Fordham		145·8	357	i 16 57	?	e 29 48?	{− 7}	i 19 40	PKP	e 77·8
Cape Girardeau	N.	146·2	21	e 19 44	[+ 3]	—	—	—	—	—
Columbia		151·9	11	—	—	e 28 3	[+67]	e 43 52	SSP	e 69·6
Bermuda		152·8	341	e 19 46	[− 5]	e 27 3	[+ 6]	e 42 57	SS	e 53·5
La Paz	Z.	156·4	194	i 20 2	[+ 6]	i 26 53	[− 8]	i 20 44	PKP$_2$	75·3
Huancayo		161·5	175	e 20 8	[+ 6]	e 45 14	SS	e 24 56	PP	e 64·9
San Juan		165·9	328	—	—	e 31 45	{+ 2}	e 51 58	SSS	e 67·7
Bogota		178·1	—	e 20 15	[+ 3]	—	—	—	—	—

Additional readings :—
Perth PPP = 6m.40s., SS = 11m.13s.
Kodaikanal SSE = (13m.33s.). Readings increased 30 seconds.
Calcutta ISSN = 14m.16s.

Continued on next page.

Hyderabad P_cPE =9m.58s., SSE =15m.5s., S_cSE =17m.16s.
Bombay isP =7m.55s., i =8m.15s., PPPN =9m.38s., i =10m.16s., isS =14m.3s., SSE =16m.48s., SSN =16m.56s., i =18m.1s.
New Delhi P_cPN =10m.19s., PPPN =10m.58s., SSE =17m.7s., SSSEN =17m.57s.
Zinsen reading decreased by 10 minutes.
Brisbane iN =20m.0s.
Riverview iN =9m.3s., iEZ =9m.10s., iEN =16m.27s., iSSE =19m.26s., iN =19m.44s., iE =19m.51s., iSSSEN =21m.0s., eQN =21·1m.
Tananarive S_cS =19m.50s., SS =21m.30s., iN =24m.3s.
Christchurch PSN =20m.44s., S_cS =21m.28s., SS =24m.37s., Q =27m.49s.
Auckland i =22m.43s. and 26m.18s.
Wellington S_cS =20m.58s., SPP?Z =21m.33s., i =21m.58s., SS? =24m.48s., Q =29m.23s.
Helwan eZ =13m.2s., SSN =27m.4s., SSSN =30m.22s.
Istanbul L given as SSS.
Bucharest eN =13m.13s., eSKSEN =23m.19s., PSN =24m.15s.
Sofia eN =23m.34s.
Belgrade e =14m.0s.
Upsala eSSS?N =33m.48s.?.
Copenhage 30m.55s.
Jena eZ =27m.24s.
Florence iPPPZ =19m.45s., eSKSE =24m.20s., ePSN =25m.45s., eSSN =30m.55s.
Honolulu e =30m.55s.
Stuttgart ePPZ =17m.56s., ipPPZ =18m.25s., eSKS =24m.20s., eSP =26m.41s., iSPZ =26m.59s., eSPPZ =28m.6s., e =31m.14s., eSS =31m.58s., e =43m.18s.?.
De Bilt eSSS =36m.18s.
Uccle eE =27m.7s., 33m.12s.?, and 38m.42s.
Aberdeen iPPN =28m.11s., QEN =49m.17s.
Kew ePKS?N =25m.42s., eEZ =27m.22s., cPPP? =27m.56s., eSKKS?N =32m.12s., ePS?N =34m.48s.?, eSS?EN =42m.48s.?.
Stonyhurst PPP? =22m.33s., SSS? =40m.24s., Q =48m.48s.
Almeria PPP =19m.39s., PKS =22m.19s., PS =28m.39s., PPS =29m.55s., SS =34m.27s., Q =41m.35s.
Granada PPP =24m.29s., SKKS =28m.0s., PPS =32m.19s., SS =38m.23s., SSS =42m.18s.
San Fernando PPE =22m.40s.
Lisbon SS?N =34m.19s., N =46m.6s.?.
Victoria eN =40m.17s.
Mount Wilson eSKKPZ =31m.46s.
Logan e =41m.20s.
Salt Lake City eSS? =37m.23s.
La Plata SSSE =46m.36s.
Tucson i =19m.32s. and 22m.22s., iPPP? =23m.2s., e =25m.44s. and 30m.6s., eSS =39m.5s., e =43m.59s.
Ottawa eN =23m.20s.
Vermont eSSS? =47m.38s.
Buffalo PP =19m.51s., 20m.20s., 23m.54s.
Florissant eN =38m.16s.
St. Louis eZ =18m.45s.
Fordham e =34m.48s.?.
Columbia e =34m.9s.
Bermuda e =34m.49s., ePKP,PKP? =41m.9s.
La Paz iPPZ =24m.2s., iPPPZ =27m.39s., iPSKS =34m.19s., iSSZ =44m.21s.
Huancayo e =30m.28s. and 31m.53s., ePKP,PKP =41m.51s.
San Juan e =42m.42s.
Bogota e =22m.23s.
Long waves were also recorded at other American and European stations.

April 1d. Readings also at 2h. (near Andijan and near Bogota), 4h. (Palomar, Riverside, Pasadena, Mount Wilson, Tucson, and Haiwee), 8h. (near Lick), 9h. (Fort de France), 13h. (near Berkeley), 17h. (near Mizusawa), 18h. (Tinemaha (2), Haiwee (2), Riverside, Mount Wilson, Pasadena (2), Tucson (2), near Apia), 21h. (near Berkeley, Lick, Branner, and Fresno).

April 2d. Readings at 1h. (near Branner), 4h. (near Lick), 8h. (near Branner and Lick), 9h. (near Frunse, Tashkent, and Tchimkent), 11h. (near Branner and Lick (2)), 13h. (near Berkeley, Branner (2), and Lick (3)), 22h. (Riverside, Pasadena, Mount Wilson, and Riverview), 23h. (Palomar and Tucson).

April 3d. Readings at 0h. (Pasadena, Palomar, Riverside, Tucson, near Berkeley, Branner, and Lick), 1h. (near Fort de France), 5h. (near Mizusawa), 12h. (Arapuni and Auckland), 13h. (Stuttgart, Auckland, Arapuni, Christchurch, Brisbane, Riverview, Wellington, Mount Wilson, and Riverside), 15h. (Arapuni, Auckland, Wellington, Riverview, Honolulu, Haiwee, Mount Wilson, Pasadena, Tucson, Sitka, College, Huancayo, and Stuttgart), 17h. (Huancayo and near La Paz), 19h. (Huancayo), 22h. (Andijan and Tashkent).

April 4d. Readings at 5h. (Haiwee, Mount Wilson, Pasadena, Tucson, and Riverside), 7h. (near Fort de France), 12h. (Tacubaya, San Juan, Huancayo, La Paz, Honolulu, Tucson, Mount Wilson, Pasadena, Riverside, Ukiah, and St. Louis), 13h. (Mount Wilson, Tucson, Riverside, Riverview, Basle, Chur, Zürich, Potsdam, Stuttgart, Uccle, Milan, Triest, and near Florence), 15h. (near Fresno (2)), 17h. (La Paz, La Plata, Tucson, and Riverside), 18h. (Fort de France, near Andijan, and Tashkent), 19h. (near Andijan and Tashkent), 22h. (Palomar, Pasadena, Riverside, Tucson, and near Apia).

April 5d. 1h. 33m. 14s. Epicentre 42°·0N. 142°·8E. (as on 1942 March 11d.).

Intensity V at Urakawa; IV at Obihiro; II-III at Hatinohe, Morioka, and Kusiro.
Epicentre 41°·9N. 142°·8E. Macroseismic radius 200-300km. Depth 60km.
Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1943, Tokyo 1950, p.15, macroseismic chart p. 15.

A = −·5937, B = +·4507, C = +·6666; $\delta = -3$; $h = -2$;
D = +·605, E = +·797; G = −·531, H = +·403, K = −·745.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		1·5	315	0 31k	+ 3	0 49	0	—	—	—
Hatinohe		1·7	213	0 33	+ 2	0 51	− 3	—	—	—
Aomori		1·9	232	0 35	+ 1	0 58	− 1	—	—	—
Nemuro		2·4	57	0 44	+ 3	1 13	+ 1	—	—	—
Mizusawa	N.	3·1	204	e 0 55	+ 4	1 33	+ 4	—	—	—
Sendai		4·0	201	1 2	− 2	1 48	− 4	1 58	S*	—
Hukusima		4·6	204	1 12	0	2 2	− 5	—	—	—
Onahama		5·2	196	1 31	P*	2 34	S*	—	—	—
Aikawa		5·3	222	1 21	− 1	—	—	—	—	—
Mito		5·9	198	1 38	+ 7	2 31	− 9	—	—	—
Utunomiya		5·9	203	1 30	− 1	2 34	− 6	—	—	—
Tukubasan		6·1	200	1 32	− 2	2 37	− 8	—	—	—
Nagano		6·4	215	1 44	+ 6	3 26	S_g	—	—	—
Tokyo		6·7	202	2 0	P*	—	—	—	—	—
Kohu		7·2	208	2 4	P*	3 29	S*	—	—	—
Shizuoka		7·8	207	3 20	S	(3 20)	− 8	—	—	—
Vladivostok		8·1	281	i 2 3	+ 1	i 3 40	+ 5	—	—	—
Nagoya		8·2	215	2 8	+ 5	3 53	+15	—	—	—
Santa Barbara	Z.	72·8	59	e 11 46	+14	—	—	—	—	—
Haiwee	Z.	72·9	57	i 11 43	+10	—	—	i 11 52	P_cP	—
Mount Wilson	Z.	74·0	58	i 11 37	− 2	—	—	i 11 53	P_cP	—
Pasadena		74·0	58	e 11 38	− 1	—	—	i 11 52	P_cP	—
Riverside	Z.	74·6	58	e 11 26	−17	—	—	i 11 55	P_cP	—
Tucson		79·9	55	e 12 10	− 2	—	—	i 12 26	P_cP	—
Stuttgart	Z.	80·8	331	e 12 13	− 4	—	—	—	—	—

April 5d. 1h. 56m. 5s. Epicentre 39°·5N. 73°·0E.

A = +·2262, B = +·7399, C = +·6335; $\delta = -6$; $h = -1$;
D = +·956, E = −·292; G = +·185, H = +·606, K = −·774.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		1·4	339	0 27	0	i 0 48	+ 2	—	—	—
Tashkent		3·4	304	i 0 56	+ 1	—	—	—	—	—
Dehra Dun	N.	10·1	154	e 2 31	+ 3	e 3 43	?	—	—	e 4·6
New Delhi		11·4	161	i 2 42a	− 5	i 4 49	− 7	i 3 13	PPP	—
Sverdlovsk		19·2	339	4 25	− 3	7 58	− 1	—	—	—
Bombay	N.	20·5	182	i 4 42	0	i 8 32	+ 5	5 14	PPP	i 9·7
Calcutta	N.	21·4	140	i 4 51a	0	i 8 51	+ 6	i 5 11	PP	i 10·2
Hyderabad	E.	22·5	168	5 5	+ 3	9 4	− 1	9 25	SS	11·0
Irkutsk		25·1	48	i 5 26	− 2	i 9 52	+ 1	—	—	—
Moscow		28·5	316	6 2	+ 3	10 45	− 1	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Yalta		29·1	292	e 6 5	+ 1	—	—	—	—	—
Kodaikanal	E.	29·4	173	e 6 17	+10	11 5	+ 4	i 10 27	?	—
Ksara		30·2	271	e 6 27?	+13	e 11 24	+11	—	—	—
Colombo		33·0	169	11 55	S	(11 55)	− 2	(14 14)	SS	—
Focsani		33·9	296	e 7 13?	+26	—	—	—	—	e 17·5
Bacau		34·0	298	e 7 55	+ 7	—	—	—	—	—
Cernauti		34·6	300	e 6 53	0	e 12 5	−17	—	—	—
Bucharest		34·8	294	e 6 53	− 1	i 12 33	+ 8	—	—	i 18·0
Helwan		35·3	267	6 59	0	12 35	+ 2	8 4	PP	—
Campalung		35·5	296	e 7 1?	+ 1	—	—	e 8 17	PP	—
Sofia		37·1	292	e 7 5	− 9	e 12 55?	− 6	—	—	—
Belgrade		38·7	295	e 7 27	0	—	—	i 9 0	PP	e 28·1
Upsala		39·8	319	i 7 37	+ 1	13 32	−10	i 9 1	PP	e 20·9
Zinsen		41·5	76	e 7 49	− 1	—	—	—	—	—
Prague		41·9	305	9 30	PP	e 17 20	SS	—	—	e 21·9
Potsdam		42·4	308	i 8 3	+ 5	e 17 20	SS	i 9 32	PP	e 21·9
Copenhagen		42·5	314	e 9 34	PP	14 21	− 1	—	—	—
Cheb		43·2	305	e 8 8	+ 4	e 14 31	− 1	e 9 49	PP	e 24·9
Triest		43·2	299	e 7 55	− 9	i 14 28	− 4	e 9 42	PP	—
Jena	E.	43·6	306	i 8 9	+ 1	e 14 31	− 7	(e 17 55)	SS	e 20·9
	N.	43·6	306	i 8 9	+ 1	e 14 25	−13	(e 17 47)	SS	e 20·9
Vladivostok		43·6	66	—	—	e 14 28	−10	—	—	—
Florence		45·4	296	e 9 28	+66	i 16 8	+64	i 11 20	PP	e 22·6
Stuttgart		45·5	304	e 8 20	− 3	e 15 3	− 2	e 10 7	PP	e 22·9
Chur		45·7	302	e 8 23	− 1	e 18 17	SS	—	—	e 26·2
Hukuoka		45·8	79	e 15 20	PPS	22 29	L	—	—	(22·5)
Zürich		46·2	302	e 8 27	− 1	e 18 23	SS	—	—	—
Milan		46·3	299	8 35	+ 6	15 13	− 3	—	—	21·6
Strasbourg		46·5	305	i 8 30	− 1	15 18	− 1	e 10 21	PP	i 25·9
Basle		46·8	303	e 8 32	− 1	—	—	—	—	—
De Bilt		47·2	310	i 8 39k	+ 3	i 15 31	+ 2	e 10 25	PP	e 23·9
Neuchatel		47·4	302	e 8 36	− 2	—	—	—	—	—
Uccle		48·1	308	e 8 42	− 1	e 15 40	− 2	10 33	PP	e 23·9
Paris		49·8	305	—	—	e 16 10?	+ 4	e 19 58?	SS	e 28·4
Aberdeen		50·2	317	—	—	e 15 44	−27	i 19 56	SS	i 25·4
Nagano		50·4	72	e 8 59	− 2	—	—	—	—	—
Kew		50·7	310	e 9 4	+ 1	e 16 11	− 7	e 10 59	PP	e 22·4
Edinburgh		51·1	316	—	—	e 18 21	?	—	—	e 23·7
Stonyhurst		51·3	313	e 11 10	PP	16 22	− 4	(i 20 25)	SS	e 28·0
Barcelona		52·5	297	—	—	e 16 46	+ 3	—	—	e 30·8
Tortosa	E.	53·9	296	11 9	PP	18 51	?	—	—	e 30·9
Scoresby Sund		55·0	337	—	—	e 17 17	PS	e 21 56	SS	e 25·4
Toledo		57·4	297	i 9 51	− 2	18 6	+17	12 8	PP	29·4
Almeria		57·7	293	i 9 55	0	i 17 55	+ 2	10 20	pP	34·0
Granada		58·4	294	i 9 58	− 2	i 18 4	+ 2	10 16	pP	29·3
San Fernando		60·6	294	9 13	−62	18 33	+ 3	—	—	33·9
Lisbon		61·5	298	10 23	+ 2	18 43?	+ 1	—	—	34·0
College		71·2	18	—	—	e 20 35	− 5	e 28 41	SSS	e 30·4
Seven Falls		87·9	336	—	—	e 23 42	+ 7	—	—	39·9
Saskatoon		88·7	0	—	—	e 23 43?	0	—	—	39·9
Ottawa		90·9	339	e 13 10	+ 3	e 23 43	[+ 4]	e 24 7	S	e 36·9
Victoria		91·2	10	—	—	e 24 9	+ 4	—	—	43·9
Philadelphia		95·7	335	—	—	e 23 40	[−25]	e 31 10	SS	e 38·8
Logan		99·0	3	e13 48	+ 4	e 24 58	−14	e 18 30	PP	e 46·4
St. Louis		100·7	347	e 21 13	?	e 24 11	[−20]	—	—	—
Riverview	E.	102·6	124	—	—	e 27 28	PS	—	—	e 55·3
Mount Wilson	z.	105·9	9	e 17 47	PKP	—	—	e 18 41	PP	—
Pasadena		106·0	9	e 18 41	PP	—	—	—	—	e 48·5
Riverside	z.	106·2	9	e 18 34	PP	—	—	—	—	—
Tucson		108·5	3	e 17 40	?	e 28 13	PS	e 19 2	PP	e 56·3
San Juan		110·9	318	—	—	e 28 41	PS	—	—	e 46·4
Huancayo		140·9	306	—	—	e 48 7	SSS	—	—	e 62·2

For Notes see next page.

NOTES TO April 5d. 1h. 56m. 5s.

Additional readings and notes :—
Colombo readings for S and SS are recorded as P and S.
New Delhi i =3m.46s., S*N =5m.30s., S_cE =5m.59s., S_cN =6m.10s., P_cP =8m.46s., S_cS =15m.21s.,
Bombay iN =4m.46s., 5m.39s., and 8m.38s., SSN =9m.9s.
Calcutta isSN =9m.29s.
Focsani eN =7m.37s.?.
Bacau eEN =13m.13s.? and 14m.37s.?.
Bucharest ePE =6m.56s., eN =7m.23s. and 7m.49s., iE =8m.51s., eN =9m.34s., iE =15m.1s., iN =15m.5s., 15m.47s., and 16m.25s., iE =16m.28s.
Helwan eZ =7m.34s., PPPZ =8m.20s., eN =13m.13s.
Campulung eEN =7m.5s., 8m.7s., and 8m.35s.
Belgrade iPPP =7m.30s., e =18m.12s. and 24m.6s., readings wrongly identified.
Upsala eSN =13m.36s., eSSN =16m.7s., eSSE =16m.17s., eE =18m.4s., eN = 18m.21s.
Potsdam ePPPN =9m.43s.?.
Copenhagen 10m.28s. and 15m.42s.
Cheb e =18m.1s.
Triest eSS? =17m.39s.
Jena eE =9m.49s., eSN =17m.50s., readings for SS are given as S for each component.
Florence iPPPZ =11m.44s., iSSE =18m.21s., iSSSE =19m.55s.
Stuttgart iPZ =8m.26s.a, ePPZ =10m.15s., ePPP?Z =11m.37s., eSZ =15m.9s., eSS =18m.17s., eSSZ =18m.43s.
Strasbourg e =20m.24s.
De Bilt iSS =19m.5s.
Uccle SSE =19m.10s., SSN =19m.23s.
Kew eSSEN =19m.52s., eSSSEN =21m.40s.
Stonyhurst SS is given as iS.
Toledo pP =10m.50s.
Almeria sP =10m.30s., P_cP =10m.44s., pP_cP =11m.13s., sP_cP =11m.23s., PP =12m.16s., S_cP =14m.23s., sS =18m.39s., S_cS =19m.25s., pS_cS =19m.59s.
Granada P_cP =10m.49s., pP_cP =11m.13s., PP =12m.19s., pPPP =13m.49s., P_cS = 14m.31s., S_cS =19m.25s., Q =25·4m.
Lisbon E =16m.49s.?, SE =18m.55s.?.
Ottawa e =28m.55s.?.
Philadelphia ePS =26m.9s.
Logan e =23m.24s.
Long waves were also recorded at Tananarive, Wellington, Ivigtut, Bermuda, Bergen, and other Japanese and American stations.

April 5d. 3h. 9m. 14s. Epicentre 7°·5S. 77°·0W. Depth of focus 0·040.
Approximate.

A = +·2231, B = −·9662, C = −·1297 ; δ = +14 ; h = +7 ;
D = −·974, E = −·225 ; G = −·029, H = +·126, K = −·992.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		4·8	161	i 0 56	−19	i 1 45	−29	i 1 20	pP	—
Bogota		12·4	14	e 2 33	−16	i 5 9	+ 7	i 2 53	PP	—
La Paz	z.	12·4	137	i 2 41	− 8	i 4 44	−18	—	—	5·6
Fort de France		27·1	37	e 5 8	−11	—	—	—	—	—
San Juan		27·9	22	e 6 1	+35	e 10 8	+21	—	—	e 12·1
Harvard		50·0	5	i 8 23	− 4	—	—	—	—	—
Tucson		51·0	322	i 8 34	− 1	—	—	i 10 27	PP	—
Palomar	z.	55·5	319	e 9 9	+ 2	—	—	e 9 40	pP	—
Riverside	z.	56·3	320	i 9 13k	0	—	—	i 9 45	pP	—
Mount Wilson	z.	56·8	320	i 9 18k	+ 2	—	—	i 9 50	pP	—
Pasadena		56·9	320	i 9 17k	0	—	—	i 9 49	pP	—
Haiwee	z.	58·0	321	e 9 23	− 2	—	—	i 9 57	pP	—
Tinemaha	N.	58·8	321	e 9 31	+ 1	—	—	e 10 5	pP	—
Granada		81·5	50	i 11 46	− 1	—	—	—	—	—
Toledo		81·9	48	i 11 46	− 3	23 33	?	12 18	pP	—
Tortosa	E.	85·5	48	12 52	pP	—	—	—	—	—
Stuttgart	z.	93·1	41	e 12 39	− 4	—	—	e 13 13	pP	—

Additional readings :—
Bogota iPPPP? =3m.3s., i =3m.24s., eS? =6m.12s., iP_cP? =6m.39s.
Tucson i =9m.5s., e =11m.6s.
Pasadena iZ =10m.27s.
Stuttgart eZ =13m.27s.

April 5d. 8h. Undetermined American shock.

Tucson iP = 26m.35s., i = 27m.0s. and 27m.54s., iS = 28m.53s., iL = 29m.25s.
La Jolla eP = 27m.22s.
Palomar ePZ = 27m.24s.
Riverside ePZ = 27m.33s., eSZ? = 30m.49s.
Pasadena iP = 27m.39s., eSEN = 31m.15s.
Mount Wilson ePZ = 27m.40s., eSZ = 31m.5s.
Santa Barbara iPZ = 27m.54s.
Haiwee iPZ = 28m.0s.
Tinemaha iPN = 28m.13s.
Logan ePP = 28m.52s., eL = 33m.32s.
St. Louis eZ = 29m.42s., iPZ = 29m.52s., eSN = 33m.35s.
Cape Girardeau ePE = 29m.42s., eE = 35m.53s.
Salt Lake City eS = 32m.5s., eL = 33m.26s.
Florissant iZ = 36m.4s., 37m.1s., and 38m.13s.
Tacubaya PZ = 37m.55s.
Long waves are also recorded at other American stations.

April 5d. 20h. 45m. 4s. Epicentre 6°·2S. 147°·7E. (as on 1939 January 25d.).

$A = -\cdot8404$, $B = +\cdot5313$, $C = -\cdot1073$; $\delta = +7$; $h = +7$;
$D = +\cdot534$, $E = +\cdot845$; $G = +\cdot091$, $H = -\cdot057$, $K = -\cdot994$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	21·8	165	i 4 56	0	e 8 43	− 9	i 5 10	PP	e 12·2
Riverview		27·7	173	i 6 0	+ 8	i 10 30	− 3	i 6 50	PPP	e 14·0
Sydney		27·7	173	e 8 26?	?	—	—	—	—	e 11·7
Perth		39·2	224	—	—	i 13 26	− 6	i 15 56	SS	i 22·2
Auckland		39·3	145	—	—	15 1	?	16 6	SS	19·9
Arapuni		40·6	146	—	—	14 56	+62	—	—	23·9
Wellington		42·5	149	7 58	− 1	15 26?	?	9 34	PP	21·9
Hukuoka		42·8	340	—	—	e 14 37	+11	—	—	—
Kumagaya		42·8	350	7 44	−17	—	—	—	—	—
Christchurch		43·2	153	8 15	+11	14 30	− 2	e 17 30	SS	21·2
Nagano		43·6	350	e 8 4	− 4	—	—	—	—	—
Sendai		44·7	353	8 14	− 2	15 6	+12	—	—	—
Vladivostok		51·2	346	e 9 2	− 5	i 16 41	+16	—	—	—
Irkutsk		68·9	334	i 11 5	− 4	i 20 25	+12	—	—	—
New Delhi	N.	76·1	302	—	—	i 21 23	−12	—	—	—
Tashkent		85·4	313	i 12 38	− 2	23 25	+14	—	—	—
Pasadena		96·9	56	i 13 32	− 2	—	—	—	—	e 44·3
Mount Wilson	Z.	97·0	56	i 13 34	− 1	—	—	—	—	—
Riverside	Z.	97·5	56	i 13 34	− 3	—	—	—	—	—
Tucson		103·0	57	e 16 8	?	—	—	e 18 17	PP	e 47·6
St. Louis	E.	118·7	49	e 28 1	?	e 29 54	PS	e 31 32	PPS	e 41·5
Cheb		122·5	328	—	—	e 37 56?	SSP	—	—	e 66·9
Stuttgart		125·0	327	e 18 59	[− 3]	—	—	—	—	e 63·9
Ottawa		125·8	35	e 19 1	[− 3]	—	—	—	—	54·9
Bermuda		140·1	45	e 36 48	?	—	—	—	—	e 69·4
Fort de France		150·4	71	e 19 54	[+ 6]	—	—	—	—	—

Additional readings :—
Brisbane iSSN = 9m.0s.
Riverview iN = 7m.23s., iE = 10m.45s., iN = 10m.51s., iZ = 10m.56s. and 11m.40s., iSSN = 11m.54s.
Perth i = 17m.26s.
Auckland i = 16m.41s.
Wellington iZ = 8m.10s. and 8m.31s., PPP?Z = 10m.41s., S_cS = 17m.36s., Q = 18·9m.
Christchurch Q = 17m.56s.
Tucson e = 29m.39s. and 38m.24s.
St. Louis eE = 30m.14s. and 33m.40s.
Long waves were also recorded at College, Philadelphia, Harvard, Tananarive, and other European stations.

April 5d. Readings also at 1h. (La Paz, Mount Wilson, Riverside, and Chicago), 2h. (near Andijan), 4h. (near Mizusawa), 5h. (Cheb, De Bilt, Kew, Stuttgart, Hyderabad, Kodaikanal, Calcutta, New Delhi, Frunse, near Stalinabad, Tashkent, and Tchimkent), 6h. (near Berkeley, Branner, and Lick), 7h. (Mount Wilson, Pasadena, Palomar, Tucson, and Riverside), 9h. (Tucson), 10h. (Yalta), 11h. (near Tashkent), 18h. (Sofia), 21h. (near Tashkent and Tchimkent).

April 6d. 16h. 7m. 12s. Epicentre 30°·9S. 72°·0W.

Valley of Aconcagua:
Destructive Scale IX at Cambarbala, Illapel, and Salamanca; very strong at Petorca and Ovalla. Felt all over the distance (2000 km.), between Iquique and Valdivia, and as far as Buenos-Aires.
Epicentre 30°·7S. 72°·0W. (Pasadena); 31°·5S. 71°·4W. (U.S.C.G.S.); 29°·8S. 71°·0W. (J.S.A.).
Macroseismic epicentre 31°·2S. 71°·1W. (Strasbourg). Magnitude 8 (Pasadena).
Frederico Greve. Determination del Coeficiente de Sequridad Antisismico para las Diferentes Zonas de Chile, p. 15.
Federico Greve. Descripcion de los principales effectos, de los sismos sentidos en Chile en los anos 1942-1946, with isoseismic chart.

$A = +\cdot2656$, $B = -\cdot8175$ $C = -\cdot5110$; $\delta = -3$; $h = +2$;
$D = -\cdot951$, $E = -\cdot309$; $G = -\cdot158$, $H = +\cdot486$, $K = -\cdot860$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	i 2 40	PPP	e 3 30	−20	—	—	—
La Plata		12·5	112	i 2 51	−11	5 6	−17	3 2	P	5·6
La Paz	N.	14·8	15	i 3 31	− 1	i 6 26	+ 8	—	—	7·4
Huancayo		19·0	351	i 4 33	+ 7	—	—	i 4 50	PPP	—
Bogota		35·4	358	i 7 2	+ 2	—	—	i 8 36	PPP	17·6
Balboa Heights		40·3	350	i 7 45	+ 5	i 13 55	+ 6	—	—	i 17·0
Fort de France		46·6	16	i 8 29a	− 3	i 15 26	+ 5	10 12	PP	e 24·6
Port au Prince		49·2	0	e 9 3	+11	e 16 12	+14	—	—	29·9
San Juan		49·3	9	i 8 49	− 4	i 15 38	−21	i 10 49	PP	i 19·0
Oaxaca	N.	53·3	332	e 9 31	+ 8	—	—	—	—	—
Vera Cruz	E.	54·9	333	i 9 49	+14	—	—	—	—	—
Tacubaya	Z.	56·4	330	9 46	+ 1	—	—	—	—	—
Manzanillo	E.	58·6	324	e 10 2	+ 1	—	—	—	—	—
Guadalajara	E.	59·5	326	e 10 8	+ 1	—	—	—	—	—
Mazatlan	E.	63·1	325	e 10 30	− 2	—	—	—	—	—
Mobile		63·1	345	10 35	+ 3	—	—	—	—	—
Bermuda		63·3	8	i 11 30	+57	i 19 18	+14	i 14 46	PPP	e 26·8
Columbia		65·1	354	i 11 8	+23	i 19 27	0	e 23 57	SS	e 27·6
Chihuahua	Z.	67·5	329	i 11 2	+ 2	—	—	—	—	—
Georgetown		69·6	357	i 11 15	+ 2	i 20 8	−13	e 20 22	PS	—
Cape Girardeau	E.	69·8	346	i 11 13	− 1	i 20 23	0	i 11 29	pP	—
Florissant		71·4	346	i 11 24	0	i 20 39	− 3	i 11 41	pP	—
Fordham		71·4	359	i 11 23	− 1	i 20 24	−18	i 15 53	PPP	—
Pittsburgh		71·4	354	i 13 46	PP	—	—	—	—	e 36·5
New Kensington		71·5	354	e 11 30?	+ 6	e 20 54?	+11	e 25 18?	SS	e 31·2
Tucson		72·8	327	i 11 34	+ 2	i 20 54	− 4	i 12 4	pP	i 31·6
Harvard		73·0	1	i 11 33a	0	i 21 3	+ 3	e 25 28	SS	e 29·8
Ann Arbor		73·6	352	i 11 36	− 1	i 21 12	+ 5	14 48	PP	36·2
Buffalo		73·7	356	i 11 36	− 2	i 20 48	−20	i 14 18	PP	—
Chicago		73·8	348	i 11 39	+ 1	i 21 9	0	i 14 24	PP	e 30·1
Lincoln		74·9	342	i 11 44	0	i 21 24	+ 2	e 14 42	PP	e 30·6
Vermont		75·0	359	i 11 46	+ 1	i 21 26	+ 3	i 12 13	pP	31·1
Halifax		75·6	8	11 48	0	21 33	+ 4	28 18?	SS	e 34·8
Ottawa		76·0	358	i 11 50	− 1	i 21 35	+ 1	14 48?	PP	e 37·8
La Jolla		76·5	323	e 11 53	− 1	i 21 46	+ 7	—	—	—
Denver	N.	76·7	335	e 11 57	+ 2	e 21 45	+ 4	i 22 9	sS	—
Shawinigan Falls		77·1	0	11 56	− 1	21 45	− 1	14 54?	PP	e 38·8
Riverside		77·5	323	i 11 59a	0	i 21 55	+ 5	i 39 12	P'P'	—
Boulder City		77·7	328	i 11 59	− 1	e 21 50	− 2	—	—	—
Seven Falls		77·7	2	12 0	0	i 21 52	0	27 7	SS	33·8
Mount Wilson		78·0	323	i 12 4a	+ 2	i 22 2	+ 7	i 39 13	P'P'	—
Pasadena		78·1	323	i 12 3a	+ 1	i 22 1	+ 5	i 38 58	P'P'	i 33·3
Santa Barbara		79·1	322	i 12 9	+ 1	i 22 12	+ 5	—	—	—
Haiwee		79·5	325	i 12 12a	+ 2	i 22 17	+ 6	e 38 57	P'P'	—
Salt Lake City		80·3	331	i 12 13	− 1	i 22 22	+ 2	e 15 27	PP	i 35·8
Tinemaha		80·3	325	i 12 16	+ 2	i 22 23	+ 3	—	—	—
Angra do Heroismo		80·8	35	i 12 16	− 1	i 22 46	+21	—	—	—
Fresno	N.	80·8	324	i 12 20	+ 3	e 22 29	+ 4	—	—	e 39·5
Logan		81·1	332	i 12 18	0	i 22 6	−22	i 16 56	PPP	i 31·4
Lick		82·2	323	i 12 28	+ 4	e 22 43	+ 4	—	—	e 35·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Clara		82·4	323	i 12 27	+ 2	e 22 39	− 2	—	—	—
Branner		82·6	323	e 12 29	+ 3	e 22 47	+ 4	e 34 59	Q	e 40·0
Berkeley		83·0	323	e 12 29	+ 1	e 22 47	0	i 27 38	SS	e 39·9
Bozeman		84·0	335	e 12 34	+ 1	e 22 41	−16	e 15 29	PP	e 36·2
Ukiah		84·4	323	i 12 38	+ 2	i 23 8	+ 7	e 16 2	PP	e 35·2
Butte		84·9	334	e 12 20?	−18	e 24 10?	PPS	e 18 12?	PPP	e 30·4
Johannesburg		84·9	118	i 12 36?	− 2	e 23 6?	0	—	—	e 43·8
Christchurch		85·3	222	12 39a	− 1	22 59	[− 4]	15 49	PP	39·2
Tuai		85·4	227	12 46	+ 6	23 12	+ 1	—	—	—
Wellington		85·4	224	12 39	− 1	23 7?	− 4	15 48?	PP	39·6
Ferndale		86·0	324	i 11 48	−55	i 22 22	−55	i 28 17	SS	e 33·3
Kaimata		86·6	222	12 50	+ 4	23 19	− 4	—	—	—
Arapuni		86·8	227	13 18?	+31	23 48?	+23	16 48?	PP	40·8
New Plymouth		87·2	226	13 14	+25	23 27	− 1	—	—	—
Auckland		88·1	228	11 52	−62	22 15	[−66]	24 53	PS	40·0
Saskatoon		88·1	340	12 52	− 2	23 35	− 2	16 33	PP	e 36·8
Seattle		90·3	329	e 13 43	+39	e 24 55	+58	e 31 48	?	e 37·8
Lisbon		90·7	45	13 2?	− 4	23 42	[+ 5]	16 32	PP	36·5
San Fernando		91·0	48	i 13 5	− 2	23 50	[+11]	16 5	PP	42·8
Apia		91·2	254	i 13 9	+ 1	e 25 34	PS	e 30 24	SSP	42·1
Victoria		91·4	329	13 12	+ 3	24 20	+13	16 50	PP	e 37·8
Granada		93·2	48	13 15	− 2	24 0	[+ 9]	17 10	PP	45·0
Almeria		93·7	49	i 13 15	− 5	23 45	[− 9]	17 2	PP	44·3
Ivigtut		93·8	12	e 13 14	− 6	e 24 22	− 6	e 17 17	PP	e 37·4
Toledo		94·5	46	i 13 21	− 2	24 16	−18	13 58	pP	43·3
Honolulu		97·2	291	e 13 11	−25	e 24 43	−14	e 17 56	PP	e 40·7
Tortosa	E.	97·7	47	13 36	− 2	25 13	+12	17 27	PP	46·3
Barcelona		99·2	47	e 13 35	−10	24 37	[+14]	18 12	PP	e 41·0
Clermont-Ferrand		102·1	44	i 13 54	− 4	—	—	—	—	—
Marseilles		102·3	47	14 9	+10	25 48?	+ 8	e 17 12	?	—
Reykjavik		102·7	21	13 43	−17	27 30	PS	17 53	PP	43·0
Sitka		102·8	331	e 14 8	+ 7	i 24 43	[+ 3]	e 18 27	PP	i 51·7
Kew		103·3	38	i 13 58	− 5	i 24 58	[+15]	e 18 33	PP	e 40·8
Paris		103·4	41	i 13 59	− 5	i 25 15	−34	i 18 21	PP	51·8
Stonyhurst		103·5	35	i 16 20	?	27 44	PS	i 18 27	PP	47·7
Tananarive		103·7	122	14 22	+17	24 55	[+11]	18 12	PP	43·1
Riverview		103·8	216	i 14 2	− 3	i 24 39	[− 6]	i 18 20	PP	e 48·1
Sydney		103·8	216	e 14 36?	+31	e 29 24	PPS	e 33 0	SS	e 51·3
Edinburgh		104·3	33	18 16	PP	25 6	[+18]	20 39	PPP	—
Besançon		104·6	44	e 18 29	PP	e 27 48	PS	—	—	50·8
Neuchatel		105·0	44	e 14 8	− 3	e 24 57	[+ 6]	—	—	—
Uccle		105·4	40	i 14 9a	− 4	i 24 51	[− 1]	i 18 36	PP	45·8
Aberdeen		105·5	32	i 19 2	PP	i 25 8	[+15]	i 28 7	PS	45·6
Basle		105·7	44	e 14 9a	− 5	e 25 26	[+32]	e 18 39	PP	—
Milan		105·7	47	i 14 12	− 2	24 36	[−18]	i 19 22	?	—
Florence		106·2	49	i 14 12	− 4	i 25 21	[+25]	i 18 30	PP	—
Zürich		106·2	44	e 14 14a	− 2	e 25 10	[+14]	e 18 29	PP	—
Strasbourg		106·3	43	i 14 15	− 2	i 25 23	[+27]	i 18 42	PP	e 44·8
Scoresby Sund		106·4	16	e 14 19	+ 2	e 25 1	[+ 4]	e 19 6	PP	41·0
Chur		106·5	45	e 14 15	− 3	e 25 28	[+31]	e 18 26	PP	—
De Bilt		106·5	39	i 14 16a	− 2	i 25 16	[+19]	i 18 38	PP	e 46·8
Stuttgart		107·2	44	i 14 17a	P	e 25 28	[+28]	e 18 36	PP	e 51·5
Brisbane	E.	107·8	222	e 18 33	PP	i 24 46	[−17]	i 28 37	PS	e 59·5
	N.	107·8	222	i 14 31	P	i 24 52	[−11]	e 18 50	PP	—
Triest		108·6	48	e 14 25	P	25 16	[+ 9]	e 18 55	PP	44·8
Jena		109·6	43	e 14 30	P	e 25 23	[+13]	i 18 58	PP	e 48·8
Cheb		109·7	43	e 14 36	P	e 33 42?	SS	e 18 54	PP	e 57·8
Bergen		110·5	31	e 19 18	PP	25 23	[+ 9]	38 45	SSS	e 50·8
Prague		110·9	43	e 14 42?	P	e 34 54?	SS	e 19 5	PP	e 44·8
Potsdam		111·0	40	i 19 9	PP	e 25 41	[+25]	e 29 6?	PS	49·8
College		111·8	334	e 19 4	[+27]	e 29 12	PS	e 19 23	PP	e 39·7
Copenhagen		112·0	37	19 14	PP	25 40	[+20]	34 48	SS	—
Belgrade		112·7	51	e 14 56	P	e 29 18	PS	e 35 41	SSP	e 54·8
Sofia		113·8	54	e 16 18?	?	e 29 35?	PS	e 19 29	PP	e 48·8
Helwan		115·2	70	e 14 55	P	29 24	PS	e 30 30	PPS	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Campulung		115·9	51	e 19 30?	PP	30 0?	PS	e 19 44	?	47·8
Upsala		116·0	35	e 19 47?	PP	e 26 48?	{+ 1}	e 36 31	SSP	e 46·8
Bucharest		116·3	53	e 18 30?	[−16]	29 48	PS	i 19 47	PP	48·8
Perth		117·1	188	19 56	PP	27 18	{+23}	36 3	SS	58·9
Istanbul		117·3	57	18 3	[−45]	28 2	?	34 42	?	54·8
Cernauti		117·4	48	e 18 48?	[0]	e 29 43	PS	—	—	49·8
Focsani		117·4	52	e 20 24?	PP	—	—	—	—	—
Bacau		117·5	50	e 19 36?	[+48]	30 18?	PS	—	—	47·8
Ksara		120·2	68	e 20 25	PP	e 30 24?	PS	—	—	—
Yalta		121·9	55	e 18 54	[− 2]	—	—	—	—	—
Colombo		144·5	127	19 37	[− 1]	42 38	SSP	—	—	77·5
Kodaikanal	E.	145·0	118	i 20 0	[+21]	33 43	SKSP	23 24	PKS	—
Bombay		146·1	102	i 19 39	[− 2]	30 4	{+ 7}	23 4	PKS	i 63·1
Nemuro		147·8	304	e 20 30	[+46]	—	—	—	—	—
Hyderabad	E.	150·0	110	19 47	[0]	30 24	{+ 6}	23 25	PP	—
Sapporo		150·9	305	19 49	[0]	—	—	(42 39)	SS	42·7
Mori		151·7	303	19 50	[0]	—	—	i 22 7	?	70·5
Mizusawa		151·8	297	e 19 56	[+ 6]	32 10	?	32 55	PS	43·0
Sendai		152·0	295	i 19 50	[0]	—	—	—	—	—
Tokyo		153·1	289	e 20 4	[+12]	e 26 54	[− 4]	23 58	PP	71·2
New Delhi		153·2	86	i 19 52	[0]	28 58	?	23 35	SKP	65·4
Yokohama		153·2	288	19 58	[+ 6]	—	—	—	—	e 71·6
Misima		153·8	288	19 55	[+ 2]	33 24	?	—	—	—
Dehra Dun	N.	154·3	83	e 19 39	[−15]	—	—	e 41 3	?	e 82·4
Nagano		154·3	291	e 20 3	[+ 9]	—	—	—	—	—
Nagoya		155·4	288	e 19 46	[− 9]	—	—	—	—	—
Kobe		156·9	287	i 19 56	[− 1]	30 6	{−50}	—	—	—
Koti		158·2	284	e 20 6	[+ 7]	—	—	—	—	—
Hamada		159·4	287	e 20 34	[+34]	—	—	—	—	—
Miyazaki		160·0	279	20 5	[+ 4]	35 3	?	(44 43)	SS	44·7
Calcutta	N.	160·6	110	19 58	[− 3]	i 27 37	[+32]	20 37	PKP_2	i 69·4
Hukuoka		160·9	283	20 1	[− 1]	45 55	SSP	24 55	PP	75·6
Nake		161·2	268	20 1	[− 1]	—	—	—	—	—
Keizyo		163·1	298	e 20 27	[+23]	—	—	—	—	—
Zinsen		163·3	299	20 6	[+ 2]	—	—	—	—	—

Additional readings :—
La Plata SN =4m.54s.
Bogota i =7m.12s., 7m.22s., and 8m.5s., e =11m.40s. and 12m.2s.
Fort de France PPP =10m.57s., SS =18m.36s., SSS =19m.46s.
Bermuda i =12m.25s. and 23m.16s.
Columbia e =20m.10s.
Cape Girardeau iE =11m.24s., isPE =11m.40s., iP_cPE =11m.45s., ipP_cPE =12m.3s., iPPE =13m.58s., ipPPE =14m.17s., isSE =20m.49s.
Florissant isPN =11m.51s., eP_cPN =11m.57s., ePPN =14m.6s., epPPN =14m.23s., isSE =21m.9s., iSPN =21m.19s., eSSN =25m.17s.
Fordham i =11m.50s., 25m.49s., and 29m.37s.
New Kensington e =23m.30s.?.
Tucson iPP =14m.21s., i =15m.29s., esPS? =22m.11s., i =24m.58s., 26m.0s., and 28m.33s.
Harvard i =21m.22s.
Ann Arbor SS =26m.12s.
Buffalo iPPP =15m.42s.
Chicago i =15m.30s., 16m.24s., 26m.11s., and 29m.40s.
Lincoln ePPP =16m.29s., i =22m.19s., e =26m.37s.
Vermont iPP =14m.38s., ePPP =16m.27s., e =20m.57s., i =23m.7s., iSS =26m.27s.
Halifax SSS =29m.18s.?.
Ottawa i =23m.8s., iN =25m.1s., SS =26m.46s
Denver eE =12m.3s., iN =13m.5s., 13m.35s., and 14m.11s., iPPN =14m.52s., iN =21m.55s., eE =22m.5s., eEN =27m.6s.?.
Shawinigan Falls SS =26m.42s.?.
Seven Falls e =19m.6s.
Pasadena iEN =12m.20s., iSSE =27m.14s.
Salt Lake City e =17m.35s., iSS =27m.56s., isSS =28m.42s.
Logan e =26m.46s.
Berkeley iPN =12m.32s., iSN =22m.52s., iSZ =22m.58s.
Bozeman e =17m.6s., iS =22m.58s., iSS? =28m.37s., eSSS =32m.7s.
Ukiah e =18m.18s., isPS =24m.34s., e =28m.57s., eSSS =32m.28s.
Johannesburg eSN =22m.56s.?, e?N =34m.48s.?.
Christchurch PS =23m.38s., SS =28m.38s., SSS =32m.31s., Q =35m.46s.

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Wellington P_cPZ =12m.52s., iZ =13m.4s., 14m.18s., 15m.28s., and 16m.25s., S = 22m.58s., PS =23m.26s., PPS? =24m.20s., i =24m.40s., and 26m.51s., SS = 28m.12s., i =29m.46s., SSS? =32m.18s.?., Q =35m.48s.
Ferndale iSN =22m.29s., iSSE =28m.22s.
Kaimata i =13m.11s.
Arapuni PPS? =25m.48s.?, SS =30m.12s.?.
Auckland i =12m.53s. and 13m.30s., PP? =15m.40s., i =22m.33s., PS? =22m.53s., i =23m.20s., and 24m.8s., SS =27m.43s., SSS =32m.15s., Q =35m.33s.
Saskatoon e =26m.24s., SS =29m.33s., SSS =33m.18s.?.
Seattle e =23m.42s.
Lisbon N =13m.10s., Z =14m.8s. and 17m.2s.?, E =17m.7s., N =17m.12s. and 19m.15s., SKSN =23m.19s., SE =23m.53s., S_cSZ =24m.4s., S_cSN =24m.8s., PSN =24m.29s., PPSZ =25m.23s.?, PPSE =25m.28s., SS?EN =30m.24s.?.
San Fernando SKSE =23m.12s., PSE =25m.26s., SSE =30m.10s.
Apia eSKKS =37m.24s.
Victoria SS =30m.36s.?.
Granada iS =24m.19s., PS =25m.40s., PPS =26m.34s., SS =31m.10s., Q =38·4m.
Almeria PPP =19m.33s., SKKS =24m.15s., S =24m.44s., PS =25m.23s., PPS = 26m.4s., SS =30m.54s., SSS =35m.11s.
Ivigtut e =23m.56s., iPS =24m.52s., i =31m.9s., e =35m.8s.
Toledo PP =17m.30s., sS =25m.12s.
Honolulu e =23m.39s., i =26m.33s., e =32m.18s., and 35m.57s.
Tortosa PPPE =19m.45s., PSE =26m.26s., SSE =31m.50s., QE =40m.48s.
Barcelona SS =32m.23s.
Marseilles SSS =36m.48s.?.
Reykjavik SS =33m.13s.
Sitka ePS =27m.38s., eSS =32m.38s., eSSS =37m.13s.
Kew iP =14m.26s., ePPP =20m.48s., eSKKSEN =25m.46s., eSEN =26m.24s., ePSEN =27m.43s., ePPSE =28m.51s., eSSEN =33m.18s.?, eSSSEN =37m.48s.?.
Paris iPS =27m.43s.
Stonyhurst i =25m.2s., SS =33m.42s., SSS =37m.43s.
Tananarive sPP =18m.49s., PPP =20m.7s., SKKS =25m.16s., S =25m.49s., isS = 26m.32s., PS =27m.34s., isPS =28m.3s., SS =33m.17s., iSSS =36m.54s.
Riverview i =17m.46s., iE =18m.42s., iSKKSE =25m.32s., iN =27m.32s., iPSE = 27m.42s., eE =27m.54s., N =28m.8s., iE =28m.51s., eN =32m.8s., iE =32m.48s., eQE =43·3m., eQN =43·7m.
Edinburgh PP =18m.23s., PKS =21m.52s., SKS =24m.7s., S =25m.34s., PS =27m.55s., PPS =28m.48s., SS =33m.40s., SSS =37m.3s.
Uccle iPPPE=21m.3s., iEN=25m.9s., iPSEN=28m.8s., iSSE=33m.41s., iSSN=33m.44s.
Aberdeen iEN =33m.42s., iEN =40m.47s.
Basle e =27m.19s.
Florence iPPPZ =21m.5s., iSN =26m.33s., iPSN =28m.17s., iPPSN =29m.17s., iSSN =38m.5s.
Zürich ePS =27m.55s.
Strasbourg eS =26m.10s., iPS =28m.8s., SS =33m.51s.
Scoresby Sund e =18m.28s. and 26m.19s., ePS =28m.19s., eSS =34m.3s.
De Bilt iPS =28m.8s., eSS =33m.48s.
Stuttgart iPZ =14m.46s., ePPP =21m.20s., eSP =27m.48s., eSP =28m.25s., ePKKPZ =29m.43s., eSS =33m.56s., eSSS =38m.4s., eQ =49·6m.
Brisbane iSKKSN =25m.42s., iPSN =28m.40s., iSSN =34m.20s.
Triest eSKKS? =24m.42s., PS? =26m.48s.
Jena e =16m.48s., eN =17m.56s., iE =18m.48s., iZ =19m.17s., iZ =19m.56s., iEN = 20m.0s.?, eE =25m.16s., eEN =26m.30s.?, iE =28m.28s., e =29m.48s.? and 34m.48s.?, eN =38m.48s.?, eEZ =39m.6s.?, e =42m.48s.?.
Cheb e =25m.50s., ePS =27m.12s.?, ePPS =28m.6s.?, eSSS =38m.48s.?, eE =39m.34s.
Bergen PS =29m.3s., SS =35m.21s., e =42m.33s. and 44m.33s.
Prague ePKP =18m.18s.?, ePS =28m.30s., eSSS =39m.0s.?.
Potsdam eE =25m.6s.?, iE =28m.48s., eE =43m.0s.?.
College eS? =27m.1s., eSS =34m.36s.
Copenhagen 26m.39s. and 28m.10s., PS =29m.9s. and 33m.31s.
Belgrade e =18m.21s., i =19m.22s.
Sofia eN =17m.35s., eE =18m.23s., eN =19m.19s., eE =36m.5s.
Helwan eZ =18m.42s., and 19m.11s., eEZ =19m.43s., eE =28m.48s., SSN =34m.32s.
Upsala ePP?N =20m.18s., eN =27m.48s.?, ePSE =29m.39s., ePSN =29m.48s.?, ePPSE =31m.0s., eE =34m.48s.?, eN =35m.48s.?, eN =39m.48s.?, eSSSE = 40m.31s.
Bucharest iE =29m.33s., SKKSEN =30m.20s., iE =35m.40s.
Perth PKP =22m.48s., PP =24m.23s., SKP =25m.48s., SKS =29m.33s., SKKS = 30m.58s., S =32m.23s., PS =33m.58s., SS =40m.30s. Phases wrongly identified.
Kodaikanal iSSE =43m.18s.
Bombay PPE =23m.24s., PKKPE =28m.32s., SKSPE =33m.33s., PPSE =36m.15s., SSE =42m.5s., PSPSE =43m.4s., SSSE =47m.10s.
Hyderabad PKP_2E =20m.25s., SKSPE =33m.34s., SSE =42m.49s.
Sapporo i =20m.16s., e =24m.9s.
Tokyo PKPE =20m.33s., eSKPN =23m.37s., i =26m.21s., PPPN? =27m.32s., SS? = 43m.53s.
New Delhi iPP =24m.13s., SKKSN =31m.27s., PPSE =37m.6s., SSN =43m.11s., SSSE =50m.28s., SSSN =50m.43s.
Calcutta iPPN =24m.29s., iSSSN =47m.14s.
Hukuoka SSS =51m.8s., Q =67m.3s.

April 6d. 18h. 17m. 34s. Epicentre 30°·9S. 72°·0W. (as at 16h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	e 4 20	S*	—	—	—
La Plata	E.	12·5	112	3 0	− 2	5 17	− 6	—	—	6·1
	N.	12·5	112	3 2	0	5 14	− 9	—	—	6·0
La Paz		14·8	15	e 3 35	+ 3	6 31	+13	—	—	7·3
Huancayo		19·0	351	e 6 1	?	—	—	—	—	e 12·7
Tucson		72·8	327	i 11 31	− 1	—	—	—	—	—
Riverside	Z.	77·5	323	e 11 59	0	—	—	e 12 6	?	—
Mount Wilson	Z.	78·0	323	e 12 1	− 1	—	—	—	—	—
Pasadena	Z.	78·1	323	i 12 28	+26	—	—	—	—	—
Haiwee	Z.	79·5	325	i 12 9	− 1	—	—	—	—	—

Mount Wilson also gives iZ =12m.8s. and 12m.29s.

April 6d. Readings also at 2h. (Basle), 6h. (near Fort de France), 9h. (near Bogota and near Mizusawa), 10h. (near Tashkent), 11h. (near Bogota), 15h. (Mount Wilson, Tucson, Riverside, and near Bogota), 16h. (near Berkeley), 17h. (La Paz (4)), 18h. (La Paz (2) and La Plata (6)), 19h. (La Paz and La Plata (3)), 20h. (La Paz (3), La Plata (3), Montezuma, Huancayo, Tucson, Riverside (2), Mount Wilson (2), and Haiwee (2)), 21h. (La Plata (2)), 22h. (La Paz, La Plata (2), and near Fresno).

April 7d. 6h. 13m. 37s. Epicentre 30°·9S. 72°·0W. (as on 6d.).

A = +·2656, B = −·8175, C = −·5110 ; δ = −3 ; h = +2.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	e 4 18	+28	—	—	e 4·5
La Plata	E.	12·5	112	2 58	− 4	5 23	0	—	—	6·1
	N.	12·5	112	—	—	5 11	−12	—	—	6·1
	Z.	12·5	112	2 58	− 4	5 17	− 6	—	—	6·0
La Paz	Z.	14·8	15	i 3 33	+ 1	6 27	+ 9	—	—	7·7
Huancayo		19·0	351	e 4 27	+ 1	i 8 7	+12	—	—	i 9·0
Bogota		35·4	358	i 7 1	+ 1	—	—	e 7 5	?	—
San Juan		49·3	9	—	—	—	—	e 18 39	?	e 28·7
St. Louis		71·2	346	e 11 23	0	e 20 37	− 3	e 20 48	?	—
Tucson		72·8	327	i 11 31	− 1	e 20 50	− 8	e 38 16	P'P'	—
Riverside	Z.	77·5	323	e 11 59	0	—	—	—	—	—
Mount Wilson	Z.	78·0	323	i 12 2	0	—	—	—	—	—
Pasadena	Z.	78·1	323	i 12 2	0	—	—	—	—	—
Haiwee	Z.	79·5	325	i 12 10	0	—	—	—	—	—
Tinemaha	Z.	80·3	325	i 12 12	− 2	—	—	—	—	—
Logan		81·1	332	e 12 18	0	e 22 41	+13	e 20 57	?	e 42·0

St. Louis also gives eZ =11m.28s.
Long waves were also recorded at Stuttgart.

April 7d. 8h. 10m. 7s. Epicentre 30°·9S. 72°·0W. (as at 6h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	e 3 57	+ 7	e 4 40	?	e 4·9
La Plata	E.	12·5	112	2 58	− 4	5 17	− 6	—	—	6·0
	N.	12·5	112	2 59	− 3	5 11	−12	—	—	5·9
	Z.	12·5	112	3 0	− 2	5 17	− 6	—	—	5·8
La Paz	Z.	14·8	15	3 37	+ 5	i 6 21	+ 3	—	—	7·5
Huancayo		19·0	351	e 4 29	+ 3	e 8 9	+14	i 8 12	SS	e 9·4
Bogota		35·4	358	e 6 59	− 1	—	—	—	—	—
St. Louis		71·2	346	e 11 30	+ 7	e 20 39	− 1	—	—	—
Tucson		72·8	327	i 11 30	− 2	—	—	—	—	—
Riverside	Z.	77·5	323	i 11 56	− 3	—	—	—	—	—
Mount Wilson	Z.	78·0	323	i 12 0	− 2	—	—	—	—	—
Haiwee	Z.	79·5	325	e 12 8	− 2	—	—	—	—	—
Tinemaha	Z.	80·3	325	e 12 11	− 3	—	—	—	—	—

Long waves were also recorded at Columbia.

April 7d. 8h. 45m. 56s. Epicentre 24°·5N. 126°·7E. (as given by Bombay).

A = −·5444, B = +·7304, C = +·4124 ; δ = −7 ; h = +3 ;
D = +·802, E = +·598 ; G = −·246, H = +·331, K = −·911.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	19·0	37	(4 14)	−12	4 14	P	—	—	—
Irkutsk		32·6	334	6 30	− 5	11 42	− 9	—	—	—
Calcutta	N.	35·2	275	e 6 52	− 6	14 41	SS	i 11 47	?	—
Dehra Dun	N.	43·3	289	e 11 15	?	e 19 11	?	—	—	e 24·0
New Delhi	N.	44·2	286	e 8 20	+ 8	i 14 47	+ 1	—	—	—
Hyderabad	E.	45·4	271	8 36	+14	e 15 36	PPS	—	—	—
Andijan		47·8	304	e 8 44	+ 3	—	—	—	—	—
Kodaikanal	E.	48·8	263	e 8 4	−45	—	—	—	—	—
Bombay		50·1	275	i 9 13	+14	i 16 28	PPS	11 11	PP	—
Tashkent		50·1	305	i 9 2	+ 3	e 16 33	PPS	—	—	—
Sverdlovsk		56·8	324	i 9 48	0	—	—	e 22 7	?	—
College		66·2	28	e 8 44	?	e 19 30	−10	—	—	e 31·5
Helwan		82·5	299	12 34	+ 8	e 22 52	+10	15 43	PP	—
Cheb		85·8	325	e 31 4?	?	—	—	—	—	e 36·1
Haiwee	Z.	94·2	47	i 13 32	+10	—	—	—	—	—
Mount Wilson	Z.	95·2	49	i 13 35	+ 8	—	—	—	—	—
Pasadena	Z.	95·2	49	i 13 36	+ 9	—	—	—	—	—
Riverside	Z.	95·8	49	e 13 37	+ 8	—	—	—	—	—
Tucson		101·3	47	e 14 5	+11	—	—	e 18 1	PP	—
La Paz		164·0	63	e 20 31	[+26]	—	—	—	—	—

Additional readings :—
Bombay SE = 16m.31s., i = 16m.53s., SSS = 21m.37s.
Helwan eZ = 12m.43s.
Long waves were also recorded at Bozeman, Riverview, and at other European stations.

April 7d. 13h. 7m. 1s. Epicentre 30°·9S. 72°·0W. (as at 8h. 10m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	e 4 12	+22	e 4 53	?	i 5·2
La Plata	E.	12·5	112	(2 59)	− 3	(5 17)	− 6	—	—	5·9
	N.	12·5	112	—	—	(5 11)	−12	—	—	6·2
	Z.	12·5	112	(3 5)	+ 3	(5 17)	− 6	—	—	6·0
La Paz	Z.	14·8	15	i 3 33	+ 1	i 6 29	+11	—	—	8·0
Huancayo		19·0	351	e 4 29	+ 3	i 8 2	+ 7	—	—	i 9·3
Bogota		35·4	358	e 7 3	+ 3	—	—	—	—	—
Fort de France		46·6	16	e 8 28	− 4	—	—	—	—	—
San Juan		49·3	9	e 8 50	− 3	i 15 53	− 6	e 10 42	PP	e 22·1
Bermuda		63·3	8	e 10 44	+11	e 19 20	+16	e 24 56	?	e 26·5
Cape Girardeau	E.	69·8	346	e 11 12	− 2	e 20 21	− 2	—	—	—
St. Louis		71·2	346	e 11 22	− 1	e 20 41	+ 1	e 11 41	pP	—
Fordham		71·4	359	i 11 23	− 1	i 20 45	+ 3	—	—	—
Pittsburgh	N.W.	71·4	354	e 11 25	+ 1	e 20 39	− 3	—	—	e 34·2
Tucson		72·8	327	i 11 31	− 1	e 21 5	+ 7	e 14 33	PP	e 24·1
Harvard		73·0	1	i 11 32	− 1	i 21 4	+ 4	—	—	e 38·0
Chicago		73·8	348	e 11 36	− 2	i 21 6	− 3	e 26 21	?	e 35·2
Ottawa		76·0	358	11 48	− 3	21 34	0	—	—	e 37·0
Riverside	Z.	77·5	323	i 11 59	0	—	—	—	—	—
Seven Falls		77·7	2	—	—	e 21 52	0	—	—	32·0
Mount Wilson	Z.	78·0	323	i 12 1	− 1	—	—	—	—	—
Pasadena		78·1	323	e 12 1	− 1	i 21 59	+ 3	—	—	e 37·7
Santa Barbara	Z.	79·1	322	e 12 14	+ 6	—	—	—	—	—
Haiwee		79·5	325	i 12 11	+ 1	—	—	—	—	—
Salt Lake City		80·3	331	—	—	e 22 21	+ 1	e 27 58	SS	e 42·0
Tinemaha	Z.	80·3	325	i 12 15	+ 1	—	—	—	—	—
Logan		81·1	332	e 12 18	0	e 22 28	0	e 27 57	SS	e 41·7
Berkeley		83·0	323	i 12 36	+ 8	i 22 51	+ 4	—	—	—
Bozeman		84·0	335	e 12 32	− 1	e 23 0	+ 3	e 28 19	SS	e 40·4
Ukiah		84·4	323	—	—	e 23 2	+ 1	—	—	e 41·7

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		85·3	222	12 41	+ 1	23 4	− 6	28 43	SS	39·7
Wellington		85·4	224	—	—	22 59?	−12	28 59?	SS	40·0
Arapuni		86·8	227	—	—	e 24 59	PPS	—	—	—
Saskatoon		88·1	340	—	—	23 35	− 2	—	—	49·0
Lisbon		90·7	45	—	—	23 50	−11	24 10	S	46·7
San Fernando	E.	91·0	48	—	—	23 59?	− 4	—	—	49·0
Victoria		91·4	329	—	—	e 23 41?	[0]	—	—	44·0
Granada		93·2	48	e 13 54	+37	23 54	[+ 3]	17 1	PP	47·6
Almeria		93·7	49	e 14 2	+42	24 29	{+21}	26 17	PS	44·0
Cheb		109·7	43	e 16 59?	?	—	—	—	—	e 53·0
Helwan		115·2	70	—	—	e 29 29	PS	—	—	e 71·0
Bombay	E.	146·1	102	19 42	[+ 1]	30 3	{+ 6}	23 0	SKP	—
New Delhi	N.	153·2	86	e 24 56	?	—	—	—	—	—
Calcutta		160·6	110	(e 19 19)	[−42]	—	—	(e 24 42)	PP	—

Additional readings :—
La Plata readings increased by one minute.
Huancayo i = 5m.9s., e = 5m.47s.
Bogota i = 7m.12s., e = 7m.26s. and 7m.36s.
San Juan eS_eS? = 18m.31s., eSS = 19m.27s.
St. Louis eZ = 12m.20s., eS?E = 20m.28s., isSE = 21m.5s.
Logan e = 16m.14s. and 23m.58s.
Christchurch SSS = 31m.48s., e = 35m.34s.
Almeria PP = 17m.47s., PPP = 20m.19s., SKKS = 24m.57s., eS = 25m.34s., PS = 26m.17s.
Bombay PPE = 23m.30s., eE = 26m.30s., and 33m.17s., SKSPE = 33m.35s., eE = 35m.46s., SSE = 42m.9s.
Calcutta readings reduced by one hour.
Long waves were also recorded at Honolulu, College, Sitka, Scoresby Sund, Tananarive, and other European stations.

April 7d. 18h. 0m. 45s. Epicentre 30°·9S. 72°·0W. (as at 13h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	4 31	S*	—	—	e 5·1
La Plata	E.	12·5	112	2 51	−11	5 9	−14	2 58	P	6·0
	N.	12·5	112	3 3	+ 1	5 9	−14	5 45	SS	6·3
	Z.	12·5	112	2 56	− 6	5 15	− 8	—	—	5·8
La Paz	Z.	14·8	15	3 38	+ 6	—	—	—	—	17·6
Huancayo		19·0	351	e 4 46	+20	e 8 19	+24	—	—	e 9·7
St. Louis	Z.	71·2	346	i 11 22	− 1	—	—	—	—	—
Tucson		72·8	327	i 11 32	0	—	—	i 12 0	?	—
Riverside	Z.	77·5	323	e 11 59	0	—	—	—	—	—
Mount Wilson	Z.	78·0	323	i 12 2	0	—	—	—	—	—
Pasadena	Z.	78·1	323	i 12 1	− 1	—	—	—	—	—
Haiwee	Z.	79·5	325	i 12 10	0	—	—	—	—	—
Tinemaha	Z.	80·3	325	i 12 14	0	—	—	i 12 35	?	—

La Plata also gives E = 3m.39s.

April 7d. 23h. 17m. 52s. Epicentre 30°·9S. 72°·0W. (as at 18h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	—	—	e 3 20	−30	—	—	e 4·7
La Plata	E.	12·5	112	2 55	− 7	5 8	−15	—	—	5·9
	N.	12·5	112	2 52	−10	5 8	−15	—	—	5·7
	Z.	12·5	112	2 55	− 7	5 8	−15	—	—	6·3
La Paz	Z.	14·8	15	i 3 35	+ 3	i 6 32	+14	—	—	8·1
Huancayo		19·0	351	i 4 31	+ 5	i 8 13	+18	5 41	?	9·5
Bogota		35·4	358	e 7 4	+ 4	—	—	e 8 32	PP	—
Fort de France		46·6	16	e 8 28	− 4	—	—	—	—	—
San Juan		49·3	9	e 8 51	− 2	i 15 56	− 3	e 10 45	PP	e 22·8
Bermuda		63·3	8	e 10 50	+17	i 19 27	+23	e 13 13	PP	e 26·8

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Columbia		65·1	354	—	—	e 19 36	+ 9	e 23 42	SS	e 35·7
Philadelphia		70·6	358	i 11 15	− 4	e 20 30	− 3	e 21 18	PS	e 24·7
St. Louis		71·2	346	i 11 23	0	i 20 41	+ 1	e 21 14	PS	—
Fordham		71·4	359	i 11 24	0	i 20 46	+ 4	i 21 26	PS	—
Pittsburgh		71·4	354	i 11 23	− 1	e 20 42	0	—	—	—
Florissant		71·4	346	i 11 24	0	i 20 43	+ 1	i 16 0	PPP	e 33·1
Tucson		72·8	327	i 11 33	+ 1	e 21 1	+ 3	e 21 44	PS	e 36·0
Harvard		73·0	1	i 11 33	0	i 21 5	+ 5	i 21 18	?	e 40·1
Chicago		73·8	348	e 11 38	0	i 21 6	− 3	e 14 32	PP	e 32·4
Lincoln		74·9	342	e 11 46	+ 2	e 21 21	− 1	—	—	e 46·5
Ottawa		76·0	358	11 50	− 1	21 36	+ 2	14 44?	PP	e 39·1
Palomar	z.	76·7	323	i 11 55	0	—	—	—	—	—
Riverside	z.	77·5	323	i 12 0	+ 1	—	—	—	—	—
Seven Falls		77·7	2	12 2	+ 2	21 54	+ 2	—	—	28·1
Mount Wilson		78·0	323	i 12 2	0	—	—	—	—	—
Pasadena		78·1	323	e 12 3	+ 1	i 22 1	+ 5	—	—	e 32·1
Santa Barbara		79·1	322	i 12 8	0	—	—	—	—	—
Haiwee		79·5	325	i 12 12	+ 2	e 22 15	+ 4	—	—	—
Salt Lake City		80·3	331	e 12 15	+ 1	e 22 21	+ 1	e 27 28	SS	e 41·9
Tinemaha		80·3	325	i 12 17	+ 3	e 22 23	+ 3	—	—	—
Logan		81·1	332	e 12 21	+ 3	e 22 28	0	e 31 38	SSS	e 41·5
Santa Clara		82·4	323	e 12 29	+ 4	—	—	—	—	—
Berkeley		83·0	323	i 12 33	+ 5	i 22 52	+ 5	—	—	e 39·6
Bozeman		84·0	335	e 12 25	− 8	e 23 0	+ 3	e 28 27	SS	e 39·4
Ukiah		84·4	323	e 12 40	+ 4	e 23 8	+ 7	—	—	e 35·2
Christchurch		85·3	222	12 47	+ 7	23 3	− 7	28 55	SS	39·4
Wellington		85·4	224	12 47	+ 7	23 3	− 8	i 23 53	PS	42·1
Arapuni		86·8	227	—	—	23 20?	− 5	29 8?	SS	40·1
Auckland		88·1	228	—	—	23 28	− 9	—	—	41·1
Saskatoon		88·1	340	—	—	23 37	0	—	—	49·1
Lisbon		90·7	45	—	—	23 37?	−24	—	—	43·2
San Fernando		91·0	48	—	—	23 48	−15	—	—	46·1
Victoria		91·4	329	—	—	e 24 14	+ 7	—	—	43·1
Granada		93·2	48	i 13 15	− 2	24 22	− 1	17 4	PP	46·7
Almeria		93·7	49	e 13 13	− 7	24 20	− 7	17 1	PP	47·1
Toledo		94·5	46	i 13 25	+ 2	—	—	30 50	SS	44·6
Tortosa	N.	97·7	47	—	—	e 25 8?	+ 7	—	—	e 44·1
Sitka		102·8	331	—	—	e 27 46	PS	e 26 24	?	e 53·5
Kew		103·3	38	—	—	—	—	e 27 36	PS	e 44·1
Stonyhurst		103·5	35	e 25 2	?	e 27 27	PS	e 38 40	?	e 54·1
Riverview		103·8	216	—	—	—	—	e 27 44?	PS	e 48·7
Aberdeen		105·5	32	—	—	—	—	i 27 53	PS	e 53·0
Scoresby Sund		106·4	16	—	—	—	—	e 28 10	PS	e 55·4
Stuttgart		107·2	44	e 16 30	?	e 28 2?	PS	e 21 8?	PPP	e 53·1
Brisbane		107·8	222	i 20 16	?	i 24 10	?	—	—	—
Triest		108·6	48	—	—	e 25 8	[+ 2]	—	—	e 59·1
Copenhagen		112·0	37	—	—	—	—	28 59	PS	—
Helwan		115·2	70	e 18 56	[+13]	—	—	e 19 38	PP	—
Upsala	E.	116·0	35	—	—	—	—	e 29 31	PS	e 61·1
Ksara		120·2	68	e 18 47?	[− 6]	—	—	e 22 1	?	—
Bombay	E.	146·1	102	19 41	[0]	23 1	SKP	19 51	PKP_2	—
New Delhi	N.	153·2	86	e 20 3	[+11]	—	—	—	—	—
Calcutta	N.	160·6	110	e 40 57	?	—	—	e 58 12	?	63·0

Additional readings :—
Bogota i = 7m.14s., e = 9m.12s.
San Juan eSS = 19m.31s.
Bermuda e = 15m.32s., eSS = 23m.32s., e = 26m.20s.
Philadelphia e = 15m.8s., and 20m.8s.
St. Louis eN = 11m.32s., ipPZ = 11m.35s., iE = 20m.52s., eN = 20m.56s. and 21m.5s., eSSN = 25m.28s., eN = 26m.40s.
Florissant ipPZ = 11m.37s.
Tucson i = 12m.22s., ePP = 14m.30s., e = 14m.55s., e = 26m.2s., eSSS = 29m.4s.
Chicago e = 25m.28s.
Ottawa SSN = 26m.26s.?.
Salt Lake City esSS? = 28m.0s.

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Logan e =16m.5s., 23m.5s., and 25m.19s.
Christchurch SSS =32m.15s., Q =35m.25s.
Wellington iZ =13m.33s. and 14m.28s., SS =29m.28s., Q =39m.38s.
Granada PS =25m.49s.
Almeria PS =25m.57s.
Scoresby Sund e =34m.11s.
Stuttgart eZ =19m.14s.?.
Helwan eZ =20m.14s., eNZ =23m.54s., iZ =24m.20s., and 24m.53s., eEN =29m.29s., eE =30m.38s.
Upsala eN =32m.8s.?.
Bombay PKPN =19m.44s., PPE =23m.41s., SKSP =33m.30s., SPSE =35m.51s., SSE =41m.50s.
Long waves were also recorded at College, Des Moines, Ivigtut, Tananarive, and other European stations.

April 7d. Readings also at 0h. (La Plata (2), La Paz, Fresno, near Berkeley, Branner, Lick, and Santa Clara), 2h. (La Plata (2), Bombay, and Calcutta), 3h. (Arapuni, Auckland, Wellington, Riverside (2), La Plata, and Cheb), 4h. (Cheb and La Plata (2)), 5h. (La Plata (2)), 6h. (La Plata (2), Helwan (2), Ksara (2), Bombay, and near Andijan), 7h. (La Plata, Bogota, and Fort de France), 8h. and 9h. (near Mizusawa), 10h. (Tashkent and near Andijan), 11h. (La Plata (3) and near Granada), 12h. (La Paz, La Plata (2), near Toledo, Almeria, and Granada), 13h. (near Toledo (2), Almeria and Granada), 14h. (La Plata, Mount Wilson, Riverside, Tinemaha, Tucson, and near Lick), 15h. (Stalinabad, near Andijan, and Tashkent), 16h. (La Paz and La Plata (5)), 17h. (La Plata and near St. Louis), 18h. (Andijan, Tashkent, and near Stalinabad), 20h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 22h. (Fort de France, Santa Barbara, La Jolla, Pasadena, Palomar, Mount Wilson, Tinemaha, Haiwee, Riverside, Tucson, Wellington, Christchurch, Arapuni, Riverview, and Stuttgart), 23h. (La Plata, Cheb, and Sitka).

April 8d. 5h. 39m. 57s. Epicentre 32°·7S. 72°·0W. (as on 1940 April 8d.).

$A = +\cdot2605$, $B = -\cdot8018$, $C = -\cdot5377$; $\delta = -14$; $h = +1$;
$D = -\cdot951$, $E = -\cdot309$; $G = -\cdot166$, $H = +\cdot511$, $K = -\cdot843$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	11·9	105	2 52	− 2	5 3	− 6	2 59	PP	5·6
	N.	11·9	105	3 1	+ 7	5 3	− 6	—	—	5·9
	Z.	11·9	105	2 57	+ 3	5 3	− 6	—	—	5·8
La Paz	Z.	16·5	14	i 3 49	− 5	—	—	—	—	8·8
Huancayo		20·8	351	e 4 46	+ 1	e 8 19	−14	e 5 17	PPP	e 9·2
Tucson	Z.	74·3	326	e 11 46	+ 5	—	—	—	—	—
Palomar	Z.	78·1	323	i 12 9	+ 7	—	—	—	—	—
Riverside	Z.	78·9	323	e 12 3	− 4	—	—	e 12 14	P_cP	—
Mount Wilson	Z.	79·4	323	e 12 5	− 4	—	—	i 12 17	P_cP	—
Pasadena	Z.	79·4	323	e 12 4	− 5	—	—	i 12 16	P_cP	—
Haiwee	Z.	80·9	324	i 12 24	+ 7	—	—	—	—	—

April 8d. 18h. 29m. 46s. Epicentre 32°·7S. 72°·0W. (as at 5h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	11·9	105	3 6	PP	5 26	SS	3 12	PPP	6·2
	N.	11·9	105	3 6	PP	5 18	+ 9	—	—	6·1
	Z.	11·9	105	3 7	PP	5 20	+11	—	—	6·2
La Paz	Z.	16·5	14	i 3 42k	−12	i 6 44	−14	—	—	8·3
Huancayo		20·8	351	i 4 35	−10	e 8 14	−19	e 5 32	PPP	e 9·7
Tucson		74·3	326	e 11 41	0	—	—	—	—	e 38·4
Palomar	Z.	78·1	323	e 12 2	0	—	—	—	—	—
Riverside	Z.	78·9	323	e 12 7	0	—	—	—	—	—
Mount Wilson	Z.	79·4	323	i 12 10	+ 1	—	—	—	—	—
Pasadena	Z.	79·4	323	e 12 8	− 1	—	—	—	—	—

Tucson also gives e =12m.35s.
Long waves were also recorded at Montezuma.

April 8d. 23h. 1m. 25s. Epicentre 32°·7S. 72°·0W. (as at 18h.).

$A = +·2605$, $B = -·8018$, $C = -·5377$; $\delta = -14$; $h = +1$;
$D = -·951$, $E = -·309$; $G = -·166$, $H = +·511$, $K = -·843$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		10·5	17	—	—	e 4 27	− 8	—	—	e 5·0
La Plata	E.	11·9	105	2 59	+ 5	5 11	+ 2	—	—	5·7
	N.	11·9	105	2 57	+ 3	5 5	− 4	—	—	5·7
	Z.	11·9	105	2 58	+ 4	5 5	− 4	3 6	PP	5·8
La Paz	Z.	16·5	14	i 3 47a	− 7	i 6 47	−11	—	—	8·8
Huancayo		20·8	351	i 4 45	0	i 8 27	− 6	i 5 41	PPP	e 9·7
Bogota		37·2	357	e 7 1	−14	—	—	e 7 9	?	—
Fort de France		48·3	16	e 8 39	− 6	—	—	—	—	—
Tucson		74·3	326	i 11 41	0	—	—	—	—	e 38·5
Ottawa		77·8	357	e 11 58	− 3	—	—	—	—	43·6
Palomar	Z.	78·1	323	e 12 5	+ 3	—	—	—	—	—
Riverside	Z.	78·9	323	i 12 8	+ 1	—	—	e 12 20	P_cP	—
Mount Wilson	Z.	79·4	323	i 12 11	+ 2	—	—	—	—	—
Pasadena	Z.	79·4	323	i 12 11	+ 2	—	—	i 12 22	P_cP	e 33·0
Haiwee	Z.	80·9	324	i 12 15	− 2	—	—	—	—	—
Tinemaha		81·7	324	e 12 26	+ 4	—	—	—	—	—

Tucson also gives ePP = 13m.28s. and e = 20m.25s.
Long waves were also recorded at European stations.

April 8d. Readings also at 0h. (Zurich, Basle, La Plata (2), near Santa Clara, Berkeley, Branner, and Lick), 1h. (Uccle), 4h. (La Paz), 5h. (La Plata), 6h. (Logan), 8h. (La Plata), 9h. (Harvard, La Plata, and Bogota), 10h. (Stuttgart, Strasbourg, Basle, Triest, and Sofia), 11h. (La Plata, near Tashkent, and Andijan), 13h. (La Plata), 14h. (La Plata, near Andijan (3), Stalinabad, and Tashkent (2)), 15h. (Mount Wilson, Pasadena, Tucson, Tashkent, near Andijan), 17h. (Montezuma, La Plata (2), La Paz, Fort de France, and Tucson), 20h. (Tucson, Puebla, Vera Cruz, and Tacubaya), 23h. (Rio de Janeiro).

April 9d. 8h. 48m. 50s. Epicentre 18°·7N. 145°·4E. Depth of focus 0·010.

Epicentre: —18°·0N. 145°·0E. Depth 165km. (Bombay).
19°·0N. 145°·0E. Depth 100km. (U.S.C.G.S.).
19°·0N. 146°·0E. Depth 170km. (Pasadena).

$A = -·7802$, $B = +·5382$, $C = +·3187$; $\delta = -6$; $h = +5$;
$D = +·568$, $E = +·823$; $G = -·262$, $H = +·181$, $K = -·948$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatidyozima	15·2	342	i 3 29	− 1	6 19	+ 3	—	—	—
Misima	17·3	343	i 3 57	0	7 0	− 4	—	—	—
Yokohama	17·4	345	3 58	0	7 6	0	—	—	—
Nake	17·5	308	e 4 8	+ 9	7 20	+12	—	—	—
Tokyo	17·7	345	i 4 0	− 2	i 7 12	− 1	—	—	—
Kôti	18·2	327	i 4 8	0	7 14	−10	—	—	—
Miyazaki	18·2	319	4 10	+ 2	7 32	+ 8	—	—	—
Kôbe	18·3	334	e 4 8	− 1	7 21	− 5	—	—	—
Kyoto	18·4	335	e 4 8	− 2	7 28	0	—	—	—
Nagano	19·0	342	i 4 15	− 1	7 38	− 3	—	—	—
Hirosima	19·4	326	4 21	0	7 45	− 5	—	—	—
Sendai	19·9	351	e 4 24	− 2	7 57	− 3	—	—	—
Hamada	20·0	326	5 36	?	—	—	—	—	—
Hukuoka	20·0	321	i 4 26a	− 1	7 59	− 3	4 56	pP	—
Wazima	20·0	341	4 28	+ 1	8 0	− 2	—	—	—
Mizusawa	20·7	351	4 36	+ 4	8 15	0	—	—	—
Mori	23·7	352	(5 3)	− 1	(9 6)	− 2	—	—	—
Sapporo	24·5	353	i 5 12	+ 1	9 18	− 4	—	—	—
Nemuro	24·6	0	e 5 41	PP	—	—	—	—	—
Zinsen	24·9	322	5 19	+ 4	9 26	− 3	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		46·3	327	e 8 19	+ 1	—	—	—	—	—
Brisbane	E.	46·5	171	i 10 21	PcP	e 14 54	− 5	i 17 53	SS	e 19·5
	N.	46·5	171	i 8 27	+ 8	i 14 52	− 7	i 10 17	PcP	e 21·7
Riverview		52·5	174	i 9 8	+ 3	i 16 23	0	i 17 5	sS	e 23·9
Sydney		52·5	174	9 34?	+29	e 16 22	− 1	—	—	—
Honolulu		53·2	77	i 9 8	− 2	e 16 31	− 1	e 10 12	PcP	e 22·2
Calcutta	N.	53·3	285	e 9 15	+ 4	i 17 38	+64	e 9 54	pP	—
Perth		57·8	209	—	—	i 17 45	+12	i 18 25	PPS	i 27·0
Dehra Dun	N.	61·6	296	e 10 51	pP	e 18 4	−18	—	—	e 22·9
Auckland		61·8	154	—	—	16 10	?	i 19 0	PS	25·2
New Delhi	N.	62·5	294	e 10 16	0	i 18 25	− 9	10 56	pP	—
Arapuni		63·2	154	e 15 34?	?	18 40?	− 2	26 10?	SSS	29·2
Hyderabad	E.	63·3	280	10 22	+ 1	18 39	− 5	10 58	PcP	29·7
College		63·4	26	e 10 18	− 4	e 18 32	−13	e 13 22	PP	e 27·4
Frunse		63·6	309	10 22	− 1	—	—	—	—	—
Tuai		64·5	153	10 30	+ 1	18 53	− 5	—	—	—
Colombo		64·7	268	10 40	+10	(19 50)	PPS	—	—	19·8
Wellington		65·6	157	10 38	+ 2	19 9	− 3	19 50	sS	32·2
Kodaikanal	E.	66·0	274	(e 10 37)	− 1	(i 18 58)	−19	(11 12)	pP	—
Christchurch		66·8	159	—	—	19 27	+ 1	20 31	ScS	32·9
Tashkent		67·6	308	10 48	0	i 19 31	− 5	—	—	—
Bombay	E.	68·2	284	e 10 53	+ 1	i 19 40	− 3	i 11 29	pP	—
	N.	68·2	284	i 10 55	+ 3	e 19 39	− 4	11 32	pP	—
Stalinabad		68·3	305	e 10 53	0	i 19 46	+ 2	—	—	—
Sitka		68·7	35	i 10 54	− 1	e 19 40	− 9	e 11 35	PcP	e 28·7
Sverdlovsk		71·7	325	11 10	− 3	20 13?	−11	i 11 49	pP	—
Victoria		77·0	43	11 46	+ 2	i 21 18	− 5	e 15 16	PP	e 30·2
Seattle		77·9	44	e 12 47	+58	e 22 16	+43	—	—	e 30·4
Ukiah		79·5	52	e 11 53	− 5	e 21 35	−15	e 12 22	pP	e 33·7
Berkeley		80·5	53	i 11 57	− 6	e 21 51	− 9	e 15 5	PP	e 38·7
Branner	E.	80·7	53	i 12 4	0	e 21 41	−21	—	—	—
Santa Clara		80·9	53	i 12 5	0	e 21 50	−14	—	—	e 36·1
Lick		81·2	53	e 11 10?	−56	e 21 59	− 8	—	—	—
Fresno	N.	82·8	53	i 12 19	+ 4	—	—	—	—	—
Santa Barbara		83·5	56	i 12 18	0	e 22 25	− 5	—	—	—
Tinemaha		83·8	53	i 12 20	0	i 22 27	− 6	—	—	—
Haiwee		84·3	54	i 12 22	0	e 22 25	−13	—	—	—
Moscow		84·4	327	i 12 20	− 3	i 22 24	−15	i 12 58	pP	—
Butte		84·8	43	i 12 3?	−22	—	—	—	—	e 34·3
Pasadena		84·8	56	i 12 24k	− 1	i 22 29	−14	i 13 5	pP	e 34·3
Mount Wilson		84·9	56	i 12 25k	0	—	—	i 15 41	PP	—
Riverside		85·5	56	e 12 25	− 3	e 22 33	−17	—	—	—
Bozeman		85·9	43	e 12 28	− 2	e 23 51	PS	13 13	PcP	e 34·7
Saskatoon		85·9	37	e 12 28	− 2	i 22 46	[+ 2]	28 15	SS	e 35·2
La Jolla	E.	86·0	57	e 12 31	0	—	—	—	—	—
Palomar	Z.	86·1	56	i 12 31	0	—	—	i 15 51	PP	—
Logan		86·9	47	i 12 36	+ 1	i 22 45	[− 5]	e 23 19	sS	e 35·4
Salt Lake City		87·2	48	e 12 35	− 1	i 22 35	[−17]	e 15 57	PP	e 35·8
Scoresby Sund		90·6	356	e 12 53	0	e 23 29	− 9	e 24 37	PS	e 38·8
Upsala		91·0	336	e 13 52	+58	23 27	[+11]	e 17 9?	PP	e 43·2
Tucson		91·3	55	i 12 54	− 2	e 23 39	− 5	i 13 33	pP	37·6
Bergen		94·8	341	e 17 53	?	e 23 55	−19	—	—	e 45·2
Ksara		95·0	307	e 13 17?	+ 4	e 23 32	[− 6]	—	—	—
Copenhagen		95·9	335	e 13 14	− 3	24 14	− 9	17 43	PP	—
Bucharest		96·3	320	e 16 10?	?	i 26 36	PPS	e 26 16	PS	38·2
Lincoln		97·4	42	e 14 58	?	i 23 40	[−11]	e 17 18	PP	e 40·9
Potsdam		98·0	332	e 18 16?	?	e 25 1	+20	—	—	e 49·2
Des Moines		98·9	40	e 17 34	PP	i 23 54	[− 5]	i 25 6	S	—
Prague		99·0	330	e 18 12?	?	e 25 10?	+20	—	—	—
Sofia		99·0	320	e 13 10?	−21	e 25 10?	+20	—	—	—
Ivigtut		99·6	6	e 17 43	PP	e 24 45	−10	e 31 25	SS	e 41·8

Continued on next page.

		△	Az.	P.	O – C.	S.	O – C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen		99·7	342	i 18 23	?	i 25 0	+ 5	i 31 35	SS	e 47·4
Jena	E.	99·7	331	e 17 42	PP	e 27 10	PPS	—	—	e 46·2
	N.	99·7	331	e 17 34	PP	e 26 46	PS	e 31 40?	SS	e 47·2
Cheb		100·0	331	e 18 19	PP	e 25 14	+16	—	—	—
Helwan		100·2	305	14 58	?	26 0	?	32 35	SS	—
De Bilt		101·4	335	e 14 20	?	e 24 55	−15	e 18 10	PP	e 47·2
Stuttgart		102·3	332	e 13 43	− 3	e 20 53	?	e 14 35	pP	e 50·6
Chicago		102·4	37	e 17 51	PP	e 25 11	− 7	i 24 4	SKS	e 41·9
Triest		102·4	327	e 18 10	PP	e 24 10	[− 6]	—	—	—
Florissant		102·6	41	e 13 44	− 3	i 25 21	+ 1	e 14 35	pP	—
Stonyhurst		102·6	341	e 13 10?	?	i 25 13	− 7	i 27 29	PS	i 49·9
St. Louis		102·8	41	e 13 58	+10	i 25 29	+ 8	i 18 5	PP	—
Uccle		102·8	336	e 17 59	PP	i 27 10	PS	i 27 53	PPS	e 48·2
Tananarive		103·0	252	e 27 57	PPS	—	—	—	—	54·3
Strasbourg		103·1	332	—	—	e 25 18	− 6	i 27 59	PPS	e 55·2
Chur		103·6	330	e 18 8	PP	—	—	—	—	e 54·0
Zurich		103·7	331	e 17 35	?	—	—	—	—	—
Basle		104·0	331	e 17 36	?	—	—	—	—	—
Cape Girardeau		104·0	42	e 18 6	PP	e 24 13	[−10]	e 25 27	sS	—
Kew		104·0	338	e 14 50	?	e 25 23	− 8	e 26 56	PS	—
Neuchatel		104·7	332	e 18 16	PP	—	—	—	—	—
Florence	E.	105·0	327	—	—	e 28 20	PPS	—	—	—
Paris		105·1	335	e 23 10?	?	—	—	—	—	e 59·2
Ottawa		106·1	28	e 17 28	?	e 24 23	[−10]	e 18 24	PP	43·2
Tacubaya	N.	106·2	62	e 18 25	PP	—	—	—	—	—
Seven Falls		106·8	24	e 18 29	PP	e 24 22?	[13]	e 25 39	S	44·2
Clermont-Ferrand		107·3	333	e 19 54	?	—	—	e 20 30	PPP	—
Pittsburgh		107·6	34	e 18 32	PP	i 26 4	S	i 26 54	sS	—
New Kensington		107·7	34	—	—	e 33 46?	SS	—	—	e 49·8
Fordham		110·4	29	i 18 54	pPKP	e 24 44	[− 7]	i 19 44	pPP	—
Philadelphia		110·5	31	i 18 51	PP	e 24 38	[−13]	i 28 21	PS	48·0
Columbia		111·4	40	e 19 2	PP	e 24 47	[− 8]	e 28 37	PS	e 47·9
Tortosa	E.	112·4	331	—	—	35 56	?	—	—	e 53·2
Toledo		115·1	334	i 20 27	?	30 7	PPS	—	—	58·2
Almeria		117·0	331	19 31	PP	26 21	?	30 9	PPS	—
Granada		117·2	332	i 19 35	PP	26 4	?	22 29	SKP	55·2
Lisbon		118·1	337	20 45	pPP	36 54	SSP	20 50	?	54·5
San Fernando		118·9	334	e 20 53	pPP	e 36 24	SS	e 30 10	PS	59·7
Bermuda		121·6	29	e 20 31	PP	e 30 17	SP	e 36 53	SS	e 48·0
San Juan		131·9	41	e 20 56	PP	e 33 20	PPS	e 38 44	SS	e 54·0
Bogota		134·7	62	e 18 48	[−20]	—	—	e 22 2	PP	—
Fort de France		137·7	39	e 19 3	[−10]	—	—	—	—	—
Huancayo		140·2	86	e 18 57	[−21]	e 33 30	sPS	e 22 19	PP	e 53·5
La Paz		148·0	90	i 19 32k	[+ 1]	26 17	[−11]	i 21 4	pPKP	74·9

Additional readings :—
Hukuoka SS = 8m.52s.
Mori readings increased by 1 minute.
Brisbane iSSN = 18m.4s., eQN = 19m.5s.
Riverview iNZ = 9m.13s., iP$_c$PNZ = 10m.17s., iNZ = 12m.19s. and 16m.28s., isSEN = 17m.8s.
Calcutta iPPN = 11m.51s., iSSN = 22m.13s.
Perth i = 21m.10s.
Auckland S$_c$S = 17m.25s., SS? = 22m.5s.
New Delhi sPN = 11m.14s., PSN = 19m.9s., sSN = 19m.31s., S$_c$SN = 19m.38s., sS$_c$SN = 20m.45s., SSN = 22m.25s., sSSN = 23m.29s., SSSN = 25m.31s., sSSSN = 26m.39s.
Hyderabad PPE = 12m.37s., PSE = 19m.20s., SSE = 22m.27s.
College e = 14m.43s., eS$_c$S = 19m.45s., e = 22m.24s., eSSS? = 25m.50s.
Wellington S$_c$S = 20m.20s., SS = 23m.25s., SSS? = 27m.0s., Q = 28·2m.
Kodaikanal readings increased by 30 seconds.
Christchurch SS = 24m.5s., Q = 28m.35s.
Bombay sPEN = 11m.58s., PPE = 13m.29s., PPPE = 14m.55s., ipSEN = 20m.26s., isSEN = 20m.50s., iE = 21m.20s., isSS?E = 24m.51s., iE = 26m.40s.
Sitka e = 13m.53s., iPS = 20m.38s., eSS = 24m.5s., esSS? = 25m.1s., iSSS = 27m.35s.
Ukiah ePS = 22m.39s., e = 26m.46s.
Berkeley iPZ = 12m.2s., iPN = 12m.6s., iPE = 12m.10s.
Moscow sS = 23m.34s.
Butte i = 22m.11s.?

Continued on next page.

Pasadena iZ = 13m.19s., iE = 23m.34s.
Riverside iZ = 13m.32s.
Bozeman ePP = 15m.46s,. eSS = 22m.34s. and 28m.23s.
Logan i = 13m.20s. and 15m.16s., iPP = 15m.54s., e = 17m.42s., iPS = 23m.58s., i = 24m.5s.
Salt Lake City ePS = 24m.9s., eSS = 28m.49s., e = 29m.49s.
Scoresby Sund e = 13m.56s. and 17m.9s., eSS = 29m.43s., e = 33m.6s.
Upsala iPS = 24m.17s., eSSSE = 28m.10s.?, eN = 36m.32s.
Tucson iPP = 16m.30s., e = 22m.56s., eSKS = 23m.14s., eSP = 24m.46s., ePS = 24m.56s.
Copenhagen 14m.16s., 18m.0s., 20m.2s., 24m.41s., 26m.26s., and 30m.13s.
Lincoln i = 24m.53s., eSS = 31m.3s.
Potsdam eE = 18m.22s.?
Prague e = 22m.5s.
Jena eN = 18m.17s., eEN = 18m.22s.?, eN = 31m.10s.?
Helwan eZ = 16m.37s., PPEN = 18m.37s.
De Bilt iPPP = 20m.46s., ePS = 27m.10s.
Stuttgart eSKP?Z = 17m.10s., ePPP = 18m.50s., e = 25m.7s., ePPS? = 27m.42s., eSS? = 33m.22s.
Chicago e = 18m.43s., ePS = 27m.0s., eSS = 32m.2s.
Florissant iPPZ = 17m.56s., iSKS?N = 24m.7s., isSN = 27m.5s.
Stonyhurst iPP = 17m.29s., iPKS = 20m.29s., iPS = 26m.22s., eQ = 45·2m.
St. Louis epPPN = 18m.47s., iSKS?E = 24m.16s., eSKKS?EN = 25m.18s., esSE = 27m.7s., eE = 32m.19s.
Uccle ePPZ = 18m.29s., i = 18m.54s., ePPPZ = 20m.56s., iSSN = 33m.18s.
Tananarive E = 28m.52s.
Basle e = 21m.58s.
Kew iPP? = 19m.4s., ePPP? = 21m.7s., eEN = 26m.32s., eEZ = 27m.44s., ePS?EN = 28m.3s., ePPS? = 28m.40s.?, eSS = 32m.10s.?
Florence iSE = 29m.8s., iPSE = 29m.51s.
Ottawa e = 25m.35s., eZ = 28m.10s.?, e = 33m.10s.?
Seven Falls e = 33m.28s. ?
Pittsburgh iSKS = 24m.31s.
Fordham iSP = 28m.28s., i = 29m.10s.
Philadelphia e = 25m.31s. and 29m.7s., eSS = 34m.3s., eSSS = 38m.26s.
Columbia e = 29m.22s., eSS = 34m.23s.
Toledo SSN = 36m.58s.
Almeria iPP = 20m.40s., pPP = 20m.55s., PPP = 23m.6s., PPS = 31m.24s.
Granada PP = 20m.35s., PPP = 23m.15s., S = 28m.51s., PS = 31m.24s., SS? = 35m.59s.
Bermuda eSSS = 41m.17s.
San Juan ePP = 21m.26s., e = 22m.14s.
Bogota e = 18m.56s., 20m.29s., and 23m.0s.
Huancayo ePKP = 19m.25s., e = 26m.53s. and 30m.20s., eSS? = 39m.59s., e = 40m.42s.
La Paz iZ = 20m.17s., isPKP = 21m.33s., iPPZ = 23m.5s., SSZ = 43m.10s.

April 9d. 19h. 46m. 44s. Epicentre 34°·0N. 28°·0E.

$A = +\cdot 7336$, $B = +\cdot 3900$, $C = +\cdot 5566$; $\delta = +7$; $h = 0$;
$D = +\cdot 469$, $E = -\cdot 883$; $G = +\cdot 491$, $H = +\cdot 261$, $K = -\cdot 831$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	5·0	145	e 1 22	+ 4	2 19	+ 1	1 43	P_g	i 3·6
Ksara	6·5	91	e 1 43?	+ 4	e 2 50	− 5	—	—	—
Sofia	9·4	337	e 2 16	− 2	e 4 16?	+ 9	—	—	—
Bucharest	10·5	352	e 2 30	− 5	i 4 46	+11	e 2 46?	PPP	e 5·7
Focsani	11·7	357	e 3 52?	?	—	—	—	—	6·8
Triest	15·9	321	e 6 16	?	i 6 40	− 4	—	—	—
Florence	16·3	312	e 4 7	PP	e 9 10	L	e 4 49	pP	(e 9·2)
Prague	18·9	333	e 4 20	− 4	—	—	—	—	—
Chur	19·0	318	e 4 23	− 3	e 8 2	+ 7	—	—	—
Cheb	19·7	330	—	—	e 9 16?	SSS	—	—	—
Zürich	19·8	318	e 4 30	− 5	e 8 3	−10	—		—
Stuttgart	20·3	322	e 4 35	− 5	i 8 26	+ 3	e 4 59	PP	—
Basle	20·5	318	e 4 39	− 3	e 8 16	−11	—	—	—
Neuchatel	20·5	317	e 4 39	− 3	e 8 18	− 9	—	—	—
Jena	20·7	331	e 4 39	− 5	e 8 23	− 8	e 4 58	PP	e 9·3
Strasbourg	21·0	323	e 4 54	+ 7	i 8 37	0	—	—	—
Potsdam	21·3	335	e 5 4?	PP	i 8 39	− 4	e 5 28?	PPP	e 12·3
Clermont-Ferrand	22·3	309	i 5 0	− 1	i 9 0	− 2	—	—	e 15·0
Moscow	22·7	14	4 59	− 5	8 58	−11	—	—	—
Paris	24·0	316	i 5 17	0	e 9 17	−15	—	—	e 16·3

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Uccle	24·0	322	5 16	− 1	i 9 27	− 5	—	—	—
Copenhagen	24·2	339	i 5 15	− 4	9 19	PcP	9 31	S	—
De Bilt	24·4	326	—	—	e 9 36	− 3	—	—	—
Granada	25·8	286	5 49	+15	10 5	+ 3	—	—	12·4
Toledo	26·2	292	i 5 40	+ 2	—	—	—	—	—
Upsala	26·8	349	—	—	e 10 16?	− 3	—	—	—
Sverdlovsk	31·8	35	i 6 25	− 3	—	—	—	—	—
Tashkent	33·2	65	e 6 38	− 2	e 12 0	0	—	—	—

Additional readings :—
Helwan iNZ = 2m.4s., iE = 3m.1s.
Bucharest eEZ = 4m.13s.
Florence ePP?E = 5m.13s.
Stuttgart eS = 8m.14s.
Copenhagen 5m.30s.
Long waves were also recorded at Kew and Aberdeen.

April 9d. Readings also at 0h. (La Plata, near Andijan and Tashkent), 2h. (Angra do Heroismo), 3h. (near Lick, Fresno, Branner, and near Mizusawa), 7h. (La Plata), 9h. (La Paz and near Almeria), 10h., 13h. (2), and 14h. (La Plata), 15h. (La Plata and near Berkeley), 16h. (near Lick), 22h. (Berkeley), 23h. (Berkeley (2) and near Stalinabad).

April 10d. Readings at 3h. (Salt Lake City, Ukiah, and Mizusawa), 4h. (Bogota and near Frunse), 5h. (Berkeley), 6h. (near Tashkent), 10h. (La Paz, La Plata, near Tchimkent, and Tashkent), 13h. (near Mizusawa), 14h. (La Plata), 20h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and near Balboa Heights), 21h. (La Plata), 23h. (La Plata, Logan, and Salt Lake City).

April 11d. 14h. 46m. 0s. Epicentre 36°·3N. 141°·5E. (as on 1943, March 14d.).

Intensity VI at Onahama, Kakioka, Hukusima ; V at Mito, Sendai, Maebasi ; IV at Tokyo, Yokohama, Yamagata, Misima, Iida, Miyako, Morioka ; II-III at Katuura, Sakata, and Hatinohe.
Epicentre 36°·3N. 141°·3E. Macroseismic radius 300km. Shallow.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo, 1950, pp. 16-17, macroseismic chart p.16.

$A = -·6322$, $B = +·5029$, $C = +·5894$; $\delta = -2$; $h = 0$;
$D = +·623$, $E = +·783$; $G = -·461$, $H = +·367$, $K = -·808$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Onahama	0·8	323	0 18	0	0 29	− 2	—	—	—
Mito	0·9	276	0 19k	− 1	0 29	− 5	—	—	—
Kakioka	1·1	266	0 22	0	0 32	− 7	—	—	—
Tukubasan	1·1	266	0 23	+ 1	0 37	− 2	—	—	—
Utunomiya	1·4	281	0 26	− 1	0 35	−11	—	—	—
Tokyo	1·5	247	0 30	+ 2	0 52	+ 3	—	—	—
Hukusima	1·7	330	0 34a	+ 3	1 6	S_g	—	—	—
Yokohama	1·7	240	0 38a	+ 7	0 59	+ 5	—	—	—
Maebasi	2·0	273	0 36k	+ 1	1 1	− 1	—	—	—
Sendai	2·0	346	0 35a	0	1 3	+ 1	—	—	—
Osima	2·3	228	0 38a	− 2	1 23	S_g	—	—	—
Misima	2·4	240	0 40a	− 1	1 17	+ 5	—	—	—
Kohu	2·5	254	0 42	− 1	1 12	− 2	—	—	—
Nagano	2·7	278	0 47a	+ 2	1 12	− 7	—	—	—
Mizusawa	2·8	354	0 48	+ 1	1 21	− 1	—	—	—
Shizuoka	2·8	242	0 48a	+ 1	1 25	+ 3	—	—	—
Aikawa	3·1	304	0 53k	+ 2	1 45	S_g	—	—	—
Omaesaki	3·2	238	0 50a	− 2	1 33	+ 1	—	—	—
Miyako	3·4	6	0 52a	− 3	1 30	− 7	—	—	—
Hamamatu	3·5	243	0 57a	0	1 46	+ 6	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. + s.		m.
Hatidyozima		3·5	204	0 57	0	1 32	− 8	—	—	—
Toyama		3·5	279	0 57a	0	1 30	−10	—	—	—
Nagoya		3·8	254	1 2a	+ 1	2 2	S_g	—	—	—
Wazima		3·8	289	1 3k	+ 2	1 35	−12	—	—	—
Gihu		3·9	258	1 3a	+ 1	1 58	+ 8	—	—	—
Hatinohe		4·2	0	1 4a	− 3	1 54	− 3	—	—	—
Hikone		4·4	258	1 11	+ 1	1 57	− 5	—	—	—
Kameyama		4·4	251	1 8	− 2	2 12	S*	—	—	—
Aomori		4·6	354	1 11	− 1	2 14	+ 7	—	—	—
Kyoto		4·9	256	1 19	+ 2	2 29	S*	—	—	—
Owase		4·9	245	1 18	+ 1	2 36	S_g	—	—	—
Osaka		5·2	251	1 20	− 1	2 29	+ 7	—	—	—
Kôbe		5·4	254	1 23a	− 1	2 30	+ 2	—	—	—
Siomisaki		5·5	241	1 23	− 2	2 54	S*	—	—	—
Toyooka		5·5	265	1 28	+ 3	2 33	+ 3	—	—	—
Wakayama		5·6	250	1 24	− 3	2 47	S*	—	—	—
Sumoto		5·7	252	1 28	0	3 0	S_g	—	—	—
Mori		5·9	351	1 29	− 2	2 46	+ 6	—	—	—
Muroto		6·7	245	1 37	− 5	—	—	—	—	—
Sapporo		6·8	359	1 46	+ 2	3 22	S*	—	—	—
Koti		7·1	250	1 47	− 1	3 21	+11	—	—	—
Matuyama		7·6	253	1 50a	− 5	3 27	+ 4	—	—	—
Nemuro		7·6	21	1 49	− 6	3 13	−10	—	—	—
Hirosima		7·7	257	1 56	0	3 43	S*	—	—	—
Hamada		7·8	262	1 56a	− 2	3 47	S*	—	—	—
Simidu		7·8	246	1 57a	− 1	3 44	S*	—	—	—
Izuka		9·2	256	2 18	+ 2	5 1	S_g	—	—	—
Miyazaki		9·4	245	2 18	0	3 59	− 8	—	—	—
Hukuoka		9·5	257	2 11a	− 9	4 28	+18	—	—	—
Kumamoto		9·5	252	2 20	0	4 22	+12	—	—	—
Unzendake		9·9	252	2 29	+ 4	4 42	S*	—	—	—
Kagosima		10·2	246	2 28	− 3	4 28	+ 1	—	—	—
Tomie		11·1	254	2 50	+ 7	—	—	—	—	—
Keizyo		11·7	281	3 5	PP	5 25	SS	—	—	—
Zinsen		12·0	280	2 56a	+ 1	5 30	SS	—	—	—
Nake		12·8	235	3 5	− 1	5 45	+15	—	—	—
Naha		15·5	233	3 37	− 5	6 41	+ 6	—	—	—
Dairen		16·0	286	3 25	−23	6 54	+ 8	—	—	—
Miyakozima		18·0	235	4 10	− 3	7 34	+ 2	—	—	—
Calcutta	N.	47·8	269	i 8 32a	− 9	i 15 50	+12	i 10 22	PP	e 24·3
Almata		49·0	300	e 9 3	+13	—	—	—	—	—
College		49·7	32	e 8 49	− 7	i 16 11	+ 7	e 11 2	PP	e 19·8
Dehra Dun	N.	52·5	283	e 8 33	−44	e 16 0	−43	—	—	e 28·7
Andijan		53·0	297	e 9 18	− 3	16 52	+ 2	—	—	—
New Delhi	E.	53·9	281	i 9 27	0	i 16 58	− 4	17 17	SP	—
	N.	53·9	281	i 9 23a	− 4	i 17 0	− 2	17 20	SP	25·0
Honolulu		54·4	88	—	—	e 17 10	+ 1	—	—	24·5
Tashkent		55·0	298	9 33	− 2	17 16	− 1	—	—	—
Sitka		56·8	41	e 9 53	+ 5	i 17 43	+ 2	e 19 25	ScS	e 25·3
Hyderabad	E.	58·3	269	9 58	− 1	18 0	− 1	12 4	PP	28·5
Bombay	E.	62·1	274	i 10 22	− 3	18 50	+ 1	i 19 5	PS	—
Kodaikanal	E.	63·1	265	(i 10 30)	− 2	(i 19 0)	− 2	(12 42)	PP	—
Brisbane	N.	64·4	169	e 13 35	PP	i 19 8	−10	—	—	i 23·6
Victoria		66·9	47	11 1	+ 5	19 45	− 4	—	—	33·0
Moscow		67·9	323	11 0	− 2	20 0	− 1	—	—	—
Seattle		68·0	47	—	—	e 19 36	−26	—	—	e 29·4
Riverview		70·3	172	e 11 18	+ 1	i 20 25	− 4	i 20 48	PS	e 30·4
Ukiah		71·8	55	—	—	e 20 41	− 5	e 25 16	SS	e 29·6
Scoresby Sund		72·8	355	e 11 26	− 6	i 20 55	− 3	e 14 6	PP	e 33·8
Berkeley		73·1	56	1 11 32	− 2	i 20 59	− 2	—	—	e 33·6
Santa Clara	Z.	73·6	56	e 11 37	0	e 21 5	− 2	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		73·6	335	11 33	− 4	20 58?	− 9	21 21	ScS	e 39·0
Saskatoon		73·8	37	e 25 0?	?	—	—	—	—	33·0
Butte		74·5	44	e 11 30?	−12	e 20 51?	−26	—	—	e 39·4
Bozeman		75·5	44	—	—	i 21 22	− 6	—	—	e 32·2
Tinemaha	z.	76·2	55	i 11 48	− 4	—	—	i 12 5	PcP	—
Yalta		76·2	315	e 11 49	− 3	21 45	+ 9	—	—	—
Santa Barbara	z.	76·7	58	i 12 2	+ 7	—	—	—	—	—
Haiwee		76·9	54	e 12 9	+13	—	—	—	—	—
Bergen		77·2	340	9 27	?	21 35	−12	26 25	SS	e 35·5
Logan		77·4	47	e 16 12	PPP	e 21 46	− 3	e 22 10	sS	e 32·4
Pasadena		77·9	56	i 11 59	− 2	i 21 48	− 6	i 12 7	PcP	e 32·9
Mount Wilson	z.	78·0	56	i 11 59	− 3	—	—	i 12 8	PcP	—
Salt Lake City		78·0	48	e 12 0	− 2	e 21 53	− 2	e 26 44	SS	e 33·4
Cernauti		78·1	322	e 12 1	− 1	e 21 50	− 6	e 22 12	PS	—
Copenhagen		78·6	333	i 12 2a	− 3	21 59	− 3	15 0	PP	—
Riverside	z.	78·6	56	e 12 3	− 2	—	—	—	—	—
Bacau		78·8	321	e 12 36?	+30	22 36?	+32	—	—	—
Auckland		79·1	154	—	—	22 7	0	27 30?	SS	38·0
Focsani		79·2	320	e 14 12?	?	—	—	—	—	—
La Jolla	z.	79·3	58	i 12 10	+ 1	—	—	—	—	—
Palomar	z.	79·3	57	i 12 6	− 3	—	—	—	—	—
Arapuni		80·5	153	15 0?	PP	22 18?	− 4	e 27 42?	SS	—
Bucharest		80·6	319	e 12 5	−11	c 22 29	+ 6	e 12 10	PcP	—
Campulung		80·6	320	e 12 12?	− 4	—	—	—	—	—
Potsdam		80·9	330	e 12 20	+ 3	i 22 26	0	i 22 43	ScS	e 40·0
Ksara		81·6	305	e 12 22?	+ 1	e 22 33?	0	—	—	—
Aberdeen		82·0	341	i 12 16	− 7	i 22 30	− 7	e 27 41	SS	43·0
Prague		82·1	329	e 12 19	− 5	e 22 31	− 7	c 15 21	PP	e 39·0
Ivigtut		82·5	5	—	—	e 22 37	− 5	—	—	e 41·7
Jena		82·6	331	i 12 23	− 3	e 22 43	0	i 12 36	PcP	e 42·0
Cheb		83·0	330	e 12 27	− 1	e 22 43	− 4	e 15 38	PP	e 46·0
Wellington		83·0	156	12 32	+ 4	22 37	−10	23 29	PS	39·0
Belgrade		83·2	322	e 12 23	− 6	e 22 50	+ 1	i 12 39	PcP	e 44·2
Edinburgh		83·3	341	—	—	e 22 38	−12	—	—	—
Sofia		83·3	319	e 12 29	− 1	e 22 52	+ 2	e 23 17	PS	40·5
Tucson		84·0	54	i 12 32	− 1	e 22 53	− 4	e 15 44	PP	e 35·2
De Bilt		84·1	335	i 12 31a	− 3	i 22 54	− 4	i 15 44	PP	e 40·0
Christchurch		84·3	158	12 40	+ 5	22 55	− 5	28 30	SS	39·6
Stonyhurst		85·0	340	i 22 52	SKS	i 23 6	− 1	28 40	SS	42·7
Stuttgart		85·3	331	i 12 36a	− 4	i 23 1	[− 2]	i 12 50	PcP	e 43·1
Uccle		85·4	335	i 12 36a	− 4	i 23 0	[− 4]	i 15 56	PP	e 42·0
Triest		85·8	327	e 12 40	− 2	i 23 0	[− 6]	i 15 37	PP	—
Strasbourg		86·0	332	e 12 38	− 5	23 6	[− 2]	e 12 54	pP	e 43·1
Kew		86·4	337	i 12 43	− 2	e 23 4	[− 6]	i 12 58	PcP	e 34·0
Lincoln		86·5	41	e 19 6	?	e 23 14	[+ 3]	e 28 48	SS	e 39·4
Chur		86·7	330	e 12 42	− 5	e 23 20	{+ 2}	—	—	e 45·0
Zürich		86·7	331	e 12 43k	− 4	e 23 38	+14	e 23 3	SKS	—
Basle		86·9	331	e 12 53	+ 5	e 23 22	− 4	—	—	—
Helwan		87·1	305	i 12 45k	− 4	23 50	+22	i 13 0	PcP	—
Neuchatel		87·6	331	e 12 48	− 3	e 23 10	[− 8]	—	—	—
Paris		87·8	334	e 12 48	− 4	e 23 16	[− 3]	—	—	39·0
Milan	E.	87·9	329	e 13 21	+28	i 23 15	[− 5]	—	—	46·2
Florence		88·4	326	i 12 49a	− 6	i 23 50	+10	e 16 20	PP	—
Clermont-Ferrand		90·1	333	e 12 54	− 9	e 23 52	− 3	i 13 13	PcP	e 36·7
Florissant		91·3	38	—	—	i 23 28	[−12]	—	—	e 46·5
Ottawa		92·0	25	13 9	− 3	24 4	− 8	30 18	SS	e 44·0
Seven Falls		92·0	21	—	—	e 24 6	− 6	e 30 18?	SS	45·0
Vermont		93·7	25	e 22 34	?	e 24 14	{+ 5}	e 31 19	SSP	e 42·5
Barcelona		94·2	331	e 17 7	PP	e 25 55	PS	(e 34 41)	SSS	e 46·7
New Kensington		94·7	31	—	—	e 24 42?	+ 6	—	—	e 51·8
Pittsburgh		94·7	31	—	—	e 24 34	− 2	—	—	e 53·7
Tortosa	E.	95·3	331	(e 13 35)	+ 8	(24 35)	− 6	(17 37)	PP	(e 44·0)
Fordham		96·6	26	e 17 29	PP	e 23 59	[−11]	e 31 39	SSP	—
Philadelphia		96·9	28	—	—	e 24 35	{+ 3}	e 31 27	SS	e 45·3
Toledo		97·8	334	13 39	+ 1	—	—	18 6	PP	52·0

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Columbia		99·6	35	e 16 4	?	e 25 15	− 2	e 24 30	SKS	e 46·1
Almeria		99·9	331	e 13 37	−11	23 30	?	17 14	pP	50·0
Granada		100·0	333	13 47	− 1	24 24	[− 3]	i 18 25	PP	51·0
Lisbon		100·6	337	17 53?	PP	24 45	[+16]	32 42?	SSP	45·9
San Fernando		101·6	334	e 17 55	PP	—	—	—	—	49·0
Bermuda		107·4	23	e 19 12	PP	e 26 14	− 9	e 34 1	SSP	e 44·3
San Juan		119·7	30	e 20 11	PP	e 27 8	{− 4}	—	—	e 50·6
Huancayo		139·0	64	e 22 51	PP	e 27 0	[+22]	e 40 38	SS	e 55·1
La Paz	z.	147·1	61	i 19 43	[0]	—	—	—	—	70·0
La Plata	E.	164·1	90	32 18	?	44 54	SS	51 36	SSS	71·0

Additional readings :—
Toyama S =1m.23s. and 1m.28s.
College ePPP =11m.47s., eS_cS =18m.30s.
New Delhi PPN =11m.25s., PPPN =12m.51s., P_cSN =14m.51s., PSE =17m.28s., PSN =17m.32s., SSN =20m.52s., SSSN =22m.51s.
Sitka e =23m.55s.
Hyderabad iE =18m.15s., S_cSE =19m.44s., SSE =21m.58s.
Bombay iE =10m.37s., P_cPE =10m.55s., PPE =12m.45s., PPPE =14m.44s., PPSE =19m.45s., S_cSE =20m.26s., SSE =23m.7s., iE =23m.20s.
Kodaikanal SSE =(23m.30s.). Readings increased by 30 seconds.
Brisbane iSS?N =20m.29s.
Victoria e =28m.0s.?.
Riverview iZ =11m.29s., iN =11m.55s., iE =21m.25s., iSSE =24m.45s., iSSN =24m.50s.
Scoresby Sund e =24m.51s. and 25m.52s., eSSS =28m.57s.
Berkeley iSZ =20m.53s.
Upsala ePS?E =14m.10s., ePS?N =14m.16s., ePPSN =15m.52s., ePPS?E =16m.0s.?, eSSS =26m.0s.?, eN =30m.0s.?, eE =34m.0s.?. Phases wrongly identified.
Bergen iZ =10m.0s.
Logan ePPP =16m.47s.. e =17m.19s., iS =21m.56s., eSSS =30m.14s.
Pasadena eEN =26m.30s.?.
Cernauti eN =22m.9s.
Copenhagen 22m.17s., 24m.9s., and 27m.9s.
Bucharest eSKSN =22m.33s.
Potsdam iPSE =23m.3s.
Aberdeen iE =27m.2s., eSSSN =31m.11s., eQE =39m.41s.
Jena eS?EN =22m.39s., eEN =22m.58s.
Cheb ePPPE =17m.38s., eSSE =28m.19s.
Wellington iZ =13m.36s. and 18m.10s., e =24m.17s.?, SS =29m.8s., e =31m.42s., Q =35m.
Belgrade ePP =15m.39s.
Tucson epPP =16m.14s., ePS =23m.50s.
De Bilt eSS =28m.20s.
Christchurch SSS =32m.8s., Q =34m.53s.
Stonyhurst iS =23m.13s., eSSS =32m.55s., eQ =37m.?.
Stuttgart ePPZ =15m.27s., ePPPZ =17m.50s., i =23m.13s., eSP =24m.12s., eSS =24m.12s., eSS =28m.57s., eSSS =32m.21s.
Uccle eSE =22m.55s., SSE =28m.7s.
Triest SS =29m.0s.
Strasbourg esS =23m.30s.
Kew iPP =16m.3s., iS_cS =23m.19s., iPSEZ =23m.39s., eSSEN =28m.59s.
Chur e =14m.5s.
Helwan iZ =13m.18s., PPZ =16m.24s., SKSEN =23m.11s., iN =24m.24s.
Florence ePPP?Z =18m.15s., iSKSN =23m.16s., iSKKSN =23m.36s., ePSN =24m.52s., ePPSN =25m.17s., eSSN =29m.44s., eSSSN =33m.34s.
Clermont-Ferrand iP =12m.58s., ePP =16m.17s., and 16m.29s., iPPP =18m.13s.
Florissant iE =29m.32s.
Seven Falls e =34m.48s.?.
Barcelona SSS given as L.
Pittsburgh i =37m.37s.
Tortosa PSE =(25m.51s.), SSE =(31m.35s.), Q =(38m.35s.). Readings increased by 1 minute.
Philadelphia eSSS =35m.15s.
Columbia eSS =32m.8s.
Almeria PPP =19m.30s., PKS =20m.3s., PS =26m.27s., PPS =27m.40s., SS =32m.29s., SSS =36m.32s.
Granada iPKP =17m.31s., pPKP =17m.49s., sPKP =17m.57s., sPP =19m.4s., sSKS =24m.51s., SKKS =25m.30s., PS =28m.21s.
San Fernando eSS?E =31m.37s.
San Juan e =29m.38s., eSS =36m.34s.
Huancayo e =46m.14s.
La Plata E =35m.54s., PPSN =41m.18s., PSSN =48m.42s.
Long waves were also recorded at Marseilles, Besançon, and Tananarive.

April 11d. Readings also at 0h. and 1h. (La Plata), 2h. (near Lick (2), Berkeley (3), and Branner), 5h. (near Fort de France), 7h. (Stuttgart), 8h. (Tinemaha, Mount Wilson, Palomar, Riverside, Tucson, San Juan, Huancayo, La Paz, and La Plata), 9h. (Stuttgart, De Bilt, Kew, Granada, Tinemaha, Mount Wilson, Palomar, Riverside, Tucson, Bogota, La Plata (2), La Paz, and near Huancayo), 10h. (Sydney), 11h. (La Plata), 13h. (Pittsburgh), 14h. (La Plata), 15h., 16h. (3), 18h., 19h. (2), 20h., 23h. (3) (Mizusawa).

April 12d. 4h. 13m. 45s. Epicentre 22°·5N. 123°·5E. (as on 1937 Jan. 29d.).

Bombay suggests depth 45 km.

A = −·5104, B = +·7712, C = +·3805; δ = +4; h = +4;
D = +·834, E = +·552; G = −·210, H = +·317, K = −·925.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	22·4	38	e 5 2	0	9 1	− 3	—	—	—
	N.	22·4	38	e 4 56	− 6	8 56	− 8	—	—	—
Calcutta	N.	32·4	278	e 5 41	−53	i 11 46	− 2	e 13 37	SS	i 15·9
New Delhi	N.	42·0	288	—	—	i 14 13	− 1	16 42	SS	17·3
Hyderabad	E.	42·5	272	e 7 52	− 7	14 25	+ 3	—	—	21·8
Kodaikanal	E.	45·6	263	e 7 36	−48	e 14 16	−50	17 57	SS	—
Andijan		46·5	305	8 29	− 2	15 19	0	—	—	—
Bombay	E.	47·4	275	i 8 48	+10	i 15 33	+ 1	9 1	pP	—
Tashkent		48·9	306	8 45	− 5	i 15 55	+ 2	—	—	—
Riverview		61·9	154	—	—	e 19 9?	+22	—	—	e 29·2
College		69·3	27	e 15 34	PP	e 20 15	− 2	—	—	e 38·4
Moscow		69·5	323	11 20	+ 8	20 20	0	—	—	—
Upsala		78·4	331	—	—	e 21 50	−10	—	—	e 38·2
Helwan		80·9	299	e 12 36	+19	e 22 27	+ 1	—	—	—
Copenhagen		82·8	328	e 12 32	+ 5	22 41	− 4	—	—	—
Cheb		85·6	324	—	—	e 23 34	+21	—	—	e 45·2
Triest		87·0	319	—	—	e 23 25	− 2	—	—	e 44·2
Stuttgart		88·1	323	e 12 57	+ 3	e 23 31	− 6	e 24 43	PS	e 43·2
De Bilt		88·3	328	—	—	i 23 35	− 4	—	—	e 41·2
Aberdeen		88·5	334	—	—	i 23 36	− 5	—	—	44·6
Uccle		89·5	327	e 13 16?	+16	e 23 50	0	—	—	e 41·2
Tinemaha	Z.	97·0	46	i 13 49	+14	—	—	—	—	—
Mount Wilson	Z.	98·7	48	e 14 2	+20	—	—	—	—	—
Riverside	Z.	99·3	48	e 13 57	+12	—	—	—	—	—
Almeria		102·0	319	e 18 10	PP	—	—	—	—	54·2
Granada		102·5	320	i 18 8	PP	28 23	PPS	—	—	50·6
Tucson		104·8	46	e 14 23	+13	e 18 30	PP	—	—	e 50·8

Additional readings:—
Bombay PPE = 10m.35s., PPN = 10m.38s., sSEN = 15m.53s., SS?E = 19m.15s.
Riverview iN = 19m.15s., iE = 19m.20s.
Granada S = 28m.3s., PPS? = 32m.24s.
Long waves were also recorded at Huancayo, La Plata, San Juan, Pasadena, Philadelphia, Scoresby Sund, and other European stations.

April 12d. 9h. 1m. 35s. Epicentre 31°·8N. 131°·8E.

Intensity VI at Miyazaki; V at Oita; IV at Uwazima; II-III at Kagoshima, Matuyama. Epicentre 32°·1N. 131°·9E. Macroseismic radius 200-300 km. Shallow.
See Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo 1950, pp. 17-18. Macroseismic chart p. 17.

A = −·5675, B = +·6348, C = +·5244; δ = +2; h = +1;
D = +·745, E = +·666; G = −·350, H = +·391, K = −·851.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Miyazaki	0·3	292	0 12k	+ 1	0 18	0
Simidu	1·4	41	0 25	− 2	0 46	0
Kumamoto	1·4	315	0 27a	0	0 46	0
Unzendake	1·6	305	0 27	− 3	0 48	− 3
Izuka	2·1	333	0 37a	0	1 9	+ 5

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Hukuoka		2·1	329	0 43a	+ 6	1 20	?
Matuyama		2·2	21	0 40	+ 2	1 11	+ 5
Koti		2·3	40	0 38	− 2	1 15	+ 6
Muroto		2·5	55	0 57	P_g	—	—
Tomie		2·7	288	0 42a	− 3	1 27	S_g
Hamada		3·2	3	0 48k	− 4	1 10	P_g
Sumoto		3·7	45	0 57a	− 3	1 57	S_g
Nake		3·9	211	1 4	+ 2	1 49	− 1
Toyooka		4·5	33	1 31	P_g	2 24	S_g
Kyoto		4·6	45	1 12	0	2 45	?
Kameyama		4·9	51	1 22	+ 5	—	—
Hikone		5·1	46	1 24	+ 4	2 12	− 8
Nagoya		5·5	51	1 25	0	3 7	S_g
Hamamatu		5·8	58	(1 38)	+ 9	(2 25)	−13
Shizuoka		6·4	58	—	—	2 59	+ 6
Kohu		6·8	54	1 45	+ 1	3 19	S*
Misima		6·8	59	2 5	P*	—	—
Wazima		7·0	36	1 49	+ 3	—	—
Zinsen		7·1	325	(1 51)	+ 3	(2 47)	?
Nagano		7·2	45	1 56	+ 7	3 25	+12
Kakioka		8·2	55	2 5	+ 2	—	—
Stuttgart	z.	84·9	327	e 12 50	+12	—	—
Tinemaha	z.	85·3	51	i 12 39	− 1	—	—
Pasadena	z.	87·1	52	e 12 45	− 4	—	—
Mount Wilson	z.	87·1	52	e 12 46	− 3	—	—
Riverside	z.	87·7	52	e 13 1	+ 9	—	—
Palomar	z.	88·4	52	e 13 6	+11	—	—
Tucson		93·1	49	e 13 16	− 1	—	—

Readings at Hamamatu, Zinsen, and Shizuoka, have been reduced by one minute.
Long waves were also recorded at Bombay and other European stations.

April 12d. 19h. 43m. 23s. Epicentre 36°·3N. 141°·5E. (as on 11d.).
Intensity V at Onahama, Shirakawa; IV at Tokyo, Mito, Kakioka, Yokohama; II-III at Iida, Tyosi, Sendai, Kohu, and Yamagata. Macroseismic radius 300 km.
Epicentre 36°·3N. 141°·6E. Shallow.
See Seismological Bulletin Central Meteorological Observatory Japan, for the year 1943. Tokyo 1950, pp. 18-19, macroseismic chart, p. 18.

$A = -·6322$, $B = +·5029$, $C = +·5894$; $\delta = -2$; $h = 0$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tyosi	0·8	222	0 17	− 1	0 27	+ 4	—	—	—
Onahama	0·8	323	0 20	+ 2	0 35	+ 4	—	—	—
Mito	0·9	276	0 20k	0	—	—	—	—	—
Kakioka	1·1	266	0 21k	− 1	0 38	− 1	—	—	—
Utunomiya	1·4	281	0 24	− 3	—	—	—	—	—
Tokyo	1·5	247	0 29	+ 1	0 47	− 2	—	—	—
Hukusima	1·7	330	0 33a	+ 2	0 57	+ 3	—	—	—
Yokohama	1·7	240	0 32a	+ 1	0 59	+ 5	—	—	—
Sendai	2·0	346	0 37	+ 2	1 6	+ 4	—	—	—
Osima	2·3	228	0 36	− 4	1 19	+10	—	—	—
Misima	2·4	240	0 40a	− 1	1 16	+ 4	—	—	—
Kohu	2·5	254	0 42a	− 1	1 30	+16	—	—	—
Nagano	2·7	278	0 47	+ 2	1 13	− 6	—	—	—
Mizusawa	2·8	354	e 0 49	+ 2	1 24	+ 2	—	—	—
Shizuoka	2·8	242	0 46a	− 1	1 26	+ 4	—	—	—
Aikawa	3·1	304	0 49	− 2	1 41	+12	—	—	—
Omaesaki	3·2	238	0 49	− 3	1 47	+15	—	—	—
Miyako	3·4	6	0 52	− 3	1 44	S*	—	—	—
Hamamatu	3·5	243	0 58k	+ 1	1 49	S*	—	—	—
Hatidyozima	3·5	204	0 54	− 3	1 39	− 1	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toyama		3·5	279	1 1	+ 4	1 57	S_g	—	—	—
Akita		3·6	343	1 5	+ 7	2 12	S_g	—	—	—
Wazima		3·8	289	1 4a	+ 3	1 34	−13	—	—	—
Nagoya		3·8	254	1 35	?	2 35	?	—	—	—
Hatinohe		4·2	0	1 5a	− 2	1 54	− 3	—	—	—
Hikone		4·4	258	1 8	− 2	1 51	−11	—	—	—
Kameyama		4·4	251	1 10	0	2 23	S*	—	—	—
Aomori		4·6	354	1 14	+ 2	2 22	S*	—	—	—
Kyoto		4·9	256	1 20	+ 3	2 15	0	—	—	—
Owase		4·9	245	1 16k	− 1	2 42	S_g	—	—	—
Osaka		5·2	251	1 20	− 1	2 26	+ 4	—	—	—
Kôbe		5·4	254	1 26	+ 2	2 36	+ 8	—	—	—
Siomisaki		5·5	241	1 22	− 3	3 5	S_g	—	—	—
Toyooka		5·5	265	1 27	+ 2	2 45	S*	—	—	—
Sumoto		5·7	252	1 28	0	2 52	S*	—	—	—
Mori		5·9	351	1 31	0	2 54	S*	—	—	—
Muroto		6·7	245	1 51	+ 9	—	—	—	—	—
Sapporo		6·8	259	1 56	+12	3 5	+ 2	—	—	—
Koti		7·1	250	1 47	− 1	3 27	S*	—	—	—
Matuyama		7·6	253	1 53	− 2	3 44	S*	—	—	—
Nemuro		7·6	21	2 1	+ 6	3 29	+ 6	—	—	—
Hirosima		7·7	257	1 19	?	4 50	?	—	—	—
Hamada		7·8	262	1 59	+ 1	4 1	S*	—	—	—
Simidu		7·8	246	1 48	−10	3 41	+13	—	—	—
Iznka		9·2	256	2 17	+ 1	4 53	S*	—	—	—
Miyazaki		9·4	245	2 20	+ 2	4 6	− 1	—	—	—
Hukuoka		9·5	257	2 21	+ 1	4 53	S*	—	—	—
Unzendake		9·9	252	2 21	− 4	4 9	−11	—	—	—
Husan		10·2	267	2 18	−13	5 22	?	—	—	—
Taikyu		10·4	271	2 35	+ 1	4 42	+10	—	—	—
College		49·7	32	—	—	e 16 0	− 4	—	—	e 27·5
Andijan		53·0	297	9 19	− 2	16 41	− 9	—	—	—
New Delhi	N.	53·9	281	i 9 21	− 6	i 17 13	+11	—	—	—
Tashkent		55·0	298	i 9 37	+ 2	17 21	+ 4	—	—	—
Sitka		56·8	41	—	—	17 45	+ 4	—	—	e 28·1
Hyderabad	E.	58·3	269	9 57	− 2	18 15	PPS	—	—	29·2
Bombay		62·1	274	i 10 21	− 4	18 48	− 1	19 7	PS	—
Kodaikanal	E.	63·1	265	e 9 2	?	i 19 8	+ 6	—	—	—
Victoria		66·9	47	—	—	e 19 45	− 4	—	—	41·6
Moscow		67·9	323	10 59	− 3	19 56	− 5	—	—	—
Riverview		70·3	172	—	—	i 20 22	− 7	i 20 40	sS	e 35·8
Scoresby Sund		72·8	355	—	—	e 20 49	− 9	e 26 0	SS	e 37·7
Bozeman		75·5	44	—	—	e 21 27	− 1	—	—	e 42·2
Tinemaha	z.	76·5	55	i 11 56	+ 2	—	—	—	—	—
Santa Barbara	z.	76·7	58	e 11 55	0	—	—	—	—	—
Haiwee	z.	76·9	54	i 12 3	+ 7	—	—	—	—	—
Pasadena		77·9	56	e 11 58	− 3	e 21 49?	− 5	i 12 8	pP	e 36·0
Mount Wilson	z.	78·0	56	e 11 54	− 8	—	—	i 12 9	pP	—
Copenhagen		78·6	333	e 12 2a	− 3	21 59	− 3	22 18	sS	—
Palomar	z.	79·3	57	e 12 6	− 3	—	—	i 12 16	pP	—
Jena		82·6	331	e 12 24	− 2	e 23 7?	PS	—	—	e 39·6
Wellington		83·0	156	—	—	e 22 37?	−10	e 27 37?	SS	42·6
Sofia		83·3	319	e 12 32	+ 2	e 22 51	+ 1	—	—	46·6
Tucson		84·0	54	i 12 29	− 4	—	—	i 12 46	pP	e 39·7
De Bilt		84·1	335	i 12 32	− 2	i 22 54	− 4	e 28 37	SS	e 37·6
Stuttgart		85·3	331	e 12 38a	− 2	e 23 1	− 9	e 12 49	pP	e 44·1
Uccle		85·4	335	e 12 37	− 3	e 23 0	[− 3]	—	—	e 38·6
Triest		85·8	327	e 12 48	+ 6	i 23 0	[− 6]	—	—	—
Strasbourg		86·0	332	e 12 49	+ 6	—	—	e 14 10	?	e 49·6
Zürich		86·7	331	e 12 43a	− 4	e 23 13	[+ 1]	—	—	—
Basle		86·9	331	e 12 45	− 3	e 23 24	− 2	—	—	—
Helwan		87·1	305	i 12 44	− 5	23 10	[− 5]	1 12 55	pP	—
Neuchatel		87·6	331	e 12 48	− 3	—	—	—	—	—
Milan		87·9	329	13 3	+10	23 32	− 3	—	—	49·5
Florence		88·4	326	e 12 53	− 2	i 23 52	+12	i 23 18	SKS	—

Continued on next page.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Chicago	90·2	35	—	—	e 33 30	SSS	—	—	e 45·5
St. Louis	91·5	38	i 13 18	+ 8	e 24 1	− 7	e 25 45	PPS	—
Ottawa	92·0	25	e 13 8	− 4	e 24 9	− 3	—	—	e 45·6
Toledo	97·8	334	e 13 46	+ 8	—	—	17 48	PP	51·6
Granada	100·0	333	i 14 40	?	25 31	+11	17 51	PP	53·7

Additional readings :—
Bombay P_ePEN =11m.2s., PPSN =19m.10s., SSE =23m.19s.
Scoresby Sund e =29m.25s.
Copenhagen 15m.1s.
Wellington Q =39·6m.
Tucson e =14m.52s. and 16m.22s.
Helwan iZ =16m.10s., PPZ =16m.22s., SE =23m.53s.
Florence ePPZ =16m.18s., ePPPZ =18m.22s., iSKKSE =23m.38s., ePSE =24m.53s., ePPSE =25m.14s.
St. Louis eE =24m.6s. and 30m.22s.
Granada PP =19m.58s., SKKS =26m.58s., S =27m.37s., SS =35m.34s.
Long waves were also recorded at Huancayo, Philadelphia, and at other European stations.

April 12d. 19h. 51m. 12s. Epicentre 36·3N. 141°·5E. (as at 19h. 43m.).

Intensity IV at Tukubasan, Kakioka, Onahama, Mito, Shirakawa ; II-III at Yokohama, Aikawa, Tokyo.
Epicentre 36°·4N. 141°·6E. Macroseismic radius 200-300km. Very Shallow.
See Seismological Bulletin of the Central Meteorological Observatory of Japan for the year 1943. Tokyo 1950, pp. 19-20. Macroseismic chart p. 19.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Onahama		0·8	323	0 15	− 3	0 30	− 1	—	—	—
Mito		0·9	276	0 19_a	− 1	0 34	0	—	—	—
Kakioka		1·1	266	(0 20)	− 2	(0 37)	− 2	—	—	—
Tukubasan		1·1	266	(0 18)	− 4	(0 37)	− 2	—	—	—
Shirakawa		1·3	308	0 25	0	0 45	+ 1	—	—	—
Utunomiya		1·4	281	0 24	− 3	0 42	− 4	—	—	—
Tokyo		1·5	247	0 29	+ 1	—	—	—	—	—
Hukusima		1·7	330	0 30	− 1	0 53	− 1	—	—	—
Kumagaya		1·7	265	0 48	?	1 12	?	—	—	—
Yokohama		1·7	240	0 44	?	—	—	—	—	—
Mera		1·9	224	0 32	− 2	—	—	—	—	—
Maebasi		2·0	273	0 33	− 2	1 17	+15	—	—	—
Sendai		2·0	346	1 2	?	—	—	—	—	—
Titibu		2·0	261	0 41	+ 6	—	—	—	—	—
Yamagata		2·1	335	0 36	− 1	1 24	S_e	—	—	—
Osima		2·3	228	0 33	− 7	1 15	S_e	—	—	—
Hunatu		2·4	250	0 38	− 3	1 16	S_e	—	—	—
Misima		2·4	240	0 37	− 4	1 14	S_e	—	—	—
Kohu		2·5	254	0 31	?	—	—	—	—	—
Nagano		2·7	278	0 33	?	0 57	?	—	—	—
Mizusawa	E.	2·8	354	0 54	+ 7	1 33	S_e	—	—	—
	N.	2·8	354	0 51	+ 4	1 21	− 1	—	—	—
Shizuoka		2·8	242	0 44	− 3	1 24	+ 2	—	—	—
Matumoto		2·9	269	0 52	+ 4	—	—	—	—	—
Aikawa		3·1	304	0 52	+ 1	1 28	− 1	—	—	—
Omaesaki		3·2	238	2 33	?	—	—	—	—	—
Miyako		3·4	6	(0 43)	−12	(1 35)	− 2	—	—	—
Morioka		3·4	356	(0 51)	− 4	—	—	—	—	—
Hatidyozima		3·5	204	1 0	+ 3	—	—	—	—	—
Wazima		3·8	289	1 5	+ 4	—	—	—	—	—
Nagoya		3·8	254	2 32	?	—	—	—	—	—
Gihu		3·9	258	1 10	+ 8	2 0	+10	—	—	—
Hatinohe		4·2	0	1 6	− 1	—	—	—	—	—
Kameyama		4·4	251	1 30	P_e	—	—	—	—	—
Kyoto		4·9	256	1 32	+15	2 32	+17	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Owase		4·9	245	1 20	+ 3	2 45	S_g	—	—	—
Osaka		5·2	251	1 51	P_g	—	—	—	—	—
Kôbe		5·4	254	(1 36)	P*	—	—	—	—	—
Toyooka		5·5	265	1 32	+ 7	2 44	S*	—	—	—
Sumoto		5·7	252	1 36	P*	2 52	S*	—	—	—
Sapporo		6·8	359	(1 44)	0	—	—	—	—	—
Koti		7·1	250	2 14	?	—	—	—	—	—
Matuyama		7·6	253	1 53	− 2	—	—	—	—	—
Miyazaki		9·4	245	2 31	+13	4 13	+ 6	—	—	—
College		49·7	32	—	—	e 15 59	− 5	e 16 14	PS	—
Upsala		73·6	335	i 13 13	?	e 21 36	+29	e 25 48?	SS	e 32·8
Pasadena	z.	77·9	56	e 12 3	+ 2	—	—	i 12 27	P_cP	—
Mount Wilson	z.	78·0	56	e 11 56	− 6	—	—	e 12 27	P_cP	—
Copenhagen		78·6	333	e 11 59	− 6	—	—	—	—	—
Riverside	z.	78·6	56	e 12 32	P_cP	—	—	—	—	—
Prague		82·1	329	15 7	PP	—	—	24 24?	?	e 29·8
Palomar		79·3	57	e 12 34	P_cP	—	—	—	—	—
Cheb		83·0	330	e 15 0	PP	—	—	20 48?	?	e 37·8
Tucson		84·0	54	e 12 26	− 7	—	—	—	—	—
Stuttgart	z.	85·3	331	e 12 33	− 7	—	—	e 12 45	P_cP	—

Upsala also gives iPN =13m.18s.?.
Readings at Kakioka and Tukubasan have been increased by 1m.; readings at Miyako, Morioka, Kôbe, and Sapporo have been reduced by 1m.
Long waves were also recorded at Lisbon.

April 12d. Readings also at 4h. (Bogota), 5h. (near Granada (2), and near Lick, Berkeley, and Branner), 6h. (near Reykjavik), 8h. (Bogota), 11h. (La Plata), 12h. (Mizusawa), 13h. (Aberdeen, Granada, Stuttgart, near Andijan, and Taskhent), 14h. (near Bogota), 19h. (La Plata), 20h. (near Mizusawa), 21h. (Mizusawa, near Lick (4), Berkeley (4), and Branner (4)), 22h. and 23h. (near Mizusawa).

April 13d. 6h. 37m. 26s. Epicentre 36°·3N. 141°·5E. (as on 12d.).
Intensity IV at Kakioka, Mito, Onahama, Shirakawa; II-III at Tokyo, Yokohama, Hukusima, Morioka, and Kohu.
Epicentre 36°·1N. 141°·6E. Macroseismic radius 200-300km; very shallow.
Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1943, Tokyo 1950, pp. 21-22; macroseismic chart p. 21.

$A = -·6322$, $B = +·5029$, $C = +·5894$; $\delta = -2$; $h = 0$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Onahama	0·8	323	0 17a	− 1	0 32	+ 1	—	—	—
Tyosi	0·8	222	0 14	− 4	0 21	−10	—	—	—
Mito	0·9	276	0 17k	− 3	0 31	− 3	—	—	—
Kakioka	1·1	266	0 9k	−13	0 26	−13	—	—	—
Tukubasan	1·1	266	0 20	− 2	0 37	− 2	—	—	—
Utunomiya	1·4	281	0 21	− 6	0 41	− 5	—	—	—
Tokyo	1·5	247	0 26	− 2	0 50	+ 1	—	—	—
Hukusima	1·7	330	0 31a	0	0 57	+ 3	—	—	—
Kumagaya	1·7	265	0 33	+ 2	0 56	+ 2	—	—	—
Yokohama	1·7	240	0 29	− 2	0 56	+ 2	—	—	—
Mera	1·9	224	0 34k	0	—	—	—	—	—
Sendai	2·0	346	0 35	0	1 2	0	—	—	—
Osima	2·3	228	0 35	− 5	1 1	− 8	—	—	—
Misima	2·4	240	0 37	− 4	1 7	− 5	—	—	—
Kohu	2·5	254	0 40	− 3	1 24	S_g	—	—	—
Nagano	2·7	278	0 44	− 1	1 10	− 9	—	—	—
Mizusawa	2·8	254	e 0 51	+ 4	1 34	S*	1 37	S_g	—
Shizuoka	2·8	242	0 39	− 8	1 7	−15	—	—	—
Aikawa	3·1	304	0 59	+ 8	1 42	S_g	—	—	—
Omaesaki	3·2	238	0 50	− 2	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Miyako		3·4	6	0 49	− 6	1 45	+ 8	—	—	—
Hamamatu		3·5	243	1 1	+ 4	1 54	S_g	—	—	—
Hatidyozima		3·5	204	0 53	− 4	1 28	−12	—	—	—
Wazima		3·8	289	1 2	+ 1	1 57	S*	—	—	—
Hatinohe		4·2	0	1 6	− 1	1 53	− 4	—	—	—
Hikone		4·4	258	1 11	+ 1	2 16	S*	—	—	—
Kameyama		4·4	251	1 14	+ 4	2 20	S*	—	—	—
Aomori		4·6	354	1 7	− 5	—	—	—	—	—
Kyoto		4·9	256	1 18	+ 1	2 54	S_g	—	—	—
Owase		4·9	245	1 15	− 2	2 45	S_g	—	—	—
Kôbe		5·4	254	1 29	+ 5	2 40	S*	—	—	—
Siomisaki		5·5	241	2 4	P_g	—	—	—	—	—
Toyooka		5·5	265	1 39	P*	2 43	S*	—	—	—
Sumoto		5·7	252	1 26	− 2	—	—	—	—	—
Muroto		6·7	245	1 52	P*	3 46	S_g	—	—	—
Sapporo		6·8	359	1 52	+ 8	3 14	+11	—	—	—
Kôti		7·1	250	2 7	P*	—	—	—	—	—
Vladivostok		10·1	316	i 2 40	+12	4 32	+ 7	—	—	—
Irkutsk		30·6	314	e 6 34	+16	11 34	+14	—	—	—
New Delhi	N.	53·9	281	—	—	e 16 55	− 7	—	—	—
Tashkent		55·0	298	i 9 32	− 3	—	—	—	—	—
Sverdlovsk		55·7	319	i 9 36	− 4	—	—	e 17 40	PS	—
Bombay		62·1	274	e 10 18	− 7	e 18 45	− 4	19 7	PS	—
Tinemaha	Z.	76·2	55	e 11 48	− 4	—	—	—	—	—
Haiwee	Z.	76·9	54	e 12 2	+ 6	—	—	—	—	—
Pasadena	Z.	77·9	56	i 12 2	+ 1	—	—	—	—	e 38·6
Mount Wilson	Z.	78·0	56	e 12 4	+ 2	—	—	—	—	—
Copenhagen		78·6	333	12 12	+ 7	—	—	—	—	41·6
Riverside	Z.	78·6	56	e 12 10	+ 5	—	—	—	—	—
Palomar	Z.	79·3	57	e 12 14	+ 5	—	—	—	—	—
Tucson		84·0	54	e 11 29	?	—	—	—	—	—
Stuttgart		85·3	331	e 12 35	− 5	—	—	—	—	e 46·0

Tucson also gives e = 13m.39s.
Long waves were also recorded at other European stations.

April 13d. 8h. 57m. 18s. Epicentre 18°·8S. 71°·5W.

Felt at Arequipa and throughout Chili. Intensity V-VI as far south as latitude 23°.
" Annales de l'Institute de Physique du Globe," Strasbourg, p. 23.
United States Earthquakes 1943, p. 31 (U.S.C.G.S.). Epicentre 17°·5S. 73°·5W.

A = +·3006, B = −·8983, C = −·3203 ; δ = −10 ; h = +5 ;
D = −·948, E = −·317 ; G = −·102, H = +·304, K = −·947.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		4·0	54	i 1 4	0	i 1 48	− 4	—	—	2·1
Montezuma		4·5	147	e 1 54	P_g	e 2 39	S_g	—	—	—
Huancayo		7·7	331	e 2 3	+ 7	i 3 23	− 2	—	—	i 3·9
La Plata	E.	20·1	146	i 4 38	0	8 16	− 3	—	—	11·1
	N.	20·1	146	i 4 38	0	8 27	+ 8	5 0	PP	11·3
	Z.	20·1	146	i 4 38	0	8 24	+ 5	—	—	11·0
Bogota		23·4	354	i 5 9	− 2	(e 9 20)	− 1	i 5 26	PP	—
Fort de France		34·8	18	e 5 42	−72	—	—	—	—	—
San Juan		37·3	8	e 7 21	+ 5	i 12 41	−23	e 8 38	PP	e 15·0
Columbia		53·3	350	—	—	e 16 45	− 9	—	—	—
Cape Girardeau	N.	58·4	343	e 9 56	− 4	e 17 54	− 8	—	—	—
St. Louis		59·8	343	e 10 9	0	e 18 10	−10	—	—	—
Tucson		63·2	323	i 10 32	0	i 18 58	− 5	e 39 37	P'P'	i 32·2
La Jolla		67·5	319	i 11 1	+ 1	—	—	—	—	—
Palomar	Z.	67·6	320	i 11 1k	0	—	—	—	—	—
Riverside		68·3	320	i 11 5k	0	—	—	i 39 45	P'P'	—
Mount Wilson		68·9	320	i 11 9k	0	—	—	—	—	—
Pasadena		68·9	320	i 11 9k	0	—	—	i 39 21	P'P'	—
Haiwee	Z.	70·1	321	i 11 16	0	—	—	—	—	—
Tinemaha	Z.	70·9	321	i 11 22k	+ 1	—	—	e 39 16	P'P'	—
Granada		84·7	48	i 12 51	+14	i 22 55	− 9	23 45	PS	38·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toledo		85·7	45	i 12 41	− 1	e 23 5	− 9	23 57	PS	—
Uccle		95·8	38	—	—	e 23 59	[− 6]	e 24 35	S	—
Stuttgart		98·0	41	e 13 37	− 2	e 24 9	[− 8]	—	—	—
Tashkent		139·8	47	e 19 31	[+ 1]	e 23 10	PKS	—	—	—
Bombay		146·3	84	e 19 45	[+ 4]	e 23 49	PKS	e 20 1	PKP_3	—

Additional readings :—
La Plata N =9m.0s.
Bogota ePPP =5m.30s., e =6m.9s., eS? =8m.42s., eSSS =9m.26s., true S is given as SS.
San Juan e =10m.4s.
St. Louis eE =19m.56s.
Tucson i =11m.20s.
Riverside iZ =11m.26s. and 11m.36s.
Mount Wilson iZ =11m.24s.
Pasadena iZ =11m.25s.
Granada P_cP =12m.59s.
Long waves were also recorded at Wellington and other European stations.

April 13d. 12h. 29m. 14s. Epicentre 3°·7N. 128°·5E. (as on 1941 February 27d.).
A = −·6212, B = +·7810, C = +·0641 ; δ = −4 ; h = +7 ;
D = +·783, E = +·623 ; G = −·040, H = +·050, K = −·998.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	39·0	143	i 7 24	− 6	i 13 18	−11	i 8 56	PP	e 19·3
	N.	39·0	143	i 7 29	− 1	e 13 19	−10	i 8 58	PP	e 16·8
Riverview		43·0	153	i 8 2	− 1	i 14 19	−10	e 9 41	PP	—
Sydney		43·0	153	—	—	e 14 4?	−25	—	—	—
Hyderabad	E.	50·9	290	e 9 4	− 1	16 16	− 5	—	—	24·2
Kodaikanal	E.	51·0	280	(i 9 14)	+ 8	(i 16 24)	+ 2	(11 16)	PP	—
New Delhi	N.	54·6	303	e 9 39	+ 7	i 17 19	+ 8	i 19 15	?	—
Bombay		56·4	291	e 9 47	+ 2	i 17 29	− 7	17 48	PS	—
Auckland		59·0	137	—	—	18 4	− 6	—	—	27·1
Christchurch		61·5	145	18 30	S	(18 30)	−12	(25 25)	SSS	32·2
Wellington		61·5	143	(10 24)	+ 3	18 21	−21	(25 16)	SSS	30·8
Stalinabad		64·3	312	10 46	+ 7	—	—	—	—	—
Tashkent		64·7	315	10 46	+ 4	19 26	+ 4	—	—	—
Tchimkent		64·8	316	i 11 6	P_cP	19 53	PPS	—	—	—
Sverdlovsk		74·9	329	e 11 47	+ 3	21 51	PS	—	—	—
Upsala	N.	97·1	331	e 33 11	?	—	—	—	—	e 51·8
Victoria		99·1	40	—	—	e 24 22	[− 1]	—	—	40·8
Stuttgart		106·0	323	e 18 47	PP	e 29 16?	PPS	e 55 4?	Q	e 57·6
Tinemaha	Z.	106·0	50	e 18 51	PP	—	—	—	—	—
Mount Wilson	Z.	107·0	53	e 18 54	PP	—	—	—	—	—
Pasadena		107·0	53	e 14 43	P	—	—	—	—	e 50·2
Riverside	Z.	107·7	53	e 14 47	P	—	—	e 18 58	PP	—
Uccle		107·8	327	e 19 10	PP	e 25 0	[− 3]	e 28 19	PS	e 52·8
Palomar	Z.	108·3	53	e 18 57	PP	—	—	—	—	—
Kew		110·0	328	e 19 27	PP	—	—	—	—	e 51·8
Tucson		113·4	52	e 19 39	PP	—	—	—	—	54·6
Toledo	Z.	118·6	320	e 19 58	PP	—	—	—	—	—
Almeria		119·1	316	e 20 23	PP	e 31 7	PPS	—	—	e 63·8
Granada		119·7	317	i 20 45	PP	29 2	PS	—	—	e 62·1

Additional readings and notes :—
Brisbane iSSN =16m.11s., eS_cSN =17m.15s.
Riverview iZ =9m.45s., iN =14m.37s., iSSN =17m.29s., iEZ =17m.32s., iE =17m.59s.
Kodaikanal readings increased by 1 minute.
Bombay pPE =9m.55s., sPEN =10m.5s., PPPE =12m.59s., eN =18m.23s., iE = 18m.26s. and 20m.18s., SSE =21m.22s., iE =21m.41s.
Christchurch Q =28m.6s., S is given as P and SS as S.
Wellington P is given as P_cP?, SSS given as Q?.
Upsala eN =37m.14s., eSE =41m.19s., eSN =41m.35s., probably some unspecified clock error.
Pasadena eZ =19m.9s.
Uccle eE =34m.25s.
Kew eZ =19m.40s.
Granada iS =33m.5s., SS =40m.58s.
Long waves were also recorded at Huancayo, La Paz, Bozeman, and other European stations.

April 13d. Readings also at 1h. 2h. (2), and 3h. (2) (La Plata) 8h. (Bombay), 9h. (La Plata and near Mizusawa), 11h. (La Plata), 13h. (near La Paz), 15h., 16h., and 17h. (near Mizusawa), 18h. (Huancayo, La Paz, and Tacubaya), 19h. (near St. Louis), 20h. (near Mizusawa).

April 14d. 6h. 16m. 21s. Epicentre 30°·9S. 72°·0W. (as on 7d.).

$A = +·2656$, $B = -·8175$, $C = -·5110$; $\delta = -3$; $h = +2$;
$D = -·951$, $E = -·309$; $G = -·158$, $H = +·486$, $K = -·860$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	12·5	112	3 3	+ 1	5 15	− 8	—	—	6·2
	N.	12·5	112	3 3	+ 1	5 9	−14	—	—	6·0
	Z.	12·5	112	2 59	− 3	5 27	+ 4	—	—	6·0
La Paz	Z.	14·8	15	3 31	− 1	6 28	+10	—	—	—
Huancayo		19·0	351	e 4 26	0	e 8 7	+12	e 5 22	?	e 9·3
Tucson		72·8	327	i 11 33	+ 1	—	—	—	—	—
Palomar	Z.	76·7	323	e 11 55	0	—	—	—	—	—
Riverside	Z.	77·5	323	e 12 0	+ 1	—	—	—	—	—
Mount Wilson	Z.	78·0	323	i 12 2	0	—	—	—	—	—
Haiwee	Z.	79·5	325	i 12 10	0	—	—	—	—	—
Tinemaha	Z.	80·3	325	i 12 15	+ 1	—	—	—	—	—

April 14d. 8h. 15m. 34s. Epicentre 39°·8N. 29°·6E. (as on 1943 Jan. 8d.).

Felt strongly near Kutahya, Burs, Inegol, and Kodha. Damage sustained at Emek. Bulletin Météorologique, Séismique et Magnétique de l'Observatoire d'Istanbul. Istanbul 1948. Epicentre 40°·2N. 29°·6E.

$A = +·6698$, $B = +·3805$, $C = +·6376$; $\delta = -5$; $h = -2$;
$D = +·494$, $E = -·869$; $G = +·554$, $H = +·315$, $K = -·770$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul	1·3	342	0 33	P_g	1 3	S_g	—	—	—
Bucharest	5·3	330	e 1 29	+ 7	i 3 8	S_g	e 1 49	P_g	—
Sofia	5·5	303	i 1 25	0	i 2 30	0	i 3 1	S_g	—
Yalta	5·8	35	e 1 33	+ 4	—	—	—	—	—
Focsani	6·2	342	e 1 56?	P*	—	—	—	—	3·7
Campulung	6·4	329	e 1 50?	P*	e 2 26	−27	—	—	3·4
Bacau	7·0	343	e 2 2?	P*	—	—	—	—	—
Ksara	7·8	138	e 2 5?	+ 7	e 3 55	S*	—	—	—
Belgrade	8·4	309	e 2 1	− 5	e 4 11	S*	i 2 27	P*	—
Cernauti	8·9	343	e 2 8?	− 4	—	—	—	—	4·4
Helwan	10·0	172	i 2 16	−11	3 52	?	4 26	S	—
Triest	13·0	302	e 3 16	+ 7	—	—	—	—	6·8
Florence Z.	14·3	292	e 3 31	+ 5	e 6 4	− 2	e 4 31	PP	—
Milan	16·0	297	3 56	+ 8	i 7 58	L	—	—	(i 8·0)
Chur	16·2	302	e 3 54 a	+ 4	—	—	—	—	e 9·1
Jena	16·8	317	e 4 5	+ 7	—	—	—	—	e 9·7
Moscow	16·8	18	3 52	− 6	7 17	+12	—	—	—
Zürich	17·0	303	e 4 0	− 1	—	—	—	—	e 9·6
Stuttgart	17·1	308	i 4 3k	+ 1	e 7 26	+14	—	—	e 9·4
Basle	17·7	304	e 4 9	− 1	—	—	—	—	e 9·7
Neuchatel	17·9	301	e 4 10	− 2	—	—	—	—	—
Strasbourg	17·9	309	4 13	+ 1	—	—	—	—	i 10·3
Copenhagen	19·5	331	e 4 35	+ 4	8 16	+10	—	—	11·4
Clermont-Ferrand	20·3	296	i 4 36	− 4	—	—	—	—	—
De Bilt	20·8	316	e 8 50	S	(e 8 50)	+17	—	—	e 11·4
Uccle	20·8	310	e 4 44	− 1	e 8 36	+ 3	—	—	e 10·8
Upsala	21·4	344	e 4 51	0	e 9 0	+15	—	—	—
Sverdlovsk	26·4	39	e 5 44	+ 4	10 34	+22	—	—	—

Additional readings :—
Bucharest eN = 1m.55s., eEN = 2m.47s.
Sofia iE = 2m.44s., iEN = 3m.14s.
Belgrade i = 2m.8s., e = 3m.5s., i = 4m.30s. and 4m.39s.
De Bilt eS? = 10m.56s.
Upsala ePE = 4m.59s.
Long waves were also recorded at Cheb, Potsdam, Kew, and Granada.

April 14d. Readings also at 0h. (Aberdeen), 1h. (Mount Wilson, Tucson, and Riverside), 2h. (Tacubaya), 3h. (La Plata), 4h. (near Bogota), 7h. (Wellington), 8h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 9h. (La Plata), 11h. (Haiwee, Mount Wilson (2), Pasadena, Palomar (2), Riverside (2), Tucson (2), and Tinemaha (2)), 12h. (Basle, Bombay, near Calcutta, and near Mizusawa), 13h. (La Plata, Mount Wilson, Palomar, Riverside, Tucson, and Tinemaha), 15h. (Fort de France), 20h. (Riverside and Tucson), 21h. (La Plata, near Branner and Lick).

April 15d. 10h. Pacific shock.

San Francisco 54m.
Logan eP = 55m.30s., eS = 59m.30s., eL = 60m.19s.
Tinemaha ePZ = 55m.49s., i = 55m.54s.
Salt Lake City e = 55m.53s. and 58m.7s., eL = 60m.44s.
Haiwee ePZ = 56m.2s.
Pasadena ePZ = 56m.19s.
Mount Wilson iPZ = 56m.21s., iZ = 56m.59s.
Palomar ePZ = 56m.36s.
Tucson e = 57m.9s., iP = 57m.12s., e = 62m.19s., eL = 64m.2s.
Ferndale ePN = 57m.20s., ePE = 57m.24s.
Berkeley iPZ = 57m.58s., iPN = 58m.11s.
St. Louis iPZ = 58m.19s., eSN = 67m.17s.
Ottawa eZ = 59m.11s., L = 70m.
Bozeman e = 59m.33s., eL = 60m.20s.
Santa Clara eE = 59m.42s.
Long waves were also recorded at other American stations.

April 15d. 11h. 34m. 43s. Epicentre 31°·5S. 71°·0W. (as on 1941 August 3d.)

$A = +\cdot2781$, $B = -\cdot8077$, $C = -\cdot5199$; $\delta = +1$; $h = +1$;
$D = -\cdot945$, $E = -\cdot326$; $G = -\cdot169$, $H = +\cdot492$, $K = -\cdot854$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	11·4	111	2 45	− 2	5 11	SS	—	—	5·8
	N.	11·4	111	2 53	+ 6	5 17	SS	—	—	6·0
	Z.	11·4	111	2 47	0	5 11	SS	—	—	5·9
La Paz		15·2	10	i 3 43 s	+ 5	i 6 57	SS	i 4 2	PP	8·5
Huancayo		19·8	349	e 4 37	+ 2	i 8 19	+ 6	i 5 26	PP	i 10·9
Rio de Janeiro	N.	26·1	78	i 5 47	+10	i 10 35	+28	—	—	i 14·3
Fort de France		46·9	15	e 8 33	− 1	—	—	—	—	—
San Juan		49·8	7	e 8 56	0	e 15 56	−10	e 10 55	PP	e 24·8
Columbia		65·8	352	e 13 29	PP	e 19 38	+ 3	—	—	e 27·3
Philadelphia		71·2	358	e 11 23	0	e 20 43	+ 3	e 13 50	PP	e 31·7
Fordham		72·0	359	e 11 27	− 1	e 21 1	+12	—	—	—
St. Louis		72·0	345	i 11 25	− 3	i 20 47	− 2	e 11 40	PcP	—
Pittsburgh		72·1	354	—	—	e 21 54	PPS	—	—	—
Florissant		72·2	345	i 11 29	0	i 20 49	− 2	i 25 23	SS	—
Harvard		73·6	0	e 11 40	+ 3	e 21 17	+10	—	—	e 48·3
Tucson		73·8	326	i 11 33	− 5	e 21 8	− 1	e 14 6	PP	e 34·6
Chicago		74·5	348	e 11 30	−12	e 21 3	−14	—	—	e 32·8
Ottawa		76·6	357	11 56	+ 2	21 42	+ 2	30 17?	SSS	e 38·3
La Jolla	Z.	77·5	322	12 4	+ 5	—	—	—	—	—
Palomar	Z.	77·7	323	e 11 58	− 2	—	—	—	—	—
Seven Falls		78·3	2	—	—	e 22 0	+ 1	e 27 17?	SS	41·3
Mount Wilson	Z.	79·0	323	i 12 4	− 3	—	—	—	—	—
Pasadena		79·0	323	e 12 4	− 3	i 22 4	− 2	—	—	e 37·7
Haiwee	Z.	80·4	324	i 12 12	− 3	—	—	—	—	—
Salt Lake City		81·2	331	—	—	e 22 23	− 6	e 28 1	SS	e 41·3
Tinemaha		81·3	324	e 12 16	− 4	e 22 32	+ 2	—	—	—
Logan		82·0	332	e 12 30	+ 7	e 22 32	− 5	e 15 43	PP	e 35·4
Santa Clara	E.	83·4	323	—	—	e 22 49	− 2	—	—	e 43·3
Berkeley	N.	84·0	323	i 12 51	PcP	i 22 55	− 2	—	—	e 41·6
	Z.	84·0	323	i 12 32	− 1	i 23 28	PS	—	—	e 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.
Bozeman		85·0	334	—	—	e 23 0	− 7	e 28 53	SS	e 43·6
Ukiah		85·4	323	—	—	e 23 11	0	—	—	e 41·9
Christchurch		85·4	221	12 41	+ 1	22 41	−30	15 38	PP	38·9
Wellington		85·6	224	12 38	− 3	23 27	+14	29 22	SS	42·3
Butte		85·8	333	—	—	22 28?	?	—	—	e 46·5
Arapuni		87·0	227	—	—	23 17?	[+ 3]	—	—	39·3
Auckland		88·3	228	—	—	23 7	[−15]	—	—	41·0
Saskatoon		88·9	339	—	—	e 23 39	− 5	—	—	36·3
Seattle		91·3	329	—	—	e 21 26	?	—	—	—
Victoria		92·4	329	13 28	+14	24 17	+ 1	—	—	41·3
Granada		92·9	49	16 41	PP	26 24	PPS	31 2	SS	—
Tortosa	E.	97·6	48	—	—	e 24 56	− 4	31 4	SS	e 49·3
Kew		103·2	38	e 18 47	PP	e 24 53	[+11]	—	—	e 44·3
Paris		103·3	41	e 18 50	PP	—	—	—	—	54·3
Riverview		103·8	216	—	—	i 24 39	[− 6]	i 27 30	PS	e 47·3
Sitka		103·8	330	e 21 40	PKS	e 25 54	+ 2	e 27 49	PS	e 37·0
Uccle		105·3	39	e 21 11?	PPP	e 24 53	[+ 1]	e 27 56	PS	e 48·3
Aberdeen		105·6	33	—	—	e 28 47	PS	—	—	57·5
De Bilt		106·5	39	e 18 47	PP	e 25 7	[+10]	e 28 12	PS	e 50·3
Stuttgart		107·1	43	e 14 19	P	e 25 2	[+ 2]	e 18 47	PP	57·2
Scoresby Sund		107·5	15	—	—	e 28 18	PS	e 38 10	SSS	e 58·8
Cheb		109·5	43	e 18 17?	PP	e 28 50	PS	—	—	e 56·3
College		112·8	333	—	—	e 24 24	[−59]	—	—	e 26·0
Sofia		113·5	54	—	—	e 29 23	PS	—	—	e 65·3
Helwan		114·6	70	—	—	e 25 41	[+10]	e 29 31	PS	—
Upsala		116·0	35	—	—	e 29 37	PS	e 36 51	SSP	e 62·3
Kodaikanal	E.	143·9	119	e 18 59	[−38]	32 33	SKSP	41 9	SS	—
Bombay		145·1	103	19 41	[+ 2]	29 55	[+ 4]	19 50	PKP_2	—
Tashkent		146·8	61	19 45	[+ 3]	27 2	[+13]	23 10	PP	—
Hyderabad	E.	149·0	111	19 56	[+10]	—	—	—	—	—
New Delhi	N.	152·4	88	—	—	—	—	e 22 49	?	—
Calcutta	N.	159·6	111	e 20 32	[+31]	—	—	i 35 34	?	—

Additional readings:—
Huancayo iP = 4m.41s.
San Juan eSS = 19m.42s.
Philadelphia e = 16m.58s., eSS? = 24m.52s., e = 28m.34s.
St. Louis epPN = 12m.17s., eSPE = 21m.24s., iN = 21m.41s., e SE = 22m.40s.
Harvard e = 21m.44s.
Tucson i = 12m.48s., iS_cS = 21m.12s.
Logan e = 23m.37s., 25m.8s., and 28m.1s.
Christchurch SS = 28m.22s., SSS = 31m.13s., Q = 34m.37s.
Wellington SKS = 22m.59s., SS = 29m.22s., SSS = 33m.2s., Q = 39·3m.
Auckland S = 23m.29s., e = 24m.45s.
Riverview eSSEN = 32m.56s., eSSSN = 37m.18s.
Aberdeen eN = 49m.9s., QE = 52m.59s.
De Bilt eSS = 33m.17s.
Stuttgart eS = 26m.33s., ePS = 28m.25s., eSS = 33m.53s., eSSS = 38m.11s.?.
Scoresby Sund e = 42m.59s.
College e = 25m.4s.
Helwan eN = 26m.56s., PS?EN = 30m.41s.
Upsala eN = 40m.17s.?.
Bombay PPE = 23m.3s., iE = 23m.49s., SKSPE = 33m.15s., PPSE = 35m.39s., SSE = 41m.56s.
Tashkent PKS = 23m.31s., SKKS = 30m.9s., PS = 33m.37s., PPS = 36m.10s.
Long waves were also recorded at Montezuma, Honolulu, Tananarive, Sydney, and other European stations.

April 15d. 12h. 28m. 7s. I
15h. 23m. 1s. II
15h. 31m. 0s. III
15h. 33m. 31s. IV
17h. 59m. 17s. V
22h. 7m. 39s. VI
} Epicentre 37°·6N. 121°·9W. (as on 1943 March 29d.).

15h. 31m. Scale V at Tracy; IV at Byron, Lafayette, Livermore, Moss Beach, Newark, San Francisco, Stockton, Vernalis, and Walnut Creek.
Epicentre 37°·5N. 121°·4W. Macroseismic area 2000 sq. m.
R. R. Bodle. United States Earthquakes, 1943, Washington 1945, p. 10. Map of epicentres p. 4.

$A = -\cdot4197$, $B = -\cdot6743$, $C = +\cdot6076$; $\delta = +1$; $h = -1$;
$D = -\cdot849$, $E = +\cdot528$; $G = -\cdot321$, $H = -\cdot516$, $K = -\cdot794$.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	L. m.
I Branner		0·3	231	i 0 12	+ 1	i 0 18	0	—
II		0·3	231	i 0 11	0	i 0 16	− 2	—
III		0·3	231	i 0 11	0	—	—	—
IV		0·3	231	i 0 12	+ 1	i 0 20	+ 2	—
V	E.	0·3	231	i 0 11	0	—	—	—
VI		0·3	231	i 0 12	+ 1	i 0 19	+ 1	—
I Lick	E.	0·3	138	i 0 11	0	i 0 16	− 2	—
II		0·3	138	i 0 10	− 1	—	—	—
III		0·3	138	i 0 9	− 2	—	—	—
IV		0·3	138	i 0 10	− 1	i 0 15	− 3	—
V		0·3	138	i 0 9	− 2	i 0 14	− 4	—
VI		0·3	138	i 0 11	0	i 0 16	− 2	—
II Santa Clara		0·3	189	i 0 20	?	i 0 25	?	—
III		0·3	189	i 0 9	− 2	i 0 14	− 4	—
V	Z.	0·3	189	(i 0 11)	0	(i 0 16)	− 2	—
VI	Z.	0·3	189	i 0 11	0	—	—	—
I Berkeley		0·4	313	i 0 13	0	i 0 19	− 2	—
II		0·4	313	i 0 12	− 1	i 0 27	+ 6	—
III		0·4	313	i 0 11	− 2	i 0 16	− 5	—
IV		0·4	313	i 0 13	0	—	—	—
V		0·4	313	i 0 12	− 1	—	—	—
VI		0·4	313	i 0 12	− 1	i 0 19	− 2	—
II Ukiah		1·8	326	e 0 34	+ 2	e 1 8	S_g	e 1·5
III		1·8	326	e 0 36	+ 4	e 1 7	S_g	e 1·4
V		1·8	326	e 0 44	P_g	e 1 10	S_g	e 1·4
II Fresno	N.	1·9	117	i 0 19?	−15	i 1 1	+ 2	e 3·4
III	N.	1·9	117	i 0 34	0	i 0 55	− 4	—
IV	N.	1·9	117	—	—	e 0 55	− 4	—
V	N.	1·9	117	i 0 38	+ 4	i 0 59	0	—
III Tinemaha		2·9	100	i 0 51	+ 3	i 1 29	+ 5	—
II Ferndale		3·5	328	e 1 31	S	(e 1 31)	− 9	—
III		3·5	328	—	—	e 1 26	−14	e 1·6
V		3·5	328	e 1 1	+ 4	(e 1 29)	−11	—
III Haiwee		3·5	116	i 0 58	+ 1	i 1 45	+ 5	—
III Mount Wilson	Z.	4·6	137	i 1 13	+ 1	—	—	—
III Pasadena		4·6	138	i 1 12	0	e 2 5	− 2	—
III Palomar	Z.	5·9	135	i 1 30	− 1	—	—	—
III Salt Lake City		8·4	65	—	—	e 3 59	+16	e 4·6
III Logan		8·8	59	e 2 36	+25	e 3 10	−43	i 4·7
II Tucson		10·5	117	e 2 23	−12	—	—	e 6·0
III		10·5	117	e 2 35	0	—	—	—
IV		10·5	117	e 3 1	+26	(e 4 46)	+11	e 4·8

Additional readings and note:—
Branner I iEN = 21s.
Santa Clara V readings have been increased by 1m.
Berkeley III iSZ = 30s.
Ukiah III i = 1m.16s.
Ferndale V eSN = 2m.49s. reading entered as S is given as ePE.
Long waves were recorded at Salt Lake City II and V, Bozeman V, and Logan V.

April 15d. 14h. 33m. 17s. Epicentre 0°·6S. 81°·7W. (as on 1942 Dec. 15d.).

$A = +\cdot1443$, $B = -\cdot9895$, $C = -\cdot0104$; $\delta = +4$; $h = +7$;
$D = -\cdot990$, $E = -\cdot144$; $G = -\cdot002$, $H = +\cdot010$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Bogota		9·2	56	(e 2 43?)	P_g	—	—	—
Huancayo		13·0	151	e 3 10	+ 1	e 5 52	SS	i 6·9
La Paz	z.	20·7	141	4 41	− 3	i 8 37	+ 6	11·1
San Juan		24·3	38	e 5 17	− 3	e 9 55	+18	e 13·6
Fort de France		25·4	54	e 3 39	?	—	—	—
St. Louis		39·8	350	e 6 41	−55	e 13 39	− 3	—
Tucson		42·7	323	i 8 0	0	e 13 51	?	e 21·8
Mount Wilson	z.	48·6	320	i 8 47	0	—	—	—
Pasadena		48·6	320	i 8 49	+ 2	—	—	e 24·1
Tinemaha	z.	50·5	322	e 9 2	0	—	—	—

Additional readings :—
Bogota reading has been diminished by 10 minutes.
Huancayo 1 = 3m.45s.
La Paz iPZ = 4m.44s.
San Juan e = 6m.35s.
St. Louis eZ = 7m.33s., eN = 13m.23s., eE = 16m.27s.

April 15d. Readings also at 2h. (La Plata), 4h. (near Apia), 9h. (near Andijan, Tashkent, and near Fort de France), 10h. (near Andijan and Tashkent), 12h. (College), 13h. (Seattle), 15h. (near Berkeley, Branner, Lick, Fresno, and Santa Clara (2)), 16h. (Santa Clara (3)), 17h. (Santa Clara (4), near Berkeley, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, College, Sitka, Bozeman, Logan, Salt Lake City, St. Louis, Florissant, Harvard, Fordham, Philadelphia, and Columbia), 18h. (Bermuda), 21h. (Haiwee (2), Mount Wilson (2), Pasadena, Riverside (2), Tinemaha (2), Tucson, Sitka, College, Florissant, Philadelphia, and near Mizusawa).

April 16d. 1h. 13m. 28s. Epicentre 0°·6S. 81°·7W. (as on 15d.).

$A = +\cdot1443$, $B = -\cdot9895$, $C = +\cdot0104$; $\delta = +4$; $h = +7$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		9·2	56	e 2 29	PP	e 3 53	−10	e 2 38	PPP	—
San Juan		24·3	38	e 5 17	− 3	e 9 48	+11	e 6 37	PPP	e 13·2
Tucson		42·7	323	i 8 3	+ 3	—	—	—	—	e 43·2
Riverside	z.	48·0	320	i 8 44	+ 1	—	—	—	—	—
Mount Wilson	z.	48·6	320	i 8 50	+ 3	—	—	—	—	—
Tinemaha	z.	50·5	322	e 8 59	− 3	—	—	—	—	—

San Juan also gives e = 9m.32s., iS = 9m.51s.
Long waves were recorded at Huancayo and La Paz.

April 16d. 11h. 43m. 11s. Epicentre 36°·1N. 4°·6E.

Massif des Bibans ; damage at Mansourah, Dar-Beida, Medjana, etc.
Epicentre 36° 05′N., 4° 33′E. (Strasbourg).
J. P. Rothe.
Les Séismes de Kerrata et la séismicité de l'Algérie.
Annales de l'Institut de Physique du Globe de Strasbourg, 3e part., Géophysique, t. VI, 1950, p. 32-33.

$A = +\cdot8073$, $B = +\cdot0650$, $C = +\cdot5866$; $\delta = +6$; $h = 0$;
$D = +\cdot080$, $E = -\cdot997$; $G = +\cdot585$, $H = +\cdot047$, $K = -\cdot810$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Barcelona		5·6	342	e 1 26	− 1	2 26	− 7	—	—	3·1
Almeria		5·7	279	1 26	− 2	2 40	+ 5	1 40	P*	3·1
Tortosa	E.	5·7	327	1 27	− 1	2 58	S*	1 43	P*	—
Granada		6·7	283	i 1 39	− 3	3 4	+ 4	2 1	P*	—
Toledo	z.	7·8	302	i 1 55	− 3	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Fernando	N.	8·7	275	e 1 54	−16	e 3 33	−17	—	—	3·8
Florence		9·2	32	e 3 47	S	(e 3 47)	−16	—	—	(e 6·1)
Clermont-Ferrand		9·7	354	e 2 27	+ 5	i 4 18	+ 3	i 4 53	S*	—
Milan		10·0	19	2 40	+13	5 12	S*	—	—	7·1
Neuchatel		11·0	8	e 2 45	+ 3	—	—	—	—	—
Chur		11·3	17	e 2 51	+ 5	—	—	—	—	e 6·0
Lisbon	N.	11·3	288	2 35	−11	5 6	+12	5 23	SS	5·8
Basle		11·7	10	e 2 49	− 2	e 4 57	− 7	—	—	e 7·4
Zürich		11·7	14	e 2 53	+ 2	—	—	—	—	e 6·6
Triest		11·8	33	e 3 2	+ 9	—	—	—	—	e 6·0
Strasbourg		12·7	10	e 3 22	PPP	—	—	—	—	e 5·8
Paris		12·8	353	i 3 9	+ 3	—	—	—	—	7·8
Stuttgart		13·1	13	e 3 9	− 1	e 6 2	SSS	e 3 13	PP	e 7·0
Belgrade		14·9	49	e 3 36	+ 2	—	—	e 4 9	PPP	—
Cheb		15·1	20	e 3 49?	PPP	—	—	—	—	e 7·8
Jena		15·7	16	e 3 44	0	—	—	—	—	—
Prague		15·7	24	—	—	—	—	e 7 13?	SSS	—
Kew		15·8	348	i 3 45	0	e 6 50	+ 8	i 8 19	P_cP	e 7·3
De Bilt		16·0	1	e 3 51	+ 3	e 7 9	SS	—	—	e 7·8
Uccle		16·0	0	e 3 33	−15	(e 6 49?)	+ 3	—	—	e 6·8
Copenhagen		20·3	13	4 42	+ 2	—	—	—	—	10·8
Aberdeen		21·5	351	i 4 54	+ 2	i 8 41	− 6	—	—	e 11·1
Helwan		23·2	98	i 5 10a	+ 1	9 25	+ 7	5 40	PP	—
Yalta		23·9	61	e 5 14	− 2	—	—	—	—	—
Ksara		25·7	87	e 5 42?	+ 9	e 10 18	+17	—	—	—
Tucson		89·0	310	e 12 56	− 2	—	—	e 13 15	P_cP	e 47·4
Tinemaha	z.	89·9	318	e 13 3	+ 1	—	—	—	—	—
Riverside	z.	91·7	316	e 13 10	0	—	—	—	—	—
Mount Wilson	z.	91·9	316	e 13 10	− 1	—	—	—	—	—
Pasadena	z.	92·1	316	e 13 5	− 7	—	—	—	—	e 49·8

Additional readings :—
Almeria Pg = 1m.47s., 2m.6s., 2m.23s., Sg = 2m.44s., 2m.49s., 2m.59s.
Granada 2m.25s., 2m.39s., iSg = 3m.9s., 3m.20s.
Clermont-Ferrand i = 2m.39s., eP* = 3m.4s., eS = 4m.27s.
Lisbon PZ = 2m.39s.?a, E = 5m.27s.
Strasbourg i = 3m.40s.
Stuttgart eQ = 6m.19s.?.
Belgrade e = 4m.29s.
Helwan PPPZ = 5m.58s.
Long waves were also recorded at Potsdam.

April 16d. 16h. Undetermined shock.
Brisbane eE = 44m.13s., iN = 47m.27s.
Auckland S = 44m.17s., SS = 48m.20s., Q = 49m.
Wellington S = 44m.55s., SS = 48m.30s., Q = 51m., R = 53m.
Riverview eP = 45m.1s., iZ = 45m.10s., iN = 45m.49s., iSEN = 48m.49s., iP_cPZ = 48m.59s., eLN = 50·6m.
Christchurch e = 45m.40s., i = 49m.19s., L = 50m.16s.
Arapuni SS? = 48m.0s.?.
Mount Wilson ePZ = 53m.15s.
Pasadena ePZ = 53m.15s., eLZ = 86m.
Riverside ePZ = 53m.16s.
Tinemaha iPZ = 53m.21s., iZ = 53m.32s.
Tucson eP = 53m.35s., e = 53m.50s.

April 16d. Readings also at 0h. (La Plata, Sitka, Ukiah, Riverside, Mount Wilson, Haiwee, Tucson, and Tinemaha), 1h. (Philadelphia and Harvard), 3h. (Harvard, near Bogota), 10h. (near Berkeley, Lick, and Santa Clara), 16h. (Sydney), 17h. (Tucson), 20h. (La Plata), 21h. (near Cape Girardeau), 22h. (Fort de France), 23h. (Fordham).

April 17d. 2h. Undetermined shock.

Vladivostok eP =47m.2s., iS =53m.25s.
Brisbane eE =48m.51s., iE =51m.4s., 52m.52s., 53m.57s., and 56m.21s.
Riverview iN =49m.56s., iE =52m.41s., 54m.28s., and 55m.24s., iN =55m.31s., iE = 56m.4s., iN =56m.11s.
Andijan eP =49m.56s.
Tashkent P =50m.3s.
Perth P =51m.0s., S =55m.50s., SS =57m.25s., L =59m.25s.
Tinemaha ePZ =51m.58s.
Mount Wilson iPZ =51m.59s., iZ =52m.9s., eZ =52m.33s.
Pasadena iP =51m.59s.k, eLEZ =85·1m.
Riverside iPZ =52m.0s.k.
Tucson e =52m.28s., 56m.49s., and 57m.8s., eL =88m.31s.
Sydney e =52m.48s.? and 56m.0s.
Auckland S =53m.40s., Q =65m.
Wellington S? =54m.0s.?, SS? =59m., Q =65m., R =67·5m.
Christchurch S =54m.21s., Q =61m.59s., R =65m.43s.
Arapuni SS? =60m., L =65m.
Long waves were also recorded at Fordham, Kew, Uccle, De Bilt, and Stuttgart.

April 17d. Readings also at 0h. (Bozeman, Salt Lake City, Saskatoon, Seattle, Victoria, Sitka, Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha (2), and Tucson (2)), 1h. (Pittsburgh), 2h. (Pasadena, Riverside, Tinemaha, Tucson, Yalta, Ksara, Triest, De Bilt, Kew, Stuttgart, Belgrade, Bucharest, Sofia, and near Istanbul (2)), 4h. (Kew), 8h. (Philadelphia), 9h. (Riverview), 11h. (Riverview, Auckland, Wellington, Pasadena, Mount Wilson, and Philadelphia), 12h. (Cheb and near Fort de France), 13h. (Cheb), 15h. (near Mizusawa), 19h. (La Plata, near Berkeley, Branner, Lick, and Fresno), 22h. (near Almeria), 23h. (Tashkent and Tchimkent).

April 18d. Readings at 0h. (Tinemaha and Tucson), 1h. (Harvard and near Bogota), 2h. (near Mizusawa), 3h. (near Bogota and La Plata), 5h. (Mount Wilson, Riverside, Tinemaha, Tucson, Auckland, Christchurch, Wellington, and near Fort de France), 6h. (La Plata and near Bogota), 9h. (Riverside, Tucson, and Tinemaha), 11h. (Guadalajara, Manzanillo, Tacubaya, Tucson, and Tinemaha), 14h. (Granada, Stuttgart, near Tashkent, and Tchimkent), 15h. (Huancayo), 16h. (Kew), 19h. (near Branner, near Ferndale, and near Mizusawa).

April 19d. 1h. 19m. 11s. Epicentre 17°·2N. 81°·3W.

$A = +\cdot1446$, $B = -\cdot9448$, $C = +\cdot2939$; $\delta = -7$; $h = +5$;
$D = -\cdot988$, $E = -\cdot151$; $G = +\cdot044$, $H = -\cdot290$, $K = -\cdot956$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		8·4	167	e 2 23	P*	e 4 45	S_g	—	—	—
Bogota		14·4	149	e 3 27	0	—	—	e 3 37	PP	—
San Juan		14·5	82	e 3 29	+ 1	—	—	—	—	e 7·3
Columbia		16·7	1	—	—	e 7 9	+ 6	—	—	e 8·6
Fort de France		19·5	96	e 4 31	0	—	—	—	—	—
Bermuda		21·3	42	(e 4 50)	0	(e 8 46)	+ 3	—	—	(e 9·9)
Cape Girardeau		21·3	341	e 4 48	− 2	e 8 42	− 1	—	—	—
St. Louis		22·8	341	i 5 4	− 1	i 9 11	0	i 5 18	PP	—
Florissant		22·9	341	i 5 35	PP	i 9 15	+ 2	—	—	i 13·4
Pittsburgh		23·2	3	e 6 4	PPP	i 9 24	+ 6	—	—	e 12·3
Fordham		24·4	14	e 5 22	+ 1	e 9 46	+ 7	—	—	e 13·3
Chicago		25·1	347	e 9 5	P_cP	e 4 36	?	e 10 21	SS	e 12·2
Ottawa		28·5	9	6 3	+ 4	10 49?	+ 3	—	—	13·8
Huancayo		29·7	168	—	—	e 11 13	+ 7	(e 13 6)	SSS	e 13·1
Tucson		30·6	305	e 6 15	− 3	—	—	e 7 5	PP	e 22·7
Seven Falls		31·1	14	—	—	e 11 25	− 3	—	—	14·8
Riverside	z.	36·4	304	i 7 9	+ 1	—	—	—	—	—
Mount Wilson	z.	37·0	304	e 7 14	+ 1	—	—	—	—	—
Pasadena	z.	37·0	304	e 7 14	+ 1	—	—	—	—	—
Tinemaha	z.	38·1	309	e 7 21	− 1	—	—	e 8 52	PP	—

Bermuda readings have been diminished by 1m.
Tucson also gives e =12m.5s.
Long waves were also recorded at Bozeman, Sitka, and De Bilt.

April 19d. Readings also at 0h. (Basle, Triest, and near Florence), 2h. (Belgrade, Focsani, Bucharest, and Sofia (2)), 3h. (Triest), 5h. (Fort de France, Tucson, and Tinemaha), 8h. (near Fort de France), 11h. (Harvard, Bozeman, Salt Lake City, Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, and Tucson), 12h. (Cheb), 17h. (Huancayo), 19h. (Upsala), 21h. (near St. Louis, Cape Girardeau, near Stalinabad, Tashkent, and Andijan), 22h. (near Cape Girardeau), 23h. (Tinemaha).

April 20d. 15h. 19m. 33s. Epicentre 36°·3N. 71°·0E. Depth of focus 0·020.
(as on 1943, Feb. 28d.).

$A = +\cdot2630$, $B = +\cdot7638$, $C = +\cdot5894$, $\delta = -5$; $h = 0$;
$D = +\cdot946$, $E = -\cdot326$; $G = +\cdot192$, $H = +\cdot557$, $K = -\cdot808$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Andijan		4·6	14	i 1 9	0	1 50	−12	—	—
Tashkent		5·2	347	i 1 17	0	—	—	—	—
Almata		8·3	32	—	—	2 48	?	—	—
Dehra Dun	N.	8·4	133	e 3 55	S	(e 3 55)	+22	—	—
New Delhi	E.	9·3	144	e 2 17	+ 5	i 3 53	− 1	—	—
	N.	9·3	144	i 2 10a	− 2	i 3 47	− 7	2 27	PP —
Hyderabad	E.	19·9	159	4 22	+ 1	7 49	− 2	5 7	PP 10·0
Calcutta	N.	20·4	127	e 4 54	PP	i 7 59	− 1	i 8 32	— —
Sverdlovsk		21·7	345	i 4 40	+ 1	i 8 27	+ 3	—	— —
Ksara		28·8	275	e 5 46	+ 1	e 11 40	SS	—	— —
Moscow		29·8	321	6 26	+32	e 11 31	+54	—	— —
Upsala		41·2	322	e 9 27?	PP	e 13 27?	− 4	—	— —
Copenhagen		43·6	315	7 48	− 2	17 41	SS	—	— —
Stuttgart	Z.	46·0	306	e 8 6	− 3	—	—	—	— —
Zürich		46·6	304	e 8 5	− 9	—	—	—	— —
Toledo	Z.	57·5	298	i 9 32	− 3	—	—	—	— —

Additional readings :—
Andijan Pg = 1m.20s., iSg = 2m.1s.
New Delhi PgN = 2m.44s., S*N = 4m.9s., SgN = 4m.29s.
Copenhagen 8m.25s.
Toledo i = 10m.15s. and 10m.44s.

April 20d. Readings also at 0h. (Bogota, Tacubaya, Tucson (2), Mount Wilson, Pasadena, Riverside (2), and Tinemaha (2)), 2h. (Tacubaya, near Berkeley, Branner, and Lick), 4h. (Mount Wilson, Haiwee, Riverside, Tucson, and Tinemaha), 6h. (La Plata, Tucson, and Tinemaha), 10h. (near Andijan), 12h. (Upsala), 15h. (Auckland, Christchurch, and Wellington), 17h. (Tashkent and near Stalinabad), 18h. (2) and 19h. (3) (near Almeria), 23h. (near Andijan and Tashkent).

April 21d. Readings at 0h. (near Andijan and Tashkent), 2h. (Fresno, near Branner, and Lick), 4h. (Stuttgart and near Tananarive), 5h. (near Fresno), 7h. (near Ottawa), 8h. (near Ebingen and Stuttgart), 9h. (Berkeley, Santa Clara, near Branner, Fresno, and Lick), 11h. (near Ebingen, Stuttgart, and Zürich), 14h. (near Tashkent), 16h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, College, and Stuttgart), 17h. (San Francisco, near Berkeley, Branner, Fresno, Lick, and Santa Clara), 18h. (Mount Wilson, Tucson, and Tinemaha), 19h. (Triest), 22h. (near Florissant (2)), 23h. (Tucson, San Francisco (3), near Berkeley (3), Branner (4), Fresno (3), Lick (5), and Santa Clara (3)).

April 22d. Readings at 1h. (near Bogota), 2h. (New Delhi, Bombay, and near Tchimkent), 3h. (Auckland, De Bilt, and Kew), 5h. (La Paz, Bogota, Tucson (2), Haiwee, Mount Wilson (2), Riverside, and Tinemaha (2)), 7h. (College, Haiwee, Mount Wilson, Pasadena, Riverside, Tucson, and Tinemaha), 9h. (Hyderabad), 10h. (Mount Wilson, Pasadena, Tucson, and Tinemaha), 14h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tucson, Santa Barbara, Tinemaha, and near Stalinabad), 15h. (near Tchimkent), 17h. (near Mizusawa), 18h. (Tashkent), 20h. (Mount Wilson, Pasadena, Riverside, and Tinemaha).

April 23d. 18h. 7m. 53s. Epicentre 20°·5S. 70°·5W. (as on 1940 Oct. 27d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·6	144	—	—	e 1 18	+ 1	—	—	i 1·8
Huancayo		9·6	330	e 2 32	+11	e 4 27	+15	—	—	i 4·8
La Plata		18·1	144	4 16	+ 2	7 54	SS	8 1	SSS	9·3
Bogota		25·2	353	e 5 29	0	—	—	e 6 47	PPP	—
Rio de Janeiro	N.	25·5	102	e 9 39	S	(e 9 39)	−18	—	—	e 13·2
San Juan		38·9	8	e 7 24	− 5	e 13 17	−11	e 10 45	?	16·5
Bermuda		52·8	7	e 16 21	?	e 16 48	+ 1	—	—	e 25·6
Cape Girardeau	N.	60·2	344	e 10 9	− 3	e 18 17	− 8	—	—	—
Fordham		61·1	358	i 10 17	− 1	—	—	—	—	—
St. Louis		61·7	344	e 10 18	− 4	e 18 37	− 7	—	—	—
Harvard		62·7	0	i 10 26	− 3	—	—	—	—	—
Tucson		65·1	324	i 10 44	− 1	—	—	e 13 35	PP	34·0
Ottawa		65·7	356	e 10 46	− 2	—	—	—	—	31·1
La Jolla		69·4	320	e 11 12	0	—	—	e 11 24	?	—
Riverside	N.	70·2	321	e 11 16	− 1	—	—	—	—	—
Mount Wilson		70·8	321	i 11 20k	0	—	—	i 11 31	?	—
Pasadena		70·8	321	i 11 21k	+ 1	e 20 38	+ 3	i 11 32	?	—
Haiwee		72·0	322	i 11 27	− 1	—	—	—	—	—
Tinemaha		72·9	322	i 11 34k	+ 1	e 21 3	+ 4	—	—	—
Granada		85·2	48	i 12 44	+ 5	23 24	+15	24 2	PS	41·6
Almeria		85·8	49	e 12 50	+ 8	23 57	PS	16 5	PP	44·1
Toledo		86·2	46	i 12 43	− 1	24 37	PS	16 20	PP	—
Tortosa	N.	89·7	47	—	—	i 24 0	+ 8	24 46	PS	41·1
Stuttgart		98·6	41	13 41	− 1	—	—	—	—	e 51·1
Sverdlovsk		129·0	32	e 19 10	[0]	31 27	PS	e 21 16	PP	—
Tashkent		140·2	49	19 34	[+ 3]	e 26 28	[−11]	e 23 25	PKS	—
Andijan		142·6	49	19 29	[− 6]	—	—	e 23 14	PKS	—

Additional readings :—
La Plata N = 5m.7s., E = 5m.13s., N = 5m.43s., E = 6m.25s., N = 8m.13s.
Tucson e = 12m.39s., ePPP? = 14m.46s.
Almeria i = 12m.59s., PS = 24m.11s., PPS = 24m.37s., SS = 28m.58s.
Long waves were also recorded at Arapuni, Wellington, Bombay and at other European stations.

April 23d. Readings also at 2h. (near Andijan, Tashkent, and Frunse), 4h. (near Mizusawa (2)), 6h. (Mount Wilson, Tucson, Copenhagen, De Bilt, Stuttgart, Andijan, Tashkent, Hyderabad, Bombay, New Delhi, Calcutta, and Kodaikanal), 8h. (near Bogota), 9h. (near Mizusawa), 12h. (near Lick and Berkeley), 18h. (near Mizusawa), 20h. (near Bucharest, Bacau, Campulung, and Focsani), 21h. (near St. Louis (2)).

April 24d. Readings at 1h. (near Fresno), 2h. (Mount Wilson, Tinemaha, Haiwee, Tucson, near Tashkent, and Andijan), 15h. (Fordham), 16h. (near Mizusawa), 17h. (near St. Louis and Florissant), 19h. (Sofia and Triest), 21h. (Mount Wilson, Tinemaha, Tucson, Toledo, and Kew), 22h. (Granada), 23h. (Fort de France).

April 25d. 11h. 35m. 9s. Epicentre 48°·2N. 9°·0E. Foreshock of May 2d. 1h.

$A = +·6609$, $B = +·1046$, $C = +·7432$; $\delta = +8$; $h = -5$;
$D = +·156$, $E = -·988$; $G = +·734$, $H = +·116$, $K = -·670$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen	0·0	—	i 0 1	P_g	i 0 2	S_g	—	—	—
Ravensburg	0·6	135	e 0 12	P_g	i 0 20	S_g	i 0 23	S*	—
Stuttgart	0·6	13	i 0 9	P_g	i 0 16	S_g	i 0 14	P*	—
Strasbourg	0·9	295	i 0 18	P_g	i 0 30	S_g	—	—	—
Zürich	0·9	198	e 0 16a	P_g	i 0 29	S_g	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Basle		1·2	235	e 0 20$_a$	− 4	i 0 39	− 2	—	—	—
Chur		1·4	165	e 0 25$_k$	− 2	i 0 46	0	—	—	—
Neuchatel		1·8	229	e 0 29	− 3	e 0 59	+ 3	i 0 34	P*	—
Milan	z.	2·7	177	e 0 50	+ 4	e 1 15	− 4	—	—	—
Jena		3·2	32	e 0 57	+ 5	i 1 35	+ 3	1 1 0	P*	i 1·6
Prague	z.	4·0	62	—	—	e 2 11	S_g	—	—	e 2·3
Clermont-Ferrand		4·7	236	i 1 28	P*	i 2 38	S_g	—	—	e 2·7
Potsdam		4·9	33	—	—	e 2 39?	S_g	—	—	—

Additonal readings :—
Ravensburg e = 0m.17s.
Jena iEN = 1m.18s., 1m.27s.

April 25d. Readings also at 0h. (near Tashkent and Stalinabad), 1h. (near Mizusawa), 5h. (Pasadena, Mount Wilson, Tinemaha, Tucson, and Apia), 8h. (near Bogota), 9h. (near Andijan), 10h. (La Plata), 11h. (Triest, near Stuttgart, Ebingen, and Zürich), 18h. (near Stalinabad and Tashkent), 21h. (Riverview and Brisbane), 23h. (near Cape Girardeau).

April 26d. 11h. 53m. 56s. Epicentre 37°·5N. 122°·0W.

Intensity V at Dublin ; IV at Alvarado, Decota Diablo, Holt Rio Vista, Sunol, Sunnyvale, and Walnut Creek. Epicentre 37°·5N. 122°·0W. Macroseismic area 1500 sq. miles.
Ralph R. Bodle, United States Earthquakes 1943, Washington 1945, p. 11. Map of epicentres, p. 4.

$A = -·4214$, $B = -·6744$, $C = +·6062$; $\delta = -13$; $h = +2$;
$D = -·848$, $E = +·530$; $G = -·321$, $H = -·514$, $K = -·795$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Branner		0·2	241	i 0 12	+ 2	i 0 18	+ 2	—	—	—
Santa Clara		0·2	162	i 0 9	− 1	i 0 14	− 2	—	—	—
Lick		0·3	120	i 0 11	0	i 0 16	− 2	—	—	—
Berkeley		0·4	329	i 0 13	0	i 0 20	− 1	i 0 23	?	—
Fresno	N.	1·9	114	e 0 38	+ 4	i 1 0	+ 1	i 1 11	S_g	—
Ukiah		1·9	329	e 0 45	+11	e 1 17	+18	—	—	e 1·5

Fresno also gives eN = 3m.27s.

April 26d. 12h. 19m. 36s. Epicentre 12°·8N. 145°·5E. (as on 1937 Jan. 30d.).

$A = -·8039$, $B = +·5525$, $C = +·2201$; $\delta = -4$; $h = +6$;
$D = +·566$, $E = +·824$; $G = -·181$, $H = +·125$, $K = -·975$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Titizima		14·6	347	e 3 29	− 1	6 6	− 7	—	—	—
Hatidyozima		20·9	347	4 50	+ 4	—	—	—	—	—
Misima		23·0	347	5 4	− 3	—	—	—	—	—
Tokyo		23·4	350	e 5 18	+ 7	—	—	—	—	—
Kôbe		23·7	340	5 22	+ 8	9 38	+11	—	—	—
Nagano		24·7	346	5 21	− 3	—	—	—	—	—
Hukuoka		24·8	330	5 19	− 6	9 17	−19	—	—	—
Riverview		46·7	174	—	—	e 15 23	+ 1	e 19 51	SSS	—
Irkutsk		51·3	329	—	—	e 18 42	?	—	—	—
Christchurch		61·3	158	4 57	?	13 57	?	22 3	Q	25·1
Bombay	E.	69·8	286	e 11 0	−14	i 20 33	+10	e 13 33	PP	—
Tashkent		71·3	309	11 16	− 7	20 28	−13	—	—	—
Santa Barbara	z.	86·8	56	e 12 47	0	—	—	—	—	—
Tinemaha	z.	87·3	53	i 12 51	+ 1	—	—	—	—	—
Haiwee		87·8	54	i 12 54	+ 2	—	—	—	—	—
Pasadena	z.	88·1	55	i 12 52	− 2	—	—	i 13 0	P_cP	—
Mount Wilson	z.	88·1	55	i 12 54	0	—	—	—	—	—
Riverside		88·7	55	12 56	− 1	—	—	—	—	—
La Jolla	z.	89·1	56	i 12 59	+ 1	—	—	—	—	—
Tucson		94·5	56	i 13 24	+ 1	—	—	e 13 33	P_cP	—

Bombay also gives eE = 24m.57s.
Long waves were also recorded at Wellington.

April 26d. 23h. Undetermined shock east of Borneo.
Riverview iPZ = 22m.18s., iPPE = 23m.56s., iSN = 28m.34s., iSSE = 31m.39s., iZ = 31m.47s., iS_cSE = 32m.28s., iE = 36m.18s.
Vladivostok eP = ?2m.37s., iS = 29m.2s.
Frunse P = 24m.32s.
Calcutta ePPPN = 24m.57s., iSN = 28m.35s., eN = 32m.5s.
Tashkent P = 25m.8s., eS = 33m.48s.
Bombay PPE = 26m.7s., PPPE = 27m.21s., SE = 31m.46s., PPSE = 32m.4s., iE = 33m.29s., SSE = 35m.25s.
New Delhi eN = 26m.35s., eSN = 31m.15s., SSN = 32m.9s.
Mount Wilson eZ = 33m.3s., 33m.26s.
Stuttgart eZ = 33m.5s., 33m.12s.
Tucson iP = 33m.19s.
Tinemaha eZ = 33m.24s., 33m.52s.

April 26d. Readings also at 0h. (Tashkent), 1h. (Wellington, Christchurch, Arapuni, Brisbane, Riverview, and Mizusawa), 2h. (Helwan, Ksara, Chur, and Stuttgart), 3h. (near Tashkent), 4h. (near Tucson), 5h. (Tinemaha and Tucson), 6h. (Fort de France) 7h. (near Istanbul). 9h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 12h. (near Berkeley, Santa Clara, Lick, and Branner (2)), 13h. (Calcutta, Mount Wilson, Riverside, Tinemaha, Tucson, and near Branner), 17h. (Tacubaya, Triest, and Stuttgart), 18h. (Ksara, near Berkeley, Santa Clara, Lick, and Branner), 19h. (Tinemaha, Tucson, Stuttgart, Clermont-Ferrand, Toledo, and near Lisbon (2)), 20h. (Tortosa and Granada), 21h. (New Delhi, Calcutta, Bombay, Tashkent, Mizusawa, and near Sofia), 22h. (Stuttgart, Uccle, De Bilt, and Kew).

April 27d. Readings at 0h. (Riverview, near Santa Clara, Berkeley, Lick, and Branner), 3h. (Tucson), 5h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Santa Barbara, Tucson, and College), 6h. (Pasadena, Mount Wilson, Riverside, Tucson, and Tinemaha), 7h. (near Andijan and Tashkent), 9h. (Sofia and near Mizusawa), 10h. (Tacubaya), 12h. (near Branner), 13h. (near Andijan and Tashkent), 16h. (Ksara), 18h. (near Irkutsk), 20h. (Pasadena, Mount Wilson, Tucson, Riverside, and Tinemaha), 21h. (Wellington and Stuttgart), 22h. (near St. Louis), 23h. (Fort de France).

April 28d. 17h. 23m. 42s. Epicentre 0°·68. 81°·7W. (as on 16d.).

A = +·1443, B = −·9895, C = −·0104 ; δ = +4 ; h = +7 ;
D = −·990, E = −·144 ; G = −·002, H = +·010, K = −1·000.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		9·2	56	e 2 17	+ 1	—	—	e 2 38	PP	—
Huancayo		13·0	151	e 3 5	− 4	i 6 22	+47	e 6 5	SS	—
San Juan		24·3	38	e 5 17	− 3	e 9 37	0	—	—	e 11·5
St. Louis		39·8	350	e 7 33	− 3	e 13 42	0	e 9 12	PP	—
Tucson		42·7	323	e 8 0	0	—	—	e 18 31	SSS	e 22·5
La Jolla	z.	47·2	319	i 8 37	+ 1	—	—	—	—	—
Riverside	z.	48·0	320	i 8 44	+ 1	—	—	—	—	—
Mount Wilson	z.	48·6	320	i 8 48	+ 1	—	—	—	—	—
Pasadena	z.	48·6	320	i 8 47	0	—	—	e 9 18	?	—
Tinemaha	z.	50·5	322	e 9 3	+ 1	—	—	—	—	—

April 28d. 19h. 46m. 43s. Epicentre 45°·8N. 27°·2E.

Intensity V over a large area, especially at Vaslui, Budesti, Buhusi, and Galati. Epicentre given by G. Petrescu, Earthquake of 28 April 1943, microseismic study. Bull. Acad. Roumaine, Section des Sciences (1944-1945), vol. 27, pp. 223-229, 2 figures.

A = +·6222, B = +·3198, C = +·7146 ; δ = +6 ; h = −4 ;
D = +·457, E = −·889 ; G = +·635, H = +·327, K = −·700.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Focsani	0·1	—	e 0 8	P_g	i 0 14	S_g	—	—	—
Bacau	0·8	164	e 0 16	P_g	i 0 26	S_g	—	—	—
Campulung	1·6	250	e 0 30	P_g	i 0 53	S_g	—	—	—
Bucharest	1·6	208	e 0 30	P_g	e 0 51	S_g	—	—	—
Cernauti	2·6	340	e 0 44	0	i 1 25	S_g	e 0 49	P_g	i 1·5
Sofia	3·9	225	e 1 5	+ 3	—	—	i 1 26	PPP	—
Belgrade	4·8	263	e 1 21	+ 6	—	—	e 1 29	P_g	e 2·7
Triest	9·4	274	i 2 18	0	—	—	—	—	—
Moscow	11·9	29	2 55	+ 1	4 49	−20	—	—	—
Zürich	12·9	283	e 3 1	− 6	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		15·2	341	—	—	e 6 17?	−11	e 8 1	?	—
Clermont-Ferrand		16·8	278	e 3 57	− 1	—	—	—	—	—
Sverdlovsk		23·4	50	5 27	+16	9 17	− 4	—	—	—

Belgrade also gives e = 1m.44s.
Long waves were also recorded at Stuttgart.

April 28d. 23h. 43m. 12s. Epicentre 24°·5S. 180°. Depth of focus 0·060.

Pasadena gives this epicentre with depth 530 km.

A = −·9110, B = ·0000, C = −·4124; δ = −1; h = +3;
D = ·000, E = +1·000; G = +·412, H = ·000, K = −·911.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		13·1	199	2 53	− 1	5 11	− 2	i 5 28	?	—
Apia		13·2	41	i 2 55	0	i 5 8	− 7	i 5 18	?	—
Arapuni		14·0	193	3 0?	− 4	8 24?	?	—	—	—
New Plymouth		15·4	196	3 23	+ 5	5 59	+ 1	i 6 7	?	—
Wellington		17·3	193	3 38	+ 1	6 31	− 2	—	—	—
Kaimata		19·3	198	3 57	0	7 5	− 4	i 7 11	?	—
Christchurch		19·9	195	3 58	− 5	7 11	− 8	—	—	—
Brisbane	E.	24·4	256	i 4 47	+ 2	i 8 32	− 2	—	—	—
Sydney		26·7	242	e 5 0?	− 5	e 8 48	−22	—	—	—
Riverview		26·8	242	i 5 10	+ 4	i 9 9	− 3	e 6 27	pP	—
Honolulu		50·4	27	e 9 40	pP	e 14 59	− 1	e 16 40	PPS	e 23·0
Misima		70·9	325	10 36	+ 1	—	—	—	—	—
Tokyo		70·9	326	10 42	+ 7	20 2	+46	—	—	—
Kameyama		72·0	324	e 10 44	+ 2	—	—	—	—	—
Kôbe		72·6	323	10 47	+ 2	19 33	− 2	—	—	—
Nagano		72·6	325	i 10 46	+ 1	—	—	—	—	—
Mizusawa	E.	73·0	330	e 10 49	+ 1	—	—	—	—	—
Sapporo		76·1	332	e 11 7	+ 2	—	—	—	—	—
Santa Barbara		81·9	47	i 11 35	− 1	—	—	—	—	—
La Jolla		82·6	49	i 11 38a	− 1	—	—	—	—	—
Pasadena		82·7	48	i 11 39a	− 1	e 21 13	− 9	i 13 34	pP	—
Mount Wilson		82·9	48	i 11 40a	− 1	e 21 12	−12	i 13 36	pP	—
Riverside		83·2	48	i 11 41a	− 1	—	—	i 13 36	pP	—
Haiwee	Z.	83·4	46	i 11 46	+ 3	—	—	i 13 45	pP	—
Tinemaha		84·4	45	i 11 48	0	i 21 39	+ 1	i 13 46	pP	—
Tucson		86·8	52	i 12 0	0	i 22 1	0	i 13 54	pP	e 42·9
Sitka		89·9	23	—	—	i 22 22	− 7	i 28 33	SS	—
Salt Lake City		90·6	45	—	—	i 22 34	− 1	—	—	e 37·7
Huancayo		98·1	107	—	—	i 22 40	[− 8]	—	—	—
La Paz	Z.	102·1	114	16 49	?	—	—	—	—	17·6
Chicago		107·6	50	e 15 59	?	e 24 58	+ 4	e 27 40	sS	—
Bombay	E.	112·8	281	e 18 52	PP	23 45	[− 8]	27 51	SP	—
Ottawa		116·8	49	e 17 53	[− 4]	e 25 48?	?	—	—	34·8
Andijan		118·5	304	19 10	PP	24 3	[−12]	—	—	—
San Juan		118·7	81	e 19 22	PP	e 24 2	[−14]	e 30 2	SPP	e 47·5
Tashkent		120·9	304	19 41	PP	24 18	[− 5]	—	—	—
Bermuda		123·3	65	e 18 51	[+42]	e 25 1	[+30]	e 28 49	?	e 34·5
Sverdlovsk		126·2	323	18 10	[− 4]	29 24	SP	20 8	pPKP	—
Yalta		145·8	314	e 18 53	[+ 2]	—	—	20 56	pPKP	—
Ksara		147·4	294	e 18 58	[+ 5]	e 28 33	SKKS	21 5	pPKP	—
Copenhagen		147·5	346	i 19 12	[+18]	—	—	i 20 54	pPKP	—
Bucharest		150·9	319	e 19 3	[+ 5]	e 28 45	SKKS	e 19 14	?	44·8
Helwan		151·7	287	e 19 0	[+ 1]	28 53	SKKS	21 3	pPKP	—
Jena		152·1	342	e 19 6	[+ 7]	—	—	e 21 0	pPKP	—
De Bilt		152·2	353	i 19 18k	[+19]	i 28 58	SKKS	e 41 48?	SS	—
Cheb		152·7	342	—	—	e 28 48	SKKS	—	—	—
Kew		153·1	0	i 20 22	[+81]	—	—	i 21 2	pPKP	e 32·3
Uccle		153·5	354	i 19 25	[+23]	i 29 1	SKKS	i 21 23	pPKP	e 41·8
Stuttgart		154·7	345	e 19 2	[− 1]	e 29 7	SKKS	e 21 6	pPKP	—
Paris		155·6	355	e 18 48?	[−16]	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		156·1	335	e 19 42	[+37]	e 29 12	SKKS	—	—	—
Basle		156·2	346	e 19 36	[+31]	—	—	—	—	e 29·3
Zürich		156·2	345	e 19 37	[+32]	—	—	—	—	—
Chur		156·4	344	e 19 37	[+32]	—	—	e 21 34	pPKP	—
Clermont-Ferrand		158·6	353	e 19 47	[+38]	—	—	—	—	—
Tortosa	E.	163·7	358	—	—	e 50 48?	SSS	—	—	—
Toledo		164·3	11	e 20 12	[+58]	—	—	i 22 6	pPKP	—
Granada		167·0	12	i 20 29	[+73]	i 27 2	?	i 24 15	PP	66·9

Additional readings :—
Auckland i =6m.3s., S_cS =14m.3s.
Wellington sP? =5m.43s., i =6m.26s., iZ =7m.0s., pP_cPZ =10m.3s., P_cS?Z =11m.45s., S_cS =14m.21s.
Kaimata S_cS? =14m.23s.
Christchurch e =6m.12s.
Brisbane iE =7m.7s., iSN =8m.30s., iN =14m.51s.
Riverview isPZ =7m.29s., iE =7m.33s., iE =9m.40s., iN =9m.58s., isS =12m.0s., iS_cSN =15m.1s.
Honolulu e =14m.5s.
Pasadena isPZ =14m.56s.
Mount Wilson isPZ =14m.58s.
Tucson iPPP =15m.30s., eSKS =21m.42s., eSP =22m.58s., esS =25m.14s., e =25m.54s., eSS? =27m.48s., e =29m.51s.
Chicago e =26m.50s., e =32m.33s.
Bombay PPPE =20m.58s., SKKSE =24m.55s., SPPE =28m.39s., SSE =33m.45s. iE =37m.10s., SSSE =38m.12s.
San Juan e =25m.22s., e =27m.45s.
Copenhagen 21m.0s.
Helwan PKP?Z =19m.19s., eZ =22m.51s., PPS?Z =32m.24s., eZ =33m.9s.
Jena eN =19m.13s., eE =21m.6s., eN =21m.15s., eE =21m.26s.
Uccle eZ =22m.50s., iN =29m.46s.
Stuttgart $ePKP_2Z$ =19m.30s., $epPKP_2Z$ =21m.28s., ePPZ =23m.6s., e =33m.28s., eSS =42m.8s.
Zürich e =19m.40s.
Granada SKSP =34m.14s., SS =43m.33s.

April 28d. Readings also at 0h. (Mizusawa, Florissant, Pasadena, Riverside, Mount Wilson, Tucson, and Tinemaha), 5h. and 9h. (La Plata), 12h. (Tinemaha and Tucson), 14h. (Cheb, near Andijan, and Tashkent), 16h. (Riverside, Tucson, and Tinemaha), 22h. (Ksara).

April 29d. 15h. 25m. 5s. Epicentre 43°·0N. 147°·2E. Depth of focus 0·025.
(as on 1942 July 27d.).

Intensity V at Nemuro ; IV at Obihiro, Urakawa, Hatinohe, Miyako ; II-III at Abashiri, Morioka, Aomori, and Hukusima. Epicentre 43°·4N. 147°·2E. Radius of macroseismic area 300 km., depth of focus 180 km.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo 1950, pp. 22-23. Macroseismic chart p.22.

$A = -·6166$, $B = +·3974$, $C = +·6795$; $\delta = -16$; $h = -3$;
$D = +·542$, $E = +·841$; $G = -·571$, $H = +·368$, $K = -·734$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro	1·2	286	0 36	+ 5	0 55	0	—	—	—
Sapporo	4·3	273	0 59a	− 7	1 50	− 7	—	—	—
Hatinohe	4·9	241	1 9	− 5	2 6	− 5	—	—	—
Miyako	5·2	231	1 11	− 7	2 11	− 7	—	—	—
Morioka	5·6	236	1 18a	− 5	2 23	− 4	—	—	—
Mizusawa	6·0	232	1 25	− 3	2 34	− 2	—	—	—
Sendai	6·7	227	1 33a	− 4	2 52	− 1	—	—	—
Hukusima	7·3	227	1 42	− 3	3 6	− 1	—	—	—
Onahama	7·8	221	1 47	− 4	3 16	− 3	—	—	—
Aikawa	8·4	237	1 57	− 2	3 32	− 1	—	—	—
Mito	8·4	220	1 55	− 4	—	—	—	—	—
Utunomiya	8·5	224	1 17	?	2 52	?	—	—	—
Tukubasan	8·7	221	2 0	− 3	3 39	− 1	—	—	—
Kumagaya	9·1	224	2 8	0	3 49	0	—	—	—
Maebasi	9·1	226	2 10	+ 2	3 51	+ 2	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tokyo		9·3	221	2 9	− 2	3 51	− 3	—	—	—
Nagano		9·4	230	2 12	0	3 57	+ 1	—	—	—
Yokohama		9·6	220	(2 15)	0	(4 1)	0	—	—	—
Wazima		9·7	238	2 16k	0	4 3	0	—	—	—
Mera		9·9	212	2 6	−13	—	—	—	—	—
Kohu		10·0	225	2 21	+ 1	4 9	− 1	—	—	—
Misima		10·2	222	2 21k	− 2	4 15	0	—	—	—
Osima		10·2	219	2 22	− 1	4 14	− 1	—	—	—
Shizuoka		10·6	223	2 27	− 1	4 24	0	—	—	—
Omaesaki		11·0	223	2 33	0	4 39	+ 6	—	—	—
Nagoya		11·1	229	2 34	0	4 39	+ 3	—	—	—
Hatidyozima		11·5	213	2 43	+ 3	4 44	− 1	—	—	—
Kameyama		11·7	229	2 42	0	5 11	+21	—	—	—
Kyoto		12·0	232	2 45	− 1	—	—	—	—	—
Toyooka		12·2	236	2 49	+ 1	5 5	+ 4	—	—	—
Kôbe		12·5	232	2 52	0	5 12	+ 4	—	—	—
Wakayama		12·8	231	2 57	+ 1	—	—	—	—	—
Sumoto		13·0	232	2 54	− 5	5 30	+10	—	—	—
Siomisaki		13·1	227	3 12	+12	—	—	—	—	—
Muroto		14·1	231	2 39	−33	—	—	—	—	—
Hamada		14·3	240	3 15	0	5 55	+ 6	—	—	—
Kôti		14·3	233	3 15	0	—	—	—	—	—
Hukuoka		16·2	240	3 39	+ 1	6 52	+20	—	—	—
Keizyo		16·4	257	3 39	− 2	6 43	+ 7	—	—	—
Zinsen		16·6	257	3 43	0	6 52	+12	—	—	—
Kagosima		17·4	235	3 41a	−11	—	—	—	—	—
College		41·7	35	e 7 26	− 5	e 13 34	+ 1	e 9 7	PP	e 21·2
Sitka		48·9	44	e 8 25	− 3	i 15 23	+ 7	e 10 18	PP	27·0
Calcutta	N.	52·4	267	e 9 15	+20	i 16 23	+19	e 9 30	pP	e 24·7
Tchimkent		55·1	298	i 9 39	+25	—	—	—	—	—
Tashkent		55·8	297	i 9 22	+ 3	i 17 0	+11	—	—	—
New Delhi	N.	57·0	280	e 9 48	pP	i 17 16	+11	17 36	PS	—
Stalinabad		57·5	294	e 9 34	+ 3	e 17 21	+ 9	—	—	—
Moscow		65·1	324	10 22	0	i 18 54	+ 6	—	—	—
Bombay	E.	66·1	274	e 10 28	− 1	19 16	+16	19 39	PS	—
Scoresby Sund		66·6	357	e 10 25	− 7	e 19 12	+ 6	—	—	e 27·5
Bozeman		67·7	48	—	—	e 19 27	+ 8	e 23 45	SS	e 26·9
Baku		68·4	305	i 10 50	+ 7	i 19 46	+19	—	—	—
Tinemaha		68·8	59	i 10 44	− 1	e 19 44	+12	—	—	—
Upsala		69·5	336	i 10 48	− 2	e 19 41	+ 1	e 20 38	PS	e 34·9
Haiwee	Z.	69·6	60	e 10 48	− 2	—	—	—	—	—
Mount Wilson	Z.	70·7	61	i 10 55	− 2	—	—	i 12 0	pP	—
Pasadena		70·7	61	e 10 54	− 3	i 20 2	+ 8	—	—	e 31·9
Riverside	Z.	71·3	61	10 58	− 2	—	—	i 12 14	pP	—
Bergen		72·4	341	i 11 9	+ 2	20 21	+ 8	—	—	e 28·9
Yalta		74·4	317	e 11 20	+ 1	—	—	e 11 50	pP	—
Copenhagen		74·5	336	i 11 18	− 1	20 42	+ 5	21 13	PS	—
Bacau		76·3	322	e 11 31?	+ 2	21 7	+11	—	—	—
Riverview	E.	76·5	176	—	—	i 21 25	+26	i 32 10	Q	e 36·2
Tucson		76·6	59	i 11 30	− 1	e 21 2	+ 2	e 14 19	PP	e 35·1
Focsani		76·8	322	e 11 37?	+ 5	21 18	+16	—	—	—
Aberdeen		76·9	344	—	—	i 21 10	+ 7	—	—	38·2
Potsdam		77·1	334	e 11 36	+ 2	i 21 14	+ 9	e 21 59	PS	e 34·9
Bucharest		78·3	321	e 11 41	+ 1	i 21 28	+10	i 21 49	PS	34·9
Prague		78·5	331	11 41	0	14 24	PP	—	—	e 39·9
Jena		78·8	333	e 11 39	− 4	e 21 30	+ 7	e 21 51	PS	—
Cheb		79·2	333	e 11 55?	+10	e 20 55?	−32	—	—	e 40·9
De Bilt		79·7	337	i 11 49a	+ 1	i 21 43	+10	—	—	e 35·9
Stonyhurst		80·1	343	—	—	i 21 42	+ 5	i 22 41	PPS	e 41·1
Sofia		80·9	321	e 11 57	+ 3	e 21 57	+12	—	—	—
Ksara		81·1	309	e 11 51?	− 4	e 22 2	+15	—	—	—
Uccle		81·1	338	i 11 55a	0	21 51	+ 4	e 22 38	PS	e 36·9
Stuttgart		81·4	334	i 11 57a	0	e 21 57	+ 7	e 14 55	PP	33·4
Kew		81·8	340	i 12 0	+ 1	i 22 1	+ 7	e 15 0	PP	e 37·9
Strasbourg		82·1	334	i 11 50	−10	—	—	e 12 15	?	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		82·2	39	—	—	e 22 0	+ 2	e 26 48	SS	—
Triest		82·5	329	e 12 6	+ 4	i 22 9	+ 8	—	—	—
Zürich		82·9	333	e 12 4	0	e 22 12	+ 7	—	—	—
Basle		83·0	334	e 12 6a	+ 1	e 22 16	+10	—	—	—
Florissant		83·3	42	i 12 6	− 1	i 22 15	+ 6	i 22 50	PS	—
Paris		83·4	338	i 12 8	+ 1	e 22 18	+ 8	—	—	47·9
St. Louis		83·5	42	(e 12 5)	− 3	(i 22 17)	+ 6	(i 22 51)	PS	—
Neuchatel		83·7	334	e 12 9	0	—	—	—	—	—
Shawinigan Falls		84·0	26	12 9	− 1	22 22	+ 6	—	—	—
Ottawa		84·1	28	12 8	− 3	22 20	+ 3	31 13?	SSS	e 37·9
Seven Falls		84·2	25	—	—	e 22 23	+ 5	—	—	37·9
Cape Girardeau	E.	84·9	43	e 12 13	− 2	e 22 28	+ 3	e 23 3	PS	—
Florence		85·0	329	e 12 32	+17	i 22 32	+ 6	e 15 26	PP	e 38·3
Clermont-Ferrand		86·0	335	e 12 22	+ 2	—	—	—	—	—
Helwan		86·6	308	i 12 25	+ 2	22 46	+ 5	15 46	PP	—
Pittsburgh		86·7	34	—	—	i 22 44	+ 2	e 23 18	PS	—
Wellington		87·5	160	—	—	e 23 55	PS	—	—	41·9
Fordham		88·7	30	e 12 33	0	e 22 51	[+ 9]	i 23 10	?	—
Tortosa	E.	91·3	334	(e 13 49)	+64	(24 9)	PS	(30 32)	SSP	(e 41·9)
Columbia		91·6	38	—	—	e 22 39	[−20]	—	—	—
Toledo		93·5	338	i 12 57	+ 2	i 23 23	[+13]	16 15	PP	—
Almeria		95·9	335	(e 13 12)	+ 6	(e 24 16)	+12	(16 57)	PP	—
Granada		95·9	337	i 13 10	+ 4	i 23 38	[+15]	16 57	PP	47·1
Huancayo		132·0	63	—	—	e 39 2	SSP	—	—	e 61·5

Additional readings :—
College e =16m.40s. and 16m.54s.
Sitka i =15m.58s., e =18m.11s.
Calcutta isSN =16m.53s.
New Delhi iN =19m.9s., SSN =20m.59s.
Bombay P_cPE =10m.51s., iE =13m.18s., S_cSE =20m.22s., SSE =23m.29s.
Upsala eE =20m.41s., e =27m.55s.?.
Riverside iZ =11m.24s.
Tucson i =16m.38s., e =21m.47s.
Bucharest iPSN =21m.53s.
Jena ePEN =11m.43s.
Uccle iZ =12m.15s.
Stuttgart iP_cPZ =12m.6s., ePS =22m.53s., eQ =32.0m.
Kew iP_cPNZ =12m.17s., ePPPNZ =17m.5s.?, ePSEN =22m.35s., ePPS =22m.45s.?, eSS =26m.45s.?, eSSSEN =27m.25s.?, eQ =29 9m.
Florissant iN =22m.28s.
St. Louis eZ =(12m.26s.). All readings increased by 1 hour.
Cape Girardeau eSE =23m.25s.
Florence ePPP?E =17m.39s., ePSE =23m.20s., eSSSE =30m.59s.
Helwan eNZ =12m.46s., SE =23m.3s., PSN =23m.49s.
Tortosa ePSE =(25m.56s.). All readings increased by 1 hour.
Almeria e =(13m.40s.). All readings increased by 1 hour.
Granada PPP =18m.33s., SKKS =24m.6s., PS =25m.47s., SS =30m.31s.
Long waves were also recorded at Auckland.

April 29d. 19h. 48m. 56s. Epicentre 29°·3S. 178°·2W. Depth of focus 0·030.
(as on 1941 Aug. 2d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		9·6	216	2 16	+ 1	3 59	− 1	—	—	—
Tuai		10·2	200	2 25	+ 3	4 11	− 3	—	—	—
New Plymouth		11·7	211	2 44	+ 3	4 49	+ 1	—	—	—
Wellington		13·3	203	2 55	− 6	5 14	−11	—	—	—
Kaimata		15·6	210	—	—	1 6 10	− 6	—	—	—
Christchurch		16·0	207	—	—	6 10	−15	—	—	—
Pasadena	z.	84·8	47	i 12 9	− 1	—	—	—	—	—
Mount Wilson	z.	85·0	47	i 12 10	− 1	—	—	—	—	—
Haiwee	z.	86·3	45	e 12 26	+ 8	—	—	—	—	—
Tinemaha	z.	86·7	44	i 12 19	− 1	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson	88·5	51	1 12 28	k 0	—	—	—	—	—
Fort de France	120·5	90	—	—	e 41 11	SSS	—	—	e 64·8
Stuttgart	159·7	346	e 20 6	[+34]	—	—	e 68 40	Q	—

Additional readings :—
Kaimata S =6m.16s., i =6m.34s.

April 29d. Readings also at 3h. (near Bucharest), 4h. (Riverview, Tucson, and near Bogota), 5h. (near Mizusawa), 6h. (near Berkeley, Lick, and Branner), 8h. (Triest, Stuttgart, Zürich, Bucharest, Belgrade, near Sofia, near Berkeley, Lick, and Branner), 12h. (near Stalinabad, Tashkent, and Tchimkent), 13h. (Stuttgart), 15h. (Stalinabad, Tashkent, and near Florissant), 16h. (Mount Wilson, Tinemaha, near Tucson, and near Stalinabad), 17h. (near Tortosa), 18h. (Clermont-Ferrand, near Tashkent and Stalinabad), 19h. (Granada), 20h. (Copenhagen, Ksara, Moscow, Bucharest, Tashkent, Helwan, Hyderabad, Calcutta, New Delhi, Kodaikanal, Bombay, and near La Paz), 21h. (Fort de France, Tinemaha, Tucson, St. Louis, Yalta, and Frunse), 22h. (near Branner).

April 30d. 1h. Undetermined shock. East Indies?
Kodaikanal ePE =15m.0s., iSE =21m.45s., SSE =25m.4s.
Colombo P =15m.47s., S =21m.42s., L =32m.34s.
Bombay PE =17m.11s., SE =24m.13s., eE =25m.28s., SSE =28m.22s., iE =31m.57s.
New Delhi ePN =17m.20s., PPN =19m.2s., iSN =24m.29s., PSN =25m.0s., S_0SN = 27m.3s., SSN =28m.14s., iN =28m.52s.
Tashkent P =18m.45s., S =27m.25s.
Moscow P =21m.4s., SKS =31m.34s., S =31m.53s.
Calcutta iN =21m.55s.
Christchurch P =24m.9s., S =33m.12s., Q =40m.33s., R =45m.28s.
Riverview iN =24m.14s., eLN =29·8m.
Stuttgart eZ =26m.36s.?.
Pasadena iPZ =27m.5s
Riverside ePZ =27m.6s., eZ =28m.41s.
Tinemaha eZ =27m.9s. and 28m.32s.
Mount Wilson iZ =27m.11s., eZ =27m.28s., iZ =28m.37s.
Tucson eP =27m.18s., e =29m.18s.
Wellington S? =42m.45s., i =45m.23s., L =48m.?.
Granada eP =42m.59s., S =52m.41s., L =77·3m.
Auckland i =45m.35s., L =47m.
Long waves were recorded at De Bilt.

April 30d. 8h. Undetermined. Probably Eastern Mediterranean or Asia Minor.
Sofia ePEN =37m.11s., eSEN =38m.39s.
Bucharest e =37m.42s., LEN =40m.20s.
Belgrade eP =37m.58s., e =38m.50s., i =39m.19s., eS =39m.45s., e =39m.47s. and 40m.28s.
Triest eP =38m.10s., eS =39m.38s.
Basle eP =38m.47s., eS? =43m.59s.
Chur eP =38m.54s., e =40m.49s.
Istanbul eP =39m.
Stuttgart ePZ =39m.2s., e =41m.23s., eSZ =41m.50s., eS =42m.0s., eQ =43m.39s.
Milan iPZ =39m.7s., SE =42m.18s., LE =43m.11s.
Zürich eP =39m.7s., eS? =41m.6s.
Helwan eZ =39m.15s. and 41m.42s.
Jena eEN =39m.30s.?, eN =42m.8s., eE =42m.12s.?, eEN =43m.0s.? and 44m.0s.?.
Focsani eEN =40m.
Granada P =40m.15s., PP =40m.54s., P_cP =43m.42s., S =44m.29s., SS =45m.9s. L =47·5m.
Neuchatel eP =40m.19s.
De Bilt iP =40m.20s., eS =43m.25s., eL =45m.
Florence ePE =40m.25s., eP_gE =40m.38s., iSE =41m.8s., iS_gE =41m.27s.
Kew eZ =40m.33s., e =44m.11s., eL =47m.
Moscow P =40m.45s., S =44m.38s.
Upsala ePN =40m.49s., eSN =44m.43s., eSE =44m.47s.
Bacau eEN =41m.24s.?.
Strasbourg eS =42m.0s.
Cheb e =42m.
Tortosa ePE =42m.9s., eLE =46m.35s.
Potsdam eE =42m.38s., eN =42m.41s., eLN =45m.
Uccle eS?EN =43m.10s., eL =45·4m.
Prague e =43m.23s.
Copenhagen S =43m.40s., L =46m.0s.
Bergen e =45m.
Aberdeen eEN =45m.29s.

April 30d. Readings also at 1h. (near Stuttgart, Ebingen, and Zürich), 5h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tucson, Tinemaha, La Paz, La Plata, and Stalinabad), 7h. (Apia), 8h. (Tinemaha and Tucson), 10h. (Tacubaya), 12h. (La Plata, Pasadena, Tucson, Riverside, and Tinemaha), 13h. (Tinemaha), 18h. (Puebla and Vera Cruz), 19h. (Huancayo, Tucson, Mount Wilson, Pasadena, Riverside, Bombay, and near Apia), 20h. (Tucson (2), Riverside (2), and La Paz), 21h. (Riverview, Wellington, near Apia, and near Mizusawa).

May 1d. 16h. 32m. 42s. Epicentre 60°·3S. 27°·9W. (as on 1943 March 25d.).

$A = +\cdot4401$, $B = -\cdot2330$, $C = -\cdot8672$; $\delta = +1$; $h = -9$;
$D = -\cdot468$, $E = -\cdot884$; $G = -\cdot766$, $H = +\cdot406$, $K = -\cdot498$

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	32·0	310	6 24	− 6	11 54	+12	9 18	?	15·6
	N.	32·0	310	6 17	−13	12 2	+20	7 48	PP	15·8
Rio de Janeiro	N.	38·9	338	i 7 30	+ 1	i 13 40	+12	—	—	e 18·6
La Paz	Z.	52·5	309	i 9 22a	+ 5	i 17 8	+25	—	—	27·3
Huancayo		59·4	303	e 10 11	+ 5	e 18 36	+21	e 12 1	PP	e 26·0
Bogota		74·1	311	e 11 39	− 1	—	—	—	—	—
Christchurch		75·2	194	17 0	PP	—	—	—	—	40·0
San Juan		84·3	324	e 15 51	PP	e 23 7	+ 7	—	—	e 31·9
Riverview		86·2	179	—	—	i 22 53	[−16]	i 28 46	SS	e 34·4
Bermuda		97·2	329	—	—	e 24 10	[− 3]	e 31 55	SS	e 46·2
Almeria		99·0	20	e 9 33	?	i 25 13	+ 1	e 19 19	PPP	43·3
Granada		99·2	19	e 17 18	PKP	22 2	?	32 8	SS	51·5
Helwan		102·0	50	17 42	PKP	e 24 10	[−27]	e 18 51	PP	—
Tortosa	N.	103·4	22	e 18 3	PKP	i 27 37	PS	—	—	—
St. Louis	N.	111·0	311	—	—	e 28 48	PS	e 38 56	SSS	—
Bombay	E.	111·5	89	—	—	e 25 47	[+29]	e 27 50	?	—
Stuttgart		112·8	25	e 19 5	PKP	e 28 48?	PS	e 21 23	PPP	e 57·3
Uccle		113·8	21	—	—	e 28 52	PS	—	—	e 55·3
Tucson		114·1	292	e 18 32	[− 9]	—	—	e 19 42	PP	—
Riverside	Z.	118·6	288	i 18 40	[−10]	—	—	i 37 40	P′P′	—
Mount Wilson	Z.	119·1	288	e 18 41	[−10]	—	—	i 37 39	P′P′	—
Pasadena	Z.	119·1	288	i 18 43	[− 8]	—	—	i 37 38	P′P′	—
Tinemaha		121·6	290	—	—	—	—	i 37 30	P′P′	—
Tashkent		128·1	72	18 48	[−20]	30 49	PS	20 37	PP	—
Sverdlovsk		135·8	52	(19 1)	[−22]	—	—	—	—	—
Irkutsk		152·8	85	e 19 18	[−33]	—	—	e 23 14	PP	—
Vladivostok		158·9	136	(20 13)	[+13]	e 26 2	[−62]	i 31 48	SKKS	—

Additional readings :—
La Plata PZ = 6m.32s.
Huancayo e = 10m.18s., eSS = 22m.32s.
Christchurch PP = 20m.0s., S = 26m.8s., SS = 31m.38s.
Bogota e = 11m.57s.
San Juan e = 22m.19s.
Granada SP = 27m.18s.?, SSS = 37m.47s.
Helwan eZ = 19m.20s.
Tortosa eN = 23m.19s. and 33m.38s.
Tucson iPKPPKP = 38m.11s., i = 32m.23s.
Riverside eZ = 37m.52s.
Mount Wilson eZ = 20m.16s., iZ = 37m.51s.
Pasadena iZ = 19m.7s., 37m.51s., and 37m.57s.
Tinemaha i = 37m.42s.
Tashkent PKS = 22m.4s.
Sverdlovsk and Vladivostok give PKP as PP.
Long waves were also recorded at Wellington, New Delhi, Tananarive, Scoresby Sund, and other European stations.

May 1d. Readings also at 2h. (near Berkeley, Branner, Lick, and Santa Clara), 4h. (Christchurch, Wellington, Riverview, Puebla, Vera Cruz, Tucson, Mount Wilson, Riverside, Tinemaha, and Stuttgart), 5h. (Istanbul and near Mizusawa), 8h. (Tashkent and near Andijan), 9h. (near Tashkent), 10h. (Bogota and Huancayo), 11h. (near Andijan), 12h. (La Jolla, Tucson, Mount Wilson, Riverside, Pasadena, Tinemaha, La Paz, and near La Plata), 14h. (Bombay, New Delhi, near Tashkent), 17h. (near Mizusawa), 20h. (Andijan, Tashkent, New Delhi, Stuttgart, Zurich, Helwan, Ksara, near Apia, and near St. Louis), 21h. (Stuttgart (2), Haiwee, Mount Wilson, Pasadena, Tinemaha, Riverside, and Tucson), 22h. (near Mizusawa).

May 2d. 1h. 8m. 1s. Epicentre 48°·2N. 9°·0E. (as on 1943 April 25d.).

Maximum intensity VII at Onstmettingen. Epicentre in the triangle Hechingen-Ebingen-Balingen. Macroseismic data collected by W. Hiller. Microseismic epicentre 48° 12′N. 9° 2′E. Macroseismic epicentre 48° 17′N. 9° 0′E.
Intensity VI at Schaffhouse. Considerable damage in the epicentral zone, slight damage in Switzerland. Foreshock on April 25d. 11h. 35m., intensity V-VI at epicentre. Repeated on May 28d., June 1d., July 7d., October 14d., and December 27d.
E. Wanner,
Jahresbericht des Erdbebendienstes der Schweiz im Jahre 1943, p. 2. Macroseismic chart, fig. 2.

$A = +·6609$, $B = +·1046$, $C = +·7432$; $\delta = +8$; $h = -5$;
$D = +·156$, $E = -·988$; $G = +·734$, $H = +·116$, $K = -·670$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m
Ebingen		0·0	—	i 0 3	P_g	—	—	—	—	—
Ravensburg		0·6	135	i 0 13	P_g	0 22	S_g	—	—	—
Stuttgart		0·6	13	i 0 11a	P_g	i 0 18	S_g	—	—	—
Strasbourg		0·9	295	i 0 17	P_g	i 0 28	S_g	—	—	i 0·5
Zurich		0·9	198	i 0 18a	P_g	i 0 31	S_g	—	—	—
Chur		1·4	165	e 0 27	0	i 0 47	S_g	—	—	—
Neuchatel		1·8	229	i 0 31	− 1	i 1 5	S_g	i 0 35	P_g	—
Besançon		2·2	243	i 0 44	P_g	—	—	—	—	—
Milan		2·7	177	i 0 43	− 2	i 1 15	− 4	i 0 50	PP	—
Cheb		2·9	50	(e 0 55)	P_g	(e 1 32)	S_g	—	—	—
Jena		3·2	32	e 0 47	− 5	i 1 30	− 2	e 1 6	P_g	i 1·6
Prague		4·0	62	e 1 7	+ 3	i 2 9	S_g	1 15	P_g	—
Uccle		4·0	311	e 1 1	− 3	i 1 51	− 1	i 1 15	P_g	i 2·1
Triest		4·1	128	e 1 6	+ 1	—	—	i 1 19	P_g	—
Paris		4·4	278	e 1 15	P*	i 2 20	S*	e 1 47	?	3·0
De Bilt		4·6	303	i 1 18	P*	e 2 27	S*	—	—	—
Florence	z.	4·7	161	i 1 27	+13	i 2 9	− 1	i 1 33	P*	—
Clermont-Ferrand		4·7	236	i 1 9	− 5	i 2 29	S_g	i 1 29	P*	—
Potsdam		4·9	33	i 1 37	P_g	i 2 11	− 4	i 2 23	S*	—
Marseilles		5·5	209	e 1 44	P_g	i 2 55	S_g	—	—	—
Ogyalla		6·2	88	e 1 49	P*	i 2 50	+ 2	—	—	3·7
Kew		6·9	303	i 2 16	?	i 3 36	S*	i 3 44	S_g	—
Kalossa		7·0	97	e 2 19	?	e 3 32	S*	e 3 29	S*	3·8
Copenhagen		7·8	16	1 58	0	—	—	2 36	?	4·0
Belgrade		8·6	113	—	—	e 3 47	− 1	e 4 40	S_g	e 4·9
Tortosa	E.	9·5	223	—	—	i 4 42	S*	5 12	S_g	—
Toledo		12·5	233	i 3 21	PPP	—	—	—	—	i 7·1
Granada		14·4	225	3 46a	+19	7 59	?	—	—	—
Moscow		19·0	56	4 25	− 1	10 16	?	—	—	—

Additional readings :—
Milan S?Z = 1m.12s.
Cheb readings increased by 1 minute.
Jena iN = 0m.51s., i = 0m.54s., iZ = 0m.58s., eE = 1m.1s.
Triest e = 1m.42s.
Florence iP_gZ = 1m.38s., iQE = 2m.35s.
Potsdam iS_gEN = 2m.36s.
Ogyalla ePN = 2m.39s., iE = 2m.54s.
Kew iEZ = 3m.4s., iS? = 4m.5s.
Belgrade e = 3m.55s.
Granada P_gS_g = 6m.41s., 6m.57s.
Long waves also recorded at other European stations.

May 2d. 12h. 17m. 37s. Epicentre 36°·3N. 141°·5E. (as on 1943 March 14d.).

Intensity IV at Kakioka, Tyosi, Mito, Tukubasan; II-III at Onahama, Utunomiya, Shirakawa, Tokyo, Sendai. Epicentre 36°·2N. 141°·7E. Macroseismic radius 200-300 km. Shallow. Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo 1950, pp. 23-24. Macroseismic chart p. 23.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Onahama		0·8	323	0 20	+ 2	0 35	+ 4	—	—	—
Tyosi		0·8	222	0 14	− 4	—	—	—	—	—
Mito		0·9	276	0 20	0	0 35	+ 1	—	—	—
Kakioka		1·1	266	0 11k	−11	0 19	−20	—	—	—
Tukubasan		1·1	266	0 22	0	0 38	− 1	—	—	—
Utunomiya		1·4	281	0 25	− 2	0 35	−11	—	—	—
Tokyo Cen. Met. Ob.		1·5	247	0 29	+ 1	0 53	+ 4	—	—	—
Hukusima		1·7	330	0 33	+ 2	0 58	+ 4	—	—	—
Yokohama		1·7	240	0 34	+ 3	0 59	+ 5	—	—	—
Maebasi		2·0	273	0 35	0	1 3	+ 1	—	—	—
Sendai		2·0	346	0 37a	+ 2	1 9	+ 7	—	—	—
Osima		2·3	228	0 37	− 3	1 4	− 5	—	—	—
Hunatu		2·4	250	0 23	−18	0 56	−16	—	—	—
Misima		2·4	240	0 40	− 1	1 8	− 4	—	—	—
Nagano		2·7	278	0 48	+ 3	1 16	− 3	—	—	—
Mizusawa	N.	2·8	354	(e 0 53)	+ 6	(1 32)	+10	—	—	—
Shizuoka		2·8	242	0 47	0	1 11	−11	—	—	—
Aikawa		3·1	304	0 54	+ 3	1 36	+ 7	—	—	—
Omaesaki		3·2	238	0 47	− 5	1 42	+10	—	—	—
Miyako		3·4	6	0 58	+ 3	1 42	+ 5	—	—	—
Hamamatu		3·5	243	1 8	P_g	2 6	S_g	—	—	—
Hatidyozima		3·5	204	0 53	− 4	1 31	− 9	—	—	—
Toyama		3·5	279	1 1	+ 4	1 54	S_g	—	—	—
Akita		3·6	343	1 7	P_g	2 2	S_g	—	—	—
Nagoya		3·8	254	1 10	P*	2 6	S_g	—	—	—
Gihu		3·9	258	1 5	+ 3	2 11	S_g	—	—	—
Hikone		4·4	258	1 9	− 1	2 19	S*	—	—	—
Kameyama		4·4	251	1 14	+ 4	2 20	S*	—	—	—
Aomori		4·6	354	1 16	+ 4	2 18	S*	—	—	—
Osaka		5·2	251	1 31	P*	2 31	S*	—	—	—
Kobe		5·4	254	1 42	P*	2 52	S*	—	—	—
Toyooka		5·5	265	1 31	+ 6	—	—	—	—	—
Sumoto		5·7	252	1 32	+ 4	3 11	S_g	—	—	—
Sapporo		6·8	359	1 50	+ 6	3 10	+ 7	—	—	—
Uwazima		8·0	250	(2 3)a	+ 3	—	—	(2 59)	P_g	—

The readings at Mizusawa have been reduced by 1m. and those at Uwazima increased by 1m.

May 2d. 17h. 18m. 5s. Epicentre 6°·9N. 80°·4W.

Intensity V at Balboa (Panama).
Epicentre 7°·0N. 80°·1W. Depth of focus 100km. (J.S.A.).
Mapa sismico y tectonico de Colombia (Banco de la Republica, Bol. grafico 7, febrero de 1947).

$A = +\cdot1656$, $B = -\cdot9789$, $C = +\cdot1194$; $\delta = -8$; $h = +7$;
$D = -\cdot986$, $E = -\cdot167$; $G = +\cdot020$, $H = -\cdot118$, $K = -\cdot993$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights	N.	2·2	22	i 0 42	+ 4	—	—	—	—	—
Port au Prince		14·0	33	(i 3 36)	PP	(i 5 51)	− 8	(i 3 46)	PPP	(e 6·9)
San Juan		18·0	50	i 4 7	− 6	i 7 42	+10	4 15	PP	i 9·1
Oaxaca	E.	18·9	308	i 4 27	+ 3	—	—	—	—	—
Huancayo		19·5	166	i 4 31	0	i 8 2	− 4	—	—	i 9·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		20·4	68	i 4 37k	− 4	i 8 32	+ 7	5 1	PP	e 10·5
Tacubaya	N.	22·1	307	i 5 0	+ 1	—	—	—	—	—
Mobile		24·8	345	i 5 26	+ 1	i 9 46	0	—	—	—
Guadalajara	N.	26·1	306	e 8 11	?	—	—	—	—	—
La Paz		26·1	152	i 5 39a	+ 2	i 10 5	− 2	i 6 1	PP	13·5
Columbia		27·0	0	e 5 46	+ 1	i 10 24	+ 2	e 6 47	PPP	e 11·6
Bermuda		29·2	29	i 6 10	+ 5	i 11 1	+ 3	i 7 18	PPP	i 12·2
Cape Girardeau	E.	31·4	348	e 6 12	−13	i 11 27	− 5	—	—	—
Montezuma		31·4	159	e 6 29	+ 4	e 11 31	− 1	e 7 29	PP	e 17·1
Georgetown		32·0	7	i 6 30	0	i 11 45	+ 3	t 14 3	sS	—
St. Louis		32·8	347	i 6 35	− 2	i 11 48	− 6	i 6 57	pP	—
Florissant		33·0	347	i 6 36	− 3	i 11 53	− 4	i 7 2	pP	—
Pittsburgh		33·4	3	i 6 44	+ 2	i 12 5	+ 2	—	—	—
New Kensington		33·5	3	e 6 43?	0	e 11 55?	−10	e 7 55?	PP	e 15·6
Philadelphia		33·6	10	i 6 42	− 2	i 12 0	− 6	e 7 30	PP	i 14·5
Pennsylvania		33·8	5	—	—	e 11 55?	−15	—	—	—
Fordham		34·3	12	i 6 52	+ 2	i 12 22	+ 5	i 8 19	PPP	16·9
Chicago		35·3	351	i 6 55	− 4	i 12 25	− 8	i 8 7	PP	e 14·1
Ann Arbor		35·4	357	e 6 55	− 5	e 11 31	−63	—	—	16·5
Buffalo		35·9	4	7 3	− 1	12 47	+ 5	8 15	PP	—
Des Moines		36·5	345	i 7 8	− 1	e 12 45	− 6	e 8 29	PP	e 17·0
Weston		36·6	13	i 7 8	− 2	e 12 46	− 7	8 24	PP	—
Harvard		36·7	13	i 7 8a	− 2	i 12 49	− 5	i 8 29	PP	e 15·1
Lincoln		36·8	341	e 7 7	− 4	e 12 32	−24	e 8 37	PP	e 15·4
Tucson		37·9	317	i 7 21	+ 1	i 13 19	+ 6	i 8 48	PP	e 16·0
Vermont		38·6	10	i 7 24	− 2	i 13 14	− 9	i 8 50	PP	i 15·2
Ottawa		38·9	7	i 7 27a	− 2	i 13 23	− 5	8 57	PP	e 18·2
Denver		39·7	331	e 7 35	− 1	e 13 38	− 2	e 9 4	PP	e 21·1
Shawinigan Falls		40·4	10	7 39	− 2	13 48	− 2	16 55?	SS	21·9
Halifax		40·4	19	7 46	+ 5	13 52	+ 2	9 25?	PP	18·9
Seven Falls		40·9	12	7 47	+ 1	i 13 58	0	9 31	PP	19·9
La Jolla		42·9	313	i 8 4	+ 2	—	—	—	—	—
Riverside		43·5	315	i 8 7	0	e 14 42	+ 6	—	—	—
Salt Lake City		43·7	327	i 8 9	+ 1	i 14 43	+ 4	e 9 41	PP	e 19·1
Mount Wilson		44·1	315	i 8 12a	0	e 14 36	− 9	—	—	—
Pasadena		44·2	315	i 8 13a	+ 1	i 14 51	+ 5	e 10 7	PP	e 19·5
Logan		44·4	329	i 8 14	0	e 14 43	− 6	i 10 29	PPP	e 17·7
Halwee		45·0	318	e 8 20	+ 1	e 15 2	+ 4	—	—	—
Santa Barbara		45·4	314	i 8 14	− 8	—	—	—	—	—
Tinemaha		45·7	318	i 8 25a	+ 1	e 15 8	0	—	—	—
Fresno	N.	46·6	317	e 8 31	− 1	—	—	—	—	e 24·9
Bozeman		46·7	333	i 8 33	+ 1	i 15 20	− 2	e 10 4	PP	i 19·3
La Plata	E.	46·8	155	8 29	− 4	i 15 17	− 7	10 43	PP	20·5
	N.	46·8	155	8 29	− 4	i 15 20	− 4	11 1	PPP	20·6
	Z.	46·8	155	8 29	− 4	16 19	+55	9 7	?	25·4
Rio de Janeiro	E.	46·8	130	i 8 34	+ 1	i 15 21	− 3	i 19 0	SS	i 22·5
	N.	46·8	130	i 8 39	+ 6	i 15 18	− 6	i 10 24	PP	i 22·5
Butte		47·8	332	i 7 27	−64	e 15 34	− 4	e 10 17	PP	e 19·5
Lick		48·1	317	e 8 45	+ 2	e 15 48	+ 6	e 15 54	PPS	e 22·7
Santa Clara		48·4	317	i 8 48	+ 2	i 15 53	+ 7	—	—	e 21·9
Branner		48·6	317	e 8 51	+ 4	e 16 54	+65	—	—	e 22·4
Berkeley		48·8	317	i 8 50	+ 1	i 16 2	+10	—	—	e 22·4
Saskatoon		50·0	340	9 4	+ 6	i 16 6	− 3	—	—	e 22·4
Ukiah		50·1	318	e 8 58	− 1	e 16 13	+ 3	e 10 12	P_cP	e 21·7
Ferndale		51·5	319	(i 9 14)	+ 5	—	—	(i 10 29)	P_cP	(e 24·5)
Seattle		54·0	328	e 11 50	PP	e 17 10	+ 7	e 18 56	S_cS	e 25·7
Victoria		55·1	328	9 36	0	i 17 26	+ 8	11 57	PP	26·9
Ivigtut		59·2	18	e 10 6	+ 1	i 18 8	− 4	e 13 46	PPP	e 24·7
Sitka		66·0	332	i 10 57	+ 7	e 19 32	− 6	i 13 21	PP	e 33·1
Lisbon		71·0	52	11 20a	− 2	i 20 39?	+ 2	i 11 31	P_cP	30·2

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
San Fernando		73·2	55	i 11 35	0	i 21 3	+ 1	21 30 PS	34·4
Scoresby Sund		73·3	18	i 11 39	+ 4	i 21 0	− 4	e 14 21 PP	e 32·3
College		74·3	337	e 11 39	− 2	e 21 12	− 3	e 14 41 PP	e 30·1
Toledo		75·1	51	i 11 49	+ 3	i 21 24	0	12 43 pP	35·3
Granada		75·3	54	i 11 51	+ 4	i 21 21	− 5	12 3 pP	30·4
Honolulu		75·8	291	e 11 46	− 4	e 21 12	−19	e 26 17 SS	e 34·2
Almeria		76·2	54	i 11 52	0	i 21 35	− 1	12 3 P_cP	35·2
Edinburgh		77·0	35	e 11 56	0	e 21 43	− 2	— —	—
Stonyhurst		77·3	36	i 12 10	P_cP	i 21 49	+ 1	22 8 PS	34·6
Aberdeen		77·9	33	i 12 9	+ 8	i 21 54	0	— —	32·5
Kew		78·3	39	i 12 6	+ 3	i 22 0	+ 1	e 22 20 S_cS	e 32·4
Tortosa		78·5	50	12 13	+ 9	i 22 3	+ 2	12 17 P_cP	33·7
Barcelona		79·9	49	e 12 6	− 6	i 22 14	− 2	— —	33·4
Paris		80·0	42	e 12 14	+ 1	i 22 18	+ 1	i 12 23 P_cP	—
Clermont-Ferrand		80·4	45	i 12 16	+ 1	i 22 27	+ 6	e 15 17 PP	e 38·4
Uccle		81·3	40	i 12 20k	0	i 22 31	+ 1	i 12 31 P_cP	i 34·1
De Bilt		81·7	38	i 12 23k	+ 1	i 22 37	+ 3	i 15 41 PP	e 33·9
Bergen		81·9	30	i 12 24	+ 1	22 39	+ 3	e 15 31 PP	34·9
Marseilles		82·2	47	12 33	+ 9	i 22 37	− 2	— —	—
Besançon		82·5	44	e 12 36	P_cP	— —	—	— —	—
Neuchatel		83·1	44	i 12 29	0	e 22 49	+ 1	— —	—
Basle		83·6	43	e 12 31	0	e 22 53	0	— —	—
Strasbourg		83·6	42	12 33	+ 2	i 22 55	+ 2	i 12 41 P_cP	36·9
Zurich		84·1	43	e 12 42	P_cP	e 23 1	+ 3	— —	—
Stuttgart		84·6	42	e 12 35	− 1	i 24 3	+60	i 12 48 P_cP	e 40·5
Milan		84·8	45	i 12 37	0	i 22 58	− 7	— —	—
Chur		85·0	44	e 12 49	+11	e 23 6	− 1	— —	—
Jena		85·9	40	i 12 43	0	e 23 13	− 3	e 16 7? PP	e 34·9
Copenhagen		86·0	35	e 12 44k	+ 1	i 23 19	+ 2	i 12 54 P_cP	34·9
Cheb		86·5	40	e 12 45	− 1	e 23 21	− 1	e 16 31 PP	e 42·9
Florence		86·5	47	i 12 45k	− 1	i 23 22	0	i 12 57 pP	—
Potsdam		86·7	38	i 12 51	+ 4	i 23 28	+ 4	i 13 1 pP	e 34·9
Prague		87·8	40	13 0	+ 8	i 23 38	+ 4	e 16 13 PP	e 32·9
Triest		88·0	45	i 12 53	0	i 23 21	[0]	— —	—
Upsala		88·1	30	e 12 54?	0	i 23 34	− 3	16 31 PP	e 35·9
Ogyalla	E.	90·7	41	e 12 45	−21	e 24 35	?	— —	36·9
Kalocsa	N.	91·5	42	e 13 15	+ 5	(e 24 25)?	+17	— —	e 24·4
Belgrade		92·8	44	e 13 5	−11	e 24 21	+ 2	i 13 20 P_cP	e 51·2
Sofia		95·3	46	e 13 29	+ 2	e 24 46	+ 5	e 17 19? PP	—
Cernauti		95·6	40	e 13 49?	P_cP	e 24 55?	+12	e 24 25? SKKS	42·9
Campulung		95·9	43	e 13 42	+12	— —	—	— —	—
Bacau		96·7	41	e 13 49?	+16	23 55?	[−15]	— —	42·9
Bucharest		96·8	43	e 13 43	+ 9	i 24 54	0	i 17 29 PP	43·9
Focsani		97·2	41	e 14 19?	+43	24 1?	[−12]	25 49? PS	43·9
Moscow		99·5	30	13 44	− 2	25 15	− 1	17 59 PP	—
Yalta		102·2	42	e 14 8	+10	— —	—	e 18 10 PP	—
Helwan		105·1	57	e 14 13	+ 2	26 10	+ 7	18 31 PP	—
Arapuni		105·2	232	—	—	30 55?	?	— —	50·9
Wellington		105·7	329	—	—	26 37	+29	33 40 SS	47·4
Christchurch		107·0	326	23 48	?	33 58	SS	28 12 PS	49·6
Ksara		107·5	52	e 17 42	?	e 28 52	PPS	e 19 4 PP	—
Sverdlovsk		108·9	21	19 0	PP	28 20	PS	— —	—
Irkutsk		120·9	356	18 55	[0]	— —	—	— —	—
Sendai		120·9	322	20 29	PP	— —	—	— —	—
Vladivostok		122·2	332	14 10	?	27 4	−24	e 20 32 PP	—
Yokohama		123·5	321	e 20 39	PP	— —	—	— —	—
Wazima		123·8	324	e 20 49	PP	— —	—	— —	—
Tashkent		124·5	27	15 54	P	27 37	{− 7}	20 40 PP	—
Riverview		125·4	233	i 21 7	PP	i 26 5	[− 2]	i 31 7 PS	e 58·6
Sydney		125·4	233	—	—	e 37 43?	SS	— —	e 55·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	125·5	241	—	—	e 27 51	{ 0}	e 31 13	PS	—
Andijan		126·4	25	19 22	[+17]	—	—	20 55	PP	—
Kobe		126·7	323	20 40	PP	—	—	—	—	—
Tananarive		128·0	108	e 22 0	?	38 31	SS	31 19	PS	57·6
Hamada		128·4	325	e 21 23	PP	—	—	—	—	—
Kôti		128·5	323	e 19 10	[+ 1]	—	—	—	—	—
Zinsen		129·1	332	e 21 9	PP	—	—	—	—	—
Kumamoto		130·7	325	e 19 13	[0]	—	—	—	—	—
Dehra Dun	N.	137·6	27	e 22 30	PP	—	—	—	—	51·1
New Delhi	N.	138·6	29	19 43	[+15]	26 27	[−10]	i 22 27	PP	63·8
Bombay	E.	143·2	44	19 36	[0]	32 47	SKSP	22 57	PP	i 59·4
Hyderabad	E.	148·0	40	19 52	[+ 8]	33 28	SKSP	23 23	PP	69·8
Calcutta	N.	148·7	19	i 19 50	[+ 5]	i 33 1	SKSP	i 42 32	SS	i 67·3
Kodaikanal	E.	152·1	51	(e 20 0)	[+ 9]	(i 30 25)	{ − 5}	(23 43)	PP	(73·0)
Colombo		156·0	55	20 3	[+ 7]	—	—	24 14	PP	75·2

Additional readings :—
Port au Prince i =(3m.56s.), SS =(6m.21s.). Readings increased by one minute.
Fort de France PPP =5m.6s., SS =8m.54s., SSS =9m.2s.
Mobile i =9m.52s.
Georgetown iPP =7m.45s.
St. Louis iPPZ =7m.39s., isSN =12m.28s., iSSN =13m.57s., iSSSN =14m.25s.
Florissant iPPN =7m.38s., iPPPN =7m.59s., iP_cPN =9m.34s., isSE =12m.33s., iE = 12m.54s., iSSE =13m.28s.
Philadelphia i =12m.26s., e =13m.59s.
Chicago eS =12m.18s.
Ann Arbor e =7m.7s., SS =13m.49s.
Buffalo 7m.47s.
Tucson i =8m.34s., 8m.59s., and 12m.16s., e =14m.12s., eSS =15m.40s.
Ottawa e =14m.2s., SSS =16m.7s.
Denver iN =7m.44s., epPPN =9m.20s., iN =9m.28s. and 10m.13s., eN =12m.36s. and 13m.30s.
Halifax SSS =16m.43s.?.
Seven Falls SS =17m.7s.?.
Salt Lake City e =17m.26s.
Mount Wilson iZ =8m.24s.
Pasadena i =8m.25s., eSSE =18m.13s.?.
Logan i =8m.27s.
Bozeman i =19m.9s.
Fresno iPN =8m.39s.
La Plata E =9m.13s., N =16m.31s. and 17m.31s., SSE =18m.7s., SSN =18m.19s., SSSE =18m.49s., SSSN =19m.43s.
Rio de Janeiro iSSN =18m.55s.
Lick iPE =8m.50s.
Ukiah e =20m.3s.
Ferndale iPE =(9m.17s.). Readings increased by 1 minute.
Seattle e =21m.27s.
Sitka iPPP =14m.49s., iS_cS =20m.46s., eSS =23m.52s., eSSS =26m.51s.
Victoria SSS =23m.19s.?, e =24m.55s.?.
Lisbon PE =11m.23s., PPE =14m.7s.
Scoresby Sund i =16m.3s., iSS =25m.56s., e =30m.1s.
College eS_cS =22m.4s., e =22m.43s., eSS =26m.5s.
Toledo iSN =21m.27s., SS =26m.21s.
Granada P_cP =12m.12s., pP_cP =12m.21s., PPP =16m.6s., eS =21m.48s., PS =22m.15s., SS =25m.52s.
Honolulu e =30m.50s.
Almeria sP_cP =12m.43s., i =13m.29s., PP =15m.3s., pPP =15m.22s., PPP =16m.53s., pPPP =17m.8s., S_cS =21m.53s., pS =22m.7s., SP =22m.27s., PS =22m.39s., sPS =23m.8s., SS =26m.55s., sSS =27m.37s., SSS =30m.23s.
Stonyhurst 28m.31s., Q =30m.52s.
Aberdeen iN =23m.27s.
Kew ePP =14m.26s., ePPPNZ =17m.28s., ePS =22m.44s., ePPS =22m.55s., eSS = 27m.4s., eSSS =29m.55s.?.
Tortosa PPN =14m.30s., PPPN =16m.48s., SSN =26m.23s., SSSE =28m.35s., QE = 29m.47s.
Uccle eE =13m.22s., ePPE =15m.28s., iPSE =23m.21s.
De Bilt iPS =23m.25s.
Bergen eE =18m.55s.?.
Strasbourg e =14m.41s., iSS =28m.49s.
Stuttgart ePPZ =15m.48s. and 15m.53s., iPS =23m.58s., iPPS =24m.22s. eSS = 28m.27s., eQ =34m.55s.?.
Jena iPN =12m.46s., iP =12m.54s., e =13m.42s., eN =17m.8s., iSN =23m.20s., eN =24m.50s., eE =28m.42s.
Florence iPPE =16m.24s. and 18m.33s., iSE =23m.49s., isSE =24m.27s., iPSN = 24m.51s.

Continued on next page.

Upsala eN =15m.37s., eSSN =28m.55s.?, eSSE =31m.55s.?.
Belgrade e =16m.30s., ePPS =26m.13s.
Sofia SKSEN =23m.58s.
Bucharest iPPPE =19m.14s., iPPPN =19m.19s., iEN =22m.31s., iSKSEN = 24m.10s., iSE =24m.58s., iPSN =26m.10s., iPS?E =26m.20s.
Moscow SKS =24m.20s.
Helwan eZ =14m.22s. and 16m.15s., SKSEN =24m.49s., PSEN =27m.41s.
Arapuni i =36m.55s.?.
Wellington Q? =43·9m.
Christchurch PP =26m.31s., e =37m.48s., SS =39m.7s., SSS =42m.48s., Q =43m.35s.
Irkutsk PS =28m.11s.
Vladivostok PKP =17m.45s., PP =18m.2s.
Tashkent iPKP =19m.8s., S =28m.53s., iPS =31m.1s.
Riverview iN =29m.33s. and 31m.18s., iSSN =38m.6s., iE =38m.26s.
Brisbane eN =38m.7s. and 39m.53s.
Tananarive Q =52m.40s.
New Delhi PPN =23m.15s., PSKSN =32m.39s., SSN =40m.38s., SSSN =46m.2s.
Bombay iE =19m.47s., sPKPE =20m.9s., pPPE =23m.31s., PPPE =26m.6s., iE = 32m.10s., SPE =33m.16s., SSE =41m.23s., iE =43m.7s.
Hyderabad SSE =42m.10s.
Calcutta iN =22m.42s. and 25m.8s., iSSSN =47m.57s.
Kodaikanal SKSPE =(34m.27s.), SSE =(43m.45s.). Readings increased by 30 seconds.
Long waves were also recorded at Auckland and Apia.

May 2d. Readings also at 1h. (Kew and Stuttgart (2)), 3h. and 4h. (Stuttgart), 5h. (Ebingen (2)), 6h. (Tucson, Mount Wilson, Pasadena, Tinemaha, La Jolla, Riverside, Salt Lake City, Logan, Bozeman, Florissant and Chicago), 8h. (La Paz and La Plata), 9h. (Tucson, Riverside, Mount Wilson, Pasadena, and Tinemaha), 12h. (Riverview), 15h. (near Branner and Lick), 17h. (near Balboa Heights), 18h. (Nagano, Sapporo, Sendai, Mizusawa, Misima, Osaka, Tinemaha, Pasadena, Mount Wilson, Riverside, Tucson, and near Balboa Heights (4)), 21h. (near Miznsawa and near Stalinabad), 22h. (near Balboa Heights (2) and Cheb), 23h. (near Stalinabad).

May 3d. 1h. 59m. 8s. Epicentre 12°·9N. 124°·3E.

A = −·5495, B = +·8055, C = +·2218 ; δ = −2 ; h = +6 ;
D = +·826, E = +·564 ; G = −·125, H = +·183, K = −·975.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Naha		13·6	13	(e 3 21)	+ 4	(6 4)	SS	—	—	—
Nake		16·2	17	3 33	−17	6 51	0	—	—	—
Miyazaki		20·0	20	e 4 31	− 6	8 22	+ 5	e 4 37	?	—
Kumamoto		20·7	16	e 4 27	−17	8 32	+ 1	—	—	—
Hukuoka		21·3	15	(i 4 46)	− 4	(8 51)	+ 8	—	—	—
Kôti		22·2	21	e 4 57	− 3	8 58	− 2	—	—	—
Hirosima		22·6	18	(i 5 8)	+ 5	(9 8)	+ 1	—	—	—
Hamada		23·0	17	5 6	− 1	—	—	—	—	—
Oiwase		23·7	26	5 18	+ 4	9 39	+12	—	—	—
Kobe		23·8	24	5 11	− 4	9 25	− 3	—	—	—
Kyoto		24·3	24	5 22	+ 2	10 5	SS	—	—	—
Zinsen		24·6	4	5 20	− 3	9 49	+ 7	—	—	—
Nagoya		25·0	26	(5 20)	− 7	(8 50)	−59	—	—	—
Yokohama	z.	26·4	29	1 5 40	0	—	—	e 6 13	PP	—
Tokyo, Cen. Met. Ob.		26·6	29	e 5 42	0	—	—	i 9 3	PcP	13·3
Wazima		26·9	23	5 38	− 7	10 28	+ 8	—	—	—
Sendai		29·3	28	6 1	− 5	10 53	− 6	—	—	—
Mizusawa	N.	30·1	27	e 6 7	− 6	12 56	SS	—	—	19·7
Vladivostok		30·8	11	e 7 21	PP	—	—	—	—	—
Mori		32·4	23	6 38	+ 4	13 43	SS	i 7 42	PP	—
Sapporo		33·5	23	e 6 43	0	8 7	PPP	—	—	12·1
Nemuro		35·4	27	7 4	+ 4	—	—	—	—	—
Calcutta	N.	35·5	291	e 7 13	+13	i 12 48	+12	e 8 24	PP	i 18·4
Irkutsk		42·4	342	8 6	+ 8	—	—	9 58	PPP	—
Colombo		44·1	267	8 12	0	14 58	PPS	18 3	SS	23·9

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		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hyderabad	E.	44·4	283	8 12	− 2	15 5	PPS	9 54	PP	—
Perth		45·3	190	8 42	+21	15 32	PPS	10 32	PP	24·8
Kodaikanal	E.	45·9	273	(i 8 19)	− 7	(i 15 11)	0	(9 41)	PcP	—
Dehra Dun	N.	46·0	300	e 8 58	+31	i 15 14	+ 2	e 18 19	SS	e 20·2
New Delhi	N.	46·4	297	i 8 42	+12	i 15 22	+ 4	10 32	PP	21·8
Brisbane		48·9	146	i 8 43	− 7	i 15 57	+ 4	i 19 1	SS	i 20·9
Bombay	E.	49·7	284	e 8 55	− 1	i 16 15	+11	i 16 20	PS	—
Riverview		53·0	153	i 9 19a	− 2	i 16 59	+ 9	i 10 1	pP	i 23·5
Sydney		53·0	153	i 9 25	+ 4	i 17 16	PPS	—	—	—
Andijan		53·1	312	9 22	+ 1	17 8	PS	21 39	SS	—
Tashkent		55·5	312	e 9 39	0	i 17 21	− 3	—	—	—
Tchimkent		55·5	314	9 39	0	i 17 31	PS	—	—	—
Auckland		68·6	139	11 8	+ 1	20 19	+10	13 42	PP	32·9
Apia		68·7	110	e 11 4	− 3	e 20 23?	+13	e 20 44	PPS	e 28·6
Arapuni		69·9	139	11 22?	+ 7	20 52?	PS	25 4?	SS	31·9
Wellington		71·2	142	11 19	− 4	20 42	+ 2	16 1	PPP	33·9
Christchurch		71·4	145	11 25	+ 1	20 13	−29	14 4	PP	35·6
Honolulu		74·3	72	e 11 44	+ 3	e 21 21	+ 6	e 14 26	PP	e 30·6
College		77·5	27	e 12 3	+ 4	e 21 46	− 4	e 15 7	PP	e 31·6
Moscow		77·7	326	11 45	−15	21 42	−10	—	—	—
Yalta		81·2	314	e 12 8	−11	22 40	+11	—	—	—
Ksara		81·6	303	e 12 27	+ 6	e 22 48	+15	—	—	39·9
Tananarive		81·9	249	12 30	+ 7	22 40	+ 4	15 28	PP	41·2
Sitka		84·7	33	i 12 43	+ 6	i 23 5	+ 1	e 15 52	PP	e 40·0
Istanbul		85·5	311	12 53	PcP	—	—	—	—	—
Bacau		85·8	317	e 12 54	PcP	e 23 36	+21	—	—	44·9
Focsani		85·8	318	e 12 53	PcP	23 13	− 2	24 39	PPS	45·9
Cernauti	N.	86·0	319	e 12 42	− 1	e 23 17	0	e 24 47	PPS	45·9
Helwan		86·2	300	e 12 46	+ 2	23 22	+ 3	24 32	PS	—
Bucharest		86·8	315	e 12 45	− 2	i 23 40	+15	e 12 54	PcP	43·9
Upsala	E.	87·1	332	e 12 47	− 2	e 23 33	+ 5	16 24	PP	e 38·9
	N.	87·1	332	e 12 51?	+ 2	e 23 13	[− 2]	e 16 11	PP	e 38·9
		87·1	332	e 17 58	PPP	—	—	e 28 52	SS	e 39·9
Campulung		87·4	317	e 12 43	− 7	e 23 32	+ 2	e 24 0	PS	44·9
Sofia	E.	89·2	313	e 16 23	PP	e 23 27	[− 1]	e 24 11	S	43·9
		89·2	313	12 59	0	e 23 59	+12	—	—	43·9
Belgrade		90·6	317	e 13 1	− 4	e 23 38	[+ 2]	e 16 25	PP	e 46·5
Kalossa		91·0	319	13 14	+ 7	e 23 55	{+ 6}	e 23 42	SKS	e 36·4
Copenhagen		91·3	329	e 13 8	− 1	24 17	+11	16 57	PP	—
Bergen		92·4	335	e 13 2	−12	23 53?	[+ 6]	e 16 56	PP	e 40·9
Potsdam	E.	92·4	325	e 13 25	+11	i 23 56	[+ 9]	e 17 10	PP	e 43·9
	N.	92·4	325	e 13 28?	+14	i 24 0	{+ 1}	e 17 10?	PP	e 43·9
Prague		92·5	323	e 13 18	+ 4	e 23 52?	[+ 5]	e 25 22	PS	e 42·9
Scoresby Sund		93·6	350	e 13 24	+ 5	i 24 0	[+ 7]	e 17 14	PP	e 38·8
Cheb		93·7	323	e 13 28	+ 8	e 23 20	?	e 25 59	PS	e 54·9
Jena		93·8	324	e 13 15	− 5	e 24 40	+12	e 17 3	PP	42·9
Victoria		94·6	39	e 13 55	+31	e 24 20	{+ 5}	e 17 12	PP	39·9
Triest		94·7	319	e 13 52	+28	e 23 52	[− 6]	i 17 45	PP	e 45·9
Seattle		95·6	39	e 18 36	?	e 26 46	PPS	—	—	e 44·5
Stuttgart		96·2	323	e 13 29	− 2	i 25 1	+13	i 17 40	PP	e 46·4
Chur		96·8	321	e 13 33	− 1	e 24 16	[+ 5]	—	—	—
De Bilt		96·8	327	e 13 32	− 2	e 24 12	[+ 1]	i 17 47	PP	e 45·9
Florence		97·1	318	i 13 38a	+ 3	i 24 16	[+ 4]	i 17 58	PP	i 50·7
Strasbourg		97·1	324	e 13 54	+19	e 25 2	+ 6	e 17 42	PP	e 43·9
Zürich		97·2	322	e 13 37	+ 1	e 24 4	[− 9]	—	—	—
Aberdeen		97·4	334	i 14 1	+24	24 21	[+ 7]	i 17 56	PP	42·9
Basle		97·7	323	e 13 28	−10	e 24 20	[+ 5]	e 17 36	PP	—
Milan		97·7	320	e 14 1	+23	24 24	[+ 9]	—	—	45·8
Uccle		97·9	326	e 13 37	− 2	i 26 57	PPS	17 39	PP	e 46·9
Neuchatel		98·3	322	e 13 39	− 2	e 24 24	[+ 5]	—	—	—
Edinburgh		98·7	333	e 18 52	?	25 7	− 3	24 18	SKS	—
Ukiah		98·7	47	e 14 5	+23	e 24 36	[+15]	e 17 39	PP	e 44·9
Besançon		98·8	322	—	—	e 24 22	[+ 1]	—	—	45·9
Stonyhurst		99·6	331	18 17	PP	24 30	[+ 5]	26 47	PS	44·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		99·9	48	i 13 48	0	i 24 38	[+11]	i 17 48	PP	—
Kew		100·0	328	e 13 53	+ 5	e 24 34	[+ 7]	e 17 52	PP	e 40·9
Paris		100·0	325	—	—	i 24 35	[+ 8]	—	—	48·9
Santa Clara		100·3	48	e 14 8	+18	i 32 45	SSP	i 17 59	PP	e 45·4
Marseilles		101·1	319	e 18 20	PP	e 24 32	[0]	e 27 20	PS	—
Clermont-Ferrand		101·3	322	e 18 7	PP	i 24 38	[+ 5]	e 27 39	PPS	e 49·9
Saskatoon		101·8	29	18 21	PP	24 44	[+ 8]	32 30	SS	42·9
Butte		102·3	36	e 16 37	?	e 24 59	[+21]	—	—	e 47·8
Tinemaha		103·1	47	e 14 0	− 2	—	—	1 18 18	PP	—
Bozeman		103·3	36	e 18 28	PP	e 25 0	[+17]	i 27 27	PS	e 42·3
Haiwee	Z.	103·7	48	e 14 14	+ 9	—	—	e 30 6	PKKP	—
Barcelona		104·1	319	e 18 0	PP	33 12	SS	—	—	43·1
Mount Wilson	Z.	104·5	50	e 14 6	− 2	—	—	e 30 10	PKKP	e 38·4
Pasadena		104·5	50	e 14 6	− 2	e 24 39	[− 9]	e 18 28?	PP	e 46·7
Logan		105·0	40	e 14 33	+22	e 24 56	[+ 5]	e 27 26	PS	e 46·1
Riverside	Z.	105·1	50	e 14 18	+ 7	—	—	e 29 52	PKKP	—
Tortosa	N.	105·5	319	18 46	PP	27 57	PS	37 7	SSS	56·6
Salt Lake City		105·6	41	e 18 41	PP	e 24 58	[+ 4]	e 29 0	PPS	e 43·5
Ivigtut		105·9	356	e 15 1	?	e 26 22	+12	e 24 56	SKS	e 43·8
Toledo		108·9	320	e 17 50	?	24 50	[−18]	19 9	PP	56·3
Almeria		109·6	317	17 58	?	25 17	[+ 7]	19 14	PP	53·4
Granada		110·2	318	15 8a	?	25 54	{−12}	i 18 30	PKP	51·7
Tucson		110·8	48	e 14 37	?	e 25 45	{−26}	e 19 34	PP	45·5
San Fernando	E.	112·3	318	23 36	?	28 57	PS	39 33	SSS	55·9
Lisbon		112·7	321	18 35	[− 4]	27 32	?	i 19 34	PP	53·0
Lincoln		114·5	33	e 19 49	PP	e 26 51	{+14}	e 29 22	PS	e 49·1
Chicago		118·1	27	e 19 56	PP	e 25 48	[+ 5]	e 29 58	PS	e 47·0
Seven Falls		118·7	11	18 34?	[−16]	27 28?	{+23}	20 20	PP	47·9
Shawinigan Falls		118·9	12	e 18 46?	[− 5]	—	—	—	—	56·9
Florissant		119·2	31	e 18 57	[+ 6]	i 26 9	[+22]	i 20 18	PP	—
Ottawa		119·2	15	18 50	[− 1]	26 8	[+21]	20 17	PP	e 47·9
St. Louis		119·4	31	i 18 57	[+ 5]	i 25 54	[+ 7]	i 20 19	PP	—
Buffalo		120·5	19	21 7	?	—	—	23 2	PPP	—
Vermont		120·7	14	e 20 29	PP	e 25 59	[+ 6]	e 30 23	PS	i 49·8
Halifax		122·3	6	—	—	e 26 16?	[+18]	e 37 16	PPS	53·9
New Kensington		122·3	22	e 21 16?	?	—	—	e 30 34?	PS	—
Pittsburgh		122·4	22	i 18 59	[+ 2]	i 26 3	[+ 5]	i 20 42	PP	—
Harvard		123·0	14	i 18 56k	[− 3]	e 27 11	{−23}	i 20 39	PP	e 53·2
Fordham		123·9	16	19 2	[+ 2]	i 26 30	[+28]	20 48	PP	—
Philadelphia		124·4	17	e 20 50	PP	e 30 32	PS	—	—	e 51·1
Georgetown		124·7	20	e 20 54	PP	—	—	—	—	—
Tacubaya	N.	126·5	54	e 19 8	[+ 3]	—	—	—	—	—
Columbia		127·5	26	e 21 15	PP	e 26 10	[− 3]	e 31 32	PS	e 52·2
Bermuda		134·2	10	e 21 49	PP	e 32 19	PS	e 40 41	SS	e 54·2
San Juan		147·3	18	e 19 55	[+12]	—	—	e 23 29	PP	e 58·2
Fort de France		152·0	10	e 19 50	[0]	—	—	e 33 6	?	—
Bogota		154·8	47	e 19 58	[+ 4]	—	—	e 24 8	PP	—
La Plata	N.	158·0	175	20 10	[+11]	31 22	{+20}	24 16	PP	64·9
Huancayo		160·8	89	e 20 11	[+ 9]	e 34 52	?	e 44 46	SS	e 59·1
Rio de Janeiro	N.	164·5	228	e 20 34	[+29]	e 32 2	{+26}	—	—	—
La Paz		167·4	108	20 12	[+ 4]	i 26 42	[−28]	i 21 37	pPKP	80·9

Additional readings and notes :—
Naha readings increased by one minute.
Hukuoka readings reduced by two minutes.
Hirosima readings increased by one minute.
Nagoya readings increased by one minute.
Tokyo iEZ = 7m.58s., i = 8m.18s.
Mizusawa ePE = 6m.10s.
Vladivostok iP = 7m.25s.
Calcutta iPPPN = 8m.49s., iP_cPN = 9m.49s., N = 11m.6s., iSSN = 14m.44s., iSSSN = 16m.4s.
Hyderabad iE = 8m.24s., P_cPE = 9m.36s., SSE = 17m.40s.
Perth PPP = 11m.12s., PS = 16m.17s., SS = 19m.22s., SSS = 20m.42s.
Kodaikanal SSE = (18m.25s.). Readings increased by 30 seconds.

Continued on next page.

New Delhi iN =8m.58s., PPPN =11m.27s., P_cSN =14m.19s., SSN =18m.19s., S_cSN = 18m.46s., iN =20m.10s.
Brisbane iPE =9m.5s., iPN =9m.8s., iSSE =19m.5s.
Bombay iPE =9m.7s., iE =9m.24s., P_cPE =10m.38s., PPE =11m.2s., iE =11m.19s. and 17m.14s., S_cSE =18m.58s., SSE =19m.52s., SSSE =21m.20s.
Riverview i =9m.28s., iEZ =12m.7s., iN =12m.10s. and 17m.5s., iE =17m.15s. and 17m.25s., iPS?N =17m.36s., iE =17m.59s., isS?N =18m.6s., iN =19m.6s., iSSNZ = 20m.57s., i =21m.29s.
Auckland i =12m.13s. and 16m.52s.?, PS =20m.54s., S_cS =21m.19s., i =22m.42s., SS =24m.54s., SSS =28m.7s., Q =30m.22s.?.
Wellington S_cS =21m.17s., i =21m.38s., SS =24m.57s., Q =30·9m.
Christchurch PPP =15m.50s., i =20m.54s. and 22m.37s., SS =25m.21s., Q =30m.56s.
Honolulu e =16m.26s., 17m.5s., 22m.19s., and 24m.40s.
College e =26m.20s.
Tananarive S_cS =23m.8s., iPS =23m.19s., SS =28m.13s., Q =34m.31s.
Sitka ePP =16m.7s., ePS =23m.59s., e =31m.19s. and 35m.29s.
Focsani SKSE =23m.9s., S?E =24m.29s.
Cernauti eSN =23m.32s.
Helwan eE =12m.57s., PPZ =16m.50s., eZ =17m.1s., PPPZ =19m.7s., PSE =25m.50s.
Bucharest ePE =12m.51s., iPP?E =16m.49s., iPP?N =16m.54s., iPPP?EN = 18m.51s., iSKSE =23m.13s., iSKSN =23m.18s., iPSEN =24m.46s., iSSEN = 29m.47s.
Upsala ePPP?E =17m.58s., eE =19m.51s.?, eSN =23m.30s., eN =26m.52s.?, eSSN = 28m.52s.?, eSSE =29m.52s.?, eSSS =32m.52s.?.
Belgrade i =13m.8s. and 13m.27s., e =26m.26s., eSSS =34m.24s., e =36m.27s.
Kalossa ePE =13m.17s.
Copenhagen 23m.39s., 25m.25s., 28m.29s., SS =31m.22s.?.
Bergen eE =24m.52s.?, SS =30m.41s., e =33m.57s.
Prague ePS =24m.40s., eSS =30m.34s.?.
Scoresby Sund e =16m.36s. and 20m.50s., eSKS =23m.47s., ePS =25m.55s., e = 27m.45s., eSS =30m.37s.
Jena iNZ =13m.27s., eN =19m.21s., eZ =20m.22s.?, eN =23m.33s. and 24m.2s., eE =25m.52s.?, e =26m.7s., eE =26m.52s. and 29m.22s.?, eN =29m.29s., eE = 32m.11s., eN =33m.19s., eE =37m.40s.?, eN =37m.52s.?, e =38m.52s.?.
Seattle e =20m.8s. and 36m.7s.
Stuttgart ePZ =13m.32s., eZ =13m.42s., eSKS =24m.10s., ePS =26m.4s., ePKKP?Z =30m.52s.?, eSS =31m.40s.
De Bilt eSS =31m.32s.
Florence iSKKSE =24m.27s., iSE =26m.3s., iPS =27m.33s.
Strasbourg ePPP =20m.8s., eSKS =24m.22s., eSS =31m.39s.
Aberdeen iN =21m.52s. and 31m.41s., iE =31m.56s.
Uccle e =21m.50s., eEN =23m.49s., iN =28m.52s., eN =31m.49s.
Edinburgh PS =26m.42s.
Ukiah e =26m.57s., eSS =32m.4s., e =37m.11s.
Stonyhurst PPP =20m.22s., S =24m.49s., SS =31m.55s., 33m.10s.
Kew ePPPE =20m.54s., ePS =26m.49s., ePPSEN =27m.18s., eSSEN =32m.40s., eSSSEN =36m.52s.?.
Santa Clara iE =23m.52s., ePSE =26m.0s.
Marseilles eSS =32m.36s.
Clermont-Ferrand e =19m.40s., eSSS =37m.17s.
Tinemaha iZ =17m.47s., ePKKPZ =29m.55s.
Bozeman i =25m.4s., e =32m.28s., eSS =33m.32s.
Mount Wilson eZ =16m.8s., iZ =17m.0s. and 17m.38s.
Pasadena iPSE =27m.35s., iPKKPZ =30m.19s.
Logan e =29m.58s., eSS =33m.50s., e =38m.38s.
Tortosa PPPN =22m.51s., PSN =30m.1s., SSN =36m.37s., QN =49m.25s.
Ivigtut ePP? =20m.5s., eSS =33m.38s., eSSS =37m.41s.
Toledo SSE =35m.47s.
Almeria pPP =19m.32s., sPP =19m.45s., PPP =21m.46s., pPPP =22m.10s., SKS = 24m.44s., SKKS =25m.32s., S =26m.43s., PS =27m.15s., sS =27m.29s., SP = 28m.36s., pSP =29m.8s., sPS =29m.26s., SPP =29m.50s., PPS =30m.2s., SS = 35m.8s.
Granada PP =19m.9s., PPP =21m.39s., PS =29m.27s., SS =38m.23s.
Tucson e =17m.57s., i =19m.14s., e =26m.41s., ePS =28m.40s., iPPS =29m.55s., e =33m.3s., eSS =34m.49s.
San Fernando S?E =30m.42s.
Lisbon iPPN =19m.40s., N =21m.42s., PSE =29m.31s., SSE =35m.32s.?, SSN = 36m.10s.
Lincoln e =35m.19s.
Chicago e =27m.4s., eSS? =36m.16s., e =39m.12s., and 41m.50s.
Seven Falls SS =36m.22s.?.
Florissant iZ =19m.40s., 20m.9s., and 22m.32s., iN =25m.13s., iSKKS?N =27m.39s., iN =29m.57s., and 30m.5s., iSPN =30m.13s.
Ottawa PS =30m.1s., SS =36m.12s.
St. Louis iEN =26m.9s.
Buffalo 21m.24s., SKP =21m.56s.
Vermont e =26m.9s., eSS =36m.34s., ePKP, PKP =39m.49s.
Pittsburgh iSKKS?NW =27m.34s.

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Harvard e=21m.52s. and 24m.37s., ePS?=30m.45s., ePKKS=32m.37s., eS$_c$SPKP=34m.10s., eSS=37m.25s., ePKP,PKS=41m.2s., eSSS=42m.2s., e=45m.12s. and 51m.7s.
Fordham iPPP=22m.40s., i=36m.22s.
Philadelphia e=25m.38s., eSS?=37m.5s., e=40m.53s.
Columbia e=26m.0s., eSS=38m.27s.
Bermuda i=23m.9s., ePS=31m.31s.
San Juan e=34m.32s., ePKP, PKP=40m.55s., e=43m.40s.
Bogota e=20m.22s., ePP?=20m.28s., e=21m.18s. and 21m.32s.
La Plata PKPEZ=20m.16s., N=21m.4s., PPE=22m.34s., e=26m.16s. SKKSE=29m.34s., SKSPN=34m.34s., N=35m.52s., E=36m.28s., PPSN=37m 34s., PPSE=39m.4s., E=47m.22s. and 47m.58s., SSS?E=58m.16s.
Huancayo e=22m.5s., ePPP=28m.48s., e=32m.12s., i=45m.23s.
La Paz iPKPZ=20m.16s., iPKP=20m.54s., isPKP?=22m.28s., iZ=22m.50s., iPPZ=25m.20s., PPP?=29m.16s., iSKKS=31m.52s., PSKS=36m.28s., SSN=46m.28s., SSSN=52m.27s., QN=68m.52s.

May 3d. 10h. 17m. 8s. Epicentre 18°·1N. 95°·1W. (as on 1937 Sept. 1d.).
Pasadena suggests deep.

A=−·0846, B=−·9474, C=+·3088; δ=+8; h=+5;
D=−·996, E=+·089; G=−·027, H=−·308, K=−·951'

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vera Cruz	Z.	1·5	318	0 43	P_g	—	—	—	—	—
Oaxaca	N.	1·9	236	i 0 40	P_g	—	—	—	—	—
Tacubaya	N.	4·1	288	i 1 14	P*	—	—	—	—	—
Cape Girardeau	E.	19·8	13	e 4 36	+ 1	e 8 14	+ 1	—	—	—
Tucson		20·0	319	i 4 39	+ 2	i 8 24	+ 7	i 5 7	PPP	e 10·8
St. Louis		20·9	10	i 4 46	0	e 8 32	− 3	e 9 2	SS	e 9·6
Florissant	E.	21·0	10	i 4 48	+ 1	i 8 34	− 3	i 9 9	SS	e 9·6
Bogota		24·5	121	e 5 18	− 4	—	—	—	—	—
La Jolla		24·9	311	i 5 26	0	—	—	—	—	—
Riverside		25·4	314	i 5 31k	0	—	—	i 6 7	PP	—
Mount Wilson		26·0	314	i 5 37k	+ 1	—	—	i 6 22	PP	—
Pasadena		26·1	314	i 5 38k	+ 1	—	—	i 8 59	P$_c$P	—
Logan		27·6	333	e 5 52	+ 1	e 10 32	0	—	—	e 11·3
Tinemaha		27·8	318	i 5 53	0	—	—	e 12 32	SSS	—
Harvard		31·5	34	i 6 20	− 6	—	—	—	—	—
La Paz		43·4	140	e 8 7	+ 1	—	—	—	—	—
Clermont-Ferrand		82·8	45	e 12 22	− 5	—	—	—	—	—
Stuttgart	Z.	85·6	40	e 12 36	− 5	—	—	—	—	—

Additional readings:—
Riverside iZ=6m.21s. and 8m.57s.
Mount Wilson eZ=8m.58s.
Pasadena iZ=6m.6s., 7m.6s., and 9m.35s.
Logan e=7m.48s. and 10m.0s.
Tinemaha eZ=6m.24s., iZ=9m.3s., eNZ=15m.25s.
Long waves were also recorded at Huancayo.

May 3d. 13h. Undetermined shock near the Philippine Islands.

Naha e?=42m.53s.
Hukuoka P=44m.32s., S=48m.28s.
Miyakozima P=44m.35s., S=46m.48s.
Kôti e=44m.48s., S=48m.46s.
Kobe eP=44m.52s., S=48m.52s.
Nagoya e=45m.7s.
Misima e=45m.24s.
Nagano e=45m.29s.
Hamada P=46m.11s.

May 3d. 16h. Undetermined shocks.

It is believed that the readings are approrpiate to more than one shock, one of which at least is likely to be an aftershock of 1h.

Riverview iPE =39m.4s., iSN =49m.14s., iN =49m.31s., eLNZ =53·9m.
Hukuoka P =41m.3s.
Miyakozima e =41m.42s.
Kôti P =42m.8s., S =46m.6s.
Zinsen P =42m.30s.
Osaka eP =42m.31s., S =45m.50s.
Nagoya P =42m.39s.
Misima e =42m.48s.
Nagano P =42m.54s.
Kodaikanal eE =45m.0s., iE =48m.5s. and 57m.30s.
Bombay eE =46m.15s., iE =49m.18s., eE =52m.6s., 53m.52s., and 55m.15s., iE = 57m.3s. and 59m.7s.
Tashkent eP =46m.55s., S =49m.48s.
Calcutta eN =47m.20s., iN =49m.59s.
Sverdlovsk P =47m.58s.
Cheb e =49m.
Helwan ePZ =50m.2s., eZ =50m.39s., iZ =51m.18s., and 52m.49s., iN =60m.48s.
Mount Wilson iPZ =50m.27s., ePPZ =54m.6s.
Tinemaha iPZ =50m.27s.
Pasadena iPZ =50m.28s., eLE =76m.
Riverside iPZ =50m.30s.
La Jolla iP =50m.36s.
Tucson eP =50m.55s., e =54m.47s., eL =82m.9s.
New Delhi eN =52m.37s.
Granada eP =54m.27s., PP? =59m.33s., SKP =61m.45s., SKKS =66m.51s., PS = 69m.39s., SS =75m.51s., L =96·6m.
Stuttgart ePZ =56m.12s., ePPZ =60m.20s., eS =67m.36s.?, eQ =88·5m.
Fort de France e =56m.53s.
San Juan eP =57m.11s., e =64m.27s., eL =68m.53s.
Victoria e =60m.48s., L =89m.
Seven Falls e =69m.0s.?, L =95m.
Long waves were recorded at Arapuni, Auckland, Wellington, Huancayo, La Plata, Sydney, and other European stations.

May 3d. Readings also at 0h. (near Andijan), 2h. (Tacubaya), 3h. (Fort de France, Tucson, Mount Wilson, and Tinemaha), 4h. (Tananarive and near Balboa Heights (2)), 5h. (Mount Wilson, Pasadena, Riverside, Tinemana, Tucson, and Tacubaya), 6h. (Ksara), 7h. (near Fresno), 9h. (Sverdlovsk, Tashkent, Bombay, and Riverview), 10h. (De Bilt and Stuttgart), 11h. (Hukuoka, Koti, Osaka, Ebingen, and near Almeria, Granada, and Toledo), 12h. (Irkutsk, Sverdlovsk, Tashkent (2), Vladivostok, Riverview (2), Hyderabad, Calcutta (2), Kodaikanal (2), New Delhi, Bombay (2), Helwan (2), Mount Wilson, Pasadena, Tinemaha, Tucson, Fort de France, Tortosa, De Bilt, Kew, and Stuttgart), 13h. (Granada, De Bilt, Stuttgart, Potsdam, Cheb, and Upsala), 17h. (Huancayo), 19h. (Tucson, Mount Wilson, Riverside, and Tinemaha), 20h. (near La Paz and near St. Louis), 21h. (near Frunse and Tashkent).

May 4d. 6h. Underterminedshock.

Oaxaca PN =42m.46s.
Vera Cruz PN =42m.46s.
Tacubaya PE =43m.19s.
Tucson iP =46m.39s., e =47m.12s., 47m.30s., 50m.26s., and 51m.10s., eL =53m.23s.
Riverside iPZ =47m.29s., eZ =48m.5s., iZ =48m.15s., and 50m.56s.
Mount Wilson iPZ =47m.38s., eZ =48m.21s.
Pasadena iPZ =47m.39s.
Tinemaha iPZ =47m.54s., eZ =48m.33s., iZ =51m.3s.

May 4d. 9h. Undetermined shock.

Triest i =39m.52s. and 39m.55s.
Florence eP_gZ =40m.34s., iS_gZ =40m.58s.
Chur eP_g =40m.34s., eS_g? =41m.15s.
Basle eP_g =40m.43s., eS_g =42m.8s.
Zurich eP_g =40m.48s., eS_g =41m.36s.
Neuchatel eP =40m.49s.
Stuttgart eP?Z =41m.2s., eZ =41m.6s. and 41m.11s., eP_g?Z =41m.22s., e =41m.33s., eZ =41m.56s., e =42m.2s., eS_g?Z =42m.8s.
Strasbourg eP? =42m.17s., i =42m.21s., e =42m.45s.

May 4d. 18h. Undetermined shock. Alaska.
College eP =26m.27s., e =27m.6s., eS =30m.27s., eL =31m.11s.
Vladivostok iP =28m.35s., iS =33m.9s.
Tinemaha iP =30m.3s.a, iP_cPZ =31m.38s., iS_cPZ =35m.17s.
Haiwee iP =30m.8s.a, iP_cP =31m.39s., iS_cPZ =35m.22s.
Santa Barbara iP =30m.11s.
Pasadena iP =30m.17s.a.
Mount Wilson iP =30m.18s.a, iZ =30m.26s., iP_cPZ =31m.43s., iS_cPZ =35m.25s.
Riverside iPNZ =30m.20s.a, iP_cPZ =31m.44s., iS_cPZ =35m.27s.
La Jolla iP =30m.29s.
Tucson iP =31m.1s., i =31m.32s.
Ottawa eZ =32m.3s., L =51m.
Tashkent eP =32m.34s.
Fordham iP =32m.36s.
Baku S =43m.23s.

May 4d. Readings also at 0h. (near Balboa Heights and near Mizusawa), 1h. (La Plata), 2h. (Tinemaha, Tucson, near Mizusawa), 6h. (near Mizusawa), 7h. (Tinemaha, Riverside, and Mount Wilson), 13h. (near Tashkent and Stalinabad), 17h. (Tinemaha, Pasadena, Mount Wilson, Riverside, and Tucson), 21h. (La Plata, near Apia, near Tashkent and Stalinabad), 22h. (La Plata).

May 5d. Readings at 6h. (near Berkeley), 7h. (Stuttgart and Riverview), 11h. (near Fresno, Berkeley, and Lick), 14h. (Tinemaha, Mount Wilson, Tucson, Riverside, Stuttgart, and Tacubaya), 15h. (Mount Wilson, Tucson, Riverside, Pasadena, Haiwee, and Tinemaha), 16h. (Philadelphia, Florissant, St. Louis, and Tucson), 17h. (Florissant (2) and Mizusawa), 18h. (near Tashkent and Andijan), 22h. (near Berkeley).

May 6d. 8h. Undetermined shock.
Huancayo eP =50m.45s., e =53m.10s. and 53m.31s., eL =54m.35s.
La Paz iPZ =52m.18s., SZ =56m.12s., LZ =60m.
San Juan eP =52m.32s., e =57m.3s., eL =57m.37s.
Tucson iP =55m.34s.
La Jolla ePNZ =56m.9s.
Riverside iPZ =56m.15s.
Mount Wilson iP =56m.20s.
Pasadena iP =56m.20s.
Tinemaha iPZ =56m.35s.

May 6d. 15h. 59m. 49s. Epicentre 48°·2N. 9°·0E. (as on 2d.).

A = +·6609, B = +·1046, C = +·7432; δ = +8; h = −5;

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen	0·0	—	e 0 1	P_g	i 0 2	S_g	—	—	—
Ravensburg	0·6	135	—	—	e 0 20	S_g	—	—	—
Stuttgart	0·6	13	e 0 9	P_g	i 0 16	S_g	—	—	—
Strasbourg	0·9	295	—	—	i 0 29	S_g	—	—	0·6
Zürich	0·9	198	e 0 17	P_g	e 0 29	S_g	—	—	—
Basle	1·2	235	e 0 22	P_g	i 0 38	S_g	—	—	—
Chur	1·4	165	e 0 24	− 3	e 0 48	S_g	i 0 27a	P_g	—
Neuchatel	1·8	229	e 0 58	P*	—	—	—	—	—

May 6d. Readings also at 1h. (Tortosa, near Toledo, Granada, and Almeria), 3h. (Tacubaya), 5h. (Bogota and near Fort de France), 6h. (Riverview), 7h. (Tacubaya and near Berkeley), 9h. (Wellington, Auckland, Riverview, Brisbane, Tucson, and Riverside), 10h. (Riverside, Pasadena, Mount Wilson, Tinemaha, Tucson, near Mizusawa), 11h. (Riverside, Pasadena, and Tinemaha), 13h. (near Fort de France), 14h. (Calcutta), 15h. (Riverview), 17h. (near Apia), 18h. (near Tashkent and Andijan), 20h. (near Almeria (2) and Granada),

May 7d. 8h. Undetermined shock.
Auckland P? =11m.47s., S =15m.6s., L =17m.?.
Riverview eP =12m.17s., iS =16m.12s., iE =16m.20s., eLN =17·6m.
Wellington PP?Z =12m.30s., P_cPZ =13m.52s., i =15m.45s., and 16m.30s., S =16m.45s., Q =18·0m., R =20m.
Brisbane iN =14m.36s., eN =16m.6s.
Sydney e =15m.0s.? and 18m.54s.?.
Christchurch S =17m.11s., Q =18m.28s., R =20m.27s.
Mount Wilson iPZ =20m.13s.
Pasadena iPZ =20m.14s., eLZ =49m.0s.
Riverside iPZ =20m.16s.
Tinemaha iPZ =20m.20s.
Tucson iP =20m.39s.
Stuttgart eZ =27m.8s.
Chur eP =27m.11s.
Basle eP =27m.12s.
Neuchatel eP =27m.14s.
Zürich eP =27m.19s.
Long waves were also recorded at Huancayo.

May 7d. 20h. 22m. 57s. Epicentre 43°·5N. 139°·1E.
A = −·5500, B = +·4765, C = +·6859; δ = +1; h = −3;
D = +·655, E = +·756; G = −·518, H = +·449, K = −·728.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	4·6	160	e 1 13	+ 1	2 15	S*	—	—	—
Vladivostok		5·3	269	i 1 21	− 1	—	—	—	—	—
Irkutsk		24·7	303	5 25	+ 1	e 9 43?	− 1	—	—	—
Calcutta	N.	46·6	260	e 8 46	+14	e 15 12	− 9	—	—	i 20·8
Tashkent		50·2	293	8 57	− 3	i 16 11	0	—	—	—
New Delhi	N.	51·1	274	e 11 16	PP	i 16 21	− 3	—	—	—
Bombay	E.	60·1	268	i 10 8	− 3	e 18 17	− 7	14 1	PPP	—
Moscow		61·1	321	10 19	+ 1	18 37	0	—	—	—
Kodaikanal	E.	62·5	258	e 9 23	−65	—	—	—	—	—
Copenhagen		71·4	332	e 11 22	− 2	20 43	+ 1	—	—	39·0
Tinemaha		73·5	55	i 11 36a	0	—	—	i 11 44	P_cP	—
Bucharest		74·1	316	—	—	e 20 3?	−69	—	—	—
Haiwee		74·3	55	i 11 40a	− 1	—	—	e 11 47	P_cP	—
Mount Wilson		75·5	57	i 11 46a	− 2	—	—	i 11 53	P_cP	—
Pasadena		75·5	57	i 11 47a	− 1	—	—	—	—	—
Jena		75·5	328	i 11 45?	− 3	—	—	—	—	—
Ksara		76·0	303	e 11 59	+ 8	—	—	e 22 18	PS	—
Riverside	z.	76·1	57	i 11 49a	− 2	—	—	e 11 55	P_cP	—
De Bilt		76·8	333	i 20 12k	?	i 21 46	+ 4	—	—	40·0
Stuttgart		78·1	329	e 12 2	0	e 21 57?	+ 1	e 12 9	P_cP	e 31·6
Uccle		78·2	333	e 12 5	+ 2	e 21 57	0	e 30 57?	SSS	e 40·0
Triest		78·8	324	—	—	i 22 2	− 2	—	—	43·0
Zürich		79·5	328	e 12 22	P_cP	—	—	—	—	—
Basle		79·8	329	e 12 11	− 1	—	—	—	—	—
Neuchatel		80·5	329	e 12 15	0	—	—	—	—	—
Tucson		81·2	53	i 12 20	+ 1	—	—	—	—	—
Helwan		81·5	303	i 12 21a	0	22 30	− 2	—	—	—
St. Louis	z.	86·8	37	i 12 47	0	—	—	—	—	—
La Paz	z.	144·5	48	e 19 39	[+ 1]	—	—	—	—	75·0

Bombay also gives S_cSE =19m.54s., SSE =22m.27s.
Long waves were also recorded at other European stations.

May 7d. 23h. Undetermined shock.
Huancayo e =50m.30s. and 52m.38s., eL =54m.48s.
Bogota eP =52m.58s., i =53m.22s.
La Paz z. P =53m.58s., iS =57m.54s., L =60m.12s.
San Juan eP =54m.26s., eS =58m.46s., eL =59m.26s.
Tucson iP =57m.19s.
Riverside iPZ =57m.55s.
Mount Wilson iPZ =57m.59s.
Pasadena iPZ =58m.1s.
Tinemaha ePZ =58m.14s.
New Delhi eN =83m.25s.

May 7d. Readings also at 1h. (Mount Wilson, Riverside, Tucson, and Bogota), 2h. (near Lick, Branner, and Fresno), 3h. (near Strasbourg (2), Stuttgart (2), Zurich, Neuchatel, and Basle), 5h. (Tashkent, Frunse, near Andijan), 13h. (Mizusawa and near Stuttgart (2)), 15h. (near Mizusawa), 18h. (Arapuni), 19h. (near Frunse, Tashkent, and Stalinabad), 20h. (near Tucson and near Mizusawa), 22h. (Mount Wilson, Tucson, and Tinemaha), 23h. (near Ottawa).

May 8d. Readings at 3h. (Balboa Heights and near Stuttgart), 4h. (Brisbane, Riverview, and Perth), 5h. (Riverside, Mount Wilson, Pasadena, Brisbane, Riverview, Tucson, Mizusawa (2), and near Stalinabad), 8h. (La Paz, Huancayo, and Bogota), 9h. (Pasadena, Mount Wilson, Riverside, and Tucson), 12h. (near Fresno, Berkeley, Branner, and Lick), 20h. (Frunse, near Tchimkent, Tashkent, and Stalinabad).

May 9d. Readings at 7h. (Balboa Heights), 9h. (near Stalinabad), 11h. (Harvard, near Shawinigan Falls, and Ottawa), 14h. (near Stalinabad), 17h. (Tucson and La Plata), 23h. (Tucson, Riverside, Pasadena, Mount Wilson, Haiwee, Tinemaha, Baku, Tashkent, and near La-Paz).

May 10d. 10h. 2m. 54s. Epicentre 9°·5S. 158°·5E.

A = −·9178, B = +·3616, C = −·1640 ; δ = +1 ; h = +7 ;
D = +·367, E = +·930 ; G = +·153, H = −·060, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	18·6	195	i 4 18	− 3	e 7 42	− 4	—	—	i 9·5
	E.	18·6	195	i 4 20	− 1	e 7 50	+ 4	—	—	—
Riverview		25·1	194	i 5 30a	+ 2	i 9 59	+ 8	i 11 4	SS	e 12·4
Sydney		25·1	194	e 7 24?	?	e 9 54	+ 3	—	—	—
Auckland		31·0	156	—	—	10 36	?	—	—	14·1
Arapuni		32·4	155	—	—	9 36	?	—	—	15·1
Wellington		34·8	159	—	—	9 26	?	15 6?	Q	20·1
Christchurch		36·1	163	e 8 31	?	12 50	+ 5	15 23	Q	18·7
Perth		45·3	234	16 46	?	20 51	?	—	—	23·3
Vladivostok		57·7	337	e 9 54	− 1	i 17 52	− 1	—	—	—
Bombay	E.	89·0	290	e 12 57	− 1	i 23 22	[− 5]	16 31	PP	—
Pasadena	Z.	89·8	55	e 13 1	− 1	—	—	—	—	e 40·7
Mount Wilson	Z.	89·9	55	e 13 0	− 2	—	—	i 13 10	?	—
Tinemaha	Z.	90·3	53	e 13 3	− 1	—	—	—	—	—
La Jolla	Z.	90·3	57	e 13 6	+ 2	—	—	—	—	—
Riverside	Z.	90·4	55	e 13 2	− 2	—	—	—	—	—
Tashkent		95·6	310	e 13 31	+ 3	i 24 30	−13	i 24 3	SKS	—
Tucson		95·6	58	e 13 34	+ 6	—	—	e 14 33	?	e 43·4

Additional readings :—
Riverview ipPZ = 5m.41s., iPPNZ = 6m.3s., and iEN = 10m.8s.
Bombay sSE = 23m.44s., eE = 24m.44s.
Mount Wilson iZ = 13m.5s.
Long waves were also recorded at Honolulu, Sitka, and Stuttgart.

May 10d. Readings also at 0h. (Tucson (2), Mount Wilson, Pasadena (2), Riverside (2), and Tinemaha (2)), 5h. (New Delhi, Andijan, Tashkent, Stalinabad, Tucson, Riverside, and Tinemaha), 8h. (Tucson, Mount Wilson, and Tinemaha), 10h. (Balboa Heights), 11h. (near Tananarive), 15h. (Tucson, Riverside, and Tinemaha), 18h. (Tucson, Pasadena, Riverside, Tinemaha, and Mount Wilson).

May 11d. 20h. Undetermined shock in Eastern Turkey.

Ksara eP =28m.17s., eS? =29m.40s.
Istanbul P =28m.32s., S =29m.11s., S_g =29m.39s.
Helwan PZ =28m.45s., eZ =28m.52s., P_gZ =29m.15s., SNZ =30m.0s., S*NZ =30m.24s.
Yalta eP =28m.58s., S =31m.10s.
Sofia ePEN =29m.6s.?, eSEN =31m.33s.
Bucharest eEN =29m.48s.?, eE =30m.56s., iN =31m.13s., iE =31m.24s. and 31m.43s.
Chur eP =31m.22s.a.
Focsani eEN =31m.24s.?, LEN =32·3m.
Zürich eP =31m.29s.
Stuttgart ePZ =31m.32s., eS =35m.25s., eQ =38·3m.
Basle eP =31m.37s.
Neuchatel eP =31m.39s.
Belgrade e =33m.23s. and 33m.33s., i =33m.46s., e =34m.0s.
Cheb e =35m.
Triest e =35m.36s.
Uccle eN =36m.36s., eLEN =40m.
Granada i =37m.40s., L =45·5m.
De Bilt e =40m.
Long waves were also recorded at Kew.

May 11d. Readings also at 2h. (Balboa Heights and near Andijan), 9h. (Auckland, Sydney, Brisbane, Riverview, Bogota, and near Balboa Heights, Upsala, and near Granada), 10h. (Upsala), 11h. (Tucson, Mount Wilson, Pasadena, and Tinemaha), 13h. (Basle and near Ebingen, Stuttgart, and Zürich), 17h. (St. Louis), 21h. (Ksara and Stuttgart), 23h. (La Plata, La Paz, Tucson, Mount Wilson, Palomar, Riverside, and Tinemaha).

May 12d. 8h. 23m. 14s. Epicentre 19°·7S. 175°·9W. Depth of focus 0·030.

Pasadena suggests 20°S., 175°W., depth 270 km.

A = −·9397, B = −·0674, C = −·3351 ; δ = −13 ; h = +5 ;
D = −·071, E = +·997 ; G = +·334, H = +·024, K = −·942.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		7·1	35	e 1 40	− 2	i 2 51	−11	—	—	—
Auckland		18·8	203	4 6	+ 1	7 26	+ 4	—	—	—
Arapuni		19·6	201	—	—	7 52?	+15	—	—	—
Tuai		19·9	196	4 15	− 1	7 42	0	—	—	—
New Plymouth		21·0	201	4 35	+ 8	8 17	+15	—	—	—
Wellington		22·8	197	4 44	0	8 33	0	15 28	S_cS	—
Christchurch		25·5	200	5 9	0	9 18	0	—	—	—
Nagano		70·9	322	e 10 53	− 1	—	—	—	—	—
Osaka		71·2	320	10 53	− 3	15 2	?	—	—	—
Sapporo		73·9	330	e 11 13	+ 1	—	—	—	—	—
La Jolla	Z.	76·7	48	e 11 26	− 2	—	—	—	—	—
Pasadena		76·8	47	i 11 28k	0	—	—	e 12 32	pP	—
Mount Wilson	Z.	76·9	47	i 11 27k	− 2	—	—	i 12 29	pP	—
Palomar	Z.	77·2	48	i 11 31k	0	—	—	e 12 34	pP	—
Riverside	Z.	77·2	47	i 11 29	− 2	—	—	e 12 33	pP	—
Tinemaha		78·4	44	i 11 37k	0	—	—	—	—	—
Vladivostok		78·9	324	e 11 39	− 1	i 21 31	+13	—	—	—
Tucson		80·9	51	i 11 50	0	e 21 50	+11	—	—	—
Sitka		84·2	22	—	—	e 22 1	−11	e 23 51	sS	—
College		87·2	12	—	—	e 22 34	− 6	e 24 24	sS	—
St. Louis	N.	98·8	52	—	—	e 24 32	+10	e 26 21	PS	—
Bombay	E.	115·6	282	e 16 0	?	i 24 46	[+ 3]	—	—	—
Tashkent		121·2	307	e 20 1	PP	i 25 4	[+ 1]	—	—	—
Yalta		145·0	322	19 13	[+ 2]	—	—	—	—	—
Jena		148·3	351	e 19 20	[+ 3]	—	—	—	—	—
Stuttgart	Z.	150·7	353	e 19 20	[0]	—	—	e 20 31	pPKP	—

Additional readings :—
Wellington P_cP? =8m.53s., sP_cP? =9m.52s., sS_cS =17m.30s.
Tucson e =13m.24s. and 29m.55s.
Bombay eE =17m.2s., 19m.0s., and 28m.46s.
Stuttgart eZ =19m.26s. and 19m.34s.
Long waves were also recorded at Granada.

May 12d. Readings also at 1h. (near Bogota), 4h. (Tacubaya, Tucson, and Tinemaha), 8h. (Mount Wilson, Palomar, Tucson, Pasadena, Riverside, Tinemaha (2)), 12h. (Basle, Triest, and Zurich), 14h. (Tinemaha, Tucson, and near Apia), 17h. (near Apia), 21h. (near Branner and near Mizusawa).

May 13d. 23h. Undetermined shock. Alaska.

College eP =17m.33s., i =18m.32s., eL =18m.42s.
Sitka eP =19m.9s., e =20m.31s., e =21m.20s., eL =21m.42s.
Tinemaha iP =23m.6s., iZ =25m.36s.
Haiwee ePEN =23m.14s.
Mount Wilson iP =23m.27s.
Pasadena iPNZ =23m.28s.
Riverside iPZ =23m.32s.
Palomar iPZ =23m.39s.
La Jolla ePZ =23m.42s.
Tucson iP =24m.7s., i =24m.32s., e =25m.32s., e =26m.31s.
St. Louis eE =24m.35s. and 34m.26s., eLE =38·5m.
Ottawa eZ =24m.53s., L =38m.
Bozeman eS =27m.38s., eL =32m.25s.
Stuttgart eZ =27m.42s.
Florissant iE =40m.5s., eE =46m.29s.
Pittsburgh eNE =41m.4s., eL?NE =41m.23s.
Long waves were also recorded at Salt Lake City, Chicago, Columbia, Philadelphia.

May 13d. Readings also at 0h. (Tinemaha, Tucson, Basle, near Zurich, Ebingen, and Stuttgart), 1h. (near Mizusawa), 6h. (Chur, Triest, and Zurich), 8h. (New Delhi, near Andijan, Tashkent, and Stalinabad), 9h. (near Balboa Heights), 12h. and 16h. (Riverview), 17h. (Brisbane), 18h. (near Mizusawa), 21h. (Andijan and near Tashkent).

May 14d. Readings at 0h. (near Berkeley), 2h. (Fort de France), 7h. (near Mizusawa), 9h. (Fort de France), 10h. (Tashkent), 16h. (Tacubaya and near Apia), 20h. (Tinemaha and Tucson), 22h. (Arapuni, Christchurch, Auckland, and Wellington), 23h. (near Andijan and Tashkent).

May 15d. 2h. Undetermined shock. Central South America. Pasadena suggests deep focus.

La Paz iPZ =19m.22s.k, iZ =19m.50s., iSZ =20m.8s., LZ =20m.34s.
Bogota eP =25m.24s.
Fordham iP =28m.5s., ipP =28m.43s.
Tucson iP =28m.33s.k, i =29m.12s., e =30m.21s., and 34m.51s.
Palomar iPZ =29m.0s.k, iZ =29m.37s.
Riverside iPZ =29m.4s.k, eZ =29m.34s., iZ =29m.42s.
Mount Wilson iP =29m.7s., iZ =29m.45s.
Pasadena iPNZ =29m.8s., iZ =29m.43s.
Haiwee iPZ =29m.14s., iZ =29m.52s.
Tinemaha iP =29m.19s.k, iZ =29m.58s.

May 15d. Readings also at 6h. (near Fort de France), 7h. (Tashkent, Tchimkent, and near Stalinabad), 8h. (Stuttgart, Christchurch, and Wellington), 14h. (Auckland, Christchurch, and Wellington), 16h. (Helwan and Ksara), 18h. and 19h. (Buffalo), 21h. (La Paz), 23h. (Izuka, Matuyama, and Nagano).

May 16d. Readings at 3h. (La Paz, Tucson (4), Mount Wilson (2), Palomar (4), Pasadena (2), Riverside (3), Tinemaha (2), near Huancayo), 4h. (Kew and San Juan), 7h. (near La Paz), 14h. (Toledo, Mount Wilson, Palomar, Pasadena, Riverside, Tinemaha, and Tucson), 15h. (near Mizusawa), 17h. (near Yalta), 19h. (La Plata).

May 17d. 7h. 47m. 12s. Epicentre 0°·3N. 78°·7W.

$A = +·1959$, $B = -·9806$, $C = +·0052$; $\delta = -2$; $h = +7$;
$D = -·981$, $E = -·196$; $G = +·001$, $H = -·005$, $K = -1·000$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		6·3	47	e 1 23	−13	i 2 43	− 7	i 1 37	P	—
Huancayo		12·7	165	e 3 6	+ 1	e 5 18	−10	i 3 48	PPP	i 5·8
La Paz	Z.	19·7	148	i 4 35	+ 1	i 8 29	SS	—	—	10·5
San Juan		21·8	35	e 4 57	+ 1	e 8 54	+ 2	—	—	e 11·5
Fort de France		22·5	52	e 5 1	− 1	—	—	—	—	—
Florissant	E.	39·8	346	—	—	e 13 40	− 2	—	—	—
La Plata	E.	40·0	153	7 38	0	—	—	—	—	21·8
Fordham		40·6	7	i 7 48	+ 5	—	—	—	—	—
Rio de Janeiro	N.	41·5	127	e 17 48	SSS	—	—	—	—	e 21·6
Tucson		43·9	320	e 8 8	− 2	e 13 40	−62	e 9 56	PP	e 23·9
Riverside	Z.	49·3	317	e 8 56	+ 3	—	—	—	—	—
Mount Wilson	Z.	49·9	317	e 8 57	0	—	—	—	—	—
Pasadena	Z.	50·0	317	e 8 57	− 1	—	—	—	—	—
Tinemaha	Z.	51·7	320	e 9 9	− 2	—	—	—	—	—
Stuttgart	Z.	88·4	41	e 12 52	− 3	—	—	—	—	—

Additional readings :—
Bogota i = 1m.43s., 1m.57s., 3m.4s., and 3m.33s.
San Juan e = 6m.3s.
La Plata PZ = 7m.44s.
Long waves were also recorded at De Bilt.

May 17d. 17h. Undetermined shock.

Fort de France e = 28m.0s.
San Juan e = 29m.12s., iS = 33m.4s., eL = 34m.17s.
Bermuda e = 29m.48s. and 34m.0s., eL = 34m.34s.
Florissant eZ = 33m.6s. and 34m.50s., iE = 39m.34s., eL?E = 46m.8s.
Stuttgart eZ = 34m.21s., eL = 51·5m.
Tucson iP = 35m.3s., e = 35m.36s., eL = 55m.14s.
Tinemaha ePZ = 35m.33s.
Palomar iPZ = 35m.38s.
Riverside iPZ = 35m.39s.
Mount Wilson ePZ = 35m.41s
Pasadena iPZ = 35m.49s., eLZ = 57m.
Huancayo e = 37m.52s., eL = 41m.49s.
Long waves were also recorded at Philadelphia, Pittsburgh, and Kew.

May 17d. Readings also at 0h. (Lisbon, Bucharest, and Sofia), 1h. (Tinemaha, Pasadena, Mount Wilson, Palomar, Tucson, and Riverside), 3h. (La Plata), 6h. (St. Louis), 7h. (Auckland and near Branner and Lick), 8h. (Tucson, Palomar, Tinemaha, Mount Wilson, Pasadena, and Riverside), 10h. (Florissant), 16h. (Kew, De Bilt, and Stuttgart), 17h. (near Tashkent, Andijan, and Stalinabad), 18h. (Mount Wilson and Tucson), 21h. (Riverside, Palomar (2), Tucson (2), San Juan, and Fort de France), 22h. (Zurich).

May 18d. 6h. 3m. 43s. Epicentre 4°·5N. 125°·5E. (as on 1941 November 18d.).

Stations of the U.S.S.R. suggest 4°·0N. 127°·5E.

$A = -·5790$, $B = +·8117$, $C = +·0779$; $\delta = +17$; $h = +7$;
$D = +·814$, $E = +·581$; $G = -·045$, $H = +·063$, $K = -·997$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Miyakozima		20·2	0	(4 31)	− 8	—	—	—	—	—
Hukuoka		29·3	9	5 37	−29	11 38	+39	—	—	—
Osaka		31·4	17	e 6 17	− 8	11 31	− 1	—	—	—
Nagoya		32·3	19	6 33	0	—	—	—	—	—
Nagano		34·1	18	6 47	− 1	12 14	0	—	—	—
Wazima		34·3	16	e 6 54	+ 4	—	—	—	—	—
Sendai		36·4	21	7 9	+ 1	12 52	+ 2	—	—	—
Mizusawa	E.	37·3	20	7 9	− 7	13 5	+ 1	—	—	—
	N.	37·3	20	7 17	+ 1	13 8	+ 4	—	—	—
Vladivostok		38·9	8	e 7 31	+ 2	i 13 34	+ 6	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sapporo		40·9	17	7 47	+ 1	14 3	+ 5	—	—	—
Brisbane		41·4	142	i 7 46	− 4	i 13 16	−49	i 9 3	PP	i 20·3
Riverview		45·2	149	i 10 7	PP	—	—	i 17 38	SS	e 23·8
Sydney		45·2	149	—	—	e 16 5?	+64	—	—	—
Irkutsk		50·8	343	9 9	+ 5	16 34	+14	—	—	—
New Delhi	N.	51·7	303	i 9 8	− 3	i 16 34	+ 2	i 21 3	SSS	—
Bombay	E.	53·3	290	e 9 21	− 2	19 29	S_cS	11 20	PP	—
Andijan		59·7	315	—	—	18 30	+11	—	—	—
Stalinabad		61·5	312	e 10 20	− 1	—	—	—	—	—
Auckland		61·6	136	—	—	19 2	PPS	e 20 52	?	28·3
Tashkent		62·0	315	i 10 25	+ 1	i 18 53	+ 5	—	—	—
Arapuni		62·8	137	—	—	20 17?	[− 3]	25 35?	SSS	34·3
Christchurch		63·9	144	9 31	?	18 31	−41	23 17	SS	31·4
Wellington		64·0	141	—	—	18 32	−41	23 17?	SS	28·3
Ksara		87·2	303	e 12 51?	+ 2	e 23 38	+10	—	—	—
Sitka		91·2	33	e 17 27	?	i 24 4	− 1	e 30 19	SS	e 37·7
Victoria		100·4	39	—	—	e 24 17	[−12]	—	—	41·3
Triest		101·7	318	e 18 17	PP	i 24 28	[− 7]	—	—	—
Scoresby Sund		102·1	349	e 18 14	PP	e 24 21	[−16]	e 28 3	PPS	e 54·7
Stuttgart		103·5	322	e 14 0	− 4	e 26 22	+32	e 18 20	PP	e 56·3
De Bilt		104·4	326	i 14 7	− 1	—	—	e 18 27	PP	e 53·3
Uccle		105·5	325	e 18 41?	PP	e 28 57	PPS	—	—	—
Paris		107·5	324	e 21 17?	PPP	—	—	—	—	—
Kew		107·7	327	e 18 43?	PP	—	—	e 28 13	PS	e 46·3
Tinemaha	Z.	107·8	49	e 18 20	[− 9]	—	—	—	—	—
Pasadena	Z.	108·9	51	e 18 21	[−10]	—	—	e 27 59?	PS	e 49·5
Tortosa	N.	112·5	317	e 19 9	PP	—	—	e 19 24	PP	e 59·3
Tucson		115·3	51	e 18 37	[− 7]	—	—	e 29 14	PS	e 52·7
Toledo		116·0	318	e 18 43	[− 2]	—	—	i 19 56	PP	—
Granada		117·1	316	—	—	e 30 10	PS	—	—	66·7
Florissant		125·6	34	e 20 46	PP	e 26 9	[+ 1]	e 37 46	SS	—
Ottawa		126·8	17	e 18 59?	[− 7]	—	—	e 38 17?	SS	57·3
Pittsburgh		129·5	24	e 21 40	PP	e 31 4	PS	i 22 25	?	—
Fordham		131·5	18	e 19 10	[− 5]	—	—	—	—	—
San Juan		154·5	25	e 19 20	[−34]	—	—	e 43 37	SS	e 75·5
Bogota		158·5	64	e 19 53	[− 6]	—	—	e 20 9	?	—
La Paz		162·1	133	i 19 54a	[− 9]	34 40	SKSP	24 56	PP	79·3

Additional readings and note :—
The reading at Miyakozima has been increased by 5m.
Vladivostok iP =7m.34s.
Brisbane iSN =13m.19s., iQN =16m.14s.
Riverview iEN =14m.18s., iE =17m.34s., eE =20m.17s.?
Bombay iE =11m.45s., SSE =20m.27s.
Christchurch S_cS =20m.0s., Q =26m.47s.
Wellington Q =26.3m.
Sitka e =23m.32s., eSSS =34m.31s.
Scoresby Sund eSS =33m.46s.
Stuttgart eZ =14m.21s., ePS? =28m.27s., e =40m.17s.?
Pasadena eSSZ =33m.29s.?
Tucson e =19m.42s.
Ottawa eN =30m.17s.?
Fordham e =19m.33s. and 22m.34s.
San Juan e =24m.29s.
Long waves were also recorded at Bergen, Cheb, Upsala, and La Plata.

May 18d. Readings also at 0h. (Triest and Florence), 6h. (Huancayo and near Fort de France), 8h. (Bombay, New Delhi, and Tashkent), 10h. (Upsala and near Basle, Ebingen, Stuttgart, and Zurich), 14h. (near Mizusawa), 16h. (Upsala), 18h. (Bombay Tashkent, Yalta, and near Bacau, Bucharest, Campulung, Focsani, and Sofia), 20h. (near Andijan and Tashkent), 22h. (near Berkeley).

May 19d. Readings at 0h. (La Paz), 1h. (near Bucharest, Triest, Florence, and near Balboa Heights), 2h. (Belgrade, near Bucharest, Triest (2), Florence, Stuttgart, Basle, Zurich, Cheb, De Bilt, and Kew), 5h. (Huancayo, La Paz, La Plata, Tucson, Mount Wilson, Palomar, and Tinemaha), 6h. (Kew), 7h. (Bacau, Bucharest, near Campulung, and Focsani), 9h. (near Mizusawa), 10h. and 11h. (Tashkent), 12h. (near Berkeley (3), Branner (2), and Lick), 19h. (near Mizusawa).

May 20d. Readings at 2h. (Bombay, near New Delhi), 3h. and 10h. (2) (near Berkeley), 11h. (Tacubaya, Vera Cruz, Huancayo, Bogota, Tucson, Mount Wilson, Palomar, near Berkeley, and Bozeman), 12h. (La Paz), 14h. (Bucharest, Triest, Stuttgart, and near Sofia), 15h. (Vera Cruz), 16h. (Stuttgart), 17h. (Tucson, Mount Wilson, Palomar, Riverside, and Tinamaha), 19h. (Stuttgart and Ebingen), 22h. (near St. Louis), 23h. (Huancayo).

May 21d. Readings also at 2h. (near Andijan), 7h. (Huancayo, La Paz, Balboa Heights, San Juan, Bermuda, Tucson, Pasadena, Riverside, Tinemaha, Bozeman, Salt Lake City, St. Louis, Pittsburgh, Philadelphia, near Andijan, and near Mizusawa), 8h. (Sitka, Uccle, De Bilt, Stuttgart, and near Berkeley (2)), 9h. (Tinemaha, Tucson, near Andijan and Tashkent), 15h. (Jena), 19h. (near Mizusawa), 20h. (Balboa Heights), 23h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Vladivostok, Tashkent, Stuttgart, and near Mizusawa).

May 22d. 9h. 1m. 56s. Epicentre 30°·9S. 72°·0W. (as on 1943 April 14d.).

$A = +\cdot2656$, $B = -\cdot8175$, $C = -\cdot5110$; $\delta = -3$; $h = +2$;
$D = -\cdot951$, $E = -\cdot309$; $G = -\cdot158$, $H = +\cdot486$, $K = -\cdot860$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		8·7	19	e 3 55	S	(e 3 55)	+ 5	e 4 16	SSS	e 4·6
La Plata	E.	12·5	112	2 57	− 5	5 11	−12	(5 52)	SSS	5·9
	N.	12·5	112	2 56	− 6	4 41	?	(5 58)	SSS	6·0
	Z.	12·5	112	2 59	− 3	5 14	− 9	(5 58)	SSS	6·0
La Paz		14·8	15	i 3 33a	+ 1	i 6 14	− 4	—	—	8·0
Huancayo		19·0	351	i 4 26	0	e 8 1	+ 6	—	—	e 9·2
Rio de Janeiro		26·8	80	e 5 32	−12	i 10 12	− 7	—	—	i 12·9
Bogota		35·4	358	e 6 56	− 4	—	—	—	—	—
Fort de France		46·6	16	e 8 25	− 7	—	—	—	—	—
San Juan		49·3	9	e 9 0	+ 7	i 15 49	−10	i 10 43	PP	e 25·7
Bermuda		63·3	8	e 10 31	− 2	e 19 22	PS	e 12 57	PP	e 26·7
Columbia		65·1	354	e 10 51	+ 6	e 19 19	− 8	e 23 31	SS	e 29·4
Cape Girardeau	E.	69·8	346	e 11 15	+ 1	e 20 16	− 7	—	—	—
Philadelphia		70·6	358	e 11 21	+ 2	i 20 29	− 4	e 21 17	PPS	e 33·6
St. Louis		71·2	346	i 11 20	− 3	i 20 34	− 6	i 11 29	pP	—
Florissant		71·4	346	i 11 23	− 1	i 20 36	− 6	i 11 33	pP	—
Pittsburgh		71·4	354	e 11 18	− 6	i 20 36	− 6	—	—	—
Tucson		72·8	327	i 11 31	− 1	e 20 56	− 2	i 11 42	PcP	e 29·6
Harvard		73·0	1	i 11 35	+ 2	—	—	—	—	e 38·1
Chicago		73·8	348	e 11 41	+ 3	e 21 1	− 8	—	—	e 29·7
Ottawa		76·0	358	11 49	− 2	21 30	− 4	26 22?	SS	e 32·1
La Jolla	e	76·5	323	i 11 56	+ 2	—	—	—	—	—
Palomar	Z.	76·7	323	e 11 55	0	—	—	—	—	—
Riverside	Z.	77·5	323	e 11 58	− 1	—	—	i 12 9	pP	e 39·7
Seven Falls		77·7	2	12 2	+ 2	21 46	− 6	—	—	38·1
Mount Wilson	Z.	78·0	323	i 12 1	− 1	—	—	—	—	—
Pasadena		78·1	323	i 12 2	0	i 21 56	0	i 12 11	pP	e 37·1
Santa Barbara	Z.	79·1	322	e 12 11	+ 3	—	—	—	—	—
Salt Lake City		80·3	331	—	—	e 22 18	− 2	e 27 45	SS	e 36·2
Tinemaha		80·3	325	e 12 14	0	—	—	i 12 25	PcP	i 40·0
Logan		81·1	332	e 12 21	+ 3	e 22 24	− 4	e 15 47	PP	e 41·8
Ukiah		84·4	323	—	—	e 22 57	− 4	—	—	e 41·7
Christchurch		85·3	222	12 44	+ 4	23 6	− 4	28 36	SS	39·6
Wellington		85·4	224	—	—	23 9	− 2	23 40	PS	40·1
Saskatoon		88·1	340	—	—	e 23 33	− 4	—	—	49·1
Lisbon	Z.	90·7	45	15 11k	?	—	—	—	—	46·5
Victoria		91·4	329	—	—	e 26 10?	PPS	—	—	44·1
Granada		93·2	48	i 12 35	?	24 45	+22	16 35	PP	46·3
Toledo		94·5	46	e 13 23	0	25 51	PS	17 10	PP	—
Tortosa	E.	97·7	47	e 13 18	−20	24 31	{− 7}	e 17 18	PP	e 44·1
Kew	Z.	103·3	38	e 13 58	− 5	e 24 20?	[−23]	e 18 9	PP	—
Stonyhurst		103·5	35	—	—	e 27 22	PS	—	—	e 57·1
Uccle		105·4	40	e 18 22	PP	e 24 50	[− 2]	e 27 32	PS	e 44·1
Aberdeen		105·5	32	e 13 44	?	—	—	e 20 24	PPP	51·1
Basle		105·7	44	e 13 41	?	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		106·4	16	e 18 46	PP	e 25 2	[+ 5]	e 28 15	PS	e 49·6
De Bilt		106·5	39	i 14 19	+ 1	e 27 59	PS	i 18 38	PP	e 51·1
Stuttgart		107·2	44	e 14 14	P	e 25 12	[+12]	e 18 38	PP	e 51·1
Cheb		109·7	43	—	—	e 28 29	PS	e 34 59	SSP	e 54·1
Bergen		110·5	31	—	—	e 28 34	PS	—	—	e 56·1
Potsdam	E.	111·0	40	—	—	e 28 44	PS	—	—	e 58·1
Helwan		115·2	70	e 19 42	PP	e 29 34	PS	e 30 31	PPS	—
Upsala		116·0	35	—	—	e 29 22?	PS	e 49 4?	?	e 60·1
Ksara		120·2	68	e 19 29	PP	e 27 9	{− 6}	—	—	—
Bombay	E.	146·1	103	i 19 46	[+ 5]	e 30 17	?	e 23 3	PP	—
Tashkent		147·3	61	i 19 44	[+ 1]	26 39	[−11]	23 9	PKS	—
New Delhi	N.	153·2	89	i 21 20	?	—	—	—	—	—

Additional readings :—
Huancayo iS =8m.6s.
Rio de Janeiro iS =10m.9s.
Bogota e =7m.4s.
San Juan e =18m.58s., i =19m.32s.
Philadelphia e =13m.3s. and 25m.3s.
St. Louis eSSE =25m.20s.
Florissant eZ =14m.47s., isS?E =20m.54s.
Tucson e =13m.24s., ePP =14m.31s., e =22m.21s.
Riverside ePKP,PKPZ =39m.32s.
Pasadena ePKP,PKPZ =39m.43s.
Tinemaha iPKP,PKPZ =39m.49s.
Logan e =24m.43s. and 28m.21s.
Christchurch Q =35m.17s.
Wellington SS =29m.4s.?
Granada SKS =23m.12s., SKKS =24m.5s., PS =25m.6s., PPS =25m.40s., SS =30m.46s.
Toledo SS =31m.19s.
Tortosa QE =39m.41s.
Kew ePPP?Z =20m.42s., ePPS? =28m.5s., eSS?Z =32m.40s.?
Stonyhurst e =35m.46s.
Uccle eSSEN =33m.28s.?
De Bilt eSS =33m.4s. ?
Stuttgart ePS =28m.4s., eSS =33m.46s.?
Helwan eZ =20m.32s.
Bombay PPKPE =20m.10s., SKSPE =33m.23s., PPSE =35m.51s., SSE =41m.3s., SSPE =42m.14s.
Tashkent PS =32m.28s.
Long waves were also recorded at College, Bozeman, Kodaikanal, Arapuni, Auckland, Riverview, Tananarive, and at other European stations.

May 22d. 19h. 3m. 52s. Epicentre 45°·2N. 7°·3E. (as on 1938, December 23d.).

Intensity V at Bussoleno (Val de Susa); III at Barge di Cuneo and Torino.
Epicentre 45°·2N. 7°·2E. (Strasbourg).
R. P. Cesare Coppede.
Annuario Sismico, 1943, de Osservatorio Ximeniano, Firenze, p. 13.

$A = +\cdot7013$, $B = +\cdot0898$, $C = +\cdot7072$; $\delta = +2$; $h = -4$;
$D = +\cdot127$, $E = -\cdot992$; $G = +\cdot701$, $H = +\cdot090$, $K = -\cdot707$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Milan	1·4	79	i 0 28	+ 1	i 0 47	+ 1	—	—	—
Neuchatel	1·8	352	i 0 34	+ 2	e 1 0	S_g	—	—	—
Besançon	2·3	336	i 0 42	+ 2	—	—	—	—	1·2
Chur	2·3	43	e 0 40	0	e 1 13	S_g	—	—	—
Zurich	2·3	22	i 0 40	0	e 1 17	S_g	1 0 46	P_g	—
Basle	2·4	5	e 0 38	− 3	e 1 16	+ 4	—	—	e 1·6
Ravensburg	3·0	31	e 1 4	P_g	e 1 25	− 2	e 1 37	S_g	—
Clermont-Ferrand	3·1	281	e 0 50	− 1	e 1 36	S*	e 1 1	P_g	—
Ebingen	3·2	21	—	—	e 1 43	S_g	—	—	—
Florence	3·2	117	e 1 10	P_g	e 1 48	S_g	—	—	e 1·9
Strasbourg	3·4	6	e 1 10	P_g	i 1 31	− 6	i 1 53	S_g	2·2
Stuttgart	3·8	19	e 1 0	− 1	e 1 46	− 1	e 1 14	P_g	2·0
Triest	4·6	82	e 1 8	− 4	—	—	—	—	—
Paris	4·9	319	e 1 37	P_g	—	—	—	—	3·3
Cheb	6·0	34	—	—	e 3 20	S_g	—	—	—
Jena	6·4	25	e 2 2	P*	i 3 24	S_g	e 2 5	P_g	i 3·5
Potsdam	8·1	26	—	—	e 4 26?	S_g	—	—	—

Jena also gives iEN =2m.11s.

May 22d. 22h. 5m. 38s. Epicentre 38°·0N. 21°·0E. (as on 1943 March 25d.).

$A = +·7375$, $B = +·2831$, $C = +·6131$; $\delta = -6$; $h = -1$;
$D = +·358$, $E = -·934$; $G = +·572$, $H = +·220$, $K = -·790$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		5·1	21	e 1 26	+ 6	e 2 22?	+ 2	—	—	(e 3·2)
Belgrade		6·8	357	1 21	−23	i 3 6	+ 3	i 3 25	S*	i 3·9
Bucharest		7·4	30	e 2 1	+ 9	i 3 51	S*	e 2 41	P_g	4·1
Campulung		7·9	22	—	—	e 3 52?	S*	—	—	5·0
Kalossa	N.	8·7	351	e 3 6	+56	—	—	—	—	4·6
Focsani		9·0	28	e 2 46?	P*	—	—	—	—	5·2
Florence		9·4	311	e 2 22	+ 4	e 4 39	S*	e 3 14	PPP	i 6·2
Triest		9·4	327	e 2 13	− 5	i 3 51	−16	—	—	e 4·4
Ogyalla	E.	10·1	348	e 4 46	SSS	—	—	—	—	e 6·9
Milan		11·5	314	e 2 54	+ 6	6 18	L	—	—	(6·3)
Helwan		11·8	130	e 3 0	+ 7	5 7	+ 1	5 28	SSS	—
Chur		12·2	320	e 2 55	− 3	e 5 1	−15	—	—	—
Ksara		12·8	105	e 3 39?	PPP	—	—	e 6 14	SSS	—
Prague		13·0	341	e 3 5	− 4	e 6 49	L	—	—	(e 6·8)
Zurich		13·1	320	e 3 10	0	5 35	− 3	—	—	—
Cheb		13·6	336	—	—	e 6 9	SS	—	—	e 6·8
Basle		13·7	319	e 3 15	− 3	e 5 39	−13	—	—	—
Neuchatel		13·7	316	e 3 13	− 5	—	—	—	—	—
Stuttgart		13·7	326	e 3 15	− 3	e 6 15	SS	—	—	e 7·9
Strasbourg		14·3	322	e 3 50	PP	i 6 23	SS	—	—	i 7·3
Besançon		14·4	315	—	—	e 5 44	−25	—	—	—
Jena		14·5	336	e 3 27	− 1	e 6 11	0	e 6 16?	SS	e 7·6
Tortosa	N.	16·1	287	3 56	+ 7	6 51	+ 2	—	—	7·9
Paris		17·2	315	e 5 22	?	—	—	—	—	9·4
Uccle		17·4	323	e 4 7	+ 1	7 22	+ 3	—	—	e 9·4
De Bilt		17·9	327	i 4 11	− 1	i 7 40	+10	—	—	e 9·4
Copenhagen		18·6	345	e 4 23	+ 2	7 51	+ 5	—	—	10·4
Almeria		18·7	275	4 21	− 1	7 42	− 6	7 57	SS	9·0
Granada		19·5	277	4 26	− 5	i 7 59	− 7	4 45	PP	9·6
Toledo		19·6	284	i 4 26	− 6	e 8 34	SS	—	—	—
Kew		20·2	320	e 4 59	PP	e 8 18	− 3	e 8 30	SS	e 10·3
Moscow		21·0	27	4 59	PP	8 46	+ 9	—	—	—
San Fernando	E.	21·7	276	e 5 22	PP	e 8 42	− 9	—	—	—
Upsala		22·0	356	e 4 53	− 5	e 8 54	− 2	e 9 47	SSS	11·4
Aberdeen		24·5	331	—	—	i 9 44	+ 4	—	—	13·7
Bergen		24·5	343	e 5 24	+ 2	e 9 37	− 3	—	—	e 13·4
Tashkent		36·9	70	e 7 37	+25	e 13 14	+16	—	—	—
Vladivostok		77·8	45	—	—	e 22 0	+ 7	—	—	—

Additional readings :—
Sofia L given as S.
Belgrade i = 1m.52s., 2m.38s., 3m.10s., and 3m.38s.
Helwan eZ = 3m.28s. and 4m.24s.
Almeria SSS = 8m.14s.
Long waves were also recorded at Potsdam.

May 22d. Readings also at 0h. (Berkeley), 4h. (near Berkeley), 5h. (Florence), 9h. (La Plata, La Paz, and Berkeley (2)), 12h. (Tinemaha, Riverside, and Tucson), 13h. (Toledo), 14h. (near Granada), 16h. (near Mizusawa), 19h. (Tinemaha, Pasadena, Mount Wilson, Berkeley, and Tucson), 21h. (Stonyhurst and near Granada).

May 23d. Readings at 0h. (near Basle), 1h. (Tucson, Mount Wilson, and Pasadena), 7h. (Mount Wilson, Pasadena, Riverside, Tucson, and Tinemaha (2)), 8h. (Mizusawa), 10h. (near La Paz), 11h. (Ksara, Tucson, Mount Wilson, Riverside, Tinemaha, and near Ferndale), 12h. (near Bucharest, Sofia, Belgrade, Kalossa, Stuttgart, Triest, Florence, Toledo, Cheb, De Bilt, and Kew), 16h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and near Balboa Heights), 18h. (Tacubaya), 23h. (near Berkeley).

May 24d. Readings at 0h. (Tacubaya and near St. Louis), 1h. (Tashkent and Tchimkent), 2h. (Tashkent, Tchimkent, and Vladivostok), 3h. (Bogota, La Paz, Upsala, Granada, Uccle, Stuttgart, De Bilt, Kew, Cheb, and Paris), 4h. (Stalinabad and near Tashkent), 5h. (Tchimkent near Tashkent and Stalinabad), 6h. (Tucson and Riverside), 8h. (Mount Wilson, Pasadena, Tinemaha, Tucson, and near Berkeley), 9h. (near Granada), 11h. (Tashkent near Stalinabad and Tchimkent), 13h. (near Mizusawa), 15h. (Bombay, Kew, Paris, De Bilt, Cheb, and Florence), 16h. (Granada and Stuttgart), 18h. (Apia, Tucson, Mount Wilson, Pasadena, Riverside, Palomar, and Tinemaha), 19h. (near Florissant and St. Louis), 22h. (near Bogota), 23h. (Basle and Cheb).

May 25d. 23h. 7m. 36s. Epicentre 7°·6N. 127°·5E.

Epicentres 7°·5N. 126°·5E. (U.S.C.G.S.), 3°·5N. 125°·0E. (stations of the U.S.S.R.)

$A = -\cdot6035$, $B = +\cdot7865$, $C = +\cdot1314$; $\delta = +6$; $h = +7$;
$D = +\cdot793$, $E = +\cdot609$; $G = -\cdot080$, $H = +\cdot104$, $K = -\cdot991$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Naha		18·5	1	4 25	+ 6	8 0	+16	—	—	—
Titizima		23·9	34	5 52	PP	10 7	SS	—	—	—
Kagosima		24·0	6	5 20	+ 3	9 46	+14	—	—	—
Miyazaki		24·5	9	5 24a	+ 2	9 26	−14	—	—	—
Hukuoka		26·0	6	i 5 37	+ 1	10 7	+ 1	—	—	—
Koti		26·5	11	e 5 41	0	10 12	− 2	—	—	—
Hirosima		27·1	9	e 5 47	+ 1	10 28	+ 4	—	—	—
Hamada		27·5	8	i 5 50	0	—	—	—	—	—
Kobe		28·0	14	i 5 54	− 1	10 42	+ 4	—	—	—
Nagoya		28·9	17	i 6 3	0	11 1	+ 8	—	—	—
Kohu		29·7	19	6 8	− 2	11 1	− 5	—	—	—
Zinsen		29·7	358	e 6 10	0	10 47	−19	—	—	—
Yokohama		29·9	20	6 26	+14	e 12 26	SS	—	—	—
Kumagaya		30·4	19	6 12	− 4	10 46	−30	—	—	—
Wazima		30·9	15	6 20	0	11 21	− 3	—	—	—
Sendai		32·8	20	6 37	0	11 54	0	—	—	—
Mizusawa	N.	33·7	19	6 44	− 1	12 7	− 1	—	—	16·1
Vladivostok		35·6	6	i 7 2	+ 1	—	—	—	—	—
Sapporo		37·4	16	7 4a	−12	13 2	− 3	i 7 13	P	16·1
Calcutta	N.	40·5	296	i 8 55	PP	i 14 3	+11	i 9 44	PPP	i 17·5
Brisbane	E.	42·7	145	i 7 57	− 3	i 14 22	− 2	i 10 6	PPP	—
	N.	42·7	145	i 8 0	0	i 14 19	− 5	i 9 57	PPP	—
Riverview		46·9	153	i 8 35a	+ 1	i 15 23	− 2	i 10 1	PcP	e 20·8
Sydney		47·0	153	i 8 36	+ 1	i 15 18	− 8	i 10 36	PP	21·8
Colombo		47·2	272	8 39	+ 3	i 15 22	− 7	—	—	24·5
Hyderabad	E.	48·7	287	8 46	− 2	15 44	− 6	10 42	PP	22·7
Kodaikanal	E.	49·5	278	i 7 54	−60	14 54	−68	—	—	22·6
Dehra Dun	N.	51·4	303	i 8 36	−33	i 15 40	−48	i 19 24	SS	i 21·7
New Delhi	E.	51·7	301	e 9 5	− 6	i 16 13	−19	17 13	PPS	23·8
Bombay	E.	54·2	288	e 9 27	− 2	17 0	− 6	11 43	PP	—
Almata		56·6	318	e 9 49	+ 2	—	—	—	—	—
Andijan		58·9	313	e 10 4	+ 1	—	—	—	—	—
Tashkent		61·3	313	i 10 16	− 4	18 40	+ 1	—	—	—
Auckland		62·6	137	10 30	+ 2	18 52	− 4	23 12?	SS	26·4
New Plymouth		63·4	140	10 33	− 1	19 4?	− 2	—	—	—
Arapuni		63·8	139	10 18?	−18	18 54?	−17	i 19 30	PS	29·4
Apia		63·9	109	i 10 36	− 1	i 19 16	+ 4	e 13 9	PP	30·1
Kaimata		63·9	145	10 46	+ 9	—	—	—	—	—
Wellington		65·1	142	10 40	− 5	19 12	−15	10 49	pP	28·4
Christchurch		65·2	146	10 44	− 1	19 18	−10	23 30	SS	30·8
Tuai		65·2	139	10 47	+ 2	19 42	PS	—	—	—
Honolulu		73·0	70	i 11 36	+ 3	i 21 4	+ 4	i 21 46	PPS	e 30·5
Baku		75·7	310	i 11 50	+ 1	i 21 31	+ 1	—	—	—
College		80·9	25	e 12 17	0	e 22 24	− 2	i 15 37	PP	e 33·1
Tananarive		83·0	250	e 12 29	+ 1	e 22 44	− 3	15 28	PP	34·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m
Moscow		83·8	325	12 32	0	22 49	− 6	—	—	—
Ksara		87·2	303	e 12 51	+ 2	23 32	+ 4	16 18	PP	42·4
Sitka		87·5	32	e 12 52	+ 1	i 23 37	+ 6	16 24	PP	e 36·0
Istanbul		91·4	313	12 32	−37	23 20	−47	—	—	57·7
Helwan		91·6	300	i 13 9k	− 1	23 36	[− 6]	e 16 44	PP	—
Focsani		91·7	316	e 13 21	+11	23 43	[0]	24 13	S	—
Bacau		91·8	317	e 13 23	+12	e 23 43	[0]	24 7	S	33·4
Cernauti		92·0	319	e 13 11	− 1	e 23 46	[+ 2]	e 24 6	S	—
Bucharest		92·8	315	e 13 14	− 2	i 23 48	[− 1]	i 24 16	S	32·4
Campulung		93·3	316	e 13 31	+13	24 7	[+15]	—	—	—
Upsala		93·3	331	e 13 14	− 4	e 23 43	[− 9]	16 49	PP	e 39·4
Sofia		95·2	314	e 13 26	− 1	e 23 54	[− 8]	e 17 33	PP	31·4
Belgrade		96·6	316	(e 13 45)	+12	(24 16)	[+ 6]	(i 17 55)	PP	(e 49·7)
Victoria		96·7	39	13 35	+ 2	24 15	[+ 5]	17 36?	PP	44·4
Kalossa		97·0	318	e 13 38	+ 3	e 24 49	− 6	e 18 24	?	46·4
Ogyalla	E.	97·1	319	e 13 44	+ 9	24 53	− 3	e 31 54?	SS	47·4
Copenhagen		97·4	328	i 13 36a	− 1	25 0	+ 1	24 10	SKS	—
Seattle		97·7	40	(e 17 24)	?	(e 25 1)	0	(e 17 56)	PP	(e 40·4)
Bergen		98·5	335	13 41	− 1	24 16	[− 4]	i 17 53	PP	e 48·5
Potsdam	E.	98·5	325	e 13 44	+ 2	i 24 15	[− 5]	i 17 57	PP	e 35·4
Prague		98·6	323	e 13 44	+ 2	e 24 2	[−18]	e 32 0?	SS	e 39·4
Ferndale		98·7	46	e 14 6	+24	i 23 49	[−32]	—	—	e 41·9
Scoresby Sund		99·4	350	e 13 48	+ 2	i 24 22	[− 2]	i 25 16	S	e 41·6
Cheb		99·8	323	e 13 48	+ 1	e 24 27	[+ 1]	e 32 16	SS	e 53·4
Jena		99·9	324	i 13 47	− 1	e 24 24?	[− 3]	e 18 7	PP	e 46·4
Ukiah		99·9	48	e 13 53	+ 5	e 24 18	[− 9]	e 18 6	PP	e 38·5
Triest		100·7	319	i 13 51	− 1	i 24 20	[−10]	i 17 54	PP	—
Berkeley		101·0	49	i 13 53	0	i 24 27	[− 5]	i 18 11	PP	e 41·4
Branner		101·2	49	e 13 56	+ 2	—	—	e 17 51	PP	e 42·8
Santa Clara		101·4	49	e 13 54	− 1	e 24 34	[0]	i 27 6	PS	e 45·9
Lick		101·7	49	e 14 2	+ 6	—	—	e 18 13	PP	e 42·1
Johannesburg		101·7	244	e 23 0?	?	e 24 24?	[−11]	i 26 54	PS	e 42·4
Stuttgart		102·3	323	i 13 59a	− 1	i 25 41	+ 1	i 18 22	PP	e 48·4
Chur		102·9	321	e 14 0a	− 1	e 24 32	[− 9]	e 18 20	PP	—
De Bilt		102·9	328	e 14 0a	− 1	i 24 40	[− 1]	i 18 24	PP	e 47·4
Florence		103·1	317	i 14 10k	+ 8	i 24 41	[− 1]	i 18 30	PP	e 47·5
Strasbourg		103·2	324	e 13 59	− 4	i 24 40	[− 2]	e 18 17	PP	42·4
Fresno	N.	103·3	49	e 14 25	+22	—	—	e 18 38	PP	e 43·4
Zurich		103·3	322	e 14 2	− 1	e 24 35	[− 8]	e 25 48	S	—
Aberdeen		103·5	334	i 14 6	+ 2	24 40	[− 4]	i 18 33	PP	48·4
Basle		103·8	322	e 14 3	− 2	e 24 44	[− 1]	e 18 19	PP	—
Milan		103·8	320	e 14 16	+11	i 25 44	− 8	36 11	?	—
Uccle		104·0	327	e 14 4a	− 2	i 24 41	[− 5]	i 18 12	PP	46·4
Santa Barbara		104·1	52	e 14 10	+ 3	—	—	e 30 13	PKKP	—
Tinemaha		104·3	49	i 14 6	− 2	e 25 54	− 2	i 30 36	PKKP	—
Neuchatel		104·4	322	e 14 11	+ 3	e 24 44	[− 4]	—	—	—
Edinburgh		104·8	332	e 18 37	PP	i 24 44	[− 6]	27 49	PS	—
Reykjavik		104·8	347	18 50	PP	33 21	SS	27 46	PS	51·8
Saskatoon		104·8	31	e 14 42?	?	e 26 0?	0	e 33 33	SS	43·4
Besançon		104·9	322	e 18 46	PP	e 24 46	[− 4]	e 28 33	PPS	—
Mount Wilson	z.	105·4	51	i 14 12	− 1	—	—	e 30 3	PKKP	—
Pasadena	z.	105·4	51	i 14 13	0	i 24 52	[0]	e 30 16	PKKP	i 43·1
Bozeman		105·6	38	e 14 12	− 2	e 24 53	[0]	e 27 44	PS	e 42·3
Stonyhurst		105·8	332	e 14 15	0	24 51	[− 3]	27 46	PS	e 48·4
Kew		106·1	329	e 14 18	P	e 24 51	[− 4]	e 27 58	PS	e 49·3
Paris		106·1	325	e 14 17	P	i 24 52	[− 3]	e 18 42	PP	49·4
Riverside	z.	106·1	51	e 14 10	P	—	—	—	—	—
Palomar	z.	106·7	51	e 14 18	P	—	—	—	—	—
Logan		106·9	42	e 14 23	P	e 25 4	[+ 5]	i 18 57	PP	i 43·5
Marseilles		107·2	319	e 18 48	PP	e 25 0	[0]	e 34 12?	SS	48·4
Clermont-Ferrand		107·4	322	e 14 19	P	e 26 20	S	e 18 44	PP	e 45·4
Salt Lake City		107·4	43	e 14 20	P	e 24 47	[−14]	e 18 47	PP	e 43·1
Barcelona		110·2	319	(i 18 22)	[−12]	(e 27 17)	S	(28 37)	PS	(e 37·5)
Ivigtut		111·3	357	e 18 17	[−19]	e 25 13	[− 4]	i 19 28	PP	e 45·1
Tortosa		111·6	318	(14 40)	P	(25 27)	[+ 8]	(19 27)	PP	(51·9)

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		111·8	50	i 14 41	P	25 16	[− 3]	19 33	PP	45·8
Toledo		115·0	320	i 14 47	P	35 35	SS	29 1	PS	53·9
Almeria		115·6	316	e 15 7	P	25 27	[− 7]	29 20	PS	59·9
Granada		116·2	317	15 10	P	25 48	[+12]	29 24	PS	55·5
Lincoln		117·0	36	e 19 52	PP	—	—	—	—	e 47·8
Des Moines		118·2	34	e 20 7	PP	e 29 49	PS	e 36 8	SS	e 48·6
San Fernando		118·3	318	e 18 55	[+ 6]	e 25 35	[− 9]	i 20 11	PP	59·4
Lisbon		118·8	324	19 0k	[+10]	i 29 49	PS	i 20 20	PP	58·5
Chicago		121·2	30	e 19 10	[+15]	e 27 11	{−10}	e 20 8	PP	49·8
St. Louis		122·2	34	i 18 58	[+ 1]	i 30 19	PS	e 20 27	PP	—
Florissant		122·6	34	e 18 50	[− 8]	i 30 23	PS	i 20 30	PP	—
Seven Falls		123·1	14	19 7	[+ 8]	27 30	{− 5}	i 20 43	PP	e 51·4
Shawinigan Falls		123·1	15	18 59	[0]	30 31	PS	i 20 41	PP	59·4
Ottawa		123·3	18	18 59	[0]	27 36	{ 0}	20 41	PP	56·4
Cape Girardeau	E.	123·5	35	e 19 0	[0]	e 27 50	{+12}	e 20 39	PP	—
Vermont		124·9	17	e 14 59	?	e 30 37	PS	i 20 51	PP	i 51·5
New Kensington		125·9	25	e 21 12?	PP	e 28 30?	{+37}	e 38 0?	SS	—
Pittsburgh		125·9	25	i 19 2	[− 2]	i 27 59	{+ 6}	i 21 6	PP	—
Tacubaya	Z.	126·8	58	i 19 8	[+ 2]	—	—	—	—	—
Halifax		127·1	9	e 21 26	PP	e 38 10	SS	e 42 48?	SSS	59·4
Harvard		127·2	16	i 19 6	[− 1]	e 26 7	[− 5]	i 21 5	PP	64·4
Fordham		127·9	20	e 19 9	[+ 1]	i 28 3	{− 3}	i 21 9	PP	—
Philadelphia		128·2	21	e 19 11	[+ 2]	i 38 24	SS	i 21 13	PP	i 56·3
Mobile		128·8	39	21 23	PP	—	—	—	—	—
Vera Cruz		129·4	57	i 19 13	[+ 2]	—	—	—	—	—
Columbia		130·6	30	e 19 26	[+13]	e 26 12	[− 9]	e 21 32	PP	e 54·0
Bermuda		138·6	15	e 19 15	[−13]	e 40 2	SS	e 22 24	PP	e 63·2
Port au Prince		147·5	35	i 20 5	[+22]	—	—	—	—	—
Balboa Heights		148·4	358	i 19 50	[+ 5]	—	—	—	—	e 74·4
San Juan		150·9	26	i 19 50	[+ 1]	e 42 42	SS	—	—	e 54·1
La Plata	E.	152·4	171	19 56	[+ 5]	43 12	SS	36 48	PPS	64·2
	N.	152·4	171	19 53	[+ 2]	30 36	{+ 5}	42 48	SS	70·3
	Z.	152·4	171	19 51	[0]	—	—	36 36	PPS	—
Bogota		155·3	60	e 19 56	[+ 1]	—	—	23 58	PP	—
Fort de France		156·2	20	i 19 58	[+ 2]	e 26 37	[−24]	24 14	PP	—
Huancayo		157·1	103	e 20 3	[+ 6]	i 31 17	{+19}	e 24 36	PP	e 44·4
Montezuma		158·3	135	e 22 2	?	—	—	e 38 54	?	e 83·8
La Paz		162·3	121	i 20 8a	[+ 5]	26 55	[−12]	i 21 0	PKP_2	76·0
Rio de Janeiro	N.	162·4	209	24 27	PP	i 31 51	{+26}	i 34 40	?	45·0

Additional readings :—
Mizusawa SE =12m.10s.
Sapporo PP =8m.19s., SS? =15m.17s.
Calcutta iSSN =15m.30s.
Brisbane iSSN =17m.38s.
Riverview i =8m.40s., ipP =8m.44s., iEN =10m.37s., iPSE =15m.36s., iPPSE =15m.43s., iEN =16m.7s., iSSN =18m.37s., iSSSE =19m.49s., iN =20m.34s.
Sydney iSS =18m.39s.
Hyderabad SSE =18m.31s.
New Delhi PPE =9m.36s. and 11m.18s., SS?E =20m.8s.
Bombay iPE =9m.37s., pPE =10m.3s., SPE =10m.16s., PPPE =12m.54s., SSE =17m.51s., S_cSE =19m.18s.
Arapuni SS? =21m.30s.
Apia iPS?EN =19m.47s., eSS =23m.35s., Q =27·4m.
Wellington P_cP?Z =11m.14s., PPZ =13m.16s., sPP?Z =13m.38s., P_cS? =15m.6s.?, sS =19m.35s., S_cS? =20m.9s., SS =23m.29s., sSS =24m.4s., SSS? =25m.4s., Q =26m.29s.
Christchurch Q =26m.1s.
Honolulu ePP =14m.30s., ePPP =16m.17s., eSS =25m.55s., e =29m.10s.
College iS =22m.30s., e =24m.30s., iSS =27m.52s.
Tananarive pP =12m.39s., SP =12m.53s., PPP =17m.21s., eS =22m.37s., isS =23m.9s., PS =23m.35s., SS =27m.50s., SSS =29m.23s.
Ksara PS =24m.27s.
Sitka ePPP? =18m.20s., eSKS =23m.22s., eSS =29m.16s., iSSS? =33m.15s.
Helwan eZ =14m.13s. and 15m.30s., SE =24m.33s., PSE =25m.43s., SSE =31m.7s.
Bacau eSE =23m.39s.
Cernauti eEN =13m.24s., eSE =23m.40s.
Bucharest iPPEN =16m.27s., iSE =23m.45s.

Continued on next page.

Upsala eE =16m.8s., ePPN =16m.42s., iPPPN =18m.44s., iPPP?E =19m.12s., PS?N = 24m.16s., eSSE =29m.24s.?, eSS?N =30m.24s.?, eSSS?N =34m.9s., eSSS?E = 34m.21s.?, eN =36m.24s.?
Sofia eN =13m.36s.
Belgrade iP_cP =(13m.58s.), iPPS =(26m.38s.), i =(27m.23s.), e =(30m.37s.), eSSS = (35m.29s.); all readings have been increased by 1m.
Victoria PS =26m.21s., e =30m.27s., SSS =35m.24s.?
Ogyalla PPE =18m.15s.
Copenhagen 17m.37s., 19m.33s., 22m.8s., 26m.14s., and 31m.36s.?
Seattle e =(25m.26s.), eSS =(32m.40s.), e =(35m.14s.); all readings have been reduced by 1m.
Bergen iZ =13m.53s., PPZ =17m.26s. ?, PS =26m.24s. ?, SS =31m.54s., e =35m.50s.
Potsdam iP_cPEN =13m.56s., iPSEN =26m.31s.
Prague ePS =25m.11s., ePPS =26m.6s. ?
Ferndale iPKPE =17m.15s., iPKPN =17m.26s.
Scoresby Sund ePP =18m.1s., e =20m.56s., ePS? =27m.0s., iSS =31m.41s., eSSS = 35m.44s.
Cheb ePP =17m.25s., ePPS =26m.42s.?, e =40m.36s.?
Jena iN =13m.50s., iPNZ =13m.58s., eN =17m.44s., 24m.18s. ?, and 25m.13s., e = 26m.43s. and 31m.54s.
Ukiah ePS? =26m.41s., e =30m.37s. and 33m.22s.
Berkeley ePE =13m.57s., ePPN =18m.15s., eN =18m.25s., eE =31m.24s.?
Johannesburg eN =32m.30s., eE =32m.42s.
Stuttgart ePPZ =18m.4s., eSKS =24m.39s., iSKS =24m.45s., ePS =27m.7s., ePKKPZ = 30m.1s., eSS =32m.40s., e =37m.59s.
De Bilt eZ =16m.49s., iS =25m.39s., iPS =27m.14s., eSS =32m.54s., eSSS =36m.24s.?
Florence iSE =25m.41s., iPSE =26m.50s., iPPSE =27m.23s., iSE =32m.57s., iSSSE = 36m.54s.
Strasbourg e =14m.27s., i =17m.49s., ePPP =20m.31s., eSKS =24m.24s., eS =25m.40s.
Aberdeen iN =25m.44s., iE =26m.0s., iEN =27m.25s., PPSEN =28m.20s., iN = 32m.47s., iE =33m.10s., iEN =42m.44s.
Basle eS =25m.57s.
Uccle iZ =14m.18s., iE =18m.30s., iZ =18m.34s., iN =18m.37s., iEN =22m.24s., iN = 25m.49s., iPSE =27m.11s., iPSN =27m.27s., iE =31m.29s., iSSE =33m.14s., iSSN = 33m.24s.
Tinemaha iZ =17m.34s., eZ =29m.57s., iZ =30m.10s.
Edinburgh eSKS =25m.54s., SS =33m.34s.
Reykjavik SKS =24m.49s., PS =27m.46s., SSS? =37m.13s.
Saskatoon e =18m.1s. and 31m.51s.
Mount Wilson iZ =14m.21s. and 32m.16s., eSKKPZ =34m.11s., iPKP,PKPZ =38m.0s., eP'P'P'Z =59m.48s.
Pasadena eEZ =17m.29s., iPPEZ =18m.22s., iPPPZ =20m.44s., iPSZ =27m.43s., iPKP,PKPZ =38m.0s.
Bozeman e =18m.26s., eSS =32m.54s., iSSS =37m.33s., i =38m.6s.
Stonyhurst ? =17m.40s., PP =18m.49s., S =26m.8s., PPS =28m.26s., SS =33m.6s., SSP =33m.43s., SSS =38m.50s., eQ =44·4m.
Kew ePKPE =18m.23s., ePPEN =18m.52s., eE =19m.31s., ePPP?E =20m.49s. ?, eSKKSEN =25m.48s., ePPSE =28m.49s., eSSEN =33m.24s. ?, eSSSEN = 37m.54s. ?, eQN =43m.54s.?
Riverside eZ =29m.48s., iPKP,PKPZ =37m.57s.
Palomar eZ =19m.13s., ePKKPZ =30m.0s., eSKKPZ =34m.5s., ePKP,PKPZ = 37m.51s.
Logan ePKP =18m.15s., e =20m.27s., i =24m.48s. and 27m.46s., ePS =28m.12s., iPPS = 29m.37s., eSS =33m.50s., i =37m.14s.
Clermont-Ferrand e =18m.22s., iPS =27m.49s., iPPS =28m.48s.
Salt Lake City ePS =28m.20s., e =33m.5s., iSS =34m.11s.
Barcelona readings have been reduced by 1m.
Ivigtut e =19m.8s., ePS =28m.33s., eSS =34m.27s., i =34m.45s., e =38m.2s.
Tortosa SKPE =(21m.12s.), PPPE =(21m.52s.), PSE =(28m.34s.), PPSE =(29m.27s.), SSE =(35m.0s.), SSSE =(38m.54s.), QE =(45m.42s.) readings increased by one minute.
Tucson e =18m.1s., iPKP =18m.39s., i =19m.22s., ePPP? =21m.19s., i =24m.8s., eS = 27m.7s., iPS =28m.49s., iPPS =30m.8s., eSS =35m.9s., eSSS =39m.9s.
Toledo e =15m.7s., i =18m.53s., S?EN =27m.33s.
Almeria PKP =18m.45s., pPKP =19m.44s., PP =19m.59s., pPP =20m.43s., sPP = 21m.10s., PPP =22m.30s., SKKS =26m.1s., PS =29m.43s., SPP =30m.32s., sPS = 30m.43s., SS =35m.32s., sSS =37m.5s.
Granada iPKP =19m.0s., iPP =19m.57s., PPP =22m.30s., S =28m.16s., SS =35m.9s. SSS =39m.33s.
Lincoln e =28m.55s., eS =34m.47s.
Des Moines e =40m.11s.
San Fernando PSE =29m.42s., SSE =36m.13s.
Lisbon Z =19m.5s., N =20m.5s., Z =20m.12s., E =23m.29s.?, SKSE =25m.37s.?, SKSN =25m.40s., SKSZ =26m.5s., E =30m.32s., PPSN =31m.19s. ?, PPSE = 31m.22s., SSE =36m.39s., SSN =36m.42s.?
Chicago e =29m.57s., eSS =37m.13s.
St. Louis eP?Z =15m.41s., iSKPE =22m.6s., eS?N =28m.34s.
Florissant iPKPZ =18m.53s., eSKPN =22m.5s., iSE =28m.32s.

Continued on next page.

Seven Falls S =28m.40s., PPS =31m.37s., SS =37m.28s., SSS =42m.6s.?
Shawinigan Falls SS =37m.24s. ?, SSS =42m.30s. ?
Ottawa SKP =22m.6s. ?, PPS =32m.6s., SS =37m.28s., SSS =42m.54s.?
Vermont ePKP =20m.5s., e =22m.56s., iSS =37m.2s., e =46m.55s.
Halifax eN =33m.47s.
Harvard ePKS? =22m.27s., e =24m.26s. and 24m.59s., eSKKS =27m.59s.
Fordham eP? =15m.54s., iSS =38m.25s
Philadelphia e =20m.57s., i =22m.43s., iSKS? =26m.53s., i =31m.21s. and 32m.47s., iSSS =43m.10s., i =47m.53s.
Columbia e =22m.37s. and 28m.52s., ePPS =33m.37s., eSS =38m.37s., e =47m.53s.
Bermuda i =23m.14s., ePPS =34m.37s., e =45m.45s.
Balboa Heights e =33m.34s. and 68m.24s.
San Juan i =24m.44s. and 34m.52s., e =38m.36s. and 49m.23s.
La Plata Z =24m.12s., PPPE =26m.42s. and 28m.30s., SSSE =48m.42s., PKSN =23m.48s., PPPN =26m.48s., SKSPN =33m.42s., PSN =36m.18s., PPS?N =38m.12s., SSSN =48m.30s.,
Bogota i =20m.7s., e =20m.46s. and 26m.6s.
Fort de France PKP_2 =20m.28s., e =20m.40s., 24m.51s. and 24m.57s.
Huancayo ePPS =38m.4s.
La Paz PPZ =25m.0s., PPPN =28m.24s., SKKSN =31m.38s., PSKSN =34m.55s., SSN =45m.35s., SSSN =50m.29s., SSSZ =50m.43s., QN =68m.24s.
Long waves were also recorded at Chihuahua, Guadalajara, and Manzanillo.

May 25d. Readings also at 4h. (near Andijan and Berkeley (3)), 8h. (Sitka and near Berkeley (2)), 10h. (Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 11h. (near Ferndale and Huancayo), 14h. (Bucharest), 15h. (Wellington), 17h. (Tashkent and Vladivostok), 21h. (near Cape Girardeau), 22h. (near Basle, Chur, Neuchatel, Strasbourg, Stuttgart, and Zurich), 23h. (Harvard and Toledo).

May 26d. 10h. 31m. 29s. Epicentre 17°·9N. 105°·8W. (as on 1942, Jan. 20d.).

Pasadena suggests deep focus and quotes U.S.C.G.S. 17°·5N. 106°·5W.

$A = -·2593$, $B = -·9162$, $C = +·3055$; $\delta = -1$; $h = +5$;
$D = -·962$, $E = +·272$; $G = -·083$, $H = -·294$, $K = -·952$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manzanillo	N.	1·8	50	i 0 46	+14	—	—	—	—	—
Guadalajara	N.	3·6	40	e 1 13	P_g	—	—	—	—	—
Tacubaya	N.	6·4	76	e 1 41	+ 3	—	—	—	—	—
Vera Cruz		9·3	80	e 2 17	0	—	—	—	—	—
Chihuahua	Z.	10·7	359	e 3 4	+26	—	—	—	—	—
Tucson		15·0	343	i 3 33	− 2	i 6 34	+11	—	—	e 7·4
La Jolla		18·1	328	i 4 12k	− 2	—	—	—	—	—
Palomar	Z.	18·3	330	i 4 15k	− 2	—	—	—	—	—
Riverside		19·1	330	i 4 23k	− 4	i 8 17	+20	—	—	—
Mount Wilson		19·6	330	i 4 29k	− 3	—	—	—	—	—
Pasadena		19·6	330	i 4 29k	− 3	i 8 21	+13	—	—	e 9·4
Mobile		20·5	46	4 16	−26	8 41	+14	—	—	—
Santa Barbara		20·6	326	i 4 40	− 3	e 8 42	+13	—	—	—
Tinemaha		22·0	333	i 4 55k	− 3	e 9 11	+15	—	—	—
Fresno	N.	22·4	330	i 5 2	0	—	—	—	—	—
Salt Lake City		23·4	347	e 5 11	0	e 9 27	+ 6	e 5 50	PP	e 12·5
Lick		23·9	327	e 5 15	− 1	—	—	—	—	—
Cape Girardeau	E.	24·0	32	e 5 18	+ 1	e 9 47	+15	—	—	—
Santa Clara		24·0	327	i 5 17	0	e 9 46	+14	—	—	e 12·7
Branner	E.	24·2	327	i 5 20	+ 1	—	—	—	—	—
Lincoln		24·2	18	e 5 12	− 7	e 9 35	0	e 5 54	PP	e 12·5
Logan		24·3	350	5 9	−11	e 9 37	0	i 5 49	PP	i 12·0
Berkeley		24·6	327	e 5 21	− 2	i 8 56	−46	—	—	e 12·1
St. Louis		24·7	28	i 5 25	+ 1	i 9 51	+ 7	—	—	—
Florissant		24·8	28	i 5 24	− 1	i 9 51	+ 5	—	—	i 13·0
Des Moines		25·8	23	e 6 21	+47	e 10 16	+14	e 6 50	PP	e 13·6
Ukiah		26·0	328	e 5 37	+ 1	e 10 9	+ 3	—	—	e 13·6
Columbia		27·2	48	e 5 50	+ 3	e 10 34	+ 9	e 6 50	PP	e 12·8
Bozeman		28·0	353	e 5 55	0	e 10 40	+ 2	e 6 58	PP	e 13·4
Chicago		28·4	28	e 5 54	− 4	e 10 39	− 6	e 7 21	PPP	e 12·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pittsburgh		31·6	39	e 5 31	−55	i 11 39	+ 4	—	—	—
Victoria		33·7	339	6 44	− 1	12 13	+ 5	14 31?	SS	17·5
Saskatoon		34·2	359	6 49	0	12 15	− 1	—	—	17·5
Philadelphia		34·4	44	e 6 52	+ 1	i 12 24	+ 5	i 8 8	PP	e 14·7
Fordham		35·7	43	7 2	0	12 44	+ 5	—	—	—
Ottawa		37·1	35	7 13	− 1	13 3	+ 2	8 41	PP	18·5
San Juan		37·7	83	e 7 21	+ 2	e 13 6	− 4	—	—	e 16·2
Harvard		38·0	42	i 7 22	+ 1	e 13 19	+ 5	—	—	e 20·5
Vermont		38·0	39	e 7 24	+ 3	e 13 20	+ 6	e 8 47	PP	e 16·3
Shawinigan Falls		39·5	36	e 7 36	+ 2	—	—	—	—	20·5
Bermuda		39·7	61	e 7 35	− 1	e 13 44	+ 4	e 9 2	PP	e 20·0
Seven Falls		40·8	36	7 48	+ 3	e 14 7?	+11	17 7?	SS	21·5
Huancayo		42·3	133	e 8 1	+ 4	e 14 31	+12	—	—	e 18·2
Sitka		45·3	338	—	—	e 15 0	− 2	—	—	e 18·8
La Paz	z.	50·4	130	9 11	+10	16 43	+29	—	—	25·7
College		54·7	340	—	—	e 17 2	−11	—	—	e 26·9
Ivigtut		59·1	29	—	—	e 18 17	+ 6	—	—	e 31·4
Scoresby Sund		71·2	21	e 11 38	+15	e 20 41	+ 1	e 25 11	SS	e 33·6
Kew		85·4	37	—	—	e 23 16	+ 5	—	—	e 33·5
Toledo	z.	87·4	50	e 12 52	+ 2	—	—	—	—	—
De Bilt		88·3	35	—	—	e 23 31?	− 8	e 29 31?	SS	e 39·5
Uccle		88·4	37	—	—	e 23 33	− 7	e 29 34	SS	e 39·5
Granada		88·7	50	i 13 28	+31	i 23 54	+11	i 13 43	pP	43·7
Almeria		89·7	52	e 13 29	+28	23 29	[− 2]	16 44	PP	41·5
Copenhagen		90·2	30	16 42	PP	24 31	+35	—	—	—
Stuttgart		92·1	37	e 13 13	+ 1	e 23 43?	[− 2]	e 16 51	PP	e 41·5

Additional readings :—
Tucson i =4m.18s. and 4m.42s.
Pasadena iZ =5m.6s. and 5m.21s.
Tinemaha iZ =5m.6s.
Berkeley iP =5m.25s.
Des Moines e =12m.7s.
Pittsburgh eNW =6m.52s., iNW =11m.15s.
Philadelphia e =9m.46s.
Ottawa SSS =15m.37s. ?
Vermont e =9m.49s.
Huancayo e =14m.5s. and 15m.14s.
Uccle eSKSN =23m.39s.
Granada PP =16m.41s., iSN =24m.8s., sS =24m.50s., iSS =29m.52s., SSS =34m.53s.
Almeria PS =24m.16s.
Stuttgart eSS =30m.31s.
Long waves were also recorded at Christchurch, Arapuni, Wellington, Riverview, Honolulu, Seattle, and other European stations.

May 26d. Readings also at 0h. (Wellington), 1h. (Tananarive), 2h. (Tucson (3), Mount Wilson (2), Pasadena, Riverside (3), and Tinemaha (3)), 4h. (Mizusawa), 5h. (near Andijan and Tashkent), 7h. (Almata, Andijan, and near Tashkent), 8h. (Ksara and Triest), 12h. (Florence), 14h. (Mizusawa), 16h. (La Paz), 18h. (Tucson, Mount Wilson (2) , Riverside (2), and Tinemaha), 20h. (Fort de France and near St. Louis), 23h. (Mount Wilson, Riverside, Tinemaha, and Tucson).

May 27d. Readings at 0h. (Bergen), 5h. (Copenhagen, Stuttgart, La Jolla, Tucson, Mount Wilson, Pasadena, Riverside, Santa Barbara, and Tinemaha), 6h. (near Berkeley, Branner, and Lick), 10h. (Wellington), 11h. (St. Louis, Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 12h. (near Berkeley), 13h. (Tashkent and near Stalinabad), 14h. (Philadelphia), 15h. (La Jolla, Mount Wilson, Pasadena, Palomar Riverside, Santa Barbara, Tinemaha, Tucson, Florissant, St. Louis, and Vladivostok), 18h. (Tucson, Mount Wilson, Palomar, Pasadena, Riverside, and Tinemaha), 19h. (Helwan and Ksara), 21h. (near St. Louis), 23h. (near Tashkent).

May 28d. 0h. 24m. 6s. Epicentre 48°·2N. 9°·0E. (as on 6d.).

Intensity VIII at Onstmettingen, with much damage; Epicentre in the triangle Hechingen, Ebingen, Balingen. Microseismic 48° 12′N. 9° 2′E.; macroseismic 48° 17′N. 9° 0′E. Given by W. Hiller.

$A = +·6609$, $B = +·1046$, $C = +·7432$; $\delta = +8$; $h = -5$;
$D = +·156$, $E = -·988$; $G = +·734$, $H = +·116$, $K = -·670$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen		0·0	—	i 0 4	a − 3	—	—	—	—	—
Ravensburg		0·6	135	i 0 14	− 1	0 24	− 2	—	—	—
Stuttgart		0·6	13	i 0 12	k − 3	i 0 19	− 7	—	—	—
Strasbourg		0·9	295	i 0 19	− 1	i 0 31	− 3	—	—	—
Zürich		0·9	198	e 0 20	0	e 0 33	− 1	—	—	—
Basle		1·2	235	e 0 23	− 1	—	—	—	—	—
Chur		1·4	165	e 0 28	+ 1	i 0 48	+ 2	—	—	—
Neuchatel		1·8	229	e 0 32	0	e 0 51	− 5	e 0 58	S*	—
Brig		2·0	200	e 0 34	− 1	e 1 6	+ 4	e 0 38	P*	—
Besançon		2·2	243	i 0 39	+ 1	—	—	—	—	—
Milan		2·7	177	i 0 45	0	i 1 20	+ 1	—	—	—
Cheb		2·9	50	e 0 47?	− 1	e 1 34	S_g	e 0 54	P*	—
Prague		4·0	62	e 1 10	P*	e 2 10	S_g	i 1 15	P_g	—
Uccle		4·0	311	i 1 3	k − 1	i 1 50	− 2	1 17	P_g	i 2·1
Triest		4·1	128	e 1 7	+ 2	i 2 13	S_g	—	—	—
Paris		4·4	278	e 1 7	− 3	e 2 5	+ 3	—	—	2·4
De Bilt		4·6	303	i 1 12	0	i 2 15	S*	—	—	e 2·4
Clermont-Ferrand		4·7	236	e 1 19	P*	i 2 36	S_g	i 1 32	P_g	—
Florence		4·7	161	e 1 28	P*	i 2 23	S*	i 1 45	P_g	i 2·8
Potsdam		4·9	33	i 1 38	P_g	i 2 15	0	i 2 22	S*	—
Marseilles		5·5	209	e 1 36	P*	i 2 8	−22	i 1 44	P_g	i 3·0
Ogyalla	E.	6·2	88	(1 40)	+ 5	(2 46)	− 2	(e 3 9)	S*	(e 4·4)
Kew		6·9	303	(i 1 55)	+10	(i 3 11)	+ 6	(i 2 34)	P_g	—
Kalocsa		7·0	97	2 11	S*	3 19	+11	—	—	3·9
Copenhagen		7·8	16	1 54	− 4	—	—	—	—	3·9
Barcelona		8·3	218	—	—	e 3 47	+ 7	—	—	i 5·1
Belgrade		8·6	113	e 2 56	?	i 4 14	S*	i 4 39	S_g	—
Stonyhurst		9·2	313	(2 16)	0	(3 7)	−56	(2 20)	PP	—
Tortosa		9·5	223	1 55	−25	i 4 12	+ 2	—	—	i 4·6
Bergen		12·4	352	—	—	e 5 37	SSS	—	—	e 7·0
Bucharest		12·4	81	e 4 30?	PP	e 5 20	− 1	5 57	SSS	e 6·3
Toledo		12·5	233	e 3 0	− 2	—	—	i 3 22	PP	7·4
Upsala		12·7	20	—	—	e 5 41	SS	e 5 54?	SSS	e 6·6
Almeria		14·1	221	4 14	?	6 30	SS	—	—	7·4
Granada		14·9	225	i 3 42	+ 8	—	—	—	—	7·6
Lisbon		16·2	241	5 45	?	—	—	5 50	?	8·6
San Fernando	N.	16·2	229	—	—	i 7 54	SSS	—	—	—
Moscow		19·0	56	4 26	0	8 4	+ 9	—	—	—
Helwan	Z.	25·1	129	e 5 33	+ 5	—	—	e 5 51	PP	—

Additional readings:—
Uccle iEZ = 1m.35s., iNZ = 1m.59s.
Potsdam eE = 2m.6s.?.
Ogyalla readings reduced by 1 minute.
Kew readings reduced by 1 minute.
Belgrade e = 3m.10s. and 3m.27s.
Stonyhurst PPP = (2m.28s.), P_g = (2m.37s.), SS = (3m.19s.)., readings reduced by 2 minutes.
Long waves were also recorded at Aberdeen and Edinburgh.

May 28d. 20h. 1m. 26s. Epicentre 21°·5S. 179°·0W. Depth of focus 0·080.
(as on 1940 Oct. 30d.).

A = −·9311, B = −·0163, C = −·3644 ; δ = 0 ; h = +4 ;
D = −·017, E = +1·000 ; G = +·364, H = +·006, K = −·931.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		16·2	198	3 26	+ 5	6 11	+ 8	7 16	P_cP	—
Tuai		17·6	191	3 35	0	6 36	+ 8	13 59	S_cS	—
New Plymouth		18·5	197	3 49	+ 6	6 50	+ 7	—	—	—
Wellington		20·4	194	4 1	0	7 9	− 6	14 10	S_cS	—
Kaimata		22·5	199	4 39	+19	7 44	− 5	—	—	—
Christchurch		23·0	195	4 25	0	7 49	− 8	—	—	—
Mizusawa	E.	70·9	328	(10 37)	+13	10 37	P	—	—	—
Pasadena		80·0	47	i 11 13k	− 1	—	—	i 13 24	pP	—
Mount Wilson		80·2	47	i 11 13k	− 2	—	—	e 13 21	pP	—
Palomar	Z.	80·5	48	i 11 16k	− 1	—	—	—	—	—
Riverside	Z.	80·5	47	i 11 15k	− 2	—	—	e 13 30	pP	—
Tinemaha	Z.	81·7	45	i 11 21k	− 2	—	—	—	—	—
Tucson		84·3	52	i 11 35k	− 1	—	—	i 13 47	pP	—
De Bilt		149·3	355	i 18 45k	[+ 2]	—	—	e 21 4	pPKP	—
Jena		149·5	345	e 18 44	[+ 1]	—	—	—	—	—
Uccle	Z.	150·6	356	e 18 48	[+ 4]	—	—	—	—	—
Helwan		151·3	293	e 18 49	[+ 4]	e 21 36	?	19 2	?	—
Stuttgart		152·0	348	e 18 43	[− 3]	—	—	e 21 14	pPKP	—
Strasbourg		152·4	349	e 18 45	[− 2]	—	—	—	—	—
Zürich		153·5	349	e 18 54	[+ 5]	—	—	—	—	—
Chur		153·8	347	e 18 46	[− 3]	—	—	—	—	—

Additional readings :—
Tuai i = 6m.40s.
New Plymouth i = 6m.57s.
De Bilt iZ = 18m.52s.
Stuttgart iZ = 18m.51s., eZ = 19m.3s.
Strasbourg e = 18m.52s.

May 28d. 22h. 40m. 22s. Epicentre 48°·2N. 9°·0E. (as at 0h.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen	0·0	—	i 0 2?	P*	—	—	—	—	—
Ravensburg	0·6	135	e 0 13	− 2	i 0 21	− 5	—	—	—
Stuttgart	0·6	13	i 0 10	P_g	i 0 16	S_g	—	—	—
Strasbourg	0·9	295	e 0 19	− 1	i 0 29	S_g	—	—	—
Zürich	0·9	198	e 0 18	− 2	e 0 30	S_g	—	—	—
Chur	1·4	165	e 0 26	− 1	e 0 47	+ 1	—	—	—
Neuchatel	1·8	229	e 0 35	P_g	e 0 59	S_g	—	—	—
Besançon	2·2	243	—	—	i 1 14	+ 8	—	—	—
Cheb	2·9	50	—	—	e 1 38?	S_g	—	—	—
Jena	3·2	32	e 0 55	+ 3	—	—	i 1 1	P_g	i 1·6
Uccle	4·0	311	—	—	e 2 7	S*	—	—	—
Triest	4·1	128	—	—	e 2 2	S*	—	—	—

May 28d. Readings also at 0h. (Triest, Uccle, near Ebingen, Ravensburg (2), Stuttgart (2), Neuchatel, Jena, and near Mizusawa), 1h. (near Ravensburg, Stuttgart (3), and Neuchatel), 2h. (near Stuttgart (2), Ebingen, and Neuchatel), 3h. (near Ebingen (2), and Stuttgart (2)), 4h. (Strasbourg, near Neuchatel, Ravensburg, Stuttgart, and Ebingen), 7h. (Mount Wilson, Tinemaha, Tucson, and Huancayo), 9h. (near Basle), 11h. (Tucson, Mount Wilson, Riverside, and Tinemaha), 12h. (Tashkent and Stalinabad), 15h. (Granada and Helwan), 22h. (near Zürich), 23h. (near Zürich, Neuchatel, Jena, near Ebingen (2), Stuttgart (2), and Strasbourg).

May 29d. Readings at 2h. (Ksara), 3h. (Bogota, Mount Wilson, Riverside, Tinemaha, Tucson and Huancayo), 4h. (La Paz, Stuttgart, near Berkeley, Branner, and Lick), 6h. (Helwan), 10h. (near Berkeley), 13h. (Belgrade and Triest), 16h. (near Ebingen and Stuttgart), 18h. (near Fort de France, Stuttgart, and near Ebingen), 20h. (Granada), 21h. (near Andijan), 22h. (New Delhi),

May 30d. 18h. 9m. 27s. Epicentre 48°·2N. 9°·0E. (as on 28d.).

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Ebingen	0·0	—	i 0 1	P_g	i 0 2	S_g	—	—
Ravensburg	0·6	135	e 0 14	− 1	e 0 21	− 5	—	—
Stuttgart	0·6	13	i 0 9k	P_g	i 0 16	P	—	—
Strasbourg	0·9	295	e 0 22	+ 2	i 0 29	S_g	i 0 32	?
Zürich	0·9	198	e 0 17	− 3	i 0 31	S_g	—	—
Basle	1·2	235	e 0 22	− 2	i 0 38	− 3	—	—
Chur	1·4	165	e 0 26	− 1	i 0 47	+ 1	—	—
Neuchatel	1·8	229	e 0 34	+ 2	e 0 59	+ 3	—	—
Jena	3·2	32	e 0 58	P*	—	—	e 1 14	P_g
Uccle	4·0	311	—	—	e 2 8	S_g	—	—

May 30d. Readings also at 0h. (Ebingen (2) and Stuttgart (2)), 1h. (near Berkeley (2), Branner (2), Fresno, Lick (2), and Santa Clara), 2h. (near Ebingen and Stuttgart), 4h. (Jena, Ravensburg, Strasbourg, and Ebingen (2), Stuttgart (2), Basle, and Zürich), 7h. (near Fresno), 8h. (Bogota, Fort de France, and Harvard), 16h. (near Andijan), 18h. (Stuttgart and Fort de France), 19h. (Stuttgart), 20h. (Prague and near Mizusawa), 21h. (Stuttgart (2), Zurich, and near Ebingen).

May 31d. Readings at 2h. (Granada, Kew, Bermuda, Harvard, Philadelphia, Pittsburgh, Tucson, Riverside, Bogota, Huancayo, near Fort de France, and San Juan), 5h. (Bombay), 7h. (near Bogota), 9h. (Riverview, Arapuni, Auckland, Christchurch, Wellington, Tucson, Riverside, and near Berkeley), 11h. (Ksara), 16h. (Jena), 20h. (Tucson, Santa Clara, near Berkeley, Branner, Fresno, and Lick).

June 1d. 4h. 15m. 16s. Epicentre 20°·4N. 108°·8W. (as on 1943, Jan. 10d.).

$A = -·3023$, $B = -·8880$, $C = +·3465$; $\delta = -1$; $h = +5$;
$D = -·947$, $E = +·322$; $G = -·112$, $H = -·328$, $K = -·938$.

		△	Az.	P.	O−C.	S.	O−C.		Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.		m.
Tucson		11·9	352	e 2 55	+ 1	—	—	e 4	42	?	e 6·1
Palomar	z.	14·8	333	e 3 32	0	—	—	—		—	—
Riverside	z.	15·5	333	e 3 43	+ 1	—	—	—		—	—
Mount Wilson		16·0	331	i 3 49	+ 1	—	—	—		—	—
Pasadena		16·0	331	i 3 48	0	—	—	—		—	e 7·0
Tinemaha		18·6	337	i 4 20	− 1	—	—	—		—	—
Santa Clara		20·4	330	e 4 49	+ 8	e 8 49	+24	—		—	e 10·8
Salt Lake City		20·5	352	e 4 43	+ 1	e 8 49	+22	—		—	e 10·4
Berkeley		21·0	330	i 4 52	+ 5	e 8 48	+11	—		—	—
Logan		21·4	354	e 5 7	+16	e 9 3	+18	e 5	58	?	e 11·1
Ukiah		22·4	330	—	—	e 9 19	+15	—		—	e 11·4
Lincoln		22·9	24	e 5 1	− 5	e 9 18	+ 5	—		—	e 12·2
Cape Girardeau	E.	23·8	40	e 5 18	+ 3	e 9 45	+17	—		—	—
St. Louis		24·2	38	e 5 19	0	e 9 43	+ 8	—		—	12·0
Florissant		24·3	38	e 5 19	− 1	e 9 43	+ 6	—		—	e 13·0
Bozeman		25·3	357	e 5 28	− 2	e 10 0	+ 6	—		—	e 13·4
Chicago		27·9	34	—	—	e 10 38	+ 1	—		—	e 11·7
Columbia		28·1	54	—	—	e 10 46	+ 6	—		—	e 16·2
Victoria		30·3	341	—	—	e 11 20?	+ 5	—		—	13·7
Pittsburgh		31·7	44	—	—	e 11 35	− 2	—		—	e 17·1
Philadelphia		34·7	49	e 8 0	PP	e 12 22	− 2	—		—	e 14·5
Ottawa		36·9	39	7 11	− 1	12 58	0	8	44?	PP	e 18·7
Harvard		38·2	46	—	—	e 17 50	SSS	—		—	e 22·7
San Juan		40·2	85	e 7 33	− 7	e 13 41	− 7	—		—	e 19·4
Seven Falls		40·7	40	—	—	e 13 26?	−29	e 17	8?	SS	21·7
Sitka		41·5	339	—	—	e 14 18	+11	e 17	37	SS	e 21·1
La Paz		54·2	128	9 28	− 1	—	—	—		—	26·7
Scoresby Sund		69·9	20	e 14 35	?	e 20 26	+ 2	e 25	3	SS	e 33·4
Granada		89·3	50	—	—	i 24 1	+13	—		—	39·7

For Notes see next page.

NOTES TO JUNE 1d. 4h. 15m. 16s.

Additional readings :—
Berkeley eZ = 8m.54s., eN = 8m.58s.
St. Louis eE = 10m.45s., 10m.58s., and 11m.24s.
Pittsburgh e = 12m.55s.
Philadelphia e = 9m.41s.
Ottawa SSS = 15m.32s.
Harvard e = 18m.38s. and 20m.40s.
Long waves were also recorded at Huancayo, Honolulu, De Bilt, Kew, and Uccle

June 1d. 13h. 53m. 2s. Epicentre 48°·2N. 9°·0E. (as on 1943 May 30d.).

$A = +\cdot6609$, $B = +\cdot1046$, $C = +\cdot7432$; $\delta = +8$; $h = -5$;
$D = +\cdot156$, $E = -\cdot988$; $G = +\cdot754$, $H = +\cdot116$, $K = -\cdot670$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen		0·0	—	i 0 4	P*	i 0 6	S*	—	—	—
Ravensburg		0·6	135	i 0 13?k	P_g	i 0 22?	S_g	—	—	—
Stuttgart		0·6	13	i 0 12a	− 3	i 0 19	S_g	—	—	—
Strasbourg		0·9	295	0 19	− 1	i 0 32	S_g	i 0 22	?	—
Zürich		0·9	198	e 0 20a	P_g	e 0 30	S_g	—	—	—
Basle		1·2	235	e 0 24	P_g	e 0 40	S_g	—	—	—
Chur		1·4	165	e 0 29	P_g	i 0 47	+ 1	—	—	—
Neuchatel		1·8	229	e 0 32	P_g	i 1 1	S_g	—	—	—
Milan	E.	2·7	177	i 0 46	+ 1	i 1 23	+ 4	—	—	—
Cheb		2·9	50	e 1 1	P_g	e 1 38	S_g	—	—	—
Jena		3·2	32	i 0 51	− 1	i 1 38	S*	i 0 58	P*	i 1·7
Prague		4·0	62	e 1 16	P_g	e 2 11	S_g	—	—	—
Uccle	E.	4·0	311	e 1 8	+ 4	—	—	e 1 17	P_g	—
Triest		4·1	128	e 1 15	P*	i 2 16	S_g	—	—	—
Paris		4·4	278	e 1 37?	P_g	1 59	− 3	2 24	S_g	—
Clermont-Ferrand		4·7	236	i 1 32	P_g	i 2 40	S_g	i 2 46	SS_g	—
Florence		4·7	161	i 2 37	S_g	—	—	—	—	i 2·9
Potsdam		4·9	33	—	—	e 2 43	S_g	—	—	i 3·1
Kalossa		7·0	97	e 3 58?	S_g	—	—	—	—	—

Additional readings :—
Neuchatel iP_g = 0m.37s., e = 1m.7s.
Jena iNZ = 1m.4s., iN = 1m.10s.
Clermont-Ferrand P_gP_g = 1m.41s.

June 1d. 14h. 17m. 57s. Epicentre 48°·2N. 9°·0E. (as at 13h.).

$A = +6609$, $B = +\cdot1046$, $C = +\cdot7432$; $\delta = +8$; $h = -5$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen	0·0	—	i 0 3	P*	i 0 4	S*	—	—	—
Ravensburg	0·6	135	e 0 11?	P_g	i 0 20?	S_g	—	—	—
Stuttgart	0·6	13	i 0 11a	P_g	i 0 18	S_g	—	—	—
Strasbourg	0·9	295	e 0 19	P_g	i 0 31	S_g	—	—	—
Zürich	0·9	198	e 0 18	P_g	e 0 29	S_g	—	—	—
Basle	1·2	235	e 0 23	P_g	i 0 30	S*	e 0 40	S_g	—
Chur	1·4	165	e 0 29	P_g	e 0 48	S_g	—	—	—
Jena	3·2	32	e 0 51	− 1	i 1 39	S*	—	—	—

June 1d. Readings also at 1h. (near La Paz), 2h. (near Frunse), 3h. (La Plata and Irkutsk), 5h. (La Plata and La Paz), 6h. (Mobile and Bombay), 7h. (Mobile and Toledo), 8h. (Auckland, Arapuni, Wellington, Christchurch, Riverview, and Mobile), 9h. (De Bilt, Paris, and Scoresby Sund), 12h. (near Mizusawa), 13h. (Helwan, Ksara, and Copenhagen), 14h. (Balboa Heights, Triest, and near Zurich, Stuttgart (2), and Ebingen (2)), 16h. (St. Louis, Logan, Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, La Jolla, Palomar, Tucson, Kew, and near Basle, Zürich, Stuttgart, and Ebingen), 22h. (Tinemaha, Palomar, Riverside, Pasadena, Mount Wilson, Tucson, and Stuttgart), 23h. (near Almeria and Granada).

June 2d. 2h. 55m. 23s. Epicentre 39°·5N. 71°·9E. (as on 1942, Jan. 8d.).

A = +·2404, B = +·7354, C = +·6335; δ = −7; h = −1;
D = +·951, E = −·311; G = +·197, H = +·602, K = −·774.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stalinabad		2·6	249	i 0 44	0	—	—	—	—	—
Tashkent		2·7	313	i 0 50	+ 5	—	—	—	—	—
New Delhi	N.	11·7	156	i 2 47a	− 4	e 4 55	− 9	5 14	SS	5·5
Sverdlovsk		18·8	340	i 4 21	− 2	i 7 52	+ 2	—	—	—
Bombay		20·6	179	e 4 39	− 4	e 8 32	+ 3	5 0	PP	i 9·6
Calcutta	N.	22·0	136	e 4 57	− 1	i 9 2	+ 6	i 10 12	SSS	i 11·6
Hyderabad	E.	22·7	165	9 5	S	(9 5)	− 4	—	—	(11·4)
Moscow		27·9	318	5 56	+ 2	10 37	0	—	—	—
Ksara		29·3	270	e 6 9	+ 3	e 11 4	+ 5	—	—	—
Kodaikanal	E.	29·6	169	e 7 5	PP	i 10 55	− 9	—	—	12·9
Bucharest		34·1	294	e 6 48	0	e 10 50	?	—	—	13·6
Helwan		34·5	267	6 49	− 3	i 12 19	− 1	e 7 16	?	—
Upsala		39·2	320	9 0	?	e 13 21	−11	—	—	e 20·6
Potsdam		41·8	309	e 7 56	+ 3	e 17 19?	SS	e 9 37?	PP	—
Copenhagen		41·9	314	e 7 55	+ 1	14 12	− 1	9 28	PP	—
Triest		42·4	299	e 7 56	− 2	i 14 19	− 1	e 9 39	PP	—
Cheb		42·5	306	e 5 43	?	—	—	e 9 44	PP	e 25·6
Florence		44·6	297	i 8 16	0	e 14 49	− 3	e 20 15	?	—
Stuttgart		44·8	304	e 8 17	0	e 14 55	0	e 9 59	PP	e 25·6
Chur		45·0	302	e 8 18	− 1	—	—	—	—	—
Bergen		45·4	321	—	—	e 17 48	SS	—	—	—
Zürich		45·5	303	e 8 19	− 4	—	—	—	—	—
Basle		46·1	303	e 8 25	− 3	—	—	e 9 7	?	—
De Bilt		46·6	310	i 8 33	+ 1	—	—	e 18 47	SS	e 23·6
Uccle		47·7	308	e 8 41	+ 1	—	—	e 18 58	SS	e 25·6
Aberdeen		49·7	317	—	—	—	—	e 19 37	SS	i 31·0
Kew		50·0	309	—	—	—	—	e 20 0	SS	e 27·6
Stonyhurst		50·7	313	—	—	—	—	e 19 37?	SS	e 30·6
Toledo	Z.	56·7	297	i 9 47	− 1	—	—	—	—	—
Granada		57·6	293	i 9 54	0	e 17 37	−14	13 0	PP	30·8
Ottawa		90·6	338	e 13 7	+ 2	—	—	—	—	49·6

Additional readings and notes:—
Bombay PPPN = 5m.22s., iSE = 8m.23s., SSEN = 9m.22s.
Hyderabad gives S as P and L as S.
Upsala eP?N = 9m.12s., ePPN = 10m.25s., eSN = 15m.18s., eE = 15m.53s. phases have been wrongly identified.
Triest eSS = 17m.34s.
Stuttgart eSS = 18m.7s.?
Stonyhurst i = 21m.54s. and 24m.26s.
Toledo i = 10m.0s.
Long waves were also recorded at Paris and Tortosa.

June 2d. 5h. 24m. 5s. Epicentre 16°·9N. 86°·0W.

A = +·0668, B = −·9551, C = +·2889; δ = +14; h = +5;
D = −·998, E = −·070; G = +·020, H = −·288, K = −·957.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		10·1	141	e 2 25	− 3	e 4 13	−12	—	—	—
Bogota		16·9	135	e 4 2	+ 3	—	—	—	—	—
Columbia		17·6	14	e 4 8	0	e 7 36	+13	—	—	e 9·1
San Juan		18·9	83	e 4 29	+ 5	e 7 59	+ 6	—	—	e 9·6
Cape Girardeau	E.	20·6	353	e 4 42	− 1	e 8 19	−10	—	—	—
St. Louis		22·0	351	e 5 0	+ 2	i 9 2	+ 6	—	—	—
Florissant		22·2	351	e 4 59	− 1	e 9 2	+ 2	—	—	—
Fort de France		24·0	94	5 24	+ 7	e 10 12	SS	—	—	—
Pittsburgh		24·0	12	i 5 19	+ 2	i 9 42	+10	—	—	—
Bermuda		24·7	48	e 5 15	− 9	e 9 34	−10	—	—	e 11·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		24·8	356	e 5 47	+22	e 9 48	+ 2	—	—	e 11·7
Philadelphia		24·8	22	e 5 29	+ 4	e 9 53	+ 7	i 6 24	PPP	e 13·7
Fordham		26·1	23	i 5 38	+ 1	e 10 14	+ 7	—	—	e 13·9
Tucson		27·2	310	e 5 46	− 1	e 10 20	− 5	—	—	e 16·2
Harvard		28·3	24	i 5 57	0	e 10 49	+ 6	i 6 41	PP	e 13·9
Ottawa		29·7	15	6 9	− 1	11 5	− 1	—	—	14·9
Palomar	z.	32·2	308	e 6 33	+ 1	—	—	—	—	—
Seven Falls		32·6	20	6 37?	+ 2	11 54	+ 3	—	—	17·9
Riverside		32·9	308	e 6 36	− 2	—	—	—	—	—
Mount Wilson	z.	33·5	308	e 6 42	− 1	—	—	—	—	—
Pasadena		33·5	308	e 6 44	+ 1	(e 12 1?)	− 4	—	—	e 12·0
Tinemaha		34·8	312	i 6 54	0	—	—	—	—	—
Bozeman		35·5	330	—	—	e 12 35	− 1	—	—	e 17·4
La Paz		37·6	151	e 7 43	+25	—	—	—	—	20·9
Saskatoon		38·8	340	—	—	e 13 25	− 1	—	—	25·9
Sitka		54·6	330	—	—	e 17 8	− 3	—	—	e 24·4

Additional readings :—
Bogota e = 4m.7s.
Florissant iS?E = 9m.8s.
Fordham i = 5m.41s.
Tucson i = 6m.3s., e = 8m.14s.
Long waves were also recorded at Huancayo, De Bilt, Kew, and Stuttgart.

June 2d. Readings also at 2h. (near Lick), 4h. (Auckland, Christchurch, Arapuni, Wellington, and Riverview), 5h. (near Granada), 7h. and 9h. (near Andijan), 10h. (near Stalinabad), 11h. (Mount Wilson, Tucson, and Tinemaha), 13h. (De Bilt and Kew), 15h. (near Mizusawa and near Ferndale), 20h. (Ebingen and near Stuttgart) 21h. (near La Paz), 23h. (near Lick).

June 3d. 12h. 13m. 15s. Epicentre 24°·5S. 180°. Depth of focus 0·090 (as on 1943 April 28d.)

$A = -\cdot9110,\ B = \cdot0000,\ C = -\cdot4124;\quad \delta = -1;\quad h = +3;$
$D = \cdot000,\ E = +1\cdot000;\quad G = +\cdot412,\ H = \cdot000,\ K = -\cdot911.$

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		13·1	199	3 7	+18	5 22	+16	—	—	—
Arapuni		14·0	193	—	—	5 45?	+23	—	—	—
Tuai		14·5	189	3 6	+ 3	5 38	+ 8	13 46	S_cS	—
New Plymouth		15·4	196	3 21	+ 9	6 4	+18	—	—	—
Wellington		17·3	193	3 33	+ 3	6 26	+ 8	13 58	S_cS	—
Kaimata		19·3	198	3 52	+ 4	6 57	+ 5	13 40	S_cS	—
Christchurch		19·9	195	5 45?	?	—	—	—	—	—
Brisbane	N.	24·4	256	e 7 12	?	i 8 3	−11	i 8 43	?	—
Riverview		26·8	242	i 4 50k	− 5	i 8 44	− 7	—	—	—
Honolulu		50·4	27	e 8 1	− 4	e 14 24	−11	—	—	—
Santa Barbara	z.	81·9	47	i 11 22	+ 4	—	—	—	—	—
Pasadena		82·7	48	i 11 18k	− 4	e 20 47	− 4	i 13 26	pP	—
Mount Wilson		82·9	48	i 11 19k	− 4	29 40	PKKP	i 13 27	pP	—
Palomar	z.	83·2	49	i 11 21	− 4	e 29 38	PKKP	i 13 38	pP	—
Riverside		83·2	48	i 11 21k	− 4	e 29 39	PKKP	i 13 26	pP	—
Tinemaha		84·4	45	i 11 27k	− 4	e 21 6	− 1	i 13 36	pP	—
Tucson		86·8	52	i 11 41	− 1	e 21 21	− 9	e 13 43	pP	—
Sitka		89·9	23	—	—	e 21 43	[+13]	e 27 58	SS	—
Bozeman		93·7	41	e 27 49	?	—	—	e 28 31	SS	—
Huancayo		98·1	107	e 17 4	PKP	e 22 15	[+ 1]	e 26 8	PS	—
Irkutsk		100·8	322	e 16 42	PP	i 22 16	[−11]	—	—	—
Tashkent		120·9	304	—	—	i 22 44	[−63]	—	—	—
Scoresby Sund		132·3	10	e 20 29	pPKP	e 37 16	SS	e 20 46	PP	—
Ksara		147·4	294	e 18 34	[− 1]	—	—	e 20 40	PP	—
Copenhagen		147·5	346	e 18 29	[− 6]	27 52	SKKS	—	—	—

Continued on next page.

			Δ	Az.	P.	O−C.	S.	O−C.	L.	
			°	°	m. s.	s.	m. s.	s.	m.	
Helwan	z.	151·7	287	18 36	[− 4]	22 5	PKS	22 27	PP	—
Jena	z.	152·1	342	18 30	[−10]	—	—	—	—	—
De Bilt	z.	152·2	353	i 18 41 k	[+ 1]	e 20 55	?	—	—	—
Kew		153·1	0	(e 21 45?)	pPKP	—	—	—	—	e 21·8
Sofia		153·6	318	e 18 45?	[+ 2]	—	—	e 31 15	?	—
Stuttgart		154·7	345	i 18 40	[− 4]	—	—	i 19 3	pPKP	—
Basle		156·2	346	e 18 41	[− 5]	—	—	e 19 10	?	—
Zürich		156·2	345	e 18 37	[− 9]	—	—	—	—	—
Granada		167·0	12	e 20 2	pPKP	25 59	[+56]	23 35	PP	93·4
Almeria		167·5	9	e 18 29	[−29]	e 42 48	SS	—	—	50·8

Additional readings :—
Riverview iEZ =7m.33s. and 8m.10s., iEN =11m.47s. and 14m.34s., iN =15m.40s.
Tucson i =13m.53s., e =17m.0s., ePKKP =29m.28s.
Bozeman 32m.23s.
Huancayo e =30m.12s.
Scoresby Sund e =29m.45s. and 41m.30s.
Helwan PKKP?Z =18m.51s., eZ =20m.59s., PPP?Z =25m.37s., eE =28m.17s.
Jena eN =18m.36s., iZ =18m.42s.
Stuttgart iZ =18m.48s., eZ =21m.0s., e =28m.33s., 29m.15s., 32m.57s.?, and 40m.30s.
Granada SKKS =29m.47s., SS =42m.52s.
Almeria PP =21m.16s., e =26m.23s. and 30m.5s.

June 3d. 19h. 53m. 41s. Epicentre 15°·6S. 173°·6W. (as on 1941 February 24d.).

Felt in Apia M.M. II.
Epicentre near 16°S. 174°W. (Apia) ; 16°S. 173°W. (Pasadena).
Annual Report for 1943, Apia Observatory, Wellington, 1950.

A = −·9576, B = −·1074, C = −·2673 ; δ = −2 ; h = +6 ;
D = −·111, E = +·994 ; G = +·266, H = +·030, K = −·964.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		2·5	45	i 0 41 a	− 2	i 1 24	S_g	—	—	—
Auckland		23·6	204	5 12	− 1	9 43	+18	—	—	i 13·0
Arapuni		24·3	201	—	—	9 19?	−18	e 16 31?	S_cS	—
Wellington		27·5	200	5 49	− 1	10 41	+11	12 49	P_cS	14·3
Riverview		36·5	235	i 7 14 a	+ 5	e 13 10	+19	e 15 46	SSS	e 17·8
Sydney		36·5	235	e 9 19?	PPP	—	—	—	—	—
Honolulu		39·8	24	—	—	e 13 41	− 1	—	—	e 17·8
Santa Barbara	z.	71·4	46	i 11 25	+ 1	—	—	—	—	—
Santa Clara	z.	71·6	42	e 11 32	+ 7	—	—	—	—	—
Berkeley		71·8	42	i 11 29	+ 3	i 20 41	− 5	i 21 1	PS	e 33·2
La Jolla		72·2	48	e 11 29	0	—	—	—	—	—
Pasadena		72·3	46	i 11 28	− 1	—	—	—	—	e 29·7
Mount Wilson		72·4	46	i 11 28	− 2	—	—	—	—	—
Palomar	z.	72·8	48	e 11 30	− 2	—	—	—	—	—
Riverside		72·8	46	e 11 31	− 1	—	—	—	—	—
Haiwee		73·5	45	i 11 38	+ 2	—	—	—	—	—
Tinemaha		73·9	44	i 11 39	0	—	—	—	—	—
Tucson		76·6	51	i 11 53	− 1	e 21 41	+ 1	i 12 5	P_cP	e 32·1
Victoria		77·8	33	—	—	e 22 1	+ 8	—	—	e 34·3
Sitka		79·1	21	e 12 11	+ 3	i 22 12	+ 5	—	—	e 35·6
Salt Lake City		80·1	43	e 12 16	+ 3	e 22 21	+ 3	—	—	e 34·1
Logan		80·6	42	i 12 18	+ 2	e 22 26	+ 3	e 16 59	PPP	e 34·1
Bozeman		83·1	39	—	—	e 22 46	− 2	—	—	e 40·8
Florissant	E.	94·5	52	—	—	e 23 56	[− 2]	—	—	e 46·7
St. Louis		94·5	52	e 13 23	0	e 24 2	[+ 4]	i 13 26	P_cP	—
Huancayo		94·6	104	—	—	e 24 39	+ 4	e 30 59	SS	e 43·1
Chicago		97·3	49	—	—	e 24 12	[− 1]	—	—	e 45·3
La Paz	z.	99·9	110	e 22 57	?	—	—	—	—	46·3
Pittsburgh		102·7	51	—	—	e 24 45	[+ 5]	—	—	e 55·5
Philadelphia		107·2	53	—	—	e 25 0	[0]	—	—	e 46·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fordham		107·3	52	—	—	e 25 5	[+ 4]	e 28 15	PS	—
Harvard		109·2	50	e 24 25	?	e 28 25	PS	—	—	e 55·3
Seven Falls		109·9	45	—	—	e 25 25?	[+13]	—	—	53·3
Bermuda		113·9	61	—	—	e 25 38	[+10]	—	—	e 46·8
Scoresby Sund		122·5	11	e 20 18	?	e 27 3	{−28}	e 20 58	PP	e 61·9
Copenhagen		139·7	354	e 19 30	[0]	—	—	—	—	—
De Bilt		143·6	1	e 19 41	[+ 4]	—	—	e 22 49	PP	—
Kew	z.	143·8	6	e 19 38	[+ 1]	e 30 1	{+18}	e 19 55	pPKP	—
Jena		144·5	355	e 19 44	[+ 6]	—	—	—	—	—
Uccle	z.	144·9	3	e 19 41k	[+ 2]	—	—	—	—	—
Paris		146·7	5	i 19 50	[+ 8]	—	—	—	—	—
Stuttgart		146·8	357	e 19 48	[+ 6]	e 33 49?	PSKS	—	—	e 84·6
Strasbourg		147·1	358	e 19 54	[+11]	—	—	—	—	—
Ksara		147·8	310	e 20 1	[+17]	—	—	e 23 30	PP	—
Basle		148·1	0	e 19 47	[+ 3]	—	—	—	—	—
Zurich		148·3	359	e 19 55	[+10]	—	—	—	—	—
Chur		148·7	358	e 19 50	[+ 4]	—	—	—	—	—
Neuchatel		148·7	359	e 19 51	[+ 5]	—	—	—	—	—
Sofia		149·3	336	e 20 2	[+16]	—	—	—	—	—
Helwan	z.	153·0	307	e 19 58	[+ 6]	—	—	e 23 57	PP	—
Toledo		154·1	19	e 19 57	[+ 4]	—	—	i 20 24	PKP_2	86·3
Tortosa	E.	154·4	10	e 20 28	PKP_2	—	—	—	—	e 88·3
Granada		156·7	21	i 19 33	[−24]	26 42	[−19]	20 33	PKP_2	—
Almeria		157·4	18	e 20 40	PKP_2	27 30	[+28]	24 31	PP	86·8

Additional readings :—
Auckland P_cS =11m.39s., S_cS =15m.48s.
Berkeley eQN =29m.44s., eQE =29m.57s.
Tucson e =13m.34s., ePP? =14m.42s., e =22m.58s.
Logan e =23m.37s. and 29m.11s.
Harvard e =30m.37s.
Bermuda eSS =34m.31s.
Scoresby Sund e =40m.24s.
Kew ePKP?NZ =23m.33s.
Jena iNZ =19m.47s., iN =20m.32s., iE =20m.41s.
Stuttgart eZ =19m.53s., 20m.21s., and 22m.40s.
Strasbourg i =19m.58s.
Helwan eZ =20m.19s.
Toledo iPP =23m.57s.
Granada PP =23m.54s., SKKS =30m.31s., SS =40m.25s., SSP =45m.31s.
Almeria pSKS =28m.9s., SS =44m.24s., SSS =50m.14s.
Long waves were also recorded at Christchurch, San Juan, Ukiah, and at other European stations.

June 3d. 20h. 48m. 2s. Epicentre 15°·6S. 173°·6W. (as at 19h.).

Felt in Apia M.M. III.
Epicentre near 16°S. 174°W. (Apia).
Annual Report for 1943, Apia Observatory, Wellington 1950.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		2·5	45	i 0 45a	+ 2	i 1 10	− 4	—	—	—
Auckland		23·6	204	5 10	− 3	9 22	− 3	12 20	P_cP	i 15·3
Tuai		24·5	198	5 26	+ 4	9 43	+ 3	—	—	—
Wellington		27·5	200	5 50	0	10 36	+ 6	6 36	PP	13·0
Riverview		36·5	235	—	—	e 13 9	+18	e 15 53	SSS	e 17·7
Sydney		36·5	235	—	—	e 12 58	+ 7	—	—	—
Honolulu		39·8	24	—	—	e 13 22	P_cS	—	—	e 18·3
Santa Barbara	z.	71·4	46	e 11 24	0	—	—	—	—	—
Santa Clara	z.	71·6	42	e 11 29	+ 4	—	—	—	—	—
Ukiah		72·0	40	—	—	e 21 31	PPS	—	—	e 32·2
La Jolla		72·2	48	e 11 34	+ 5	—	—	—	—	—
Pasadena		72·3	46	i 11 28	− 1	—	—	—	—	e 29·8
Mount Wilson		72·4	46	i 11 27	− 3	—	—	—	—	—
Palomar	z.	72·8	48	i 11 30	− 2	—	—	—	—	—
Riverside	z.	72·8	46	e 11 28	− 4	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		73·5	45	i 11 37	+ 1	—	—	—	—	—
Tinemaha		73·9	44	i 11 37	− 2	—	—	—	—	—
Tucson		76·6	51	i 11 51	− 3	e 21 25	−15	i 12 6	P_cP	e 33·5
Victoria		77·8	33	e 11 58?	− 3	e 22 2	+ 9	—	—	35·0
Sitka		79·1	21	e 12 35	P_cP	e 22 6	− 1	e 27 2	SS	e 35·5
Salt Lake City		80·1	43	e 12 15	+ 2	e 22 15	− 3	—	—	e 34·1
Logan		80·6	42	i 12 18	+ 2	e 22 26	+ 3	e 23 10	PS	e 38·1
College		82·6	11	e 12 30	+ 4	e 22 51	+ 8	—	—	e 40·2
Bozeman		83·1	39	e 12 34	+ 5	e 22 44	− 4	—	—	e 36·0
Florissant	E.	94·5	52	—	—	e 24 1	[+ 3]	—	—	—
Huancayo		94·6	104	e 14 25	+61	e 24 38	+ 3	—	—	e 42·5
Chicago U.S.C.G.S.		97·3	49	—	—	e 24 14	[+ 1]	—	—	e 44·4
La Paz		99·9	110	25 49	S	(25 49)	+29	—	—	46·0
Philadelphia		107·2	53	e 18 37	PP	25 0	[0]	e 28 16	PS	e 47·4
Fordham		107·3	52	—	—	e 25 7	[+ 6]	—	—	—
San Juan		111·0	76	e 19 53	PP	e 29 11	PS	—	—	e 51·3
Bermuda		113·9	61	e 18 29	[−12]	e 25 26	[− 2]	e 29 26	PS	e 56·2
Scoresby Sund		122·5	11	e 19 4	[+ 6]	e 30 40	PS	e 20 38	PP	e 53·7
Upsala		135·1	353	e 19 58	PP	—	—	e 20 58	?	—
Bergen		135·3	2	19 58?	[+36]	—	—	—	—	—
Aberdeen		138·0	8	e 22 20	PP	—	—	e 23 22	?	—
Copenhagen		139·7	354	e 19 35	[+ 5]	—	—	23 13	?	—
De Bilt		143·6	1	i 19 41a	[+ 4]	e 26 58?.	[+13]	e 22 58	PP	77·0
Kew		143·8	6	e 19 36	[− 1]	—	—	(e 26 12)	PPP	e 26·2
Jena		144·5	355	i 19 40	[+ 2]	—	—	—	—	—
Uccle	z.	144·9	3	e 19 40	[+ 1]	—	—	e 23 5	PP	—
Paris		146·7	5	i 19 52	[+10]	e 26 58?	[+ 9]	—	—	e 80·0
Bucharest		146·8	335	e 19 35	[− 7]	—	—	—	—	40·0
Stuttgart	z.	146·8	357	e 19 46	[+ 4]	—	—	—	—	—
Strasbourg		147·1	358	e 19 50	[+ 7]	—	—	—	—	—
Ksara		147·8	310	e 19 57	[+13]	—	—	e 23 11	PP	—
Basle		148·1	0	e 19 50	[+ 6]	—	—	—	—	—
Zürich		148·3	359	e 19 53	[+ 8]	—	—	—	—	—
Chur		148·7	358	e 19 51	[+ 5]	—	—	—	—	—
Neuchatel		148·7	359	e 19 53	[+ 7]	—	—	—	—	—
Sofia		149·3	336	e 19 54	[+ 8]	—	—	—	—	—
Triest		149·4	351	e 19 58	[+12]	—	—	—	—	—
Helwan		153·0	307	19 58	[+ 6]	34 13	PSKS	23 58	PP	—
Toledo		154·1	19	e 20 0	[+ 7]	—	—	e 20 21	PKP_2	107·0
Tortosa	E.	154·4	10	i 24 44	?	—	—	—	—	e 87·0
San Fernando		156·5	27	e 20 0	[+ 3]	—	—	—	—	—
Granada		156·7	21	i 20 3	[+ 6]	26 33	[−28]	20 33	PKP_2	78·0
Almeria		157·4	18	e 20 12	[+14]	27 3	[+ 1]	24 13	PP	81·5

Additional readings :—
Wellington sS = 11m.53s., P_cS? = 12m.53s.
Salt Lake City e = 26m.42s.
Logan e = 18m.4s. and 28m.37s.
College e = 27m.17s.
Huancayo eSKS = 23m.38s., e = 30m.16s.
Philadelphia ePP? = 19m.17s., eSS = 33m.52s.
Kew eZ = 20m.20s., e = 21m.58s.?, eZ = 23m.32s.
Jena iE = 19m.44s.
Uccle iZ = 19m.43s. and 20m.26s.
Stuttgart ePKPZ = 19m.53s., eZ = 20m.34s.
Strasbourg e = 20m.30s.
Helwan PKKP?Z = 20m.22s.
Toledo PP? = 23m.57s.
Granada PP = 24m.13s., SKKS = 30m.21s., SKSP = 33m.15s., SS = 44m.12s., SSP = 46m.21s.
Almeria e = 30m.58s. and 33m.32s.
Long waves were also recorded at Arapuni, Christchurch, Potsdam and Cheb.

June 3d. 22h. 24m. 28s. Epicentre 48°·2N. 9°·0E. (as on 1d.).

$A = +\cdot6609$, $B = +\cdot1046$, $C = +\cdot7432$; $\delta = +8$: $h = -5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ebingen		0·0	—	e 0 4	− 3	i 0 6	− 5	—	—	—
Ravensburg		0·6	135	e 0 16?	+ 1	i 0 22?	− 4	—	—	—
Stuttgart		0·6	13	e 0 13	− 2	i 0 20	− 6	—	—	—
Strasbourg		0·9	295	—	—	0 32	− 2	—	—	—
Zürich		0·9	198	e 0 21	+ 1	e 0 34	0	—	—	—
Basle		1·2	235	e 0 25	+ 1	e 0 42	+ 1	—	—	—
Chur		1·4	165	e 0 29	+ 2	i 0 50	+ 4	—	—	—
Neuchatel		1·8	229	e 0 38	P_g	i 1 1	S_g	—	—	—
Jena	N.	3·2	32	—	—	e 1 26?	− 6	e 1 30	?	—

June 3d. Readings also at 1h. (Stuttgart and near Ebingen), 2h. (La Paz), 3h. (Kodaikanal), 4h. (Hyderabad and Bombay), 5h. (Ebingen, Stuttgart, and Zurich), 6h. (Bacau, Campulung, Cernauti, near Bucharest, and Focsani), 9h. (near Mizusawa), 11h. (Ksara), 16h. (Kodaikanal), 19h. (Basle), 21h. (Mount Wilson, Palomar, Tucson, Riverside, and near Apia).

June 4d. Readings at 2h. (near Berkeley and Branner), 4h. (Stuttgart and near Ebingen), 10h. (near Fort de France), 11h. (near Tashkent), 14h. (Kew), 20h. (near Mizusawa), 21h. (Granada), 23h. (Huancayo, San Juan, Bermuda, Columbia, Philadelphia, Tucson (2), Mount Wilson (2), Pasadena (2), Palomar, Riverside, Tinemaha (2), Scoresby Sund, Kew, and Stuttgart).

June 5d. 20h. Undetermined shock.

Apia iP = 29m.38s.a, iS = 30m.42s., i = 30m.47s.
Riverview iZ = 35m.42s., iN = 41m.2s., iEN = 44m.27s.
Nagano P = 38m.50s.
Osaka P = 38m.56s.
Sendai P = 38m.57s.
Kobe P = 39m .1s.
Santa Barbara ePZ = 39m.27s., eZ = 40m.26s.
Pasadena iP = 39m.31s., iZ = 39m.58s. and 40m.28s.
Mount Wilson iP = 39m.32s.
Palomar iPZ = 39m.32s., iZ = 40m.0s., eZ = 40m.30s.
Riverside iPZ = 39m.33s., eZ = 40m.29s.
Tinemaha iP = 39m.41s., iZ = 40m.8s., iEZ = 40m.40s.
Tucson iP = 39m.51s., e = 40m.51s.
Jena eN = 47m.22s., eE = 47m.28s.
Stuttgart eZ = 47m.25s., 47m.31s., and 48m.35s.
Strasbourg ePKP = 47m.33s.
Zurich eP = 47m.34s.k.
Florissant eN = 50m.14s., iN = 50m.18s., eN = 50m.40s.

June 5d. Readings also at 1h. (near Tashkent), 7h. (near Almeria and Granada), 13h. (near Mizusawa), 16h. (near Ebingen, Stuttgart, and Zurich), 21h. (La Paz and Montezuma), 22h. (Bogota, Huancayo, San Juan, near Fort de France, Ebingen, and Stuttgart).

June 6d. Readings at 0h. (Ebingen and Stuttgart), 1h. (Mount Wilson, Riverside, Tinemaha, Tucson, Ukiah, and Salt Lake City), 4h. (near Fresno), 5h. (De Bilt, Kew, Stuttgart, Belgrade, Cheb, Florence, Triest, Zürich, and Granada), 7h. (near Ferndale), 11h. (near Bogota), 12h. (near Tashkent), 15h. (Cheb and Stuttgart).

June 7d. 11h. 40m. 20s. Epicentre 45°·0N. 38°·0E.

$A = +·5591$, $C = +·4368$, $C = +·7047$; $\delta = -1$; $h = -4$;
$D = +·616$, $E = -·788$; $G = +·555$, $H = +·434$, $K = -·710$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		7·6	242	e 1 40?	−15	—	—	e 2 40	P_g	—
Focsani	E.	7·6	280	e 1 51	− 4	e 3 28	+ 5	—	—	—
Bacau		7·9	285	e 2 0	+ 1	e 3 34	+ 4	—	—	—
Bucharest		8·5	271	e 2 6?	− 1	e 3 40	− 5	—	—	—
Cernauti		8·9	296	e 2 10	− 2	e 3 46	− 9	—	—	—
Campulung		9·2	277	e 2 17	+ 1	—	—	—	—	5·7
Moscow		10·7	359	2 37	− 1	4 29	−10	—	—	—
Sofia		10·9	363	e 2 40	0	—	—	—	—	—
Ksara		11·3	189	e 2 51?	+ 5	—	—	—	—	e 6·3
Helwan		16·0	202	e 4 4	PP	e 6 58	+12	—	—	i 8·0
Triest		17·1	281	i 4 2	0	—	—	—	—	—
Potsdam		18·0	303	e 4 17	+ 4	e 7 22?	−10	—	—	—
Sverdlovsk		18·4	43	i 4 19	+ 1	i 7 47	+ 6	—	—	—
Florence		19·1	275	i 4 29	+ 2	i 8 6	+ 9	—	—	—
Upsala		19·3	327	e 4 26	− 3	e 7 40	−22	4 38	PP	e 9·7
Copenhagen		19·4	313	4 31	+ 1	7 50	−14	—	—	10·6
Chur		19·8	286	e 4 34	− 1	e 7 50	−23	—	—	—
Stuttgart		20·0	292	i 4 36a	− 1	e 8 19	+ 2	—	—	e 10·4
Milan	E.	20·3	281	i 4 45	+ 5	—	—	—	—	—
Zürich		20·5	287	e 4 41a	− 1	—	—	—	—	—
Strasbourg		20·9	291	e 4 46	0	—	—	i 5 2	PP	—
Basle		21·1	288	e 4 48	0	—	—	—	—	—
Neuchatel		21·6	287	e 4 42	−12	—	—	—	—	—
De Bilt		22·7	301	i 5 6a	+ 2	e 9 15	+ 6	—	—	—
Tashkent		23·0	89	e 5 8	+ 1	9 48	SS	i 5 22	PP	—
Uccle		23·2	298	e 5 10	+ 1	e 9 22	+ 4	—	—	e 11·7
Clermont-Ferrand		24·4	284	i 5 22	+ 1	—	—	—	—	—
Bergen	Z.	24·8	321	e 5 25	0	e 8 1	?	—	—	—
Andijan		25·4	88	5 39	+ 8	10 26	+30	—	—	—
Toledo	Z.	31·2	276	i 6 21	− 2	—	—	—	—	—

Additional readings :—
Focsani eN = 2m.16s.? and 3m.43s.
Bacau eN = 2m.4s.?.
Bucharest ePN = 2m.13s., eSN = 3m.52s., iE = 3m.59s.
Potsdam ePN = 4m.20s.
Upsala eE = 4m.57s. and 8m.25s.
Copenhagen 8m.9s., Q = 9m.40s.
Stuttgart eZ = 7m.52s. and 8m.47s., e = 8m.50s.
Strasbourg e = 5m.24s.
Long waves were also recorded at Cheb, Kew, and Granada.

June 7d. 12h. European shock.

Tortosa PN = 38m.11s., iN = 39m.7s., SN = 40m.22s.
Almeria eP = 39m.4s., P_g = 39m.20s., P_gS_g = 39m.53s. and 39m.57s., S_g = 40m.20s.
Granada P = 39m.16s., P_g = 39m.36s., iS_g = 40m.53s. and 41m.3s.
Toledo ePZ = 39m.35s., eS = 41m.40s.
Paris iP = 40m.49s., L = 44m.
San Fernando ePE = 41m.28s., eSE = 44m.38s.
Jena iPN = 44m.40s., eN = 48m.43s. and 49m.49s., eE = 49m.55s.
Long waves were also recorded at De Bilt, Kew, and Uccle.

June 7d. 23h. 20m. 7s. Epicentre 3°·5S. 102°·3E. (as on 1940 June 26d.).

A = −·2126, B = +·9753, C = −·0606; δ = +8; h = +7;
D = +·977, E = +·213; G = +·013, H = −·059, K = −·998.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo		24·6	294	5 28	+ 5	—	—	—	—	10·0
Kodaikanal	E.	28·2	300	i 6 33a	PP	i 11 34	SS	7 5	PPP	15·1
Calcutta	N.	29·2	333	e 6 11	+ 6	i 10 55	− 3	i 12 10	SS	13·8
Perth		31·0	157	e 7 5	PP	11 38	+12	7 58	PPP	15·1
Bombay	E.	36·6	308	e 7 7	− 3	i 12 49	− 4	15 23	SS	—
New Delhi		40·0	325	i 7 37k	− 1	i 13 37	− 7	i 8 56	PP	18·7
Dehra Dun	N.	40·8	328	e 6 56	−49	e 13 9	−47	e 15 24	?	e 19·1
Nake		41·1	38	e 7 58	+11	—	—	—	—	—
Miyazaki		44·8	37	8 8	− 9	14 33	−22	—	—	23·6
Kumamoto		45·0	35	e 8 20	+ 1	—	—	—	—	—
Hukuoka		45·5	34	9 19	+56	e 15 7	+ 2	e 18 32	SS	e 29·3
Zinsen		46·6	27	e 10 25	PP	18 27	SS	—	—	—
Koti		47·2	37	e 8 37	+ 1	14 49	?	—	—	—
Hamada		47·3	34	8 33	− 4	—	—	—	—	—
Osaka		49·9	37	8 42	−15	16 3	− 4	—	—	—
Andijan		51·9	331	9 7	− 5	i 16 27	− 8	—	—	—
Nagano		52·1	36	e 9 15	+ 1	—	—	—	—	—
Stalinabad		52·1	327	i 9 15	+ 1	—	—	—	—	—
Tokyo Cen. Met. Obs.		52·4	39	e 11 9	PP	e 16 28	−14	12 13	PPP	i 20·3
Vladivostok		53·5	27	e 9 22	− 2	16 38	−19	—	—	—
Tashkent		53·8	330	i 9 23	− 3	16 53	− 8	—	—	—
Brisbane	N.	53·9	122	i 9 31	+ 4	i 17 5	+ 3	—	—	i 27·0
Riverview		54·5	130	i 9 39k	+ 7	i 17 18	+ 8	i 17 22	PS	e 25·5
Sydney		54·6	130	e 10 17	PcP	e 17 14	+ 3	—	—	—
Sendai		54·8	38	e 9 35	+ 1	17 13	− 1	—	—	—
Mizusawa	E.	55·5	37	e 17 24	S	(e 17 24)	0	—	—	(25·9)
	N.	55·5	37	e 17 18	S	(e 17 18)	− 6	—	—	(25·9)
Irkutsk		55·6	2	e 9 50	+10	17 23	− 2	—	—	—
Tananarive		55·6	250	e 9 47	+ 7	17 32	+ 7	17 41	PPS	24·1
Sapporo		58·2	33	9 59	+ 1	18 2	+ 3	—	—	e 25·3
Ksara		72·6	307	e 11 38	+ 7	e 21 3	+ 7	—	—	—
Christchurch		73·4	135	11 42	+ 6	21 14	+ 9	26 5	SS	36·5
Auckland		73·9	128	—	—	21 18	+ 8	—	—	32·4
Wellington		74·6	132	14 35	PP	21 25	+ 7	25 53?	SS	38·0
Arapuni		74·8	129	—	—	19 53	?	—	—	e 35·9
Helwan		75·4	302	i 11 44k	− 3	21 23	− 4	e 12 11	PcP	—
Moscow		79·0	329	12 5	− 2	21 56	−10	—	—	—
Focsani		82·1	317	e 11 53?	−31	e 20 59?	?	—	—	—
Bacau		82·5	318	e 12 59?	+33	e 22 38	− 4	—	—	—
Bucharest		82·6	315	e 12 25	− 1	i 22 39	− 4	e 12 33	PcP	40·9
Cernauti		83·6	319	e 12 27	− 4	e 22 45	− 8	—	—	—
Sofia		84·3	313	e 12 35	0	e 22 53	− 7	—	—	—
Belgrade		86·7	315	e 12 41	− 6	e 23 23	− 1	e 16 10	PP	e 54·2
Kalocsa		87·9	317	e 12 48	− 5	e 23 35	0	e 23 20	SKS	—
Ogyalla		88·6	318	e 13 9	+13	23 48	+ 6	e 13 16	PcP	—
Upsala		90·3	330	e 16 41	PP	e 23 27	[− 7]	e 23 52	S	e 43·9
Prague		91·3	320	—	—	e 23 27	[−13]	—	—	e 46·9
Triest		91·5	315	e 13 6	− 4	i 23 36	[− 5]	—	—	e 44·9
Potsdam		92·3	322	e 13 23?	+10	i 24 19	+ 4	i 24 13	SKKS	e 46·9
Cheb		92·6	320	e 16 55	PP	e 24 25	+ 7	—	—	e 51·9
Florence	E.	93·1	314	e 13 21	+ 4	i 24 43	+21	e 13 47	PcP	—
Jena		93·1	320	e 13 21	+ 4	e 24 17	− 5	e 24 6	SKKS	e 42·9
Chur		94·4	316	e 13 27	+ 4	e 23 52	[− 6]	—	—	—
Milan	E.	94·7	315	—	—	24 35	− 1	—	—	—
Stuttgart		94·7	319	e 13 22	− 2	e 24 40	+ 4	e 13 26	PcP	e 48·2
Zürich		95·1	317	e 13 21	− 5	—	—	—	—	—
Neuchatel		96·2	317	e 25 3	S	(e 25 3)	+15	—	—	—
Bergen		96·5	331	—	—	e 24 53?	+ 2	—	—	e 50·2
Besançon		96·8	317	—	—	e 24 8	[− 2]	—	—	—
De Bilt		97·1	322	i 13 41	+ 6	i 25 3	+ 7	i 24 16	SKS	e 43·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Uccle		97·7	320	e 14 14	+36	e 24 58	− 3	e 17 37	PP	e 40·9
Paris		99·1	318	i 17 49	PP	e 24 22	[− 1]	—	—	e 46·9
Kew		100·6	321	e 13 54	+ 3	e 25 24	− 1	e 24 31	SKS	e 40·9
Aberdeen		100·7	328	e 23 33	?	i 25 31	+ 5	i 24 31	SKS	e 47·6
Tortosa	N.	101·2	310	e 14 10	+16	23 22	?	(e 27 53)	PPS	e 27·9
College		101·5	24	—	—	e 24 21	[−13]	e 25 11	SKKS	e 45·2
Stonyhurst		101·5	324	i 20 16	PPP	i 25 26	− 7	—	—	e 51·9
Almeria		103·9	307	e 18 25	PP	24 46	[0]	28 43	PPS	51·4
Scoresby Sund		104·2	343	e 18 14	PP	e 25 40	−15	e 24 47	SKS	e 40·1
Granada		104·8	307	16 55	?	27 55	PS	—	—	i 53·3
Toledo		104·8	310	e 18 22	PP	—	—	—	—	57·9
San Fernando		106·9	307	e 18 35	PP	—	—	—	—	54·4
Sitka		109·8	29	e 18 24	[− 9]	e 28 38	PS	e 34 46	SSP	e 45·1
Ivigtut		118·3	344	—	—	e 36 22	SSP	—	—	e 51·1
Victoria		120·6	33	—	—	e 25 53?	[+ 1]	—	—	57·9
Saskatoon		125·9	22	e 36 53?	?	—	—	—	—	53·9
Berkeley		126·9	44	e 20 43	PP	—	—	e 23 22	PPP	e 60·1
Bozeman		128·9	29	e 21 16	PP	—	—	e 32 23	PPS	e 55·0
Tinemaha		130·0	42	e 19 13	[+ 1]	i 22 40	SKP	—	—	—
Logan		131·2	33	e 19 19	[+ 5]	i 22 44	SKP	e 24 11	PPP	e 49·8
Mount Wilson	z.	131·6	46	e 19 8	[− 7]	i 22 56	SKP	i 19 23	PKP	—
Pasadena		131·6	45	i 19 17	[+ 2]	i 22 46	SKP	e 21 39	PP	e 60·4
Salt Lake City		131·8	34	e 22 31	SKP	—	—	—	—	e 64·5
Riverside	z.	132·2	45	i 19 21	[+ 5]	i 22 39	SKP·	—	—	—
Seven Falls		136·2	352	e 30 23?	?	e 40 17?	SS	—	—	57·9
Tucson		137·8	43	e 19 28	[+ 1]	i 23 6	SKP	—	—	e 62·2
Ottawa		138·3	357	e 22 15	PP	e 29 53	{+42}	—	—	e 60·9
Chicago		140·9	12	e 23 11	SKP	—	—	—	—	e 56·3
Florissant		143·0	16	e 19 37	[+ 1]	e 23 16	SKP	—	—	e 62·6
Pittsburgh		143·2	2	e 22 56	PP	—	—	i 30 34	?	e 71·4
St. Louis		143·2	16	e 19 27	[− 9]	e 23 18	SKP	—	—	—
Philadelphia		143·6	355	e 22 52	PP	e 23 20	SKP	e 35 51	PPS	e 55·9
Bermuda		148·8	338	e 19 48	[+ 3]	e 42 21	SS	—	—	e 54·3
Columbia		149·5	5	e 27 46	?	e 43 0	SS	—	—	e 54·2
La Paz		158·0	206	i 20 5a	[+ 6]	31 41	{+39}	24 32	PP	77·4
San Juan		161·4	323	e 20 7	[+ 5]	e 37 56	PPS	e 24 35	PP	e 62·9
Huancayo		164·4	189	e 25 14	PP	—	—	—	—	e 62·0

Additional readings :.
Calcutta ePP =6m.54s.
Perth SSS =13m.18s.
Bombay iE =7m.32s. and 7m.45s., PPE =8m.31s., PPPE =8m.54s., iE =9m.55s., 12m.57s., 13m.32s., and 14m.7s., SSSE =15m.57s., S_cSE =17m.4s.
New Delhi PPP =9m.29s., P_cPN =9m.58s., iN =15m.16s., SS =16m.6s., i =17m.11s.
Tokyo SPN =12m.36s., eP_cP =14m.0s., SSN =18m.1s., S_cSN =21m.53s.
Riverview iE =17m.57s., iSSE =21m.15s., iZ =21m.52s.
Mizusawa L's given as S's.
Tananarive SS =21m.26s.
Christchurch PP =14m.56s., SSS =30m.1s., Q =31m.53s.
Wellington SSS =30m.38s., Q =31m.53s.?.
Helwan PPZ =14m.38s., eN =21m.48s.
Bucharest iPE =12m.29s., iPPE =15m.29s., eE =22m.9s.
Belgrade e =25m.57s.
Ogyalla eSE =23m.26s.
Upsala iE =24m.32s., eSSN =29m.53s.?, eE =31m.53s.?. eSSS?N =35m.53s.?.
Florence ePPE =16m.45s., ePPPE =19m.20s., iSKSE =23m.53s., isS =25m.27s., iPSE =25m.46s.
Jena eEN =24m.23s.
Stuttgart ePPZ =17m.5s., eSKS =23m.56s., eSS =31m.11s.?.
De Bilt iPS =26m.16s., eSS =31m.53s.?, eSSS =35m.53s.?.
Uccle eE =24m.10s., and 32m.44s.
Kew ePPZ =18m.38s., eSKKSZ =25m.12s., eSKKSN =25m.30s., eS?EZ =26m.44s., eZ =27m.30s. and 31m.42s., eSS?Z =32m.36s.?.
Aberdeen iE =25m.21s., eE =32m.57s.
Tortosa eN =17m.2s.
College eSS =32m.16s.
Stonyhurst 21m.21s. and 23m.59s.
Almeria pP =18m.58s., sP =19m.15s., SKKS =29m.1s., S? =29m.6s., SS =35m.51s., SSS =40m.24s.
Scoresby Sund e =19m.54s., eSS =33m.0s.

Continued on next page.

Granada PP = 20m.8s., PS = 29m.33s., PPS = 30m.53s., SS = 35m.23s.
Toledo i = 18m.32s.
Sitka e = 22m.13s., ePS = 27m.35s.
Berkeley eZ = 22m.28s.
Logan e = 30m.34s.
Pasadena eSSZ = 37m.29s.?.
Salt Lake City e = 41m.46s.
Tucson e = 19m.35s. and 35m.0s.
Chicago e = 30m.24s. and 36m.30s.
St. Louis iZ = 19m.38s., eN = 43m.52s.
Philadelphia e = 31m.36s. and 43m.24s.
Bermuda e = 30m.51s.
La Paz iPKP$_2$Z = 21m.2s., PPP? = 29m.2s.
San Juan e = 32m.11s., 44m.49s., and 52m.33s.
Huancayo e = 30m.34s. and 33m.51s.
Long waves were also recorded at Honolulu, Ukiah, Clermont-Ferrand, Marseilles, and Edinburgh.

June 7d. Readings also at 0h. (near Andijan), 1h. (Columbia and near Tashkent), 3h. (Bogota and La Paz), 6h. and 7h. (near Bogota), 13h. (Riverview, Kodaikanal, Calcutta, and Tashkent), 15h. (Fresno), 18h. (Guadalajara, Puebla, Vera Cruz, and Tucson), 19h. (Ottawa, Pittsburgh, St. Louis, Bozeman, Salt Lake City, Haiwee, La Jolla, Mount Wilson (2), Pasadena (2), Tucson, Palomar (2), Riverside (2), Santa Barbara, Tinemaha (2), and Sitka), 21h. (Bogota), 23h. (Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha).

June 8d. 1h. 15m. 27s. Epicentre 33°·7N. 36°·0W.

Epicentre 65°N. 90°W. (stations of the U.S.S.R.).

$A = +\cdot6745$, $B = -\cdot4900$, $C = +\cdot5523$; $\delta = +9$; $h = +1$;
$D = -\cdot588$, $E = -\cdot809$; $G = +\cdot447$, $H = -\cdot325$, $K = -\cdot834$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lisbon	22·2	70	5 1	+ 1	8 59	− 1	5 7	P	—
Halifax	23·9	307	e 5 22	+ 6	e 9 45	+15	—	—	12·5
Bermuda	24·0	276	e 5 18	+ 1	e 9 46	+14	—	—	e 10·2
San Fernando	24·5	76	e 5 18	− 4	i 10 7	+27	—	—	11·6
Toledo	26·2	68	e 5 33	− 5	10 26	+17	5 56	PP	—
Granada	26·5	73	i 5 33	− 8	i 10 21	+ 7	9 11	P_cP	—
Almeria	27·5	74	6 9	+19	i 10 59	+29	9 12	P_cP	13·8
Ivigtut	28·6	348	e 6 3	+ 3	e 10 40	− 8	—	—	e 12·6
Harvard	29·2	299	i 5 59	− 6	—	—	—	—	—
Seven Falls	29·5	309	e 5 59	− 9	e 10 57	− 5	e 13 51?	SSS	15·6
Tortosa	29·7	66	6 22	+12	10 37	−29	7 11	PP	11·7
San Juan	30·9	249	e 6 48	+28	e 11 50	+26	—	—	e 13·6
Stonyhurst	31·0	40	6 26	+ 5	11 17	− 9	13 29	SSS	—
Edinburgh	31·7	37	—	—	11 1	−36	—	—	—
Kew	31·7	45	e 6 22	− 5	e 11 32	− 5	e 7 14	PP	e 12·6
Reykjavik	31·7	12	10 4	?	i 11 36	− 1	12 54	SS	e 13·8
Philadelphia	31·8	294	e 6 36	+ 8	—	—	e 9 10	?	e 13·3
Clermont-Ferrand	32·1	57	e 6 26	− 5	e 11 43	0	—	—	e 15·6
Paris	32·3	51	e 6 28	− 5	i 11 41	− 5	e 7 26	PP	13·6
Ottawa	32·5	305	e 6 40	+ 6	e 11 43	− 6	—	—	15·6
Aberdeen	32·8	35	i 7 41	+64	i 11 43	−11	i 14 3	SSS	i 18·3
Uccle	33·9	47	e 6 44	− 3	i 12 8	− 3	e 7 53	PP	e 13·8
Besançon	34·3	55	e 6 49	− 1	e 12 15	− 2	—	—	14·6
De Bilt	34·7	45	i 6 53	− 1	i 12 17	− 7	—	—	e 14·6
Neuchatel	34·9	54	e 6 47	− 8	—	—	—	—	—
Basle	35·4	54	e 7 0	0	i 12 33	− 1	—	—	—
Strasbourg	35·7	52	e 7 3	+ 1	i 12 36	− 3	8 29	PP	e 16·6
Zürich	36·1	54	e 7 1	− 4	e 12 38	− 7	—	—	—
Milan	36·4	58	i 7 9	+ 1	i 12 46	− 4	—	—	18·3
Stuttgart	36·6	52	e 7 5	− 5	e 12 52	− 1	e 8 22	PP	e 17·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		36·7	54	e 7 13	+ 3	—	—	—	—	e 16·3
Columbia		37·2	285	e 8 54	PP	e 13 20	+18	—	—	e 15·8
Scoresby Sund		37·6	8	e 6 54	−24	e 12 57	−11	e 8 26	PP	e 14·8
Florence		37·7	61	i 7 20	+ 1	i 13 27	+17	i 8 43	PP	—
Bergen		37·8	33	e 7 8	−12	—	—	—	—	e 15·6
Jena		38·4	49	e 7 24	− 1	e 13 20	0	e 8 57	PP	e 16·6
Cheb		38·8	50	e 7 37	+ 9	13 27	+ 1	e 8 41	PP	e 18·6
Potsdam		39·5	47	e 7 33?	− 1	e 13 33?	− 4	i 9 17	PP	e 15·6
Triest		39·5	57	i 7 33	− 1	i 13 33	− 4	e 9 0	PP	e 18·6
Prague		40·1	51	e 7 40	+ 1	e 13 47	+ 1	—	—	e 16·6
Chicago		41·1	298	e 7 55	+ 8	—	—	e 9 39	PP	e 17·0
Ogyalla		42·5	54	e 7 33?	−26	—	—	e 8 3?	P	e 21·6
Kalossa		43·1	56	e 8 0	− 4	—	—	e 8 15	P	e 22·6
Upsala		43·4	37	(e 7 57)	− 9	—	—	(e 10 33?)	PPP	(e 20·6)
St. Louis		43·5	294	e 7 58	− 9	e 14 34	− 2	i 8 17	P	e 17·9
Florissant	N.	43·6	294	—	—	e 14 47	+ 9	i 14 54	PS	—
Belgrade		44·3	59	e 8 16	+ 3	e 14 45	− 3	—	—	e 23·8
Sofia		46·6	61	e 8 35	+ 3	e 15 23	+ 2	—	—	22·1
Bucharest		48·3	58	e 8 39?	− 6	i 15 48	+ 3	e 8 48	P	23·6
Saskatoon		52·8	314	e 9 21?	+ 2	e 16 49	+ 2	—	—	25·6
Moscow		53·9	43	9 34	+ 7	16 57	− 5	—	—	—
Helwan		56·5	74	e 9 45	− 1	17 41	+ 4	e 11 54	PP	—
Bozeman		57·0	308	e 10 52	+62	e 17 48	+ 5	—	—	e 27·8
Logan		58·7	303	e 10 20	+18	e 18 2	− 4	e 13 1	PP	e 24·2
Salt Lake City		59·1	302	e 10 13	+ 9	e 18 9	− 2	e 17 36	?	e 29·8
Tucson		61·5	292	e 10 18	− 3	—	—	e 12 44	PP	e 25·1
Victoria		64·1	313	e 10 33?	− 5	e 19 21?	+ 7	—	—	32·6
Tinemaha	Z.	65·1	300	e 10 37	− 8	—	—	i 10 59	P	—
Riverside	Z.	65·8	297	e 10 53	+ 4	—	—	—	—	—
Mount Wilson	Z.	66·2	297	e 10 48	− 4	—	—	i 11 0	P	—
Pasadena		66·3	297	e 10 53	+ 1	e 19 45?	+ 3	i 11 6	P	e 32·0
Sitka		66·9	325	e 13 29	PP	e 19 53	+ 4	e 24 10	SS	e 32·9
Ukiah		67·8	304	e 19 3	?	—	—	—	—	e 33·7
College		68·5	335	e 13 36	PP	e 20 10	+ 2	—	—	e 32·7
Tashkent		78·6	49	e 12 8	+ 3	e 21 25?	−37	—	—	—
Andijan		80·8	48	e 12 32	+15	—	—	—	—	—
Tananarive		95·1	109	23 20	?	29 22	?	42 27	?	44·8

Additional readings :—
Lisbon SN =7m.23s. The true S reading was wrongly identified as L.
Toledo SN =9m.11s. The true S reading was wrongly identified as L.
Granada pP =5m.51s., sS =10m.55s.
Almeria PP =6m.53s., PPP =7m.9s., Q =11·6m., SSS =12m.29s.
Stonyhurst S =8m.34s., SSS =11m.49s., S_cS =12m.56s., phases wrongly identified.
Uccle eSN =11m.57s.
Strasbourg eS =12m.27s., SS =14m.46s.
Stuttgart eSS =15m.11s., eQ =15·8m
Scoresby Sund e =10m.2s.
Florence iPPPE =9m.11s., iSSE =15m.39s., iSSSE =16m.28s.
Jena ePNZ =7m.33s.
Potsdam iSE =13m.40s.
Chicago e =10m.34s.
Ogyalla eE =9m.3s.?
Upsala readings have been increased by 3 minutes.
St. Louis iZ =8m.20s.
Belgrade e =11m.41s. and 19m.32s.
Bucharest iPPE =10m.40s., eSN =15m.43s., iS_cSE =18m.32s., iSSE =18m.59s.
Helwan eZ =10m.45s., SSN =23m.47s.
Tucson ipP =10m.37s., e =17m.4s.
Mount Wilson i =11m.5s.

June 8d. 20h. 42m. 38s. Epicentre 3°·0S. 102°·0E.

Epicentres 3°S., 102°·5E. (U.S.C.G.S.);
0°, 98°E. (stations of the U.S.S.R.).

$A = -\cdot2076$, $B = +\cdot9768$, $C = -\cdot0520$; $\delta = -6$; $h = +7$;
$D = +\cdot978$, $E = +\cdot208$; $G = +\cdot011$, $H = -\cdot051$, $K = -\cdot999$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo		24·2	294	i 5 18	− 1	—	—	—	—	9·5
Kodaikanal	E.	27·7	300	i 5 12a	−40	i 9 57	+24	5 40	?	—
Calcutta	N.	28·7	333	i 5 57k	− 4	i 10 12	−38	i 6 25	PP	12·2
Hyderabad	E.	30·9	312	(6 28)	+ 8	(11 31)	+ 7	(7 27)	PP	(15·9)
Perth		31·6	157	6 27	+ 1	11 37	+ 2	7 7	PP	—
Bombay	E.	36·0	308	e 7 4	− 1	i 12 49	+ 5	8 32	PP	—
New Delhi		39·4	325	i 7 31k	− 2	i 13 35	0	8 59	PP	17·5
Nake		40·9	38	e 7 46	0	14 7	+ 9	—	—	—
Miyazaki		44·6	37	8 14	− 2	14 51	− 1	—	—	20·9
Hukuoka		45·2	34	8 37	+17	15 12	+11	—	—	e 18·8
Zinsen		46·3	27	8 29	0	15 16	0	—	—	—
Koti		47·0	37	e 8 35	0	15 25	− 1	—	—	—
Hamada		47·1	34	e 8 25	−10	15 23	− 5	—	—	—
Kobe		48·8	37	8 46	− 3	15 49	− 3	—	—	—
Nagoya		50·2	38	e 8 59	− 1	15 25	−46	—	—	—
Osima		51·4	40	9 7	− 2	16 25	− 3	—	—	—
Stalinabad		51·5	327	i 9 8	− 1	—	—	—	—	—
Nagano		51·9	36	e 9 11	− 1	16 27	− 8	—	—	—
Yokohama		52·0	39	9 48	+35	—	—	—	—	e 33·5
Tokyo Cen. Met. Ob.		52·2	39	9 24	+ 9	e 16 40	+ 1	i 11 10	PP	24·2
Tashkent		53·2	330	i 9 24	+ 2	i 16 56	+ 4	—	—	—
Vladivostok		53·2	27	9 23	+ 1	—	—	—	—	—
Brisbane	N.	54·4	122	i 9 31	0	e 17 4	− 5	i 20 25	SS	i 28·2
Sendai		54·6	38	e 9 31	− 1	17 8	− 3	—	—	—
Irkutsk		55·1	2	9 46	+10	i 17 24	+ 6	—	—	—
Riverview		55·1	130	i 9 35a	− 1	i 17 20	+ 2	e 23 34?	Q	e 26·7
Sydney		55·1	130	e 9 52	+16	i 17 22	+ 4	—	—	e 24·5
Mizusawa	E.	55·3	37	e 9 31	− 7	17 30	+ 9	—	—	24·4
	N.	55·3	37	e 9 35	− 3	17 25	+ 4	—	—	24·5
Tananarive		55·5	250	9 43	+ 4	17 29	+ 5	11 43	PP	26·3
Mori		56·9	34	9 54	+ 5	—	—	i 18 23	PPS	e 30·8
Sapporo		58·0	33	9 56	− 1	18 5	+ 8	—	—	25·8
Sverdlovsk		68·4	337	e 10 58	− 8	i 19 51	−16	—	—	—
Ksara		72·1	307	e 11 27?	− 1	e 20 58	+ 8	—	—	—
Christchurch		73·9	135	11 40	+ 1	21 8	− 2	14 48	PP	34·5
Johannesburg		74·3	244	i 21 28	S	(i 21 28)	+13	—	—	35·4
Auckland		74·5	128	11 33	− 9	21 17	0	21 32	ScS	39·4
Helwan		74·8	302	11 40	− 4	21 22	+ 2	14 31	PP	—
Wellington		75·1	132	11 46	0	21 17	− 7	26 17	SS	36·4
Arapuni		75·3	129	e 13 22?	?	21 22?	− 4	—	—	32·4
Tuai		76·6	130	12 2	+ 8	21 34	− 6	—	—	—
Moscow		78·4	329	12 5	+ 1	21 50	−10	—	—	—
Istanbul		79·2	312	12 0	− 8	21 56	−12	29 40	SSS	51·3
Focsani		81·6	317	e 12 34?	+13	e 22 39	+ 6	—	—	39·4
Bacau		82·0	318	e 12 34?	+11	e 22 37	0	—	—	40·4
Bucharest		82·1	315	e 12 19	− 5	i 22 38	0	i 15 14	PP	34·4
Campulung		83·0	316	e 12 40?	+12	e 22 42	− 5	—	—	38·4
Cernauti		83·0	319	e 12 32	+ 4	i 22 48	+ 1	—	—	43·4
Sofia		83·7	313	e 12 32	0	e 22 50	− 4	28 24	SS	e 34·8
Belgrade		86·1	315	e 12 41	− 3	—	—	e 16 24	PP	e 47·8
Kalossa		87·4	317	e 12 47	− 3	23 31	+ 1	—	—	e 47·9
Ogyalla	N.	88·0	318	13 14	+21	23 48	+12	e 24 19	PS	e 44·4
Upsala	E.	89·7	330	e 13 9	+ 8	e 23 56	+ 4	e 16 35	PP	e 42·4
	N.	89·7	330	e 13 19	+18	e 23 52	0	e 17 9	PP	e 43·4
Prague		90·7	320	e 13 16	+10	e 23 56	− 5	e 24 34?	PS	36·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		90·9	315	e 13 11	+ 4	e 23 16	[−22]	—	—	e 44·4
Potsdam	E.	91·7	322	e 13 22?	+12	i 23 51	[+ 8]	i 24 22	S	52·4
Cheb		92·0	320	e 13 22	+10	e 24 1	−11	e 30 28	SS	e 57·4
Copenhagen		92·2	326	13 17	+ 4	23 41	[− 5]	24 11	S	—
Florence		92·6	314	i 13 28	+13	i 24 1	[+13]	24 32	S	—
Jena		92·6	320	e 13 22?	+ 7	e 24 1	[+13]	e 24 21	S	e 40·4
Chur		93·9	316	e 13 16	− 5	e 23 58	[+ 3]	—	—	—
Milan		94·1	315	e 13 23	+ 1	i 24 3	[+ 7]	25 10	S	44·6
Stuttgart		94·1	319	e 13 17	− 5	i 23 42	[−14]	i 24 31	S	e 51·0
Zürich		94·5	317	e 13 23	0	e 24 7	[+ 9]	e 16 24	?	—
Strasbourg		95·0	319	e 13 33	+ 7	e 24 5	[+ 4]	e 24 33	S	e 52·4
Neuchatel		95·6	317	e 13 25	− 3	e 24 8	[+ 4]	—	—	—
Basle		95·7	317	e 13 30	+ 1	e 24 36	− 8	e 17 27	PP	—
Bergen		95·9	331	13 39	+ 9	24 17?	[+11]	e 17 12	PP	e 43·4
Besançon		96·3	317	—	—	e 24 28	{+ 1}	—	—	e 42·4
De Bilt		96·6	322	i 13 43	+10	i 24 52	0	i 24 22	SKKS	e 40·4
Marseilles		96·9	313	26 7	PS	—	—	—	—	—
Uccle		97·2	320	e 13 36	0	i 24 56	− 1	i 31 42	SS	40·7
Clermont-Ferrand		98·3	315	e 13 53	+12	i 24 53	−13	e 25 57	?	45·6
Paris		98·5	318	e 13 53	+11	e 24 23	[+ 3]	—	—	41·4
Barcelona		99·4	311	e 17 57	PP	—	—	—	—	e 41·5
Kew		100·0	321	i 13 59	+11	e 25 23	+ 3	e 24 41	SKS	e 39·4
Aberdeen		100·2	328	e 13 54	+ 5	25 4	{+ 9}	—	—	45·9
Honolulu		100·6	69	18 49	PP	e 25 7	{+ 9}	—	—	e 41·6
Tortosa	E.	100·7	310	e 13 52	0	24 45	[+15]	32 33	SS	49·3
Stonyhurst		100·9	324	e 13 22?	−30	i 24 43	[+11]	25 33	S	51·0
Edinburgh		101·0	327	—	—	e 24 30	[− 2]	25 28	S	—
College		101·2	24	e 17 53	PP	e 26 3	+33	e 32 54	SS	e 43·8
Almeria		103·4	307	e 13 34	−30	24 50	[+ 7]	28 0	PS	51·9
Scoresby Sund		103·7	343	e 14 8	+ 3	—	—	e 18 36	PP	e 42·5
Granada		104·2	307	i 14 21	+14	24 51	[+ 4]	18 23	PP	51·1
Toledo		104·2	310	17 10	?	25 52	{+28}	18 58	PP	58·6
San Fernando	E.	106·4	307	17 9	?	26 26	?	20 24	PPP	54·9
Reykjavik		106·9	337	27 35	PS	—	—	—	—	50·3
Lisbon		108·3	310	16 44	?	25 47	{− 6}	34 50	PSS	56·4
Sitka		109·5	29	e 17 47	?	e 25 47	{−14}	e 34 30	SS	e 45·2
Ivigtut		117·7	344	e 20 1	PP	e 25 25	[−17]	e 36 20	SS	e 50·2
Victoria		120·3	33	20 4?	PP	36 51	SS	—	—	e 51·4
Seattle		121·4	34	e 24 55	?	—	—	e 31 6	PPS	e 59·5
Ferndale		124·0	41	e 20 2	?	—	—	e 20 29	PP	e 67·4
Ukiah		125·4	42	e 20 55	PP	e 26 23	[+16]	e 37 44	SS	e 51·2
Saskatoon		125·5	22	e 24 40?	?	—	—	e 38 10	SSP	53·4
Berkeley		126·7	44	i 18 52	[−14]	i 32 36	PPS	i 21 14	PP	e 69·9
Santa Clara		127·2	44	e 21 24	PP	—	—	—	—	e 58·5
Bozeman		128·6	29	e 19 36	[+27]	e 38 31	SS	e 21 13	PP	e 53·8
Tinemaha	z.	129·8	42	i 19 12	[0]	—	—	e 32 2	PS	—
Santa Barbara	z.	130·2	45	e 19 12	[0]	—	—	—	—	—
Logan		130·9	33	e 19 14	[0]	e 26 30	[+ 8]	e 38 37	SS	e 53·3
Pasadena	z.	131·4	45	i 19 15	[+ 1]	e 31 50	PS	e 21 41	PP	e 57·4
Mount Wilson	z.	131·5	45	e 19 14	[0]	e 31 50	PS	i 22 41	SKP	—
Salt Lake City		131·6	34	e 19 20	[+ 5]	—	—	e 43 55	SSS	e 53·0
Riverside	z.	132·1	45	e 19 14	[− 2]	—	—	e 31 43	PS	—
Palomar	z.	132·8	45	e 19 18	[+ 1]	—	—	e 32 0	PS	—
Seven Falls		135·6	352	19 36	[+14]	40 9	SS	e 22 22?	PP	56·4
Shawinigan Falls		136·4	354	e 21 58?	PP	—	—	e 40 46?	SSP	63·4
Halifax		136·6	345	e 22 14	PP	e 40 10?	SS	—	—	57·4
Rio de Janeiro	E.	137·4	231	e 22 22	PP	—	—	—	—	i 40·4
Tucson		137·6	43	e 19 16	[−10]	i 23 3	PKS	e 21 52	PP	e 51·9
Ottawa		137·7	357	19 24	[− 2]	26 34?	[− 1]	22 15	PP	e 65·4
La Plata	E.	137·8	205	20 4	[+38]	23 4	PKS	40 34	SS	61·7
	N.	137·8	205	19 52?	[+26]	23 16?	PKS	40 28	SS	56·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lincoln		138·7	20	e 22 35	PP	—	—	—	—	e 64·7
Vermont		139·3	354	e 22 37	PP	e 27 30	[+52]	e 34 35	PPS	i 61·7
Harvard		140·2	352	e 19 33	[+ 2]	—	—	—	—	e 76·4
Weston		140·3	352	19 38	[+ 7]	41 2	SS	23 9	SKP	—
Chicago		140·4	12	e 22 28	PP	e 40 47	SS	i 23 20	SKP	e 55·5
Fordham		142·1	353	e 19 39	[+ 5]	—	—	e 22 42	PP	—
Florissant		142·6	16	e 19 35	[0]	e 42 14	PSS	i 19 43	PKP	—
New Kensington		142·6	2	18 58?	[−37]	e 23 34?	PKS	e 28 58?	PKKP	e 64·5
Pittsburgh		142·7	2	i 19 42	[+ 7]	—	—	i 23 22	SKP	—
St. Louis		142·8	16	e 19 32	[− 3]	e 42 17	PSS	i 19 46	PKP	—
Philadelphia		143·1	355	e 19 47	[+11]	i 41 28	SS	e 22 45	PP	e 60·3
Cape Girardeau	E.	144·2	15	e 19 44	[+ 6]	—	—	—	—	—
Bermuda		148·2	338	e 19 50	[+ 6]	i 42 17	SS	e 23 0	PP	e 61·5
Columbia		149·0	5	e 20 0	[+14]	e 26 28	[−24]	—	—	e 67·6
La Paz		158·3	206	20 0	[+ 1]	26 46	[−17]	i 20 8	PKP	66·4
Fort de France		159·7	304	e 20 7	[+ 7]	—	—	—	—	—
San Juan		160·8	323	e 20 14	[+13]	e 26 59	[− 6]	e 24 57	PP	e 67·2
Huancayo		164·8	190	e 20 15	[+ 9]	e 27 0	[− 8]	i 24 40	PP	e 63·0
Balboa Heights		173·8	14	e 20 22?	[+11]	—	—	—	—	—
Bogota		175·6	292	e 20 16	[+ 4]	—	—	e 26 2	PP	—

Additional readings :—
Calcutta iN =8m.9s., iSSN =11m.9s.
Hyderabad P_cPE =(9m.19s.), iE =(13m.40s.). 30s. has been added to all readings.
Perth PPP =7m.22s., SS =12m.57s.
Bombay iE =7m.38s., PPPE =8m.49s., iE =9m.43s., 13m.10s., 13m.49s., and 14m.32s., SSE =15m.18s.
New Delhi PPP =9m.27s., P_cP =9m.49s., iS =13m.31s., SSN =16m.2s., SSS =16m.24s., S_cSEN =16m.59s.
Tokyo PN =9m.28s., eP_cP? =10m.44s., PPPN =12m.10s., PSN =17m.19s., iSSN =20m.11s.
Brisbane iQ =23m.13s.
Riverview iE =10m.23s.
Tananarive PS =18m.7s., SS =21m.10s., SSS =23m.13s., E =23m.49s., N =24m.49s.
Christchurch i =12m.19s., S_cS =22m.0s., SS =25m.18s., Q =30m.28s.
Johannesburg i?N =21m.58s., SN =31m.16s.
Auckland PPS? =22m.15s., SS =26m.12s., i =27m.9s., e =31m.22s.?, Q =32m.34s.
Helwan eZ =12m.40s., PPPZ =16m.7s., SSN =26m.24s.
Wellington P_cP?Z =11m.55s., SSS =29m.22s.?, Q =31m.22s.?.
Focsani eN =12m.44s., eSE =22m.43s.
Bucharest iEZ =12m.37s., ePPZ =15m.23s., iSE =22m.34s., iPSN =23m.4s., iPSE =23m.15s.
Sofia eN =18m.52s.,?, eE =19m.52s.?, ePS?N =23m.26s.
Belgrade iP_cP =12m.59s., ePPS =24m.22s., i =24m.34s. and 30m.11s.
Kalossa PN =12m.52s., PE =13m.7s.
Ogyalla ePPN =17m.14s., eN =25m.12s.
Upsala eE =17m.54s., ePPPN =18m.53s., ePPPE =18m.59s., eSKS =23m.33s., PS?E =24m.22s., eSSN =29m.41s., eSSE =29m.45s., eSSSN =33m.22s.?, eSSS?E =34m.22s.?, eN =37m.22s.?, eE =38m.22s.?.
Cheb ePS =24m.40s.
Copenhagen 24m.50s.
Florence iPPE =16m.53s., iPPPE =19m.15s., iPSE =25m.40s., iSSE =30m.47s.
Jena ePN =13m.27s., eZ =14m.41s., eN =15m.9s., 15m.53s., and 24m.9s., eE =36m.22s.? and 36m.52s.?, eN =37m.22s.,?, eEN =38m.52s.?.
Stuttgart iZ =13m.33s., e =25m.6s., eSP =25m.50s., ePPS? =27m.27s., e =28m.56s., eSS =31m.22s., eQ =47·4m.
Zürich PS =24m.46s.
Strasbourg ePP =17m.41s., ePPS =27m.9s.
Bergen iZ =17m.37s., SS =30m.42s., SSS =35m.17s.?.
De Bilt eE =22m.52s., iE =27m.42s., eSS =31m.42s., eSSS =36m.22s.
Uccle eZ =16m.16s., iE =27m.48s. and 32m.31s., iN =35m.14s., iE =36m.38s.
Aberdeen iE =37m.58s., iN =40m.1s.
Kew ePPEZ =18m.27s., ePPPNZ =19m.55s., eSKKSEN =24m.59s., ePSE =26m.35s., eSSN =30m.37s., eSSE =30m.59s., eSSSN =36m.7s.
Honolulu e =26m.1s. and 31m.38s., eSS? =33m.41s., e =34m.23s.
Tortosa PSE =25m.47s., Q =43m.33s.
Stonyhurst i =23m.23s. and 25m.13s., iS =26m.8s., i =26m.16s.
College e =18m.1s., ePS =26m.47s., e =37m.20s., and 40m.5s.
Almeria PKP =17m.56s., PP =18m.55s., PPP =21m.50s., i =22m.50s., SKKS =25m.53s., PPS =28m.49s., SS =33m.30s.
Scoresby Sund e =16m.53s., 22m.34s., and 31m.36s.
Granada S =27m.4s., PPS =28m.12s., SS =33m.18s.
Toledo e =17m.38s., SS? =35m.56s.

Continued on next page.

San Fernando PKP?E =19m.15s., SPS?E =31m.22s.
Lisbon PKPE =18m.36s., PKPZ =19m.2s., SKSN =26m.1s.
Sitka e =21m.40s., eSKS? =25m.40s., e =27m.35s., i =34m.42s., e =41m.35s.
Ivigtut eSS =37m.35s., eSSS =41m.28s., e =49m.29s.
Victoria eN =23m.38s., S =28m.21s., SSS =40m.28s.?.
Ukiah e =47m.5s.
Saskatoon e =46m.22s.?.
Berkeley iN =21m.20s. and 42m.8s., iZ =60m.13s.
Bozeman e =24m.13s. and 32m.41s., eSSS =43m.19s.
Logan iPKS? =22m.54s., e =30m.46s. and 33m.37s., eSSS =43m.26s.
Pasadena iSKPZ =22m.42s.
Salt Lake City e =19m.27s.
Seven Falls PPS =34m.40s.?, e =49m.58s.?.
Rio de Janeiro ePN =22m.54s.
Tucson i =22m.55s., e =25m.59s. and 27m.34s., ePS =31m.50s., ePPS =33m.10s.
e =41m.8s. and 45m.38s.
Ottawa e =30m.10s.?, PPS =34m.34s.,?, SS =40m.28s.?, SSS =46m.4s.?.
La Plata E 20m.58s.?, 28m.22s., SSS? =45m.34s., and 54m.28s.
La Plata N PP? =21m.34s., SKS =29m.40s.
Lincoln e =36m.29s. and 41m.48s.
Vermont e =29m.38s., 39m.1s. and 47m.16s.
Chicago e =29m.17s. and 37m.34s., i =40m.51s., e =44m.26s.
Fordham e =20m.19s.
New Kensington e =43m.52s.? and 61m.28s?.
St. Louis eN =39m.45s.
Philadelphia i =24m.36s., iSKS? =27m.45s., i =30m.26s., e =32m.46s., 35m.58s., and 40m.25s., eSSS =47m.2s.
Cape Girardeau eE =20m.45s. and 25m.47s.
Bermuda e =29m.16s., 37m.24s., and 50m.54s.
Columbia e =33m.8s. and 35m.13s.
La Paz iPKP$_2$Z =20m.54s., iSKPZ =23m.47s., iPP?Z =24m.58s., SKKS? =31m.10s., PSKSN =34m.52s., SSN =44m.47s., SSSN =51m.22s.
San Juan e =30m.29s., 35m.12s., and 44m.6s., eSS? =46m.37s., e =52m.51s.
Huancayo i =24m.40s., e =34m.35s., ePKPPKP? =43m.59s., e =46m.12s. and 55m.32s.
Bogota eP$_c$P? =20m.46s., eS? =26m.30s., e =29m.22s. and 32m.42s.

June 8d. Readings also at 0h. (Paris and near Bogota), 1h. (Stonyhurst, Barcelona, and Toledo), 4h. (near Berkeley and near Irkutsk), 11h. (near Berkeley), 12h. (Branner), 14h. (Helwan, near Ksara, Stuttgart, and near Ebingen), 18h. (Stuttgart, Fort de France, near La Paz, La Plata, Mount Wilson, Palomar, Pasadena, Riverside, Tinemaha, and Tucson), 19h. (Tashkent), 20h. (near St. Louis).

June 9d. 3h. 6m. 15s. Epicentre 1°·2S. 101°·0E.

$A = -\cdot1908$, $B = +\cdot9814$, $C = -\cdot0208$; $\delta = -2$; $h = +7$;
$D = +\cdot982$, $E = +\cdot191$; $G = +\cdot004$, $H = -\cdot020$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Colombo		22·6	291	i 5 6	+ 3	(9 21)	+14	—	—	9·4
Kodaikanal	E.	26·0	298	i 5 10a	−26	9 40	−26	10 39	SS	—
Calcutta	N.	26·6	333	e 5 32	−10	i 10 52	+36	i 6 42	PPP	—
Perth		33·6	157	6 50	+ 6	13 13	P$_c$S	8 20	PPP	16·3
Isigakizima		33·9	40	e 6 46	− 1	12 15	+ 4	—	—	—
Bombay	E.	34·1	307	i 6 51	+ 3	i 12 15	+ 1	8 13	PP	—
New Delhi		37·4	325	i 7 16k	0	i 13 0	− 5	8 17	PP	17·1
Naha		37·5	41	e 7 21	+ 4	13 31	P$_c$S	—	—	—
Kagosima		43·0	38	e 8 2	− 1	14 27	− 2	—	—	—
Miyazaki		43·8	39	8 10	+ 1	14 48	+ 8	—	—	18·6
Hukuoka		44·3	36	8 15	+ 2	—	—	—	—	—
Zinsen		45·2	28	e 8 21	+ 1	15 54	+53	—	—	—
Heizyô		46·0	32	8 47	+20	15 56	PPS	—	—	—
Hamada		46·2	36	e 8 28	0	15 23	+ 8	—	—	—
Muroto		46·4	40	i 8 18	−12	15 18	0	—	—	—
Kobe		48·0	39	e 8 41	− 2	15 41	0	—	—	—
Nagoya		49·4	40	8 55	+ 2	16 25	PPS	—	—	—
Stalinabad		49·4	327	(i 8 55)	+ 2	(i 16 3)	+ 3	—	—	—
Frunse		49·9	335	(e 8 59)	+ 2	—	—	—	—	—
Misima		50·6	41	9 2	0	16 8	− 9	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nagano		51·1	40	9 8	+ 2	16 43	PS	—	—	—
Yokohama		51·3	42	9 8	0	17 16	+50	—	—	—
Tokyo Cen. Met. Ob.		51·5	41	e 9 23	+14	14 12	P_cS	10 22	P_cP	17·2
Vladivostok		52·1	29	(9 13)	− 1	(16 21)	−17	—	—	—
Irkutsk		53·4	3	(9 46)	+22	(17 1)	+ 6	—	—	—
Sendai		53·8	39	9 25	− 1	17 5	+ 4	—	—	—
Mizusawa		54·4	38	e 9 16	−15	17 8	− 1	17 12	PS	24·3
Tananarive		55·2	248	9 39	+ 2	17 24	+ 4	11 30	PP	25·3
Mori		56·0	35	(9 44)	+ 1	(17 53)	PPS	—	—	(e 29·3)
Brisbane	N.	56·2	123	e 9 13	−31	e 17 16	−17	i 21 20	SS	i 28·4
Riverview		57·0	131	i 9 45a	− 5	i 17 32	−11	i 11 51	PP	27·0
Sydney		57·0	131	e 9 57	+ 7	—	—	e 13 3	PPP	e 28·5
Sapporo		57·0	34	e 10 1	+11	18 7	PPS	i 11 1	P_cP	25·0
Sverdlovsk		66·3	338	(i 10 46)	− 6	—	—	—	—	—
Ksara		70·2	306	e 11 20	+ 3	e 20 39	+11	—	—	—
Helwan		73·1	301	11 32	− 2	21 0	− 1	14 18	PP	—
Johannesburg		74·2	243	(i 11 39?)	− 1	(i 21 15?)	+ 1	(i 12 21?)	P_cP	i 32·3
Christchurch		75·9	135	11 47	− 3	21 24	− 8	26 22	SS	37·2
Auckland		76·3	128	12 5	+13	21 35	− 2	22 10	S_cS	36·7
Moscow		76·4	329	(11 50)	− 3	(21 34)	− 4	—	—	—
Wellington		77·0	132	11 58	+ 2	21 33	−12	12 25	P_cP	37·8
Arapuni		77·2	129	e 15 45?	?	20 27	?	e 23 9	PPS	37·8
Istanbul		77·2	313	11 35	−22	21 35	−12	28 45	?	e 50·7
Tuai		78·5	130	12 18	+14	21 48	−13	—	—	—
Focsani		79·6	317	e 12 15	+ 5	e 22 21?	+ 9	e 12 33?	P_cP	—
Bacau		80·0	318	e 12 12	− 1	e 22 19	+ 2	e 12 16	P_cP	—
Bucharest		80·1	316	i 12 11	− 2	i 22 20	+ 2	i 12 16	P_cP	33·8
Campulung		81·0	316	e 12 18	0	e 22 28	+ 1	—	—	34·8
Cernauti		81·0	319	e 12 18	0	e 22 20	− 7	—	—	34·8
Sofia		81·8	313	e 12 23	+ 1	e 22 28	− 7	—	—	e 34·2
Belgrade		84·1	315	e 12 33	− 1	22 59	+ 1	i 12 36	P_cP	e 42·8
Kalossa		85·4	316	12 49	+ 9	23 12	+ 1	—	—	e 38·8
Ogyalla	N.	86·0	317	12 46	+ 3	23 24	+ 7	24 1	PS	e 38·8
Apia		87·0	104	e 23 57	S	(e 23 57)	+30	e 26 24	?	e 45·7
Upsala		87·7	330	e 12 46	− 6	23 32	− 7	e 13 9	P_cP	e 35·8
Prague		88·7	320	12 58	+ 1	e 23 22	[− 2]	—	—	e 35·8
Triest		88·9	316	i 12 57	− 1	i 23 23	[− 3]	—	—	e 43·8
Cheb		90·0	320	e 13 7	+ 4	e 23 40	{− 2}	e 37 3?	?	e 47·8
Copenhagen		90·2	325	e 13 1	− 3	23 54	− 2	23 15	SKS	36·8
Florence		90·6	314	e 13 8	+ 3	i 24 1	+ 1	i 13 25	P_cP	—
Jena		90·6	321	i 13 4	− 1	i 24 4	+ 4	e 23 36	SKS	e 40·8
Chur		91·9	317	e 13 8	− 3	e 23 42	[− 2]	—	—	—
Milan	E.	92·1	315	e 13 16	+ 4	i 23 46	[+ 1]	—	—	45·4
Stuttgart		92·1	319	e 13 9	− 3	e 24 13	0	i 13 38	P_cP	e 38·3
Zürich		92·5	317	e 13 11	− 3	e 24 18	+ 1	e 23 33	SKS	—
Strasbourg		93·0	319	e 13 19	+ 2	e 24 23	+ 2	e 17 34	PP	e 37·8
Basle		93·2	317	e 13 16	− 1	e 24 26	+ 3	e 16 48	PP	—
Neuchatel		93·6	317	e 13 17	− 2	e 23 46	[− 7]	—	—	—
Bergen		93·9	330	13 18	− 3	e 24 27	− 2	e 13 47	P_cP	e 43·8
Besançon		94·3	317	e 15 55	?	e 23 58	[+ 1]	—	—	e 37·8
De Bilt		94·5	322	e 13 21	− 2	e 24 31	− 3	i 24 1	SKS	e 43·8
Marseilles		94·9	313	—	—	e 25 45	PS	—	—	37·8
Uccle		95·1	321	e 13 26	0	i 24 34	− 5	i 13 54	P_cP	39·8
Clermont-Ferrand		96·4	315	e 13 32	0	e 24 7	[− 2]	e 19 38	PPP	e 34·8
Paris		96·5	318	i 13 31	− 1	24 50	− 1	e 24 9	SKS	39·8
Barcelona		97·4	312	e 15 7	?	26 25	PS	—	—	e 40·1
Kew		98·0	322	i 13 41	+ 2	i 25 9	+ 5	e 17 32	PP	e 44·8
Aberdeen		98·1	327	i 14 12	+32	25 9	+ 5	—	—	44·9
Tortosa		98·7	311	e 13 55	+13	25 14	+ 4	20 8	PPP	49·5
Edinburgh		98·9	326	—	—	24 22	[0]	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stonyhurst		98·9	324	e 14 15	+32	24 23	[+ 1]	i 26 29	PS	48·4
College		100·0	24	e 16 53	?	e 24 38	[+11]	e 17 57	PP	42·0
Honolulu		100·8	68	e 14 49	+57	e 24 17	[−14]	e 27 28	PS	e 47·0
Almeria		101·5	307	e 14 4	+ 9	24 37	[+ 3]	18 6	PP	50·8
Scoresby Sund		101·7	343	e 13 55	− 1	e 25 34	− 1	e 18 36	PP	e 51·3
Granada		102·3	308	i 13 58	− 1	25 33	− 7	24 42	SKS	i 53·6
Toledo		102·3	310	e 17 20	?	29 38	?	i 17 53	PP	58·7
San Fernando	E.	104·5	307	e 15 3	+55	24 50	[+ 2]	20 20	PPP	54·3
Reykjavik		104·9	338	31 51	?	—	—	e 33 39?	SSP	50·7
Lisbon		106·4	310	18 2	[−24]	26 14	0	18 45	PP	53·1
Sitka		108·4	28	e 16 0	?	e 25 22	[+17]	e 18 52	PP	e 44·5
Ivigtut		115·7	343	e 19 25	PP	—	—	—	—	e 45·9
Victoria		119·4	32	e 20 6	PP	e 27 35	{+25}	—	—	50·8
Seattle		120·5	32	e 20 54	PP	—	—	—	—	e 38·6
Saskatoon		124·2	20	22 45?	?	26 3?	[− 1]	30 49	PS	52·8
Ukiah		124·8	41	e 18 58	[− 4]	e 31 4	PS	e 20 40	PP	e 50·5
Berkeley		126·1	42	i 19 13	[+ 8]	—	—	i 20 58	PP	e 53·5
Santa Clara		126·6	42	e 20 47	PP	—	—	—	—	e 59·4
Bozeman		127·5	27	e 21 12	PP	e 31 33	PS	e 38 33	SS	e 52·9
Tinemaha		129·2	40	e 19 12	[+ 2]	e 22 33	PKS	—	—	—
Santa Barbara		129·6	44	e 19 16	[+ 5]	i 22 37	PKS	—	—	—
Logan		130·0	31	e 19 17	[+ 5]	i 31 59	PS	e 21 35	PP	e 53·8
Salt Lake City		130·7	32	e 19 34	[+21]	e 22 38	PKS	e 31 51	PS	e 55·7
Mount Wilson	Z.	130·9	43	e 19 14	[0]	i 22 38	PKS	i 21 36	PP	—
Pasadena		130·9	43	i 19 14	[0]	i 22 32	PKS	—	—	e 52·3
Riverside		131·5	43	e 19 13	[− 2]	i 22 34	PKS	—	—	—
La Jolla		132·2	44	e 19 20	[+ 4]	i 22 41	PKS	—	—	—
Seven Falls		133·7	352	e 19 33?	[+14]	e 22 38	PKS	e 40 0	SSP	56·8
Shawinigan Falls		134·5	353	e 19 45?	[+25]	e 22 51?	PKS	—	—	55·8
Halifax		134·6	344	e 21 45?	PP	e 39 45?	SS	e 44 45?	SSS	56·8
Ottawa		135·9	357	19 21	[− 2]	22 45?	PKS	22 3	PP	65·8
Vermont		136·6	354	e 20 8	?	e 27 16	?	e 22 58	PKS	e 56·5
Tucson		137·0	41	e 19 17	[− 8]	e 26 13	[−21]	e 22 5	PP	e 54·6
Lincoln		137·4	19	e 22 53	PKS	e 41 11	SSP	—	—	e 58·5
Des Moines		137·7	15	e 23 5	PKS	e 26 53	[+18]	—	—	e 51·0
Harvard		138·3	351	e 19 29	[+ 2]	e 23 1	PKS	e 22 53	PP	e 73·3
Weston		138·4	351	19 17	[−11]	—	—	23 0	PKS	—
Chicago		138·8	10	e 22 14	PP	32 39	PS	e 40 32	SS	e 58·4
La Plata	E.	139·0	207	20 27?	[+58]	23 33?	?	40 45?	SS	56·8
	N.	139·0	207	16 15	?	23 9	PKS	19 45?	PKP	51·7
	Z.	139·0	207	23 2	PKS	—	—	—	—	70·8
Fordham		140·3	352	e 19 25	[− 6]	—	—	i 23 8	PKS	—
New Kensington		140·8	1	e 21 51?	?	—	—	e 41 9?	SS	e 62·6
Pittsburgh		140·9	1	e 19 43	[+11]	i 23 17	PKS	—	—	—
Florissant	Z.	141·2	14	e 19 26	[− 7]	—	—	i 22 36	PP	—
St. Louis		141·3	14	e 19 37	[+ 4]	—	—	e 22 36	PP	—
Philadelphia		141·3	353	e 20 5	[+32]	i 27 48	[+67]	e 22 31	PP	e 58·9
Cape Girardeau	E.	142·8	13	e 19 55	[+20]	—	—	—	—	—
Bermuda		146·2	337	e 19 35	[− 6]	e 29 42	{−15}	e 34 15	PS	e 60·2
Columbia		147·3	3	e 19 52	[+ 9]	e 42 26	SS	e 26 18	PPP	e 56·9
Fort de France		157·8	306	e 20 15	[+17]	—	—	—	—	—
San Juan		158·8	324	e 20 13	[+14]	—	—	e 24 25	PP	e 66·0
La Paz		159·4	212	i 20 4 a	[+ 4]	31 32	{+23}	i 21 14	PKP$_a$	75·8
Huancayo		166·3	196	e 20 39	[+32]	—	—	e 45 6	SS	e 46·1
Balboa Heights		172·3	4	e 20 31	[+20]	—	—	—	—	—

Additional readings :—
Perth PPP =8m.45s.
Bombay iE =7m.8s., and 7m.31s., P_cPE =9m.17s., iE =11m.32s.
New Delhi P_cP =9m.41s., SSN =15m.22s., SSE =15m.43s.
Stalinabad, Frunse, Vladivostok, and Irkutsk readings have been reduced by 30m.
Tananarive PPP =12m.45s., SS =20m.52s.
Mori readings reduced by 1 minute.
Brisbane iQN =24m.30s.
Riverview iE =12m.57s., iNZ =17m.35s., Q?N =24m.13s.
Sydney e =19m.51s.?.

Continued on next page.

Sverdlovsk reading reduced by 30 minutes.
Helwan PPPN =15m.50s.
Johannesburg readings reduced by 10 minutes.
Christchurch i =23m.25s., Q =31m.45s.
Auckland i =22m.35s. and 24m.35s., Q? =31·8m., PKP,PKP =41m.45s.?.
Moscow readings reduced by 30 minutes.
Wellington iZ =14m.17s., Q =31·8m.
Arapuni e =26m.3s., Q? =30·8m.
Bucharest ipPE =12m.43s., iPPEN =15m.19s., iPSEN =22m.57s., eSSE =27m.22s.
Belgrade iP$_c$P =13m.2s., iPP =16m.18s., iPS =24m.4s., e =35m.3s.
Kalossa SE =23m.8s.
Upsala ePP?E =16m.45s.?, eSKSN =23m.17s., SE =23m.37s., eE =25m.13s., eSSE = 29m.45s.?, eSS?N =30m.45s.?, eSSSE =32m.45s.?.
Cheb e =13m.40s.
Florence iPPPE =19m.51s., iSKSE =23m.37s., iSE =24m.24s.
Jena iP =13m.8s., eN =23m.45s.?, eE =31m.15s.?, eN =31m.45s.?, and 36m.24s., eZ =36m.27s.?.
Stuttgart ePPZ =17m.11s., eSKS =23m.13s., eSPZ =26m.3s., eSS =31m.15s.
Strasbourg e =19m.59s., eSKS =23m.46s., PS =26m.1s.
Bergen ePP =17m.5s., eZ =17m.33s., eE =21m.58s., SKS =23m.52s., eSS =30m.38s.
De Bilt ePS =25m.45s.?, eSS =30m.45s.?.
Uccle eZ =16m.2s., eE =20m.21s., iSKSE =24m.3s., iE =25m.27s., iSSE =31m.51s., iN =34m.46s.
Clermont-Ferrand ePS =26m.46s., ePPS =27m.28s.
Kew ePPPN =19m.28s.?, iSKS =24m.18s., iSKKSEZ =24m.40s., iPSEN =26m.18s., eSSN =30m.50s.?, eSSSNZ =34m.45s.?, eQEN =39·8m.
Aberdeen iEN =28m.47s., iN =38m.57s.
Tortosa SKSE =24m.22s., PSE =26m.32s., QN =41m.25s
Stonyhurst P =14m.25s., SKS? =24m.15s., iPS =27m.13s., iPPS =28m.13s., SS = 32m.18s., SSS =35m.18s., Q =42m.25s.
College e =22m.21s., 26m.14s., and 30m.11s., eSS =32m.28s., e =39m.10s.
Honolulu e =19m.51s., eSS =32m.1s., e =38m.4s.
Almeria ePKP? =17m.23s., PPP =20m.56s., SKKS =25m.10s., PS =27m.14s., SS = 32m.45s., Q =43m.24s.
Scoresby Sund e =14m.7s., eSKS? =24m.49s.
Granada PP =17m.43s., PPS =26m.53s., SS =33m.18s., SSS =40m.30s., Q =47·8m.
Toledo SS? =38m.23s.
San Fernando PS?E =31m.39s.
Lisbon N =18m.14s., PPZ =18m.22s., N =19m.32s. and 22m.25s., SKSE =24m.55s., iPSE =27m.9s., SSN =33m.21s., E =34m.26s., N =44m.51s.?.
Sitka e =20m.43s. and 26m.58s., eSS? =33m.5s., e =37m.3s.
Ivigtut e =20m.57s., 27m.36s., and 33m.59s., eSS =41m.5s.
Victoria eN =22m.2s., e =32m.10s.
Seattle e =26m.54s.
Saskatoon SS =35m.56s.
Ukiah e =32m.2s., 35m.33s., and 36m.58s.
Berkeley iPN =20m.33s., iN =23m.22s.
Bozeman e =33m.38s., 43m.51s., and 49m.17s.
Logan e =24m.41s., ePS =30m.19s., ePKP,PKP? =39m.53s., eSSS =41m.35s., e = 45m.55s.
Salt Lake City e =34m.17s., eSSS =43m.46s.
Mount Wilson iZ =19m.34s., eSKKPZ? =31m.55s.
Seven Falls e =33m.1s.
Shawinigan Falls e =38m.9s.?.
Ottawa PPS =34m.3s., SS =40m.15s., SSS =45m.45s.?.
Vermont ePS =31m.28s., e =45m.58s.
Tucson e =19m.55s., i =20m.8s., 25m.1s., and 27m.34s., e =30m.18s., iPS =33m.15s., e =34m.24s. and 36m.54s., ePKP,PKP =40m.32s., e =46m.54s.
Des Moines e =37m.41s. and 44m.21s.
Chicago e =33m.23s., eSSS =44m.30s., e =45m.53s.
La Plata SKKSN =25m.45s.?, E =35m.15s., SSSN =43m.45s.?.
Fordham i =31m.18s.
New Kensington e =31m.15s.?, and 37m.27s.?.
Florissant iPPPZ =25m.43s.
Philadelphia i =23m.44s., e =25m.55s., i =31m.19s., e =42m.37s.
Cape Girardeau ePPE =23m.49s.
Bermuda e =24m.15s., 41m.50s., and 53m.18s.
Columbia e =31m.51s. and 45m.7s.
San Juan e =22m.40s., 27m.52s., 39m.30s., and 43m.11s.
La Paz iZ =23m.6s., iPPZ =25m.2s., PSKSZ =35m.26s., SSN =45m.51s., SSSN = 51m.53s.
Huancayo i =26m.14s. and 28m.11s., e =33m.0s.
Long waves were also recorded at Rio de Janeiro, Ferndale, and Montezuma.

June 9d. 4h. Undetermined shock.

Pasadena suggests probably Tonga region. Depth 600 kms.
Apia iP =6m.9s., iS? =7m.50s.
Wellington P =8m.5s., S =11m.21s., S_cS =18m.9s.
Santa Barbara iPNZ =14m.57s.
La Jolla eP =15m.1s.
Mount Wilson iP =15m.1s.k, iZ =15m.48s., eZ =17m.8s.
Pasadena iP =15m.2s.k, eZ =17m.10s.
Riverside iP =15m.4s., iEZ =17m.10s.
Palomar iPZ =15m.5s.k.
Tinemaha iP =15m.11s.k, iZ =15m.36s., eZ =17m.25s.
Tucson iP =15m.24s., i =15m.42s., epP =16m.13s., ePP =17m.37s., e =24m.50s., 28m.25s., and 33m.39s.
Jena iEN =22m.36s., iE =22m.40s.
Ksara 22m.37s.
Stuttgart eZ =22m.37s., iZ =22m.44s., eZ =22m.54s.
Basle eP =22m.38s.
Zürich eP =22m.38s.
Chur eP =22m.40s.
Neuchatel eP =22m.41s.
Strasbourg ePKP =22m.44s.

June 9d. Readings also at 3h. (Bogota), 5h. (near Branner), 6h. (Rio de Janeiro), 7h. (Paris, Besançon and near Bogota), 8h. (Sofia and Neuchatel), 9h. (Ksara, New Delhi, and near Berkeley (2)), 11h. (near Tashkent) 12h. (New Delhi, Palomar, Tinemaha, Mount Wilson, Tucson, and Riverside), 13h. (near Tashkent), 15h. (New Delhi), 16h. (near Tashkent), 18h. (Tinemaha (2), Riverside, Mount Wilson (2), Pasadena, Palomar, Tucson (2), Huancayo, and La Paz), 19h. (Uccle and Kew), 20h. (La Paz, La Plata, Stuttgart, and Berkeley), 21h. (Huancayo, Tinemaha, Pasadena, Mount Wilson, Riverside, Tucson, Ksara, Granada, and near Stuttgart and Ebingen), 22h. (Fort de France and Stuttgart), 23h. (Fort de France and near Berkeley).

June 10d. 7h. Algiers.

" Annales de l'Institut de Physique du Globe de Strasbourg," 2e partie. Seismologie, vol. VII-VIII, p. 30. Monts des Ksours, felt near Geryville. Epicentre 33°·2N. 0°·0 suggested, but the observed times do not fit.
Tortosa PN =49m.0s., SN =50m.40s., LN =51m.25s.
Granada iP =49m.19s., P* =49m.37s. and 49m.45s., P_gS_g =50m.24s. and 50m.33s., S_z =50m.43s. and 51m.1s.
Toledo iPZ =49m.27s., SE =52m.10s., L =53m.5s.
Almeria P_g =49m.41s., P_gS_g =50m.5s., 50m.10s., and 50m.25s., S_g =50m.45s., 50m.51s., and 50m.56s.
Barcelona e =49m.47s., eL =50m.44s.
Clermont-Ferrand e =50m.2s.
Paris iP =50m.40s., e =54m.27s., L =55m.30s.
Stuttgart ePZ =50m.43s., eS? =54m.14s., eL =55m.12s.
Uccle eNZ =51m.6s., eL =55m.
Jena eEN =51m.18s.
Florence eE =51m.58s., eLE =53m.23s.
Triest e =54m.9s.
Long waves were also recorded at Cheb, De Bilt, and Kew.

June 10d. Readings also at 0h. (San Juan, Tucson, Mount Wilson, and Pasadena), 1h. (near Tashkent), 3h. (near Berkeley and near Balboa Heights), 4h. (near Mizusawa), 5h. (Paris, Bogota, near Berkeley, Branner, and Lick), 6h. (near Berkeley), 9h. (Ebingen and Stuttgart), 10h. (Mount Wilson, Tucson, and Riverside), 11h. (Huancayo), 15h. and 17h. (Ksara), 18h. (near Helwan).

June 11d. Readings at 8h. (Apia, Arapuni, Auckland, Christchurch, Wellington (2), Riverview, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, Huancayo, and Stuttgart), 9h. (Chicago, Philadelphia, Paris, Stuttgart, and Granada), 14h. (near Mizusawa), 15h. (near Fresno), 17h. (New Delhi and near Tashkent).

June 12d. 4h. 20m. 58s. Epicentre 46°·4N. 12°·9E. (as on 1939 April 25d.).

Felt at Tolmezzo and Tarcento (46° 20′N. 13° 15′E.). Epicentre 46°·4N. 13°·1E.
" Annales de l'Institut de Physique du Globe de Strasbourg, 2e partie, Seismologie, vols VII-VIII., p. 30.

A = +·6746, B = +·1545, C = +·7218 ; δ = −5 ; h = −4 ;
D = +·223, E = −·975 ; G = +·704, H = +·161, K = −·692.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		1·0	142	e 0 18	− 3	e 0 31	− 5	—	—	i 0·6
Chur		2·4	281	e 0 41	0	e 1 12	0	—	—	—
Ravensburg		2·6	302	e 1 8	P_g	e 1 21	S*	—	—	—
Milan	z.	2·7	250	e 0 54	P_g	—	—	—	—	—
Zürich		3·1	288	e 0 50	− 1	e 1 29	0	—	—	—
Stuttgart		3·4	316	e 0 54	− 1	e 1 36	− 1	i 1 5	P_g	—
Basle		3·8	290	e 1 2	+ 1	e 1 59	S*	—	—	—
Neuchatel		4·1	281	e 1 4	− 1	e 1 51	− 4	—	—	—
Strasbourg		4·1	305	e 1 7	+ 2	e 1 53	− 2	e 1 19	P_g	—
Jena		4·6	349	e 1 32	P_g	e 2 0	− 7	e 2 19	S*	i 2·5

Additional readings :—
Stuttgart iS = 1m.48s., iS_g = 1m.52s.
Strasbourg S* = 2m.7s.?.

June 12d. Readings also at 1h. (near Harvard), 10h. (Triest), 11h. (near Tashkent), 16h (Brisbane, Riverview, Tucson, Wellington, Mount Wilson, Pasadena, Palomar, Riverside, and Tinemaha), 19h. (Tucson), 23h. (Tacubaya).

June 13d. 5h. 11m. 38s. Epicentre 40°·9N. 142°·7E.

Scale VI at Hatinohe, Urakawa, and Aomori ; V at Miyako, Hakodate, Morioka, Obihiro, and Mizusawa ; IV at Sapporo, Sendai, and Onahama ; II-III at Sakata, Shirakawa, Niigata, and Mito. Epicentre 40°·9N. 142°·7E. Shallow. Radius of macroseismic area 300 km.
Seismological Bulletin of Central Meteorological Observatory Japan, for the year 1943. Tokyo 1950, pp. 24, 25, with macroseismic chart.
Pasadena suggests deep focus.

A = −·6030, B = +·4594, C = +·6522 ; δ = +2 ; h = −2 ;
D = +·606, E = +·795 ; G = −·519, H = +·395, K = −·758.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe	0·9	247	0 23k	+ 3	0 36	+ 2	—	—	—
Miyako	1·4	203	0 28	+ 1	0 49	+ 3	—	—	—
Aomori	1·5	267	0 32k	+ 4	0 44	− 5	—	—	—
Mizusawa	2·1	214	0 40	+ 3	1 9	+ 5	—	—	—
Sapporo	2·4	335	0 43	+ 2	1 16	+ 4	—	—	—
Sendai	3·0	208	0 50	0	1 33	+ 6	—	—	—
Hukusima	3·6	209	0 50	− 8	—	—	—	—	—
Onahama	4·2	200	1 6	− 1	1 38	−19	—	—	—
Aikawa	4·5	232	1 12k	+ 1	2 14	+ 9	—	—	—
Mito	4·8	202	1 17	+ 2	2 35	S_g	—	—	—
Utunomiya	4·9	208	1 17	0	2 42	S_g	—	—	—
Kakioka	5·1	204	1 15	− 5	2 42	S*	—	—	—
Tukubasan	5·1	204	1 17	− 3	2 24	+ 4	—	—	—
Maebasi	5·3	214	1 24	+ 2	2 47	S*	—	—	—
Tyosi	5·3	196	1 37	P*	2 55	S_g	—	—	—
Nagano	5·5	221	1 27	+ 2	3 2	S_g	—	—	—
Tokyo Cen. Met. Ob.	5·7	205	1 28	0	2 35	0	—	—	—
Yokohama	5·9	204	1 46	P*	2 57	S*	—	—	—
Hunatu	6·2	211	1 36	+ 1	3 8	S*	—	—	—
Kohu	6·2	213	1 37	+ 2	—	—	—	—	—
Misima	6·5	208	1 40	+ 1	3 11	S*	—	—	—
Osima	6·6	204	1 39	− 2	2 57	− 1	—	—	—
Shizuoka	6·8	211	1 46	+ 2	3 8	+ 5	—	—	—
Gihu	7·2	222	1 56	+ 7	3 33	S*	—	—	—
Nagoya	7·2	220	1 56k	+ 7	3 41	S*	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Omaesaki		7·2	211	1 57	+ 8	3 36	S*	—	—	—
Hamamatu		7·3	214	2 8	P*	3 57	S_e	—	—	—
Hikone		7·6	225	1 56k	+ 1	3 32	+ 9	—	—	—
Kameyama		7·8	221	2 4	+ 6	3 54	S*	—	—	—
Kyoto		8·0	225	2 4	+ 4	3 45	+12	—	—	—
Toyooka		8·2	232	2 10	+ 7	3 52	+14	—	—	—
Osaka		8·4	224	2 12	+ 6	3 37	− 6	—	—	—
Kobe		8·6	226	2 12a	+ 3	3 49	+ 1	—	—	—
Owase		8·6	219	(2 20)	+11	(4 21)	S*	—	—	—
Wakayama		8·9	224	2 17	+ 5	—	—	—	—	—
Sumoto		9·0	226	2 17	+ 4	4 23	S*	—	—	—
Siomisaki		9·3	219	2 26	+ 9	4 36	S*	—	—	—
Muroto		10·2	224	2 34	+ 3	4 51	SSS	—	—	—
Hamada		10·3	238	2 32	0	—	—	—	—	—
Koti		10·3	228	2 35	+ 3	4 47	SS	—	—	—
Matuyama		10·6	231	2 24	−12	4 21	−16	—	—	—
Simidu		11·2	227	(2 51)	+ 7	(5 40)	SSS	—	—	—
Izuka		12·0	237	3 4	+ 9	6 4	SSS	—	—	—
Hukuoka		12·2	237	3 38	PPP	6 5	SSS	—	—	—
Kumamoto		12·5	234	3 2	0	5 55	SSS	—	—	—
Zinsen		12·9	260	3 10	+ 3	5 55	SSS	—	—	—
Dairen		16·3	270	3 58	+ 6	7 11	SS	—	—	—
Nake		16·5	225	3 59	+ 5	5 37	?	—	—	—
Naha		19·3	226	4 32	+ 3	8 21	SS	—	—	—
Irkutsk		28·4	308	i 5 55	− 3	—	—	—	—	—
College		45·3	35	e 8 18	− 3	i 14 53	− 9	e 18 14	SS	i 18·6
Calcutta	N.	48·9	266	i 8 54k	+ 4	i 16 0	+ 7	i 9 7	pP	i 23·5
Frunse		49·5	297	e 8 54	0	—	—	—	—	—
Sitka		52·7	43	e 9 16	− 2	i 16 39	− 7	e 11 19	PP	e 21·9
Sverdlovsk		53·0	317	9 16	− 5	i 17 2	PS	—	—	—
Honolulu		53·5	93	e 9 38	+14	e 17 5	PS	e 13 23	PPP	e 22·6
Tashkent		53·7	297	i 9 24	− 2	i 17 24	PPS	—	—	—
New Delhi	E.	54·1	279	i 9 28k	− 1	i 17 6	+ 1	i 11 27	PP	—
Stalinabad		55·3	294	i 9 38	0	—	—	12 10	PP	—
Hyderabad	E.	59·4	267	10 4	− 2	18 18	+ 3	12 21	PP	30·9
Bombay	E.	62·8	272	i 10 27	− 3	i 19 1	+ 3	10 51	pP	—
Victoria		63·1	48	10 39	+ 7	18 50	−12	23 40	SS	29·4
Seattle		64·2	49	e 11 43	+64	e 19 53	PPS	—	—	e 27·0
Kodaikanal	E.	64·7	262	(e 10 38)	− 4	(i 19 18)	− 3	(23 53)	SS	—
Moscow		64·8	323	10 40	− 3	—	—	—	—	—
Colombo		65·1	257	10 42	− 3	19 27	0	—	—	33·4
Ferndale		66·9	56	e 10 5	−51	e 18 52	−57	—	—	e 31·7
Ukiah		68·4	57	e 11 14	+ 8	e 19 57	−10	—	—	e 27·7
Scoresby Sund		68·4	355	e 10 59	− 7	i 20 2	− 5	e 13 26	PP	e 27·6
Brisbane	N.	68·7	170	i 11 21	+14	i 20 13	+ 3	i 24 32	SS	i 32·9
Apia		68·8	132	—	—	e 20 40?	PPS	—	—	e 31·4
Saskatoon		69·6	39	11 22	+ 9	20 13	− 8	24 44	SS	31·4
Berkeley		69·8	58	e 11 11	− 3	i 20 7	−16	—	—	e 32·1
Upsala		69·9	334	11 9	− 6	e 20 15	− 9	i 13 48	PP	e 32·4
Branner	E.	70·1	58	e 11 23	+ 7	—	—	—	—	e 33·9
Santa Clara		70·3	58	i 11 30	+13	e 20 25	− 4	—	—	e 32·4
Lick		70·5	58	e 11 16	− 2	—	—	—	—	e 34·0
Bozeman		71·6	46	e 11 29	+ 4	e 20 35	− 9	e 14 7	PP	e 30·8
Fresno	N.	72·0	57	e 11 25	− 3	e 20 48	− 1	—	—	—
Tinemaha		72·8	56	i 11 28a	− 4	e 20 54	− 4	—	—	—
Bergen		73·2	340	i 11 34	− 1	20 56	− 6	14 25	PP	e 33·4
Haiwee		73·5	56	i 11 33	− 3	—	—	—	—	—
Santa Barbara	z.	73·5	59	i 11 34	− 2	—	—	i 11 58	P	—
Logan		73·7	49	i 11 36	− 2	e 20 58	−10	e 15 6	PP	e 33·5
Salt Lake City		74·3	50	e 11 37	− 4	e 21 5	−10	e 14 13	PP	e 31·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mount Wilson		74·7	58	i 11 39a	− 4	e 21 17	− 2	i 14 17	PP	—
Pasadena		74·7	58	i 11 39a	− 4	e 21 9	−10	e 25 40?	SS	e 34·1
Riverview		74·8	173	i 12 0a	+16	i 21 17	− 3	i 25 33	SS	e 31·4
Sydney		74·8	173	—	—	i 21 19	− 1	—	—	—
Copenhagen		74·9	334	e 11 39	− 5	21 14	− 8	14 28	PP	33·4
Cernauti		75·1	322	e 11 42	− 4	e 21 28?	+ 4	—	—	—
Riverside		75·3	58	i 11 41	− 6	—	—	i 11 58	P	—
Bacau		75·9	321	e 11 51	+ 1	e 21 39	+ 7	—	—	38·4
Palomar	Z.	76·0	58	e 11 47	− 4	—	—	—	—	—
La Jolla	Z.	76·1	59	i 11 47	− 4	—	—	—	—	—
Focsani	E.	76·3	320	e 11 57	+ 5	21 48	+11	—	—	38·4
	N.	76·3	320	e 12 0	+ 8	21 52	+15	—	—	38·4
Perth		76·6	204	21 37	S	(21 37)	− 3	26 7	SS	40·7
Potsdam		77·4	332	e 11 57	− 1	i 21 47	− 2	e 14 52?	PP	e 34·4
Campulung		77·7	320	e 12 1	+ 1	e 22 4?	+12	—	—	38·4
Bucharest		77·8	319	e 11 58	− 3	e 21 52	− 1	i 14 23	PP	37·4
Aberdeen		77·9	342	12 0	− 1	i 22 3	+ 9	27 4	SS	35·6
Ivigtut		77·9	6	e 12 7	+ 6	e 21 42	−12	—	—	e 34·6
Prague		78·7	329	e 12 54	+48	e 22 58	+55	—	—	e 36·4
Ogyalla	E.	78·9	325	e 11 58	− 9	e 22 4	− 1	—	—	e 42·4
	N.	78·9	325	e 12 2	− 5	e 21 59	− 6	e 22 22?	PS	e 42·4
Jena		79·1	331	i 12 4	− 4	e 22 2	− 5	e 27 52?	SS	e 31·4
Edinburgh		79·3	342	e 11 46	−23	e 21 29	?	14 44	PP	—
Cheb		79·5	331	e 12 7	− 3	e 22 6	− 5	—	—	e 42·4
Kalossa		79·5	324	12 9	− 1	e 22 11	0	e 22 36	PS	e 40·4
Ksara		79·7	306	e 12 10?	− 1	e 22 16	+ 3	e 22 24	PS	—
Belgrade		80·2	322	e 12 11	− 3	i 22 18	− 1	i 15 31	PP	e 40·8
De Bilt		80·3	335	i 12 11a	− 3	i 22 16	− 4	e 15 22	PP	e 36·4
Sofia		80·4	319	e 12 15	0	i 22 30	+ 9	—	—	—
Tucson		80·5	56	i 12 11	− 4	e 22 14	− 8	i 16 36	PP	e 30·3
Stonyhurst		81·0	340	e 12 29	+11	i 22 18	− 9	e 15 12	PP	35·4
Stuttgart		81·7	331	i 12 18a	− 4	e 22 30	− 4	i 15 40	PP	e 40·4
Uccle		81·7	335	12 17a	− 5	22 26	− 8	15 22	PP	e 42·4
Strasbourg		82·4	332	e 12 25	0	22 39	− 2	e 15 40	PP	38·4
Lincoln		82·4	42	e 12 44	+19	e 22 22	−19	e 28 3	SS	e 37·8
Kew		82·5	338	i 12 21a	− 5	e 22 36	− 6	i 15 34	PP	e 38·4
Triest		82·5	327	e 12 21	− 5	i 22 34	− 8	i 29 22	SS	e 35·9
Auckland		82·8	156	12 42	+15	22 35	−10	28 22?	SS	38·4
Zürich		83·1	331	e 12 25	− 4	e 22 42	− 6	—	—	—
Chur		83·2	330	e 12 26	− 3	e 22 27	−22	—	—	—
Des Moines		83·3	38	e 16 24	PP	e 22 40	−10	e 28 32	SS	38·1
Basle		83·4	331	e 12 26a	− 4	e 22 49	− 2	—	—	e 43·4
Paris		84·0	335	i 12 31	− 2	i 23 5	+ 8	16 0	PP	38·4
Neuchatel		84·0	331	e 12 30	− 3	e 23 2	+ 5	—	—	—
Arapuni		84·2	154	e 18 22?	?	23 22?	ScS	29 22?	SS	42·4
Milan		84·5	329	i 12 30	− 6	22 52	−10	33 1	?	—
Florence		85·1	327	i 12 38	− 1	i 23 1	− 7	i 12 53	pP	—
Helwan		85·2	306	i 12 36k	− 3	23 3	− 6	e 15 49	PP	—
Chicago		85·9	36	e 12 37	− 6	e 23 6	[− 1]	e 16 21	PP	e 34·9
Clermont-Ferrand		86·5	333	i 12 42	− 4	i 23 14	[+ 3]	i 16 10	PP	e 40·8
Wellington		86·8	157	13 3	+16	23 5	[− 7]	13 18	pP	40·6
Florissant		87·1	39	i 12 46	− 3	i 23 19	{− 2}	i 16 26	PP	e 39·0
St. Louis		87·3	39	i 12 46	− 4	e 23 28	− 1	i 16 7	PP	—
Seven Falls		87·4	23	13 0	+10	23 24	− 6	16 38	PP	39·4
Shawinigan Falls		87·4	24	12 47	− 3	—	—	—	—	42·4
Ottawa		87·5	27	12 46	− 5	23 6	[−12]	28 28?	SS	e 39·4
Marseilles		87·8	331	e 12 46	− 6	e 23 4?	[−15]	—	—	e 41·4
Christchurch		88·3	159	12 47	− 8	22 49	?	16 32	PP	40·0
Cape Girardeau	E.	88·7	40	e 12 52	− 5	i 23 47	+ 4	23 29	SKS	—
Vermont		89·1	26	e 13 6	+ 8	i 23 36	{+ 1}	e 16 13	PP	e 37·8
Pittsburgh		90·2	32	i 13 1	− 3	i 23 49	− 7	e 16 34	PP	—
Barcelona		90·6	331	e 13 22	+17	e 23 36	[0]	—	—	e 42·5
Harvard		91·4	25	e 13 5	− 4	e 23 58	{+ 6}	e 17 6	PP	e 39·4
Weston		91·6	25	i 13 7	− 3	i 24 15	+ 6	16 46	PP	—
Tortosa	N.	91·7	332	13 8	− 2	24 8	− 2	16 52	PP	42·5
Fordham		92·1	27	e 13 9	− 3	e 23 43	[− 2]	i 17 2	PP	42·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Philadelphia		92·4	28	e 13 12	− 2	e 23 41	[− 6]	e 16 46	PP	e 40·9
Toledo		94·1	334	i 13 18	− 4	24 9	{− 3}	13 45	pP	—
Columbia		95·3	35	e 13 47	+20	e 23 56	[− 7]	e 17 32	PP	e 42·5
Almeria		96·3	332	13 28	− 4	24 26	{− 1}	13 57	pP	46·4
Granada		96·4	333	13 30	− 2	24 42	− 8	13 43	pP	45·6
Lisbon		96·7	338	13 31 a	− 2	24 31	{ 0}	17 27	PP	43·8
Tacubaya	N.	97·0	57	e 13 53	+18	—	—	—	—	—
San Fernando		97·9	335	e 13 36	− 3	i 25 27	+24	i 17 50	PP	46·4
Bermuda		102·8	23	e 17 58	PP	e 25 50	+ 6	e 32 48	SS	e 49·8
Tananarive		105·9	259	—	—	25 26	{−10}	28 39	PPS	55·2
San Juan		115·2	30	e 19 52	PP	e 27 34	?	e 29 43	PS	e 46·2
Fort de France		120·0	26	e 19 47	PP	—	—	—	—	—
Bogota		123·6	45	e 19 58	PP	—	—	e 22 48	PKS	—
Huancayo		136·0	60	e 19 27	[+ 4]	e 26 42	[+ 9]	e 40 11	SS	—
La Paz		144·0	56	19 37	[0]	i 23 12	PKS	26 10	PPP	68·4
Rio de Janeiro	E.	161·4	16	e 24 47	PP	(e 44 41)	SS	—	—	e 44·7
La Plata	E.	162·7	74	21 36	?	25 18	PP	46 28?	SSP	76·6
	N.	162·7	74	20 46?	[+42]	22 52?	?	44 22?	SS	78·3
	Z.	162·7	74	20 16?	[+12]	24 53	PP	—	—	77·4

Additional readings and notes :—
Owase readings decreased by 4 minutes.
Simidu readings decreased by 4 minutes.
College i =15m.4s.
Calcutta iPPN =10m.50s., isSN =16m.16s., iSSN =18m.24s.
Sitka i =9m.33s., e =12m.3s. and 19m.15s., eSS =20m.23s.
Honolulu e =21m.6s.
New Delhi SSE =21m.19s.
Hyderabad P_ePE =11m.11s., PSE =18m.38s., S_eSE =19m.39s., SS =22m.43s.
Bombay PPE =14m.11s., PPPE =14m.55s., iSE =19m.25s., S_eSE =20m.25s., SSE = 23m.33s., iE =26m.53s.
Victoria e =26m.14s.
Kodaikanal PPE =(12m.55s.), all readings increased by 1 minute.
Ferndale ePE =10m.8s.
Scoresby Sund e =16m.1s., i =22m.18s., eSS =24m.20s.
Saskatoon e =28m.12s.
Berkeley ePE =11m.24s., ePN =11m.27s., eSEN =20m.27s.
Upsala i =13m.56s., PPPN =15m.55s., eSS =25m.22s.?, eSSS =28m.22s.?.
Lick ePN =11m.21s., eN =11m.34s.
Bozeman eSS =25m.13s., eSSS =28m.35s.
Tinemaha iNZ =11m.45s.
Bergen iZ =11m.45s., iE =21m.10s., SS =25m.49s.
Haiwee iEZ =11m.49s., iEN =11m.58s.
Logan i =21m.15s., e =25m.23s. and 29m.17s.
Salt Lake City e =26m.9s.
Mount Wilson iZ =11m.55s.
Pasadena iZ =12m.1s.
Riverview iSN =21m.21s., i =21m.27s., iEN =25m.54s., N =30m.3s.
Copenhagen i =11m.52s., 14m.40s., 21m.26s., and 26m.16s.?.
Palomar iZ =12m.4s.
La Jolla iZ =11m.57s., i =12m.7s.
Perth S =31m.7s., SS =36m.17s., SSS =38m.40s., phases wrongly identified.
Potsdam iSKS?N =21m.56s.
Bucharest ePN =12m.9s., iPEN =12m.11s., iN =14m.23s., iE =15m.20s., iN = 15m.24s., iSN =22m.3s.
Aberdeen SSSN =30m.52s.
Jena iPN =12m.16s., eN =22m.22s.
Edinburgh eSKS =21m.57s., PS =22m.20s., PPS =22m.38s., SS =26m.37s., SSS = 29m.37s.
Belgrade i =12m.24s., e =13m.9s. and 14m.33s.
De Bilt eSS =27m.42s., eSSS =32m.42s.
Tucson i =12m.27s. and 13m.32s., e =22m.23s., 23m.9s. and 27m.48s.
Stonyhurst ePPP =16m.22s.?, iSKS =22m.32s., iS_cS =22m.42s., iPS =22m.52s., iPPS =23m.12s., SS =26m.48s., SSS =27m.22s.
Stuttgart iZ =12m.28s., ePPP =17m.34s.?, iS =22m.42s., eSS =27m.47s., eQ = 37m.52s., ePKP PKPZ =39m.10s.
Uccle iZ =12m.30s. and 12m.44s., PPPN =17m.26s., PPPPN =19m.0s., SSE = 27m.46s., SSSE =31m.9s.
Strasbourg e =12m.35s. and 12m.52s., ePPP =17m.27s.
Lincoln e =32m.16s.
Kew eP_cPZ =12m.34s.?, iPS =22m.52s., iPPSEN =23m.9s., eSSEN =28m.22s., eSSZ =29m.26s., eSSS =30m.52s.?, eQ =33m.52s.?.
Auckland Q =34·4m.

Continued on next page.

Des Moines iS = 22m.46s.
Paris eS = 22m.46s.
Arapuni Q = 37·4m.
Florence iPSE = 23m.39s., iSSE = 28m.37s.
Helwan eZ = 13m.37s., SKKSE = 23m.37s., eS = 23m.54s., iE = 24m.13s.
Chicago eSS = 28m.38s.
Clermont-Ferrand i = 16m.44s.
Wellington pPPZ = 16m.32s., i = 22m.47s., sS = 23m.27s., sSS = 29m.7s., SSS = 32m.22s.?, Q = 36m.52s.
Florissant iZ = 13m.7s., iSKKSE = 23m.32s., iPS?E = 24m.2s., eSSE = 29m.7s.
St. Louis iZ = 13m.9s. and 16m.28s., eE = 22m.28s., eSKSE = 23m.0s., iSKKSE = 23m.34s.
Seven Falls SS = 28m.44s., e = 35m.22s.?.
Christchurch PPS = 23m.44s., SS = 28m.30s., Q = 35m.10s.
Cape Girardeau eSKS?E = 24m.4s.
Vermont e = 18m.12s., i = 25m.12s., eSS = 29m.31s., eSSS? = 33m.46s.
Harvard e = 13m.25s. and 25m.9s.
Weston PS? = 25m.20s., SS = 30m.26s.
Tortosa iN = 14m.3s., PSN = 25m.6s., PPSN = 25m.48s., SSN = 30m.23s., SSSN = 34m.54s., Q = 37m.53s.
Fordham i = 13m.22s., iPPS = 25m.42s., iSS? = 31m.5s.
Philadelphia e = 19m.5s., iS = 23m.44s., iPPS = 25m.9s., e = 30m.6s.
Toledo PP = 17m.20s.
Columbia e = 31m.2s.
Almeria PP = 17m.19s., pPP = 17m.40s., sPP = 17m.53s., PPP = 19m.18s., pPPP = 19m.39s., SKKS = 23m.57s., pS = 24m.59s., SP = 25m.35s., pPS = 26m.1s., SS = 30m.43s., sSS = 31m.26s., SSS = 34m.37s., PKP, PKP = 38m.37s.
Granada sP = 13m.57s., PP = 17m.7s., pPP = 17m.27s., sPP = 17m.39s., SKS = 23m.51s., sS = 25m.18s., PPS = 26m.57s., SS = 31m.12s., sSS = 31m.48s., Q = 36m.16s.
Lisbon PPZ = 17m.30s., E = 18m.0s., SKSN = 24m.18s., SSE = 31m.41s., SSN = 31m.44s., Z = 33m.4s.?.
San Fernando SSE = 31m.43s.
Tananarive SS = 34m.23s., iE = 45m.25s.
Bogota e = 20m.18s., and 21m.48s.
Huancayo e = 23m.23s., 32m.24s., 34m.31s., and 44m.34s.
La Paz iPKPZ = 19m.42s., iSKKS = 33m.17s., SSZ = 42m.12s.

June 13d. 5h. 58m. 12s. Epicentre 40°·9N. 142°·7E. (as at 5h. 11m.).

Scale V at Aomori; IV at Hatinohe, Urakawa, Mizusawa; II-III at Miyako and Hakodate. Epicentre 40°·9N. 142°·7E., shallow. Radius of macroseismic area 300 km.
Seismological Bulletin of Central Meteorological Observatory, Japan, for year 1943. Tokyo 1950, pp. 25, 26, with macroseismic chart.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Hatinohe		0·9	247	0 22	+ 2	0 38	+ 4	—	—
Miyako		1·4	203	0 25a	− 2	0 43	− 3	—	—
Aomori		1·5	267	0 31k	+ 3	—	—	—	—
Mizusawa	E.	2·1	214	0 39	+ 2	1 6	+ 2	—	—
Sapporo		2·4	335	0 42	+ 1	1 15	+ 3	—	—
Sendai		3·0	208	0 49a	− 1	1 29	+ 2	1 34	S•
Onahama		4·2	200	1 2	− 5	1 59	+ 2	—	—
Aikawa		4·5	232	(1 0k)	−11	(2 4)	− 1	—	—
Mito		4·8	202	1 15	0	2 6	− 6	—	—
Kakioka		5·1	204	1 15k	− 5	2 18	− 2	—	—
Tukubasan		5·1	204	1 17	− 3	1 15	− 5	—	—
Maebasi		5·3	214	1 23	+ 1	2 44	S•	—	—
Tyosi		5·3	196	1 19	− 3	2 39	S•	—	—
Nagano		5·5	221	1 28	+ 3	2 57	Se	—	—
Tokyo Cen. Met. Ob.		5·7	205	1 26	− 2	2 32	− 3	—	—
Yokohama		5·9	204	1 25	− 6	—	—	—	—
Kohu		6·2	213	1 37	+ 2	3 6	S•	—	—
Misima		6·5	208	1 39	0	3 8	S•	—	—
Osima		6·6	204	1 39	− 2	2 53	− 5	—	—
Shizuoka		6·8	211	1 44	0	3 9	+ 6	—	—
Gihu		7·2	222	1 58	+ 9	3 38	S•	—	—
Nagoya		7·2	220	1 57	+ 8	3 46	S•	—	—
Omaesaki		7·2	211	1 50	+ 1	3 41	S•	—	—
Hamamatu		7·3	214	2 12	P•	—	—	—	—
Hikone		7·6	225	1 55	0	3 49	S•	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Kameyama		7·8	221	2 1	+ 3	3 58	S•	—	—
Kyoto		8·0	225	2 3	+ 3	4 5	S•	—	—
Toyooka		8·2	232	2 7	+ 4	—	—	—	—
Osaka		8·4	224	2 12	+ 6	3 45	+ 2	—	—
Kobe		8·6	226	2 8	− 1	3 44	− 4	—	—
Wakayama		8·9	224	2 4	− 8	—	—	—	—
Sumoto		9·0	226	1 16	−57	4 21	S•	—	—
Siomisaki		9·3	219	2 27	+10	—	—	—	—
Muroto		10·2	224	2 28	− 3	5 2	SSS	—	—
Hamada		10·3	238	2 34	+ 2	4 57	SSS	—	—
Koti		10·3	228	2 35	+ 3	—	—	—	—
Matuyama		10·6	231	2 28	− 8	4 38	+ 1	—	—
Hukuoka		12·2	237	3 30	PPP	—	—	—	—
Kumamoto		12·5	234	3 18	PP	—	—	—	—
Zinsen		12·9	260	3 30	PPP	5 54	SS	—	—
Kagosima		13·5	230	3 1	−14	—	—	—	—
Tomie		13·9	238	2 44	?	—	—	—	—
Tinemaha		72·8	56	i 11 26	− 6	—	—	i 11 34	P
Haiwee	E.	73·5	56	i 11 30	− 6	—	—	—	—
Santa Barbara	Z.	73·5	59	i 11 39	+ 3	—	—	—	—
Mount Wilson	Z.	74·7	58	i 11 36	− 7	—	—	—	—
Pasadena		74·7	58	e 11 37	− 6	—	—	i 11 44	P
Riverside	Z.	75·3	58	e 11 38	− 9	—	—	—	—
Palomar	Z.	76·0	58	e 11 44	− 7	—	—	—	—
Ksara		79·7	306	e 12 10?	− 1	e 22 24	+11	—	—
Tucson		80·5	56	e 12 10	− 5	e 22 26	+ 4	e 15 21	PP
Stuttgart	Z.	81·7	331	e 12 17	− 5	—	—	—	—
Helwan	Z.	85·2	306	e 12 39	0	—	—	—	—
St. Louis		87·3	39	i 12 44	− 6	i 22 58	[−18]	—	—
Harvard		91·4	25	i 13 2	− 7	—	—	—	—

Additional readings :—
Aikawa readings decreased by 1m.
Tucson i = 12m.18s., e = 22m.42s.

June 13d. 8h. 16m. 4s. Epicentre 40°·9N. 142°·7E. (as at 5h.).

Scale IV at Urakawa, Hatinohe, Miyako, and Aomori ; II-III at Hakodate and Hukusima.
Epicentre 40°·7N. 143°·1E., shallow. Radius of Macroseismic area 300km.
Seismological Bulletin of Central Meteorological Observatory, Japan, for year 1943, Tokyo, 1950, p.p. 26, 27, with macroseismic chart.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe	0·9	247	0 20a	0	0 39	+ 5	—	—	—
Miyako	1·4	203	0 24	− 3	0 44	− 2	—	—	—
Aomori	1·5	267	0 29a	+ 1	0 53	+ 4	—	—	—
Mizusawa	2·1	214	e 0 37	0	1 4	0	—	—	—
Sapporo	2·4	335	0 39a	− 2	1 11	− 2	—	—	—
Sendai	3·0	208	0 48	− 2	1 27	0	—	—	—
Hukusima	3·6	209	0 59	+ 1	2 1	S_g	—	—	—
Onahama	4·2	200	1 3	− 4	1 39	−18	—	—	—
Aikawa	4·5	232	1 13	+ 2	2 22	S•	—	—	—
Mito	4·8	202	1 12	− 3	2 11	− 1	—	—	—
Utunomiya	4·9	208	1 14	− 3	2 39	S_g	—	—	—
Kakioka	5·1	204	1 15	− 5	2 25	+ 5	—	—	—
Tukubasan	5·1	204	1 16	− 4	2 16	− 4	—	—	—
Maebasi	5·3	214	1 24	+ 2	2 44	S•	—	—	—
Tyosi	5·3	196	1 21	− 1	2 46	S•	—	—	—
Nagano	5·5	221	1 24	− 1	2 52	S•	—	—	—
Tokyo, Cen. Met. Ob.	5·7	205	1 26	− 2	2 32	− 3	—	—	—
Yokohama	5·9	204	1 31	0	2 10	−30	—	—	—
Kohu	6·2	213	1 36	+ 1	3 4	S•	—	—	—
Misima	6·5	208	1 42	+ 3	3 11	S•	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Osima		6·6	204	(1 35)	− 6	(2 50)	− 8	—	—	—
Shizuoka		6·8	211	1 48	+ 4	3 12	+ 9	—	—	—
Gihu		7·2	222	1 56	+ 7	3 35	S*	—	—	—
Nagoya		7·2	220	1 56	+ 7	3 31	S*	—	—	—
Omaesaki		7·2	211	2 8	P*	3 33	S*	—	—	—
Hamamatu		7·3	214	3 30	S*	—	—	—	—	—
Hikone		7·6	225	1 54	− 1	3 31	+ 8	—	—	—
Kameyama		7·8	221	1 46	−12	3 41	+13	—	—	—
Kyoto		8·0	225	2 5	+ 5	—	—	—	—	—
Osaka		8·4	224	2 14	+ 8	3 53	+10	—	—	—
Kobe		8·6	226	2 13a	+ 4	4 1	+13	—	—	—
Wakayama		8·9	224	2 20	+ 8	—	—	—	—	—
Sumoto		9·0	226	2 12	− 1	4 11	+13	—	—	—
Siomisaki		9·3	219	2 40	+23	—	—	—	—	—
Muroto		10·2	224	2 15	−16	5 5	S*	—	—	—
Hamada		10·3	238	2 32	0	4 59	SS	—	—	—
Koti		10·3	228	2 44	PP	—	—	—	—	—
Matuyama		10·6	231	2 37	+ 1	4 39	+ 2	—	—	—
Hukuoka		12·2	237	3 18	PPP	—	—	—	—	—
Kumamotó		12·5	234	3 11	PP	—	—	—	—	—
Zinsen		12·9	260	3 11	+ 4	5 57	SSS	—	—	—
Irkutsk		28·4	308	i 5 52	− 6	10 45	0	—	—	—
College		45·3	35	e 8 14	− 7	e 14 48	−14	e 18 18	SS	e 21·0
Sverdlovsk		53·0	317	i 9 8	−13	17 0	PS	—	—	—
Tashkent		53·7	297	i 9 19	− 7	17 13	PPS	—	—	—
Moscow		64·8	323	10 32	−11	19 12	−11	—	—	—
Scoresby Sund		68·4	355	—	—	e 19 54	−13	—	—	e 32·7
Tinemaha		72·8	56	e 11 23	− 9	—	—	e 11 32	P	—
Haiwee		73·5	56	e 11 38	+ 2	—	—	—	—	—
Mount Wilson	z.	74·7	58	i 11 43	0	—	—	—	—	—
Pasadena	z.	74·7	58	e 11 42	− 1	—	—	—	—	—
Riverside	z.	75·3	58	e 11 38	− 9	—	—	i 11 47	P	—
Palomar	z.	76·0	58	e 11 44	− 7	—	—	—	—	—
Ksara		79·7	306	e 12 8	− 3	e 22 12	− 1	—	—	—
Tucson		80·5	56	e 12 12	− 3	—	—	—	—	—
Stuttgart		81·7	331	e 12 13	− 9	e 22 38	+ 4	—	—	—
Helwan		85·2	306	i 12 35	− 4	e 23 24	ScS	—	—	—
St. Louis		87·3	39	i 12 40	−10	i 23 15	−14	—	—	—
San Fernando	E.	97·9	335	e 17 10	PP*	—	—	—	—	—

Additional readings :—
Osima readings decreased by 1m.
Helwan eZ = 12m.50s.

June 13d. 8h. 36m. 55s. Epicentre 41°·0N. 143°·3E.

Scale V at Urakawa ; IV at Hatinohe, Miyako, Hakodate, Aomori, and Mizusawa. Epicentre 41°·0N. 143°·3E., shallow. Radius of macroseismic area 300km.
Seismological Bulletin of Central Meteorological Observatory, Japan, for year 1943, Tokyo, 1950, pp. 27, 28, with macroseismic chart.

$A = -·6069$, $B = +·4523$, $C = +·6535$; $\delta = -3$; $h = -2$;
$D = +·598$, $E = +·802$; $G = -·524$, $H = +·391$, $K = -·757$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe	1·4	251	0 26k	− 1	0 45	− 1	—	—	—
Miyako	1·7	216	0 31	0	0 51	− 3	—	—	—
Aomori	1·9	264	0 33k	− 1	0 58	− 1	—	—	—
Mizusawa	2·5	222	0 44	+ 1	1 11	− 3	—	—	—
Sapporo	2·5	325	0 43a	0	1 16	+ 2	—	—	—
Sendai	3·3	214	0 48	− 5	1 39	+ 4	—	—	—
Hukusima	3·9	214	1 13	P*	1 59	S*	—	—	—
Onahama	4·5	205	1 10k	− 1	1 58	− 7	—	—	—
Aikawa	4·9	234	1 18k	+ 1	2 23	+ 8	—	—	—
Mito	5·1	206	(1 20a)	0	(2 30)	+10	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Utunomiya		5·2	212	1 21	0	2 38	+16	—	—	—
Kakioka		5·3	208	1 22	0	2 23	− 2	—	—	—
Tukubasan		5·4	208	1 22	− 2	2 23	− 5	—	—	—
Tyosi		5·6	201	1 27	0	2 49	+16	—	—	—
Maebasi		5·7	217	1 29	+ 1	2 48	+13	—	—	—
Nagano		5·9	224	1 32	+ 1	3 3	+23	—	—	—
Tokyo, Cen. Met. Ob.		6·0	209	1 31k	− 1	2 36	− 7	—	—	—
Yokohama		6·3	208	1 38	+ 2	2 49	− 1	—	—	—
Kohu		6·5	216	1 41	+ 2	2 56	+ 1	—	—	—
Misima		6·8	211	1 41	− 3	3 13	+10	—	—	—
Osima		7·0	206	(1 44)	− 2	(2 58)	−10	—	—	—
Shizuoka		7·2	214	1 47	− 2	3 17	+ 4	—	—	—
Omaesaki		7·5	214	(1 56)	+ 3	—	—	—	—	—
Gihu		7·6	224	1 57	+ 2	3 24	+ 1	—	—	—
Hamamatu		7·7	217	2 14	+18	3 40	+15	—	—	—
Nagoya		7·7	222	1 59	+ 3	3 26	+ 1	—	—	—
Hikone		8·0	226	1 59	− 1	3 30	− 3	—	—	—
Kyoto		8·4	227	2 7	+ 1	4 0	+17	—	—	—
Toyooka		8·6	234	2 14	+ 5	—	—	—	—	—
Osaka		8·8	227	2 17	+ 6	3 53	0	—	—	—
Kobe		9·0	228	2 13a	0	3 57	− 1	—	—	—
Wakayama		9·3	226	2 9	− 8	4 23	+18	—	—	—
Sumoto		9·4	228	2 26	+ 8	4 14	+ 7	—	—	—
Siomisaki		9·6	221	2 28	+ 7	—	—	—	—	—
Muroto		10·6	226	2 41	+ 5	4 41	+ 4	—	—	—
Hamada		10·8	239	2 38	− 1	4 40	− 2	—	—	—
Koti		10·8	229	2 37	− 2	4 54	+12	—	—	—
Matuyama		11·0	233	2 34	− 8	4 45	− 2	—	—	—
Izuka		12·4	238	2 58	− 3	—	—	—	—	—
Hukuoka		12·7	238	3 23	+18	5 49	+21	—	—	—
Kumamoto		13·0	235	3 8	− 1	6 19	+44	—	—	—
Zinsen		13·4	260	3 12	− 2	5 43	− 2	—	—	—
Kagosima		14·0	231	3 29a	+ 7	6 25	+26	—	—	—
Nake		16·9	226	4 7	+ 8	6 6	−61	—	—	—
Naha		19·7	227	4 31	− 3	—	—	—	—	—
College		45·0	35	e 8 17	− 2	i 14 53	− 5	—	—	e 18·1
Calcutta	N.	49·4	266	i 8 54k	+ 1	i 16 6	+ 6	i 19 6	SS	i 23·6
Frunse		49·8	297	8 54	− 2	16 20	+14	—	—	—
Sitka		52·3	43	e 9 17	+ 2	i 16 45	+ 5	e 11 32	PP	e 21·5
Honolulu		53·1	93	e 9 21	0	e 16 47	− 4	—	—	e 23·6
Sverdlovsk		53·2	317	i 9 18	− 4	—	—	—	—	—
Tashkent		54·1	297	i 9 26	− 3	i 17 16	+11	—	—	—
New Delhi	N.	54·5	279	i 9 28	− 4	i 17 15	+ 5	—	—	—
Stalinabad		55·7	294	9 38	− 2	17 40	+14	—	—	—
Hyderabad	E.	59·9	267	10 3	− 7	18 14	− 7	12 12	PP	31·1
Victoria		62·7	48	10 35	+ 6	18 49	− 8	—	—	33·1
Bombay	E.	63·3	272	i 10 31	− 2	19 16	+12	20 15	ScS	—
Moscow		65·0	323	10 42	− 2	19 33	+ 7	—	—	—
Kodaikanal	E.	65·1	262	(e 10 40)	− 5	—	—	(i 23 45)	SS	—
Ukiah		68·0	57	e 11 17	+14	e 20 3	+ 1	—	—	e 27·8
Scoresby Sund		68·3	355	e 11 3	− 2	i 20 2	− 4	e 24 26	SS	e 28·0
Brisbane	N.	68·7	170	i 11 23	+16	i 20 13	+ 3	—	—	—
Saskatoon		69·2	39	11 17	+ 7	20 16	0	—	—	34·1
Berkeley	E.	69·3	58	e 11 19	+ 8	i 20 15	− 2	—	—	—
	N.	69·3	58	i 11 30	PcP	i 20 18	+ 1	—	—	—
	Z.	69·3	58	i 11 16	+ 5	i 20 17	0	—	—	e 33·3
Santa Clara		69·8	58	i 11 23	+ 9	i 20 26	+ 3	—	—	e 33·4
Upsala		70·0	334	11 11	− 4	e 20 15	−11	13 45	PP	e 34·1
Bozeman		71·2	46	e 11 21	− 2	e 20 35	− 5	—	—	e 31·7
Tinemaha		72·3	56	i 11 29	0	—	—	i 11 41	PcP	—
Santa Barbara		73·0	59	e 11 35	+ 2	—	—	i 11 46	PcP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		73·1	56	i 11 33	− 1	—	—	i 11 46	P_cP	—
Bergen		73·3	340	11 32	− 3	20 49	−15	—	—	36·6
Logan		73·3	49	i 11 35	0	i 21 2	− 2	e 21 25	PS	e 34·3
Salt Lake City		73·9	50	e 11 38	− 1	e 21 8	− 2	e 11 51	P_cP	e 30·0
Mount Wilson		74·2	58	i 11 39	− 1	—	—	i 11 51	P_cP	—
Pasadena	Z.	74·2	58	i 11 39	− 1	i 21 10	− 4	i 11 52	P_cP	e 30·9
Riverside		74·8	58	i 11 42	− 2	—	—	i 11 55	P_cP	—
Riverview		74·8	173	i 11 53a	+ 9	e 21 9	−11	i 21 20	S_cS	e 31·7
Copenhagen		75·0	334	11 43	− 2	—	—	—	—	—
La Jolla		75·6	59	i 11 50	+ 2	—	—	i 11 59	P_cP	—
Palomar	Z.	75·6	58	i 11 47	− 1	—	—	i 11 59	P_cP	—
Focsani		76·5	320	e 11 41?	−13	22 5?	PS	—	—	—
Potsdam		77·5	332	e 11·58	− 1	i 21 44	− 6	—	—	e 39·1
Ivigtut		77·7	6	e 11 55	− 5	e 22 8	S_cS	—	—	e 38·4
Aberdeen		78·0	342	—	—	i 21 44	−11	i 30 18	SSS	42·9
Bucharest		78·0	319	e 12 0	− 2	i 22 8	S_cS	e 14 59	PP	39·1
Ogyalla	E.	79·0	325	11 59	− 8	21 17	−49	—	—	e 43·1
	N.	79·0	325	e 12 5?	− 2	e 22 13	+ 7	—	—	e 43·1
Jena		79·2	331	e 12 5	− 3	e 22 21	S_cS	—	—	e 42·1
Cheb		79·6	331	e 18 5?	?	e 22 24	S_cS	—	—	e 43·1
Ksara		80·0	306	e 12 11	− 2	e 22 37	S_cS	—	—	—
Tucson		80·1	56	i 12 13	0	e 22 15	− 3	e 15 8	PP	e 33·8
Belgrade		80·4	322	e 12 12	− 3	e 22 34	S_cS	e 15 18	PP	e 44·7
De Bilt		80·4	335	i 12 12a	− 3	i 22 15	− 6	i 15 17	PP	e 38·1
Sofia		80·6	319	e 12 14	− 2	e 22 19	− 5	e 22 38	S_cS	—
Stonyhurst		81·0	340	13 5?	?	22 45	S_cS	27 45	SS	37·1
Uccle		81·8	335	i 12 19	− 3	22 26	− 9	15 23	PP	e 39·1
Stuttgart		81·9	332	i 12 20a	− 3	e 22 25?	−11	e 15 29	PP	e 46·3
Strasbourg		82·5	332	e 12 24	− 2	e 23 5	S_cS	—	—	e 45·1
Auckland		82·7	156	12 22	− 5	22 53	+ 9	—	—	40·1
Kew		82·7	338	i 12 25a	− 2	i 22 36	− 8	i 15 33	PP	e 31·6
Triest		82·7	327	e 12 22	− 5	i 22 36	− 8	—	—	e 32·5
Des Moines		82·9	38	e 12 40	P_cP	e 23 42	PS	—	—	e 41·5
Chur		83·3	330	e 12 27	− 3	e 23 4	S_cS	—	—	—
Zürich		83·3	331	e 12 27a	− 3	e 23 12	S_cS	—	—	—
Basle		83·5	331	e 12 28	− 3	e 23 48	PS	—	—	—
Arapuni		84·1	154	e 20 5?	?	—	—	30 5?	?	44·1
Paris		84·1	335	i 12 32	− 2	e 22 54	− 4	—	—	42·1
Neuchatel		84·2	331	e 12 31	− 3	e 22 53	− 6	—	—	—
Milan		84·6	329	i 12 34	− 2	22 54	− 9	—	—	42·9
Florence		85·2	327	e 12 38	− 1	e 22 58	[− 4]	i 32 3	SSS	—
Helwan		85·5	306	i 12 38k	− 3	23 26	S_cS	e 12 52	P_cP	—
Chicago		85·6	36	e 12 40	− 1	e 22 59	[− 6]	e 18 5	PPP	e 36·1
Clermont-Ferrand		86·6	333	e 12 45	− 1	e 23 20	− 3	i 16 7	PP	—
Florissant		86·7	39	i 12 45	− 2	i 23 19	{+ 1}	e 23 9	SKS	e 51·1
Wellington		86·7	157	13 0	P_cP	23 22	− 2	29 13	SS	42·1
St. Louis		86·9	39	i 12 46	− 2	i 23 22	− 4	i 23 10	SKS	—
Ottawa		87·2	27	12 47	− 2	23 21	{ 0}	24 23	PS	39·1
Seven Falls		87·2	23	—	—	e 23 23	{+ 2}	e 29 17?	SS	42·1
Christchurch		88·2	159	—	—	e 22 36	−62	e 29 26	SS	40·5
Vermont		88·8	26	e 13 31	?	e 23 37	{+ 4}	e 29 22	SS	e 53·6
Pittsburgh		89·9	32	i 13 0	− 2	i 23 48	− 6	—	—	—
Barcelona		90·7	331	e 14 5	+59	e 23 31	[− 6]	—	—	e 46·0
Harvard		91·1	25	i 13 5	− 3	e 24 3	− 1	—	—	e 48·1
Weston		91·3	25	i 13 8	− 1	e 24 16	+10	25 10	PS	—
Fordham		91·8	27	e 13 11	0	i 24 8	− 3	e 23 42	SKS	—
Tortosa		91·8	332	e 13 29	P_cP	23 39	[− 4]	—	—	e 52·6
Philadelphia		92·1	28	e 13 10	− 2	i 24 3	{+ 6}	e 23 34	SKS	e 37·9
Toledo		94·2	334	e 13 21	− 1	24 56	+25	17 7	PP	—
Columbia		94·9	35	—	—	e 23 57	[− 4]	e 31 0	SS	e 38·9
Almeria		96·4	332	e 13 26	− 6	24 20	{− 8}	23 47	SKS	45·1
Granada		96·5	333	i 13 29	− 3	24 33	{+ 4}	23 39	SKS	45·6
Tacubaya		96·6	57	e 21 37	?	—	—	—	—	—
Lisbon		96·8	338	13 43	+ 9	25 13	+19	24 9	SKS	48·6
San Fernando	E.	98·0	335	e 17 34	PP	24 41	{+ 1}	—	—	50·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bermuda		102·5	23	e 18 17	PP	—	—	e 27 7	PS	e 49·0
San Juan		114·9	30	e 19 43	PP	e 29 14	PS	e 35 32	SS	e 46·3
Huancayo		135·5	60	e 32 43	PS	—	—	—	—	e 55·9
La Paz	z.	143·5	56	19 38	[+ 1]	—	—	i 19 43	PKP	70·1

Additional readings :—
Mito and Osima readings increased by 1m.
Omaesaki readings decreased by 1m.
Calcutta iSSSN =20m.35s.
Sitka iP =9m.25s., i =19m.6s., eSS? =20m.30s.
Bombay iE =10m.51s., PPSE =19m.31s., iE =20m.38s. and 23m.31s.
Hyderabad P_cPE =10m.48s., PSE =18m.36s., SSE =21m.58s.
Kodaikanal, all readings increased by 1m.
Scoresby Sund e =21m.26s.
Upsala e =18m.5s.?, eN =31m.38s.
Santa Barbara iNZ =11m.58s.
Logan e =15m.14s. and 24m.49s.
Salt Lake City e =24m.22s., eSS =25m.40s.
Riverview iE =21m.45s.
Aberdeen QEN =36m.35s.
Bucharest eEN =11m.39s., iSN =22m.13s., ePSE =22m.33s., ePSN =22m.38s.
Tucson i =13m.27s., e =19m.2s. and 24m.24s.
Belgrade e =26m.43s.
De Bilt eSS =26m.45s.
Stuttgart ePPPZ =17m.12s., eQ =42m.23s.
Strasbourg e =16m.36s.
Kew ePPPZ =17m.22s., iPS =22m.57s., eSSZ =27m.27s., eSSSZ =30m.37s.
Helwan eZ =13m.8s., PPNZ =16m.3s., eZ =17m.50s., SKSN =23m.2s., PSN =24m.23s.
Chicago e =15m.21s., eSS =28m.40s.
Clermont-Ferrand ePS =24m.32s.
Florissant iE =23m.47s., iSS?E =29m.5s.
Wellington Q =40·1m.
St. Louis iE =23m.47s., eSSE =29m.8s.
Ottawa SS =29m.5s. ?
Christchurch Q =36m.2s.
Vermont e =19m.22s. and 33m.27s.
Weston SS =30m.23s.
Philadelphia e =16m.58s., 17m.45s., and 29m.52s.
Almeria pP =13m.46s., sP =13m.56s., PP =17m.20s., pPP =17m.44s., pS =24m.48s., sPS =26m.14s., i =27m.32s., SS =31m.12s., SSS =34m.25s.
Granada pP =13m.49s., sP =14m.10s., PP =17m.16s., pPP =17m.25s., sS =25m.55s., PPS =26m.37s., SS =31m.19s.
Lisbon PPZ =17m.43s., SSE =32m.17s. ?, N =35m.5s. ?, Z =40m.41s.?
San Fernando SSE =28m.53s.
San Juan ePP =19m.57s., e =27m.24s. and 39m.52s.
Huancayo e =49m.11s.
Long waves were also recorded at Edinburgh.

June 13d. 16h. 23m. 18s. Epicentre 41°·0N. 143°·3E. (as at 8h. 36m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	2·5	222	0 44	+ 1	1 13	− 1	—	—	—
Vladivostok		8·8	287	2 13	+ 2	—	—	—	—	—
Irkutsk		28·7	307	6 1	0	11 58	SS	—	—	—
College		45·0	35	—	—	e 14 57	− 1	—	—	e 26·5
Honolulu		53·1	93	—	—	e 15 49	−62	(e 20 2)	SS	e 20·0
Sverdlovsk		53·2	317	i 9 22	0	16 58	+ 6	—	—	—
Tashkent		54·1	297	9 29	0	e 17 17	PS	—	—	—
Moscow		65·0	323	10 44	0	19 26	0	—	—	—
Scoresby Sund		68·3	355	—	—	e 19 55	−11	—	—	e 41·4
Tinemaha	z.	72·3	56	i 11 39	+10	—	—	—	—	—
Mount Wilson	z.	74·2	58	e 11 50	+10	—	—	—	—	—
Pasadena	z.	74·2	58	e 11 49	+ 9	—	—	—	—	e 36·2
Tucson		80·1	56	i 12 25	+12	—	—	—	—	—
Stuttgart		81·9	332	e 12 22	− 1	e 22 42?	+ 6	—	—	e 43·2
Helwan	z.	85·5	306	12 42	+ 1	—	—	e 12 57	P_cP	—
Florissant		86·7	39	e 12 55	P_cP	e 23 22	− 2	—	—	e 53·9
St. Louis		86·9	39	e 12 48	0	e 23 23	− 3	—	—	—
Ottawa		87·2	27	e 12 56	P_cP	—	—	—	—	42·7
Fordham		91·8	27	—	—	e 23 5	−66	—	—	—
Granada		96·5	333	—	—	36 35	SSS	—	—	51·5

Long waves were also recorded at other European stations.

June 13d. 17h. 39m. 12s. Epicentre 41°·0N. 143°·3E. (as at 16h.).

Intensity IV at Urakawa, Hakodate, Hatinohe, Aomori; II-III at Miyako and Obihiro.
Epicentre as adopted. Radius of macroseismic area 200-300km. Depth 40km.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo, 1950, p. 29, macroseismic chart p. 29.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Hatinohe		1·4	251	0 26	− 1	0 46	0	—	—	—
Miyako		1·7	216	0 29	− 2	0 49	− 5	—	—	—
Aomori		1·9	264	0 35a	+ 1	1 1	+ 2	—	—	—
Mizusawa	E.	2·5	222	0 42	− 1	1 11	− 3	—	—	—
Sapporo		2·5	325	0 44a	+ 1	1 14	0	—	—	—
Sendai		3·3	214	0 52a	− 1	1 27	− 8	—	—	—
Hukusima		3·9	214	1 6	+ 4	1 44	− 6	—	—	—
Onahama		4·5	205	1 7k	− 4	1 53	−12	—	—	—
Mito		5·1	206	1 18	− 2	2 10	−10	—	—	—
Utunomiya		5·2	212	1 20	− 1	2 37	S*	—	—	—
Kakioka		5·3	208	1 19	− 3	2 40	S*	—	—	—
Tukubasan		5·4	208	1 20	− 4	2 21	− 7	—	—	—
Tyosi		5·6	201	1 23	− 4	2 49	S*	—	—	—
Maebasi		5·7	217	1 29	+ 1	2 50	S*	—	—	—
Nagano		5·9	224	1 32	+ 1	2 26	−14	—	—	—
Tokyo, Cen. Met. Ob.		6·0	209	1 29	− 3	2 33	−10	—	—	—
Yokohama		6·3	208	1 36	0	3 6	S*	—	—	—
Toyama		6·4	230	1 56	P*	3 48	L	—	—	(3·8)
Kohu		6·5	216	1 40	+ 1	3 12	S*	—	—	—
Misima		6·8	211	1 42	− 2	3 6	+ 3	—	—	—
Osima		7·0	206	1 40	− 6	2 54	−14	—	—	—
Shizuoka		7·2	214	1 51	+ 2	3 18	+ 5	—	—	—
Omaesaki		7·5	214	2 8	P*	3 47	S*	—	—	—
Gihu		7·6	224	1 57	+ 2	3 30	+ 7	—	—	—
Hamamatu		7·7	217	2 10	P*	3 37	+12	—	—	—
Nagoya		7·7	222	2 0	+ 4	3 58	S*	—	—	—
Hikone		8·0	226	2 6	+ 6	3 42	+ 9	—	—	—
Kyoto		8·4	227	2 6	0	—	—	—	—	—
Toyooka		8·6	234	2 12	+ 3	4 1	+13	—	—	—
Osaka		8·8	227	2 15	+ 4	3 48	− 5	—	—	—
Owase		8·9	221	2 29	+17	4 18	S*	—	—	—
Sumoto		9·4	228	2 24	+ 6	4 12	+ 5	—	—	—
Siomisaki		9·6	221	2 54	PPP	—	—	—	—	—
Muroto		10·6	226	2 43	+ 7	4 59	SSS	—	—	—
Hamada		10·8	239	2 39	0	4 39	− 3	—	—	—
Koti		10·8	229	2 41	+ 2	—	—	—	—	—
Hukuoka		12·7	238	3 3	− 2	6 21	+53	—	—	—
Kumamota		13·0	235	3 16	+ 7	6 40	+65	—	—	—
Zinsen		13·4	260	3 20	+ 6	6 41	+56	—	—	—
Nake		16·9	226	4 7	+ 8	—	—	—	—	—
Irkutsk		28·7	307	i 5 59	− 2	i 11 1	+11	—	—	—
College		45·0	35	e 8 26	+ 7	e 14 55	− 3	e 18 15	SS	e 21·6
Calcutta	N.	49·4	266	—	—	i 15 59	− 1	—	—	—
Sitka		52·3	43	e 9 33	+18	e 16 40	0	—	—	e 25·1
Honolulu		53·1	93	e 10 27	PcP	e 17 5	PS	—	—	e 24·4
Sverdlovsk		53·2	317	i 9 18	− 4	17 6	PS	—	—	—
Tashkent		54·1	297	9 26	− 3	17 23	PS	—	—	—
New Delhi	N.	54·5	279	—	—	i 17 24	PS	—	—	—
Victoria		62·7	48	—	—	e 19 0?	+ 3	—	—	31·8
Bombay	E.	63·3	272	—	—	e 23 10	SS	e 23 28	?	34·8
Moscow		65·0	323	10 42	− 2	19 26	0	—	—	—
Scoresby Sund		68·3	355	e 11 6	+ 1	e 20 6	0	—	—	e 27·8
Saskatoon		69·2	39	—	—	e 20 18	+ 2	—	—	33·8
Berkeley		69·3	58	i 11 18	+ 7	i 20 16	− 1	—	—	e 32·5
Santa Clara		69·8	58	e 11 32	PcP	e 20 30	+ 7	—	—	e 32·3
Upsala		70·0	334	e 11 11	− 4	e 20 21	− 5	e 13 38	—	e 33·8
Bozeman		71·2	46	e 11 33	+10	e 20 36	− 4	—	—	e 31·1
Tinemaha	z.	72·3	56	e 11 31	+ 2	—	—	i 11 42	PcP	—
Santa Barbara	z.	73·0	59	i 11 48	PcP	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee		73·1	56	i 11 46	PcP	—	—	—	—	—
Salt Lake City		73·9	50	e 11 50	PcP	e 21 8	− 2	—	—	e 35·6
Pasadena		74·2	58	i 11 39	− 1	e 21 10	− 4	i 11 51	PcP	e 32·8
Riverside	z.	74·8	58	i 11 43	− 1	—	—	i 11 54	PcP	—
Riverview		74·8	173	—	—	i 21 27	+ 7	—	—	e 32·1
Copenhagen		75·0	334	i 11 45k	0	21 17	− 6	14 33	PP	—
Palomar	z.	75·6	58	e 11 51	+ 3	—	—	—	—	—
Ivigtut		77·7	6	—	—	e 21 53	+ 1	—	—	e 39·8
Aberdeen	E.	78·0	342	—	—	i 21 56	+ 1	—	—	37·0
Bucharest		78·0	319	e 12 6?	+ 4	e 21 54?	− 1	e 22 18?	ScS	38·8
Jena		79·2	331	e 12 8	0	—	—	e 12 12?	PcP	e 35·8
Cheb		79·6	331	—	—	e 21 48?	−24	—	—	e 42·8
Kalossa		79·7	324	e 12 13	+ 2	—	—	e 12 28	PcP	e 44·8
Ksara		80·0	306	e 12 14	+ 1	e 22 21	+ 4	—	—	—
Tucson		80·1	56	e 12 14	+ 1	e 22 6	−12	e 12 26	PcP	e 33·2
Belgrade		80·4	322	e 12 10	− 5	e 22 43	ScS	—	—	e 44·6
De Bilt		80·4	335	e 12 18	+ 3	e 22 26	+ 5	e 15 18	PP	e 38·8
Sofia		80·6	319	e 12 16	0	e 22 49	ScS	—	—	—
Stonyhurst		81·0	340	—	—	32 48?	?	38 48?	Q	41·8
Uccle		81·8	335	e 12 19	− 3	e 22 29	− 6	e 15 30	PP	e 39·8
Stuttgart		81·9	332	e 12 18	− 5	e 22 28	− 8	—	—	e 41·9
Strasbourg		82·5	332	e 12 28	+ 2	—	—	e 12 58	?	43·8
Kew		82·7	338	e 12 24	− 3	e 22 39	− 5	e 15 30	PP	e 39·8
Triest		82·7	327	e 22 40	S	(e 22 40)	− 4	—	—	—
Zürich		83·3	330	e 12 29	− 1	—	—	—	—	—
Basle		83·5	331	e 12 22	− 9	—	—	—	—	—
Paris		84·1	335	e 12 36	+ 2	—	—	e 24 14	PPS	44·8
Neuchatel		84·2	331	e 12 35	+ 1	—	—	—	—	—
Milan		84·6	329	e 12 36	0	22 58	− 5	—	—	—
Florence		85·2	327	e 12 42	+ 3	e 23 3	[+ 1]	e 28 50	SS	—
Helwan		85·5	306	12 39	− 2	23 5	[+ 1]	e 12 51	PcP	—
Chicago		85·6	36	—	—	e 22 58	[− 7]	e 28 45	SS	e 36·0
Clermont-Ferrand		86·6	333	e 12 47	+ 1	—	—	—	—	e 46·2
St. Louis		86·9	39	e 12 48	0	e 23 10	[− 3]	e 23 22	SKKS	—
Ottawa		87·2	27	12 48	− 1	23 24	{+ 3}	28 48?	SS	e 40·8
Seven Falls		87·2	23	—	—	e 23 18?	[+ 3]	—	—	41·8
Christchurch		88·2	159	—	—	e 23 18	[− 4]	e 28 52	SS	35·6
Pittsburgh		89·9	32	—	—	e 23 51	− 3	—	—	—
Harvard		91·1	25	e 13 10	+ 2	e 25 8	PS	—	—	e 37·8
Philadelphia		92·1	28	—	—	e 23 42	[− 3]	e 24 1	SKKS	e 44·3
Toledo		94·2	334	e 13 19	− 3	24 32	+ 1	17 3	PP	44·5
Almeria		96·4	332	e 14 28	+56	24 26	{− 2}	17 22	PP	44·8
Granada		96·5	333	14 29	+57	24 43	− 8	17 26	PP	48·2
Lisbon		96·8	338	17 26	PP	—	—	—	—	45·2
San Fernando	E.	98·0	335	—	—	e 24 46	{+ 6}	—	—	46·3
San Juan		114·9	30	e 22 37	PPP	e 29 30	PS	e 33 23	?	e 54·2

Additional readings :—
Upsala ePP?N = 13m.38s., eN = 20m.48s.?, eE = 21m.19s., eSS = 24m.48s.?.
Tucson e = 13m.11s.
Uccle SSE = 27m.58s.
Kew ePS = 23m.16s., eSS = 28m.10s., eSSSN = 31m.48s.?.
Helwan PP?Z = 16m.24s., SKKSEN = 23m.36s., PSN = 24m.57s.
Philadelphia e = 25m.31s. and 38m.12s.
Almeria pPP = 17m.51s., PS = 25m.16s.
Granada pPP = 17m.51s., SS = 31m.53s.
San Fernando ePPSE = 28m.21s.
Long waves were also recorded at Kodaikanal, Auckland, Wellington, Arapuni, Columbia, Bermuda, Huancayo, La Paz, and at other European stations.

June 13d. Readings also at 1h. (Tacubaya), 4h. (Tinemaha, Riverside, Mount Wilson, Tucson, Rio de Janeiro, and Tacubaya), 5h. (near Mizusawa (4)), 6h. (Tinemaha, Palomar, Riverside, Tucson, and near Mizusawa (5)), 7h. (Bombay, Kodaikanal, and near Mizusawa (3)), 8h. (Stuttgart and near Mizusawa (3)), 9h. (Palomar, Riverside, Pasadena, Tucson, Mount Wilson, Tinemaha, Toledo, Stuttgart, and near Mizusawa (2)), 10h. (near Mizusawa (3)), 11h. (Triest and near Mizusawa (3)), 12h. (Mizusawa), 13h. (Tashkent, New Delhi, Ksara, and Helwan), 14h. (2), 15h., 16h., 17h. (2), 18h. (3), and 19h. (near Mizusawa), 21h. (Stuttgart, Tucson, Tinemaha, Mount Wilson, Fort de France, San Juan, and Bogota), 22h. (Huancayo and near La Paz).

June 14d. 2h. 59m. 54s. Epicentre 30°·0S. 61°·0E. (as on 1941 October 11d.).

$A = +·4206$, $B = +·7587$, $C = -·4975$; $\delta = +4$; $h = +2$;
$D = +·875$, $E = -·485$; $G = -·241$, $H = -·435$, $K = -·868$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tananarive		16·5	306	3 47	− 7	6 43	−15	3 58	PP	7·6
Kodaikanal	E.	43·0	24	—	—	i 14 2	−27	—	—	—
Bombay	E.	49·9	15	e 8 54	− 3	i 16 9	+ 2	i 16 22	PPS	—
New Delhi	N.	60·3	17	i 10 16k	+ 3	i 18 32	+ 6	—	—	—
Helwan		65·9	333	10 47	− 3	19 39	+ 2	e 13 32	PP	—
Ksara		67·8	338	e 11 7	+ 5	e 19 23	−37	—	—	—
Tashkent		71·4	6	i 11 27	+ 3	i 20 49	+ 7	—	—	—
Riverview		74·1	120	—	—	e 21 27	+15	—	—	e 36·0
Sverdlovsk		86·5	0	12 46	0	e 23 22	0	—	—	—
Triest		86·6	329	—	—	e 23 14	[+ 2]	—	—	—
Moscow		87·7	348	13 1	+ 9	23 36	+ 3	—	—	—
Almeria		89·2	314	12 58	− 1	23 40	{+ 4}	13 22	P_cP	48·1
Granada		90·1	314	i 13 6	+ 3	i 24 2	+ 7	23 47	SKKS	48·4
Irkutsk		90·3	24	16 23	PP	e 24 2	+ 5	23 37	SKS	—
Zürich		90·3	327	e 13 1	− 3	—	—	—	—	—
Cheb		90·6	331	—	—	e 23 6?	[−30]	—	—	e 52·1
Basle		90·9	327	e 13 4	− 3	—	—	—	—	—
Stuttgart		91·0	328	e 13 5	− 2	e 24 4	+ 1	e 23 39	SKS	e 49·6
San Fernando	E.	91·3	311	e 13 21	+12	i 24 11	+ 5	e 18 36	PPP	52·6
Strasbourg		91·6	328	e 13 13	+ 3	—	—	e 13 24	P_cP	e 57·1
Toledo		92·1	316	e 13 11	− 1	e 24 20	+ 7	—	—	e 46·1
Paris		94·2	325	e 13 37	+15	—	—	e 17 26	PP	—
Uccle		94·7	327	e 17 6?	PP	e 24 6?	[+ 7]	—	—	e 50·1
Copenhagen		94·9	334	—	—	23 56	[− 5]	—	—	—
De Bilt		95·2	329	e 13 31	+ 4	—	—	17 24	PP	e 48·1
Kew		97·3	326	e 13 42	+ 6	e 23 28?	?	e 17 38	PP	e 43·1
Scoresby Sund		115·6	338	e 19 52	PP	—	—	—	—	e 63·3
Bermuda		133·9	287	e 22 28	?	—	—	—	—	e 69·9
Seven Falls		139·9	308	e 22 0?	PP	—	—	—	—	69·1
Ottawa		142·9	307	e 19 29	[− 7]	—	—	—	—	69·1
Tucson		172·7	290	i 20 11	[0]	—	—	e 25 29	PP	e 87·6
Tinemaha		172·9	355	i 20 12	[+ 1]	—	—	i 21 48	PKP_2	—
Haiwee		173·8	353	i 20 14	[+ 3]	—	—	i 21 47	PKP_2	—
Mount Wilson	Z.	175·7	352	e 20 11	[− 1]	—	—	e 21 52	PKP_2	—
Pasadena	Z.	175·8	352	i 20 13	[+ 1]	—	—	i 21 51	PKP_2	e 83·1
Riverside		175·8	344	e 20 11	[− 1]	—	—	e 28 46	P_cPPKP	—
Palomar	Z.	176·2	332	e 20 13	[+ 1]	—	—	e 21 59	PKP_2	—

Additional readings :—
Tananarive SS = 6m.53s.
Bombay iE = 9m.2s.
Helwan eZ = 12m.24s.
Almeria PP = 16m.43s., SKS = 23m.12s., SKKS = 23m.25s., PS = 24m.17s.
Granada PP = 16m.38s., iSN = 24m.12s., SS = 30m.11s.
Irkutsk PS = 25m.14s.
Stuttgart ePPZ = 16m.46s.
Strasbourg e = 14m.9s.
Paris e = 22m.6s.
Scoresby Sund e = 23m.56s. and 35m.19s.
Tucson e = 21m.30s., 29m.15s., and 36m.3s.
Tinemaha ePPEZ = 25m.34s.
Haiwee ePPZ = 25m.35s.
Mount Wilson iPPZ = 25m.39s., eP_cP, PKPZ = 29m.14s.
Pasadena eZ = 21m.6s., iZ = 22m.33s., ePPZ = 25m.39s., iP_cP, PKPZ = 29m.10s., eE = 34m.36s.?.
Palomar ePPZ = 25m.34s., eP_cP, PKPZ = 29m.4s.
Long waves were also recorded at Tortosa, Christchurch, Wellington, Arapuni, and La Paz.

June 14d. 7h. 46m. 48s. Epicentre 38°·0N. 21°·0E. (as on May 22d.).

$A = +·7375$, $B = +·2831$, $C = +·6131$; $\delta = -6$; $h = -1$;
$D = +·358$, $E = -·934$; $G = +·572$, $H = +·220$, $K = -·790$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia	5·1	21	e 1 22	+ 2	i 2 30	+10	i 1 36	P*	—
Bucharest	7·4	30	e 1 58	+ 6	i 3 22	+ 4	i 3 46	S*	i 4·2
Kalossa	8·7	351	e 2 37	P*	—	—	—	—	e 4·9
Focsani	9·0	28	e 1 48	−25	—	—	e 1 57	P	4·7
Florence	9·4	311	i 2 28	+10	e 3 45	−22	—	—	i 4·7
Triest	9·4	327	e 2 12	− 6	e 3 40	−27	—	—	e 4·5
Ogyalla	10·1	348	e 3 42	?	—	—	e 3 47	?	5·4
Milan	11·5	314	2 47	− 1	4 41	−18	—	—	—
Helwan	11·8	130	i 3 8k	PPP	i 5 16	+10	e 4 21	?	—
Chur	12·2	320	e 2 52	− 6	e 4 52	−24	—	—	—
Ksara	12·8	105	e 3 21	PPP	e 5 41	SS	—	—	—
Prague	13·0	341	e 1 43	?	—	—	—	—	—
Zürich	13·1	320	e 2 48	−22	—	—	—	—	—
Cheb	13·6	336	e 5 12?	?	—	—	—	—	—
Basle	13·7	319	e 3 12	− 6	—	—	e 5 21	?	—
Neuchatel	13·7	316	e 3 12	− 6	—	—	e 5 18	?	—
Stuttgart	13·7	326	i 3 11	− 7	e 5 27	−25	—	—	e 7·1
Strasbourg	14·3	322	e 3 37	PP	e 6 10	+ 4	—	—	i 7·0
Jena	14·5	336	e 3 21	− 7	e 6 23	+12	e 3 24	P	e 7·2
Potsdam	15·4	341	e 3 42	+ 2	e 6 35	+ 3	e 3 45	P	—
Paris	17·2	315	e 4 5	+ 2	—	—	—	—	e 10·1
Uccle	17·4	323	e 4 7	+ 1	e 7 16	− 3	—	—	e 8·6
De Bilt	17·9	327	i 4 10k	− 2	e 7 30	0	—	—	e 9·2
Copenhagen	18·6	345	—	—	7 36	−10	—	—	—
Almeria	18·7	275	e 4 24	+ 2	7 57	+ 9	8 57	P_cP	—
Granada	19·5	277	i 4 27	− 4	8 3	− 3	4 48	PP	10·9
Kew	20·2	320	e 4 34	− 5	e 8 10	−11	—	—	e 9·5
Upsala	22·0	356	4 50	− 8	e 8 48	− 8	—	—	e 11·8

Additional readings :—
Sofia iEN = 2m.8s.
Bucharest iN = 3m.11s., iSE = 3m.36s.
Potsdam eSE = 6m.38s.
Granada pPP = 5m.6s., iP_cP = 8m.18s.

June 14d. 16h. 22m. 21s. Epicentre 40°·9N. 142°·7E. (as on 13d.).

Scale II-III at Hatinohe, Urakawa, Aomori, Hakodate. Epicentre 41°·0N. 142°·5E. Macroseismic area 200-300 km. Shallow.
Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1943, Tokyo 1950, p. 30, macroseismic chart p. 30.

$A = -·6030$, $B = +·4594$, $C = +·6522$; $\delta = +2$; $h = -2$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hatinohe		0·9	247	0 21k	+ 1	0 36	+ 2	—	—	—
Miyako		1·4	203	0 28	+ 1	0 46	0	—	—	—
Aomori		1·5	267	0 30k	+ 2	0 51	+ 2	—	—	—
Mizusawa	E.	2·1	214	0 41	+ 4	1 9	+ 5	—	—	—
Sapporo		2·4	335	0 44	+ 3	1 11	− 1	—	—	—
Sendai		3·0	208	0 51	+ 1	1 29	+ 2	1 34	S*	—
Hukusima		3·6	209	0 54	− 4	1 15	P_g	—	—	—
Aikawa		4·5	232	1 14k	+ 3	2 13	+ 8	—	—	—
Mito		4·8	202	1 17	+ 2	2 18	+ 6	—	—	—
Kakioka		5·1	204	1 22	+ 2	2 31	S*	—	—	—
Tukubasan		5·1	204	1 21	+ 1	2 29	S*	—	—	—
Maebasi		5·3	214	1 27	+ 5	2 38	S*	—	—	—
Tyosi		5·3	196	1 22	0	2 44	S*	—	—	—
Nagano		5·5	221	1 31	+ 6	2 25	− 5	—	—	—
Tokyo Cen. Met. Ob.		5·7	205	1 32	+ 4	2 34	− 1	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hunatu		6·2	211	1 46	P•	2 59	+11	—	—	—
Kohu		6·2	213	1 41	+ 6	2 56	+ 8	—	—	—
Misima		6·5	208	1 37	− 2	3 2	+ 7	—	—	—
Osima		6·6	204	1 42	+ 1	2 57	− 1	—	—	—
Shizuoka		6·8	211	1 48	+ 4	3 11	+ 8	—	—	—
Gihu		7·2	222	1 51	+ 2	3 25	+12	—	—	—
Nagoya		7·2	220	1 58	+ 9	3 36	S•	—	—	—
Omaesaki		7·2	211	1 58	+ 9	3 28	S•	—	—	—
Hamamatu		7·3	214	2 35	P_g	3 40	S•	—	—	—
Kameyama		7·8	221	2 4	+ 6	—	—	—	—	—
Toyooka		8·2	232	2 6	+ 3	3 45	+ 7	—	—	—
Osaka		8·4	224	2 17	+11	—	—	—	—	—
Kobe		8·6	226	2 15	+ 9	3 53	+ 5	—	—	—
Owase		8·6	219	2 28	P•	4 25	S•	—	—	—
Sumoto		9·0	226	2 28	+15	3 58	0	—	—	—
Siomisaki		9·3	219	2 40	PPP	—	—	—	—	—
Muroto		10·2	224	2 35	+ 4	5 14	SSS	—	—	—
Hamada		10·3	238	2 34	+ 2	4 33	+ 3	—	—	—
Koti		10·3	228	2 34	+ 2	4 34	+ 4	—	—	—
Matuyama		10·6	231	2 33	− 3	4 43	+ 6	—	—	—
Hukuoka		12·2	237	2 55	− 3	—	—	—	—	—
Kumamoto		12·5	234	3 3	+ 1	—	—	—	—	—
Zinsen		12·9	260	3 8	+ 1	6 28	SSS	—	—	—
Kagosima		13·5	230	3 16k	+ 1	—	—	—	—	—
College		45·3	35	—	—	e 14 53	− 9	—	—	e 23·8
Andijan		51·8	294	9 10	− 2	16 55	PPS	—	—	—
Sverdlovsk		53·0	317	i 9 15	− 6	17 5	PPS	—	—	—
Tashkent		53·7	297	i 9 22	− 4	i 17 22	PPS	—	—	—
New Delhi		54·1	279	—	—	i 16 19	−46	—	—	—
Moscow		64·8	323	10 39	− 4	19 39	PS	—	—	—
Scoresby Sund		68·4	355	—	—	e 19 58	− 9	—	—	e 35·0
Upsala		69·9	334	e 25 2	?	e 33 4	?	—	—	e 40·6
Tinemaha		72·8	56	e 11 30	− 2	—	—	i 11 43	P_cP	—
Haiwee		73·5	56	i 11 47	P_cP	—	—	—	—	—
Logan		73·7	49	i 11 50	P_cP	e 21 1	− 7	e 21 36	PS	e 36·6
Mount Wilson	z.	74·7	58	e 11 39	− 4	—	—	i 11 53	P_cP	—
Pasadena	z.	74·7	58	i 11 54	P_cP	—	—	—	—	e 33·6
Copenhagen		74·9	334	e 11 39	− 5	21 40	+18	—	—	—
Riverside	z.	75·3	58	e 11 45	− 2	—	—	e 11 56	P_cP	—
Palomar	z.	76·0	58	e 12 1	P_cP	—	—	—	—	—
La Jolla		76·1	59	e 12 1	P_cP	—	—	—	—	—
Jena	N.	79·1	331	e 12 1	− 7	—	—	—	—	—
Ksara		79·7	306	e 12 9	− 2	e 22 31	+18	—	—	—
De Bilt		80·3	335	i 12 10	− 4	i 22 39	+19	e 15 14	PP	e 37·6
Tucson		80·5	56	e 12 7	− 8	—	—	i 12 26	P_cP	39·5
Stuttgart		81·7	331	i 12 17a	− 5	e 22 51	PS	e 41 51	Q	e 45·6
Uccle		81·7	335	e 12 16	− 6	e 21 33	−61	i 23 0	PS	e 39·6
Kew		82·5	338	i 12 23	− 3	i 22 34	− 8	i 12 30	P_cP	e 36·6
Triest		82·5	327	—	—	i 22 58	+16	—	—	—
Paris		84·0	335	e 12 30	− 3	—	—	e 24 6	PPS	45·6
Florence		85·1	327	e 12 41?	+ 2	i 23 14	+ 6	e 22 51	SKS	—
Helwan		85·2	306	i 12 35	− 4	22 57	−12	e 12 52	P_cP	—
Florissant		87·1	39	e 12 58	+ 9	—	—	—	—	e 43·3
St. Louis		87·3	39	i 12 44	− 6	e 23 20	− 9	e 23 9	SKS	—
Tortosa		91·7	332	—	—	(e 34 39)	SSS	—	—	e 34·6
Almeria		96·3	332	e 17 18	PP	27 7	PPS	e 17 59	pP	55·6
Granada		96·4	333	i 17 26	PP	27 6	PPS	17 42	pP	55·5

Additional readings :—
Upsala ePN =25m.10s., ePPE =27m.28s., eSS?N =36m.39s.?. Phases wrongly identified.
Tucson e =28m.4s.
Stuttgart eSKS =21m.51s.
Kew iPP?Z =15m.29s., eSKKSE =23m.1s., eS =23m.15s., ePSE =23m.56s., eSSZ = 28m.37s.

Continued on next page.

Helwan PPZ =16m.6s., SN =23m.33s.
St. Louis eE =22m.37s.
Granada S =28m.54s., PPS =31m.27s., SS =34m.45s., SSS =38m.45s., Q =48·6m.
Long waves were also recorded at Philadelphia, Wellington, Arapuni, and at other European stations.

June 14d. 17h. 19m. 1s. Epicentre 27°·0N. 113°·0W. (Foreshock of 17h. 23m.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson	5·5	19	i 1 5	−20	i 2 20	−10	i 1 17	P	i 3·0
La Jolla	6·9	329	e 1 42	− 3	i 2 52	−13	—	—	—
Riverside	7·9	333	e 1 59	0	i 3 24	− 6	—	—	—
Mount Wilson	8·4	330	e 2 6	0	e 3 38	− 5	—	—	—
Pasadena	8·4	329	i 2 10	+ 4	e 3 35	− 8	—	—	—
Haiwee	10·0	336	—	—	i 4 45	SSS	—	—	—
Tinemaha	11·0	337	—	—	e 5 12	SSS	—	—	—

June 14d. 17h. 23m. 9s. Epicentre 27°·0N. 113°·0W. (as at 17h.19m.).

A = −·3486, B = −·8213, C = +·4516; δ = 0; h = +3;
D = −·920, E = +·391; G = −·176, H = −·416, K = −·892.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		5·5	19	e 1 23	− 2	(i 2 29)	− 1	i 1 38	P*	i 2·5
La Jolla		6·9	329	i 1 55	+10	i 3 6	+ 1	—	—	—
Palomar	z.	7·1	333	e 1 51	+ 3	i 3 14	+ 4	i 2 1	P*	—
Riverside		7·9	333	e 2 0	+ 1	e 3 34	+ 4	i 2 15	P*	—
Mount Wilson		8·4	330	e 2 6	0	i 3 53	+10	i 2 23	P*	—
Pasadena		8·4	329	e 2 4	− 2	i 3 51	+ 8	? 2 22	P*	—
Santa Barbara		9·4	324	e 2 28	+10	i 4 22	+15	—	—	—
Haiwee		10·0	336	i 1 58	−29	i 4 31	+ 9	—	—	—
Tinemaha		11·0	337	e 2 41	− 1	i 5 12	SSS	—	—	—
Fresno	N.	11·3	331	e 5 19	SSS	e 8 6	L	—	—	(e 8·1)
Berkeley		13·4	326	i 3 13	− 1	e 6 4	SSS	—	—	e 6·3
Salt Lake City		13·8	4	—	—	—	—	e 6 30	SSS	e 7·3
Ukiah		14·8	328	e 4 23	+51	—	?	(e 6 47)	SSS	e 6·8
Ferndale		16·4	328	e 8 7	SSS	—	—	—	—	e 8·6
Bozeman		18·7	6	e 4 25	+ 3	—	—	e 8 7	SS	e 9·6
Lincoln		19·3	40	e 5 31	+62	—	—	—	—	e 9·7
Florissant		22·3	53	e 5 17	+16	e 9 18	+16	—	—	e 11·7
St. Louis		22·3	53	e 5 14	+13	e 9 10	+ 8	e 5 19	PP	e 10·9
Chicago		25·5	47	e 9 4	PcP	—	—	—	—	e 13·2
Columbia		28·3	67	e 11 30	?	—	—	—	—	e 15·2
Philadelphia		33·8	58	—	—	e 13 15	PcS	—	—	e 17·1
Ottawa		34·9	48	e 7 7	+12	—	—	e 14 21?	SS	17·8
Bermuda		42·0	71	—	—	e 14 21	+ 7	—	—	e 19·0
Scoresby Sund		65·2	22	—	—	—	—	e 23 35	SS	e 32·9

Tucson gives i =1m.49s. and 1m.57s.
Long waves were also recorded at Santa Clara, Sitka, College, San Juan, De Bilt, Kew, Granada, and Stuttgart.

June 14d. 22h. 54m. 3s. Epicentre 20°·5S. 177°·5W. (as on 1941 April 7d.).

Depth of focus 0·010.

A = −·9365, B = −·0409, C = −·3481.; δ = −12; h = +5.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland	17·6	201	—	—	7 17	+ 6	—	—	—
Tuai	18·8	194	4 12	− 2	7 18	−19	—	—	—
New Plymouth	19·9	199	4 27	+ 1	i 7 57	− 3	i 4 35	pP	—
Wellington	21·7	197	4 43	− 1	8 23	−10	15 48	ScS	—
Santa Barbara	77·5	46	i 11 49	+ 2	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		78·3	47	i 11 50	− 1	i 21 33	− 4	e 12 35	pP	—
Mount Wilson		78·5	47	e 11 50	− 2	—	—	i 12 37	pP	—
Palomar	z.	78·8	49	i 11 53	− 1	—	—	e 12 37	pP	—
Riverside		78·8	47	i 11 56	+ 2	—	—	i 12 40	pP	—
Haiwee		79·6	45	i 11 59	+ 1	e 21 50	− 1	i 12 46	pP	—
Tinemaha		80·0	44	i 12 0	0	e 21 53	− 2	i 12 48	pP	—
Tucson		82·5	52	i 12 13	0	—	—	e 12 53	pP	e 44·2
Copenhagen		144·1	350	19 25	[+ 1]	—	—	—	—	—
Ksara		147·6	300	e 19 13	[−18]	—	—	e 19 49	pPKP	—
De Bilt		148·4	357	i 19 40	[+ 8]	—	—	—	—	—
Jena		148·8	348	e 19 41	[+ 9]	—	—	—	—	—
Stuttgart		151·3	350	e 19 39	[+ 3]	—	—	i 19 46	pPKP	—
Helwan	z.	152·3	294	e 19 42	[+ 4]	—	—	e 20 3	pPKP	—
Granada		162·5	17	i 20 45	[+54]	44 51	SS	i 21 28	PKP_2	—
Almeria		163·1	15	20 38	[+47]	—	—	e 21 26	PKP_2	—

Additional readings :—
New Plymouth S? = 7m.49s.
Helwan eZ = 20m.54s.
Granada PP = 25m.15s.
Almeria e = 23m.14s.
Long waves were also recorded at Lincoln.

June 14d. Readings also at 0h. (Tacubaya near Ebingen and Stuttgart), 2h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Tucson, Palomar, Florissant, San Juan, Montezuma, Huancayo, La Paz, La Plata, and near Berkeley), 3h. (Pittsburgh, near Andijan, near Ebingen and Stuttgart), 5h. (Kew and near Mizusawa), 6h. (Tinemaha and Tucson), 7h. (Kew, Belgrade, and near Bogota), 9h. (Stuttgart, Palomar, Tucson, and La Jolla), 10h. (La Plata, and near Mizusawa), 14h. (near Mizusawa), 17h. (Palomar, Riverside, Mount Wilson, Pasadena, Tucson, Haiwee, Tinemaha, and near Mizusawa), 18h. (Seattle and Logan), 20h. (Stuttgart, Palomar (2), Riverside (2), Mount Wilson (2), Pasadena (2), Haiwee, Tucson (2), and Tinemaha (2)), 21h. (near Strasbourg, Jena, Stuttgart, and Ebingen).

June 15d. 11h. 10m. 42s. Epicentre 41°·6N. 142°·0E. (as on 1942 October 25d.).

Intensity VI at Aomori ; V at Urakawa, Hakodate, Mizusawa ; IV at Muroran, Obihiro, Sakata ; II-III at Hukusima, Mito, Kakioka, and Abashiri.
Epicentre 41°·1N. 142°·5E. Radius of macroseismic area 300 km. Shallow.
Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1943, Tokyo 1950, pp. 31-32. Macroseismic chart p. 31.

$A = -·5910$, $B = +·4617$, $C = +·6614$; $\delta = -10$; $h = -2$;
$D = +·616$, $E = +·788$; $G = -·521$, $H = +·407$, $K = -·750$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aomori	1·2	229	0 32	+ 8	0 52	+11	—	—	—
Sapporo	1·6	342	0 40a	+10	1 9	S_g	—	—	—
Miyako	1·8	180	0 30k	− 2	0 51	− 5	—	—	—
Mizusawa	2·6	195	0 44	0	1 12	− 5	1 8	?	—
Sendai	3·4	194	0 56k	+ 1	1 32	− 5	1 27	?	—
Hukusima	4·0	198	1 2	− 2	1 49	− 3	—	—	—
Onahama	4·8	192	1 18	+ 3	1 52	−20	—	—	—
Mito	5·4	195	1 19	− 5	2 42	S*	—	—	—
Utunomiya	5·4	200	1 21	− 3	2 35	+ 7	—	—	—
Kakioka	5·5	194	1 23	− 2	2 27	− 3	—	—	—
Tukubasan	5·6	196	1 23	− 4	2 24	− 9	—	—	—
Maebasi	5·7	205	1 29	+ 1	2 40	+ 5	—	—	—
Nagano	5·8	213	1 32	+ 3	2 28	−10	—	—	—
Tyosi	5·9	191	1 34	+ 3	2 46	+ 6	—	—	—
Tokyo Cen. Met. Ob.	6·2	198	1 33	− 2	2 34	−14	—	—	—
Hunatu	6·6	203	1 22	−19	2 57	− 1	—	—	—
Kohu	6·6	204	1 54	P*	3 8	+10	—	—	—
Misima	6·9	201	1 43	− 2	3 7	+ 2	—	—	—
Osima	7·1	198	1 33	−15	2 45	−25	—	—	—
Shizuoka	7·2	204	1 52	+ 3	3 18	+ 5	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Gihu		7·4	215	1 53	+ 1	3 24	+ 6	—	—	—
Nagoya		7·5	213	2 22	P_g	3 32	+12	—	—	—
Omaesaki		7·6	204	2 4	+ 9	3 33	+10	—	—	—
Hamamatu		7·7	207	2 11	P*	3 39	+14	—	—	—
Hikone		7·8	217	1 49	− 9	3 26	− 2	—	—	—
Kameyama		8·0	215	2 4	+ 4	3 41	+ 8	—	—	—
Kyoto		8·2	219	2 5	+ 2	3 43	+ 5	—	—	—
Toyooka		8·3	225	2 8a	+ 4	3 45	+ 5	—	—	—
Osaka		8·6	218	2 7	− 2	3 36	−12	—	—	—
Kobe		8·8	220	2 13	+ 2	3 51	− 2	—	—	—
Sumoto		9·2	220	2 17	+ 1	4 20	+17	—	—	—
Siomisaki		9·6	212	2 20	− 1	—	—	—	—	—
Hamada		10·3	233	2 36	+ 4	4 34	+ 4	—	—	—
Muroto		10·4	219	1 48	−46	4 46	+14	—	—	—
Hirosima		10·5	229	2 28	− 7	4 42	+ 7	—	—	—
Koti		10·5	223	2 34	− 1	—	—	—	—	—
Matuyama		10·7	226	2 36	− 2	—	—	—	—	—
Kumamoto		12·6	229	3 5	+ 2	5 41	SS	—	—	—
Zinsen		12·6	255	3 11	+ 8	5 56	SSS	—	—	—
Kagosima		13·6	226	3 18a	+ 1	6 31	SSS	—	—	—
Irkutsk		27·6	307	5 55	+ 4	i 10 39	+ 7	—	—	—
College		45·0	34	8 18	− 1	i 14 56	− 2	e 10 5	PP	e 21·5
Calcutta	N.	48·5	264	8 50a	+ 4	i 15 55	+ 7	i 10 53	PP	22·2
Andijan		51·1	295	e 9 10	+ 4	16 33	+ 9	—	—	—
Sverdlovsk		52·1	316	i 9 17	+ 3	—	—	—	—	—
Sitka		52·5	43	e 9 19	+ 2	i 16 46	+ 3	e 11 45	PP	e 25·5
Tashkent		52·9	295	i 9 23	+ 3	—	—	—	—	—
New Delhi	N.	53·4	277	e 9 36	+12	i 16 55	0	17 19	PS	—
Honolulu		54·1	92	e 9 34	+ 5	e 16 52	−13	e 11 36	PP	e 23·8
Hyderabad	E.	58·9	266	10 5	+ 2	18 9	+ 1	12 4	PP	—
Bombay	E.	62·3	271	i 10 28	+ 2	19 15	PS	1 19 42	S_cS	—
Victoria		63·0	48	10 39	+ 8	18 58	− 3	—	—	25·3
Moscow		63·9	324	i 10 9	−28	i 18 46	−26	—	—	—
Kodaikanal	E.	64·3	261	e 10 16	−23	i 19 23	+ 6	—	—	—
Colombo		64·7	256	10 38	− 4	19 53	PPS	—	—	37·6
Scoresby Sund		67·6	355	i 11 2	+ 1	i 19 59	+ 2	e 13 30	PP	e 29·0
Ukiah		68·5	56	e 11 11	+ 5	e 20 3	− 5	e 23 56	?	e 27·8
Upsala		69·1	334	i 11 10	0	20 15	0	i 13 42	PP	e 33·3
Saskatoon		69·4	38	—	—	e 20 18	0	—	—	33·3
Berkeley		69·8	57	i 11 16	+ 2	e 20 19	− 4	i 11 19	P_cP	e 32·3
Santa Clara		70·3	57	i 11 19	+ 2	i 20 20	− 9	—	—	e 33·4
Bozeman		71·4	45	e 11 28	+ 4	i 20 36	− 6	i 21 21	PPS	e 34·6
Bergen		72·4	340	i 11 32	+ 2	20 45	− 8	20 58	?	e 36·8
Tinemaha		72·8	56	i 11 31	− 1	e 20 14	?	i 11 44	P_cP	—
Logan		73·6	48	e 11 37	0	i 21 3	− 4	e 14 27	PP	e 35·1
Santa Barbara		73·6	58	i 11 50	P_cP	—	—	—	—	—
Copenhagen		74·1	333	i 11 41a	+ 1	21 15	+ 3	14 25	PP	36·3
Salt Lake City		74·1	49	e 11 50	+10	i 21 10	− 2	e 15 48	PPP	e 30·9
Mount Wilson	Z.	74·7	58	e 11 43	0	—	—	e 11 49	P_cP	—
Pasadena		74·7	58	i 11 42	− 1	i 21 13	− 6	i 11 54	P_cP	e 33·9
Riverside		75·3	58	e 11 45	− 2	—	—	i 11 53	P_cP	—
Riverview		75·5	172	11 52	+ 4	i 21 20	− 8	i 21 54	PS	e 31·8
La Jolla		76·1	58	e 11 51	0	—	—	i 12 2	P_cP	—
Palomar	Z.	76·1	57	e 11 47	− 4	—	—	e 12 0	P_cP	—
Potsdam		76·5	331	e 11 58	+ 4	i 21 43	+ 4	e 14 32	PP	e 41·3
Bucharest		76·9	318	i 11 58	+ 2	i 22 7	PS	i 22 16	PPS	42·3
Aberdeen		77·1	341	11 59	+ 2	21 50	+ 4	e 31 36	?	36·8
Ivigtut		77·2	6	—	—	e 21 42	− 5	—	—	e 37·4
Prague		77·8	329	12 4k	+ 3	21 55	+ 2	e 22 18?	PS	—
Ogyalla	N.	78·0	325	e 11 51	−11	e 21 48?	− 7	—	—	e 46·3
Jena		78·2	330	e 12 1	− 2	e 21 55	− 2	i 12 18?	P_cP	e 37·3
Edinburgh		78·5	341	—	—	22 3	+ 2	22 26	S_cS	—
Cheb		78·6	330	e 12 8	+ 3	e 22 8	+ 6	—	—	e 44·3
Kalossa		78·7	324	12 10	+ 4	e 22 18?	+15	22 29	PS	e 44·3
Ksara		78·9	305	e 12 12	+ 5	e 22 37	PS	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade		79·3	322	i 12 12	+ 3	e 22 14	+ 5	e 15 16	PP	e 46·2
De Bilt		79·4	334	i 12 12a	+ 3	i 22 14	+ 4	i 12 32	PcP	e 37·3
Sofia		79·5	319	i 12 15	+ 5	e 22 18	+ 7	e 15 18?	PP	—
Stonyhurst		80·1	340	20 59	?	e 22 15	− 3	e 22 44	PS	e 34·3
Tucson		80·6	56	i 12 15	− 1	e 22 8	−15	e 15 29	PP	e 31·5
Uccle		80·8	335	i 12 18a	+ 1	22 25	0	15 25	PP	e 39·3
Stuttgart		80·9	330	i 12 18a	+ 1	e 22 26	0	e 15 25	PP	e 44·6
Strasbourg		81·5	331	e 12 22	+ 1	22 36	+ 4	15 10	PP	e 46·3
Triest		81·6	326	e 12 18	− 3	i 22 34	+ 1	—	—	e 42·3
Kew		81·7	337	e 12 23	+ 1	i 22 34	0	e 15 32	PP	e 42·3
Chur		82·3	329	e 12 26	+ 1	e 22 42	+ 2	—	—	—
Zürich		82·3	330	e 12 26a	+ 1	e 22 44	+ 4	—	—	—
Basle		82·5	330	e 12 27	+ 1	e 22 45	+ 3	—	—	—
Neuchatel		83·2	330	e 12 30	+ 1	e 22 51	+ 2	—	—	—
Paris		83·2	334	i 12 32	+ 3	i 22 50	+ 1	16 31	?	42·3
Milan		83·6	329	12 33	+ 2	i 22 52	− 1	—	—	41·9
Auckland		83·7	155	—	—	24 53	?	—	—	41·3
Florence		84·2	326	i 12 32a	− 2	i 22 49	−10	i 13 8	PcP	—
Helwan		84·4	305	i 12 37k	+ 1	22 55	− 6	e 12 54	PcP	—
Arapuni		85·0	154	—	—	24 18?	PPS	—	—	43·3
Clermont-Ferrand		85·6	332	i 12 42	+ 1	e 23 13	0	i 16 3	PP	e 46·1
Chicago		85·7	35	e 12 41	− 1	e 23 2	[− 4]	e 28 44	SS	e 35·8
Florissant		86·8	38	i 12 46	− 1	i 23 8	[− 4]	—	—	e 42·3
Shawinigan Falls		86·9	23	12 46	− 2	23 7	[− 6]	—	—	—
St. Louis		87·0	38	i 12 46	− 2	i 23 9	[− 5]	e 13 4	PcP	—
Seven Falls		87·0	22	—	—	e 23 23	− 4	—	—	40·3
Ottawa		87·1	26	12 47	− 2	23 10	[− 5]	e 29 6?	SS	e 40·3
Wellington		87·7	156	12 52	0	23 18	[− 1]	13 3	PcP	40·3
Christchurch		89·1	158	12 47	−11	23 37	− 9	23 21	SKS	40·9
Barcelona		89·7	331	e 12 29	−32	e 22 51	−61	—	—	e 45·7
Pittsburgh		89·9	31	e 13 1	− 1	i 23 48	− 6	—	—	e 50·4
Tortosa	N.	90·8	331	e 14 5	+59	24 3	+ 1	i 16 47	PP	e 41·3
Harvard		91·0	24	e 12 58	− 9	—	—	e 25 8	PS	e 48·3
Fordham		91·7	26	e 23 39	SKS	i 24 4	− 6	—	—	—
Philadelphia		92·1	27	e 16 43	PP	i 24 5	− 8	e 23 40	SKS	e 36·3
Toledo		93·2	334	i 13 19	+ 2	i 24 56	+33	—	—	44·3
Columbia		95·0	35	e 23 56	SKS	(e 23 56)	[− 5]	e 30 24	?	e 44·5
Almeria		95·4	332	13 22	− 6	24 17	{− 4}	13 44	PcP	45·8
Granada		95·5	333	i 13 29	+ 1	24 10	[+ 6]	i 17 16	PP	45·7
San Fernando	E.	97·0	334	e 13 40	+ 5	e 25 27	+32	i 17 37	PP	47·3
Bermuda		102·4	23	e 18 6	PP	e 24 37	[− 1]	e 25 21	SKKS	e 49·6
San Juan		114·9	29	e 19 40	PP	e 26 35	{− 4}	e 29 30	PS	e 52·9
Huancayo		136·1	59	e 22 59	PKS	e 33 2	PS	e 40 8	SS	e 64·4

Additional readings :—
College eSS =18m.10s., e =18m.27s.
Calcutta iPSN =16m.30s.
Sitka ePPP =12m.30s., i =19m.5s., iSS =20m.33s.
New Delhi PPPN =12m.15s., iN =18m.1s., S_cSN =19m.42s.
Honolulu e =19m.11s., SSN =20m.15s., SSSN =21m.27s.
Hyderabad PSE =18m.23s.
Bombay iE =10m.46s., E =18m.29s., S_cSE =19m.23s.
Scoresby Sund i =20m.27s.
Upsala PS =20m.41s., eSSE =24m.18s.?, eSSN =24m.39s.?, e =29m.18s.?.
Bozeman e =28m.51s.
Bergen e =24m.31s.
Logan i =12m.34s., e =17m.18s., eS_cS? =22m.15s., e =25m.37s. and 28m.26s.
Copenhagen 21m.39s. and 26m.7s.
Salt Lake City e =28m.47s.
Riverview eSSE =26m.0s.
Potsdam iS_cSEN =22m.10s.
Bucharest iSSEN =27m.22s.
Jena iP =12m.4s., iZ =12m.23s., iN =12m.27s., eS?EN =22m.18s.?, eN =22m.44s.
De Bilt iPP =15m.16s., isS? =22m.43s., eSS =28m.48s.
Stonyhurst SS =25m.40s.
Tucson i =12m.35s., e =23m.35s.
Uccle iZ =12m.38s., iN =22m.35s. and 23m.2s., iPS =23m.31s.

Continued on next page.

Stuttgart ePcP =12m.39s., ePPPZ =17m.12s., eSPZ =22m.53s., eQ =41m.30s.
Kew ePPPE =17m.30s.?, iPSE =23m.3s., ePSN =23m.16s., ePPS? =23m.44s., eSSE = 28m.20s.?, eQEN =34·3m.
Florence iSKKSE =23m.23s., iSE =23m.28s., iPSE =24m.20s. iPPSE =25m.5s., iSSE =29m..48s.
Helwan PPNZ =16m.6s., PPPZ =18m.3s., SEN =23m.26s., PSZ =24m.24s.
Clermont-Ferrand ePP =16m.7s., i =16m.42s.
St. Louis eN =23m.23s., eE =28m.56s., iE =29m.11s.
Wellington SKS =23m.3s., SPP =24m.30s., SS =28m.35s., SSS? =36m.18s.?.
Christchurch SS =29m.24s., SSS =33m.15s., Q =35m.59s.
Tortosa iN =25m.20s.
Fordham e =24m.36s. and 25m.42s.
Philadelphia ePS =25m.13s., e =30m.28s.
Columbia e =36m.59s.
Almeria PP =17m.17s., pPP =17m.34s., pPPP =19m.36s., SKS =23m.44s., pS = 24m.46s., sS =25m.2s., PS =25m.48s., SS =30m.38s., sSS =31m.41s., SSS = 34m.35s.
Granada pPP =17m.31s., sS =25m.31s., sPPS =27m.46s., SS =31m.37s., SSS =34m.10s.
Bermuda eSS =32m.38s., e =34m.46s. and 37m.8s.
San Juan eSS =35m.28s.

June 15d. 18h. 21m. 42s. Epicentre 14°·6N. 93°·0W.

$A = -\cdot0507$, $B = -\cdot9668$, $C = +\cdot2505$; $\delta = +2$; $h = +6$;
$D = -\cdot999$, $E = +\cdot052$; $G = -\cdot013$, $H = -\cdot250$, $K = -\cdot968$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	4·4	304	e 1 6	− 4	—	—	—	—	—
Puebla	E.	6·6	312	i 1 41	0	—	—	—	—	—
Merida	N.	7·1	27	i 1 53	+ 5	—	—	—	—	—
Tacubaya	N.	7·6	310	i 1 55	0	—	—	—	—	—
Guadalajara	N.	11·5	303	e 2 50	+ 2	—	—	—	—	—
Balboa Heights		14·3	111	e 3 18	− 8	—	—	—	—	e 8·3
Mobile		16·6	15	i 4 2	+ 6	—	—	—	—	—
Columbia		22·1	27	e 5 0	+ 1	e 9 10	+12	—	—	e 11·4
Cape Girardeau	N.	22·8	7	e 5 4	− 1	—	—	—	—	—
Tucson		23·9	321	i 5 18	+ 2	i 9 45	+15	i 5 49	PP	e 11·7
St. Louis		24·1	5	i 5 17	− 1	e 9 44	+10	e 5 40	PP	—
Florissant		24·2	5	i 5 19	0	i 9 48	+13	i 5 50	PP	—
San Juan		26·0	78	i 5 38	+ 2	e 10 22	+16	i 10 34	?	e 11·8
Lincoln		26·3	355	e 5 36	− 3	—	—	—	—	e 10·7
Des Moines		26·9	359	e 5 54	+ 9	e 11 2	SS	(e 11 59)	SSS	e 12·0
Chicago		27·5	8	e 5 48	− 2	e 10 35	+ 5	e 6 46	PP	e 15·4
Georgetown		28·0	28	6 3	+ 8	10 59	+21	—	—	—
Pittsburgh		28·2	21	e 5 55	− 1	i 10 37	− 4	—	—	—
New Kensington		28·4	21	(e 6 6?)	+ 8	(e 11 0?)	+15	(e 6 42?)	PP	(e 16·7)
La Jolla		28·6	314	e 5 57	− 3	—	—	—	—	—
Palomar	z.	28·6	316	e 5 58	− 2	—	—	—	—	—
Riverside		29·3	316	e 6 6	0	e 10 26	−33	i 9 14	PcP	—
Philadelphia		29·7	29	e 6 8	− 2	i 11 7	+ 1	i 6 59	PP	e 12·4
Mount Wilson		29·9	316	i 6 10a	− 2	—	—	i 7 4	PP	—
Pasadena		29·9	316	i 6 10a	− 2	i 11 12	+ 3	e 7 12	PP	e 13·8
Buffalo		30·7	21	i 6 7	−12	11 33	+12	i 7 7	PP	—
Fort de France		30·8	86	e 6 55	PP	—	—	e 12 55	SS	—
Salt Lake City		30·8	333	e 6 21	+ 1	e 11 26	+ 3	e 8 25	?	e 15·6
Fordham		31·0	29	e 6 20	− 1	e 11 34	+ 8	i 8 4	PPP	—
Santa Barbara		31·2	315	e 6 21	− 2	—	—	—	—	—
Bermuda		31·3	50	e 6 9	−15	e 11 24	− 7	e 8 17	PPP	e 13·4
Logan		31·6	334	i 6 27	+ 1	i 12 38	+63	i 8 20	PPP	i 17·8
Huancayo		31·7	146	e 6 31	+ 4	i 11 41	+ 4	e 8 5	PPP	e 14·4
Tinemaha		31·7	320	e 6 27	0	—	—	i 7 38	PP	—
Fresno	N.	32·5	318	e 6 34	0	—	—	—	—	—
Harvard		33·4	30	i 6 41a	− 1	e 12 6	+ 3	i 7 42	PP	e 21·3
Ottawa		34·0	22	6 48	0	12 16	+ 3	8 8	PP	16·3
Lick		34·1	317	e 6 50	+ 2	—	—	e 7 4	?	e 18·1
Vermont		34·2	25	e 7 35	PP	e 12 36	+20	e 8 26	PPP	e 14·7
Santa Clara		34·3	317	i 6 50	0	i 12 40	+23	—	—	e 16·9

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bozeman		34·5	338	e 6 53	+ 1	i 12 24	+ 4	—	—	e 15·9
Berkeley	E.	35·8	317	e 6 53	−10	i 12 39	− 2	e 7 17	?	e 17·2
Shawinigan Falls		36·1	24	7 6	+ 1	12 48?	+ 3	8 20	PP	19·3
Ukiah		36·1	319	e 7 3	− 2	e 12 53	+ 8	e 8 36	PP	e 17·6
Seven Falls		37·3	25	7 13	− 3	13 6?	+ 2	8 46	PP	19·3
Ferndale	E.	37·6	320	e 6 18	−60	—	—	—	—	e 18·3
Halifax		39·0	34	e 9 10	PP	e 13 30?	+ 1	—	—	e 20·3
Saskatoon		39·0	347	7 33	+ 3	13 30?	+ 1	9 5	PP	19·3
La Paz		39·5	140	e 8 32	+58	13 49	+12	—	—	18·3
Seattle		40·9	330	(e 10 7)	PPP	(e 15 13)	?	—	—	(e 18·4)
Victoria		42·1	330	7 57	+ 2	14 23	+ 7	17 39	SS	20·3
Sitka		53·4	333	i 9 22	− 2	i 16 58	+ 3	e 11 23	PP	e 24·8
Ivigtut		56·5	25	e 9 41	− 5	17 48	PS	—	—	e 25·2
La Plata		59·4	147	—	—	18 12	− 3	19 54?	SeS	31·3
Honolulu		61·7	287	e 10 2	−20	e 18 44	0	e 23 46	?	e 25·7
College		62·3	337	e 10 25	− 1	e 18 52	0	e 12 44	PP	e 32·6
Scoresby Sund		70·0	19	i 11 18	+ 3	—	—	—	—	e 28·9
Lisbon		76·3	53	11 54a	+ 2	21 53	+16	16 18	PPP	35·1
Edinburgh		77·9	35	—	—	21 43	−11	—	—	—
Aberdeen		78·4	33	i 12 5	+ 1	i 22 10	+10	e 12 30	PcP	39·8
Stonyhurst		78·7	37	i 12 4	− 2	i 22 13	+10	i 22 33	ScS	37·6
San Fernando	E.	78·9	56	e 12 8	+ 1	e 22 35	PS	e 23 8	PPS	38·3
Kew		80·4	39	e 12 18	+ 3	e 22 22	+ 1	e 22 45	PS	e 39·3
Granada		80·9	54	i 12 22a	+ 5	i 22 31	+ 5	12 34	PcP	36·0
Bergen		81·5	29	12 25	+ 4	22 43	+11	—	—	e 40·3
Almeria		81·8	54	12 20	− 2	22 33	− 2	12 24	PcP	38·3
Paris		82·7	42	i 12 28	+ 1	i 22 55?	+11	—	—	40·3
Tortosa		83·2	50	e 12 18	−11	22 50	+ 1	—	—	e 36·3
Uccle		83·4	39	e 12 30	0	e 22 57	+ 6	e 23 55	PS	e 39·3
De Bilt		83·6	38	e 12 32a	+ 1	i 23 5	+12	e 23 58	PS	e 39·3
Clermont-Ferrand		83·9	45	e 12 30?	− 3	e 22 54	− 2	—	—	e 40·4
Barcelona		84·3	49	e 12 36	+ 1	e 23 10	+10	—	—	e 40·6
Neuchatel		86·1	42	12 46	+ 2	—	—	—	—	—
Strasbourg		86·1	40	12 51	+ 7	e 23 35	+17	e 15 49	PP	e 45·3
Basle		86·3	42	e 12 46	+ 1	—	—	—	—	—
Copenhagen		86·5	33	e 12 48a	+ 2	23 20	− 2	—	—	41·3
Stuttgart		87·0	40	i 12 48a	0	e 23 22	− 5	e 24 36	PS	e 41·8
Zürich		87·0	42	e 12 51k	+ 3	—	—	—	—	—
Upsala		87·6	28	12 50	− 1	23 47	+15	23 25	SKKS	e 39·3
Jena		87·7	38	e 12 54?	+ 2	e 23 18?	[0]	e 12 59	PcP	e 40·3
Chur		87·8	42	e 12 54	+ 2	—	—	—	—	—
Milan		88·0	44	12 52	− 1	23 8?	[−13]	—	—	—
Potsdam		88·1	36	e 12 58	+ 4	e 23 35	− 2	—	—	e 44·3
Cheb		88·5	39	e 13 3	+ 7	e 23 41	0	—	—	e 44·3
Prague		89·7	38	—	—	e 23 41	{+ 1}	—	—	—
Florence		90·0	45	e 13 1	− 2	e 23 43	{+ 1}	i 25 18	PS	—
Triest		91·0	42	e 13 7	0	i 23 50	{+ 1}	—	—	e 45·3
Sofia		98·5	42	—	—	e 24 18?	[− 2]	—	—	—
Moscow		98·6	26	13 44	+ 2	24 22	[+ 2]	—	—	—
Bucharest		99·4	39	14 18?	PcP	24 26	[+ 2]	—	—	41·3
Arapuni		99·9	233	—	—	23 18?	[−69]	—	—	48·3
Wellington		101·1	230	23 45	?	24 38	[+ 6]	e 32 33	SS	42·3
Christchurch		103·0	228	24 44	SKS	(24 44)	[+ 3]	27 36	PS	47·5
Sverdlovsk		105·5	14	e 14 15	P	e 27 58	PS	e 18 34	PP	—
Helwan		110·5	50	e 19 10	PP	e 25 30	[+16]	—	—	—
Irkutsk		111·7	349	e 18 42	[+ 6]	e 25 24	[+ 5]	e 19 13	PP	—
Riverview		119·3	239	—	—	i 30 12	PS	e 31 21	PPS	e 54·6
Tashkent		122·0	16	e 19 0	[+ 3]	i 26 0	[+ 3]	i 20 33	PP	—
New Delhi		136·0	12	i 22 4	PP	—	—	i 22 57	?	77·7
Calcutta	N.	143·1	358	e 19 48	[+12]	—	—	i 23 48	?	—
Bombay	E.	143·9	23	19 47	[+10]	—	—	—	—	—
Kodaikanal	E.	153·6	22	e 20 3	[+10]	—	—	—	—	—

For Notes see next page.

NOTES TO JUNE 15d. 18h. 21m. 42s.

Additional readings :—
Tucson iP = 6m.13s., i = 10m.6s.
St. Louis iSP?Z = 5m.56s.
Chicago eP_cP = 8m.33s., e = 11m.16s.
New Kensington readings decreased by one minute.
Philadelphia i = 7m.57s. and 11m.29s.
Pasadena iP_cPZ = 9m.12s.; iZ = 11m.56s.
Buffalo i = 7m.27s., SS = 13m.13s.
Fordham i = 11m.58s. and 12m.40s.
Logan i = 13m.51s.
Huancayo iP = 6m.52s., i = 12m.25s.
Tinemaha iP_cPZ = 9m.21s.
Harvard iP_cP = 9m.4s., e = 11m.12s., eP_cS = 13m.13s., eSS? = 14m.24s., e = 15m.44s. eS_cS = 16m.58s.
Vermont e = 13m.29s.
Berkeley ePPN = 7m.13s., iSN = 12m.28s.
Ukiah e = 15m.51s.
Seattle readings reduced by one hour.
Sitka i = 20m.2s., eSS = 20m.28s.
La Plata SSE = 22m.54s., SSSN = 24m.54s.
College eSS = 23m.10s.
Lisbon N = 23m.52s.
Stonyhurst iPS = 22m.47s., eSS = 26m.18s.?, eSSS = 29m.18s.?.
Kew ePPN = 15m.45s., ePSEN = 23m.20s.?, eSSE = 27m.50s.?.
Almeria PP = 15m.30s., PPP = 17m.35s., S_cS = 22m.52s., PS = 23m.28s., PPS = 23m.50s., SS = 28m.33s.
Upsala ePPN = 16m.31s., eSKSE = 23m.18s., eSS?N = 29m.18s.?, eSSS?E = 33m.18s.?.
Florence iPPE = 16m.25s., iSE = 24m.16s., iPPSE = 25m.57s., eSSSE = 34m.28s.
Christchurch S = 33m.8s., Q = 42m.50s.?.
Irkutsk ePS = 28m.8s.
Riverview eE = 36m.54s.
Tashkent eSKKS = 27m.41s., iPS = 30m.28s., ePPS = 32m.0s.
Long waves were also recorded at Auckland and Belgrade.

June 15d. 18h. 32m. 7s. Epicentre 14°·6N. 93°·0W. (as at 18h. 21m.).

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Oaxaca	E.	4·4	304	i 1 34	P_g	—	—
Puebla	N.	6·6	312	i 2 2	P*	—	—
Merida	N.	7·1	27	—	—	i 3 35	S*
Tacubaya	Z.	7·6	310	—	—	e 3 3	−20
Cape Girardeau	N.	22·8	7	e 5 39	PPP	—	—
Palomar	Z.	28·6	316	i 6 1	+ 1	—	—
Riverside	Z.	29·3	316	i 6 5	− 1	—	—
Mount Wilson	Z.	29·9	316	i 6 9	− 3	—	—
Pasadena	Z.	29·9	316	i 6 11	− 1	—	—
Tinemaha	Z.	31·7	320	i 6 28	+ 1	—	—
Bozeman		34·5	338	i 6 54	+ 2	e 12 34	+14

June 15d. 19h. 45m. 22s. Epicentre 14°·6N. 93°·0W. (as at 18h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	4·4	304	e 1 35	P_g	—	—	—	—	—
Puebla	N.	6·6	312	—	—	e 3 3	+ 5	—	—	—
Merida	E.	7·1	27	i 0 32	?	—	—	—	—	—
Balboa Heights		14·3	111	e 3 38	PP	—	—	—	—	—
Columbia		22·1	27	e 5 10	+11	e 9 13	+15	—	—	e 13·1
Cape Girardeau	N.	22·8	7	e 5 16	+11	—	—	—	—	—
Tucson		23·9	321	i 5 19	+ 3	e 9 45	+15	i 6 2	PPP	e 11·7
St. Louis		24·1	5	i 5 18	0	e 9 45	+11	—	—	—
Florissant		24·2	5	i 5 20	+ 1	i 9 51	+16	—	—	—
San Juan		26·0	78	e 5 57	+21	e 10 23	+17	—	—	e 14·0
Des Moines		26·9	359	—	—	—	—	e 11 47	SSS	e 16·6
Chicago		27·5	8	e 6 6	+16	e 10 47	+17	e 9 50	?	e 12·3
Pittsburgh		28·2	21	e 6 1	+ 5	i 10 44	+ 3	—	—	—
New Kensington		28·4	21	e 7 44?	PPP	e 11 44?	?	—	—	e 15·3
Palomar	Z.	28·6	316	i 5 59	− 1	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside		29·3	316	e 6 6	0	—	—	e 9 13	PcP	—
Philadelphia		29·7	29	e 6 16	+ 6	e 11 40	+34	e 6 49	PP	e 16·8
Mount Wilson		29·9	316	i 6 10	− 2	—	—	i 6 19	?	—
Pasadena		29·9	316	i 6 10a	− 2	—	—	i 9 13	PcP	e 13·6
Salt Lake City		30·8	333	e 6 20	0	e 11 30	+ 7	e 11 52	?	e 17·3
Haiwee		31·0	319	i 6 20	− 1	—	—	—	—	—
Bermuda		31·3	50	—	—	e 11 7	−24	—	—	e 15·7
Logan		31·6	334	—	—	e 11 39	+ 4	—	—	e 17·4
Huancayo		31·7	146	e 6 29	+ 2	e 11 8	−29	(e 13 46)	SSS	e 13·8
Tinemaha		31·7	320	i 6 27a	0	—	—	e 9 19	PcP	—
Ottawa		34·0	22	6 48	0	12 18	+ 5	8 11	PPP	17·6
Vermont		34·2	25	e 10 10	?	—	—	e 13 7	?	e 17·2
Santa Clara		34·3	317	i 6 51	+ 1	e 12 32	+15	—	—	e 17·7
Bozeman		34·5	338	e 6 48	− 4	e 12 26	+ 6	(e 14 31)	SS	e 14·5
Seven Falls		37·3	25	e 8 50?	PP	—	—	—	—	18·6
Sitka		53·4	333	—	—	e 17 2	+ 7	e 22 0	SSS	e 27·9
Scoresby Sund		70·0	19	—	—	e 20 40	+14	e 28 38	SSS	e 36·9
Granada		80·9	54	12 15	− 2	—	—	—	—	—
De Bilt,		83·6	38	i 12 33a	+ 2	—	—	—	—	e 40·6
Copenhagen		86·5	33	e 12 49	+ 3	23. 24	+ 2	—	—	—
Stuttgart	Z.	87·0	40	e 12 48	0	—	—	—	—	—
Potsdam	E.	88·1	36	—	—	e 23 44?	+ 7	—	—	e 51·6
Cheb		88·5	39	—	—	e 23 38	− 3	—	—	e 52·6
Triest		91·0	42	—	—	e 23 19	[−20]	—	—	e 44·6

Additional readings :—
Tucson e =10m.54s.
Scoresby Sund e =31m.14s. and 31m.42s.
Long waves were also recorded at Fort de France, Harvard, Ukiah, College, Edinburgh, Aberdeen, and Stonyhurst.

June 15d. 20h. 25m. 39s. Epicentre 14°·6N. 93°·0W. (as at 19h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	N.	4·4	304	i 1 45	P_g	—	—	—	—	—
Puebla	E.	6·6	312	—	—	i 3 10	+12	—	—	—
Merida	N.	7·1	27	(i 1 55)	+ 7	—	—	—	—	—
Columbia		22·1	27	e 5 3	+ 4	e 9 4	+ 6	—	—	e 13·1
Cape Girardeau	N.	22·8	7	e 5 4	− 1	—	—	e 5 15	PP	—
Tucson		23·9	321	i 5 14	− 2	e 9 23	− 7	e 5 48	PP	e 10·7
St. Louis		24·1	5	i 5 18	0	e 9 39	+ 5	e 10 0	SS	—
Florissant		24·2	5	i 5 19	0	i 9 50	+15	e 6 7	PPP	—
San Juan		26·0	78	e 5 57	+21	e 10 49	SS	—	—	e 13·6
Des Moines		26·9	359	—	—	—	—	e 11 52	SSS	e 18·9
Chicago		27·5	8	e 6 0	+10	e 10 42	+12	e 8 19	?	e 11·8
Pittsburgh		28·2	21	e 5 56	0	e 10 39	− 2	—	—	—
New Kensington		28·4	21	e 7 39?	?	e 11 39?	SS	—	—	e 17·7
Riverside		29·3	316	i 6 3	− 3	—	—	i 9 10	PcP	—
Philadelphia		29·7	29	e 6 53	PP	—	—	e 12 33	SS	e 17·2
Mount Wilson		29·9	316	i 6 9	− 3	—	—	e 9 11	PcP	—
Pasadena		29·9	316	i 6 10	− 2	e 11 8	− 1	e 9 11	PcP	e 14·4
Salt Lake City		30·8	333	e 6 19	− 1	e 11 9	−14	—	—	e 15·2
Bermuda		31·3	50	e 6 12	−12	e 11 25	− 6	e 10 26	?	e 15·7
Logan		31·6	334	e 6 23	− 3	e 11 23	−12	e 7 53	PPP	e 16·3
Huancayo		31·7	146	e 6 38	+11	e 11 47	+10	e 10 16	?	e 12·9
Tinemaha		31·7	320	i 6 26	− 1	—	—	e 9 17	PcP	—
Ottawa		34·0	22	e 7 21?	+33	e 12 21?	+ 8	—	—	18·3
Vermont		34·2	25	—	—	—	—	e 15 25	SSS	e 17·2
Santa Clara		34·3	317	e 6 51	+ 1	e 12 29	+12	—	—	e 17·7
Bozeman		34·5	338	e 6 51	− 1	e 12 22	+ 2	—	—	e 16·5
Ukiah		36·1	319	e 9 32	P_cP	e 12 48	+ 3	—	—	e 18·0
Seven Falls		37·3	25	e 8 33?	PP	—	—	—	—	17·4
Scoresby Sund		70·0	19	—	—	e 20 33	+ 7	—	—	e 29·6
Stonyhurst		78·7	37	13 21?	?	22 0	− 3	22 27	S_cS	36·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Granada		80·9	54	(i 12 5)	−12	—	—	(12 17)	PcP	(34·6)
Paris		82·7	42	e 12 28	+ 1	—	—	—	—	42·3
De Bilt		83·6	38	i 12 35k	+ 4	e 23 6	+13	—	—	e 41·4
Copenhagen		86·5	33	e 12 50	+ 4	23 11	[0]	—	—	—
Stuttgart		87·0	40	e 12 49	+ 1	e 22 39	?	—	—	e 43·4
Potsdam	E.	88·1	36	—	—	e 23 32	− 5	—	—	e 51·3
Triest		91·0	42	e 12 52	−15	e 23 38	[− 1]	—	—	e 45·4

Additional readings :—
Merida readings increased by one minute.
Tucson e = 6m.58s., iS = 9m.40s.
Logan e = 6m.42s.
Stonyhurst SS = 26m.10s.
Granada readings reduced by four minutes.
Long waves were also recorded at La Paz, Harvard, College, and at other European stations.

June 15d. Readings also at 5h. (Tananarive), 9h. (Florence, Triest, Stuttgart, Bucharest, and Sofia), 11h. (Mizusawa), 14h. (near Tashkent, Andijan, and Stalinabad, New Delhi, and near Bogota), 17h. (Tinemaha, Palomar, Tucson, and Bogota), 18h. (Palomar and Tucson), 19h. (Merida, Tinemaha, Palomar, Tucson, near Florissant, and St. Louis), 20h. (Tucson and Palomar), 21h. (Seattle, Sitka, Tinemaha, and Tucson), 22h. (Ksara, Chicago, Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, Tucson, St. Louis, Florissant, and Cape Girardeau), 23h. (Palomar, Pasadena, Mount Wilson, Haiwee, Tucson, Tinemaha, Stuttgart, and Irkutsk).

June 16d. 21h. 42m. 7s. Epicentre 34°·7N. 140°·2E.

Intensity V at Katsuura ; IV at Tomisaki, Osima, Yokohama, Misima, Tokyo ; II-III at Titibu, Hunatu, Mito, Maebasi, and Shirakawa.
Epicentre as adopted, macroseismic radius 300 km. Shallow. Seismological Bulletin of the Central Meteorological Observatory, Japan, year 1943, Tokyo 1950.

$A = -\cdot6330$, $B = +\cdot5274$, $C = +\cdot5667$; $\delta = -1$; $h = 0$;
$D = +\cdot640$, $E = +\cdot768$; $G = -\cdot435$, $H = +\cdot363$, $K = -\cdot824$.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Osima	0·7	262	0 18a	+ 1	0 28	0
Misima	1·1	292	0 23a	+ 1	0 37	− 2
Tokyo Cen. Met. Ob.	1·1	340	0 23a	+ 1	0 38	− 1
Tyosi	1·1	28	0 24a	+ 2	0 41	+ 2
Kakioka	1·5	0	0 30a	+ 2	0 52	+ 3
Shizuoka	1·5	280	0 27k	− 1	0 45	− 4
Tukubasan	1·5	357	0 28a	0	0 46	− 3
Kohu	1·6	305	0 33	+ 3	0 50	− 1
Mito	1·7	7	0 32a	+ 1	—	—
Omaesaki	1·7	267	0 29	− 2	0 48	− 6
Utunomiya	1·8	351	0 33a	+ 1	0 55	− 1
Maebasi	1·9	331	0 33	− 1	1 5	+ 6
Hamamatu	2·0	270	0 37a	+ 2	1 4	+ 2
Onahama	2·3	15	0 54k	+14	1 16	+ 7
Gihu	2·6	284	0 49k	+ 5	1 21	+ 4
Nagano	2·6	320	0 43	− 1	1 13	− 4
Nagoya	2·7	280	0 45	0	1 25	+ 6
Hukusima	3·0	4	0 48	− 2	1 30	+ 3
Kameyama	3·1	273	0 50	− 1	1 25	− 4
Hikone	3·3	280	0 52	− 1	1 25	−10
Owase	3·4	260	0 54	− 1	1 31	− 6
Aikawa	3·6	335	0 57	− 1	1 37	− 5
Sendai	3·6	9	0 56	− 2	1 27	−15
Kyoto	3·7	276	0 58	− 2	1 12	Pg
Osaka	3·8	271	1 2	+ 1	1 42	− 5

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Siomisaki	3·9	253	1 0	− 2	1 43	− 7
Kobe	4·1	272	1 5k	0	1 50	− 5
Wakayama	4·2	263	1 6	− 1	1 51	− 6
Sumoto	4·4	267	1 9	− 1	1 57	− 5
Mizusawa	4·5	8	e 1 3	− 8	1 57	− 8
Toyooka	4·5	283	1 8	− 3	—	—
Miyako	5·1	15	1 18	− 2	2 10	−10
Muroto	5·2	256	1 29	+ 8	2 26	+ 4
Koti	5·6	82	1 25	− 2	2 22	−11
Aomori	6·1	4	1 38	+ 4	—	—
Hirosima	6·4	269	1 58	P*	—	—
Sapporo	8·4	6	2 53	P_g	—	—
Kagosima	8·7	251	2 1k	− 9	—	—

June 16d. Readings also at 4h. (near Sofia), 5h. (near Tashkent and Stalinabad), 6h. (Johannesburg, Helwan, Stuttgart, Tananarive, Tucson, Pasadena, Mount Wilson, and Tinemaha), 7h. (Huancayo, Almeria, Granada, San Fernando, Tortosa, Kew, De Bilt, and Florence), 11h. (Triest), 12h. (Granada), 14h. (Kew), 17h. (Fort de France), 19h. (near Fresno), 21h. (near Sofia), 23h. (Tacubaya (2) and Mizusawa).

June 17d. 16h. Undetermined shock.

Riverview iZ =58m.53s. and 60m.35s., iE =62m.53s., eLN =69m.42s.
Tashkent iP =60m.42s., iS =69m.42s.
Sverdlovsk iP =61m.59s.
Stuttgart eZ =68m.12s.?, eL =116m.30s.
Pasadena iPZ =68m.38s., iZ =68m.47s., eZ =70m.35s.
Mount Wilson ePZ =68m.38s.
Riverside ePZ =68m.38s.
Tinemaha ePZ =68m.38s.
Irkutsk eS =68m.42s.
Tucson eP =68m.51s., e =72m.4s.
Harvard i =69m.21s., and 69m.31s.
Fordham e =69m.25s.
Calcutta iN =69m.28s.
Christchurch e =80m.?.
Arapuni e =80m.36s.?.
Wellington e =82m.?.
Long waves were also recorded at De Bilt and Kew.

June 17d. Readings also at 7h. (La Paz), 10h. (Mount Wilson and Tucson), 14h. (near Mizusawa), 15h. (Irkutsk, Tashkent, Stuttgart (2), Pasadena, Mount Wilson (2), Riverside, Tucson (2), and near Mizusawa), 16h. (Kew), 19h. (Tucson), 22h. (Florissant).

June 18d. 14h. Undetermined shock.

Columbia eP? =15m.7s., eS =18m.50s., e =19m.5s., eL =23m.15s.
Tucson iP =15m.8s., eS =19m.33s., eL =22m.35s.
St. Louis eP?N =15m.10s., eS?N =19m.35s.
San Juan eP =15m.19s., e =16m.29s., eL =20m.41s.
Tinemaha ePZ =15m.46s.
Riverside ePZ =15m.54s.
Mount Wilson iPZ =16m.0s.
Pasadena eP =16m.2s., eL =25m.
Huancayo eS =21m.31s., eL =23m.52s.
Bozeman eS =22m.18s., eL =29m.20s.
Ukiah eS =22m.42s., eL =29m.23s.
Scoresby Sund e =31m.14s., eL =49m.37s.
Sitka eS =31m.54s., eL =39m.15s.
Long waves were also recorded at Harvard, Philadelphia, Bermuda, Kew, and Stuttgart.

June 18d. 19h. Undetermined shock. Near Apia.

Apia iPE =24m.18s.k.
Auckland S? =32m.48s., i =34m.8s., L =35m.3s.
La Jolla ePEN =34m.51s.
Santa Barbara ePZ =34m.55s.
Riverside ePZ =34m.58s.
Pasadena iP =35m.0s., iZ =35m.7s., eS =44m.54s.,?, eLEZ =56·2m.
Mount Wilson iPZ =35m.2s., iZ =35m.9s.
Palomar ePZ =35m.3s.
Haiwee ePN =35m.4s.
Tinemaha eP =35m.9s.
Tucson iP =35m.25s., e =51m.47s., eL =58m.47s.
Sitka e =35m.48s., eS =45m.35s., e =47m.15s., eL =56m.9s.
Riverview eE =36m.17s., eLE =40m.42s.
Honolulu eS =37m.14s., eL =40m.24s.
Stuttgart ePKP?Z =43m.8s., eL =100m.12s.
Basle e =43m.22s.
Granada PKP =44m.11s., ePP =48m.50s., L =105·3m.
Victoria e =45m.18s.?, L =59m.
Bozeman e =46m.25s., eL =61m.28s.
Long waves were also recorded at Bermuda, Scoresby Sund, Harvard, and other New Zealand and European stations.

June 18d. Readings also at 5h. (Mount Wilson, Tucson, and Riverside), 7h. (Kew and near Bogota), 8h. (Fort de France and near Mizusawa), 9h. (Pasadena, Mount Wilson, Riverside, Tucson, and near Mizusawa), 10h. (Fort de France), 11h. (Pasadena, Tucson, Mount Wilson, Riverside, Tinemaha, Huancayo, and near La Paz), 16h. (Sitka, Tucson, Pasadena, Mount Wilson, Riverside, Tinemaha, Andijan, Tashkent, Brisbane, Riverview, Bombay, and near Fresno), 17h. (Cheb, Stuttgart, Kew, Sydney, Christchurch, Irkutsk, New Delhi, Calcutta, Pittsburgh, Harvard, Fordham, Pasadena, Mount Wilson, Riverside, Tinemaha, Santa Barbara, and Tucson), 19h. (near Balboa Heights), 20h. (Florence and near St. Louis), 22h. (near Mizusawa).

June 19d. 9h. South Pacific.

Apia iPEZ =7m.41s.k, iPEN =7m.51s., iSEN =8m.21s., iSEZ =8m.39s.
Auckland P? =14m.0s., S =16m.48s., L =18m.42s.
Honolulu e =15m.33s., 16m.57s., and 19m.48s., eL =23m.15s.
Wellington PZ =15m.37s., e =17m.30s.?, S =19m.18s., L =20m.0s., i =21m.37s. and 22m.37s., P_cS?Z =23m.18s., S_cS? =27m.30s.
La Jolla ePZ =18m.22s.
Santa Barbara ePZ =18m.22s.
Santa Clara ePZ =18m.22s., iP_cS,S_cPE =33m.24s., éLE =45m.36s.
Mount Wilson ePZ =18m.24s., eZ =22m.22s.
Pasadena iPZ =18m.24s., iZ =18m.28s., eS =27m.54s.?, eLEZ =39·6m.
Riverside ePZ =18m.26s.
Palomar ePZ =18m.31s.
Arapuni S =18m.36s.?, L =20m.0s.
Tinemaha ePN =18m.38s.
Tucson iP =18m.51s., i =19m.29s., e =23m.17s., eL =42m.6s.
Ukiah e =19m.10s. and 27m.16s., eS =28m.17s., eL =36m.55s.
Bozeman eP =19m.36s., e =20m.17s., eS =29m.47s., eL =46m.14s.
Riverview iSEN =19m.36s., eLZ =24m.0s.
Salt Lake City e =20m.16s., eS =29m.18s., eL =40m.53s.
Granada PKP =24m.41s., PKP_2 =24m.59s., PP =28m.30s., PPP =31m.31s., SKKS =35m.1s., SKSP =38m.58s., SS =48m.2s., L =87·9m.
Almeria PKP =26m.31s., i =26m.41s., e =29m.35s., i =49m.37s., L =88m.49s.
Basle e =26m.39s.
Paris ePKP =26m.41s., L =86m.
Stuttgart ePKP?Z =26m.43s., eL =83m.
Ksara e =26m.48s. and 30m.6s.
Florence ePKPZ =26m.51s., ePP?N =30m.2s., eSKP?E =30m.51s.
Helwan ePZ =27m.0s., eZ =28m.0s., 31m.0s., and 32m.27s.
Bucharest EN =28m.0s.?.
Victoria e =28m.54s., L =42m.
Sitka eS =29m.1s., eL =39m.12s.
College eS =29m.32s., eL =41m.19s.
Pittsburgh eEN =31m.40s., eLNW =56m.54s.
Huancayo e =32m.2s., eL =48m.12s.
San Juan e =32m.22s., eL =54m.27s.
Seven Falls e =35m.18s.?, L =60m.
Scoresby Sund e =35m.51s., eSS =48m.8s., eL =62m.53s.
Long waves were also recorded at Christchurch and other American and European stations.

June 19d. Readings also at 2h. (near Balboa Heights), 3h. (near La Paz and Stuttgart), 15h. (Haiwee, Mount Wilson, Tucson, College, and Sitka), 16h. (near Branner), 17h. (Chur), 19h. (near Apia), 21h. (near Apia and near St. Louis), 23h. (La Paz and Tacubaya).

June 20d. 15h. 32m. 50s. Epicentre 40°·8N. 30°·4E.

See Marcel Fouché and Nuriye Pinar: Geological and meteorological study of the Ada-bazar earthquake of 1943 June 20. Riv. Fac. Sci. Univ. d'Istanbul, Ser. A., Tome VIII, fasc 1, 1943, pp. 80-92 with map.
Destruction extended from Hendek to 10 km. west of Ada-bazar; Geyre, 40 km. south, was not examined. Intensity IX at Ada-bazar. Epicentre 40°·8N. 30°·4E.

$A = +\cdot6548$, $B = +\cdot3841$, $C = +\cdot6509$; $\delta = -3$; $h = -2$;
$D = +\cdot506$, $E = -\cdot862$; $G = +\cdot561$, $H = +\cdot329$, $K = -\cdot759$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul	1·0	285	i 0 11	P_g	0 26	S_g	—	—	—
Bucharest	4·8	319	i 1 15k	0	i 2 12	0	i 1 33	P*	—
Focsani	5·5	334	e 1 29	+ 4	i 2 38	+ 8	i 1 56	P_g	i 3·0
Sofia	5·6	292	i 1 28	+ 1	i 2 38	+ 5	i 3 7	S_g	—
Campulung	5·9	320	e 1 34	+ 3	i 2 54	S*	i 2 4	P_g	3·1
Bacau	6·3	336	i 1 39k	+ 3	i 2 54	− 2	i 1 56	P*	—
Cernauti	8·2	337	e 2 1	− 2	i 3 34	− 4	—	—	—
Ksara	8·2	146	e 2 2?	− 1	e 3 36?	− 2	e 4 35	S_g	—
Belgrade	8·4	302	1 2	−64	i 3 47	+ 4	—	—	—
Kalossa	10·1	309	2 30	+ 2	4 18	− 7	i 4 30	SS	5·6
Helwan	11·0	175	i 2 37k	− 5	1 4 49	+ 2	—	—	—
Ogyalla	11·2	313	2 24	−20	5 10?	+18	e 2 38	P	e 6·2
Triest	13·1	297	i 3 10	0	e 5 44	+ 6	—	—	e 7·0
Florence	14·5	286	i 3 30k	+ 2	i 6 28	+17	i 3 41	PP	i 7·5
Prague	14·5	315	3 37?	+ 9	i 6 40?	+29	—	—	e 7·2
Cheb	15·7	312	e 3 43	− 1	e 6 57	+18	—	—	e 9·2
Moscow	15·7	15	i 3 39	− 5	i 6 19	−20	—	—	—
Chur	16·2	299	e 3 51	+ 1	e 7 7	+16	—	—	—
Milan	16·2	294	i 3 53	+ 3	i 7 13	+22	—	—	—
Ravensburg	16·4	304	e 3 53	0	e 7 14	+18	—	—	e 9·2
Jena	16·5	314	i 3 55	+ 1	i 7 7	+ 9	i 3 58	P	e 8·2
Potsdam	16·6	320	i 3 55	− 1	i 7 6	+ 6	—	—	9·2
Ebingen	16·9	303	e 3 58	− 1	e 7 19	+12	—	—	e 9·7
Stuttgart	17·0	306	i 3 59k	− 2	e 7 17	+ 7	e 4 28	PP	e 8·8
Zürich	17·0	301	e 4 4k	+ 3	e 7 17	+ 7	—	—	—
Basle	17·7	301	e 4 9	− 1	e 7 34	+ 8	—	—	—
Strasbourg	17·8	305	e 4 12	+ 1	i 7 43	+15	i 6 50	?	e 9·4
Neuchatel	18·0	299	e 4 12	− 1	—	—	—	—	e 10·5
Besançon	18·7	298	e 5 10?	+48	e 8 10	+22	—	—	—
Copenhagen	19·0	328	i 4 23k	− 3	7 49	− 6	7 58	SS	—
Clermond-Ferrand	20·4	294	i 4 42	+ 1	e 8 37	+12	i 5 2	PP	e 11·3
De Bilt	20·6	314	i 4 43k	0	i 8 40	+11	—	—	e 9·2
Uccle	20·6	309	i 4 44k	+ 1	i 8 36	+ 7	—	—	10·6
Upsala	20·7	342	4 42	− 2	8 23	− 8	5 1	PP	—
Barcelona	21·3	287	i 4 50	0	i 8 50	+ 7	—	—	10·0
Paris	21·3	302	i 4 50	0	i 8 47	+ 4	—	—	11·8
Tortosa	22·6	280	i 4 56	− 7	9 4	− 3	5 23	PP	11·1
Kew	23·6	308	i 5 14	+ 1	i 9 26	+ 1	i 5 38	PP	e 10·7
Bergen	25·0	331	5 24	− 3	9 50	+ 1	i 5 32	P	e 12·0
Sverdlovsk	25·3	41	i 5 28	− 2	i 10 0	+ 6	—	—	—
Stonyhurst	25·6	313	i 5 37	+ 5	i 10 3	+ 4	6 20	PP	13·0
Almeria	25·8	273	i 5 35	+ 1	i 10 13	+11	6 27	PP	13·7
Toledo	26·2	280	i 5 39	+ 1	i 10 12	+ 3	11 43	SSS	12·7
Aberdeen	26·5	320	i 5 44	+ 3	i 10 34	+20	—	—	15·0
Edinburgh	26·6	316	e 5 44	+ 2	10 15	− 1	6 24	PP	—
Granada	26·6	274	i 5 43	+ 1	i 10 8	− 8	5 51	pP	13·4
San Fernando	28·8	274	i 5 59	− 3	i 11 6	+15	6 45	PP	14·2
Tashkent	29·2	77	6 4	− 1	11 20	+22	—	—	—
Stalinabad	29·5	82	1 6 8	0	i 11 34	+32	—	—	—
Lisbon	30·3	280	6 16k	+ 1	11 17	+ 2	6 21	pP	18·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Frunse		32·7	72	e 6 37	+ 1	—	—	—	—	—
Dehra Dun	N.	39·7	90	e 9 8	PP	e 15 58	?	—	—	e 22·1
Scoresby Sund		39·7	336	e 7 43	+ 7	i 13 45	+ 5	i 9 14	PP	e 19·3
New Delhi	N.	39·9	93	e 7 41	+ 4	i 13 41	− 2	9 12	PP	19·6
Bombay	E.	42·3	109	i 7 58	+ 1	i 14 17	− 2	9 51	P_cP	—
Hyderabad		47·3	106	e 8 25	−12	15 23	− 8	—	—	23·1
Irkutsk		49·9	51	e 8 53	− 4	15 58	− 9	—	—	—
Ivigtut		50·0	322	e 9 0	+ 2	e 16 9	0	e 20 12	Q	e 21·2
Kodaikanal	E.	51·4	113	e 9 10?	+ 1	i 16 30	+ 2	20 10	SS	25·3
Calcutta	N.	51·6	92	e 9 28	+18	i 16 24	− 7	i 19 33	SS	i 23·7
Colombo		55·4	114	16 50	SP	—	—	—	—	—
Halifax		65·3	309	—	—	e 19 34?	+ 5	—	—	33·2
Seven Falls		68·0	314	11 3	0	19 59	− 3	e 24 16?	SS	33·2
Vermont		70·9	313	—	—	e 20 45	+ 9	e 21 21	PPS	e 33·4
Harvard		71·2	310	e 11 30	+ 7	—	—	—	—	e 37·2
Ottawa		71·7	315	11 27	+ 1	20 51	+ 6	25 40?	SS	35·2
Bermuda		73·1	298	e 11 41	+ 7	e 21 1	0	e 16 6	PPP	e 31·4
Fordham		73·6	310	e 11 40	+ 3	e 21 10	+ 3	e 16 10	PPP	e 33·2
College		74·7	0	e 11 47	+ 4	e 21 22	+ 3	—	—	e 35·4
Buffalo		75·1	314	12 35	+49	e 23 45	?	e 15 0	PP	—
Pittsburgh		77·3	313	—	—	e 21 50	+ 2	—	—	e 37·9
Chicago		80·5	314	—	—	e 21 20	−62	—	—	e 37·3
Sitka		81·3	353	e 12 25	+ 5	e 22 35	+ 5	e 23 20	PS	e 34·0
Columbia		82·4	309	—	—	e 22 42	+ 1	—	—	e 44·6
San Juan		83·0	288	e 12 34	+ 6	i 22 46	− 1	e 28 15	SS	e 34·8
Florissant		84·1	317	i 12 36	+ 2	e 22 57	− 1	e 23 21	S	e 41·3
St. Louis		84·2	317	i 12 36	+ 2	e 23 0	+ 1	e 23 21	S	—
Bozeman		87·2	334	—	—	e 23 31	+ 3	e 29 37	SS	e 36·4
Victoria		88·1	343	13 4	+10	23 32	− 5	—	—	42·2
Logan		91·0	333	e 22 40	?	e 24 12	+ 9	e 25 4	PS	e 37·0
Salt Lake City		91·9	332	—	—	e 23 44	[0]	e 25 17	PS	e 41·9
Ukiah		96·9	340	—	—	—	—	e 26 20	PS	e 44·5
Tinemaha		97·3	335	e 13 39	+ 3	—	—	—	—	—
Haiwee		98·1	335	e 13 44	+ 4	—	—	—	—	—
Santa Clara		98·2	338	e 17 46	PP	—	—	e 32 2	SS	—
Berkeley		98·6	338	e 19 38	PPP	—	—	e 26 33	PS	e 45·3
Tucson		99·0	328	e 13 46	+ 2	—	—	e 26 46	PS	—
Mount Wilson	Z.	99·9	334	e 13 51	+ 3	—	—	i 17 51	PP	—
Pasadena		100·0	334	—	—	e 25 38	+18	e 18 5	PP	e 39·8
Huancayo		109·7	263	—	—	e 28 8	PS	—	—	e 41·5
Riverview		133·1	102	i 12 59k	?	—	—	i 34 25	S_cSPKP	e 62·5

Additional readings :—
Bucharest iP_cEN = 1m.42s.
Focsani iEN = 2m.9s., iN = 2m.23s., iE = 2m.45s., iS*N = 2m.57s.
Sofia iE = 2m.2s. and 2m.21s.
Bacau iE = 2m.45s. and 2m.48s.
Belgrade i = 1m.21s., 1m.34s., 1m.37s., 3m.12s., and 3m.22s.
Ogyalla eE = 4m.18s., SN = 5m.24s.
Florence ipPZ = 3m.34s., iPPPZ = 3m.49s., iSS = 6m.43s.
Jena iS = 7m.10s.?.
Stuttgart iS = 7m.23s., iZ = 8m.10s.
Clermond-Ferrand i = 4m.50s.
Upsala iE = 5m.43s., iN = 5m.48s., eE = 8m.10s.?, SN = 8m.30s.
Tortosa SSN = 10m.5s.
Kew ePPPEZ = 5m.58s., eP_cP = 9m.6s., eSS = 10m.0s., eSSS = 10m.16s.
Bergen SN = 10m.3s., eE = 10m.10s., SS = 11m.6s.
Stonyhurst 6m.30s., i = 10m.20s. and 10m.40s., iSSS = 11m.21s., 12m.30s.
Almeria pP = 5m.53s., sP = 6m.5s., P_cP = 8m.53s., pP_cP = 9m.23s., sS = 10m.38s., P_cS = 12m.34s., pP_cS = 12m.59s., sS_cP = 13m.12s.
Aberdeen iEN = 10m.19s., iE = 12m.39s.
Edinburgh SS = 11m.23s., S_cS = 16m.32s.
Granada P_cP = 8m.49s., sS = 10m.38s.
Lisbon N = 13m.22s. and 16m.57s.
New Delhi SSSN = 16m.51s.
Scoresby Sund i = 9m.31s. iSS = 16m.43s.
Bombay sSE = 14m.37s., SSE = 17m.40s., S_cSE = 17m.57s.
Calcutta iSSSN = 20m.46s.
Vermont e = 25m.12s., eSSS = 28m.47s.

Continued on next page.

Buffalo ePP =13m.17s., e =14m.15s. and 19m.35s.
Sitka e =27m.41s.
San Juan e =24m.32s.
St. Louis iN =23m.50s.
Salt Lake City e =33m.6s.
Berkeley ePPE =19m.41s.
Tucson e =16m.50s., ePP =17m.45s., e =29m.22s., eSSS? =35m.50s.
Riverview iE =25m.56s.
Long waves were also recorded at Tananarive, Honolulu, Philadelphia, Arapuni, Auckland, and Christchurch.

June 20d. 16h. 47m. 55s. Epicentre 40°·8N. 30°·4E. (as at 15h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul		1·0	285	0 10	P_g	0 25	S_g	—	—	—
Bucharest		4·8	319	e 1 15?	0	i 2 12	0	i 1 30	P*	2·8
Focsani		5·5	334	e 1 29	+ 4	e 2 27	− 3	e 1 33	P*	—
Sofia		5·6	292	e 1 35?	P*	i 3 5	S_g	—	—	—
Campulung		5·9	320	e 1 33	+ 2	—	—	—	—	3·4
Bacau		6·3	336	e 1 47?	P*	—	—	—	—	3·8
Cernauti		8·2	337	e 2 47?	P_g	e 3 38	0	—	—	4·2
Ksara		8·2	146	e 2 1	− 2	e 4 22	S*	—	—	—
Belgrade		8·4	302	e 2 3	− 3	e 3 45	+ 2	1 2 43	?	e 4·1
Kalossa		10·1	309	(2 27)	− 1	(i 4 24)	− 1	(e 2 35)	PP	—
Helwan	z.	11·0	175	e 2 38	− 4	4 50	+ 3	—	—	—
Ogyalla		11·2	313	(e 2 35?)	− 9	—	—	(2 53)	PP	—
Triest		13·1	297	i 3 9	− 1	—	—	—	—	—
Florence		14·5	286	e 3 13	−15	e 6 12	+ 1	e 6 29	SS	—
Prague		14·5	315	e 2 5?	?	—	—	—	—	—
Moscow		15·7	15	3 38	− 6	6 20	−19	—	—	—
Chur		16·2	299	e 3 50	0	—	—	—	—	—
Milan		16·2	294	e 3 53?	+ 3	6 48	− 3	—	—	—
Jena		16·5	314	e 3 53	− 1	—	—	—	—	e 9·6
Potsdam		16·6	320	i 3 59	+ 3	—	—	—	—	e 10·1
Stuttgart		17·0	306	e 4 3	+ 2	e 7 5	− 5	e 7 19	?	e 9·8
Zürich		17·0	301	e 4 13	+12	—	—	—	—	—
Basle		17·7	301	e 4 8	− 2	—	—	—	—	—
Strasbourg		17·8	305	e 4 13	+ 2	—	—	—	—	—
Neuchatel		18·0	299	e 4 13	0	—	—	—	—	—
Copenhagen		19·0	328	e 4 22	− 4	—	—	—	—	—
Clermont-Ferrand		20·4	294	i 4 42	+ 1	—	—	—	—	—
Uccle		20·6	309	e 4 44	+ 1	8 36	+ 7	—	—	e 10·5
Upsala		20·7	342	e 4 42	− 2	e 8 19	−12	—	—	e 10·4
Sverdlovsk		25·3	41	5 27	− 3	10 1	+ 7	—	—	—

Additional readings :—
Bucharest iZ =1m.37s., iP_gEN =1m.40s., iS*E =2m.30s.
Focsani eS* =2m.49s., S_gE =3m.4s.
Kalossa iN =4m.36s. All readings have been reduced by 1m.30s.
Ogyalla readings decreased by 3m.
Long waves were also recorded at Bergen and De Bilt.

June 20d. 17h. 39m. 34s. Epicentre 11°·8S. 14°·0W.

A = +·9500, B = −·2369, C = −·2031 ; δ = −13 ; h = +6 ;
D = −·242, E = −·970 ; G = −·197, H = +·049, K = −·979.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rio de Janeiro		29·9	244	e 6 8	− 4	e 11 18	+ 9	i 11 22	S	i 12·8
La Plata	E.	45·9	233	8 32?	+ 6	15 14?	+ 3	10 20?	PP	21·4
	N.	45·9	233	8 26	0	—	—	10 44	PPP	—
San Fernando		48·6	8	e 8 49	+ 2	i 15 42	− 7	e 10 29	PP	23·9
Almeria		49·6	12	8 59	+ 4	e 16 6	+ 3	10 57	PP	23·4
Granada		49·7	10	i 9 2	+ 6	i 15 47	−17	10 47	PP	24·7
Lisbon		50·2	5	8 55	− 5	16 14	+ 3	9 0?	PP	23·9
Toledo		52·2	9	e 9 12	− 3	e 16 47	+ 8	—	—	22·8
La Paz		52·6	258	9 21	+ 3	17 20	PPS	—	—	23·4
Tortosa		54·0	14	9 28	0	17 5	+ 2	11 36	PP	26·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		59·5	300	e 10 7	0	e 18 15	− 1	e 12 7	PP	e 25·2
Tananarive		59·5	105	e 10 12	+ 5	e 18 30	+14	22 25	SS	29·3
Florence		59·9	21	e 10 5	− 5	e 19 3	+42	—	—	—
Huancayo		59·9	262	e 10 9	− 1	e 18 21	0	e 10 20	pP	e 24·7
Helwan		60·2	46	e 10 11	− 1	18 37	+12	e 10 32	pP	—
Milan		60·7	19	e 10 21?	+ 6	19 33	+61	—	—	28·6
Neuchatel		61·5	16	e 10 19	− 2	—	—	—	—	—
Bogota		61·9	282	e 10 24	0	—	—	e 10 35	pP	—
Basle		62·1	16	e 10 27	+ 2	—	—	—	—	—
Chur		62·1	18	e 10 21	− 4	—	—	—	—	—
Paris		62·1	12	e 13 31	?	e 18 46	− 3	e 22 44	SS	30·4
Zürich		62·3	18	e 10 24	− 2	—	—	—	—	—
Triest		62·4	22	e 11 31	+64	i 18 54	+ 1	—	—	e 28·4
Strasbourg		63·1	16	e 10 48	+16	—	—	—	—	—
Stuttgart		63·7	17	e 10 30	− 6	e 19 0	−10	e 13 4	PP	e 31·4
Belgrade		64·1	27	e 10 38	0	e 19 18	+ 4	e 23 30	SS	e 34·6
Uccle		64·4	12	e 10 43	+ 3	19 16	− 2	23 18	SS	28·4
Kalossa		65·2	25	e 10 56?	+11	—	—	e 11 16	P	—
Bermuda		65·4	314	e 10 41	− 6	e 19 25	− 5	—	—	e 27·1
Ksara		65·6	44	e 11 0	+12	e 19 40	+ 7	—	—	—
Cheb		65·8	18	e 12 26?	?	e 19 37	+ 2	—	—	e 31·4
De Bilt		65·8	13	—	—	i 19 36	+ 1	i 23 50	SS	e 29·4
Ogyalla		65·9	23	e 11 26?	+36	—	—	—	—	e 33·4
Jena		66·3	18	e 10 56	+ 4	—	—	—	—	e 26·4
Prague		66·4	20	—	—	e 20 26?	PPS	—	—	—
Potsdam		67·7	17	e 11 26?	+25	e 19 56?	− 2	e 20 1	S	e 32·4
Copenhagen		70·8	15	e 11 20	0	20 34	− 1	24 57	SS	33·4
Bergen		73·6	9	—	—	e 21 16	+ 9	—	—	e 31·1
Harvard		75·4	321	i 11 46	− 1	—	—	—	—	e 34·4
Upsala		75·8	16	e 12 26?	+36	e 21 26	− 5	e 21 56	PS	e 34·4
Fordham		76·1	318	e 11 51	0	e 21 36	+ 1	—	—	—
Philadelphia		76·5	316	—	—	e 21 38	− 1	e 23 6	PPS	31·8
Seven Falls		77·4	325	—	—	e 21 50?	+ 1	—	—	32·4
Vermont		77·5	321	—	—	e 21 55	+ 5	e 26 44	SS	e 32·8
Columbia		78·2	309	—	—	e 21 54	− 3	—	—	e 34·8
Ottawa		79·5	322	12 9	− 1	22 10	− 1	—	—	37·4
Pittsburgh		80·0	315	e 12 14	+ 1	i 22 18	+ 1	—	—	e 37·9
Buffalo		80·3	318	12 57	+43	—	—	—	—	—
Scoresby Sund		82·3	357	e 12 42	+17	e 21 52	−48	e 27 51	SS	e 37·3
Chicago		85·9	314	e 22 11	?	e 23 . 8	− 8	e 27 57	SS	e 35·3
St. Louis		86·8	310	i 12 46	− 1	e 23 16	[+ 3]	e 23 23	S	—
Florissant		86·9	310	e 12 46	− 2	e 23 25	− 1	e 23 58	PS	e 40·6
Bombay	E.	90·8	71	—	—	e 30 29	SS	e 33 35	SSS	45·4
Tashkent		92·7	48	e 13 18	+ 3	24 24	+ 6	i 25 41	PS	—
Kodaikanal	E.	93·5	80	—	—	e 24 6	[+13]	—	—	—
New Delhi	N.	96·6	62	—	—	i 25 1	+ 9	31 41	SSP	—
Dehra Dun	N.	97·6	60	e 29 39	?	—	—	e 32 29	SSP	e 34·7
Tucson		101·9	301	e 14 43	+46	—	—	e 18 9	PP	e 43·1
Bozeman		103·2	314	—	—	e 24 40	[− 2]	e 33 46	SSP	e 45·9
Logan		103·6	311	—	—	e 27 18	PS	e 33 44	SSP	e 47·1
Calcutta	N.	105·7	70	—	—	i 26 12	+ 4	i 28 59	PPS	—
Haiwee		108·1	304	(e 18 38)	[+ 9]	—	—	—	—	—
Pasadena		108·2	302	e 18 39	[+ 9]	e 25 5	[0]	e 21 41	PPP	e 45·4
Victoria		111·6	317	e 24 8?	?	e 28 50?	PS	e 35 0	SS	49·4
Sitka		116·4	328	e 20 14	PP	e 29 41	PS	e 36 39	SSP	e 52·3
Riverview		132·5	163	—	—	—	—	e 39 26	SS	e 61·0

Additional readings :—
La Plata E =18m.26s.?, N =9m.20s.
San Fernando SSE =18m.47s.
Almeria pP =9m.14s., sP =9m.28s., pP_cP =10m.33s., PPP =12m.3s., P_cS =14m.5s., sS =16m.36s., S_cS =18m.23s., SS =19m.43s., SSS =21m.30s.
Granada iSS =19m.39s.
Lisbon SSE =19m.59s.
Tortosa PPPN =12m.21s., iN =17m.50s., SSE =20m.58s.

Continued on next page.

San Juan ePPP =13m.27s.
Huancayo e =12m.49s.
Helwan eZ =11m.40s.
Stuttgart eSS =22m.56s.?, eQ =28m.44s.?.
Belgrade e =10m.44s. and 12m.6s.
Uccle SSE =23m.25s.
De Bilt iE =27m.6s.
Upsala eSSN =26m.3s.
Philadelphia e =25m.52s.
Vermont e =26m.14s.
Buffalo e =13m.25s., 13m.29s., 13m.55s. and 14m.11s.
Scoresby Sund e =28m.17s.
St. Louis e =23m.2s.
Bombay iE =40m.35s.
New Delhi iN =32m.33s.
Tucson e =19m.48s. and 22m.49s.
Bozeman e =39m.53s.
Haiwee reading has been increased by 1m.
Pasadena eSZ =27m.20s.?.
Sitka e =38m.59s.
Long waves were also recorded at College, New Zealand, and other European stations.

June 20d. Readings also at 2h. (near Mizusawa), 5h. (Bombay and Kodaikanal), 10h. (near Ebingen and Stuttgart), 12h. (Tacubaya), 13h. (Tashkent, Stalinabad, New Delhi, and Stuttgart), 15h. (Istanbul), 16h. (Istanbul, Arapuni, Christchurch, Wellington, and near Yalta), 17h. (Istanbul and near Yalta), 18h. (Basle, Copenhagen (2), Stuttgart, Istanbul, Husan, Miyazaki, Kumamoto, Hamada, Koti, Kobe, Bogota, Berkeley), 19h. (Istanbul, near St. Louis, and near Branner), 21h. and 23h. (Istanbul).

June 21d. 10h. 12m. 12s. Epicentre 41°·9N. 143°·6E. Depth of focus 0·005.
(as on 1942 Aug. 8d.).
Intensity IV at Obihiro and Urakawa; II-III at Hatinohe. Radius of macroseismic area 200-300km. Epicentre 40°·0N. 144°·6E. depth 20km.
Seismological Bulletin of Cent. Met. Obs. Japan for 1943, Tokyo, 1950, p. 33, with macroseismic chart.

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

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Sapporo	2·0	305	0 37 a	+ 5	1 11	+14	—
Hatinohe	2·1	229	0 34 a	0	0 54	− 5	—
Aomori	2·4	243	0 41	+ 3	—	—	—
Miyako	2·6	208	0 42	+ 1	1 13	+ 1	—
Mizusawa	3·4	216	0 49	− 3	1 27	− 5	—
Sendai	4·2	211	1 0 a	− 3	1 48	− 4	—
Hukusima	4·8	212	1 8	− 4	2 6	− 1	—
Onahama	5·4	204	1 14	− 6	2 11	−11	—
Aikawa	5·6	229	1 23	0	—	—	—
Mito	6·0	205	1 29	+ 1	2 32	− 5	—
Utunomiya	6·1	210	1 27	− 3	2 37	− 2	—
Kakioka	6·3	207	1 26	− 6	—	—	—
Tukubasan	6·3	207	1 27	− 5	2 36	− 8	—
Maebasi	6·5	214	1 35	0	2 43	− 6	—
Tyosi	6·5	200	1 42	+ 7	2 41	− 8	—
Nagano	6·7	221	1 35	− 3	3 12	+18	—
Tokyo Cen. Met. Ob.	6·8	207	1 47	+ 8	3 2	+ 6	—
Hunatu	7·4	213	1 48	0	3 13	+ 2	—
Kohu	7·4	214	1 49	+ 1	3 11	0	—
Misima	7·7	210	1 34	−18	3 9	−10	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Osima		7·8	207	1 53	0	—	—	—
Shizuoka		8·0	212	2 19	+23	3 25	− 1	—
Gihu		8·4	222	2 4	+ 2	3 34	− 2	—
Omaesaki		8·4	212	2 37	+35	—	—	—
Nagoya		8·5	220	2 4	+ 1	4 4	+26	—
Hikone		8·8	224	1 51	−16	—	—	—
Kameyama		9·0	221	2 6	− 4	—	—	—
Toyooka		9·3	230	1 49	−25	3 5	−55	—
Osaka		9·6	224	2 11	− 7	4 22	+17	—
Kobe		9·8	225	3 23	+62	5 6	+56	—
Koti		11·5	227	2 41	− 3	6 12	L	(6·2)
Zinsen		13·8	257	3 17	+ 3	—	—	—
College		44·1	35	—	—	e 14 32	+ 1	e 25·1
Upsala		69·3	335	—	—	e 17 48?	?	—
Tinemaha	z.	71·6	57	i 11 17	+ 1	—	—	—
Haiwee	z.	72·4	57	i 11 19	− 2	—	—	—
Mount Wilson	z.	73·6	59	i 11 26	− 2	—	—	—
Pasadena	z.	73·6	59	e 11 27	− 1	—	—	e 35·8
Riverside	z.	74·2	59	e 11 30	− 2	—	—	—
Copenhagen		74·3	335	11 34	+ 2	—	—	—
Uccle		81·1	336	e 12 11	+ 1	e 33 34	Q	e 40·8
Stuttgart		81·2	332	i 12 12	+ 2	—	—	e 44·2

Long waves were also recorded at Sitka, Christchurch, and other European stations.

June 21d. Readings also at 1h. (near Berkeley), 2h. (2) and 4h. (2) (Istanbul), 5h. (near Berkeley), 6h. (La Paz, Tacubaya, and near Bogota (2)), 7h. (near Bogota and near Mizusawa), 9h. (Mount Wilson, Riverside, Tucson, and near Berkeley (2)), 12h. (Istanbul), 13h. (Istanbul and near La Paz (2)), 14h. (near Mizusawa), 15h. (Istanbul), 16h. (Pasadena and Tucson), 18h. (Istanbul, and near Mizusawa), 22h. (Basle), 23h. (Istanbul).

June 22d. 1h. Undetermined shock. Japan.

Mizusawa ePEN =46m.53s., SN =47m.31s.
Irkutsk e =51m.56s.? and 56m.52s.?.
Sverdlovsk iP =55m.16s.
Tashkent eP =55m.25s.
Mount Wilson eZ =57m.29s.
Tucson e =58m.0s.
Riverside eZ =58m.7s. and 58m.34s.
Stuttgart eZ =58m.16s., eQ =90m.
Basle e =58m.24s.
Long waves were also recorded at other European stations.

June 22d. 19h. Undetermined shock. Central America.

Tacubaya PE =56m.23s.
Merida eN =58m.16s.
Tucson eP =60m.33s., eP_cP =63m.33s., eL =69m.29s.
Palomar ePZ =61m.14s.
Riverside ePZ =61m.21s., iZ =61m.31s., iP_cPZ =64m.10s.
Pasadena iP =61m.25s., iZ =61m.37s., eP_cPZ =64m.11s., eLN =74m.
Mount Wilson iPZ =61m.26s., iZ =61m.36s., iP_cPZ =64m.11s.
Haiwee iP =61m.36s.
Tinemaha iP =61m.41s., iZ =61m.52s., iP_cPZ =64m.18s.
Ottawa eZ =61m.44s., L =73m.
San Juan e =65m.21s., eL =67m.30s.
Long waves were also recorded at Philadelphia.

June 22d. Readings also at 1h. (Zürich), 4h. (near Bucharest, Bacau, Focsani, Cernauti, and Campulung), 5h. (near Bucharest, near Istanbul, and Sofia), 6h. (Istanbul), 7h. (Riverview, Pasadena, Tucson, Mount Wilson, and Riverside), 9h. (Fort de France, Wellington, Christchurch, Auckland, and Riverview), 15h. (near Berkeley, Branner, Lick, and San Francisco), 18h. (Stalinabad, near Berkeley, and Branner), 19h. (near Campulung, Focsani, Cernauti, Bacau, and Bucharest), 23h. (Marseilles, Istanbul, and near Mizusawa).

June 23d. 17h. 17m. 45s. Epicentre 30°·9S. 72°·0W. (as on 1943 May 22d.).

Pasadena suggests deep focus.

$A = +\cdot2656$, $B = -\cdot8175$, $C = -\cdot5110$; $\delta = -3$; $h = +2$;
$D = -\cdot951$, $E = -\cdot309$; $G = -\cdot158$, $H = +\cdot486$, $K = -\cdot860$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	12·5	112	2 51	−11	6 4	SSS	—	—	6·7
	N.	12·5	112	2 57	− 5	5 3?	−20	(5 33?)	SS	5·6
	Z.	12·5	112	2 56	− 6	5 7	−16	—	—	6·7
La Paz	N.	14·8	15	e 3 32	0	e 6 20	+ 2	—	—	7·5
Huancayo		19·0	351	e 4 30	+ 4	i 8 5	+10	i 4 50	PPP	e 10·6
Rio de Janeiro	N.	26·8	79	e 10 9	S	(e 10 9)	−10	—	—	e 13·7
Bogota		35·4	358	e 6 55	− 5	—	—	—	—	—
Fort de France		46·6	16	e 8 27	− 5	—	—	—	—	—
San Juan		49·3	9	e 8 48	− 5	e 15 48	−11	e 10 44	PP	e 20·4
St. Louis	E.	71·2	346	—	—	e 20 35	− 5	e 20 59	PS	—
Fordham		71·4	359	i 11 22	− 2	—	—	—	—	—
Tucson		72·8	327	i 11 34	+ 2	—	—	i 11 48	PcP	e 38·4
La Jolla		76·5	323	e 11 56	+ 2	—	—	—	—	—
Palomar	Z.	76·7	323	e 11 56	+ 1	—	—	—	—	—
Riverside		77·5	323	i 12 1a	+ 2	—	—	e 12 16	PcP	—
Mount Wilson		78·0	323	i 12 4a	+ 2	—	—	i 12 19	PcP	—
Pasadena		78·1	323	i 12 4a	+ 2	—	—	i 12 18	PcP	—
Santa Barbara		79·1	322	i 12 10	+ 2	—	—	—	—	—
Haiwee		79·5	325	i 12 12	+ 2	—	—	i 12 26	PcP	—
Tinemaha		80·3	325	i 12 16	+ 2	—	—	i 12 32	PcP	—

Additional readings :—
Tucson i = 12m.1s., e = 13m.35s.
Mount Wilson iZ = 12m.36s.
Pasadena iZ = 12m.36s.
Haiwee eEN = 12m.31s.
Long waves were also recorded at Montezuma.

June 23d. Readings also at 0h. (near Berkeley), 5h. (Balboa Heights), 9h. (Istanbul), 10h. (near Berkeley), 11h. (Istanbul), 14h. (Ksara), 16h. (New Delhi), 18h. (Florence), 20h. (near Mizusawa), 22h. (Tacubaya and Merida), 23h. (Tucson and Pittsburgh).

June 24d. 12h. 15m. 34s. Epicentre 21°·0S. 65°·5W. Depth of focus 0·025.
(as on 1939 July 4d.).

$A = +\cdot3875$, $B = -\cdot8502$, $C = -\cdot3563$; $\delta = -5$; $h = +4$;
$D = -\cdot910$, $E = -\cdot415$; $G = -\cdot148$, $H = +\cdot324$, $K = -\cdot934$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		5·2	329	i 1 31	+13	—	—	—	—	2·6
Huancayo		13·0	312	i 3 5	+ 6	i 5 28	+ 8	—	—	e 7·5
La Plata		15·4	156	3 19	−10	5 55	−19	—	—	7·1
Bogota		26·8	341	e 5 26	+ 2	e 9 50	+ 6	—	—	—
Cape Girardeau	E.	62·3	339	—	—	e 18 5	− 8	—	—	—
Tucson		68·4	321	i 10 41	− 2	e 19 30	+ 3	—	—	—
Riverside		73·7	318	i 11 11	− 4	—	—	—	—	—
Mount Wilson		74·3	318	i 11 15k	− 3	—	—	—	—	—
Pasadena		74·3	318	i 11 15k	− 3	—	—	e 12 32	pP	—
Haiwee		75·4	320	e 11 22	− 2	—	—	—	—	—
Tinemaha	Z.	76·2	320	i 11 26	− 3	—	—	i 12 47	pP	—

Additional readings :—
La Plata SZ = 5m.50s.?.
Bogota i = 5m.30s.
Tucson e = 11m.5s.
Riverside eZ = 11m.21s. and 11m.31s.
Mount Wilson iZ = 11m.24s.

Juue 24d. 20h. 21m. 33s. Epicentre 16°·1S. 168°·3E. Depth of focus 0.010.
(as on 1942, Feb. 12d.).

$A = -·9413$, $B = +·1949$, $C = -·2756$; $\delta = -1$; $h = +6$;
$D = +·203$, $E = +·979$; $G = +·270$, $H = -·056$, $K = -·961$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	18·1	229	i 4 5	− 1	i 7 24	+ 2	—	—	—
Riverview		23·5	217	i 5 0₁	− 2	i 9 1	− 4	i 5 37	pP	—
Sydney		23·5	217	e 3 57?	−65	e 9 3	− 2	—	—	—
Wellington		25·7	170	5 25	+ 2	9 29	−13	6 11	PP	11·4
Christchurch		27·6	173	5 42	+ 2	10 14	+ 1	—	—	e 14·4
Mizusawa	E.	60·5	337	(10 2)	0	10 2	P	—	—	—
Berkeley		84·3	49	i 12 24	+ 2	i 22 34	− 4	—	—	e 41·7
Santa Clara	E.	84·3	49	e 12 4	−18	e 23 59	PS	—	—	—
Santa Barbara	Z.	84·8	53	e 12 33	+ 8	—	—	—	—	—
Pasadena		85·9	53	i 12 31	+ 1	i 22 53	− 1	i 13 15	pP	e 35·6
Mount Wilson		86·0	53	i 12 31	0	—	—	i 15 55	PP	—
La Jolla	Z.	86·1	54	e 12 31	0	—	—	e 13 14	pP	—
Riverside		86·4	53	e 12 33	0	e 15 58	PP	i 13 17	pP	—
Sitka		86·5	27	e 13 15	+42	e 22 46	[− 2]	—	—	e 36·1
Tinemaha		86·9	50	i 12 38	+ 3	—	—	i 13 21	pP	—
Tucson		91·0	57	i 12 56	+ 2	i 23 53	+12	i 13 41	pP	e 43·1
New Delhi	N.	98·5	297	—	—	i 23 47	[−10]	—	—	—
Bombay		100·1	286	—	—	e 24 54	− 5	i 23 58	SKS	—
Florissant	E.	108·6	54	—	—	e 29 5	PPS	—	—	e 41·6
St. Louis	N.	108·7	54	e 21 35	PPP	e 26 13	S	e 27 33	PS	—
Pittsburgh	N.W.	116·7	52	—	—	e 26 32	SKKS	—	—	e 52·4
Ottawa		118·8	46	e 18 39	[+ 2]	—	—	—	—	52·4
San Juan		128·1	78	e 21 47	PP	—	—	—	—	e 33·0
Bermuda		129·4	60	e 16 40	?	e 30 30	PS	e 22 7	PP	e 71·4
Ksara		133·8	301	19 27?	[+21]	—	—	e 23 24	PPP	—
Helwan		138·3	297	i 19 15	[0]	e 28 42	SKKS	i 22 33	PP	—
De Bilt		141·7	343	i 20 2	[+42]	—	—	—	—	e 41·4
Uccle		143·1	344	e 19 33?	[+10]	—	—	e 22 46	PP	—
Stuttgart	Z.	143·2	337	e 19 20	[− 3]	—	—	e 22 46	PP	—
Kew		143·6	348	e 19 27	[+ 3]	—	—	—	—	e 79·4
Triest		143·6	330	e 19 27	[+ 3]	—	—	—	—	—
Zürich		144·6	336	e 19 26	[+ 1]	—	—	—	—	—
Paris		145·4	334	i 19 29	[+ 2]	e 34 27?	PPS	e 23 17	PKS	e 75·4
Milan	Z.	145·9	333	i 19 27	[− 1]	—	—	—	—	—
Florence		146·2	329	i 19 30	[+ 2]	e 34 8	PS	i 20 23	pPKP	—
Toledo	Z.	155·4	346	e 19 49	[+ 8]	—	—	—	—	—
Almeria		157·8	340	e 21 3	[+78]	25 11	PP	21 29	pPKP	—
Granada		157·8	343	e 21 6	[+81]	27 57	[+77]	e 21 48	pPKP	e 80·4

Additional readings :—
Brisbane iPN =4m.8s.
Riverview iPPZ =5m.49s., iSEZ =9m.4s., iN =9m.35s., iE =9m.41s., isSN =10m.2s., iEZ =10m.6s., iN =10m.27s., iS_cSE =15m.55s.
Wellington sPZ =6m.27s.
Christchurch i =11m.31s., e =12m.1s.
Mizusawa gives eP =20h.20m.20s. and eSN =9m.34s.
Berkeley iSN =22m.38s., iZ =23m.54s.
Pasadena iZ =15m.56s.
Mount Wilson iZ =12m.35s.
Sitka i =24m.5s., e =29m.41s.
Tucson ePP =16m.46s., isS =24m.52s.
Bombay sSE =26m.12s., iE =26m.41s.
Bermuda e =37m.0s.
Helwan eZ =20m.0s., iEZ =22m.45s.
Uccle eZ =23m.12s., epPPN =23m.36s., eN =36m.57s., eE =42m.14s.
Stuttgart eZ =21m.1s.
Paris ipPKP =20m.13s.
Florence iPKPZ =22m.53s., eSKPiE =26m.6s., eSSSE =43m.53s.
Granada sPKP =22m.1s., ePP =25m.19s., PPP =28m.42s., SKKS =31m.48s., SKSP =34m.3s., PPS =39m.24s., SS =44m.29s.
Long waves were also recorded at Philadephia, Honolulu, and Ukiah.

June 24d. Readings also at 1h. (Mount Wilson, Tucson, Riverside, Tinemaha, Stuttgart, and near Apia), 5h. (Merida, Tacubaya, and Tucson), 6h. (Ebingen, Pittsburgh, Mount Wilson, Riverside, Tucson, and Tinemaha), 7h. (Philadelphia), 10h. (Huancayo, Philadelphia, and near Mizusawa), 12h. (Toledo and near Sofia), 14h. (New Delhi, Florence, and near Triest), 15h. (near La Paz, Huancayo, Haiwee, Mount Wilson, Pasadena, Tucson, and Riverside), 16h. (near La Paz and near Tchimkent), 17h. (near Branner, Fresno, and Lick), 18h. (Mount Wilson, Pasadena, Riverside, and near Mizusawa), 19h. (Ebingen, Jena, Stuttgart, Strasbourg, Ravensburg, near Basle, and Zürich).

June 25d. 4h. Undetermined shock.

Intensity VI at Froid, Homestead, Redstone, and Reserve.
Epicentre 45°·7N. 111°·7W.
R. R. Bodle.
United States Earthquakes, 1943, Washington, 1945, p. 9. The readings given do not appear to fit the above epicentre.

Tinemaha iP = 29m.2s.
Tucson eP = 29m.20s., eL = 34m.32s.
Riverside ePZ = 29m.25s.
Mount Wilson iPZ = 29m.26s.
Pasadena ePZ = 29m.28s.
Fordham eP = 30m.30s.
Cape Girardeau ePN = 31m.45s.? and 31m.49s., eN = 33m.38s., iN = 34m.1s.
Long waves were also recorded at Bozeman.

June 25d. 19h. 13m. 24s. Epicentre 17°·8S. 178°·8W. Depth of focus 0·070.
(as on 1941, Nov. 4d.).

Pasadena suggests approximate epicentre 18°S. 178°W. Depth of focus 550km.

$A = -\cdot9526$, $B = -\cdot0199$, $C = -\cdot3038$; $\delta = +14$; $h = +5$;
$D = -\cdot021$, $E = +1\cdot000$; $G = +\cdot304$, $H = +\cdot006$, $K = -\cdot953$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		7·9	60	i 1 56	0	e 3 23	− 5	—	—	—
Auckland		19·8	195	i 6 1	?	7 29	+18	i 8 26	SS	—
Arapuni		20·8	192	—	—	7 36?	+ 9	—	—	—
Tuai		21·2	187	4 17	+ 5	7 36	+ 2	14 29	S_cS	—
Wellington		24·0	192	4 41	+ 4	8 11	− 9	14 42	S_cS	—
Christchurch		26·7	193	—	—	i 8 49	−14	i 14 51	S_cS	—
Brisbane	E.	27·7	245	i 5 13	+ 3	i 9 22	+ 4	i 6 38	PP	—
	N.	27·7	245	i 5 7	− 3	i 9 18	0	i 15 0	S_cS	—
Riverview		31·2	233	i 5 45k	+ 5	i 10 16	+ 3	i 7 18	pP	—
Santa Barbara	z.	76·5	47	e 11 1	0	—	—	i 12 56	pP	—
Berkeley		76·7	44	i 12 57	pP	i 20 4	− 5	23 34	?	—
La Jolla		77·4	50	i 11 7	+ 1	—	—	e 13 1	pP	—
Pasadena		77·4	48	i 11 5	− 1	20 12	− 5	i 13 0	pP	—
Mount Wilson		77·5	48	i 11 6	− 1	—	—	i 13 1	pP	—
Palomar	z.	77·9	50	e 11 9	0	—	—	e 13 5	pP	—
Riverside	z.	77·9	48	e 11 7	− 2	—	—	i 13 3	pP	—
Haiwee		78·6	46	i 11 12	0	—	—	i 13 9	pP	—
Tinemaha		78·9	45	i 11 14	0	—	—	i 13 9	pP	—
Tucson		81·9	52	i 11 30	0	e 21 1	− 2	i 13 25	pP	—
Sitka		83·3	23	—	—	e 21 5	−12	i 24 43	?	—
College		85·7	12	—	—	e 21 31	− 9	e 25 9	?	—
Bozeman		87·9	40	—	—	e 21 46	−14	e 25 42	?	—
Huancayo		98·9	105	—	—	e 22 41	[+ 1]	e 27 6	?	e 39·6
San Juan		116·4	76	—	—	i 23 52	[− 4]	e 33 48	?	—
Ksara		145·1	303	e 18 47	[+ 5]	—	—	e 22 16	PP	—
De Bilt		145·6	356	i 18 45k	[+ 2]	—	—	e 43 51	?	—
Jena		145·9	348	i 18 48	[+ 4]	—	—	—	—	—
Uccle	z.	147·0	357	i 18 48k	[+ 2]	—	—	—	—	—
Stuttgart	z.	148·4	352	i 18 48	[+ 1]	—	—	e 21 0	?	—
Basle		149·9	351	e 18 55	[+ 6]	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zürich		149·9	351	e 18 54 k	[+ 5]	—	—	—	—	—
Helwan	z.	150·0	299	18 51	[+ 2]	e 33 9	PS	i 22 44	PP	—
Chur		150·2	349	e 18 51	[+ 2]	—	—	e 21 40	?	—
Triest		150·3	342	e 19 2	[+13]	—	—	—	—	—
Neuchatel		150·5	352	e 18 57	[+ 7]	—	—	—	—	—
Granada		160·2	11	e 19 44	[+41]	46 26	?	—	—	—

Additional readings :—
Tuai i = 7m.46s.
Wellington i = 7m.49s., P_cSZ = 11m.43s., i = 15m.46s., pS_cS = 17m.26s.
Christchurch e = 10m.38s. and 12m.52s.
Brisbane eSE = 12m.6s., eSN = 12m.16s., iSSE = 14m.59s.
Riverview isSEN = 13m.27s., iS_cSE = 15m.19s.
Berkeley eE = 23m.37s.
Pasadena iE = 20m.28s., eN = 23m.37s.
Mount Wilson iZ = 11m.19s.
Tucson ePP = 14m.54s.
Stuttgart iZ = 18m.53s.
Helwan iZ = 19m.6s.

June 25d. Readings also at 2h. (Fort de France and Mizusawa), 4h. (Florissant, near Ebingen, and Stuttgart), 5h. (Fort de France), 6h. (Tucson, Christchurch, and Wellington), 7h. (Tucson), 12h. (Bogota, Stuttgart, Riverside, Tinemaha, Tucson, Riverview, Auckland, and Wellington), 13h. (near Fort de France), 17h. (Pasadena, Mount Wilson, Tinemaha, Haiwee, Tucson, near Ferndale, Berkeley, Branner, and Lick), 22h. and 23h. (near Tashkent and Tchimkent).

June 26d. Readings at 1h. (near Berkeley), 2h. (near Ebingen (2) and Stuttgart (2)), 3h. 3h. (Oaxaca, Tacubaya, and Kew), 4h. (Paris, De Bilt, Granada, Cheb, Florence, and Uccle), 5h. (Fort de France), 6h. (near Fort de France, and near Bogota), 7h. (near Bogota), 8h. (near Mizusawa), 18h. (near Berkeley), 20h. (Mount Wilson, Pasadena, Tucson, and Riverside), 22h. (near Berkeley (2)).

June 27d. 10h. 5m. 27s. Epicentre 34°·4N. 24°·5E.

A = +·7524, B = +·3429, C = +·5624 ; δ = −2 ; h = 0 ;
D = +·415, E = −·910; G = +·512, H = +·233, K = −·827.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		7·4	126	2 3	+11	3 25	+ 7	i 2 24	P_g	—
Sofia		8·3	354	e 2 7	+ 3	—	—	—	—	—
Ksara		9·5	90	e 2 19	− 1	e 4 15	+ 5	—	—	—
Bucharest		10·1	7	e 2 30	+ 2	i 4 28	+ 3	i 5 31	S_g	6·7
Belgrade		10·8	345	e 3 11	?	e 4 46	+ 4	e 5 34	S_g	i 6·0
Campulung		10·9	2	e 2 45?	+ 5	e 5 27?	S_g	e 2 51	PP	7·2
Focsani		11·5	10	e 3 13	+25	—	—	—	—	5·4
Bacau		12·3	8	e 3 39?	+40	—	—	—	—	7·0
Kalossa		12·8	343	e 3 59	+53	—	—	—	—	e 7·3
Florence		13·9	316	i 2 59	−22	e 6 9	+12	—	—	e 9·0
Triest		13·9	327	e 3 19	− 2	i 5 37	−20	—	—	—
Ogyalla		14·2	343	e 4 33?	?	e 6 3	− 1	—	—	—
Milan		16·1	318	e 4 7	+18	7 21	+32	5 29	PP	9·1
Chur		16·8	322	e 4 0	+ 2	e 7 11	+ 6	—	—	—
Zurich		17·7	322	e 4 21	+11	—	—	—	—	—
Cheb		18·0	334	—	—	e 7 33?	+ 1	—	—	—
Basle		18·3	322	e 4 15	− 2	—	—	—	—	e 8·5
Stuttgart		18·3	327	e 4 16	− 1	e 7 42	+ 3	—	—	e 10·2
Strasbourg		18·9	325	e 4 18	− 6	e 7 52	− 1	e 5 5	PP	e 11·6
Jena		19·0	336	i 4 26	0	e 7 53	− 2	—	—	e 10·9
Clermont-Ferrand		19·8	312	e 4 35	0	e 8 23	+10	—	—	e 13·6
Potsdam		19·8	339	—	—	e 8 13	0	e 8 17	S	e 10·6
Tortosa	E.	20·0	295	i 4 24	−13	i 8 10	− 7	—	—	e 14·9
Paris		21·8	318	i 4 57	+ 1	e 8 50	− 2	—	—	13·6
Uccle		22·0	324	e 4 57	− 1	e 8 56	0	—	—	e 11·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almeria		22·0	284	5 0	+ 2	i 9 1	+ 5	5 24	PP	11·4
De Bilt		22·5	329	i 5 3	+ 1	e 9 3	− 2	—	—	e 12·6
Granada		22·9	285	i 5 12	+ 6	i 9 16	+ 3	6 3	PP	e 14·8
Copenhagen		22·9	343	e 5 5	− 1	9 14	+ 1	—	—	11·6
Moscow		23·1	18	5 9	+ 1	e 9 11	− 5	—	—	—
Toledo		23·4	292	e 5 13	+ 2	e 9 21	0	—	—	—
Kew		24·7	322	e 5 21	− 3	e 9 52	+ 8	—	—	e 13·6
San Fernando	E.	25·1	283	e 5 44	+16	—	—	—	—	—
Upsala	E.	25·9	352	e 5 55	+20	e 9 55	− 9	e 6 20	PP	e 14·4
	N.	25·9	352	e 5 44	+ 9	e 9 52	−12	e 6 15	PP	e 15·6
Sverdlovsk		33·2	36	i 6 42	+ 2	i 11 57	− 3	—	—	—
Tashkent		35·7	65	e 7 7	+ 5	e 12 45	+ 6	—	—	—

Additional readings :—
Helwan P*Z = 2m.37s., S*N = 4m.9s.
Bucharest iN = 5m.5s., iSE = 5m.13s., iSN = 5m.18s., iSSN = 5m.34s., iN = 5m.58s.
Kalossa eE = 4m.7s.
Ogyalla eN = 6m.13s.
Jena iZ = 4m.29s., eN = 4m.49s.
Uccle iSN = 8m.59s.
Almeria PPP = 5m.40s., P_cP = 8m.53s., SS = 9m.44s.
Granada pP = 5m.46s., pPP = 6m.18s., sPP = 6m.39s., pP_cP = 9m.46s., sS = 10m.9s.
Kew eEZ = 10m.13s.?, eNZ = 11m.5s.
Long waves were also recorded at Bergen.

June 27d. Readings also at 3h. (Milan), 4h. (Belgrade (2), Bucharest (2), Florence, Triest Stuttgart (2), Granada and near Andijan), 5h. (Triest, Granada, and near Berkeley), 16h. (Auckland), 17h. (Riverview, Sydney, Christchurch, Wellington, Tucson, Pasadena and Riverside), 18h. (near Sofia) 19h. (Oaxaca (2), Puebla (2), Tacubaya (2), and Tucson), 20h. (Haiwee, Tucson, Pasadena, Riverside, and Tinemaha), 22h. (near Tashkent), 23h. (Oaxaca, Puebla, Tacubaya, Tucson, and Riverside).

June 28d. 2h. Undetermined shock.

Auckland PP? = 43m.45s., S = 46m.50s., P_cP? = 47m.15s., L = 48m.45s.
Tuai P = 46m.28s., S? = 47m.42s.
Wellington S? = 47m.39s., Q? = 48m.36s., R = 50m.?.
Riverview iE = 49m.9s., eS?E = 52m.58s., eLN = 54m.6s.
Apia eEN = 50m.40s., eE = 51m.51s., eN = 52m.33s., eEN = 62m.18s.
Sydney e = 51m.24s.? and 36m.33s.
Pasadena iPZ = 54m.29s., eLZ = 84m.18s.?.
Mount Wilson iPZ = 54m.31s.
Riverside iPZ = 54m.32s.
Haiwee iP = 54m.38s.
Tinemaha iPZ = 54m.40s.
Tucson iP = 54m.47s., i = 55m.8s., eL = 94m.53s.
Tacubaya PE = 59m.22s.
Stuttgart ePKP?Z = 61m.57s., $ePKP_2$?Z = 62m.30s., ePPZ = 66m.14s., eQ = 122m.
Granada PKP = 68m.36s., SKKS = 74m.12s., SKSP = 78m.19s., iSS = 88m.26s., L = 130·6m.
Pittsburgh eNW = 71m.25s. and 96m.26s.
Long waves were also recorded at Christchurch, Philadelphia, Harvard, Kew, De Bilt, and Paris.

June 28d. 15h. 5m. 21s. Epicentre 51°·7N. 178°·5W. (as on 1940 Aug. 5d.).

$A = -·6221$, $B = -·0163$, $C = +·7828$; $\delta = +5$; $h = -6$;
$D = -·026$, $E = +1·000$; $G = -·782$, $H = -·020$, $K = -·622$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m.	s.	m.
College	20·6	38	e 4 41	− 2	e 8 33	+ 4	—	—	e 11·1
Sitka	25·3	60	e 6 5	PP	e 10 18	SS	—	—	i 12·1
Sapporo	28·2	270	e 5 57	+ 1	—	—	—	—	—
Nagano	33·9	263	e 6 47	0	—	—	—	—	—
Honolulu	34·3	144	e 8 24	PPP	—	—	—	—	e 14·9
Misima	34·5	260	6 55	+ 3	—	—	—	—	—
Osaka	37·0	262	7 13	0	—	—	—	—	—
Kobe	37·1	262	6 36	−38	12 21	−40	—	—	—
Ukiah	39·8	87	—	—	e 18 50	Q	—	—	e 21·9
Santa Clara	41·7	87	e 8 0	+ 8	e 18 15	SSS	—	—	e 21·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kagosima		42·1	262	e 7 57	+ 2	—	—	—	—	—
Bozeman		43·5	70	e 10 9	PPP	—	—	—	—	e 18·0
Tinemaha		44·2	84	i 8 14a	+ 2	e 14 53	+ 7	i 9 56	PcP	—
Haiwee		45·0	85	i 8 21	+ 2	e 15 0	+ 2	i 9 59	PcP	—
Santa Barbara		45·0	88	e 8 21	+ 2	—	—	—	—	—
Salt Lake City		45·8	77	—	—	e 15 54	PS	—	—	e 20·9
Pasadena		46·1	87	i 8 28	0	i 15 17	+ 3	i 13 53	PcS	e 18·8
Mount Wilson		46·2	87	i 8 30a	+ 2	e 15 18	+ 3	i 13 54	PcS	—
Riverside		46·7	87	e 8 34	+ 2	—	—	—	—	—
Palomar	z.	47·5	88	e 8 39	+ 1	—	—	—	—	—
La Jolla	z.	47·6	88	e 8 40	+ 1	—	—	—	—	—
Tucson		52·0	84	i 9 13	0	e 16 30	− 6	e 18 5	?	e 27·2
Scoresby Sund		56·9	9	e 9 48	− 1	e 17 38	− 4	e 21 38	SS	e 27·6
St. Louis		59·9	65	e 9 44	−26	e 17 54	−27	—	—	—
Sverdlovsk		61·4	328	10 17	− 3	e 18 45	+ 5	—	—	—
Ottawa		62·7	50	—	—	e 21 15?	?	—	—	28·7
Seven Falls		63·7	46	—	—	e 20 21?	ScS	—	—	33·7
Fordham		67·0	53	—	—	e 20 16	PS	—	—	—
Philadelphia		67·0	55	—	—	e 19 45	− 5	e 21 0	ScS	e 31·3
Moscow		68·8	339	11 5	− 3	20 10	− 1	—	—	—
Tashkent		70·3	312	e 11 20	+ 3	e 20 34	+ 5	—	—	—
Copenhagen		72·6	355	—	—	20 51	− 5	—	—	—
De Bilt		76·5	358	—	—	e 21 39	0	—	—	e 43·7
Kew		77·2	2	—	—	e 21 39?	− 8	—	—	—
Uccle	z.	77·8	359	e 11 58	− 3	e 22 23	PS	—	—	—
Bermuda		78·2	52	—	—	e 22 53	PPS	—	—	e 39·9
Cheb		78·2	353	—	—	e 29 39?	SSS	—	—	e 45·7
Stuttgart		79·7	356	e 12 7	− 4	e 21 57?	−16	e 27 45?	SS	e 40·9
Paris		79·9	0	e 12 9	− 3	—	—	—	—	47·7
Strasbourg		79·9	356	—	—	e 20 59	?	—	—	—
Florence		84·5	353	i 12 41	+ 5	e 23 30	+28	e 24 16	PPS	—
Bombay	E.	86·4	297	—	—	i 26 40	?	—	—	—
Toledo		88·7	5	e 12 56	− 1	—	—	—	—	i 50·7
San Juan		88·8	61	—	—	e 24 20	PS	—	—	e 34·2
Granada		91·4	4	18 14a	PPP	26 13	?	—	—	52·5

Additional readings :—
Tinemaha iZ = 8m.32s., eScPZ = 13m.45s.
Haiwee iScPZ = 13m.49s.
Pasadena iZ = 8m.37s. and 8m.57s.
Mount Wilson i = 8m.38s.
Florence eSSE = 31m.4s.
Granada SS = 34m.40s., SSS = 39m.31s., Phases wrongly identified.
Long waves were also recorded at Harvard, New Delhi, and other European stations.

June 28d. Readings also at 0h. (Stuttgart), 1h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Santa Barbara, La Jolla, Tucson, Stuttgart, and near Mizusawa), 11h. (near Sofia and near Mizusawa), 12h. (near Apia, and near Fort de France), 13h. (Pasadena, Mount Wilson, Tinemaha, Tucson, Stuttgart, and near Mizusawa), 14h. (Triest, near Bucharest, Bacau, Campulung, and Focsani), 16h. (Granada, San Fernando, and Toledo), 18h. (Granada, Bombay, Stuttgart, Kodaikanal, and Tananarive), 22h. (Tucson, Oaxaca, and Tacubaya).

June 29d. 9h. 5m. 5s. Epicentre 3°·0N. 125°·2E. Depth of focus 0·020.

$A = -\cdot5756$, $B = +\cdot8160$, $C = +\cdot0520$; $\delta = -12$; $h = +7$;
$D = +\cdot817$, $E = +\cdot576$; $G = -\cdot030$, $H = +\cdot042$, $K = -\cdot999$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Miyakozima	21·7	1	e 4 41	+ 2	8 28	+ 4	—	—	—
Naha	23·2	5	i 4 55	+ 2	—	—	—	—	—
Titizima	28·9	33	e 5 45	− 1	10 19	− 4	—	—	—
Miyazaki	29·4	11	5 50	0	10 33	+ 2	16 18	ScS	—
Kumamoto	30·1	9	5 58	+ 1	10 36	− 6	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hukuoka		30·8	8	5 52	−11	—	—	—	—	—
Koti		31·4	13	e 5 59	− 9	11 1	− 1	—	—	—
Hamada		32·4	10	e 6 23	+ 6	11 20	+ 2	(16 29)	S_cS	16·5
Kobe		32·9	16	e 6 22	+ 1	11 26	0	8 48	P_cP	—
Osaka		32·9	16	6 29	+ 8	11 31	+ 5	7 34	PP	—
Nagoya		33·8	18	6 20	− 9	11 41	+ 1	13 27	?	—
Zinsen		34·3	2	6 34	+ 1	12 26	?	16 43	S_cS	—
Yokohama		35·0	21	e 7 1	+22	e 11 55	− 3	—	—	—
Tokyo Cen. Met. Obs.	E.	35.2	21	8 8	PP	11 54	− 7	12 56	sS	—
		35·2	21	e 8 15	PP	i 11 58	− 3	8 40	pPP	i 14·0
Nagano		35·6	17	i 6 45	+ 1	12 6	− 1	—	—	—
Perth		35·9	196	—	—	i 12 10	− 2	i 13 5	sS	—
Wazima		35·9	16	e 6 45	− 1	12 13	+ 1	—	—	—
Sendai		37·9	20	7 3	0	12 42	0	17 0	Q	—
Mizusawa		38·8	20	e 7 11	0	12 57	+ 1	—	—	17·0
Brisbane	E.	40·5	141	i 7 23	− 2	i 13 15	− 6	—	—	i 16·3
	N.	40·5	141	i 7 21	− 4	i 13 18	− 3	i 8 57	PP	i 16·4
Calcutta	N.	40·7	302	e 8 2	pP	i 12 3	?	—	—	—
Mori		41·3	17	e 6 42	−49	13 35	+ 2	—	—	—
Sapporo		42·4	17	7 42	+ 2	13 54	+ 5	17 27	S_cS	—
Riverview		44·1	149	i 7 54 a	0	i 14 15	+ 1	i 8 37	pP	i 21·0
Sydney		44·1	149	—	—	e 14 7?	− 7	—	—	—
Colombo		45·3	277	8 44	pP	—	—	—	—	—
Kodaikanal	E.	47·9	282	e 8 29	+ 5	i 16 12	+64	10 25	PP	—
Hyderabad	E.	48·0	291	8 25	+ 1	15 10	+ 1	i 8 56	pP	—
Dehra Dun	N.	52·2	307	e 9 5	+ 9	15 56	−11	17 1	sS	—
New Delhi	N.	52·2	305	e 8 55	− 1	i 16 7	0	9 27	pP	—
Bombay		53·6	292	i 9 8	+ 1	i 16 27	+ 1	9 43	pP	—
Auckland		60·8	136	—	—	18 2	+ 2	19 41	sS	—
Stalinabad		62·3	313	e 10 3	− 4	i 18 25	+ 6	—	—	—
Tashkent		62·9	316	i 10 13	+ 2	18 30	+ 4	—	—	—
Tchimkent		63·0	317	e 10 13	+ 1	i 18 34	+ 6	—	—	—
Wellington		63·0	140	10 9	− 3	18 23	− 5	10 50	pP	—
Tuai		63·4	137	10 15	0	—	—	i 10 18	P	—
Christchurch		63·9	144	10 13	− 5	18 30	− 9	10 51	P_cP	26·0
Sverdlovsk		72·7	329	i 11 19	+ 1	—	—	i 11 50	pP	—
Honolulu		76·8	68	i 11 39	+ 3	i 21 17	+ 9	—	—	e 31·0
College		86·0	25	—	—	e 22 40	− 2	e 23 25	sS	e 35·1
Moscow		86·2	326	i 12 25	+ 1	i 22 36	− 8	i 12 57	pP	—
Ksara		87·8	304	e 12 36	+ 4	e 22 51	− 8	e 13 18	pP	—
Helwan		91·9	300	12 53	+ 2	23 38	+ 2	e 13 25	pP	—
Sitka		92·6	33	e 16 37	PP	e 23 49	+ 7	e 24 46	sS	i 36·3
Bacau		93·5	316	—	—	e 23 11	[− 5]	—	—	—
Focsani		93·5	315	—	—	e 22 59	[−17]	—	—	—
Bucharest		94·4	315	e 13 4	+ 1	i 23 28	[+ 8]	i 24 9	S	40·9
Campulung		95·0	316	e 13 13?	+ 8	e 23 28	[+ 4]	—	—	—
Upsala		96·2	331	e 19 38	PPP	i 23 32	[+ 1]	i 24 14	S	e 47·9
Sofia		96·7	313	e 13 14	+ 1	i 23 39	[+ 5]	e 17 13	PP	—
Belgrade		98·3	316	e 17 51	PP	i 23 50	[+ 8]	e 25 57	PS	—
Ogyalla		99·1	319	e 15 25	?	23 0	?	e 17 35	PP	—
Copenhagen		100·1	329	17 40	PP	24 49	+ 3	23 55	SKS	—
Potsdam		100·9	325	e 17 47	PP	i 24 58?	+ 6	i 23 58?	SKS	e 52·9
Bergen		101·7	334	e 24 6	SKS	e 25 5	+ 6	—	—	—
Victoria		101·7	40	—	—	e 24 5	[+ 6]	—	—	41·9
Cheb		102·1	323	e 17 56	PP	e 24 8	[+ 8]	—	—	—
Jena		102·3	324	e 19 43	PPP	e 24 55	− 9	e 24 5	SKS	—
Triest		102·7	318	e 16 55	?	i 24 5	[+ 2]	—	—	—
Scoresby Sund		103·5	350	e 18 1	PP	i 24 14	[+ 7]	e 26 20	SP	e 42·7
Stuttgart		104·5	322	e 14 49	+61	i 24 14	[+ 3]	e 25 4	S	e 54·2
Florence		104·9	317	i 18 17 k	PP	i 24 17	[+ 4]	i 18 51	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		105·0	321	e 18 15	PP	e 24 17	[+ 4]	—	—	—
Zürich		105·4	321	e 18 26	PP	e 24 28	[+13]	—	—	—
Strasbourg		105·5	323	—	—	e 24 21	[+ 5]	25 21	S	—
Milan	E.	105·7	319	18 20	PP	i 24 18	[+ 1]	19 41	?	—
Basle		106·0	322	e 17 45	PKP	e 24 22	[+ 4]	—	—	—
Uccle		106·5	326	e 13 59	P	i 24 25	[+ 5]	e 27 23	PS	—
Aberdeen	E.	106·6	339	i 9 15	?	i 24 24	[+ 3]	—	—	e 53·6
Neuchatel		106·6	321	e 18 26	PP	e 24 24	[+ 3]	—	—	—
Paris		108·5	324	e 14 8	P	—	—	e 18 43	PP	31·9
Kew		108·8	328	e 14 8	P	e 24 35	[+ 5]	e 18 43	PP	e 44·9
Tinemaha	Z.	109·0	50	e 14 12	P	—	—	e 18 8	PKP	—
Saskatoon		109·8	31	e 26 10	?	—	—	e 34 4	SS	43·9
Pasadena		110·0	52	e 14 24	P	i 24 44	[+ 9]	i 18 17	PKP	43·9
Mount Wilson	Z.	110·1	52	e 14 16	P	—	—	i 18 17	PKP	—
Riverside	Z.	110·7	52	e 14 18	P	—	—	e 18 18	PKP	—
Tortosa	E.	113·4	317	e 18 59	PP	i 24 37	[−12]	i 25 38	SKKS	28·1
Tucson		116·4	51	e 15 20	?	i 29 1	PS	e 18 29	PKP	e 53·4
Toledo		116·9	318	e 19 42	[+76]	e 25 10	[+ 8]	—	—	—
Almeria		117·3	314	e 19 38	PP	i 25 8	[+ 5]	20 4	pPP	—
Granada		117·9	315	19 15	pPKP	i 25 11	[+ 5]	19 47	PP	57·5
San Fernando	E.	120·1	316	e 20 36	pPP	i 25 24	[+12]	—	—	64·9
Chicago		126·4	30	e 21 31	pPP	e 25 32	[0]	e 30 17	PS	—
St. Louis		127·2	34	e 18 37	[− 8]	e 25 27	[− 8]	—	—	—
Seven Falls		128·1	13	e 28 37?	PKKP	e 38 1?	SS	—	—	—
Ottawa		128·3	18	e 28 37?	PKKP	e 32 25?	PPS	38 7?	SS	73·9
Pittsburgh		131·0	25	e 22 3	pPP	—	—	i 22 8	?	—
Fordham		133·0	19	i 22 14	pPP	—	—	—	—	—
Philadelphia		133·4	21	e 23 2	?	e 38 47	SS	e 46 57	?	e 59·3
Bermuda		143·6	14	e 23 14	pPP	e 33 1	PS	e 35 59	?	—
La Plata		148·1	175	(19 17)	[− 6]	—	—	—	—	19·3
San Juan		156·0	26	e 20 5	[+30]	e 30 5	SKKS	e 34 4	SKSP	—
Huancayo		157·8	116	e 20 3	[+25]	i 30 34	SKKS	—	—	e 45·2
Bogota		159·3	68	e 33 55?	?	—	—	i 34 55?	?	—
La Paz	Z.	161·2	137	i 19 45a	[+ 4]	30 52	SKKS	i 24 12	PP	78·9

Additional readings :—
Kobe sS = 13m.5s., S_cS = 16m.35s.
Osaka SS = 12m.47s.
Tokyo iE = 10m.10s., iP_cPN = 12m.12s., iSS = 13m.21s.
Perth i = 14m.33s.
Sapporo i = 14m.41s.
Riverview iPPZ = 9m.36s., iS_cSN = 17m.29s., iEZ = 17m.36s.
Wellington P_cP?Z = 10m.35s., sPZ = 11m.8s., PP?Z = 12m.32s., PPP?Z = 14m.15s., iZ = 19m.5s., sS = 19m.48s., SS = 22m.40s., iZ = 25m.13s. ?, SSS = 25m.55s.
Dehra Dun eN = 12m.43s. and 15m.49s.
New Delhi P_cPN = 10m.4s., PPN = 10m.52s., PPPN = 12m.21s., SSN = 17m.7s., S_cSN = 18m.31s., SSN = 19m.51s., SSSN = 20m.52s. and 21m.45s.
Bombay P_cPE = 10m.7s., PPEN = 11m.13s., sSEN = 17m.27s., S_cSE = 18m.34s., SSN = 20m.14s., SSSN = 22m.10s.
Christchurch S_cS = 19m.57s., SS = 22m.32s.
College eSS = 28m.23s., eSSS = 32m.28s.
Moscow pPP = 16m.25s., sS = 23m.29s.
Ksara e = 24m.8s.
Helwan iZ = 17m.1s., SKSE = 23m.11s., iE = 24m.10s., PSEN = 24m.37s.
Sitka iSKS = 23m.15s., iSS = 30m.6s.
Bucharest iN = 24m.25s.
Upsala i = 24m.33s., eSS? = 28m.11s., eN = 34m.29s.
Belgrade ePP = 18m.3s.
Copenhagen 18m.14s.
Potsdam eE = 18m.24s.
Scoresby Sund eS = 25m.18s., e = 31m.5s.
Stuttgart epPZ = 15m.53s., ePPZ = 18m.11s., epPPZ = 18m.42s., ePPPZ = 20m.25s., ePS = 26m.30s., e = 28m.24s.
Florence iPPZ = 19m.31s., isSE = 25m.17s., iSSE = 26m.23s.
Uccle eE = 25m.7s.
Kew ePPPZ = 20m.53s., eSKKSEN = 25m.29s., ePSEZ = 27m.45s., ePPSEZ = 28m.43s.
Pasadena iE = 19m.31s., iZ = 21m.37s., iN = 26m.14s., eSPZ = 28m.2s.
Tucson e = 19m.15s., i = 19m.34s., e = 21m.52s., epPS = 30m.7s.
Almeria sP = 20m.15s., P_cP = 21m.58s., sP_cP = 22m.44s., pP_cS = 26m.9s., S_cS = 29m.39s., pS_cS = 30m.14s.

Continued on next page.

Granada pPP = 20m.23s., SKP = 20m.58s., PPP = 22m.24s., pPPP = 23m.8s., SKKS = 26m.20s., S = 26m.47s., SS = 34m.32s.
Chicago eSS = 37m.32s.
St. Louis eE = 37m.24s. and 40m.6s.
Fordham i = 23m.13s., e = 38m.3s.
La Plata PKPN = 19m.30s. Phases have been wrongly indentified.
San Juan ePP = 24m.30s., e = 34m.40s., 38m.31s., and 43m.9s.
La Paz iPKP$_1$Z = 20m.30s., PSKS = 34m.28s.

June 29d. Readings also at 0h. (De Bilt, Aberdeen, Kew, Paris, and Granada), 1h. (Santa Clara, Kew, De Bilt, near Tashkent, and near Mizusawa), 2h. (near Fresno, Lick, Berkeley, Branner, and Santa Clara), 4h. (Haiwee (2), La Jolla, Tinemaha (2), Pasadena (2), Mount Wilson (2), Riverside (2), Tucson (2), Bogota, La Plata, near La Paz, and near Lick, Berkeley, Branner, and Fresno), 7h. (near Fort de France), 8h. (La Paz, near Fort de France, and near Tashkent), 16h. (near Mizusawa), 17h. (near Strasbourg, Basle, Stuttgart, Ravensburg, Zürich, and Ebingen), 22h. (Riverside, Tucson, and near La Paz), 23h. (Stuttgart and near Mizusawa).

June 30d. 10h. 49m. 6s. Epicentre 7°·0S. 123°·0E. Depth of focus 0·100.
(as on 1943, Feb. 21d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		35·0	130	i 5 56	− 6	i 10 45	− 6	—	—	i 13·9
Riverview		37·3	140	i 6 19k	− 1	i 11 27	+ 2	i 8 8	pP	—
Sydney		37·3	140	e 7 6?	+46	e 11 21	− 4	—	—	—
Titizima		38·6	29	6 30	− 1	11 41	− 3	—	—	—
Miyazaki		39·5	11	6 47	+ 9	11 59	+ 2	15 37	S_cS	—
Kumamoto		40·3	10	e 6 46	+ 2	12 8	0	—	—	—
Hukuoka		41·0	9	e 6 45	− 5	12 14	− 4	—	—	—
Koti		41·6	13	—	—	e 12 26	− 1	—	—	—
Hamada		42·5	11	—	—	e 12 39	0	—	—	—
Kobe		43·0	15	7 5	− 1	12 48	+ 2	—	—	—
Nagoya		44·0	17	7 11	− 2	12 55	− 5	—	—	—
Zinsen		44·4	4	—	—	e 13 0	− 6	—	—	—
Misima		44·5	18	7 19	+ 2	13 8	+ 1	—	—	—
Calcutta	N.	44·9	312	e 9 15	PP	i 13 17	+ 4	i 16 8	?	—
Yokohama	Z.	45·0	19	13 13	S	(13 13)	− 1	e 13 34	?	—
Tokyo		45·3	19	7 25	+ 2	i 13 17	− 1	i 13 25	?	—
Nagano		45·7	16	e 7 26	0	13 26	+ 2	—	—	—
Sendai		48·0	19	7 44	+ 1	13 58	+ 3	—	—	—
Kodaikanal	E.	48·5	291	i 10 39	PP	i 17 39	SS	—	—	—
Mizusawa		48·9	19	e 7 44	− 6	14 11	+ 4	e 7 49	P	—
Sapporo		52·6	16	7 54	−23	i 14 36	−21	—	—	—
Kaimata		55·4	138	8 39	+ 3	15 35	+ 2	1 8 49	?	—
Auckland		55·6	130	—	—	15 40	+ 4	i 17 28	S_cS	—
Bombay		55·7	299	i 10 32	pP	i 15 41	+ 4	i 17 25	S_cS	—
Christchurch		56·6	139	—	—	i 15 51	+ 3	e 17 27	S_cS	—
New Delhi	N.	56·6	312	10 31	pP	i 15 46	− 2	17 26	S_cS	19·3
Wellington		57·1	135	8 46	− 2	15 56	+ 1	—	—	—
Tuai		58·0	132	8 53	− 1	16 5	− 1	i 17 34	S_cS	—
Stalinabad		67·7	317	i 9 56	+ 1	i 18 3	0	—	—	—
Tashkent		68·7	319	10 2	+ 1	i 18 18	+ 4	—	—	—
Sverdlovsk		81·3	331	i 11 10	0	i 20 28	0	—	—	—
Honolulu		82·5	68	e 11 18	+ 2	e 20 44	+ 4	—	—	—
Ksara		91·5	303	e 12 7	+ 8	e 21 39	−23	e 14 16	pP	—
Moscow		93·2	326	12 6	− 1	21 44	−32	—	—	—
Helwan		94·9	299	e 12 16	+ 2	i 22 34	+ 4	i 26 42	sS	—
College		95·9	25	—	—	e 22 38	− 1	e 24 11	SP	—
Bucharest		99·8	314	—	—	i 22 19	[+ 8]	—	—	34·9
Sofia		101·8	312	—	—	i 22 38	[+18]	e 26 18?	PS	—
Sitka		102·1	33	e 17 10	PP	i 22 29	[+ 8]	e 25 17	SP	—
Upsala		103·7	330	—	—	e 22 26	[− 2]	i 25 28	SP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Copenhagen		107·3	326	19 56	PPP	22 49	[+ 3]	26 6	SP		—
Triest		107·5	316	e 17 24	PKP	i 23 49	S	—	—		—
Cheb		108·5	320	—	—	e 26 54?	PS	—	—		—
Bergen		109·5	333	—	—	e 23 54?	[+60]	—	—		—
Florence	N.	110·5	314	e 20 3	PPP	—	—	—	—		—
Stuttgart	Z.	110·8	319	e 17 21	[+ 2]	e 26 39	SP	—	—		—
De Bilt		112·3	324	i 20 31k	?	i 26 55	SP	—	—		—
Scoresby Sund		112·8	348	e 20 51	?	e 27 6	SP	e 28 16	sP		e 61·1
Uccle		113·3	323	e 18 40	PP	e 27 1	SP	e 37 6	SSS		—
Berkeley		113·8	51	i 17 28	[+ 3]	—	—	18 28	?		—
Paris		115·1	321	e 20 28	?	27 19	SP	—	—		67·9
Kew		115·8	325	e 20 46	?	e 31 34	?	e 27 25	SP		e 52·9
Santa Barbara	Z.	116·4	55	i 17 33	[+ 3]	—	—	i 20 10	pPKP		—
Tinemaha		117·0	52	e 14 6	P	—	—	i 20 14	pPKP		—
Haiwee		117·5	52	i 17 35	[+ 3]	e 23 32	[+ 7]	i 20 13	pPKP		—
Pasadena		117·7	54	e 14 0	P	i 23 36	[+10]	i 20 14	pPKP		—
Mount Wilson		117·8	54	e 14 2	P	e 23 35	[+ 9]	i 20 14	pPKP		—
Riverside	Z.	118·4	54	i 14 8	P	—	—	i 20 16	pPKP		—
La Jolla	Z.	118·7	56	e 14 36	P	—	—	i 20 16	pPKP		—
Palomar	Z.	118·9	55	e 17 38	[+ 3]	—	—	—	—		—
Tortosa	E.	119·6	313	—	—	23 21	[−12]	i 24 46	?		—
Granada		123·1	310	17 44	[+ 1]	i 23 53	[+ 9]	19 39	PP		62·1
Tucson		124·1	54	e 17 32	[−13]	i 23 30	[−17]	20 6	pPKP		57·8
Florissant		136·3	38	i 18 8	[0]	—	—	i 20 43	pPKP		—
St. Louis		136·5	38	i 18 6	[− 3]	—	—	i 20 50	pPKP		—
Cape Girardeau	N.	137·8	40	e 18 3	[− 9]	—	—	—	—		—
Seven Falls		138·3	14	e 18 15	[+ 3]	—	—	e 21 6	pPKP		38·9
Ottawa		138·4	20	e 21 54?	PP	—.	—	—	—		33·9
Pittsburgh		140·9	27	i 18 13	[− 5]	(e 24 22)	[− 1]	i 21 58	PP		e 24·4
Harvard		142·4	17	i 18 19	[− 2]	—	—	i 21 4	pPKP		—
Fordham		143·1	21	i 18 19	[− 3]	—	—	—	—		—
Philadelphia		143·4	23	i 18 20	[− 2]	—	—	(e 35 48)	PPS		e 35·8
Bermuda		153·7	15	—	—	—	—	(e 36 24)	PPS		e 36·4
La Paz		154·2	155	18 43	[+ 6]	—	—	—	—		—
San Juan		165·6	37	e 18 58	[+ 7]	e 43 29	SS	e 27 17	PPP		—

Additional readings :—
Riverview isSN =14m.35s., iEZ =14m.42s.
Tokyo iE =11m.46s.
Bombay isSN =19m.7s., isSE =19m.10s., iE =21m.31s., iN =22m.37s., iE =22m.40s.
Christchurch e =19m.27s., i =20m.46s. and 23m.8s.
Tuai i =9m.19s., i =16m.36s.
Ksara e =25m.46s.
Helwan eZ =14m.14s. and 18m.11s., i =21m.54s.
College eSS =29m.36s.
Sitka e =23m.40s., i =26m.33s., iSS =30m.54s., e =31m.4s., esSS =34m.56s.
Upsala iE =22m.32s., eE =23m.16s.
Copenhagen 23m.46s., 24m.26s., 27m.18s., 28m.17s., and 32m.12s.?
Stuttgart eZ =20m.8s., e =24m.52s., eZ =28m.21s., e =36m.14s.
De Bilt eN =25m.9s., eZ =32m.1s., e =36m.59s. and 40m.54s.
Scoresby Sund eS =25m.7s., esPS =31m.13s., e =32m.57s., esSS =37m.2s.
Uccle eZ =20m.12s. ? and 28m.12s.
Kew eE =23m.27s., ePPE =24m.42s., eEN =25m.38s., eZ =28m.37s., e =29m.30s ePSEZ =32m.44s., eSSEN =37m.37s., eQZ =44·9m.
Santa Barbara iZ =18m.49s.
Tinemaha iPKP =17m.34s., iPPNZ =18m.53s., ePKKPZ =28m.5s.
Haiwee iPPEZ =18m.53s.
Pasadena iPKP =16m.36s., ePPE =18m.51s., iPPZ =18m.58s., iZ =19m.21s., eEN 24m.57s., iPKKPZ =28m.4s.
Mount Wilson iPKP =17m.36s., iPP =18m.59s., iPKKPZ =28m.3s.
Riverside iPKP =17m.36s., iPP =19m.1s., iPKKPZ =27m.58s.
La Jolla iPKP =17m.36s., iPP =19m.1s.
Granada S =25m.58s.
Tucson iPKP =17m.48s., i =19m.52s., 21m.33s., and 27m.37s.
Florissant iZ =20m.57s., iE =21m.43s.
St. Louis iZ =18m.16s. and 20m.59s., iE =21m.48s., iZ =29m.52s.
Cape Girardeau iN =21m.48s., eN =26m.58s.
Philadelphia i =18m.31s., i =18m.43s.
San Juan e =19m.28s., epPPP =29m.54s., e =33m.18s. and 47m.54s.
Huancayo records long waves.

June 30d. 20h. 13m. 1s. Epicentre 15°·1S. 73°·9W. Depth of focus 0·005.
(as on 1941 Oct. 15d.).

A = +·2679, B = −·9280, C = −·2589 ; δ = −2 ; h = +6 ;
D = −·961, E = −·277 : G = −·072, H = +·249, K = −·966.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		3·3	336	i 1 0	+ 9	i 1 28	− 1	—	—	—
La Paz	Z.	5·7	105	i 1 23a	− 1	i 2 9	−20	—	—	2·5
Bogota		19·6	359	i 4 27	+ 2	e 8 24	+26	—	—	i 10·6
Balboa Heights		24·5	347	e 5 20	+ 6	—	—	—	—	—
San Juan		34·1	13	e 6 37	− 3	i 11 51	−10	e 8 20	PPP	i 14·4
Bermuda		48·0	11	e 8 34	0	e 15 24	− 2	—	—	e 19·3
Columbia		49·3	353	e 8 36	− 8	e 15 36	− 9	—	—	e 20·1
Philadelhpia		54·8	359	i 9 21	− 5	e 16 54	− 6	e 9 59	pP	e 25·3
Pittsburgh		55·5	355	i 9 31	0	i 17 7	− 2	i 18 2	?	—
St. Louis		55·6	345	i 9 30	− 1	i 17 10	0	e 9 52	pP	—
Fordham		55·7	1	9 31	− 1	e 17 8	− 4	e 10 9	?	—
Tucson		58·9	323	i 9 56	+ 1	—	—	i 10 22	pP	—
Ottawa		60·2	358	e 10 2	− 2	e 18 7	− 4	—	—	30·0
La Jolla	Z.	63·2	320	i 10 25	+ 1	—	—	e 10 50	sP	—
Palomar	Z.	63·3	320	e 10 26	+ 2	—	—	—	—	—
Riverside		64·0	320	i 10 30	+ 1	—	—	i 10 57	sP	—
Mount Wilson	Z.	64·6	320	i 10 35k	+ 2	—	—	i 11 1	sP	—
Pasadena		64·6	320	i 10 35k	+ 2	—	—	i 11 2	sP	—
Tinemaha		66·6	322	i 10 49	+ 3	—	—	i 11 14	sP	—
San Fernando	E.	81·8	49	e 12 29	+16	e 22 53	+33	—	—	—
Granada		84·0	49	i 12 27	+ 2	i 22 48	+ 6	12 56	pP	41·3
Almeria		84·7	50	e 12 27	− 1	22 39	−10	13 4	pP	—
Toledo		84·8	46	i 12 28	− 1	22 45	− 5	—	—	—
Tortosa	E.	88·4	47	12 27	−19	22 51	[−16]	23 50	PS	—
Kew		91·8	38	e 12 59	− 3	e 24 7?	+12	25 49	PPS	e 37·0
Paris		92·5	41	i 13 5	0	—	—	—	—	51·0
De Bilt		95·2	38	i 13 17	− 1	e 24 24	0	—	—	—
Stuttgart		96·7	42	e 13 23	− 1	—	—	e 16 59	PP	—
Triest		99·0	46	e 13 29	− 6	—	—	—	—	—
Copenhagen		100·3	36	17 44	PP	24 59	− 8	—	—	—

Additional readings :—
San Juan i =11m.55s., e =12m.55s.
Philadelphia e =9m.36s., ePP =11m.24s., isS =17m.42s.
St. Louis PPZ =11m.41s., isSE =17m.52s., eSSN =21m.4s.
Fordham i =17m.56s.
Tucson i =10m.47s., ePKP,PKP =39m.36s.
Mount Wilson e =11m.15s.
Pasadena iZ =11m.19s.
Granada sS =23m.47s.
Almeria PP =16m.4s., pS =23m.8s., PS =23m.52s., sPS =24m.18s.
Kew ePPS?Z =25m.38s., eSSS?Z =33m.59s.?.
Long waves were also recorded at La Plata.

June 30d. Readings also at 0h. (Basle), 4h. (near Apia), 9h. (Focsani), 11h. (Bogota and Stuttgart), 12h. (New Delhi), 13h. (Balboa Heights and La Paz), 15h. (near Berkeley), 19h. (Sitka).

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

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

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

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