The International Seismological Summary.
1940 April, May, June.

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. for financial support, which has covered the cost and preparation of this volume.

The second quarter of 1940 contains 116 determinations of epicentre, 53 being repetitions from origins determined since the introduction of the use of geocentric co-ordinates.

Cases of abnormal focal depth are noticed as below :—

April	5d. 16h.	24·5°N.	141·0°E.	0·015
May	1d. 2h.	28·0S.	66·0W.	0·060
	19d. 15h.	51·3N.	148·9E.	0·070
	21d. 18h.	22·0S.	178·0W.	0·040
	24d. 16h.	10·4S.	77·2W.	Suggested Deep
	27d. 4h.	36·3N.	71·0E.	0·025
June	2d. 19h.	32·5S.	179°·0W.	0·050
	12d. 18h.	31·5N.	142·4E.	Suggested Deep
	13d. 16h.	35·4N.	140·7E.	0·010
	18d. 13h.	5·4N.	123·0E.	0·080
	22d. 11h.	0·1N.	122·7E.	0·020
	27d. 6h.	28·2N.	139·0E.	0·050

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

April, 1951.

KEW OBSERVATORY,
RICHMOND, SURREY.

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1940 APRIL, MAY, JUNE.

April 1d. 11h. 18m. 59s. Epicentre 3°·0S. 139°·5E.

Intensity V at Genjem (New Guinea).

Epicentre 3°·25S. 139°·0E. (Pasadena).
3°·3S. 139°·7E. (U.S.C.G.S.).
3°·6S. 138°·7E. (Batavia).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V, 2eme partie, Seismologie (1940), Strasbourg, 1948, p. 7.

$A = -·7594$, $B = +·6486$, $C = -·0520$; $\delta = +7$; $h = +7$.
$D = +·649$, $E = +·760$; $G = +·040$, $H = -·034$, $K = -·999$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Palau		11·4	335	2 51	+ 4	—	—	—	—
Manila		25·3	314	i 5 32k	+ 2	i 10 10	+16	—	—
Brisbane		27·6	154	i 5 49	− 2	i 10 19	−13	i 6 7 pP	11·3
Miyakozima		30·9	335	6 29	+ 9	11 20	− 4	—	—
Adelaide		31·8	182	8 1	PPP	12 37	+59	13 58 SS	i 17·3
Riverview		32·5	162	e 6 34	0	i 11 48	− 1	—	e 15·8
Sydney		32·6	162	e 6 19	−16	e 11 37	−14	—	—
Taihoku		32·9	329	6 37	− 1	11 50	− 6	—	—
Hong Kong		35·3	317	6 57	− 2	12 26	− 7	8 3 PP	17·0
Miyazaki		35·6	349	7 2	+ 1	12 32	− 6	—	—
Perth		36·4	215	7 1	− 7	12 53	+ 3	i 8 29 PP	17·9
Koti		36·8	351	7 12	+ 1	12 53	− 3	—	—
Hukuoka		37·4	348	e 7 18	+ 2	13 2	− 3	—	—
Osaka		37·6	354	7 18	0	12 58	−10	—	—
Nagoya		38·0	358	7 24	+ 3	13 10	− 4	—	—
Zi-ka-wei	z.	38·1	335	e 7 19	− 3	13 11	− 5	—	18·5
Yokohama		38·2	0	e 7 25	+ 2	—	—	—	—
Hamada		38·3	350	7 26	+ 2	13 20	+ 1	—	—
Tokyo Cen. Met. Ob.		38·5	0	e 7 31	+ 5	13 23	+ 1	—	—
Nagano		39·5	358	7 31	− 3	13 28	− 9	—	—
Phu-Lien		40·0	307	i 7 38	0	i 14 6	+22	—	—
Sendai		41·1	2	7 46	− 1	13 52	− 9	—	—
Mizusawa		42·0	2	e 7 53	− 1	14 11	− 3	—	—
Zinsen		42·0	344	7 56	+ 2	14 35	+21	—	—
Mori		44·9	1	8 23	+ 5	—	—	i 10 31 PPP	—
Sapporo		45·9	2	e 7 42	−44	14 6	−65	—	—
Vladivostok		46·4	352	e 8 31	+ 1	i 19 7	SS	—	23·0
Arapuni		48·1	142	8 43	0	15 55	+13	—	24·0
Apia		49·3	106	i 8 54	+ 1	i 16 25	+26	e 20 15? SS	e 23·0
Wellington		49·6	145	8 53a	− 2	15 56	− 7	10 8 PcP	24·0
Christchurch		49·9	149	8 57a	0	16 7	0	i 12 24 PPP	24·5
Calcutta	N.	56·0	300	i 9 49a	+ 6	i 17 34	+ 4	i 19 40 ScS	e 27·1
Colombo	E.	60·3	279	10 11	− 2	18 22	− 4	—	31·5
Irkutsk		62·6	336	i 10 29	+ 1	i 18 56	0	—	29·0
Kodaikanal	E.	63·1	283	i 10 56	+24	—	—	—	—
Hyderabad		63·5	291	10 35	+ 1	19 1	− 6	13 2 PP	29·4
Honolulu		65·9	65	10 49	− 1	e 19 29	− 8	i 11 19 PcP	e 30·0
Agra	E.	66·3	301	i 10 49k	− 3	i 19 32	−10	11 7 pP	31·7
Dehra Dun	N.	67·3	304	e 11 17	+18	e 19 59	+ 5	—	—
Bombay		69·1	291	i 11 8	− 2	i 20 9	− 6	i 11 28 PcP	33·3
Almata		72·5	318	e 11 31	+ 1	i 20 52	− 2	—	—
Semipalatinsk		73·3	325	e 11 39	+ 4	e 20 59	− 5	—	—
Frunse		74·0	316	e 11 38	− 1	e 21 6	− 5	—	—
Andijan		74·9	313	e 11 52	+ 8	i 21 22	0	—	—
Tashkent		77·3	313	i 11 58	0	i 21 39	− 9	—	e 32·6
College		85·4	24	e 12 40	0	e 22 59	[− 4]	e 16 · 6 PP	e 35·3
Sverdlovsk		86·4	327	i 12 41	− 4	i 23 12	[+ 2]	—	39·0
Sitka		89·8	33	e 13 13	+11	23 31	[− 1]	e 16 40 PP	e 36·4
Tananarive		90·9	250	e 13 11	+ 4	e 23 33	[− 5]	25 13 PS	43·7
Baku		91·6	310	—	—	i 24 14	+ 5	—	44·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Victoria		96·9	42	17 27	PP	24 9	[− 2]	26 19	PPS		44·0
Ukiah		97·5	51	e 17 34	PP	e 24 13	[− 1]	e 26 26	PS		37·8
Seattle		97·7	43	—	—	e 23 54	[−21]	26 14	PS		e 40·8
Santa Clara	z.	98·6	53	e 13 53	+11	e 25 40	PS	e 26 44	PS		e 47·3
Moscow		99·2	325	e 13 43	− 2	25 5	− 9	e 17 44	PP		51·5
Tinemaha	z.	101·6	54	e 14 1	+ 5	—	—	e 18 7	PP		—
Haiwee		101·9	54	i 14 3	+ 6	—	—	e 18 9	PP		—
Pasadena		101·9	56	i 13 56	− 1	i 24 32	[− 4]	i 18 6	PP		e 45·9
Mount Wilson		102·0	56	e 13 58	+ 1	—	—	i 18 8	PP		—
Pulkovo		102·2	330	e 18 27	PP	e 25 34	− 5	e 27 11	PS		46·5
Riverside		102·6	56	e 13 59	− 1	—	—	e 18 6	PP		—
La Jolla	z.	102·8	58	e 18 3	PP	—	—	—	—		—
Ksara		103·0	303	e 14 38	+36	27 22	PS	e 18 52	PP		53·0
Butte		104·6	43	e 14 6	− 3	e 24 33	[−16]	e 20 50	PPP		e 43·7
Bozeman		105·7	44	e 18 34	PP	24 54	[0]	e 20 48	PPP		e 40·8
Logan		105·9	48	i 18 39	PP	—	—	—	—		49·0
Salt Lake City		106·1	49	e 14 12	P	e 24 50	[− 5]	e 18 37	PP		e 43·4
Saskatoon		106·9	36	e 18 41	PP	e 28 1	PS	—	—		50·0
Helwan		107·8	300	e 14 21	P	e 24 56	[− 7]	14 49	pP		—
Upsala		108·1	333	—	—	e 28 15	PS	e 33 37	SS		e 53·0
Tucson		108·2	57	e 14 20	P	e 24 51	[−13]	i 18 56	PP		e 42·1
Warsaw		109·5	324	—	—	e 31 1?	?	—	—		e 57·0
Scoresby Sund		112·2	354	e 18 41	[+ 4]	e 25 10	[−11]	e 19 49	PP		56·1
Cape Town		113·0	231	22 11	PPP	25 31	[+ 7]	28 59	PS		55·2
Potsdam		113·9	328	i 21 29	?	i 24 31	[−57]	e 29 20	PS		e 51·2
Prague		114·2	325	—	—	e 28 21	?	e 35 27	SS		e 54·0
Hamburg		114·9	330	e 19 1?	[+18]	—	—	—	—		e 53·0
Triest		116·5	321	e 15 45	P	e 26 7	[+30]	i 20 53	?		e 59·3
Lincoln		117·1	44	e 14 59	P	e 25 40	[0]	e 20 5	PP		e 44·3
Stuttgart		117·8	325	e 20 22	PP	e 36 11	SS	—	—		e 56·0
De Bilt		118·1	330	i 20 8	PP	e 29 52	PS	e 36 21	SS		e 55·3
Rome		118·9	317	e 19 17	[+27]	e 27 3	{− 3}	i 20 13	PP		60·5
Uccle		119·3	329	e 20 20	PP	e 29 57	PS	i 36 44	SS		e 55·0
Paris		121·5	328	e 20 34	PP	e 30 19	PS	—	—		e 57·0
Ivigtut		121·7	4	e 19 8	[+12]	e 27 10	{−15}	e 20 26	PP		e 50·7
Kew		121·8	331	e 20 29	PP	e 28 16	{+51}	e 23 19	PPP		e 52·5
Florissant		122·4	45	e 20 28	PP	e 25 53	[− 5]	e 22 6	SKP		50·1
St. Louis		122·5	45	e 20 29	PP	e 25 53	[− 5]	i 30 24	PS		e 58·1
Chicago		122·9	41	e 20 31	PP	e 27 32	{− 1}	e 30 51	PS		e 49·0
Clermont-Ferrand		122·9	324	e 19 29	[+31]	—	—	—	—		e 66·0
Toronto		126·9	34	21 1?	PP	28 1?	{+ 2}	38 1?	SS		57·0
Ottawa		127·7	31	19 24	[+16]	28 1	{− 4}	21 5	PP		55·0
Seven Falls		128·8	26	21 13	PP	28 7	{− 4}	33 13	PPS		53·0
Toledo		130·7	323	e 19 46	[+33]	—	—	e 21 33	PP		51·0
Columbia		131·1	45	e 21 37	PP	e 26 33	[+11]	e 22 47	PKS		e 52·3
Almeria		131·5	319	e 19 17	[+ 2]	—	—	e 21 56	PP		—
Philadelphia		131·7	35	e 21 34	PP	e 28 6	{−24}	i 22 43	PKS		e 53·6
Fordham		131·8	33	i 21 34	PP	e 31 32	PS	i 22 40	PKS		—
Harvard		131·9	30	e 22 35	PKS	e 31 49	PS	—	—		e 63·0
Granada		132·0	320	i 19 30k	[+14]	31 50	PS	i 39 36	SS		67·5
East Machias		132·1	26	e 19 19	[+ 3]	e 26 15	[−10]	e 21 51	PP		e 53·6
San Fernando		134·1	321	e 21 25	PP	—	—	—	—		71·0
La Plata		138·9	158	22 31	PP	40 31	SS	23 19	PKS		68·0
Huancayo		142·3	114	e 19 24	[−10]	e 40 46	SS	e 22 31	PP		e 56·3
Bermuda		143·0	35	e 19 28	[− 8]	e 26 45	[+ 1]	e 23 48	PKS		e 59·9
La Paz		146·5	127	i 19 44a	[+ 2]	29 23	{−36}	20 8	pPKP		71·0
San Juan		150·6	56	e 19 52	[+ 4]	i 30 16	{− 5}	e 23 44	PP		e 60·2
Rio de Janeiro		154·1	174	e 20 1	[+ 8]	—	—	—	—		—

Additional readings :—
Brisbane iPPE = +6m.37s., iPPN = +6m.49s., iSN = +10m.25s.
Adelaide +8m.46s., P_cP = +11m.1s.
Riverview iPN = +6m.37s., iE = +6m.54s., eN = +12m.31s.
Hong Kong P_cP = +9m.46s.
Perth PP = +8m.11s., i = +8m.43s., +9m.6s., and +9m.13s., PS = +13m.6s., i = +14m.26s., SS = +15m.31s., SSS = +16m.21s., i = +17m.23s.
Zi-ka-wei iZ = +7m.41s. and +10m.11s., iN = +13m.33s.

Continued on next page.

Wellington iZ = +9m.15s. and +9m.39s., PP = +11m.1s., PPP = +11m.51s., P_cS = +14m.17s., i = +16m.16s. and +17m.6s., SS = +19m.26s., L_q = +21m.31s.
Christchurch isS?N = +16m.58s., iZ = +17m.10s. and +20m.48s., L_qEN = +21m.11s.
Calcutta eSSN = +21m.11s.
Hyderabad PSE = +19m.20s., S_cS = +20m.26s., SS = +23m.19s.
Honolulu P = +11m.6s., ePP = +13m.8s., ePPP = +14m.35s., eS = +19m.33s., iS = +19m.39s., eS_cS = +20m.39s., eSS = +23m.43s., eSSS = +26m.7s.
Agra PP = +13m.11s., sS = +20m.11s., S_cS = +20m.35s., SS? = +23m.25s., sSS = +24m.9s.
Bombay i = +11m.58s., iPPE = +13m.35s., i = +19m.55s. and +20m.33s., iS_cSE = +21m.6s., iN = +24m.40s., L_q = +27m.57s.
College P = +13m.6s., S = +23m.6s., eSS = +27m.58s., eSSS = +31m.57s.
Sitka S = +23m.51s., S_cS = +24m.23s.
Tananarive SKKSEN = +24m.4s., SE = +24m.10s., SSE = +30m.16s.
Victoria SSN = +31m.37s., SSE = +34m.48s.
Ukiah eS = +25m.3s.
Seattle eS = +25m.30s., eSS = +31m.23s.
Moscow ePPP = +20m.0s., PS = +26m.36s., PPS = +27m.20s.
Pasadena ePSEZ = +27m.10s.
Pulkovo eSKS = +25m.5s., ePPS = +28m.19s., eSSS = +36m.31s.
Ksara e = +17m.19s., ePS = +28m.12s.
Butte eS = +25m.45s., ePS = +27m.14s., eSS = +33m.6s., eSSS = +37m.16s.
Bozeman e = +24m.39s., eS = +26m.5s., ePS = +27m.46s., eSS = +33m.36s., eSSS = +37m.57s.
Salt Lake City eS = +26m.4s., ePS = +27m.52s., eSS = +33m.44s., eSSS = +37m.31s.
Helwan iZ = +14m.58s. and +17m.56s., PPZ = +18m.51s., pPPZ = +19m.21s., sPPZ = +19m.40s., SKKSE = +25m.21s., SE = +26m.11s., eSE = +27m.8s., ePSE = +28m.1s., SSE = +33m.41s.
Tucson e = +18m.40s., ePPP = +21m.17s., eS = +26m.21s., ePS = +27m.51s., ePPS = +29m.19s., eSS = +33m.43s., eSSS = +37m.32s.
Scoresby Sund ePPP = +21m.48s., eS = +27m.1s., ePS = +28m.52s., PS = +29m.5s., PKKP = +29m.33s., ePPS = +30m.0s., eSS = +34m.36s., iSS = +34m.59s., eSSS = +38m.41s.
Cape Town SKKSE = +26m.33s., SN = +27m.23s., SE = +27m.29s., PPSN = +30m.11s., PPSE = +30m.31s., SSN = +35m.30s., SSE = +35m.45s., SSSN = +39m.25s., SSSE = +39m.45s.
Potsdam iZ = +21m.54s.
Triest ePKP = +19m.1s., ePPP = +23m.36s., eSKKS = +27m.51s., eS = +28m.51s., eS_cSP = +30m.21s., iSKPS = +30m.33s., ePS = +30m.58s., iPPS = +32m.21s., iSS = +37m.45s., iSSS = +42m.30s.
Lincoln eP = +15m.25s., ePKP = +18m.43s., ePPP = +22m.33s., eSKKS = +26m.59s., eS = +27m.40s., ePS = +29m.46s., eSS = +36m.11s., eSSS = +40m.43s.
Rome iZ = +20m.36s., eZ = +21m.47s., e = +22m.24s., PPP = +22m.46s., eZ = +23m.37s., ePS = +29m.38s.
Ivigtut eS = +28m.17s., ePS = +30m.14s., PPS = +31m.34s., eSS = +36m.43s., iSS = +37m.8s.
Kew eEZ = +30m.31s., Z = +33m.25s. and +36m.57s.
Florissant iPPE = +20m.32s., iZ = +21m.12s. and +22m.29s., eZ = +23m.9s., iPPPZ = +23m.24s., eEN = +30m.25s., ePSEN = +30m.31s., ePPSN = +31m.40s., eE = +36m.10s., eN = +36m.36s., iSSN = +37m.5s.
St. Louis iPPEN = +20m.32s., eN = +27m.28s., +28m.34s., and +31m.45s.
Chicago ePPS = +31m.38s., eSS = +37m.12s., SS = +37m.17s., eSSS = +41m.46s.
Toronto PS = +31m.1s.?
Ottawa PS = +31m.22s., SS = +38m.17s.
Seven Falls SS = +38m.31s., SSS = +43m.31s.
Columbia eSKSP = +31m.52s., ePS = +32m.12s., eSS = +38m.57s., eSSS = +43m.28s.
Almeria PPP = +24m.16s.
Philadelphia eSKSP = +31m.33s., ePPS = +33m.25s., eSS = +39m.3s., eSSS = +45m.20s.
Fordham iE = +23m.35s., iPSEN = +31m.44s., iSSEN = +39m.10s.
Granada PKP = +22m.38s., PP = +24m.39s., SZ = +33m.1s., SS = +41m.31s., SSS = +45m.2s.
East Machias ePKS = +22m.44s., ePPP = +24m.48s., eSKSP = +31m.51s., ePS = +32m.53s., eSS = +38m.55s., eSSS = +44m.0s.
La Plata PPN = +22m.37s., PPPN = +26m.31s., PS = +34m.7s., PPSN = +35m.7s., SSSE = +45m.55s.
Huancayo ePKS = +24m.7s., PKS = +24m.20s., ePPP = +25m.32s., eSKSP = +33m.4s., PPS = +35m.33s., ePSPS = +42m.16s., eSSS = +46m.39s.
Bermuda ePP = +22m.55s., PP = +23m.38s., ePPP = +26m.10s., eSKSP = +33m.35s., eSS = +41m.13s., SS = +41m.18s., eSSS = +46m.43s.
La Paz sPKPZ = +20m.28s., iPPZ = +23m.40s., ipPPZ = +24m.5s., PSKS = +33m.28s., SSN = +43m.22s.
San Juan PKP = +20m.6s., PP = +24m.20s., ePPP = +26m.40s., eSKSP = +33m.30s.. eSS = +42m.12s., eSSS = +49m.9s.
Long waves were also recorded at Bergen, Jena, Budapest, Stonyhurst, Jersey, and Strasbourg.

April 1d. Readings also at 8h. (La Paz), 16h. (Manila), 17h. (Bombay, Dehra Dun, Agra, Calcutta, and near La Paz), 19h. (Tucson and Salt Lake City), 20h. (Tucson and Ksara), 21h. (La Paz and Salt Lake City), 22h. (Tucson), 23h. (near Sotchi, Piatigorsk, Erevan, and Ksara).

April 2d. 9h. Local Japanese shock. Tokyo Imperial University gives Epicentre 36°·23N. 140°·32E.

Tokyo Imp. Univ. P = 53m.58s., S = 54m.8s.
Komaba P = 53m.59s., S = 54m.10s.
Kamakura P = 54m.2s., S = 54m.15s.?
Kiyosumi P = 54m.2s., S = 54m.17s.
Koyama P = 54m.2s., S = 54m.17s.
Mitaka P = 54m.2s., S = 54m.13s.
Togane P = 54m.2s., S = 54m.11s.
Susaki P = 54m.13s., S = 54m.30s.
Mizusawa P = 54m.35s., S = 55m.13s.

April 2d. Readings also at 2h. (near Grozny, Sotchi, Piatigorsk, Erevan, Adelaide, and Ksara), 7h. (Chicago), 10h. (Ksara), 11h. (Adelaide and La Paz), 12h. (near Wellington, New Plymouth, and Tuai), 14h. (near Tananarive), 18h. (Tinemaha, Christchurch, Tucson, Palomar, Pasadena, Monowai, Mount Wilson, and Riverside), 19h. (Ksara and Mizusawa), 20h. (Ksara), 21h. (Calcutta and Phu-Lien).

April 3d. Readings at 2h. (Tuai), 3h. (Colombo), 5h. (near Triest, Ravensburg, Strasbourg, Stuttgart, Basle, and Zurich), 6h. (Adelaide and Tananarive), 7h. (Samarkand, Tchimkent, Frunse, Wellington, Riverview, Christchurch, Brisbane, Vladivostok, Sverdlovsk, Ksara, Tashkent, and Andijan), 9h. (Chicago, near Stuttgart, Basle, Neuchatel, Chur, and Zurich), 10h. (Sofia), 11h. (Tucson), 13h. (Tucson, Pasadena, Mount Wilson, Baku, Tashkent, Sverdlovsk, Ksara, and Vladivostok), 14h. (Paris and La Paz), 16h. (Almata and Andijan), 17h. (Huancayo and near La Paz), 20h. (near Mizusawa), 21h. (Tucson (2) and Ksara), 22h. (Tucson), 23h. (Lincoln and near La Paz).

April 4d. Readings at 0h. (San Juan), 2h. (Adelaide and near Perth), 4h. (La Paz), 6h. (San Juan), 7h. (Manila), 8h. and 9h. (Tucson), 16h. (near Triest and Tucson), 19h. (near Algiers), 21h. (Tucson), 22h. (Tucson and near Balboa Heights (2)), 23h. (near Berkeley, Tucson, and La Paz).

April 5d. 16h. 35m. 16s. Epicentre 24°·5N. 141°·0E.

$A = -\cdot7080$, $B = +\cdot5733$, $C = +\cdot4124$; $\delta = +1$; $h = +3$;
$D = +\cdot629$, $E = +\cdot777$; $G = -\cdot320$, $H = +\cdot260$, $K = -\cdot911$.

Tables for depth of focus 0·015 have been used.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Hukuoka		12·9	317	e 3 17	PP	5 43	SS	—	—	—
Mizusawa		14·6	2	e 3 21	0	5 51	− 9	—	—	—
Vladivostok		20·0	341	e 4 24	0	i 7 57	0	—	—	10·1
Manila		21·3	247	i 4 45a	+ 7	8 33	+12	—	—	—
Irkutsk		39·3	325	8 8	+50	e 14 26	+77	—	—	e 16·7
Frunse		56·8	307	e 9 35	+ 2	e 17 9	− 5	—	—	—
Andijan		58·6	304	e 9 42	− 4	i 17 32	− 6	—	—	—
Tashkent		60·9	306	10 0	− 1	i 18 0	− 7	—	—	e 24·7
Samarkand		62·9	304	e 10 10	− 5	18 24	− 9	—	—	—
Baku		75·4	309	—	—	20 53	− 6	—	—	e 39·7
Piatigorsk		78·8	314	e 12 40	PcP	21 21	−15	—	—	—
Sotchi		81·2	315	e 12 5	+ 2	—	—	—	—	—
Tinemaha		83·6	53	i 12 15	0	—	—	—	—	—
Haiwee		84·2	54	i 12 18	0	—	—	—	—	—
Pasadena		84·9	56	i 12 20	− 2	—	—	—	—	—
Mount Wilson	z.	85·0	56	i 12 21	− 1	—	—	—	—	—
Riverside	z.	85·6	56	i 12 23	− 2	—	—	—	—	—
La Jolla	z.	86·2	57	e 12 28	0	—	—	—	—	—
Ksara		88·2	306	—	—	e 22 45	[− 7]	e 24 35	PS	—
Tucson		91·2	54	e 12 51	− 1	—	—	—	—	—
Rome		98·6	324	e 11 48	?	—	—	—	—	—
La Paz	z.	151·6	79	19 47	[+15]	—	—	—	—	—

Additional readings :—
Tinemaha iZ = +13m.9s.
Pasadena iZ = +13m.14s.
Mount Wilson eZ = +13m.14s., iZ = +13m.18s.
Riverside eZ = +13m.16s., iZ = +13m.22s.

April 5d. Readings also at 0h. (Rome), 1h. (Tucson), 5h. (near Algiers), 9h. (near Mizusawa and near Manila), 11h. (near Balboa Heights (2)), 14h. (Butte), 17h. (Bucharest, Ksara (2), and Sofia), 18h. (Warsaw), 19h. (Sofia), 21h. and 22h. (Tucson).

April 6d. 13h. 42m. 58s. Epicentre 23°·8N. 102°·6E.

$A = -\cdot1972$, $B = +\cdot8945$, $C = +\cdot4013$; $\delta = +6$; $h = +4$;
$D = +\cdot976$, $E = +\cdot218$; $G = -\cdot088$, $H = +\cdot391$, $K = -\cdot916$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Phu-Lien		4·9	128	i 1 15	− 2	2 14	− 1	—	—	—
Hong Kong		10·9	100	2 32	− 8	5 1	+17	—	—	5·7
Calcutta	N.	13·0	268	e 3 3	− 6	i 5 54	SS	—	—	e 6·5
Taito		17·2	88	4 9	+ 6	7 32	SS	—	—	—
Zi-ka-wei		18·4	62	e 4 20	+ 2	7 50	+ 9	i 7 58	SS	i 10·0
Manila		19·8	115	e 4 34a	− 1	i 8 36	SS	i 9 5	SSS	10·9
Agra	E.	22·3	284	i 5 2a	+ 1	i 9 3	+ 1	—	—	—
Dehra Dun	N.	22·6	293	e 5 22?	PP	e 9 17	+10	—	—	e 12·3
Hyderabad	E.	23·3	259	5 15	+ 5	9 22	+ 2	9 4	P_cP	12·9
Zinsen		24·8	51	5 32	+ 7	9 56	+10	—	—	—
Miyazaki		26·8	67	10 48	S	(10 48)	+29	—	—	14·2
Kodaikanal	E.	27·3	246	i 5 53k	+ 5	i 10 48	+21	6 30	PP	13·4
Colombo	E.	27·4	236	5 52	+ 3	10 37	+ 9	—	—	16·9
Bombay		28·0	266	i 5 57	+ 2	i 10 34	− 4	—	—	—
Matuyama		28·3	62	9 1	?	13 21	?	—	—	—
Irkutsk		28·5	3	e 5 59	0	e 10 45	− 1	—	—	15·0
Almata		28·6	320	e 6 2	+ 2	e 10 47	− 1	—	—	16·0
Frunse		29·8	316	e 6 16	+ 5	e 11 17	+10	—	—	18·0
Andijan		30·3	311	e 6 14	− 1	11 16	+ 1	—	—	e 17·3
Osaka		30·7	62	8 18	PPP	13 29	SS	—	—	—
Vladivostok		31·0	45	e 6 20	− 1	i 11 24	− 2	—	—	14·9
Semipalatinsk		31·7	333	e 6 15	−12	11 24	−13	—	—	16·0
Tashkent		32·7	311	i 6 35	− 1	e 11 50	− 2	—	—	i 17·8
Tchimkent		32·9	313	e 6 35	− 3	—	—	—	—	e 19·0
Samarkand		33·8	306	e 6 42	− 4	e 12 3	− 7	—	—	—
Sverdlovsk		44·7	329	i 8 17	+ 1	15 50	+56	23 14	L_q	28·6
Sotchi		54·5	308	9 22	−10	—	—	—	—	e 29·0
Moscow		56·6	322	e 9 46	− 1	e 17 30	− 8	—	—	—
Ksara		56·9	295	i 9 58a	+ 9	18 20	+38	e 19 46	S_cS	—
Perth		56·9	167	—	—	i 18 57	?	—	—	i 28·5
Pulkovo		60·8	327	e 10 16	0	e 18 26	− 7	—	—	e 26·5
Helwan		62·8	292	10 29	− 1	e 19 2	+ 4	13 18	PP	—
Adelaide		67·7	149	—	—	e 19 27	−31	—	—	—
Potsdam		71·1	320	—	—	e 29 1	SSS	—	—	e 36·9
Triest		72·5	313	e 11 29a	− 1	e 20 51	− 3	i 15 42	PPP	e 34·5

Additional readings :—
Calcutta eN = +5m.8s.
Kodaikanal iE = +10m.33s.
Bombay i = +10m.45s., iSE = +11m.1s., i = +11m.23s.
Ksara ePS = +18m.53s., SS = +22m.29s.
Perth i = +24m.5s. and +25m.52s.
Helwan PSE = +20m.17s.
Potsdam eE = +29m.37s. and +35m.14s.
Triest eSS = +25m.34s.
Long waves were also recorded at Erevan, Piatigorsk, Hukuoka, Scoresby Sund, and American aud European stations.

April 6d. Readings also at 0h. (La Paz and Bozeman), 3h. (Mount Wilson, Tucson, and Tinemaha), 4h. (Tucson, near Mizusawa, and Rome), 5h. (Manila, near Mizusawa, and near Rome), 6h. (Calcutta, Phu-Lien, and Ksara), 7h. (Tucson, Tinemaha, and San Juan), 11h. (Kodaikanal, Tucson, and Colombo), 14h. (Phu-Lien), 16h. (Bozeman, near Frunse, Andijan, Tchimkent, and Samarkand), 17h. (Tucson), 18h. (Bombay, Hong Kong, Agra, Phu-Lien, Calcutta, Rome, and Manila), 19h. (Zi-ka-wei, Potsdam, De Bilt, Uccle, Ksara, and Colombo), 21h. (Tucson).

April 7d. 8h. 41m. 55s. Epicentre 37°·0N. 115°·0W. (as on 1940 March 10d.).

$A = -·3383$, $B = -·7256$, $C = +·5992$; $\delta = -2$; $h = -1$;
$D = -·906$, $E = +·423$; $G = -·253$, $H = -·543$, $K = -·801$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Haiwee		2·5	241	i 0 41	− 2	i 1 22	S_g	—	—
Tinemaha		2·6	272	e 0 41	− 3	i 1 21	S*	i 0 50	P_g
Riverside		3·4	213	i 0 59	+ 4	e 2 4	S_g	i 1 10	P_g
Mount Wilson		3·7	220	i 1 0	0	i 2 5	S_g	i 1 10	P*
Pasadena		3·8	220	i 1 2	+ 1	—	—	i 1 13	P_g
Fresno	N.	3·8	269	e 1 24	P_g	e 2 9	S_g	—	—
Palomar	Z.	4·0	204	i 1 5	+ 1	—	—	—	—
Salt Lake City		4·5	31	e 1 16	+ 5	—	—	—	—
Lick		5·4	287	e 1 39	P*	i 2 46	S*	—	—
Branner		5·7	277	e 2 0	P_g	e 2 58	S*	e 3 5	S_g
Berkeley	N.	5·8	279	e 1 57	P_g	e 2 48	+10	e 3 0	S*
Tucson		5·8	143	e 1 31	+ 2	e 2 56	S*	e 1 41	P*

Tucson also gives P = +1m.52s., P_g = +1m.59s., eS_g = +3m.24s.

April 7d. 14h. 28m. 38s. Epicentre 31°·5N. 77°·0E.

$A = +·1922$, $B = +·8323$, $C = +·5199$; $\delta = -4$; $h = +1$;
$D = +·974$, $E = -·225$; $G = +·117$, $H = +·507$, $K = -·854$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Dehra Dun	N.	1·5	143	e 0 23	− 5	i 0 53	+ 4	—	—
Agra	E.	4·4	168	e 1 11	+ 1	1 51	−11	2 11	S*
Andijan		9·9	339	e 2 29	+ 4	4 17	− 3	—	—
Frunse		11·5	351	—	—	5 30	SSS	—	—
Samarkand		11·5	318	e 2 48	0	4 45	−14	—	—
Tchimkent		12·3	333	—	—	e 4 32	−46	—	—

Long waves were also recorded at Calcutta and Bombay.

April 7d. Readings also at 1h. (Rome), 2h. (Zi-ka-wei), 3h. (near Rome), 5h. (near Apia), 9h. (Tinemaha, Ottawa, San Juan, East Machias, Tucson, Huancayo, Balboa Heights, Columbia, Chicago, and St. Louis), 10h. (Bermuda, Bozeman, Philadelphia, La Paz, Fordham, and Rome), 14h. (Tucson), 15h. (Tucson and Huancayo), 19h. (near Fresno, Lick, Branner, and Berkeley), 20h. (Tucson and Rome), 21h. (near Rome, Triest, Sofia, Ksara, and Bucharest), 23h. (Balboa Heights).

April 8d. 2h. 49m. 25s. Epicentre 14°·0N. 125°·0E. (as on 1937 Dec. 16d.).

$A = -·5568$, $B = +·7952$, $C = +·2404$; $\delta = +16$; $h = +6$;
$D = +·819$, $E = +·574$; $G = -·138$, $H = +·197$, $K = -·971$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		4·0	279	i 1 4k	0	i 2 11	S_g	—	—	—
Karenko		10·4	343	2 19	−15	—	—	—	—	—
Miyakozima		10·7	1	2 51	PP	6 3	S_g	—	—	—
Palau		11·4	125	4 5	?	—	—	—	—	—
Hong Kong		13·2	310	3 18	+ 7	5 44	+ 4	—	—	6·9
Phu-Lien		18·8	293	e 4 27	+ 4	—	—	—	—	—
Koti		21·0	21	4 47	0	8 48	+11	—	—	—
Sumoto		22·1	23	5 0	+ 1	9 13	+15	—	—	—
Gihu		23·8	25	5 13	− 2	9 34	+ 6	—	—	—
Vladivostok		29·6	10	e 5 14	−55	i 9 12	?	—	—	13·4
Irkutsk		41·6	341	8 9	+18	14 13	+ 5	—	—	e 22·6
Agra	E.	45·6	294	e 8 32	+ 8	14 59	− 7	18 42	SS	—
Sverdlovsk		64·4	327	10 34	− 6	19 9	− 9	—	—	31·6
Ksara		81·6	303	e 12 26	+ 5	e 22 53	+20	—	—	—
Helwan		86·3	299	e 12 56	+11	1 23 14	[+ 4]	—	—	—
De Bilt		96·2	327	e 13 13	−18	e 16 45	PP	—	—	e 54·1
Uccle		97·5	327	e 10 39	?	—	—	—	—	—

Helwan also gives iE = +23m.35s.
Long waves were also recorded at Tashkent and Baku.

April 8d. 8h. 49m. 22s. Epicentre 32°·7S. 72°·0W.

A = +·2605, B = −·8018, C = −·5377 ; δ = −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.
La Plata		11·9	105	2 51	− 3	5 14	+ 5	3 26	PPP	5·7
La Paz		16·5	14	i 3 53	− 1	i 7 5	+ 7	—	—	i 9·0
Huancayo		20·8	351	e 4 44	− 1	8 24	− 9	i 5 6	PP	i 10·9
Rio de Janeiro		27·2	76	e 5 54	+ 7	e 10 43	+18	—	—	e 14·6
San Juan		51·1	7	e 9 2	− 4	e 16 12	−12	e 10 15	P_cP	—
St. Louis		73·0	345	i 11 33	0	i 20 54	− 6	—	—	—
Florissant		73·2	345	e 11 32	− 3	e 20 50	−12	—	—	—
Fordham		73·2	358	e 11 34	− 1	e 20 59	− 3	—	—	e 36·6
Tucson		74·3	326	11 40	− 1	e 21 9	− 6	e 14 27	PP	e 36·7
Harvard	z.	74·8	0	i 11 42	− 2	—	—	—	—	e 46·6
Chicago		75·6	348	—	—	e 21 18	−11	e 22 15	PPS	e 31·0
Ottawa		77·8	357	e 12 1	0	e 21 38?	−15	—	—	30·6
Riverside		78·9	323	e 12 9	+ 2	—	—	—	—	—
Mount Wilson		79·4	323	e 12 10	+ 1	—	—	—	—	—
Pasadena		79·4	323	i 12 11	+ 2	—	—	—	—	e 39·4
Seven Falls		79·5	1	—	—	e 22 14	+ 3	—	—	45·6
Haiwee		80·9	324	e 12 19	+ 2	—	—	—	—	—
Tinemaha		81·7	324	e 12 23	+ 1	—	—	—	—	—
Salt Lake City		81·8	330	—	—	e 22 30	− 5	32 5	SSS	e 37·9
Bozeman		85·7	334	—	—	e 23 11	[+ 5]	e 24 26	PPS	e 39·2
Victoria		93·0	328	—	—	e 23 38?	[−12]	—	—	48·6
Granada		94·4	49	—	—	e 25 22	PS	i 27 59	PPS	48·7
Helwan		115·8	70	e 21 8	?	e 29 38	PS	e 30 50	PPS	—
Ksara		120·9	68	e 19 52	PP	e 29 30	PS	—	—	58·6
Agra	E.	153·5	94	e 23 31	PP	e 44 5	SSP	—	—	—

Additional readings :—
La Plata N = +4m.38s., SZ = +5m.2s., SE = +5m.20s.
La Paz iSZ = +7m.21s.
Huancayo iP = +4m.48s., iPPP = +5m.24s., iS = +8m.33s. and +8m.48s.
San Juan eP = +9m.19s., ePPP = +12m.11s., eSS = +19m.43s.
Florissant iSEN = +20m.56s.
Tucson iP = +12m.3s. and +12m.26s., eS = +21m.48s.
Salt Lake City eS = +22m.38s.
Long waves were also recorded at Triest, College, Wellington, Kew, San Fernando, Paris, Bombay, Kodaikanal, Potsdam, Uccle, and De Bilt.

April 8d. Readings also at 0h. (near Branner (2) and Lick (3)), 1h. (Balboa Heights), 2h. (Balboa Heights), 4h. (Tucson (2)), 5h. (La Paz), 6h. (Huancayo and La Paz), 8h. (Ksara), 9h. (La Paz, Helwan, and Tucson), 10h. (Bozeman and Triest), 11h. (Manila), 12h. (Bozeman), 13h. (near Branner, Fresno (2), Berkeley, and Tucson), 16h. (near Branner), 17h. (Phu-Lien, Manila, Tucson, Riverside, Mount Wilson, Pasadena, and Tinemaha), 18h. (near Ferndale, San Francisco, Haiwee, Branner, Tinemaha, Tucson, Bozeman, Berkeley (2), and Lick), 19h. (Bozeman), 20h. (Fordham, Tinemaha, Pasadena, Mount Wilson, and Riverside), 22h. (Bozeman and Tucson (2)), 23h. (near Triest).

April 9d. Readings at 1h. (Ksara), 5h. (near Mizusawa (2)), 7h. (Tucson), 8h. (Bozeman), 10h. (near Triest), 13h. (Tucson (2), Colombo, Kodaikanal, and Ksara), 16h. (Tucson), 17h. (near Triest), 18h. and 20h. (Tucson), 21h. (La Plata and Huancayo)..

April 10d. 8h. 17m. 39s. Epicentre 30°·0N. 81°·5E. (as on 1937 April 30d.).

$A = +·1282$, $B = +·8580$, $C = +·4975$; $\delta = +11$; $h = +2$;
$D = +·989$, $E = -·148$; $G = +·074$, $H = +·492$, $K = -·868$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Dehra Dun	N.	3·0	276	e 1 0	P_g	i 2 14	+47	—	—	—
Agra		4·2	228	1 16	P_g	1 55	− 2	2 15	S_g	—
Calcutta	N.	9·6	139	e 2 34	PP	i 3 57	−15	i 4 37	S_g	—
Hyderabad	E.	12·8	193	—	—	e 4 46	−44	i 6 4	SSS	6·3
Andijan		13·0	328	e 3 13	+ 4	e 5 53	SS	—	—	7·9
Bombay		13·6	218	—	—	i 5 21	−29	i 6 36	SSS	—
Samarkand		15·3	313	—	—	e 6 56	SS	—	—	—
Tchimkent		15·6	325	e 3 45	+ 2	e 6 51	+14	—	—	—
Kodaikanal	E.	20·0	193	—	—	i 7 33	−44	—	—	10·6
Triest		54·2	307	—	—	e 20 45	SS	—	—	—

Additional readings :—
Calcutta $iS_gN = +5$m.4s., $eP_cPN = +8$m.27s.
Hyderabad $i = +6$m.7s.
Bombay $e = +5$m.50s., $i = +6$m.53s., $iS_g = +7$m.8s.
Kodaikanal $i = +9$m.46s.
Long waves were also recorded at Sverdlovsk and Baku.

April 10d. 20h. Undetermined shock. Epicentre South Atlantic.

La Plata PN = 13m.13s., PE = 13m.24s., 14m.0s., SN? = 18m.10s., SE = 18m.17s., L = 19·4m.
Rio de Janeiro ePN = 13m.57s., eSN = 19m.33s., eSE = 19m.40s., eLN = 22·0m.
Cape Town E. PP = 15m.52s., S = 20m.12s., SS = 22m.40s., SSS = 23m.54s., L = 24·9m.
Cape Town N. PP = 15m.44s., S = 20m.16s., SS = 22m.14s., SSS = 23m.36s., L = 24·9m.
La Paz iPZ = 16m.3s., iPP = 17m.50s., SZ? = 23m.38s., LZ = 32·0m.
Huancayo e = 16m.35s., i = 18m.10s., 25m.2s., 28m.26s., 32m.15s., 33m.9s., and 39m.12s.
San Juan e = 19m.29s.
Rome ePZ = 20m.31s., eZ = 25m.15s., SKS = 31m.10s., iS = 31m.46s., PS = 32m.57s., i = 34m.25s., eSS = 38m.26s., SL = 38m.40s., L = 54·1m.
Tucson eP = 25m.23s.
Ksara e = 25m.32s. and 35m.2s., L = 57·0m.
Riverside iPZ = 25m.52s.
Mount Wilson ePZ = 25m.54s., eZ = 27m.5s.
Pasadena ePZ = 25m.54s., eZ = 27m.5s.
Ottawa P = 26m.1s., eN = 35m.24s., eE = 41m.24s., L = 60m.
Paris e = 31m.0s.
Helwan PEN = 31m.24s., P_cPE = 31m.30s., iEN = 32m.35s., eE = 33m.30s., PSE = 43m.10s.
Bermuda e = 31m.31s.
Calcutta eN = 32m.34s.
Potsdam eZ = 35m.33s., eLZ = 64·0m
Tananarive eE = 36m.31s., eN = 39m.46s., eE = 42m.1s.
Kew eZ = 36m.37s., eLE = 59·0m.
Christchurch 51m.17s., iZ = 55m.25s., eZ = 58m.0s.
Kodaikanal e = 56m.0s.
Long waves were also recorded at Uccle, Harvard, Aberdeen, Upsala, Wellington, Warsaw, Hamburg, De Bilt, Triest, Scoresby Sund, Lincoln, and Bozeman.

April 10d. Readings also at 0h. (La Paz), 2h. (Mount Wilson and Tucson), 7h. (Huancayo, Almata, Tchimkent, Samarkand, near Andijan, and La Paz), 8h. (Ksara), 10h. (near Mizusawa), 12h. (Balboa Heights and Tucson), 14h. (Hukuoka), 15h. (near Berkeley), 16h. (Tucson and Rome), 17h. (Ksara), 19h. (Ksara, Tucson, Christchurch, Wellington, Arapuni, and Tinemaha), 20h. (Bombay).

April 11d. 9h. 4m. 4s. Epicentre 48°·0N. 154°·5E.

A = −·6062, B = +·2891, C = +·7409 ; δ = −1 ; h = −5 ;
D = +·431, E = +·903 ; G = −·669, H = +·319, K = −·672.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		13·1	233	4 34	?	5 21	−17	—	—	—
Vladivostok		16·6	260	e 3 54	− 2	e 7 6	+ 6	—	—	8·1
College		34·6	40	—	—	e 12 26	+ 4	—	—	e 14·7
Hong Kong		41·1	246	14 2	S	(14 2)	+ 1	—	—	—
Manila		43·3	232	e 8 6	+ 1	14 38	+ 5	—	—	—
Sverdlovsk		53·6	318	—	—	21 2	SS	—	—	24·9
Tinemaha		61·9	66	e 10 25	+ 1	—	—	—	—	—
Haiwee		62·7	66	e 10 34	+ 5	—	—	—	—	—
Mount Wilson	z.	63·9	68	i 10 38	+ 1	—	—	—	—	—
Pasadena		63·9	68	e 10 36	− 1	—	—	—	—	—
Riverside	z.	64·5	68	e 10 40	− 1	—	—	—	—	—
Palomar	z.	65·2	68	i 10 46	+ 1	—	—	—	—	—
Tucson		69·7	65	e 11 15	+ 1	—	—	—	—	—
Bombay		70·7	277	—	—	e 20 28	− 6	—	—	—
Florissant		76·1	48	i 11 49	− 2	i 21 28	− 7	i 14 28	PP	—
St. Louis	E.	76·3	48	—	—	e 21 49	+12	—	—	e 35·7
De Bilt		76·9	342	i 11 58	+ 2	—	—	—	—	e 40·9
Ottawa		77·1	34	e 11 57	0	e 21 44	− 2	—	—	37·9
Uccle		78·3	342	e 12 4	+ 1	—	—	—	—	e 44·9
Stuttgart		79·0	338	e 12 8	+ 1	—	—	—	—	e 40·9
Pittsburgh		79·6	39	i 12 2	− 8	i 22 7	− 5	e 17 27	PPP	—
Zurich		80·5	338	e 12 17	+ 2	—	—	—	—	—
Basle		80·6	338	e 12 16	0	—	—	—	—	—
Triest		80·6	334	i 13 59	?	—	—	—	—	e 40·8
Ksara		81·8	313	i 12 26k	+ 4	e 22 38	+ 3	e 23 22	PS	—
Helwan	E.	87·3	313	—	—	e 23 26	− 3	—	—	—

Additional readings :—
Tucson eP = +11m.22s., P = +11m.28s.
Florissant iP_cPZ = +11m.56s., eSSS = +39m.19s.
Helwan iE = +23m.38s.
Long waves were also recorded at Harvard, East Machias, Bermuda, Scoresby Sund, Agra, Calcutta, Semipalatinsk, Moscow, and other European stations.

April 11d. Readings also at 0h. (Tucson), 1h. (near Tananarive), 11h. (Harvard), 13h. (Helwan, Ksara, and Bombay), 14h. (Samarkand, Tchimkent, and Andijan), 15h. (near Triest, Basle, Zurich, Ravensburg, Almata, Frunse, and Stuttgart), 16h. (Prague), 18h. (Tucson), 20h. (Tucson), 22h. (Potsdam, Uccle, Clermont-Ferrand, and San Juan), 23h. (near Granada, near La Paz, and Almeria).

April 12d. 5h. 54m. 12s. Epicentre 38°·2N. 142°·0E. (as on 1937 July 26d.).

Strong at Sendai ; moderate at Mizusawa, Morioka, Hukusima, and Miyako ; slight at Yamagata, Onahama, Hatinohe, and Mito.

Epicentre 38°·4N. 141°·8E. Radius 200-300kms. Shallow.

See Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1940, Tokyo, 1950, pp. 13-14. Macroseismic chart p. 13.

A = −·6208, B = +·4850, C = +·6159 ; δ = −5 ; h = −1 ;
D = +·616, E = +·788 ; G = −·485, H = +·379, K = −·788.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Sendai	0·9	274	0 20k	0	0 32	− 2	—
Hukusima	1·3	250	0 27a	+ 2	0 43	− 1	—
Mizusawa	1·3	324	0 21	− 4	0 34	−10	—
Miyako	1·4	0	0 30k	+ 3	0 44	− 2	—
Onahama	1·5	215	0 32	+ 4	0 51	+ 2	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Akita		2·1	315	0 36k	− 1	1 7	+ 3	—
Mito		2·2	214	0 40a	+ 2	1 4	− 2	—
Hatinohe		2·3	351	0 38k	− 2	1 2	− 7	—
Kakioka		2·4	216	0 44	+ 3	1 12	0	—
Utunomiya		2·4	226	0 42	+ 1	1 10	− 2	—
Tukubasan		2·5	217	0 44	+ 1	—	—	—
Tyosi		2·6	200	0 46	+ 2	1 18	+ 1	—
Aomori		2·8	340	0 44k	− 3	1 13	− 9	—
Kumagaya		2·9	225	0 52	+ 4	1 25	+ 1	—
Aikawa		3·0	266	0 49	− 1	1 32	+ 5	—
Macbasi		3·0	232	0 52	+ 2	1 28	+ 1	—
Tokyo Cen. Met. Ob.		3·1	216	0 54	+ 3	1 28	− 1	—
Nagano		3·4	245	0 58	+ 3	1 37	0	—
Yokohama		3·4	215	0 58	+ 3	1 36	− 1	—
Mera		3·7	208	1 2	+ 2	—	—	—
Hunatu		3·8	224	1 4	+ 3	—	—	—
Kohu		3·8	228	1 1	0	1 50	+ 3	—
Misima		3·9	220	1 7	+ 5	1 44	− 6	—
Osima		4·0	212	1 6	+ 2	1 49	− 3	—
Toyama		4·1	250	1 19	P_g	2 8	S*	—
Wazima		4·1	260	1 6	+ 1	1 48	− 7	—
Hamamatu		4·9	225	1 24	P*	2 20	+ 5	—
Sapporo		4·9	354	1 11	− 6	—	—	—
Nagoya		5·0	235	1 25	P*	2 25	+ 7	—
Gihu		5·1	238	1 21	+ 1	2 16	− 4	—
Hatidyozima		5·3	200	1 23	+ 1	2 22	− 3	—
Hikone		5·4	239	1 28	+ 4	2 40	S*	—
Kameyama		5·6	235	1 40	P*	2 54	S*	—
Nemuro		5·8	27	2 22	+53	—	—	—
Kyoto		6·0	240	1 36	+ 4	—	—	—
Osaka		6·3	238	1 53	P*	3 17	S*	—
Owase		6·3	231	1 45	P*	3 23	S_g	—
Kobe		6·5	239	1 30k	− 9	2 48	− 7	—
Muroto		8·1	234	3 5	+63	4 8	S*	—
Koti		8·3	239	4 6	S	(4 6)	S*	—
Vladivostok		9·1	306	e 2 13	− 1	e 3 55	− 5	4·7
Tinemaha		74·7	56	e 11 38	− 5	—	—	—
Haiwee		75·5	56	e 11 42	− 6	—	—	—
Pasadena	z.	76·5	58	i 11 48	− 6	—	—	—
Mount Wilson	z.	76·6	58	i 11 49	− 5	—	—	—
Riverside	z.	77·2	58	e 11 51	− 6	—	—	—
Tucson		82·5	56	e 12 22	− 4	—	—	—
Balboa Heights		119·2	49	e 19 48?	PP	—	—	—

Long waves were also recorded at Potsdam, Warsaw, De Bilt, Scoresby Sund, and Basle.

April 12d. Readings also at 0h. (near Ferndale, Fresno, Branner, Lick, and Berkeley), 1h. (Harvard, Fordham, and Tucson), 2h. (Harvard), 3h. (near Tananarive, La Plata, and Mizusawa), 4h. (Mizusawa, La Paz, Huancayo, Tucson, and Tinemaha), 5h. (Ksara), 6h. (Mount Wilson, Uccle, Tucson, Tinemaha, Pasadena, and Riverside), 7h. (Colombo), 8h. (near Branner, Lick, and Berkeley), 11h. (near Mizusawa), 14h. (near Mizusawa), 15h. (Ksara and near La Paz), 16h. (Ksara, Helwan, and Triest), 17h. (Triest and Tucson), 18h. (Triest (2)), 19h. (St. Louis, Tucson, San Juan, Philadelphia, and Pittsburgh), 20h. (Scoresby Sund, East Machias, Ottawa, Riverside, Pasadena, Tinemaha, Huancayo, Fordham, and Tucson), 21h. (Tucson (2)), 22h. (Branner, Rome, Wellington, and near Christchurch), 23h. (Tucson).

April 13d. 6h. 29m. 2s. Epicentre 38°·8N. 35°·2E.

Damage in the region of Yozgad. Felt at Ankara, Tokat, and Sivas.

Epicentre 38°·8N. 35°·2E. approx. (Strasbourg).

J. P. Rothé.

Chronique seismologique, Revue pour l'Etude des Calamites, T.V. Geneva, 1942, p. 60.

$A = +\cdot6385$, $B = +\cdot4504$, $C = +\cdot6240$,; $\delta = -8$; $h = -1$;
$D = +\cdot576$, $E = -\cdot817$; $G = +\cdot510$, $H = +\cdot360$, $K = -\cdot781$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		5·0	174	i 1 24	P*	2 50	S_g	3 34	SS_g	—
Sotchi		5·9	34	1 22	− 9	2 27	−13	—	—	—
Erevan		7·3	76	1 54	+ 4	3 25	+10	—	—	—
Piatigorsk		7·9	46	1 51	− 8	3 21	− 9	—	—	—
Helwan		9·5	200	i 2 34a	PP	4 48	S*	2 42	PPP	—
Sofia		9·8	297	e 2 31	+ 7	i 4 40	+23	—	—	—
Baku		11·4	78	e 2 52	+ 5	i 5 12	SS	—	—	6·3
Cluj	N.	11·6	317	i 3 10	PPP	e 5 14	SS	—	—	5·9
Kecskemet	Z.	13·9	310	e 3 28	+ 7	—	—	—	—	e 7·0
Budapest	E.	14·6	311	e 3 40	+10	6 31	SS	—	—	i 7·7
	N.	14·6	311	e 3 37	+ 7	6 34	SS	—	—	i 7·4
Warsaw		16·6	328	3 52	− 4	i 7 4	+ 4	—	—	—
Moscow		17·0	5	e 3 49	−12	e 6 50	−20	—	—	9·1
Triest		17·3	300	i 4 8	+ 4	e 7 0	−16	e 4 18	PP	e 8·3
Rome		17·6	287	i 4 11a	+ 3	i 7 34	+11	i 4 33	PPP	i 9·5
Prague		18·6	315	4 17a	− 4	e 7 45	− 1	—	—	e 9·0
Chur		20·4	303	e 4 41	0	e 8 29	+ 4	—	—	—
Potsdam		20·5	319	e 4 34	− 8	i 8 23	− 4	—	—	11·0
Jena		20·6	314	e 4 40	− 3	e 8 30	+ 1	—	—	e 10·0
Ravensburg	E.	20·6	303	e 4 44	+ 1	e 8 38	+ 9	—	—	—
Pulkovo		21·2	354	e 4 43	− 6	e 8 23	−18	—	—	e 10·8
Stuttgart		21·2	307	e 4 48	− 1	e 8 37	− 4	—	—	e 11·0
Zurich		21·2	303	e 4 49a	0	e 8 44	+ 3	—	—	—
Basle		21·9	303	e 4 56	− 1	e 8 59	+ 5	—	—	—
Strasbourg		22·0	306	4 58	0	8 58	+ 2	—	—	—
Neuchatel		22·2	302	e 4 59	− 1	e 9 2	+ 2	—	—	—
Hamburg		22·7	320	e 5 0	− 4	i 9 17	+ 8	i 9 46	SS	e 12·8
Besançon		22·9	302	i 5 8	+ 2	e 9 13	0	—	—	14·6
Upsala		23·9	338	i 5 21	+ 5	e 9 24	− 6	i 9 51	SS	e 12·0
Heligoland		24·1	320	—	—	e 9 22	−12	—	—	e 13·6
Clermont-Ferrand		24·6	297	e 5 26	+ 3	e 9 56	+14	—	—	16·0
Samarkand		24·6	79	5 24	+ 1	9 45	+ 3	—	—	—
Sverdlovsk		24·6	35	5 20	− 3	9 31	−11	—	—	11·9
De Bilt		24·7	314	i 5 52a	+28	e 9 47	+ 3	—	—	e 11·5
Uccle		24·8	310	e 5 24	− 1	e 9 40	− 6	i 10 44	SS	11·5
Algiers		25·4	276	—	—	e 9 37	−19	—	—	12·0
Paris		25·5	304	e 5 31	− 1	e 10 12	+15	—	—	e 11·0
Tashkent		26·1	74	i 5 41	+ 4	i 10 13	+ 6	—	—	13·3
Kew		27·8	310	—	—	e 10 46	+11	—	—	e 16·0
Andijan		28·5	75	6 3	+ 4	e 10 55	+ 9	—	—	—
Jersey		28·5	306	—	—	e 9 58?	−48	—	—	—
Bergen		28·6	330	—	—	e 11 42	SS	—	—	—
Stonyhurst		29·6	314	—	—	e 11 58?	SS	—	—	19·0
Almeria		29·7	279	i 6 12	+ 2	—	—	8 2	PP	19·2
Frunse		29·9	70	e 6 15	+ 3	e 11 11	+ 2	—	—	21·0
Toledo		30·2	285	i 6 17	+ 3	e 11 21	+ 8	—	—	—
Granada		30·4	279	i 9 1	P_cP	13 0	SS	—	—	20·1
Aberdeen		30·5	320	—	—	i 11 7	−11	i 12 3	SS	17·2
Edinburgh		30·6	317	—	—	e 13 0	SS	—	—	—
Almata		31·6	68	e 6 42	+16	11 53	+18	—	—	18·0
Semipalatinsk		33·6	55	—	—	e 13 26	SS	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lisbon		34·3	285	—	—	12 19	+ 2	—	—	19·0
Agra	E.	37·5	95	7 21	+ 4	13 6	− 1	8 51	PP	—
Bombay		38·1	111	e 8 11	+49	i 13 25	+ 9	i 16 28	SSS	—
Kodaikanal	E.	47·2	116	—	—	i 15 40	+11	—	—	—
Calcutta		47·8	94	e 10 13	PP	i 16 37	+59	i 11 48	PPP	e 23·1
Colombo	E.	51·2	117	—	—	e 16 28	+ 3	—	—	—
Vladivostok		69·0	52	—	—	e 20 16	SS	—	—	36·9
East Machias		71·5	313	—	—	e 20 39	− 4	e 21 24	S_cS	e 29·1
Ottawa		75·7	317	—	—	e 20 40	−50	—	—	34·0
Chicago		84·4	322	—	—	e 27 54	SS	e 31 39	SSS	e 34·6
San Juan		87·2	291	e 16 1	PP	e 23 17	[+ 2]	e 24 14	PS	e 39·2
Bozeman		90·6	337	e 18 13	PPP	e 23 29	[− 8]	e 24 5	S_cS	e 36·1
Tucson		102·6	331	e 13 48	−12	e 24 32	[− 7]	e 20 18	PPP	e 41·2

Additional readings :—
Helwan iZ = +3m.4s., P_cPZ = +8m.31s.
Sofia iSE = +4m.43s.
Triest iPPP = +4m.22s., iSS = +7m.27s., iP_cP = +9m.11s.
Rome iP = +4m.13s., iZ = +4m.26s., iEZ = +4m.39s., iN = +4m.46s., iE = +5m.2s., i = +5m.12s., iE = +5m.23s., i = +5m.50s., iNZ = +6m.15s., iE = +6m.35s. and +7m.59s., i = +8m.12s., iZ = +8m.25s.
Potsdam ePN = +4m.46s., iSZ = +8m.30s.
Stuttgart iP = +4m.53s.a, eSE = +8m.42s.
Upsala iS = +9m.37s.
Uccle iSN = +9m.46s.
Aberdeen iN = +11m.22s. and +13m.19s.
Agra SSE = +15m.57s.
Calcutta eN = +19m.28s., iN = +20m.18s.
East Machias eSS = +24m.56s., eSSS = +28m.18s.
San Juan ePPS = +24m.44s., ePSPS = +30m.14s.
Bozeman ePPS = +25m.12s., eSSS = +33m.12s.
Tucson eP = +14m.4s., eS = +25m.19s., ePS = +26m.39s., ePPS = +27m.38s., iPPS = +27m.48s., eSS = +32m.16s., eSSS = +36m.35s.
Long waves were also recorded at Scoresby Sund.

April 13d. 17h. 21m. 42s. Epicentre 10°·5N. 50°·5E.

A = +·6256, B = +·7589, C = +·1811 ; δ = +10 ; h = +6 ;
D = +·772, E = −·636 ; G = +·115, H = +·140, K = −·984.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Bombay		23·1	67	i 5 7	− 1	i 9 4	−12	—
Helwan		26·3	320	i 5 40a	+ 1	10 18	+ 7	—
Kodaikanal	E.	26·5	88	—	—	e 9 18?	−56	—
Ksara		26·8	332	e 5 42	− 2	e 10 23	+ 4	—
Baku		29·8	359	e 6 12	+ 1	e 10 54	−13	15·6
Agra	E.	30·7	55	—	—	i 11 2	−19	—
Calcutta		38·1	69	—	—	e 12 3	−73	—

Long waves were also recorded at Tashkent and Sverdlovsk.

April 13d. Readings also at 1h. (Fordham), 6h. (Warsaw and Istanbul), 8h. (Sofia, Ottawa (2), Seven Falls, Shawinigan Falls, Ksara, and Istanbul), 10h. (La Paz), 13h. (near Triest), 16h. (Paris, La Paz (2), and San Juan), 19h. (San Juan), 20h. (Riverside, Pasadena, Andijan, Sverdlovsk, Frunse, Tchimkent, Tucson, and Mount Wilson), 22h. (Tucson).

April 14d. 9h. 19m. 28s. Epicentre 39°·9N. 75°·7E. (as on 1937 March 19d.).

$A = +·1900$, $B = +·7454$, $C = +·6389$; $\delta = -9$; $h = -2$;
$D = +·969$, $E = -·247$; $G = +·158$, $H = +·619$, $K = -·769$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		2·7	288	0 40	− 5	1 10	− 9	0 45	P_g	—
Frunse		3·1	344	0 50	− 1	1 33	+ 4	0 55	P*	—
Almata		3·5	15	i 0 57	0	i 1 48	S*	i 1 2	P*	—
Tashkent		5·1	288	i 1 25	+ 5	e 2 27	+ 7	—	—	—
Tchimkent		5·2	299	1 21	0	2 27	+ 5	1 38	P*	—
Semipalatinsk		11·0	15	e 2 46	+ 4	—	—	—	—	—
Agra	E.	12·9	170	—	—	e 5 18	−15	—	—	—
Sverdlovsk		19·6	335	4 25	− 7	—	—	—	—	10·1
Calcutta	N.	20·4	146	e 6 39	?	—	—	—	—	e 11·3
Bombay		21·1	187	—	—	e 8 46	+ 7	—	—	—

Additional readings :—
Andijan $S_g = +1$m.16s.
Tchimkent $S_g = +2$m.45s.
Long waves were also recorded at De Bilt, Potsdam, and Upsala.

April 14d. 9h. Undetermined shock. Epicentre Pacific Ocean.

Apia iP =34m.17s.a, iS =34m.59s.
Manila iPZ =44m.22s., SE =49m.33s., LEN =53·5m.
Santa Barbara iPZ =44m.29s.
Pasadena iP =44m.34s., iZ =45m.22s. and 47m.18s., eE =53m.54s.
La Jolla iP =44m.35s.
Mount Wilson iP =44m.35s., eZ =45m.22s., iZ =47m.18s.
Riverside iP =44m.37s., eZ =45m.23s. and 47m.23s.
Haiwee iP =44m.44s.
Tinemaha iPEZ =44m.44s., iZ =45m.36s., eE =54m.40s.
Tucson P =44m.59s., iP =45m.2s., eP_cP =45m.11s., pP =45m.47s., esP =46m.5s., ePPP =49m.46s., eS =54m.19s., and 54m.35s., eSSS =62m.48s., eL =64·1m.
Riverview eN =45m.18s., eE =46m.12s., eN =48m.18s.
Bozeman eP =45m.30s., epP =46m.20s., ePP =48m.49s., esPP =50m.20s., epPPP =51m.26s.
Brisbane iN =45m.48s.
Lincoln eP =46m.8s., ePP =49m.43s., ePPP =51m.42s., eSKS =56m.20s., eS =56m.41s., and 56m.57s., eSS =62m.26s., eL =69m.32s.
Florissant eE =46m.28s., 50m.11s., and 57m.46s.
Huancayo eP =46m.36s., epP =47m.8s., ePPP =52m.26s., eSKKS =56m.48s., eS =57m.40s., epS =58m.9s., ePS =58m.50s., PS =59m.8s., esSS =64m.41s., eSSS =68m.10s., eL =71·4m.
St. Louis eN =47m.14s., iSEN =56m.44s.
San Juan eP =47m.48s., epPP =53m.9s., eSKS =58m.1s., epS =60m.38s., esSS =68m.37s., eSSS =72m.7s., eL =79·2m.
Calcutta eN =52m.23s., iN =58m.40s.
Jena e =52m.39s.
Uccle ePZ =52m.39s.
Basle eP =52m.48s., e =53m.43s.
Ksara iPKP =52m.49s.a, ipPKP =53m.42s., sPKP =54m.3s., PP =56m.19s., sPP =57m.32s., PSKS =66m.15s.
Stuttgart ePKPZ =52m.49s., e =53m.42s.
Zurich eP =52m.49s.
Chur eP =52m.50s.
Strasbourg ePKP =52m.50s.
Triest eP =52m.51s.
Clermont-Ferrand ePKP =52m.54s.
Paris ipPKP =53m.38s.
Sitka S =54m.58s., eL =69·5m.
Agra eE =55m.49s.
Ottawa eE =57m.42s., and 61m.12s.

April 14d. 14h. 5m. 36s. Epicentre 37°·2N. 69°·3E. (as on 1939 Oct. 10d.).

A = +·2822, B = +·7469, C = +·6020 ; δ = −10 ; h = −1 ;
D = +·935, E = −·353 ; G = +·213, H = +·563, K = −·798.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Samarkand		3·1	324	e 0 53	+ 2	i 1 33	+ 4	i 0 57	P*
Tashkent		4·1	0	1 4	− 1	1 41	−14	—	—
Andijan		4·3	33	1 6	− 2	i 1 48	−12	i 1 12	P*
Tchimkent		5·1	2	e 1 21	+ 1	2 21	+ 1	1 29	P*
Frunse		7·0	34	e 1 44	− 2	3 21	S*	—	—
Almata		8·4	42	e 2 19	PPP	—	—	—	—
Agra	E.	12·4	141	—	—	e 5 52	SSS	—	—
Calcutta	N.	22·0	126	—	—	e 10 7	+71	—	—

Additional readings :—
Andijan ePP = +1m.15s.
Tchimkent P_g = +1m.35s., S = +2m.3s.
Long waves were also recorded at Pulkovo and Sverdlovsk.

April 14d. 14h. 33m. 44s. Epicentre 9°·0N. 128°·0E.

A = −·6082, B = +·7785, C = +·1554 ; δ = +12 ; h = +7 ;
D = +·788, E = +·616 ; G = −·096, H = +·122, K = −·988.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		8·8	309	i 2 4	− 7	i 3 39	−14	—	—	—
Hong Kong		18·7	317	4 15	− 7	7 40	− 8	7 56	SS	9·1
Zi-ka-wei	Z.	22·9	347	5 8	+ 2	9 14	+ 1	—	—	i 13·2
Phu-Lien		23·7	303	e 6 9	+55	—	—	—	—	—
Vladivostok		34·2	6	e 6 48	− 1	e 12 12	− 4	—	—	16·9
Calcutta	N.	40·3	296	e 9 6	PP	i 16 45	SS	—	—	—
Brisbane	N.	43·6	147	—	—	i 15 4	+26	e 18 28	SSS	—
Irkutsk		47·3	341	e 8 34	− 3	15 22	− 9	—	—	24·3
Colombo	E.	47·7	272	8 44	+ 4	—	—	—	—	27·9
Kodaikanal	E.	49·8	277	i 9 0	+ 4	—	—	—	—	—
Agra	E.	50·5	299	e 8 59	− 3	e 15 57	−19	e 10 54	PPP	—
Bombay		54·3	287	i 9 30	0	i 17 6	− 1	i 11 45	PP	28·3
Tashkent		60·7	313	e 10 15	0	e 18 19	−13	—	—	e 32·3
Sverdlovsk		70·2	328	11 19	+ 2	20 15	−13	—	—	32·3
Baku		75·2	310	—	—	21 28	+ 3	—	—	e 38·3
Sitka		86·1	34	—	—	e 23 5	[− 3]	—	—	—
Ksara		86·8	304	e 12 54	+ 7	e 23 44	+19	—	—	—
Bozeman		104·2	40	e 13 21	−46	—	—	—	—	—
Lincoln		115·7	36	e 14 53	P	—	—	—	—	—
Fordham		126·5	20	—	—	i 28 13	{+16}	—	—	e 65·6
Philadelphia		126·8	22	e 17 48	?	—	—	—	—	—
Huancayo		156·9	99	e 20 6	[+ 9]	—	—	—	—	—
La Paz	Z.	162·6	116	e 20 36	[+33]	(31 16)	{−10}	—	—	31·3

Additional readings :—
Manila iPEN = +2m.7s.
Bombay iSSE = +21m.21s.

April 14d. 14h. 56m. 12s. Epicentre 44°·6N. 149°·4E. (as on 1938 Nov. 13d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		8·2	231	e 2 3	0	i 3 35	− 3	—	—	—
Vladivostok		12·7	269	e 3 11	+ 6	e 5 51	SS	—	—	6·7
Hukuoka		18·3	238	e 4 23	+ 6	—	—	—	—	—
Zi-ka-wei	z.	25·7	248	i 5 40	+ 7	—	—	—	—	14·5
Irkutsk		30·5	301	—	—	10 48	−30	—	—	—
College		39·4	36	e 7 34	+ 1	e 13 29	− 6	—	—	e 16·7
Semipalatinsk		45·5	303	e 9 25	+62	—	—	—	—	—
Almata		50·6	296	9 1	− 1	—	—	—	—	—
Frunse		52·3	296	e 9 15	0	—	—	—	—	—
Sverdlovsk		53·6	317	9 24	− 1	—	—	—	—	28·8
Andijan		54·8	295	9 36	+ 2	e 17 14	0	—	—	—
Tchimkent		55·7	298	e 9 42	+ 2	—	—	—	—	e 31·8
Agra	E.	58·6	277	—	—	e 18 6	+ 2	—	—	—
Bozeman		65·4	49	e 10 43	− 4	e 19 30	0	e 13 12	PP	—
Tinemaha		66·6	61	e 10 53	− 1	—	—	—	—	—
Haiwee		67·4	61	e 10 58	− 1	—	—	—	—	—
Bombay		67·5	274	i 11 9	+ 9	—	—	—	—	—
Pasadena		68·5	63	i 11 4	− 2	—	—	—	—	—
Mount Wilson		68·6	63	i 11 4	− 3	—	—	—	—	—
Riverside	z.	69·1	63	i 11 8	− 2	—	—	—	—	—
Tucson		74·4	60	e 11 41	− 1	—	—	12 11	pP	e 35·8
Hamburg		76·2	337	e 11 54	+ 2	—	—	—	—	e 39·8
Potsdam		76·3	335	i 11 51a	− 1	—	—	—	—	e 27·4
De Bilt		78·9	338	—	—	e 31 48	SSS	—	—	—
Uccle		80·3	339	e 12 12	− 2	—	—	—	—	e 31·8
Stuttgart		80·7	335	i 12 16a	0	—	—	—	—	e 42·8
Florissant		81·0	43	i 12 18	0	—	—	—	—	—
St. Louis		81·2	43	e 12 19	0	i 22 25	− 4	e 14 53	PP	—
Ksara		81·3	309	i 12 22	+ 2	e 23 28	PS	—	—	44·8
Strasbourg		81·3	335	e 12 20	0	—	—	—	—	—
Ottawa		81·9	30	e 12 20	− 3	—	—	—	—	41·8
Triest		81·9	331	i 12 21a	− 2	e 22 37	+ 1	i 12 42	pP	—
Zurich		82·1	335	e 12 23a	− 1	—	—	—	—	—
Basle		82·3	335	e 12 24	− 1	—	—	e 15 28	—	—
Chur		82·3	334	e 12 24	− 1	—	—	—	—	—
Paris		82·6	339	i 12 26	0	e 34 13	?	e 15 13	PP	e 45·8
Neuchatel		82·9	335	e 12 28	0	—	—	—	—	—
Pittsburgh		84·4	35	i 12 37	+ 1	i 22 58	− 3	—	—	—
Clermont-Ferrand		85·2	337	12 39	0	—	—	—	—	—
Rome		85·6	329	i 12 41	0	e 23 6	[− 2]	—	—	—
Helwan		86·9	309	i 12 48	0	e 23 18	[+ 4]	—	—	—
Wellington		88·5	161	e 15 48?	PP	—	—	—	—	—
Toledo		92·6	340	i 13 12	− 3	—	—	—	—	e 43·4
Granada		95·0	338	i 13 24	− 2	—	—	—	—	54·9
La Paz	z.	137·8	59	19 43	[+17]	—	—	—	—	—

Additional readings :—
College eS = +13m.50s.
Bozeman eSSS = +26m.53s.
Tinemaha eEZ = +11m.5s.
Haiwee eZ = +11m.10s.
Pasadena iZ = +11m.17s.
Mount Wilson iZ = +11m.17s.
Riverside iZ = +11m.21s.
Tucson P_cP = +11m.54s., sP = +12m.20s.
Florissant iZ = +12m.26s.
St. Louis eE = +22m.46s.
Triest i = +12m.32s., iPP = +16m.11s., ePPP = +16m.34s., iSKS = +21m.52s., eS = +22m.54s., eSS = +23m.43s.
Helwan iZ = +13m.15s.
Long waves were also recorded at Tashkent, Huancayo, Upsala, Scoresby Sund, Warsaw, East Machias, and Kew.

April 14d. Readings also at 0h. (Tinemaha, Mount Wilson, and Tucson), 1h. (Tucson, near Ferndale, and Berkeley), 4h. (Ksara, San Juan, Helwan, and Calcutta), 8h. (Manila), 9h. (Arapuni, Christchurch, and Wellington), 12h. (Manila), 13h. (near Berkeley, Lick, Fresno, Santa Clara, Branner, and San Francisco), 14h. (Jena), 16h. (Ksara), 17h. (Manila).

April 15d. Readings at 1h. (near Tananarive), 3h. (Manila), 4h. (Tucson), 5h. (Tucson (2), Mount Wilson, Pasadena, Riverside, Tinemaha, and near La Paz), 6h. (Manila), 14h. (near Tananarive, near Wellington, and Tuai), 17h. (Tchimkent and Manila), 18h. (Baku and Sverdlovsk), 21h. (Ottawa and Balboa Heights), 22h. (Tucson).

April 16d. 6h. 7m. 41s. Epicentre 52°·4N. 173°·5E.

$A = -·6087$, $B = +·0694$, $C = +·7903$; $\delta = -9$; $h = -6$;
$D = +·113$, $E = +·994$; $G = -·785$, $H = +·089$, $K = -·613$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Sikka		19·4	274	4 33	+ 3	8 6	+ 2	—	—
Nemuro		20·7	255	4 41	− 3	8 31	0	—	—
College		23·2	42	i 5 12a	+ 3	9 11	− 7	i 5 38 PP	i 10·7
Sapporo		23·4	260	5 12	+ 1	9 34	+13	5 46 PP	e 12·0
Mori		24·4	258	5 22	+ 1	i 9 44	+ 5	i 11 43 SSS	—
Mizusawa		25·9	251	5 34	− 1	10 10	+ 6	—	—
Akita		26·2	253	5 53	+15	10 8	− 1	—	—
Tokyo Cen. Met. Ob.		29·1	248	6 9	+ 5	i 11 4	+ 8	i 12 21 SS	—
Vladivostok		29·1	267	i 6 4	0	i 11 56	+60	—	—
Sitka		29·3	60	i 6 6	0	i 11 1	+ 2	i 6 47 PP	15·6
Yokohama		29·4	248	e 6 8	+ 1	12 41	SS	8 11 ?	—
Nagoya		31·1	250	6 19	− 3	13 7	SS	—	—
Osaka		32·3	252	6 30	− 3	11 49	+ 3	—	—
Hamada		34·1	254	6 49	+ 1	12 14	0	—	—
Koti		34·2	252	6 49	0	11 33	−43	—	—
Zinsen		35·7	264	7 3	+ 1	12 40	+ 1	—	—
Hukuoka		36·0	255	e 7 6	+ 1	12 46	+ 2	—	16·5
Miyazaki		36·6	251	7 11	+ 1	12 53	0	—	—
Honolulu		38·1	133	e 7 15	− 7	e 13 2	−14	i 8 42 PP	15·6
Victoria		39·2	70	7 37	+ 6	13 19	−13	9 19? PPP	20·3
Seattle		40·3	70	e 7 41	+ 1	13 37	−12	—	i 16·0
Irkutsk		40·8	299	i 7 47	+ 2	16 37	SS	9 33 PPP	20·3
Spokane		43·1	68	e 8 10	+ 6	i 14 29	− 1	i 10 21 PPP	—
Zi-ka-wei	N.	43·1	261	e 9 5	+61	15 31	+61	—	i 23·7
Ferndale		43·2	80	e 8 22	+18	e 14 36	+ 4	—	—
Ukiah		44·7	81	e 8 17	+ 1	i 14 51	− 3	e 9 44 PcP	e 18·2
Berkeley		46·1	82	e 8 27	− 1	e 15 8	− 6	—	29·2
Branner	N.	46·4	82	e 8 39	+ 9	e 15 19	+ 1	—	e 21·2
Saskatoon		46·5	57	8 32	+ 1	15 19	0	18 25 SS	23·9
Santa Clara		46·6	82	e 8 39	+ 7	i 15 25	+ 4	—	e 19·7
Butte		46·8	66	e 8 32	− 1	e 15 15	− 9	e 9 53 PcP	—
Lick	N.	46·8	82	e 8 37	+ 4	e 15 17	− 7	—	—
Bozeman		47·8	66	e 8 41	0	15 34	− 4	e 10 36 PP	—
Fresno	N.	48·3	81	e 8 47	+ 2	e 14 50	−55	—	—
Karenko		48·3	254	9 44	+59	—	—	—	—
Tinemaha		49·0	80	e 8 50	0	e 15 57	+ 2	—	—
Haiwee		49·8	81	i 8 58	+ 2	e 16 6	0	—	—
Santa Barbara		49·9	83	e 8 57	0	e 16 5	− 2	—	—
Salt Lake City		50·4	72	e 9 2	+ 1	e 16 3	−11	e 10 57 PP	e 20·4
Mount Wilson		51·0	82	i 9 5	− 1	e 16 22	0	—	—
Pasadena		51·0	82	i 9 4	− 2	i 16 18	− 4	i 18 53 ScS	i 21·6
Riverside		51·6	82	e 9 8	− 2	—	—	—	—
La Jolla		52·4	83	e 9 15	− 1	—	—	—	—
Hong Kong		54·0	259	9 27k	− 1	17 4	+ 1	10 39 PcP	—
Semipalatinsk		54·2	307	e 9 29	0	—	—	—	27·3
Denver		55·0	69	i 9 36	+ 1	i 17 12	− 5	e 11 44 PP	—
Manila		56·0	247	i 9 42a	− 1	18 32	+62	—	27·3
Tucson		56·8	79	9 46	− 2	i 17 39	− 2	e 11 57 PP	i 23·0
Scoresby Sund		56·9	6	i 9 51	+ 2	i 17 45	+ 3	i 11 8 PcP	i 23·5
Sverdlovsk		58·0	323	i 9 58	+ 1	i 18 15	+18	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Phu-Lien		59·7	264	10 7	− 2	18 19	0	—	—	28·3
Almata		60·7	303	10 14	− 1	19 2	+30	—	—	31·3
Ivigtut		62·0	21	e 10 22	− 2	e 18 41	− 7	e 12 58	PP	i 25·9
Frunse		62·2	304	10 26	0	—	—	—	—	32·3
Chicago J.S.A.		62·9	56	e 10 27	− 3	i 18 56	− 4	—	—	—
Chicago U.S.C.G.S.		63·0	56	e 10 30a	− 1	i 18 59	− 2	e 11 13	P_cP	e 26·0
Florissant		63·8	60	i 10 34	− 2	i 19 6	− 5	i 11 17	P_cP	30·3
St. Louis		64·0	60	i 10 34	− 4	i 19 7	− 6	i 11 34	P_cP	—
Pulkovo		64·3	340	i 10 39	0	e 19 17	0	—	—	e 31·1
Toronto		65·6	50	10 46	− 2	19 31	− 2	14 19?	PPP	30·3
Ottawa		65·9	46	10 48	− 2	19 31	− 6	13 25	PP	30·3
Tashkent		66·0	307	i 10 49	− 1	i 19 57	+19	—	—	—
Cleveland		66·2	53	e 10 56	+ 4	e 19 36	− 4	e 20 6	PS	—
Moscow		66·3	334	i 10 52	0	19 44	+ 2	—	—	33·4
Shawinigan Falls		66·3	43	11 1	+ 9	19 38	− 4	—	—	33·3
Upsala		66·4	347	i 10 55	+ 2	19 43	0	e 15 0	PPP	e 30·3
Seven Falls		66·7	42	10 55	0	19 44	− 2	15 10	PPP	30·3
Apia		67·2	164	—	—	e 20 6	+14	—	—	e 30·4
Bergen		67·2	353	i 10 54	− 4	19 45	− 7	13 17	PP	32·4
Pittsburgh		67·8	52	i 10 59	− 3	i 19 56	− 4	13 41	PP	—
Vermont		67·8	45	e 11 28	+26	i 19 58	− 2	e 14 48	PPP	i 36·6
Samarkand		68·4	307	10 57	− 9	—	—	—	—	35·3
Pennsylvania		68·5	51	e 11 5	− 1	i 20 4	− 4	i 21 3	PS	e 31·7
Calcutta	N.	69·6	280	i 11 17a	+ 4	i 20 32	+11	i 11 38	P_cP	e 33·8
Dehra Dun	N.	69·7	292	e 11 21	+ 7	e 20 26	+ 4	e 24 15	SS	e 34·9
East Machias		70·0	42	e 11 14	− 1	20 21	− 5	e 15 34	PPP	—
Harvard		70·1	45	i 11 14a	− 2	e 20 21	− 6	e 37 19?	L_g	e 39·3
Weston		70·3	45	i 11 16	− 1	i 20 24	− 5	25 30	SS	—
Fordham		70·4	48	i 11 15a	− 3	i 20 25	− 5	i 13 51	PP	i 34·9
Georgetown		70·4	51	i 11 19	+ 1	i 20 29	− 1	—	—	—
Philadelphia		70·5	49	i 11 17a	− 1	i 20 27	− 5	e 13 39	PP	e 30·8
Aberdeen		70·7	357	i 11 19	− 1	i 20 27	− 7	i 14 2	PP	33·7
Copenhagen		71·1	349	i 11 22	·0	20 35	− 3	—	—	—
Halifax		71·6	39	11 23	− 2	20 36	− 8	28 43	SSS	32·3
Agra	E.	72·2	290	i 11 25a	− 4	21 1	+10	11 39	pP	—
Columbia		72·3	57	e 11 29	0	e 20 47	− 5	e 14 6	PP	38·1
Heligoland		73·1	352	i 11 36a	+ 2	e 21 5	+ 4	e 21 39	PS	e 34·3
Warsaw		73·2	342	i 11 35a	0	21 3	+ 1	e 26 3	SS	—
Hamburg		73·5	349	i 11 37a	+ 1	i 21 8	+ 2	e 25 42	SS	e 32·3
Stonyhurst		74·1	357	e 12 19?	+39	i 21 13	+ 1	i 21 48	PS	e 30·8
Potsdam		74·3	348	e 11 40	− 1	i 21 16	+ 1	i 21 52	PS	e 26·3
Piatigorsk		74·9	324	e 11 39	− 5	—	—	—	—	40·3
De Bilt		75·4	353	i 11 50a	+ 3	i 21 30	+ 3	e 26 39	SS	e 35·3
Baku		75·5	318	i 11 51	+ 3	i 21 45.	+17	—	—	34·3
Jena		75·9	348	i 11 49	− 1	e 21 39	+ 7	e 14 35	PP	e 32·3
Kew		76·4	355	i 11 52a	− 1	i 21 38	0	i 15 8	PP	e 35·8
Prague		76·4	345	11 54a	+ 1	e 21 37	− 1	e 14 47	PP	e 32·3
Sotçhi		76·4	327	i 11 55	+ 2	21 45	+ 7	—	—	41·0
Uccle		76·8	354	i 11 55a	0	21 41	− 1	i 14 57	PP	37·3
Yalta		77·3	330	12 1	+ 3	—	—	—	—	40·7
Cluj		77·9	339	e 12 2	+ 1	e 21 58	+ 4	—	—	e 44·3
Budapest		78·1	342	i 12 3	+ 1	22 0	+ 4	12 15	P_cP	e 37·3
Stuttgart		78·3	349	i 12 2	− 1	22 7	+ 8	e 14 54	PP	e 32·3
Jersey		78·7	357	—	—	e 22 4	+ 1	—	—	37·6
Strasbourg		78·7	350	12 5	− 1	e 22 0	− 3	i 14 22	PP	37·3
Paris		78·9	354	i 12 7	0	e 22 3	− 2	i 27 38	SS	e 36·3
Hyderabad		79·4	284	12 7	− 2	22 8	− 2	22 37	PS	38·1
Bucharest		79·6	336	i 12 10k	0	22 19	+ 7	27 20	SS	39·3
Basle		79·7	350	e 12 11	0	e 22 13	0	—	—	—
Zurich		79·8	350	e 12 12a	+ 1	e 22 15	+ 1	—	—	—
Besançon		80·2	351	e 12 13	− 1	22 34	+15	e 27 54	SS	39·3
Chur		80·2	349	e 12 13	− 1	e 22 24	+ 5	—	—	—
Neuchatel		80·3	350	e 12 15	+ 1	e 22 19	− 1	—	—	—
Triest		80·8	346	i 12 18a	+ 1	i 22 30	+ 5	i 15 21	PP	e 39·1
Bermuda		81·5	47	e 12 17	− 4	i 22 29	− 3	e 17 19	PPP	33·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		81·5	198	i 12 19	− 2	i 22 25	− 7	e 19 7	?	—
Bombay		81·6	289	i 12 20	− 1	i 22 34	+ 1	i 23 15	PS	i 31·4
Sofia		81·8	337	i 12 25	+ 3	e 22 41	+ 6	—	—	37·3
Clermont-Ferrand		81·9	353	i 12 22	− 1	23 39	PS	—	—	39·3
Istanbul		81·9	333	e 9 33	?	—	—	e 15 35	PP	—
Marseilles		84·1	351	e 12 52	+18	—	—	—	—	e 45·3
Rome		84·6	346	i 12 37a	+ 1	i 22 59	− 4	i 12 50	pP	e 43·3
Kodaikanal		85·6	281	i 12 44a	+ 3	i 23 31	+18	i 16 4	PP	40·6
Ksara		86·5	325	i 12 47a	+ 1	23 32	+10	16 10	PP	—
Colombo		86·8	277	12 51	+ 4	23 19	[+ 6]	—	—	44·0
Riverview		88·1	198	e 12 55	+ 1	i 23 17	[− 4]	24 43	PS	e 40·2
Sydney		88·1	198	—	—	e 23 19	[− 2]	e 29 7	SS	—
Toledo		88·1	358	i 12 54	0	i 23 22	[+ 1]	—	—	—
Lisbon		89·2	2	13 1	+ 2	23 38	[+10]	—	—	43·1
Arapuni		90·1	178	—	—	23 49	− 6	38 7	L_q	43·3
Granada		90·7	357	i 13 6k	0	i 23 47	[+10]	16 31	PP	e 48·0
Algiers		90·8	352	i 13 6	0	23 36	[− 2]	e 16 39	PP	44·0
Almeria		91·0	356	13 0	− 7	23 32	[− 7]	13 21	P_cP	57·6
San Fernando		91·5	0	e 12 4	−66	e 22 44	[−58]	e 15 31	?	43·3
Helwan		91·7	327	i 13 9k	− 1	—	—	—	—	50·8
Adelaide		92·2	209	—	—	e 23 31	[−14]	i 24 31	PS	38·8
San Juan		92·7	56	e 13 14	− 1	24 10	− 8	e 16 57	PP	i 37·8
Wellington		93·3	180	13 19	+ 1	23 40	[−12]	17 19	PP	42·3
Christchurch		95·6	181	13 33	+ 5	23 59	[− 5]	25 57	PS	44·6
Perth		97·9	227	i 17 57	PP	i 26 57	PS	31 54	SS	53·6
Huancayo		112·4	81	e 14 47	P	e 25 21	[− 1]	e 19 29	PP	45·0
La Paz	z.	120·1	77	e 19 39	[+46]	i 30 12	PS	i 20 24	PP	59·3
Tananarive		126·5	287	e 19 33	[+28]	28 9	{+12}	21 3	PP	63·5
Rio de Janeiro		139·3	56	e 19 27	[− 2]	i 40 44	SS	—	—	i 61·8
La Plata		139·9	85	23 1	PKS	40 53	SS	56 19?	L_q	63·9
Cape Town		154·3	306	20 11	[+17]	30 32	{−10}	23 37	SKP	71·1

Additional readings :—
College iPPP = +5m.56s., i = +6m.40s., S = +9m.18s., iS = +9m.30s. and +9m.38s.
Sapporo SS = +10m.36s.
Mori i = +8m.39s.
Mizusawa SE = +10m.15s.
Honolulu P = +7m.24s. and +7m.37s., iP = +7m.42s., PPP = +9m.9s., P_cP = +9m.25s., iS = +13m.16s.
Victoria e = +8m.25s. and +12m.19s., eE = +14m.31s., SSS = +16m.19s.?
Seattle eP = +7m.47s.
Spokane iSSEN = +18m.4s.
Zi-ka-wei iN = +15m.49s.
Ukiah eP = +8m.26s. and +9m.2s., ePP = +9m.54s.
Berkeley iP = +8m.31s., eSN = +14m.14s., iSE = +15m.11s.
Saskatoon SSS = +19m.9s.
Butte eP = +9m.11s., ePP = +10m.49s., eS_cS = +18m.14s.
Bozeman eP = +9m.36s., ePPP = +11m.44s., eS_cS = +18m.28s.
Salt Lake City eP = +9m.43s., ePPP = +11m.54s., eS = +16m.12s., S = +16m.18s., iS_cS = +18m.51s., eSS = +19m.19s.
Pasadena ePKP,PKPZ = +39m.43s.
Hong Kong PP = +11m.26s., S_cS? = +19m.29s., SS = +20m.40s.
Denver iE = +9m.44s., iPSE = +17m.41s., eN = +18m.16s., iN = +18m.28s., eE = +19m.20s.
Manila PN = +9m.45s.
Tucson iP = +9m.56s., PPP = +13m.38s., iPPP = +13m.55s., eS_cS = +19m.45s., eSS = +21m.37s.
Scoresby Sund iP = +10m.3s., iPP = +12m.5s., iPPP = +13m.28s., i = +14m.18s., iS = +17m.55s., i = +18m.25s., iSS = +21m.31s.
Ivigtut iP = +10m.35s., ePPP = +14m.18s., iS = +18m.47s. and +18m.53s., i = +19m.28s., iS_cS = +20m.12s., eSS = +22m.43s.
Chicago U.S.C.G.S. ePP = +12m.59s., ePPP = +14m.35s., eS_cS = +20m.28s., eSS = +22m.57s.
Florissant iN = +12m.27s., iEN = +19m.16s., iE = +19m.25s. and +19m.51s.
St. Louis iE = +19m.36s., eN = +20m.15s.
Toronto SSS = +26m.46s.
Ottawa e = +15m.19s., PS = +20m.11s., SS = +23m.59s., i = +27m.10s.
Upsala eN = +14m.4s., eE = +14m.19s.?, iPSE = +20m.5s., iN = +20m.58s., eSSN = +24m.30s., eSSSE = +27m.19s.?
Seven Falls PS = +20m.24s., SS = +24m.10s., i = +27m.24s.
Bergen SS = +24m.36s.

Continued on next page.

Pittsburgh i = +12m.21s., iNW = +16m.13s.
Vermont eS_cS = +20m.55s.
Pennsylvania i = +11m.11s., +11m.39s., and +12m.22s., e = +28m.1s.
Calcutta ePPN = +13m.45s., ePSN = +20m.51s., eSKSN = +21m.16s., iSSN = +24m.56s.
Dehra Dun e?N = +28m.13s.
East Machias eP = +11m.24s., S = +20m.32s., eSSS = +28m.3s.
Harvard i = +11m.36s.
Weston i = +16m.50s.
Fordham iZ = +12m.11s., iSN = +20m.40s., iEN = +21m.28s.
Philadelphia ePPP = +15m.38s., i = +20m.52s.
Aberdeen iSSN = +24m.40s., iEN = +28m.54s., L_qE = +30m.32s.
Copenhagen i = +11m.29s.
Halifax eN = +23m.19s.
Agra iN = +11m.31s., PP = +14m.8s., iE = +21m.21s., SSE = +25m.19s., SSSE = +29m.29s.
Columbia ePPP = +15m.59s., iS = +20m.51s., eS_cS = +21m.22s., eSS = +25m.24s., eSSS = +28m.32s.
Heligoland eSSN = +25m.44s.
Hamburg eSSSN = +30m.4s.
Stonyhurst iSKS = +21m.36s.
Potsdam iNW = +17m.5s.
Jena eN = +14m.41s., eSE = +21m.19s., eSN = +21m.31s., iS = +22m.5s., eE = +26m.1s., eN = +26m.35s.
Kew iZ = +12m.5s. and +12m.14s., iSKSE = +21m.56s., iPSEZ = +22m.14s., eSSZ = +27m.35s., eSSSZ = +30m.36s., L_qE = +32m.16s.
Prague ePPP = +16m.44s., eSS = +26m.43s.
Uccle iN = +20m.58s., +21m.52s., and +22m.23s., iSSN = +27m.7s.
Budapest PPN = +14m.54s., PPE = +15m.0s., SKSE = +22m.10s., SKSN = +22m.13s., PSN = +22m.38s., eN = +22m.51s., ePSE = +22m.54s., SSE = +27m.10s., SSN = +27m.29s., iN = +31m.45s.
Stuttgart iZ = +12m.9s., ePPZ = +14m.41s., iPPN = +14m.50s., iSEN = +22m.21s., eSSE = +27m.19s.
Strasbourg i = +12m.15s., +12m.33s., +15m.50s., and +22m.45s.
Hyderabad SSN = +27m.23s.
Triest eP = +12m.21s., ePPP = +17m.14s., ePKP = +18m.49s., iS_cS = +22m.47s., iPS = +23m.19s., i = +23m.48s. and +24m.13s., iSS = +27m.52s., eSSS = +31m.26s., ePKP,PKP = +38m.53s.
Bermuda eP = +12m.23s., iS = +22m.36s., SS = +27m.45s.
Bombay i = +12m.33s., iSKS = +22m.39s., i = +22m.59s., iPPS = +23m.45s., iSS = +27m.25s.
Clermont-Ferrand i = +12m.30s.
Rome iZ = +14m.14s., iPPZ = +14m.59s., eZ = +15m.55s., ePPPE = +17m.17s., eE = +18m.9s., iSN = +20m.17s., iZ = +23m.12s., eN = +24m.17s., eSSN = +28m.45s., eEN = +33m.4s.
Ksara PS = +24m.30s.
Kodaikanal SSE = +29m.1s.
Riverview eN = +12m.59s., eSN = +23m.35s., SKKSN = +23m.45s., SSN = +30m.1s., SSSN = +33m.35s.
Sydney e = +35m.49s.
Toledo iSE = +23m.37s.
Lisbon PN = +13m.4s., PE = +13m.12s., SN = +23m.50s.
Granada SKS = +22m.27s., PS = +25m.21s., SS = +30m.36s., SSS = +33m.31s.
Algiers e = +15m.37s., PPP = +18m.38s., eS = +24m.4s., PS = +25m.19s., SS = +30m.34s., e = +33m.19s.
Almeria PP = +16m.26s., PPP = +18m.35s., PS = +24m.9s., PPS = +24m.54s., SSS = +32m.50s.
San Fernando eSKSN = +21m.42s., iSSN = +29m.43s.
Helwan iEZ = +13m.19s., SSSE = +38m.1s.
Adelaide iP = +24m.14s., iPP = +25m.25s., i = +25m.57s. and +26m.19s., P_cP = +26m.57s., i = +28m.53s. and +29m.5s., iS = +30m.17s., i = +31m.36s., S_cS = +34m.9s.
Wellington SKS = +24m.19s., PS = +25m.23s., SS? = +29m.49s.?, SSS = +34m.29s.?, L_q = +38·3m.
San Juan eP = +13m.37s. and +13m.42s., ePPP = +18m.58s., iS = +24m.14s., PS = +25m.12s., eSS = +29m.33s., eSSS = +33m.24s.
Christchurch S = +24m.47s., SS = +31m.15s., L_qE = +40m.19s.
Perth P = +19m.14s., PP = +23m.14s., PPP = +26m.26s., i = +29m.44s., +30m.44s., +32m.9s., PPS = +32m.46s., i = +35m.19s., SS = +37m.9s., i = +39m.2s. and +41m.17s., SSS = +42m.47s., SSSS = +45m.34s.
Huancayo iS = +27m.5s., ePS = +28m.55s., iPS = +29m.0s., iPKKP = +29m.47s., eSS = +35m.6s., SS = +35m.21s., iSSS = +39m.10s.
La Paz iPPZ = +21m.9s., iPPPZ = +23m.29s., PSZ = +34m.29s., SSZ = +40m.59s.
Tananarive PPPN = +23m.28s., SSN = +37m.42s.
Rio de Janeiro iSS = +40m.48s.
La Plata SKSP = +33m.19s., SS?E = +40m.13s., E = +42m.55s.
Cape Town PKP_2N = +20m.15s., PPN = +23m.52s., SKSN = +26m.27s., PPPE = +27m.7s., PSKSN = +34m.11s., PSKSE = +34m.15s., PPSE = +36m.47s., PPSN = +37m.27s., SSN = +42m.50s., SSE = +42m.55s., SSSE = +49m.11s.
Long waves were also recorded at Andijan and Tchimkent.

April 16d. 6h. 43m. 2s. Epicentre 52°·4N. 173°·5E. (as at 6h. 7m.).

$A = -\cdot6087$, $B = +\cdot0694$, $C = +\cdot7903$; $\delta = -9$; $h = -6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sikka		19·4	274	4 30	0	8 5	+ 1	—	—	—
College		23·2	42	5 14	+ 5	e 9 12	− 6	i 5 46	PP	—
Sapporo		23·4	260	5 10	− 1	9 28	+ 7	—	—	e 11·5
Mori		24·4	258	5 19	− 2	—	—	—	—	i 11·9
Mizusawa	E.	25·9	251	5 35	0	10 17	+13	—	—	—
	N.	25·9	251	5 38	+ 3	10 6	+ 2	—	—	—
Sendai		26·7	250	5 39	− 4	10 1	−16	—	—	—
Tokyo Cen. Met. Ob.		29·1	248	6 15	+11	11 2	+ 6	—	—	—
Nagano		29·3	252	6 8	+ 2	11 10	+11	—	—	—
Yokohama		29·4	248	e 6 41	+34	e 12 6	SS	—	—	—
Nagoya		31·1	250	6 28	+ 6	12 21	+53	—	—	—
Osaka		32·3	252	6 27	− 6	11 50	+ 4	—	—	—
Hukuoka		36·0	255	e 7 14	+ 9	12 52	+ 8	—	—	15·5
Miyazaki		36·6	251	7 9	− 1	12 51	− 2	—	—	—
Honolulu		38·1	133	e 7 28	+ 6	i 13 20	+ 4	i 9 1	PP	15·8
Spokane		43·1	68	e 8 8	+ 4	e 14 38	+ 8	—	—	—
Zi-ka-wei	N.	43·1	261	e 9 12	PP	—	—	—	—	22·6
Miyakozima		45·5	251	8 30	+ 7	15 10	+ 5	—	—	—
Butte		46·8	66	e 8 58	+25	18 30	ScS	—	—	e 19·1
Lick	N.	46·8	82	e 8 37	+ 4	e 16 28	+64	—	—	—
Bozeman		47·8	66	e 11 20	PPP	e 18 31	ScS	—	—	e 19·2
Fresno	N.	48·3	81	e 8 51	+ 6	—	—	—	—	—
Tinemaha		49·0	80	e 8 51	+ 1	—	—	—	—	—
Haiwee	Z.	49·8	81	i 9 0	+ 4	—	—	—	—	—
Santa Barbara	Z.	49·9	83	i 8 59	+ 2	—	—	—	—	—
Salt Lake City		50·4	72	e 9 1	0	e 18 51	ScS	e 10 59	PP	—
Mount Wilson		51·0	82	i 9 5	− 1	—	—	—	—	—
Pasadena		51·0	82	i 9 5	− 1	—	—	—	—	—
Riverside		51·6	82	i 9 10	0	—	—	—	—	—
Semipalatinsk		54·2	307	9 24	− 5	e 17 33	+27	—	—	28·0
Palau		55·1	229	9 58	+22	—	—	—	—	—
Tucson		56·8	79	9 47	− 1	i 17 30	−11	11 50	PP	i 22·6
Almata		60·7	303	e 10 11	− 4	e 19 0	+28	—	—	25·0
Frunse		62·2	304	10 22	− 4	19 18	+27	—	—	34·1
Chicago U.S.C.G.S.		63·0	56	i 11 13	+42	e 22 49	SS	i 12 46	PP	25·4
Florissant		63·8	60	e 10 35	− 1	i 19 9	− 2	i 19 39	PS	—
St. Louis	N.	64·0	60	i 10 34	− 4	e 19 10	− 3	—	—	—
Andijan		64·9	304	10 42	− 1	e 19 53	PS	—	—	35·0
Tchimkent		65·1	307	10 43	− 2	—	—	—	—	34·0
Moscow		66·3	334	10 54	+ 2	19 45	+ 3	—	—	—
Bergen		67·2	353	10 54	− 4	e 26 5	SSS	e 12 30	PP	e 31·9
Pittsburgh		67·8	52	i 11 0	− 2	—	—	—	—	—
Samarkand		68·4	307	10 56	−10	20 22	+15	—	—	e 34·0
Pennsylvania		68·5	51	i 11 6	− 1	e 17 9	?	—	—	e 32·4
Dehra Dun	N.	69·7	292	e 14 33?	PP	e 23 31?	SS	—	—	e 36·1
Harvard		70·1	45	i 11 13	− 3	—	—	e 39 8	P′P′	—
Fordham	Z.	70·4	48	i 11 16	− 2	—	—	e 39 16	P′P′	e 38·7
Copenhagen		71·1	349	e 11 21	− 1	—	—	—	—	—
Heligoland	N.	73·1	352	e 11 52	+18	—	—	—	—	e 37·1
Warsaw	Z.	73·2	342	e 11 13	−22	—	—	—	—	—
Hamburg		73·5	349	e 11 34	− 2	—	—	—	—	e 38·0
Jena		75·9	348	i 11 48	− 2	—	—	—	—	e 34·0
Kew		76·4	355	i 11 51	− 2	21 43	+ 5	—	—	e 35·0
Sotchi		76·4	327	12 3	+10	—	—	—	—	—
Uccle	Z.	76·8	354	e 11 52	− 3	—	—	—	—	—
Stuttgart		78·3	349	e 12 1	− 2	e 22 6	+ 7	—	—	—
Strasbourg		78·7	350	e 12 6	0	—	—	e 17 21	?	—
Paris		78·9	354	e 12 32	+25	—	—	e 16 30	PPP	—
Basle		79·7	350	e 12 10	− 1	e 22 17	+ 4	—	—	—
Zurich		79·8	350	e 12 10a	− 2	—	—	—	—	—
Besançon		80·2	351	e 12 14	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		80·2	349	e 12 12	− 2	—	—	—	—	—
Neuchatel		80·3	350	e 12 14	0	e 22 39	+19	—	—	—
Triest		80·8	346	i 12 16a	− 1	i 22 28	+ 3	e 15 16	PP	—
Bermuda		81·5	47	12 15	− 6	i 31 2	SSS	i 15 23	PP	e 32·5
Bombay		81·6	289	i 12 36	+15	i 22 47	+14	—	—	—
Sofia		81·8	337	e 12 22	0	—	—	—	—	—
Clermont-Ferrand		81·9	353	e 12 22	− 1	—	—	—	—	e 57·8
Marseilles		84·1	351	e 13 10	+36	i 24 15	PPS	—	—	—
Rome		84·6	346	i 12 36a	0	e 23 3	0	i 16 21	PP	—
Ksara		86·5	325	e 12 54	+ 8	e 23 31	+ 9	—	—	—
Toledo	z.	88·1	358	e 12 51	− 3	—	—	—	—	—
Granada		90·7	357	i 13 11	+ 5	23 50	−11	16 40	PP	40·8
Algiers		90·8	352	i 13 3	− 3	e 24 3	+ 1	16 58	PP	44·0
Almeria		91·0	356	13 3	− 4	—	—	13 24	PcP	—
Huancayo		112·4	81	e 14 43	P	—	—	19 20	PP	—
La Paz	z.	120·1	77	e 20 12	PP	—	—	—	—	—

Additional readings :—
College S = +9m.22s.
Honolulu iPPP = +9m.28s.
Spokane eN = +11m.58s., eE = +12m.18s., iE = +14m.58s.
Butte eP = +9m.5s.
Tucson iP = +10m.18s., iPcP = +10m.39s., PPP = +13m.3s., SS = +21m.20s.
Florissant iEN = +19m.22s. and +19m.27s., iE = +19m.50s. and +20m.7s.
Fordham iZ = +11m.29s.
Jena iPEN = +11m.52s.
Paris e = +19m.58s.?
Triest iPS = +23m.14s.
Rome iN = +12m.43s., iZ = +14m.37s., iE = +17m.9s., iZ = +23m.38s., eN = +24m.21s. and +26m.43s., eEN = +31m.45s.
Long waves were also recorded at Erevan, Piatigorsk, Aberdeen, and Upsala.

April 16d. 7h. 48m. 35s. Epicentre 52°·4N. 173°·5E. (as at 6h.).

A = −·6087, B = −·0694, C = +·7903 ; $\delta = -9$; $h = -6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		23·2	42	e 5 16	+ 7	e 9 3	−15	e 5 57	PPP	e 9·7
Mizusawa	E.	25·9	251	e 5 37	+ 2	e 9 2	−62	—	—	—
Honolulu		38·1	133	7 35	+13	i 13 33	+17	i 9 38	PPP	i 15·7
Ukiah		44·7	81	10 48	PPP	i 14 48	− 6	—	—	i 18·2
Tinemaha		49·0	80	i 8 50	0	—	—	—	—	—
Mount Wilson		51·0	82	i 9 6	0	—	—	—	—	—
Pasadena		51·0	82	i 9 5	− 1	—	—	—	—	—
Riverside		51·6	82	i 9 9	− 1	—	—	—	—	—
Tucson		56·8	79	9 48	0	i 17 30	−11	e 10 42	PcP	—
Florissant	E.	63·8	60	i 10 35	− 1	e 19 10	− 1	—	—	—
Andijan		64·9	304	e 10 46	+ 3	e 19 57	PS	—	—	—
Tchimkent		65·1	307	e 10 49	+ 4	—	—	—	—	—
Pittsburgh	z.	67·8	52	e 10 59	− 3	—	—	e 14 2	PP	—
Pennsylvania		68·5	51	i 11 23	+17	—	—	i 14 27	PPP	—
East Machias		70·0	42	e 13 53	PP	i 20 57	PS	15 40	PPP	e 28·5
Fordham	z.	70·4	48	i 11 16	− 2	i 26 7	?	i 14 20	PP	—
Basle		79·7	350	e 12 13	+ 2	—	—	—	—	—
Bermuda		81·5	47	e 12 19	− 2	i 22 42	+10	e 15 25	PP	i 33·3
San Juan		92·7	56	16 46	PP	23 48	[0]	e 25 47	PPS	e 37·6
Huancayo		112·4	81	e 14 47	P	e 25 36	[+14]	i 19 37	PP	e 45·8

Additional readings :—
Honolulu iP = +9m.6s.
Tucson P = +9m.55s. and +10m.7s., ePP = +12m.11s., PPP = +13m.20s., iScS = +19m.32s., iSS = +21m.18s.
East Machias eScS = +21m.24s., SS = +24m.53s.
Bermuda SS = +27m.43s., eSSS = +31m.8s.
San Juan eS = +24m.25s., eSS = +30m.11s.
Huancayo eSKKS = +26m.9s., eS = +27m.3s., PS = +28m.54s., eSS = +34m.40s., eSSS = +38m.34s.

April 16d. Readings also at 0h. (near Berkeley and Ottawa), 2h. (near Berkeley), 3h. (Triest), 5h. (Bucharest), 6h. (Mount Wilson, Pasadena, and Fordham), 7h. (Mount Wilson, Pasadena, and Mizusawa), 8h. (Florissant, Tinemaha, Riverside, Tucson, Mount Wilson (3), and Pasadena (3)), 10h. (Jena (4)), 14h. (Baku, Sverdlovsk, Rome, Andijan, Tchimkent, Potsdam, Warsaw, and Semipalatinsk), 17h. (Sofia and Tucson), 18h. (Tucson), 20h. (Stuttgart (2)), 21h. (Mizusawa), 23h. (near Tananarive).

April 17d. 10h. 30m. 28s. Epicentre 40°·5N. 43°·0E. (as on 1938, November 14d.).

$A = +·5577$, $B = +·5201$, $C = +·6469$; $\delta = +1$; $h = -2$;
$D = +·682$, $E = -·731$; $G = +·473$, $H = +·441$, $K = -·763$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan	1·2	105	0 19	− 5	0 32	− 9	—	—	—
Piatigorsk	3·6	1	1 0	+ 2	2 2	S_g	1 14	P_g	—
Sotchi	3·9	322	1 4	+ 2	1 49	− 1	2 16	S_g	—
Baku	5·3	89	—	—	2 49	S_g	—	—	—
Ksara	8·8	223	e 2 27	+16	i 4 27	S*	i 4 45	S_g	—
Helwan	14·2	226	e 3 29	+ 5	i 6 23	SS	e 3 40	PP	e 9·1
Moscow	15·7	349	e 3 45	+ 1	e 6 43	+ 4	—	—	e 9·0
Tashkent	19·8	77	i 4 31	− 4	—	—	—	—	e 12·4
Sverdlovsk	19·9	30	4 34	− 2	—	—	—	—	9·5
Pulkovo	20·9	343	e 4 46	0	e 8 36	+ 1	—	—	—
Rome	23·0	283	e 5 8	+ 1	e 9 25	+11	—	—	e 15·0
Potsdam	23·6	312	e 5 14	+ 1	—	—	—	—	8·5
Chur	24·9	298	e 5 25	− 1	—	—	—	—	—
Stuttgart	25·3	301	i 6 30	PPP	—	—	—	—	—
Zurich	25·6	298	e 5 31	− 1	—	—	—	—	—

April 17d. 21h. 34m. 31s. Epicentre 9°·0S. 158°·5E.

$A = -·9191$, $B = +·3621$, $C = -·1554$; $\delta = +1$; $h = +7$;
$D = +·367$, $E = +·930$; $G = +·145$, $H = -·057$, $K = -·988$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	19·1	195	i 4 23	− 4	e 7 59	+ 2	—	—	—
Riverview		25·6	194	—	—	e 10 2	+ 3	—	—	e 12·8
Sydney		25·6	194	—	—	e 10 5	+ 6	—	—	e 13·7
Adelaide		31·6	212	7 49	PPP	11 29	− 6	i 13 39	SS	16·4
Wellington		35·2	159	—	—	13 29?	+58	—	—	18·5
Christchurch		36·5	163	7 10	+ 1	13 1	+10	16 19	L_q	18·0
Manila		44·0	302	i 8 8k	− 3	12 40	?	—	—	—
Perth		45·6	234	i 8 24	0	i 15 1	− 5	i 11 4	PPP	21·0
Honolulu		52·4	54	e 9 17	+ 1	e 16 41	− 1	e 11 18	PP	e 21·6
Hong Kong		53·4	306	16 48	S	(16 48)	− 7	—	—	—
Zi-ka-wei	Z.	53·5	321	e 9 19	− 5	—	—	—	—	—
Colombo	E.	79·9	278	12 9	− 3	—	—	—	—	—
Kodaikanal	E.	82·9	281	—	—	i 22 41	− 5	—	—	—
Agra	E.	85·7	298	12 42	0	i 22 57	[− 9]	—	—	—
Bombay		88·8	289	i 12 57	0	i 23 36	− 8	—	—	—
Victoria		88·9	42	—	—	e 23 29?	[+ 3]	—	—	41·5
Pasadena		89·5	56	e 13 0	0	—	—	—	—	e 40·5
Tinemaha		90·0	52	i 13 3	0	—	—	—	—	—
Riverside		90·2	56	e 13 2	− 2	—	—	—	—	—
Tucson		95·3	59	e 13 26	− 1	—	—	—	—	e 44·2
Bozeman		96·7	45	—	—	e 24 8	[− 2]	—	—	e 42·0
Florissant		112·0	52	e 19 29	PP	e 29 54	PPS	—	—	—
St. Louis		112·2	52	—	—	e 28 54	PS	e 30 21	?	e 53·3
Ksara		122·0	303	e 18 34	[−23]	—	—	i 20 27	PP	69·5
Istanbul		125·2	313	e 15 47	P	—	—	—	—	—
Bucharest		125·8	319	e 20 41	PP	—	—	—	—	—
Helwan		126·5	300	i 21 2	PP	e 25 17	[−53]	—	—	—
Sofia		128·4	318	e 21 47	PP	—	—	(23 59)	PPP	24·0
Triest		132·6	326	i 20 48	?	—	—	i 23 58	PPP	—
Stuttgart		132·7	332	e 22 36	PKS	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rome		135·6	322	e 21 7	?	e 28 31	{−24}	—	—	e 55·0
San Juan		135·8	72	e 19 27	[+ 5]	e 27 30	[+58]	e 21 57	PP	e 63·6
Toledo	z.	145·5	335	e 19 37	[− 3]	—	—	—	—	—
Granada		147·6	333	i 19 45k	[+ 1]	—	—	—	—	—

Additional readings :—
Brisbane eN = +5m.53s.
Adelaide PP = +9m.9s., P_cP = +11m.52s.
Perth i = +15m.21s. and +17m.14s., iSS = +18m.7s. and i = +18m.27s.
Honolulu ePPP = +22m.21s., eS_cS = +18m.57s.
Pasadena i = +13m.5s.
Bozeman eS = +24m.45s.
Helwan eE = +22m.23s.
Rome eN = +21m.27s., eE = +22m.52s., eZ = +22m.56s., ePPPEN = +24m.40s., ePPPZ = +24m.56s., eZ = +27m.48s. and +28m.35s.
San Juan iPKS = +22m.54s., eSS = +39m.56s.
Stuttgart eNE = +22m.41s.
Long waves were also recorded at Uccle, Berkeley, Sitka, Huancayo, East Machias, and College.

April 17d. Readings also at 1h. (Tucson), 3h. (Huancayo), 5h. (Tucson, Mount Wilson, Pasadena, Tinemaha, and Riverside), 6h. (Triest), 7h. and 8h. (La Paz), 9h. (Huancayo), 10h. (Istanbul), 14h. (Frunse, Tchimkent, near Andijan, Sverdlovsk, and Tashkent), 15h. (near Mizusawa and Triest), 16h. (Mount Wilson (2), Pasadena, and Tucson (2)), 19h. (Sofia and near Wellington (2)), 20h. (Manila and Ksara), 21h. (Ksara, Tucson, and near Helwan), 23h. (Ksara, Hong Kong, Bucharest, and Sitka).

April 18d. 18h. 43m. 42s. Epicentre 34°·1N. 117°·4W.

A = −·3819, B = −·7367, C = +·5580 ; δ = −6 ; h = 0 ;
D = −·888, E = +·460 ; G = −·257, H = −·495, K = −·830.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside		0·1	—	i 0 5k	− 3	—	—	—	—	—
Mount Wilson		0·6	283	i 0 15a	0	i 0 24	− 2	—	—	—
Pasadena		0·6	275	i 0 16a	+ 1	i 0 26	0	—	—	—
Palomar	z.	0·9	149	i 0 18	− 2	—	—	—	—	—
La Jolla		1·2	174	e 0 24	0	i 0 40	− 1	—	—	—
Haiwee		2·1	347	i 0 38	+ 1	i 1 5	+ 1	—	—	—
Tinemaha		3·1	347	i 0 52	+ 1	i 1 39	S*	—	—	—
Fresno	N.	3·3	324	e 1 3	P_g	i 1 44	S*	—	—	—
Tucson		5·8	106	e 1 29	0	2 35	− 3	1 57	P_g	e 3·5

Tucson gives also eP = +1m.35s., iS = +3m.0s.

April 18d. 19h. Undetermined shock.

Felt in New Britain and New Ireland.

Epicentre : 2°·5S. 154°·0E. (Wellington).
5°·3S. 153°·1E. (U.S.C.G.S.).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V, 2eme partie, Seismologie (1940), Strasbourg, 1948, p. 8.

Brisbane iPN = 48m.24s., ePE = 48m.42s., iSEN = 52m.24s.
Riverview eN = 50m.28s., eSN = 54m.43s., eLN = 58·4m.
Manila eP = 50m.38s., SEN = 56m.47s.
Christchurch P = 50m.47s., S = 57m.30s., L_g = 61m.8s., LZ = 64·3m.
Vladivostok eP = 52m.29s., eS = 59m.43s., L = 62·7m.
Sydney e = 54m.0s. and 59m.57s.
Adelaide iP? = 55m.17s., i = 57m.50s. and 58m.20s., iS? = 61m.40s.
Andijan eP = 56m.0s., S = 66m.27s.
Tashkent iP = 56m.17s., eS = 66m.56s., eL = 79·0m.
Mount Wilson iPZ = 56m.34s., iZ = 57m.4s.
Pasadena ePZ = 56m.35s., iEZ = 57m.5s., eLEZ = 85·0m.
Tinemaha ePZ = 56m.35s., eZ = 57m.27s.
Riverside ePZ = 56m.36s., eZ = 57m.5s.
Perth i = 61m.5s. and 65m.25s.
Ksara e = 61m.46s., 63m.22s. and 71m.38s.

Continued on next page.

Ottawa iZ = 62m.18s., L = 73·0m.
Harvard ePZ = 62m.27s., eLEZ = 105·0m.
La Paz PZ = 62m.48s.
Florissant eE = 70m.24s.
St. Louis eE = 70m.30s., eL = 100·5m.
Berkeley eEZ = 84m.17s., eN = 84m.45s.
Long waves were also recorded at College, Sitka, Philadelphia, Fordham, Tucson, Irkutsk, Sverdlovsk, Baku, Upsala, De Bilt, Paris, and Kew.

April 18d. Readings also at 1h. (Bucharest and Rome), 2h. (San Juan), 6h. (College, Huancayo, Istanbul, Tinemaha, Sofia, Rome, Tananarive, Ksara, Tucson, Pasadena, and Mount Wilson), 7h. (Tanamarive, Ksara, and near Mizusawa), 8h. (Triest, Tananarive, and Rome), 9h. (near Santa Clara and Lick), 10h. (near Lick (2), Fresno, Berkeley, San Francisco, Branner, Mount Wilson, Pasadena, and Tucson), 11h. (Sofia), 13h. (Granada), 18h. (Frunse, near Tashkent and Andijan), 21h. (Tucson (2) and near Mizusawa), 22h. (Triest), 23h. (Manila).

April 19d. 0h. 6m. 45s. Epicentre 52°·4N. 173°·5E. (as on 16d.).

A = −·6087, B = +·0694, C = +·7903; δ = −9; h = −6.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		23·2	42	e 5 14	+ 5	e 9 34	+16	—	—	e 11·2
Vladivostok		29·1	267	e 6 17	+13	e 10 58	+ 2	—	—	13·0
Sitka		29·3	60	e 6 21	+15	—	—	—	—	e 15·8
Victoria		39·2	70	—	—	e 13 33	+ 1	—	—	18·3
Irkutsk		40·8	299	e 7 47	+ 2	e 16 39	SS	e 9 40	PPP	21·3
Berkeley		46·1	82	—	—	e 18 31	SS	—	—	e 23·9
Tinemaha		49·0	80	i 8 50	0	—	—	—	—	—
Haiwee		49·8	81	e 8 57	+ 1	—	—	—	—	—
Santa Barbara		49·9	83	i 8 56	− 1	—	—	—	—	—
Salt Lake City		50·4	72	—	—	e 16 6	− 8	e 18 53	S_cS	—
Mount Wilson		51·0	82	i 9 5a	− 1	—	—	—	—	—
Pasadena		51·0	82	i 9 4a	− 2	—	—	—	—	—
Riverside		51·6	82	i 9 8	− 2	—	—	—	—	—
La Jolla	z.	52·4	83	e 9 16	0	—	—	—	—	—
Tucson		56·8	79	e 9 47	− 1	—	—	e 10 42	P_cP	—
Scoresby Sund		56·9	6	e 13 23	PPP	e 18 14	+32	—	—	e 22·8
Sverdlovsk		58·0	323	i 10 0	+ 3	18 5	+ 8	—	—	27·2
Lincoln		58·9	62	e 10 29	+26	e 18 9	+ 1	e 12 31	PP	e 30·8
Frunse		62·2	304	10 19	− 7	—	—	—	—	—
Chicago, U.S.C.G.S.		63·0	56	—	—	e 19 0	− 1	—	—	e 26·7
Florissant		63·8	60	e 10 35	− 1	e 19 9	− 2	—	—	33·5
St. Louis		64·0	60	i 10 37	− 1	e 19 10	− 3	—	—	30·3
Pulkovo		64·3	340	10 42	+ 3	19 29	+12	—	—	—
Andijan		64·9	304	10 40	− 3	—	—	—	—	—
Ottawa		65·9	64	—	—	(20 15?)	+38	—	—	20·2
Tashkent		66·0	307	10 54	+ 4	19 44	+ 6	e 13 25	PP	e 32·9
Moscow		66·3	334	10 55	+ 3	19 50	+ 8	—	—	—
Pittsburgh		67·8	52	—	—	e 19 59	− 1	—	—	e 27·9
East Machias		70·0	42	—	—	e 20 24	− 2	—	—	e 30·5
Harvard		70·1	45	e 11 13	0		—	—	—	e 38·3
Fordham		70·4	48	i 11 38k	+20	e 20 37	+ 7	—	—	e 35·3
Philadelphia		70·5	49	—	—	e 20 34	+ 2	e 28 8	SSS	e 34·1
Warsaw	z.	73·2	342	e 11 37a	+ 2	—	—	—	—	e 43·3
Hamburg		73·5	349	e 11 45	+ 9	—	—	—	—	e 41·3
Piatigorsk		74·9	324	11 45	+ 1	—	—	—	—	—
Erevan		77·7	322	e 12 3	+ 3	e 22 0	+ 8	—	—	—
Basle		79·7	350	e 12 14	+ 3	—	—	—	—	—
Zurich		79·8	350	e 12 15	+ 3	—	—	—	—	—
Triest		80·8	346	e 12 38	+21	—	—	—	—	—
Bombay		81·6	289	—	—	e 22 57	PS	—	—	e 44·0
Clermont-Ferrand		81·9	353	e 12 15	− 8	—	—	—	—	—
Istanbul		81·9	333	e 20 5	?	—	—	—	—	—
Rome		84·6	346	e 12 19	−17	e 23 10	+ 7	e 28 30	SS	e 40·4
Ksara		86·5	325	e 12 28	−18	e 24 13	PS	—	—	—
La Paz		120·1	77	25 30	S	(25 30)	[−20]	—	—	—

For Notes see next page.

NOTES TO APRIL 19d. 0h. 6m. 45s.

Additional readings :—
Tucson eP = +9m.51s. and +10m.2s.
Lincoln eS_eS = +20m.1s.
Florissant iPZ = +10m.41s.
St. Louis iN = +10m.48s.
Tashkent eSS = +24m.3s.
Rome eZ = +12m.41s.
Ksara e = +12m.50s. and +26m.7s.
La Paz iZ = +26m.57s.
Long waves were also recorded at Phu-Lien, De Bilt, Paris, Upsala, Potsdam, Baku, Butte, and Columbia.

April 19d. 14h. 39m. 47s. Epicentre 49°·5N. 156°·2E.

A = −·5966, B = +·2631, C = +·7582 ; δ = +2 ; h = −5 ;
D = +·404, E = +·915 ; G = −·694, H = +·306, K = −·652.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		14·9	231	3 32	− 2	6 4	−16	—	—	—
Vladivostok		17·9	258	e 4 10	− 2	—	—	—	—	9·3
Hukuoka		24·8	240	e 5 29	+ 4	10 6	+20	—	—	—
Zi-ka-wei	Z.	31·8	249	e 6 27	− 1	—	—	—	—	17·8
Irkutsk		32·3	297	e 6 31	− 2	—	—	—	—	18·2
Sitka		40·0	53	—	—	e 13 49	+ 5	—	—	—
Hong Kong		42·7	246	14 22	S	(14 22)	− 2	—	—	—
Manila		45·1	232	i 8 20	0	15 0	+ 1	—	—	—
Semipalatinsk		46·9	303	e 8 31	− 3	—	—	—	—	—
Sverdlovsk		53·2	318	i 9 23	+ 1	—	—	—	—	25·2
Andijan		56·9	296	e 9 49	0	—	—	—	—	e 35·2
Tashkent		58·3	298	i 10 1	+ 2	i 18 22	+21	—	—	e 31·7
Calcutta	N.	58·9	269	e 10 15	+12	i 18 23	PS	—	—	—
Scoresby Sund		60·2	359	—	—	e 18 31	+ 6	e 20 29	S_eS	e 29·6
Tinemaha		60·3	68	e 10 14	+ 1	—	—	—	—	—
Haiwee		61·1	68	e 10 18	0	—	—	—	—	—
Mount Wilson		62·3	70	i 10 26	0	—	—	—	—	—
Pasadena		62·3	70	e 10 27	+ 1	e 18 53	+ 1	—	—	e 30·2
Agra	E.	62·4	280	—	—	e 19 15	PS	—	—	—
Pulkovo		62·6	333	e 10 24	− 4	—	—	—	—	33·9
Riverside		62·9	70	e 10 29	− 1	—	—	—	—	—
Moscow		63·4	326	10 32	− 2	19 15	+ 9	—	—	36·6
Tucson		68·0	67	e 11 3	0	—	—	e 13 51	PP	e 34·8
Baku		68·9	309	—	—	20 40	PS	—	—	—
Bombay		71·6	278	i 11 26	+ 1	e 20 49	+ 5	—	—	—
Warsaw		71·7	333	e 11 26a	0	—	—	—	—	e 29·2
Potsdam		73·8	338	i 11 37	− 1	—	—	—	—	e 38·9
Florissant		74·3	49	e 11 41	0	e 21 13	− 2	—	—	—
St. Louis		74·5	49	i 11 42	0	i 21 13	− 4	—	—	34·3
Kodaikanal	E.	75·0	270	e 11 13?	−32	—	—	—	—	—
Ottawa		75·2	35	i 11 46	0	—	—	—	—	36·2
Jena		75·5	338	e 11 48	0	—	—	—	—	—
Uccle		77·2	343	i 11 57	0	—	—	—	—	e 40·2
Stuttgart		78·1	339	e 12 3	+ 1	—	—	—	—	—
Istanbul		78·6	322	11 41	−24	—	—	—	—	e 48·2
Strasbourg		78·6	340	e 11 58	− 7	—	—	—	—	—
Paris		79·5	343	i 12 12	+ 2	—	—	—	—	e 44·2
Zurich		79·5	339	e 12 11a	+ 1	—	—	—	—	—
Basle		79·6	340	e 12 12	+ 2	—	—	e 13 30	?	—
Chur		79·8	338	e 12 12	0	—	—	—	—	—
Fordham		79·8	37	e 12 10	− 2	—	—	—	—	e 42·2
Neuchatel		80·3	340	e 12 15	+ 1	—	—	—	—	—
Ksara		81·6	313	i 12 22a	+ 1	e 23 28	PS	e 15 32	PP	—
Clermont-Ferrand		82·3	342	e 12 23	− 2	—	—	—	—	—
Rome		83·6	334	i 12 32	0	e 23 19	PS	i 12 53	pP	e 40·0
Helwan		87·0	315	i 12 48k	0	e 23 28	+ 1	e 24 25	PS	—
Toledo		89·3	345	e 13 0	+ 1	—	—	—	—	49·7

For Notes see next page.

NOTES TO APRIL 19d. 14h. 39m. 47s.

Additional readings :—
Mount Wilson i = +10m.35s.
Pasadena i = +10m.38s.
Tucson eP = +11m.8s. and +11m.16s.
Rome iEN = +12m.36s.
Helwan iEZ = +13m.1s.
Long waves were also recorded at Phu-Lien, Upsala, Kew, Hamburg, Bozeman, Almata, Aberdeen, Granada, La Paz, and College.

April 19d. Readings also at 0h. (Tucson and Mizusawa), 2h. (Tucson), 4h. (near Tananarive), 6h. (near Hastings, Tuai, Wellington, Tucson, Christchurch, Bunnythorpe, College, Pasadena, Mount Wilson, and Tinemaha), 7h. (near Mizusawa), 9h. (Bucharest and Tucson), 11h. (Tucson, Calcutta, Scoresby Sund, Haiwee, Agra, Brisbane, Harvard, Bozeman, Riverside (2), Paris, Rome, Istanbul, Potsdam, Zurich, Basle, Neuchatel, Warsaw, Bombay, Helwan, Tinemaha (2), Mount Wilson (2), Pasadena (2), and Ksara), 12h. (Kobe, Sitka, Gihu, and Tinemaha), 14h. (Ksara), 16h. (Balboa Heights and Mizusawa), 17h. (Mount Wilson, Tinemaha, Pasadena, and Tucson), 18h. (near Tchimkent, Frunse, Almata, Andijan, and Tashkent), 20h. (Tucson), 22h. (Tucson and Ksara).

April 20d. 15h. 45m. 57s. Epicentre 7°·5N. 126°·7E. (as on 1939 June 27d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		9·0	322	i 2 36a	PPP	4 39	SSS	—	—	—
Hong Kong		19·0	323	4 32k	+ 6	8 13	SS	4 40	PP	—
Zi-ka-wei	Z.	24·1	350	e 5 23	+ 5	9 45	+11	i 6 11	PPP	—
Calcutta	N.	39·7	297	e 7 41	+ 5	i 13 40	0	—	—	—
Perth		40·6	194	—	—	i 13 8	−46	—	—	i 17·1
Adelaide		43·7	166	i 8 20	+12	i 14 33	− 6	i 9 21	PP	—
Colombo	E.	46·4	272	8 22	− 8	15 4	−14	—	—	—
Irkutsk		48·3	342	8 46	+ 1	15 48	+ 3	—	—	26·0
Agra	E.	50·0	300	i 8 54a	− 4	15 59	−10	—	—	—
Bombay		53·5	288	i 9 21	− 3	i 16 43	−14	—	—	—
Almata		56·2	319	e 9 50	+ 6	e 17 42	+ 9	—	—	—
Semipalatinsk		57·5	328	9 51	− 2	—	—	—	—	—
Frunse		57·6	317	9 51	− 3	—	—	—	—	—
Andijan		58·4	313	9 57	− 3	18 0	− 2	—	—	—
Tashkent		60·8	313	i 10 13	− 3	i 18 28	− 5	—	—	i 32·0
Tchimkent		60·9	315	10 14	− 3	i 18 29	− 5	—	—	—
Samarkand		62·1	311	10 32	+ 7	—	—	—	—	—
Sverdlovsk		70·8	328	i 11 18	− 2	20 29	− 6	—	—	35·0
Baku		75·1	310	e 11 44	− 2	21 19	− 5	—	—	39·0
Piatigorsk		80·3	313	e 12 10	− 4	—	—	—	—	—
Sotchi		82·7	313	e 12 23	− 4	—	—	—	—	—
Moscow		83·4	326	i 12 25	− 5	22 45	− 6	—	—	—
Ksara		86·6	303	i 12 41a	− 5	e 23 15	[+ 3]	16 0	PP	—
Pulkovo		86·8	330	e 12 42	− 5	23 16	[+ 3]	24 12	PS	40·5
Helwan		90·9	300	i 13 0k	− 7	e 24 27	PS	e 25 39	PPS	—
Warsaw		93·6	324	—	—	e 24 17	− 9	—	—	—
Scoresby Sund		99·4	351	e 17 53	PP	e 24 6	[−18]	—	—	—
Rome		102·6	316	i 17 56	PP	e 25 23	−19	—	—	e 51·3
Mount Wilson	Z.	106·1	51	i 14 14	P	—	—	—	—	—
Pasadena	Z.	106·1	51	i 14 7	P	—	—	i 18 16	PP	—
Tucson		112·5	50	e 18 30	PP	—	—	—	—	e 64·8

Additional readings :—
Hong Kong ? = +4m.57s., SS? = +8m.34s.
Adelaide i = +8m.43s., +10m.25s., and +11m.29s., iS = +13m.53s., i = +14m.51s.
Ksara ePS = +24m.3s.
Helwan eE = +13m.15s.
Scoresby Sund eSKKS = +24m.30s., S = +25m.13s.
Rome iZ = +18m.13s., iE = +18m.17s.

April 20d. 19h. Undetermined shock.

Zi-ka-wei eZ =56m.10s.
Frunse eP =59m.12s.
Sverdlovsk P =59m.14s., L =77·0m.
Almata eP =59m.38s., L =82·0m.
Andijan eP =59m.50s., eL =84·0m.
Tinemaha ePZ =59m.57s., eZ =60m.12s.
Mount Wilson iPZ =60m.9s.
Pasadena iPZ =60m.9s.
Riverside ePZ =60m.12s.
Tucson eP =60m.46s.
Baku P =61m.49s., S =70m.23s., L =85·0m.
Basle eP =61m.54s.
Chur eP =61m.55s.
Zurich eP =61m.55s.
Neuchatel eP =61m.59s.
Ksara iP =62m.6s., eS =72m.44s., L =96·0m.
Rome iPZ =62m.15s.a, iZ =63m.26s., ePPZ =65m.15s., eSN =72m.39s., eSSN = 81m.53s., eE =92m.5s.
Helwan iPZ =62m.33s.a, eE =73m.30s.
College e =65m.18s.
Agra eE =70m.15s.
Calcutta eN =82m.6s.
Upsala eE =86m.0s., eN =91m.0s.
Bombay e =87m.13s.
Ottawa iZ =91m.26s.
Hamburg eE =92m.0s.
Aberdeen eEN =94m.20s.
Long waves were also recorded at Paris, Kew, Tashkent, Irkutsk, Potsdam, Pulkovo, Moscow, Uccle, Warsaw, and De Bilt.

April 20d. Readings also at 5h. (Columbia), 9h. (Andijan, Tchimkent, Samarkand, Frunse, Tashkent, Port au Prince, and Tucson), 10h. (Tucson, Tashkent, Ksara, Sverdlovsk, Agra, Vladivostok, Irkutsk, Pulkovo, Warsaw, Basle, Zurich, Chur, Neuchatel, Riverside, Mount Wilson, Pasadena, and Tinemaha), 11h. (Scoresby Sund, Bombay, Baku, Moscow, Rome, Potsdam, and Warsaw), 13h. (Tinemaha, Mount Wilson, and Tucson), 14h. (Harvard and Ottawa), 16h. (near Apia and Rome), 18h. (Ottawa and Granada), 19h. (Ottawa), 20h. (Osaka, Mizusawa, La Jolla, Tinemaha, Santa Barbara, Haiwee, Tucson, Mount Wilson, Pasadena, and Riverside), 22h. (Tucson).

April 21d. Readings at 4h. (Tucson), 6h. (Agra, Bombay, Ksara, Sverdlovsk, Tashkent, Baku, and Helwan), 7h. (near Tananarive, Bombay, Ksara, Sverdlovsk, Tashkent, and Baku), 8h. (Huancayo and La Paz), 10h. and 11h. (near Tananarive), 22h. (Rome, Ksara, and Helwan).

April 22d. 12h. 20m. 39s. Epicentre 39°·7N. 39°·7E. (as on 1939 Dec. 29d.).

Damage at Erzinjan. Epicentre 39°·0N. 40°·0E. (Strasbourg).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V, 2eme partie, Seismologie (1940), Strasbourg, 1948, p. 8.

$A = +·5936$, $B = +·4928$, $C = +·6362$; $\delta = -4$; $\dot{h} = -2$;
$D = +·639$, $E = -·769$; $G = +·490$, $H = +·406$, $K = -·772$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan		3·7	80	1 5	P*	2 9	S_g	—	—	—
Sotchi		3·9	0	1 3	+ 1	2 3	S*	1 15	P_g	—
Piatigorsk		5·0	28	1 18	0	—	—	—	—	—
Ksara		6·6	209	e 1 40	− 1	i 3 38	S_g	15 44	S_cS	—
Sebastopol		6·7	319	1 43	+ 1	3 52	S_g	e 2 4	P*	—
Baku		7·9	81	e 1 58	− 1	—	—	—	—	5·0
Istanbul		8·2	282	−0 31	?	—	—	—	—	—
Bucharest		11·1	299	e 3 25	+42	e 4 51	+ 2	e 5 7	SS	5·5
Helwan		12·0	218	i 2 51k	− 4	i 5 29	SS	3 24	PPP	i 7·2
Sofia		12·7	289	e 3 10	+ 5	e 6 30	SSS	—	—	e 7·3
Moscow		16·1	356	3 46	− 3	7 3	SS	—	—	10·0
Budapest	E.	16·8	305	e 4 4	+ 6	e 7 28	SS	—	—	e 11·4
Warsaw		18·0	320	e 4 16k	+ 3	i 7 48	+16	—	—	e 9·2
Triest		19·9	297	e 4 40k	+ 4	e 8 28	+13	e 4 59	PP	e 10·4
Prague		20·6	310	e 4 49	+ 6	e 8 46	SS	—	—	e 12·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rome		20·7	285	e 4 45k	+ 1	i 8 44	+13	e 5 2	pP	e 10·6
Pulkovo		20·9	348	e 4 47	+ 1	e 8 46	+11	—	—	10·6
Samarkand		21·0	81	e 4 49	+ 2	e 9 14	SS	—	—	—
Sverdlovsk		21·9	31	i 4 55	− 2	9 7	+13	—	—	11·4
Potsdam		22·3	314	—	—	i 9 0	− 2	i 9 20	SS	13·9
Tashkent		22·5	75	e 4 59	− 3	e 9 13	+ 8	—	—	11·7
Jena		22·6	309	e 5 6	+ 3	—	—	—	—	—
Tchimkent		22·7	73	e 4 57	− 7	—	—	—	—	—
Chur		23·0	300	e 5 9	+ 2	—	—	—	—	—
Stuttgart		23·5	304	e 5 14	+ 2	—	—	—	—	—
Zurich		23·7	300	e 5 16	+ 2	—	—	—	—	—
Copenhagen		24·1	322	i 5 24s	+ 6	9 48	+14	—	—	—
Basle		24·4	300	e 5 23	+ 2	—	—	e 6 40	PP	—
Strasbourg		24·4	303	e 5 52	PP	—	—	—	—	—
Hamburg		24·5	315	e 5 21	− 1	—	—	—	—	e 15·9
Upsala		24·5	333	—	—	e 9 52	+12	—	—	e 17·3
Neuchatel		24·8	299	e 5 25	0	—	—	—	—	—
Andijan		24·9	77	e 5 26	0	e 9 58	+10	—	—	—
Frunse		26·3	71	e 5 35	− 4	—	—	—	—	—
De Bilt		26·8	311	—	—	e 10 41	+22	—	—	—
Kew		30·0	307	e 4 31	?	—	—	—	—	e 16·3
Semipalatinsk		30·2	55	e 6 10	− 4	—	—	—	—	e 15·4
Agra	E.	34·1	99	—	—	e 14 41	SS	—	—	—
Bombay	E.	35·2	116	e 9 26	?	—	—	—	—	—
Scoresby Sund		43·3	335	—	—	e 14 53	+20	—	—	—

Additional readings :—
Erevan $P_g = +1m.30s.$
Sotchi $P_g = +1m.27s.$
Bucharest eN = +3m.35s. and +4m.43s.
Helwan sPE = +3m.45s., iE = +4m.39s., SZ = +6m.20s., $P_cPZ = +6m.51s.$
Triest ePPP = +5m.5s., e = +5m.40s., $iP_cP = +8m.55s.$, eSS = +9m.14s.
Rome $eL_g = +11m.49s.$
Potsdam eE = +9m.15s.
Jena eE = +5m.9s.
Strasbourg e = +5m.57s.
Upsala eN = +9m.56s. and +15m.42s.
Long waves were also recorded at Paris, Bergen, Uccle, Aberdeen, and Irkutsk.

April 22d. Readings also at 0h. (near Tananarive, College, Ksara, Pasadena, Riverside, Mount Wilson, Tucson, and Tinemaha), 1h. (Rome and Bozeman), 4h. (La Paz), 5h. (La Plata, Tinemaha, Tucson, Mount Wilson, Riverside, and Pasadena), 6h. (Butte, Salt Lake City, Ukiah, Ferndale, Seattle, Tinemaha, Tucson, Mount Wilson, Riverside, Haiwee, Pasadena, and Bozeman), 8h. (near Apia), 9h. (Tucson), 12h. (Rome), 14h. (near Lick), 15h. (Rome), 16h. (near Mizusawa), 17h. (Tucson, La Paz, Pasadena, Riverside, Mount Wilson, and Tinemaha).

April 23d. Readings at 2h. (Granada), 4h. and 7h. (near Manila), 10h. (Balboa Heights), 11h. (Trieste), 18h. (Tinemaha, Pasadena, Mount Wilson, Riverside, and Tucson), 20h. (Fordham and Tucson), 21h. (Pennsylvania), 22h. (Tucson (3)).

April 24d. 10h. 22m. 5s. Epicentre 3°·5S. 149°·5E. (as on 1938, February 6d.).

$A = -·8601$, $B = +·5066$, $C = -·0606$; $\delta = +9$; $h = +7$;
$D = +·508$, $E = +·862$; $G = +·052$, $H = -·031$, $K = -·998$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		24·1	172	i 5 25	+ 7	i 9 37	+ 3	i 5 55	PP	e 11·5
Riverview		30·2	176	e 7 20	PP	i 11 48	+35	—	—	e 14·4
Sydney		30·2	176	e 10 34	?	e 13 25	SSS	—	—	e 15·6
Adelaide		32·9	196	e 11 15	?	i 11 55	− 1	i 14 25	SSS	19·0
Manila		33·5	303	e 6 42	− 1	12 13	+ 8	—	—	16·8
Arapuni		41·9	149	—	—	14 55?	+42	—	—	19·9
Perth		42·4	223	6 55	−63	13 55	−25	i 9 52	PP	21·6
Hong Kong		43·0	308	8 3	0	14 32	+ 3	—	—	—
Zi-ka-wei	z.	43·7	324	e 8 9	+ 1	14 49	+10	—	—	22·0
Wellington		43·9	152	8 5	− 5	14 31	−11	18 5	L_g	21·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Christchurch		44·8	156	8 7a	−10	14 46	− 9	18 13	L_q	21·5
Phu-Lien		48·5	301	e 8 47	+ 1	—	—	—	—	—
Calcutta	N.	65·0	296	e 16 5	?	i 19 37	+11	—	—	—
Kodaikanal	E.	73·0	282	e 11 31	− 2	—	—	—	—	—
Agra	E.	75·2	298	—	—	i 21 25	0	—	—	—
Bombay		78·6	289	e 12 21	+16	i 21 58	− 4	—	—	—
Almata		79·8	315	e 12 15	+ 3	—	—	—	—	—
Tashkent		85·0	311	e 12 39	+ 1	e 23 10	+ 3	—	—	38·2
Victoria		90·7	42	—	—	e 23 55?	− 6	—	—	43·9
Sverdlovsk		92·3	326	i 13 16	+ 3	—	—	—	—	40·9
Pasadena		93·9	56	i 13 28	+ 7	—	—	—	—	e 42·9
Tinemaha		93·9	53	e 13 28	+ 7	—	—	—	—	—
Mount Wilson	Z.	94·0	56	i 13 28	+ 7	—	—	—	—	—
Riverside		94·5	56	e 13 30	+ 7	—	—	—	—	—
Bozeman		99·1	45	e 18 2	PP	e 24 39	[+16]	e 27 9	PS	e 44·0
Tucson		100·0	57	e 18 4	PP	—	—	—	—	42·2
Ksara		111·5	304	e 19 26	PP	e 29 1	PS	—	—	—
Paris		126·8	333	—	—	e 31 48	PS	—	—	e 64·9

Additional readings :—
Adelaide iPP = +11m.35s., i = +12m.59s., P_cP = +14m.51s., S = +15m.21s., SS = +16m.7s., i = +17m.35s.
Perth PP = +8m.50s., PS = +14m.10s., SS = +17m.22s., i = +20m.15s.
Bozeman eSSS = +37m.7s.
Long waves were also recorded at Huancayo, Uccle, Kew, Warsaw, Rome, Aberdeen, Pulkovo, Baku, Moscow, and Potsdam.

April 24d. Readings also at 1h. (near Mizusawa), 3h. (Triest), 4h. (near Berkeley), 9h. (Tinemaha, Pasadena, Mount Wilson, and Riverside), 12h. (Haiwee, Tinemaha, Pasadena, Mount Wilson, Tucson, and Riverside), 13h. (near Mizusawa), 20h. (Palomar, Fordham, La Paz, Huancayo, Ksara, Pasadena, Mount Wilson, Riverside, and Tucson), 21h. (Rome, Paris, and Tucson), 23h. (Salt Lake City and Tucson).

April 25d. 18h. Undetermined shock.
Calcutta eN = 19m.40s.
Bombay e = 26m.57s.
La Jolla ePZ = 29m.22s.
Pasadena iP = 29m.22s.a.
Mount Wilson iP = 29m.23s.a.
Riverside ePZ = 29m.24s.
Palomar iPZ = 29m.25s.
Haiwee iP = 29m.29s.
Tinemaha iP = 29m.31s.
Tucson eP = 29m.42s., i = 29m.45s.
Copenhagen iP = 36m.42s.k.
Warsaw eZ = 36m.45s.
Hamburg eZ = 36m.46s.
Ksara iPKP = 36m.49s., epPKP = 38m.27s., ePP = 40m.12s.
Jena eE = 36m.54s.
Stuttgart ePZ = 36m.54s., iZ = 37m.1s., e = 37m.14s.
Strasbourg e = 37m.4s.
Triest iP = 37m.19s.

April 25d. Readings also at 4h. (Ksara), 5h. (Rome and San Fernando), 6h. (near Tananarive), 7h. (Triest), 8h. (near Almeria, Granada, and Toledo), 10h. (near Apia, Palomar, Pasadena, Mount Wilson, Tinemaha, Haiwee, Riverside, and Tucson), 11h. (near Mizusawa), 15h. (near Frunse, Tashkent, Samarkand, Sverdlovsk, and Almata), 16h. (near Triest), 17h. (Tucson, Mount Wilson, and Palomar), 19h. (Ottawa), 21h. (Huancayo, near Bucharest, and La Paz), 22h. (Santa Barbara, La Paz, Tucson, Tinemaha, Haiwee, Palomar, Riverside, Mount Wilson, Pasadena, and La Jolla), 23h. (Tucson).

April 26d. Readings at 7h. (near Rome, Triest, De Bilt, Hamburg, Paris, Kew, Potsdam, Bucharest, Sofia, Warsaw, Ksara, Scale VI at Polistena about 38°·5N. 16°·2E., also Huancayo and La Paz), 10h. and 13h. (Harvard), 15h. (Fordham), 16h. (near Mizusawa), 19h. (near Berkeley), 21h. (Paris, Kew, Hamburg, Potsdam, Stuttgart, Chur, Strasbourg, De Bilt, Zurich, Basle, Neuchatel, Jena, Uccle, Istanbul, Ksara, Triest, Warsaw, Sofia, Bucharest, and near Rome (2)), 22h. (Potsdam (2), Uccle (2), Kew, Rome, Bucharest, Istanbul, Triest, Warsaw, and Sofia), 23h. (Ksara).

April 27d. 9h. 35m. 25s. Epicentre 12°·4S. 166°·7E. (as on 1939, September 2d.).

$A = -·9508$, $B = +·2247$, $C = -·2134$; $\delta = +5$; $h = +6$;
$D = +·230$, $E = +·973$; $G = +·208$, $H = -·049$, $K = -·977$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		19·8	218	i 5 35?	+60	i 9 35?	L	—	—	(i 9·6)
Riverview		25·6	211	e 6 52	PPP	e 11 9	SSS	—	—	e 13·1
Sydney		25·6	211	—	—	e 10 17	+18	—	—	e 14·6
Arapuni		26·8	164	—	—	10 35	+16	—	—	15·6
Wellington		29·6	168	—	—	e 12 5	+61	—	—	16·6
Christchurch		31·4	171	6 29	+ 4	12 7	+35	14 19	L_g	16·8
Adelaide		33·9	223	12 33	S	(12 33)	+22	i 14 15	SS	16·6
Honolulu		48·3	46	e 8 49	+ 4	—	—	e 9 45	P_cP	e 18·5
Perth		50·5	238	10 28	PP	17 17	+61	12 27	PP	25·4
Manila		52·6	299	e 9 13	− 5	16 43	− 1	—	—	26·0
Tokyo, Cen. Met. Ob.		54·2	333	10 1	+32	—	—	—	—	—
Osaka		55·1	329	9 8	−28	17 11	− 7	—	—	—
Koti		55·6	326	9 21	−19	16 28	−57	—	—	23·4
Hamada		55·8	327	9 48	+ 7	—	—	—	—	—
Akita		57·5	336	17 23	S	(17 23)	−27	25 23	?	—
Hong Kong		62·0	304	10 26	+ 2	18 42	− 6	—	—	—
Vladivostok		63·8	332	e 11 29	+53	e 19 59	PPS	—	—	28·3
Phu-Lien		67·6	299	e 10 52	− 9	—	—	—	—	—
Ukiah		82·8	47	e 16 59	PPP	e 22 55	PS	e 27 2	SS	e 32·4
Berkeley		83·1	49	—	—	e 35 2	?	—	—	e 37·7
Santa Clara	Z.	83·1	49	e 12 53	+24	—	—	—	—	e 39·7
Sitka		84·0	27	—	—	e 22 41	−16	e 22 23	S_oS	e 38·3
Calcutta	N.	84·2	294	e 12 38	+ 4	i 22 52	− 7	—	—	—
College		84·3	17	e 12 40	+ 5	e 29 24	SS	e 22 43	PPS	e 34·0
Pasadena		84·9	53	e 12 34	− 4	e 23 9	+ 3	—	—	e 37·8
Mount Wilson		85·0	53	i 12 34	− 4	—	—	—	—	—
Riverside		85·5	53	i 12 36	− 5	—	—	—	—	—
Haiwee		85·7	51	e 12 38	− 4	—	—	—	—	—
Palomar	Z.	85·7	55	i 12 34	− 8	—	—	—	—	—
Victoria		86·3	39	—	—	i 23 13	[+ 3]	e 29 7	SS	38·6
Colombo	E.	88·4	277	e 12 35?	−20	—	—	—	—	—
Tucson		90·3	57	e 13 1	− 3	e 23 27	[− 6]	e 16 40	PP	e 39·7
Salt Lake City		91·3	48	e 13 9	0	e 23 51	[+10]	e 19 6	PPP	e 38·2
Kodaikanal	E.	91·4	281	e 12 35?	−34	—	—	—	—	—
Bozeman		93·5	44	e 13 20	+ 1	e 24 1	[+ 8]	e 16 51	PP	e 36·9
Agra	E.	94·4	297	e 17 7	PP	i 23 53	[− 5]	i 26 22	PPS	—
Bombay		97·5	288	e 13 42	+ 5	i 24 13	[− 1]	e 16 50	PP	—
Lincoln		103·0	50	e 14 18	+16	e 26 35	PS	e 19 51	PPP	e 43·2
Florissant	E.	107·7	53	—	—	e 33 58	SS	—	—	49·8
St. Louis		107·8	53	—	—	e 26 25	S	e 28 4	PS	49·3
Chicago		109·8	49	—	—	e 28 43	PS	e 33 30	?	e 47·2
Huancayo		113·8	109	e 19 0	[+20]	e 26 16	{−16}	e 21 8	PPP	e 45·2
Columbia		115·2	57	—	—	e 30 0	PPS	—	—	e 55·8
Ottawa		118·0	44	e 18 47	[− 2]	e 25 55	[+12]	e 29 47	PS	51·6
La Paz	Z.	118·7	117	e 29 11	PS	30 3	?	—	—	57·6
Philadelphia		119·4	51	—	—	e 26 22	[+34]	e 36 20	SS	e 55·4
Vermont		120·0	46	—	—	—	—	e 36 42	SS	e 57·8
Fordham		120·2	49	e 20 18	PP	e 28 14	{+59}	e 36 52	SS	—
Seven Falls		120·9	41	—	—	e 30 11	PS	e 36 53	SS	57·6
Scoresby Sund		121·7	4	e 20 51	PP	e 25 59	[+ 4]	e 30 29	PS	e 47·0
Upsala		127·4	341	—	—	e 42 35?	SSS	—	—	e 51·6
San Juan		128·9	76	e 22 41	PKS	e 31 45	PS	e 23 49	PPP	—
Bermuda		129·6	59	—	—	e 32 2	PS	e 38 28	SS	e 49·1
Ksara		130·5	303	e 19 22	[+ 9]	e 33 26	PPS	e 21 34	PP	—
Warsaw		131·7	332	e 21 35?	PP	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bucharest		133·6	321	e 22 54	PKS	—	—	—	—	66·6
Helwan		134·8	300	e 19 23	[+ 2]	i 32 40	PS	i 22 2	PP	—
Potsdom		134·8	339	e 21 47	PP	—	—	i 23 1	PKS	e 61·4
Hamburg	N.	135·0	342	e 21 35?	PP	—	—	—	—	—
De Bilt		137·7	343	e 22 5	PP	—	—	—	—	—
Uccle		139·1	344	e 22 12	PP	—	—	—	—	e 55·6
Kew		139·6	347	e 22 5	PP	32 35?	PS	23 7	PKS	e 59·6
Triest		139·7	331	e 19 53a	[+23]	—	—	—	—	—
Paris		141·4	344	e 19 41	[+ 8]	e 35 35?	PPS	e 23 18	PKS	e 63·6
Rome		143·0	326	e 19 34	[− 2]	e 32 40	PS	e 23 34	PKS	—
Toledo		151·4	345	e 19 53	[+ 4]	i 30 39	{+13}	—	—	71·6
Almeria		153·8	341	20 0	[+ 8]	—	—	—	—	74·6
Granada		153·8	342	i 20 18	[+26]	—	—	20 26	PKP_2	—

Additional readings :—
Adelaide i = +13m.25s. and +13m.58s., iS = +15m.39s., SS = +15m.52s.
Honolulu ePPP +10m.50s.
Perth PS = +17m.33s., i = +18m.33s., SS = +21m.10s., i = +23m.7s.
Ukiah eSSS = +30m.5s.
Berkeley eZ = +37m.16s.
Tucson P = +13m.13s. and +13m.23s., eS = +23m.41s. and +23m.47s., eS_cS = +23m.55s., ePS = +24m.18s., ePPS = +24m.57s., eSS = +29m.57s.
Salt Lake City ePS = +24m.21s., ePPS = +25m.40s., eSS = +29m.40s.
Bozeman ePPP = +18m.41s., ePS = +24m.45s., ePPS = +25m.41s., eSS = +29m.55s., ePSPS = +30m.45s., eSSS = +33m.45s.
Bombay i = +25m.8s.
Lincoln eSS = +32m.35s., eSSS = +36m.40s.
St. Louis iN = +26m.29s., eN = +32m.40s. and +33m.4s., eSE = +33m.58s.
Chicago ePSPS = +34m.21s., eSSS = +37m.24s.
Huancayo eS = +27m.51s., ePS = +29m.33s., ePPS = +31m.0s.
Ottawa eE = +36m.23s.
Philadelphia eSSS = +41m.5s.
Scoresby Sund eSSS = +40m.9s.
Bermuda ePSPS = +39m.5s.
Helwan iZ = +12m.2s., eE = +12m.17s. and +22m.57s.
Kew +46m.35s.?
Rome e = +34m.34s.
Long waves were also recorded at Jena, Baku, Sverdlovsk, Tashkent, Irkutsk, Miyazaki, Sendai, Seattle, Ivigtut, East Machias, and Butte.

April 27d. 10h. 33m. 16s. Epicentre 1°·0N. 20°·0W.

A = +·9395, B = −·3420, C = +·0173; δ = −8; h = +7;
D = −·342, E = −·940; G = +·016, H = −·006, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rio de Janeiro		32·8	222	e 4 44	?	i 11 4	−50	—	—	i 13·6
San Fernando	N.	37·5	19	e 6 28	−49	e 18 45	L	e 8 22	PP	(e 18·7)
Lisbon		38·8	14	7 38	+10	13 49	+23	8 25	PP	23·4
Granada		39·1	21	i 7 23	− 8	16 50	SSS	10 0	P_cP	—
Almeria		39·2	23	e 7 23	− 8	—	—	i 9 25	PPP	—
Toledo	Z.	41·3	20	e 7 43	− 6	—	—	—	—	—
Algiers		41·4	29	e 8 10	+20	17 44?	SSS	e 9 51	PP	20·7
San Juan		48·4	294	e 8 46	0	e 15 47	+ 1	11 29	PPP	i 19·7
Clermont-Ferrand		49·0	22	e 9 1	+11	—	—	—	—	—
Cape Town		50·1	138	e 9 52	+53	—	—	10 16	PP	20·7
Rome		50·1	33	8 49	−10	e 15 53	−17	10 23	PP	e 22·2
La Plata	E.	50·3	221	8 57	− 3	16 2	−11	20 8	SS	22·4
	N.	50·3	221	9 2	+ 2	15 56	−17	19 44	SS	22·8
	Z.	50·3	221	9 8	+ 8	—	—	—	—	21·7
Jersey		50·4	15	e 9 37	+36	e 16 54	+40	—	—	32·2
La Paz		50·5	248	9 4	+ 2	16 19	+ 3	i 19 49	SS	22·8
Besançon		51·3	24	e 9 12	+ 4	16 44?	+18	—	—	—
Paris		51·4	20	e 9 15	+ 6	e 20 44?	SSS	—	—	—
Neuchatel		51·5	24	e 8 59	−10	—	—	—	—	—
Basle		52·2	25	e 9 15	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bermuda		52·4	312	e 11 2	PP	e 16 42	0	e 20 18	SS	21·7
Chur		52·4	25	e 9 31	+15	—	—	—	—	—
Zurich		52·5	25	e 9 6	−11	—	—	—	—	—
Kew		53·0	16	e 9 26	+ 5	e 16 51	+ 1	e 11 23	PP	e 33·2
Strasbourg		53·1	24	e 9 34	+13	e 22 26	SSS	—	—	31·7
Triest		53·4	30	e 9 16a	− 8	—	—	e 12 13	PP	—
Uccle		53·7	19	e 9 34	+ 8	i 17 12	+13	—	—	e 22·7
Stuttgart		53·8	24	e 9 36	+10	—	—	—	—	e 35·7
Stonyhurst		54·6	13	e 14 44?	?	—	—	—	—	e 28·7
De Bilt		55·1	19	i 9 43	+ 7	e 17 39	+21	—	—	23·7
Edinburgh		56·4	12	—	—	e 18 14	PPS	—	—	—
Huancayo		56·4	255	e 9 48	+ 3	e 17 27	− 9	e 10 46	P_cP	i 23·1
Helwan		56·6	56	9 44	− 3	17 46	+ 8	10 46	P_cP	—
Sofia		56·8	38	e 9 58	+10	e 17 20	−21	e 13 23	PPP	—
Prague		57·0	27	e 9 37	−13	e 17 44	+ 1	e 11 12	PP	—
Budapest		57·4	32	e 10 44?	P_cP	—	—	—	—	e 36·2
Heligoland		57·8	19	e 10 14	+19	e 18 38	PPS	—	—	e 25·0
Aberdeen	N.	57·8	12	e 11 8	PP	e 18 14	+20	i 12 45	PPP	33·6
Halifax		58·1	325	e 8 44?	?	e 18 8	+10	—	—	24·7
Potsdam		58·2	24	e 9 50	− 8	i 18 9	+10	—	—	—
Hamburg		58·4	21	e 10 0	0	e 17 59	− 3	—	—	e 34·7
Balboa Heights		59·8	280	e 9 44?	−25	—	—	—	—	—
East Machias		60·4	323	e 10 9	− 4	e 18 12	−16	e 10 45	P_cP	e 24·8
Ksara		61·5	53	e 10 25	+ 4	e 19 27	PPS	—	—	—
Warsaw		61·5	28	e 10 27	+ 6	e 19 19	PS	—	—	—
Fordham		62·7	317	i 10 27	− 2	i 19 47	PPS	—	—	i 26·7
Philadelphia		63·2	315	e 10 44	+12	e 19 8	+ 5	e 11 15	P_cP	e 25·9
Seven Falls		63·6	325	e 10 44?	+ 9	e 19 32	PS	—	—	41·7
Vermont		63·8	320	—	—	e 19 18	+ 7	—	—	e 26·5
Shawinigan Falls		64·5	323	e 10 44?	+ 3	—	—	—	—	26·7
Upsala		65·5	20	—	—	e 19 44?	+12	—	—	—
Columbia		65·7	308	e 10 49	+ 1	e 19 19	−15	e 21 2	S_cS	e 27·3
Ottawa		65·8	322	e 10 50	+ 1	e 19 44	+ 9	e 13 1	PP	32·7
Toronto		67·6	318	—	—	e 19 56	− 1	—	—	27·7
Chicago U.S.C.G.S.		72·8	314	11 47	+15	e 20 58	0	—	—	e 30·2
St. Louis		74·0	310	e 11 38	− 1	e 21 15	+ 4	e 21 53	PS	34·4
Florissant		74·1	310	e 11 40	0	e 21 22	+10	e 14 37	PP	34·9
Lincoln		79·3	312	e 12 26	+17	e 21 49	−20	e 22 49	PS	e 39·5
Bozeman		90·0	316	e 18 13	PPP	e 24 52	PS	e 29 32	SS	e 36·4
Salt Lake City		90·8	311	e 16 25	PP	e 29 39	SS	e 24 20	S_cS	—
Tucson		90·8	302	e 12 58	− 8	e 23 10	[−28]	e 16 17	PP	e 36·4
Butte		91·1	316	e 18 54	PPP	e 24 6	+ 2	e 25 16	PS	e 37·1
Bombay		92·4	72	e 13 44	+30	—	—	—	—	—
Mount Wilson		96·1	304	e 17 11	PP	—	—	—	—	—
Pasadena		96·2	304	e 17 45	PP	i 26 15	PS	i 31 32	SS	e 45·7
Agra	E.	96·7	63	—	—	i 24 25	[+15]	—	—	—
Seattle		97·6	318	—	—	e 33 49	SSS	—	—	e 39·8
Victoria		98·1	319	e 22 44?	?	e 29 44?	?	—	—	40·7
Ukiah		99·6	310	—	—	e 25 4	−13	e 32 34	SS	—
College		104·7	340	—	—	e 29 50	?	—	—	—
Manila		138·4	67	e 18 9	?	26 14	[−22]	—	—	36·9

Additional readings :—
Lisbon Z = +8m.8s., +8m.38s., +9m.10s., and +9m.20s., E = +12m.52s., SN = +13m.57s.
Toledo i = +8m.1s.
San Juan eP = +9m.0s., iS = +16m.0s., eSS = +18m.49s., SS = +19m.12s.
Cape Town E = +10m.40s., N = +13m.48s., E = +14m.26s.
Rome PZ = +8m.53s., i = +9m.0s. and +9m.3s., SE = +15m.29s.
La Plata E. +18m.8s., N. +18m.2s.
Jersey e = +22m.4s.
La Paz iZ = +10m.32s. and +11m.12s., iSZ = +16m.33s., iSSZ = +20m.4s.
Kew ePPPZ = +15m.23s., eSN = +20m.43s., eSKSZ = +21m.32s., eSSN = +25m.17s., ePSSN = +31m.8s.; the above readings are based on the assumption of two overlapping shocks.
Triest ePPP = +13m.38s.
Stuttgart eEN = +10m.2s. and +10m.17s.

Continued on next page.

De Bilt iZ = +10m.10s., eE = +13m.44s., eN = +15m.39s.
Huancayo eP = +9m.57s., ePP = +11m.58s., ePPP = +13m.7s., S = +17m.39s., iS = +18m.0s., S_cS = +19m.56s., iSS = +21m.37s.
Helwan PPZ = +11m.55s., PPPZ = +13m.2s., eE = +16m.44s., PSE = +18m.20s.
Prague e = +13m.49s.
Aberdeen iN = +15m.0s., L_gN = +28m.9s.
Potsdam iZ = +10m.4s. and +14m.50s.
Hamburg eE = +25m.44s.?
East Machias S = +18m.40s., eSS = +22m.34s.
Ksara eSS = +23m.39s.
Fordham iEN = +19m.47s.
Seven Falls e = +16m.20s. and +26m.48s.
Columbia eP = +11m.9s., eSS = +24m.17s.
Ottawa iZ = +11m.0s., e = +26m.44s.
St. Louis eN = +21m.32s., eE = +21m.41s.
Florissant ePEZ = +11m.46s., eE = +21m.33s.
Lincoln ePPS = +23m.1s., SS = +27m.43s., eSSS = +30m.58s.
Bozeman eSSS = +33m.33s.
Tucson eP = +13m.6s., ePPP = +18m.16s., eS_cS = +24m.8s., ePS = +24m.49s., ePPS = +25m.25s., eSS = +29m.4s., SS = +30m.15s., ePSPS = +30m.26s., eSSS = +33m.14s.
Butte eSSS = +32m.57s.
Long waves were also recorded at Phu-Lien, Honolulu, Riverview, and Tananarive.

April 27d. 18h. 4m. 54s. Epicentre 9°·5S. 167°·0E.

A = −·9612, B = +·2219, C = −·1640; δ = +4; h = +7;
D = +·225, E = +·974; G = +·160, H = −·037, K = −·986.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·2	214	i 5 6?	+ 6	i 9 6?	+ 6	—	—	—
Riverview	N.	28·3	209	e 6 0	+ 3	i 11 23	+40	—	—	e 13·5
Sydney		28·3	209	e 4 57	−60	e 10 21	−22	—	—	e 16·1
Arapuni		29·5	167	—	—	e 10 6?	−56	12 36	SS	—
Wellington		32·4	170	—	—	9 1	?	12 56	SS	19·1
Adelaide		36·3	221	i 7 5	− 2	i 12 34	−14	i 13 56	SS	18·1
Honolulu		46·2	49	e 8 23	− 5	e 14 48	−27	e 10 13	PP	e 18·2
Manila		51·5	298	e 9 2	− 7	16 37	+ 8	—	—	—
Perth		52·2	237	16 16	S	(16 16)	−23	21 6	SS	25·1
Hong Kong		60·7	303	10 21	+ 6	18 39	+ 7	—	—	—
Ukiah		80·7	48	—	—	e 22 43	S_cS	—	—	e 36·8
Berkeley		81·0	50	i 12 24	+ 6	e 22 41	+14	23 31	PS	e 37·1
Santa Clara		81·0	50	e 12 34	+16	e 23 46	PPS	—	—	e 36·2
College		81·4	18	e 12 31	+11	e 22 39	+ 8	e 27 47	SS	e 34·2
Irkutsk		81·4	327	e 12 41	+21	22 21	−10	—	—	40·1
Pasadena		83·0	54	e 12 27	− 1	e 23 5	+18	—	—	e 37·1
Mount Wilson		83·1	54	i 12 29	0	—	—	—	—	—
Calcutta	N.	83·3	294	e 10 55	?	i 22 58	+ 8	i 15 5	PP	—
Riverside		83·6	54	e 12 31	− 1	—	—	—	—	—
Haiwee		83·7	52	e 12 34	+ 2	—	—	—	—	—
Palomar	Z.	83·8	55	i 12 34	+ 2	—	—	—	—	—
Victoria		83·9	40	—	—	e 23 8	+12	e 29 6	SS	38·1
Tucson		88·5	58	e 12 56	0	e 23 28	[+ 4]	e 16 20	PP	e 35·3
Salt Lake City		89·5	49	e 13 0	0	e 23 33	[+ 3]	e 16 28	PP	e 40·1
Butte		90·2	43	e 13 12	+ 8	e 30 22	PSPS	e 18 22	PPP	e 36·2
Bozeman		91·2	45	e 13 21	+13	e 23 46	[+ 6]	e 16 43	PP	e 36·0
Kodaikanal	E.	91·2	280	e 12 6?	−62	—	—	—	—	—
Agra	E.	93·4	297	e 16 55	PP	i 23 55	[+ 3]	—	—	—
Bombay		96·9	288	e 13 39	+ 5	i 24 6	[− 5]	—	—	—
Florissant		105·7	53	e 18 52	PP	e 28 1	PS	—	—	49·3
St. Louis		105·8	53	—	—	e 28 0	PS	e 33 54	SS	49·8
Chicago		107·7	50	—	—	e 25 12	[+10]	e 27 55	PS	e 44·4
Columbia		113·4	57	—	—	e 29 14	PS	e 30 21	PPS	e 55·3
Toronto		113·5	46	—	—	e 29 6?	PS	e 40 6?	SSS	56·1
Huancayo		114·5	108	e 15 10	P	e 25 51	[+21]	e 20 18	PP	e 52·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa		115·8	44	e 18 48	[+ 4]	e 29 36	PS	e 36 24	SS	55·1
Philadelphia		117·3	50	e 20 8	PP	e 25 47	[+ 6]	e 29 58	PS	e 45·4
Fordham	z.	118·0	49	e 19 52	PP	e 30 4	PS	—	—	—
Seven Falls		118·6	41	—	—	e 30 0	PS	e 36 54	SS	56·1
La Paz	z.	119·6	115	e 20 23a	PP	—	—	—	—	56·6
East Machias		121·6	43	e 19 2	[+ 6]	e 28 5	{+41}	e 30 6	PS	e 48·2
Bermuda		127·1	56	e 21 11	PP	e 31 42	PS	e 38 27	SS	e 60·5
San Juan		127·8	74	e 19 16	[+ 8]	e 22 28	PKS	e 21 21	PP	e 51·3
Warsaw		129·0	334	e 21 36	PP	—	—	e 22 35	PKS	e 68·1
Ksara		129·1	305	e 19 21	[+11]	33 23	PPS	e 21 33	PP	—
Istanbul		131·4	317	e 19 17	[+ 3]	—	—	—	—	e 71·1
Hamburg		132·3	342	e 21 51	PP	—	—	—	—	e 70·1
Potsdam		132·3	339	e 19 12	[− 4]	—	—	e 21 41	PP	e 65·2
Prague		133·6	336	e 21 48	PP	—	—	—	—	e 72·1
Helwan		134·0	302	e 19 17	[− 2]	—	—	1 22 1	PP	—
De Bilt		135·0	344	e 22 6	PP	—	—	—	—	e 70·6
Uccle		136·4	345	e 19 35	[+11]	—	—	e 22 17	PP	e 65·1
Kew		136·9	349	e 19 36?	[+11]	e 33 0	PS	—	—	e 65·1
Triest		137·3	333	e 19 17	[− 9]	—	—	e 23 10	PKS	—
Paris		138·7	345	e 19 37	[+ 9]	—	—	e 22 34	PP	71·1
Rome		140·7	330	e 19 25a	[− 7]	e 26 17	[−23]	e 22 44	PP	e 64·9
Toledo		148·7	347	i 19 47	[+ 2]	—	—	e 22 36	PP	—
Almeria		151·1	342	e 19 57	[+ 8]	e 26 31	[−24]	—	—	—
Granada		151·8	346	i 19 56	[+ 6]	—	—	—	—	—

Additional readings :—
Wellington i = +14m.32s., L_q = +17m.21s.
Adelaide i = +17m.26s., S_cS = +17m.54s.
Honolulu eP = +8m.37s., ePPP = +10m.43s., S = +15m.42s., eSS = +18m.3s.
Perth PP = +16m.59s., i = +17m.19s. and +18m.36s., P_cP = +19m.6s., i = +21m.41s. and +23m.56s.
Berkeley eZ = +23m.36s.
College ePPS = +22m.56s.
Tucson iP = +13m.3s. and +13m.22s., ePPP = +18m.15s., eS_cS = +23m.55s., ePS = +24m.14s., ePPS = +24m.53s., eSS = +29m.21s., eSSS = +32m.59s.
Salt Lake City ePPP = +18m.27s., eS_cS = +24m.0s., ePPS = +25m.10s., eSS = +29m.34s.
Butte ePPS = +24m.53s.
Bozeman eP = +13m.34s., eS_cS = +24m.18s., ePPS = +25m.27s., eSS = +29m.26s., ePSPS = +30m.39s.
Chicago eS = +26m.16s., ePSPS = +34m.22s.
Columbia eSSS = +39m.56s.
Huancayo ePS = +29m.51s., eSS = +35m.51s., ePSPS = +36m.26s.
Philadelphia eS = +27m.59s., ePS = +29m.58s., eSS = +36m.15s., ePSPS = +36m.38s., eSSS = +39m.53s.
East Machias ePSPS = +37m.20s., eSSS = +41m.4s.
Bermuda ePSPS = +39m.5s.
San Juan PKS = +22m.37s., ePPS = +33m.10s., eSS = +38m.50s.
Warsaw eN = +22m.35s.
Potsdam iZ = +21m.51s.
Helwan iE = +22m.56s. and +23m.56s.
Kew eN = +23m.6s.?, eZ = +56m.6s.?
Rome eZ = +20m.46s., ePPZ = +24m.37s., iEN = +24m.49s., eZ = +40m.26s., eE = +56m.7s. and +58m.30s.
Almeria e = +21m.19s.
Granada i = +22m.44s., PPP = +27m.54s.
Long waves were also recorded at Sverdlovsk, Baku, Bucharest, Upsala, Stonyhurst, Vermont, Ivigtut, Harvard, Sitka, and Tashkent.

April 27d. Readings also at 0h. (near Berkeley), 2h. (Tucson, Tinemaha, Mizusawa, Pasadena, Ksara, Palomar, Haiwee, Riverside, and Mount Wilson), 9h. (Mount Wilson, Riverside, Palomar, and Pasadena), 10h. (near Istanbul), 12h. (Triest), 13h. (Santa Barbara, La Jolla, Tinemaha, Lincoln, Fordham, Tucson (2), Mount Wilson, Palomar, Riverside, Pasadena, and Haiwee), 16h. (Mizusawa and Triest), 18h. (Triest), 19h. (Ksara), 20h. (La Paz and Bozeman), 21h. (Triest), 22h. (near Fordham (6)), 23h. (Andijan, Almata, Frunse, Tashkent, and near Berkeley).

April 28d. Readings at 0h. (La Paz and Huancayo), 1h. (Mount Wilson, Riverside, Palomar, near Balboa Heights, Pasadena, and Tucson), 4h. (Tucson), 12h. (near Sofia (2), Bucharest (2), Ksara, Triest, near Istanbul, Potsdam, and Rome), 13h. (Tananarive), 16h. (Rome), 17h. (near Manila (2)), 18h. (Philadelphia).

April 29d. 15h. 11m. 48s. Epicentre 43°·7N. 147°·6E. (as on 1939, December 16d.).

$A = -·6124$, $B = +·3886$, $C = +·6884$; $\delta = -6$; $h = -3$;
$D = +·536$, $E = +·844$; $G = -·581$, $H = +·369$, $K = -·725$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		6·7	229	e 1 43	+ 1	2 54	− 6	—		—
Sverdlovsk		53·4	318	9 22	− 2	19 5	?	—		25·2
Andijan		54·0	295	e 9 27	− 1	—	—	—		—
Tinemaha		68·2	59	i 11 6a	+ 2	—	—	—		—
Santa Barbara	z.	68·9	62	e 11 11	+ 2	—	—	—		—
Haiwee		69·0	59	i 11 10	+ 1	—	—	—		—
Mount Wilson		70·1	61	i 11 17a	+ 1	—	—	—		—
Pasadena		70·1	61	i 11 16a	0	—	—	—		—
Riverside		70·7	61	i 11 20a	0	—	—	—		—
Palomar	z.	71·4	62	i 11 24a	0	—	—	—		—
La Jolla		71·5	61	e 11 26	+ 2	—	—	—		—
Warsaw		73·9	329	e 11 38a	− 1	—	—	—		e 43·2
Tucson		76·0	58	e 11 51	0	—	—	—		—
Ksara		80·9	307	e 12 39	+22	e 22 51	+25	—		—

Long waves were also recorded at Paris, De Bilt, Uccle, Irkutsk, and Tashkent.

April 29d. Readings also at 3h. (near Stuttgart, Chur, Basle, Neuchatel, Zurich, and Strasbourg), 5h. (Ksara and Tucson), 6h., 7h., 8h., and 9h. (2) (Tucson), 12h. (Tucson, Palomar, Riverside, Haiwee, Pasadena, Mount Wilson, and Tinemaha), 16h. (Ottawa (2)), 17h. (Ottawa (2)), 19h. (near Berkeley), 22h. and 23h. (Tucson).

April 30d. 5h. 5m. 20s. Epicentre 1°·5S. 13°·0W.

$A = +·9741$, $B = -·2249$, $C = -·0260$; $\delta = +13$; $h = +7$;
$D = -·225$, $E = -·974$; $G = -·025$, $H = +·006$, $K = -1·000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Almeria		39·4	13	e 7 59	+26	—	—	—	—	e 20·7
Toledo	z.	42·0	11	e 7 54	0	—	—	—	—	—
Rome		49·0	25	i 8 52a	+ 2	e 15 54	− 1	e 10 46	PP	e 23·1
Helwan		52·5	50	i 9 16k	− 1	16 55	+12	—	—	—
Triest		52·6	24	i 9 18	0	e 16 50	+ 6	e 12 6	PPP	e 25·3
Uccle		54·2	13	—	—	e 17 5	− 1	e 22 30	SSS	e 28·7
La Paz		56·2	252	9 42	− 2	17 50	+17	—	—	28·7
Ksara		57·8	49	e 9 57	+ 2	e 18 56	+62	—	—	—
Huancayo		62·6	257	e 7 12	?	—	—	—	—	i 35·5

Additional readings :—
Toledo eZ = +9m.38s.
Rome eSSN = +19m.24s.
Helwan eE = +9m.29s.
Triest ePS = +17m.23s., eSS = +20m.21s., eSSS = +21m.49s.
Long waves were also recorded at San Juan, Scoresby Sund, and other European stations.

April 30d. Readings also at 1h. and 3h. (Chicago), 5h. (Rome, Philadelphia, and Tucson), 11h. (Chicago), 12h. (near Apia), 13h. (Chicago), 16h. (near Berkeley), 17h. (Balboa Heights), 18h. (Tucson), 19h. and 21h. (near Berkeley), 22h. (Tucson and near Florissant), 23h. (near Mizusawa).

May 1d. 2h. 33m. 59s. Epicentre 28°·0S. 66°·0W.

A = +·3597, B = −·8078, C = −·4670; δ = +1; h = +2;
D = −·914, E = −·407; G = −·190, H = +·427, K = −·884.

Depth of focus 0·060.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata		9·7	137	i 2 17	+ 1	3 57	− 6	—	—	4·5
La Paz	z.	11·6	350	i 2 37a	0	i 4 41	− 1	—	—	5·6
Huancayo		18·1	330	e 3 49	+ 4	e 6 54	+ 6	e 7 3	?	—
Tucson		73·5	322	e 10 47	− 3	—	—	—	—	—
Palomar	z.	77·8	319	i 11 11	− 3	—	—	—	—	—
Riverside	z.	78·5	318	i 11 14	− 4	—	—	i 13 17	pP	—
Mount Wilson		79·1	318	i 11 18	− 3	—	—	e 13 20	pP	—
Pasadena		79·1	318	e 11 17	− 4	—	—	—	—	—
Haiwee	z.	80·4	320	e 11 23	− 5	—	—	—	—	—
Tinemaha	z.	81·2	320	e 11 28	− 4	—	—	e 13 31	pP	—

Additional readings :—
La Plata iSE = +4m.2s.
Mount Wilson eZ = +14m.35s.

May 1d. 7h. 53m. 17s. Epicentre 0°·0 128°·5E.

A = −·6225, B = +·7826, C = ·0000; δ = −3; h = +7;
D = +·783, E = +·623; G = ·000, H = ·000, K = 1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		16·3	333	e 3 59	+ 7	i 7 23	SS	4 2	PP	9·0
Hong Kong		26·2	330	5 51	+13	10 13	+ 4	11 11	SS	—
Perth		34·0	200	i 7 50	PP	i 14 30	SS	—	—	i 19·6
Kobe		35·1	11	6 59	+ 2	12 35	+ 5	—	—	—
Nagoya		35·9	14	7 2	− 2	9 18	?	—	—	—
Brisbane	N.	36·1	141	—	—	i 12 13	−32	—	—	e 18·5
Nagano		37·6	13	7 23	+ 5	—	—	—	—	—
Sendai		39·8	17	7 41	+ 5	13 41	− 1	—	—	—
Mizusawa	E.	40·6	16	(8 6)	+23	8 6	P	—	—	—
Colombo	E.	49·0	279	e 3 43?	?	—	—	—	—	—
Bombay		57·7	293	e 9 47	− 8	e 17 40	−13	—	—	—
Christchurch		58·5	144	20 58	SS	—	—	29 26	L_q	32·0
Tashkent		67·3	316	i 10 52	− 7	i 19 52	− 2	—	—	e 63·7
Sverdlovsk		78·0	329	11 56	− 6	21 50	− 5	—	—	36·7
Ksara		92·2	303	e 12 53	−20	e 24 35	+21	e 16 27	PP	50·4
Scoresby Sund		107·0	350	—	—	e 24 55	[− 4]	—	—	—
Tucson		115·6	54	e 18 37	[− 7]	—	—	—	—	—

Additional readings :—
Perth i = +9m.40s. and +15m.33s.
Christchurch SN = +26m.58s.
Long waves were also recorded at Pasadena, Uccle, Sydney, and Paris.

May 1d. 9h. 36m. 5s. Epicentre 44°·8N. 10°·3E. (as on 1940 Jan. 24d.).

Intensity V near Parma (Italy). Epicentre 44°·9N. 10°·7E. approx. (Strasbourg).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V, 2e partie, Seismologie (1940), Strasbourg, 1948, p. 8.

A = +·7004, B = +·1273, C = +·7023; δ = −1; h = −4;
D = +·179, E = −·984; G = +·691, H = +·126, K = −·712.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur	2·1	345	e 0 36	− 1	—	—	—	—	—
Triest	2·6	71	e 0 41	− 3	i 1 23	+ 6	e 0 45	P*	i 1·6
Zurich	2·8	335	e 0 48	+ 1	e 1 35	S_g	—	—	—
Ravensburg	3·0	351	—	—	e 1 28	+ 1	e 1 44	S_g	i 2·1
Neuchatel	3·2	313	e 0 51	− 1	e 1 46	S_g	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Basle		3·3	326	e 0 54	+ 1	e 1 44	S*	—	—	—
Rome		3·3	151	—	—	e 1 48	S_g	—	—	—
Ebingen	N.	3·5	345	—	—	e 1 30	−10	e 2 4	S_g	e 2·3
Stuttgart		4·1	349	e 1 7	+ 2	e 1 53	− 2	e 1 20	P_g	—
Strasbourg		4·2	337	e 1 33	P_g	i 2 28	S_g	—	—	i 2·6
Clermont-Ferrand		5·2'	284	e 1 20	− 1	—	—	—	—	—
Prague		5·9	26	—	—	e 2 21	−19	e 3 26	S_g	—
Jena		6·2	9	e 2 17	P_g	—	—	—	—	e 3·4
Potsdam	E.	7·8	13	—	—	e 3 55	S*	i 4 24	S_g	—
Warsaw		10·3	40	—	—	e 5 18	S*	i 5 44	S_g	i 6·0

Additional readings :—
Triest e = +1m.9s., iS_g = +1m.25s., iL_q = +1m.30s.
Stuttgart iP* = +1m.23s., P_gN = +1m.29s., iNW = +1m.44s., iNE = +2m.9s., iNW = +2m.15s., iS*NW = +2m.21s., iS_g = +2m.27s.
Jena e = +2m.24s.
Long waves were also recorded at Hamburg and Paris.

May 1d. 18h. Local Japanese shock. Tokyo Imperial University gives Epicentre 35°·5N. 140°·36E.

Komaba P = 26m.24s., S = 26m.33s.
Tokyo Imp. Univ. P = 26m.25s., S = 26m.34s.
Kamakura P = 26m.26s., S = 26m.36s.
Koyama P = 26m.26s., S = 26m.41s.
Mitaka P = 26m.26s., S = 26m.36s.
Titibu P = 26m.26s., S = 26m.40s.
Togane P = 26m.26s., S = 26m.31s.
Tukubasan P = 26m.26s., S = 26m.35s.
Susaki P = 26m.36s., S = 26m.53s.
Mizusawa eP = 27m.12s., eS = 27m.45s.
Osaka P = 27m.22s., S = 28m.16s.

May 1d. Readings also at 0h. (near Hukuoka), 6h. (near Manila, Triest, and near Sofia), 9h. (Triest), 10h. (Stuttgart, Zurich, Chur, Basle, Neuchatel, Clermont-Ferrand, Ravensburg, Tricst, and Strasbourg), 11h. (Ravensburg, La Paz, Strasbourg, near Wellington, Ebingen, Zurich, Basle, Chur, Neuchatel, Stuttgart, and near Triest), 12h. (Brisbane, Riverview, Adelaide, Ksara, Chatham Ils., Santa Clara, Christchurch, Sydney, Bozeman, Ukiah, Wellington, Berkeley, and Tucson), 13h. (De Bilt, Scoresby Sund, Kew, Uccle, Paris, and Rome), 15h. (near Stuttgart, Zurich, Basle, Chur, Neuchatel, Triest, and near Tananarive), 18h. (Bucharest, Triest, Rome, near Sofia, and near Berkeley (2)), 19h. (near Berkeley, Hong Kong, Calcutta, Agra, Phu-Lien, Bombay, and Tucson), 21h. (Berkeley and Tananarive), 22h. (near Berkeley).

May 2d. 8h. An undetermined shock which Pasadena finds to be of deep focus type.

Christchurch eEZ = 24m.19s., iNZ = 24m.46s. and 29m.37s., i = 32m.48s., iZ = 33m.22s., i = 34m.14s.
Brisbane iS?N = 30m.42s.
Wellington e = 27m., P_cP?Z = 29m.10s., S? = 32m.17s., S_cPZ = 32m.27s., sS = 34m.0s., S_cS = 36m.34s.
Riverview iN = 29m.8s., iE = 29m.12s., iN = 32m.9s., iE = 32m.17s.
Adelaide e = 31m.50s. and 36m.0s., S = 40m.45s.
Manila eP = 33m.19s., SEN = 41m.5s.
Berkeley eN = 35m.59s.
Santa Barbara iP = 36m.1s.a
Mount Wilson iP = 36m.52s.a, iZ = 39m.31s.
Pasadena iP = 36m.5s.a, eEZ = 39m.27s.
La Jolla eP = 36m.6s.
Riverside ePZ = 36m.8s.a, eZ = 39m.35s.
Palomar iPZ = 36m.9s., eZ = 39m.35s.
Haiwee iP = 36m.10s.a
Tinemaha iP = 36m.11s.a, iZ = 37m.38s., eZ = 39m.39s.
Tucson iP = 36m.29s., i = 36m.36s., ePP = 40m.10s., eS = 47m.12s.
Uccle eZ = 43m.0s., iZ = 44m.7s.
Rome eZ = 43m.1s., eN = 43m.5s., eZ = 43m.9s., eE = 43m.14s., eEZ = 44m.17s.
Basle e = 43m.4s.
Ksara e = 43m.49s., iPP = 45m.49s., ePS = 55m.15s., eSS = 61m.28s.
Perth i = 44m.20s., 46m.50s., 47m.45s., 49m.33s., and 50m.40s.
Helwan iZ = 46m.0s. and 46m.15s., eE = 47m.30s., iE = 52m.12s.

May 2d. Readings also at 0h. (near Berkeley and near Tucson), 2h. (Tucson and near Hukuoka), 3h. (Almata, Samarkand, Frunse, and Tashkent), 4h. (Wellington, Christchurch, Tucson, Mount Wilson, Pasadena, Palomar, and Riverside), 5h. (Ksara, Sverdlovsk, Tashkent, Manila, Christchurch, and Wellington), 6h. (Irkutsk, Ksara, Vladivostok, Mount Wilson, Pasadena, Palomar, Riverside, and Tucson), 7h. (Bombay), 9h. (near Mizusawa), 16h. (Harvard), 18h. (Stuttgart, Triest, Zurich, Basle, Chur, near Berkeley, Branner, Lick, and Tucson), 21h. (near Berkeley (2), Sitka, Seattle, Mount Wilson, Pasadena, Tucson, and Ukiah), 22h. (Bozeman, Butte, Scoresby Sund, and Tucson (2)).

May 3d. Readings at 0h. (Ebingen, Stuttgart, Warsaw, Jena, Ravensburg, Basle, Zurich, Chur, Neuchatel, Clermont-Ferrand, Strasbourg, and near Triest), 1h. (Andijan, Frunse, and Almata), 4h. and 5h. (Manila), 8h. (La Paz), 9h. (Phu-Lien), 10h. (Tucson), 14h. (near Lick, Calcutta, Branner, Triest, and Phu-Lien), 15h. (Tucson), 16h. (Phu-Lien), 18h. (Tucson), 19h. (Rome), 21h. (Harvard), 22h. (Philadelphia).

May 4d. 7h. 24m. 4s. Epicentre 52°·4N. 172°·9E.

$A = -·6080$, $B = +·0757$, $C = +·7903$; $\delta = -3$; $h = -6$;
$D = +·124$, $E = +·992$; $G = -·784$, $H = +·098$, $K = -·613$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro		20·3	254	4 36	− 4	8 21	− 2	—	—	—
Sapporo		23·0	260	5 8	+ 1	9 19	+ 5	—	—	11·8
College		23·5	43	e 5 15	+ 3	e 9 25	+ 2	—	—	i 15·6
Mori		24·1	259	5 20	+ 2	—	—	—	—	—
Mizusawa		25·6	251	e 5 32	0	9 57	− 2	—	—	—
Sendai		26·3	250	5 22	−17	10 6	− 5	—	—	—
Vladivostok		28·7	267	i 5 59	− 2	e 10 30	−20	—	—	12·5
Tokyo Cen. Met. Ob.		28·8	247	e 5 24	−38	9 46	−65	—	—	i 11·7
Nagano		29·0	252	6 16	+12	10 52	− 2	—	—	—
Yokohama		29·0	247	—	—	e 11 22	+28	—	—	—
Sitka		29·7	60	e 6 11	+ 1	i 11 2	− 4	e 7 24	PPP	e 12·4
Osaka		31·7	251	6 20	− 7	11 41	+ 4	—	—	—
Hamada		33·8	255	6 49	+ 3	12 11	+ 1	—	—	—
Koti		33·9	251	6 38	− 9	11 56	−15	—	—	—
Zinsen		35·3	264	6 58	− 1	12 32	− 1	—	—	—
Miyazaki		36·3	251	7 10	+ 3	12 49	+ 1	—	—	17·5
Honolulu		38·4	132	e 7 31	+ 6	e 13 21	+ 1	e 8 47	PP	e 15·8
Victoria		39·6	70	e 7 56	+21	13 36	− 2	—	—	16·9
Irkutsk		40·5	298	7 39	− 3	13 47	− 5	—	—	19·9
Seattle		40·6	70	e 8 5	+22	e 14 25	+31	e 9 19	PP	e 16·3
Ukiah		45·0	81	—	—	e 14 50	− 8	—	—	e 18·2
Berkeley		46·4	82	—	—	i 15 19	+ 1	e 18 8	SS	e 21·3
Saskatoon		46·8	57	—	—	e 15 26	+ 2	—	—	e 23·9
Santa Clara		46·9	82	e 8 49	+15	i 15 29	+ 4	—	—	e 20·8
Butte		47·1	66	e 8 33	− 2	e 15 21	− 7	e 18 31	SS	e 21·0
Bozeman		48·2	66	e 8 59	+15	i 15 40	− 3	e 10 49	PP	e 19·8
Fresno	N.	48·7	81	e 8 59	+11	—	—	—	—	—
Tinemaha	Z.	49·6	80	e 8 52	− 3	—	—	—	—	—
Haiwee		50·2	80	i 8 57	− 3	—	—	—	—	—
Santa Barbara		50·2	83	i 9 0	0	—	—	—	—	—
Salt Lake City		50·8	72	e 9 16	+12	e 16 18	− 2	i 18 47	ScS	e 21·1
Mount Wilson		51·4	82	i 9 7a	− 2	—	—	—	—	—
Pasadena		51·4	82	e 9 6	− 3	e 16 27	− 1	—	—	e 21·9
Riverside	Z.	52·0	82	e 9 10	− 3	—	—	—	—	—
Palomar	Z.	52·7	82	i 9 16a	− 2	—	—	—	—	—
La Jolla	Z.	52·8	83	e 9 19	0	—	—	—	—	—
Hong Kong		53·7	259	9 27	+ 1	17 0	+ 1	11 23	PP	—
Semipalatinsk		53·9	308	e 9 26	− 1	e 17 14	+12	—	—	27·9
Manila		55·7	247	i 9 43k	+ 3	i 17 42	+16	—	—	26·0
Scoresby Sund		57·0	7	i 9 50	0	i 17 44	+ 1	i 13 28	PPP	e 23·8

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		57·1	79	e 9 49	− 1	i 17 46	+ 1	i 10 36	P_cP	e 23·2
Sverdlovsk		57·8	323	i 9 54	− 1	e 17 54	0	27 8	L_g	35·6
Lincoln		59·3	61	e 10 2	− 4	e 18 11	− 3	e 12 10	PP	e 28·1
Phu-Lien		59·4	265	e 10 4	− 2	18 13	− 2	—	—	—
Almata		60·4	303	e 10 2	−11	—	—	—	—	32·9
Frunse		61·9	304	e 10 22	− 2	—	—	—	—	34·9
Ivigtut		62·1	22	e 10 24	− 1	e 18 44	− 5	e 12 40	PP	e 25·6
Chicago U.S.C.G.S.		63·3	56	e 10 31	− 2	i 19 0	− 4	e 20 23	S_cS	e 25·5
Florissant		64·1	60	e 10 34	− 4	e 19 11	− 3	i 19 27	PS	—
Pulkovo		64·2	340	e 10 39	0	i 19 17	+ 1	—	—	e 31·2
St. Louis		64·3	60	e 10 36	− 3	i 19 14	− 3	i 19 28	PS	29·9
Tchimkent		64·8	307	i 10 42	− 1	—	—	—	—	34·9
Tashkent		65·7	306	i 10 47	− 1	i 19 23	−11	—	—	26·8
Toronto		65·9	49	—	—	e 19 35	− 2	e 27 14	SSS	32·9
Moscow		66·1	335	10 50	− 1	19 41	+ 2	—	—	—
Ottawa		66·2	46	10 52	0	19 36	− 4	27 14	SSS	32·9
Upsala		66·3	347	10 51	− 1	e 19 41	− 1	e 23 56?	SS	e 29·9
Shawinigan Falls		66·6	43	10 53	− 1	19 41	− 4	—	—	34·9
Seven Falls		66·9	41	10 56	0	i 19 44	− 5	e 23 44	SS	33·9
Bergen		67·1	354	10 56	− 1	e 19 52	+ 1	—	—	—
Vermont		68·0	45	e 11 10	+ 7	e 19 56	− 6	e 24 31	SS	e 27·9
Pittsburgh		68·1	51	e 11 11	+ 7	e 20 8	+ 5	—	—	—
Pennsylvania		68·8	50	e 11 7	− 1	i 20 8	− 3	e 13 55	PP	e 34·4
Calcutta	N.	69·2	280	i 11 7k	− 3	i 20 12	− 4	e 20 28	PS	—
Dehra Dun	N.	69·4	293	—	—	e 20 24	+ 6	—	—	e 40·8
East Machias		70·2	41	e 11 16	− 1	e 20 30	+ 2	e 24 54	SS	e 28·3
Harvard		70·3	45	i 11 17	0	i 20 26	− 3	—	—	e 33·9
Fordham		70·6	47	i 11 18	− 1	i 20 40	+ 7	—	—	—
Aberdeen		70·7	358	i 11 25	+ 5	i 20 37	+ 3	i 21 20	PS	40·2
Philadelphia		70·7	49	e 11 20	0	i 20 26	− 8	e 14 16	PP	e 28·4
Copenhagen		71·1	349	i 11 23k	+ 1	20 36	− 2	—	—	—
Agra		71·8	290	i 11 29a	+ 3	i 20 46	0	14 9	PP	—
Halifax		71·8	39	—	—	e 20 56?	+10	e 28 56?	SSS	36·9
Columbia		71·9	58	e 11 33	+ 6	e 20 54	+ 6	e 14 10	PP	e 35·2
Edinburgh		72·0	358	—	—	e 20 56	+ 7	—	—	—
Heligoland		73·1	352	e 11 38k	+ 4	e 21 5	+ 4	e 21 42	PS	e 34·9
Warsaw		73·1	342	i 11 35a	+ 1	i 21 3	+ 2	e 14 18	PP	e 38·9
Hamburg		73·4	350	e 11 37a	+ 1	e 21 2	− 3	e 14 21	PP	e 32·9
Stonyhurst		74·1	357	—	—	e 21 16	+ 4	—	—	e 34·9
Potsdam		74·2	348	e 11 38	− 2	i 21 16	+ 2	i 14 23	PP	e 37·0
Baku		75·2	319	11 52	+ 6	26 50	SS	—	—	36·9
De Bilt		75·4	353	i 11 46a	− 1	i 21 30	+ 3	e 26 42	SS	e 37·9
Jena		75·8	348	e 11 48	− 2	e 21 40	+ 9	e 22 11	PS	e 30·9
Kew		76·3	356	i 11 51	− 1	e 21 37	0	e 22 7	PS	e 39·9
Prague		76·3	346	e 11 50	− 2	e 21 44	+ 7	e 14 50	PP	e 36·9
Uccle		76·7	353	i 11 53a	− 2	e 21 41	0	14 44	PP	e 36·9
Budapest		78·0	342	12 5	+ 3	e 21 0	−55	—	—	e 47·9
Stuttgart		78·2	349	e 12 4	+ 1	e 21 44	−13	e 26 10	SS	36·9
Strasbourg		78·6	350	e 12 9	+ 4	e 22 9	+ 7	—	—	39·9
Paris		78·8	354	i 12 6	0	e 21 56?	− 8	—	—	37·9
Hyderabad		79·0	284	12 7	0	22 4	− 2	—	—	—
Bucharest		79·4	337	e 11 56?	−13	—	—	—	—	27·9
Basle		79·6	350	e 12 9	− 1	e 22 26	+14	—	—	—
Zurich		79·7	350	e 12 10a	− 1	e 22 22	+ 9	—	—	—
Chur		80·1	349	e 12 12	− 1	e 22 19	+ 1	—	—	—
Neuchatel		80·3	350	e 12 13	− 1	—	—	—	—	—
Triest		80·7	346	e 12 18	+ 2	e 22 28	+ 4	e 15 22	PP	e 38·3
Bombay		81·2	289	i 12 18	− 1	i 22 31	+ 2	i 23 16	PS	31·4
Bermuda		81·7	47	e 12 18	− 4	i 22 29	− 5	i 27 51	SS	e 33·1
Sofia		81·7	338	e 12 24	+ 2	e 22 40	+ 6	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Clermont-Ferrand		81·8	353	e 12 26	+ 4	—	—	—	—	—
Istanbul		81·8	333	11 28	−54	22 44	+ 9	—	—	i 51·2
Rome		84·6	346	e 12 35a	− 1	i 23 2	− 1	15 55	PP	e 41·0
Kodaikanal	E.	85·3	281	e 12 41	+ 1	i 23 4	[+ 1]	23 39	PS	39·3
Ksara		86·3	325	i 12 45	0	e 23 11	[+ 1]	e 16 5	PP	—
Colombo	E.	86·4	277	12 46	+ 1	23 11	[+ 1]	—	—	—
Riverview		87·9	198	—	—	e 23 24	[+ 4]	e 29 29	SS	—
Sydney		88·0	198	—	—	e 23 26	[+ 6]	—	—	—
Toledo		88·1	358	e 12 54	0	—	—	—	—	45·9
Helwan		91·4	327	e 13 10	+ 1	24 16	+ 9	16 48	PP	—
San Juan		93·0	55	e 13 28	+11	e 24 15	− 6	e 25 38	PS	e 37·6
Wellington		93·3	179	—	—	24 46	+22	25 28	PS	47·4
Christchurch		95·6	181	13 46	+18	24 9	[+ 5]	25 59	PS	44·5
Huancayo		112·7	81	e 14 56	P	e 25 42	[+ 1]	i 29 7	PS	e 45·9
La Paz		120·5	77	20 26	PP	—	—	—	—	60·9

Additional readings :—
College i = +9m.34s.
Sitka e = +6m.26s.
Honolulu ePPP = +9m.21s., i = +13m.26s.
Ukiah e = +14m.59s.
Berkeley eSSSSN = +20m.41s.
Butte i = +15m.26s.
Bozeman eS_cS = +18m.39s.
Hong Kong SS = +20m.49s.
Scoresby Sund i = +10m.12s., iS_cS = +19m.41s., iSS = +21m.41s.
Tucson i = +9m.52s., +10m.2s., and +10m.10s., ePP = +12m.4s., ePPP = +13m.25s., eS_cS = +19m.42s., eSS = +21m.47s.
Lincoln i = +18m.14s., eS_cS = +19m.52s., eSS = +22m.16s.
Ivigtut ePPP = +14m.11s., i = +18m.50s., iS_cS = +20m.14s., eSS = +22m.43s.
Chicago eSS = +23m.11s.
Florissant iPZ = +10m.37s., iZ = +10m.52s., eE = +10m.59s., eZ = +11m.10s., iSE = +19m.14s.
St. Louis ePN = +10m.39s., iPEN = +10m.49s., iE = +20m.25s., eN = +20m.31s., eE = +20m.43s.
Upsala iSN = +19m.53s., eSSSN = +26m.56s.?
Seven Falls e = +27m.26s.
Vermont e = +20m.5s.
Pennsylvania i = +11m.33s.
Calcutta eS_cSN = +21m.9s.
East Machias e = +20m.40s.
Aberdeen iE = +34m.42s.
Philadelphia i = +20m.32s., eS_cS = +21m.22s.
Agra PSE = +21m.9s., SSE = +25m.24s., SSSE = +28m.56s.
Columbia eSS = +25m.6s., eSSS = +28m.32s.
Heligoland eSSN = +25m.46s.
Warsaw PPPZ = +16m.0s., iPSN = +21m.38s., eSSE = +26m.9s.
Hamburg ePSN = +21m.47s., eSSE = +25m.30s.
Stonyhurst iSKS = +21m.31s., i = +24m.26s.
Potsdam iPZ = +11m.42s.k, iN = +11m.50s., iE = +12m.17s., iPPN = +14m.34s., iZ = +17m.20s., iSN = +21m.24s., iSZ = +21m.27s.
Jena eSN = +21m.44s.
Kew iSKSN = +21m.49s., eSSN = +26m.59s.
Uccle PPP = +16m.37s., eSSN = +26m.55s.
Budapest PE = +12m.10s.
Stuttgart eZ = +12m.10s., ePZ = +12m.16s.
Triest eP_cP = +12m.24s., ePPP = +17m.9s., iSKS = +22m.33s., iS_cS = +22m.50s., iPS = +23m.7s., iSS = +27m.18s., iPKP,PKP = +38m.59s., iPKP,PKP,PKP = +59m.22s.
Rome ePPPN = +18m.6s., ePSN = +23m.49s., iSSN = +28m.42s., eSSSN = +32m.2s.
Kodaikanal SSE = +28m.12s.
Ksara ePS = +24m.1s.
Helwan eZ = +16m.20s., iZ = +17m.31s., PPPZ = +18m.50s., iEN = +23m.44s., PSN = +25m.11s.
Toledo eN = +15m.3s.
San Juan e = +24m.23s.
Christchurch SE = +24m.56s.
Huancayo eS = +27m.5s., ePPS = +29m.46s., iSS = +35m.29s., eSSS = +39m.23s.
Long waves were also recorded at Cape Town.

May 4d. 16h. 44m. 23s. Epicentre 7°·8S. 80°·3W. (as on 1938 Sept. 9d.).

$A = +·1670$, $B = -·9767$, $C = -·1348$; $\delta = 0$; $h = +7$;
$D = -·986$, $E = -·168$; $G = -·023$, $H = +·132$, $K = -·991$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		6·4	132	e 1 53	P*	i 3 11	S*	—	—	—
La Paz		14·7	127	i 3 35k	+ 4	i 5 50	−26	—	—	8·1
Balboa Heights		16·7	3	e 3 37	−20	—	—	—	—	—
San Juan		29·5	30	e 6 2	− 6	e 10 57	− 5	—	—	—
St. Louis	N.	47·1	351	e 8 33	− 2	e 14 14	?	—	—	—
Florissant	Z.	47·3	351	e 8 34	− 3	—	—	—	—	—
Tucson		49·3	326	i 8 49	− 4	e 15 50	− 9	e 10 6	P_cP	e 20·0
Ottawa		53·1	6	—	—	e 16 37?	−14	—	—	21·6
Seven Falls		53·2	10	—	—	e 17 37?	PPS	—	—	23·6
Riverside	Z.	54·4	323	e 9 27	− 4	—	—	—	—	—
Mount Wilson	Z.	55·0	323	i 9 31	− 4	—	—	—	—	—
Salt Lake City		56·4	332	—	—	e 17 27	− 9	—	—	e 24·2
Victoria		67·6	331	—	—	e 20 37?	PS	—	—	33·6
Scoresby Sund		87·3	17	e 12 48	− 2	e 23 18	[+ 2]	e 23 41'	S_cS	e 35·3
Uccle		92·6	40	—	—	23 45	[− 2]	—	—	e 45·6
Rome		97·2	50	e 13 36k	0	e 26 30	PS	—	—	e 45·7
Upsala		100·7	31	e 30 37?	PKKP	e 36 37?	SSS	—	—	—
Warsaw		103·1	38	—	—	e 23 37?	[−65]	e 29 37?	?	—
Istanbul		109·7	50	e 19 37?	PP	—	—	—	—	—
Helwan		112·6	62	—	—	i 34 3	SS	e 34 54	SSP	—
Ksara		116·0	57	e 13 6	?	—	—	—	—	—
Bombay		151·7	64	e 20 1	[+12]	—	—	—	—	—
Calcutta	N.	161·7	35	e 22 36	PKP_2	—	—	—	—	—

Additional readings :—
Huancayo i = +1m.56s. and +3m.20s.
Tucson ePPP = +11m.25s., eS_cS = +18m.24s.
Scoresby Sund +23m.27s., ePS = +24m.22s.
Helwan iZ = +34m.13s.
Ksara e = +16m.20s.
Long waves were also recorded at Pasadena, Wellington, La Plata, and Kodaikanal.

May 4d. 17h. 4m. 33s. Epicentre 35°·8N. 58°·1E. (fore-shock of quake at 21h.).

$A = +·4296$, $B = +·6902$, $C = +·5823$; $\delta = +1$; $h = 0$;
$D = +·849$, $E = -·528$; $G = +·307$, $H = +·494$, $K = -·813$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Baku		7·9	327	e 2 7	+ 8	—	—	—	—	7·0
Tashkent		10·4	55	e 3 3	PPP	—	—	—	—	—
Tchimkent		11·0	50	e 2 45	+ 3	—	—	—	—	—
Andijan		12·2	61	e 2 58	0	—	—	—	—	—
Frunse		14·6	56	e 3 48	PPP	—	—	—	—	—
Almata		16·3	57	e 3 59	+ 7	—	—	—	—	—
Ksara		18·4	268	i 4 15	− 3	e 7 50	+ 9	—	—	e 10·4
Agra	E.	19·0	111	4 26	0	8 6	+11	—	—	—
Sverdlovsk		21·1	3	4 46	− 2	8 47	+ 8	—	—	10·2
Bombay		21·3	139	e 4 51	+ 1	i 8 51	+ 8	—	—	—
Helwan		23·2	293	e 5 10	+ 1	e 9 27	+ 9	e 5 43	PP	—
Moscow		24·4	331	5 20	− 1	—	—	—	—	—
Calcutta	N.	29·4	108	—	—	e 11 36	+35	—	—	—
Potsdam		35·7	312	—	—	e 14 33	SS	—	—	e 23·4
Hamburg		37·7	313	—	—	15 27?	SS	—	—	—

Additional readings :—
Potsdam eZ = +17m.12s.
Long waves were also recorded at Stuttgart, Irkutsk, De Bilt, Kew, and Paris.

May 4d. 18h. 28m. 22s. Epicentre 37°·5N. 55°·0E.

A = +·4562, B = +·6515, C = +·6062; δ = +5; h = −1;
D = +·819, E = −·573; G = +·348, H = +·497, K = −·795.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tashkent		11·7	67	e 2 54	+ 3	e 5 16	+12	—	—	8·8
Tchimkent		12·2	62	e 2 57	− 1	—	—	—	—	—
Andijan		13·8	71	—	—	e 5 4	−50	—	—	—
Frunse		15·9	64	e 3 34	−13	—	—	—	—	—
Ksara		15·9	264	e 3 59	+12	e 8 7	L	—	—	(8·1)
Sverdlovsk		19·8	10	4 30	− 5	—	—	—	—	10·8

Long waves were also recorded at Vladivostok, Baku, Potsdam, Hamburg, and Warsaw,

May 4d. 21h. 1m. ·55s. Epicentre 35°·8N. 58°·1E. (as at 17h.).

A = +·4296, B = +·6902, C = +·5823; δ = +1; h = 0;
D = +·849, E = −·528; G = +·307, H = +·494, K = −·813.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Baku		7·9	327	i 2 0	+ 1	i 3 33	+ 3	—	—	—
Tashkent		10·4	55	i 2 30	− 4	—	—	—	—	—
Tchimkent		11·0	50	2 36	− 6	i 4 56	+ 9	—	—	—
Erevan		11·6	298	2 53	+ 3	5 17	SS	—	—	—
Andijan		12·2	61	2 53	− 5	5 22	+ 6	—	—	—
Piatigorsk		14·2	311	3 29	+ 5	6 21	SS	—	—	—
Frunse		14·6	56	i 3 26	− 4	i 6 17	+ 4	—	—	8·4
Sotchi		16·1	303	3 53	+ 4	—	—	—	—	—
Almata		16·3	57	i 3 51	− 1	7 11	SS	—	—	—
Dehra Dun	N.	17·6	103	e 4 7	− 1	e 7 9?	−14	—	—	e 9·1
Ksara		18·4	268	4 16	− 2	i 7 57	SS	—	—	—
Agra	E.	19·0	111	4 19	− 7	7 51	− 4	8 10	SS	—
Yalta		20·2	302	4 47	+ 8	—	—	—	—	—
Sverdlovsk		21·1	3	i 4 44	− 4	i 8 42	+ 3	—	—	10·7
Bombay		21·3	139	i 4 47	− 3	i 8 45	+ 2	i 5 13	PP	11·4
Semipalatinsk		21·7	41	i 4 46	− 9	—	—	—	—	13·7
Helwan		23·2	293	i 5 2k	− 7	i 9 22	+ 4	5 47	PPP	—
Istanbul		23·3	292	e 4 15	−55	8 31	−49	10 1	SS	e 16·1
Moscow		24·4	331	5 19	− 2	9 43	+ 4	—	—	—
Hyderabad		25·7	131	5 32	− 1	10 5	+ 4	5 53	PP	13·4
Bucharest		25·8	300	e 5 34	0	10 6	+ 4	i 5 54	PP	13·1
Sofia		27·6	295	e 5 52	+ 1	i 10 36	+ 4	i 6 25	PP	i 14·9
Cluj		27·9	305	e 5 5	−49	e 10 0	−37	15 36	S_eS	—
Calcutta	N.	29·4	108	e 6 11	+ 4	i 11 4	+ 3	e 7 0	PP	i 14·9
Pulkovo		30·0	332	e 6 10	− 2	i 11 12	+ 2	—	—	e 14·0
Kecskemet	Z.	30·6	304	6 21	+ 3	—	—	—	—	e 19·9
Kodaikanal	E.	30·9	141	e 6 20	0	i 11 21	− 3	i 12 22	SS	i 14·8
Warsaw		30·9	314	6 24a	+ 4	i 11 59	+35	7 34	PP	18·1
Budapest		31·1	304	e 6 23	+ 1	i 11 29	+ 1	e 8 0	PPP	18·1
Prague		34·5	309	e 7 10	+18	e 12 20	0	—	—	e 17·1
Triest		34·6	300	i 6 56	+ 3	i 12 20	− 2	i 7 54	PP	i 16·4
Colombo	E.	35·0	141	6 55	− 1	12 31	+ 3	—	—	16·9
Upsala		35·4	325	e 6 57	− 3	e 12 31	− 3	e 8 16	PP	e 17·2
Potsdam		35·7	312	i 7 5	+ 3	i 12 37	− 2	i 8 48	PPP	—
Rome		35·7	293	i 7 4a	+ 2	i 12 30	− 9	e 8 29	PP	—
Irkutsk		36·4	48	7 3	− 5	12 47	− 3	—	—	18·1
Jena		36·4	308	e 7 5	− 3	e 12 45	− 5	—	—	e 19·1
Copenhagen		36·7	318	e 7 10	0	i 12 57	+ 3	—	—	—
Chur		37·6	303	e 7 29	+11	—	—	—	—	—
Hamburg		37·7	313	e 7 19a	0	e 13 12	+ 2	e 15 58	SS	e 23·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stuttgart		37·8	305	e 7 21	+ 1	e 13 13	+ 2	e 8 48	PP	e 21·8
Zurich		38·2	303	e 7 24 a	+ 1	e 13 3	−14	e 8 50	PP	—
Strasbourg		38·7	305	7 30	+ 3	e 13 25	0	e 15 57	SS	i 22·0
Basle		38·9	304	e 7 31	+ 2	—	—	e 15 15	SS	—
Heligoland		39·0	315	e 7 30	0	e 13 30	+ 1	e 16 15	SS	e 20·5
Neuchatel		39·3	303	e 7 29	− 3	—	—	—	—	—
De Bilt		40·5	311	i 7 47 a	+ 5	i 13 55	+ 3	e 9 30	PP	e 20·1
Uccle		41·0	309	7 50	+ 4	i 14 1	+ 2	i 9 28	PP	e 20·1
Bergen		41·5	324	7 53	+ 3	e 14 19	+12	17 5	SS	e 21·5
Clermont-Ferrand		42·1	301	e 7 55	0	17 25	SS	—	—	—
Paris		42·2	306	e 7 56	0	e 17 26	SS	—	—	27·1
Algiers		43·9	288	8 13	+ 3	e 18 15	SS	e 10 14	PPP	—
Kew		43·9	310	i 8 12	+ 2	i 14 42	0	e 10 7	PP	i 22·4
Oxford		44·5	310	8 18	+ 3	i 14 41	−10	10 4	PP	—
Phu-Lien		44·8	96	e 8 13	− 4	18 5	SS	—	—	—
Aberdeen		44·9	319	e 8 17	− 1	i 14 55	− 1	i 10 29	PP	24·6
Stonyhurst		45·1	314	e 8 20	0	e 14 30	−29	e 18 10	SS	25·1
Edinburgh		45·5	316	8 28	+ 5	14 59	− 6	10 12	PcP	—
Almeria		48·1	290	i 8 44	+ 1	15 43	+ 1	19 30	SS	24·5
Toledo		48·4	295	i 8 47	+ 1	i 15 46	0	—	—	—
Granada		48·8	291	i 8 52 k	+ 3	i 16 8	+16	11 15	PPP	23·2
Hong Kong		50·2	90	8 51	− 9	16 12	+ 1	20 5	SS	—
San Fernando		51·0	291	e 8 40	−26	15 21	−61	e 10 20	PcP	30·1
Lisbon		52·5	295	e 9 14	− 3	i 16 45	+ 2	17 12	PS	27·6
Scoresby Sund		53·4	336	e 9 23	− 1	i 17 5	+10	i 10 20	PcP	e 21·9
Vladivostok		55·8	58	e 9 36	− 5	i 17 51	PS	e 13 4	PPP	27·4
Manila		59·7	93	e 10 7 a	− 2	18 36	PS	—	—	29·4
Koti		60·6	68	10 19	+ 4	18 29	− 1	—	—	—
Kobe		61·3	65	10 15	− 5	18 59	+20	—	—	—
Gihu		62·2	64	10 45	+19	19 15	+24	—	—	—
Sendai		63·9	59	10 42	+ 5	—	—	—	—	—
Ivigtut		66·5	330	—	—	e 19 32	−12	e 24 29	SS	e 27·8
College		77·6	11	—	—	e 21 53	+ 2	—	—	e 33·8
Cape Town		78·7	213	—	—	e 22 8	+ 5	—	—	39·3
Seven Falls		85·6	327	—	—	e 23 13	0	—	—	35·1
East Machias		85·8	324	—	—	e 23 14	− 1	e 24 35	ScS	i 35·4
Sitka		86·2	7	—	—	e 23 21	+ 2	—	—	e 33·9
Vermont		88·7	327	—	—	e 23 44	+ 1	—	—	e 40·6
Ottawa		89·1	329	13 11	+13	23 49	+ 3	16 11	PP	43·1
Fordham	N.	91·9	325	—	—	e 23 51	[+ 7]	—	—	—
Toronto		92·0	331	—	—	e 24 17	+ 5	—	—	43·1
Philadelphia		93·2	325	—	—	e 23 51	[0]	e 25 43	PS	e 37·8
Bermuda		93·7	314	—	—	e 24 29	+ 2	—	—	e 37·8
Chicago U.S.C.G.S.		96·6	336	—	—	e 24 18	[+ 8]	e 32 19	SSP	e 40·3
Salt Lake City		103·3	353	—	—	e 24 57	[+14]	e 25 18	SKKS	e 48·3
San Juan		104·6	305	e 18 56	PP	—	—	—	—	e 42·0
Mount Wilson	Z.	110·3	356	e 18 58	PP	—	—	i 29 33	PKKP	—
Tucson		111·5	350	e 18 46	[+10]	—	—	e 19 17	PP	e 48·1
La Paz		128·7	277	e 19 2	[− 7]	37 22	SS	—	—	62·1
Huancayo		131·9	287	e 21 37	PP	e 26 37	[+12]	e 39 12	SS	e 55·2

Additional readings :—
Agra iEN = +4m.23s., iN = +7m.59s.
Bombay iEN = +4m.57s., +5m.2s., +6m.9s., +8m.33s., +8m.55s., and +9m.13s., SS = +9m.27s., i = +10m.51s.
Helwan iE = +6m.5s., +7m.45s., and +8m.23s., SSE = +10m.53s.
Hyderabad PcPE = +8m.56s., SSN = +10m.56s.
Bucharest iZ = +5m.40s., iN = +5m.43s., i = +10m.25s., SSN = +11m.21s., SSE = +11m.26s.
Sofia iPPPE = +7m.2s., iN = +7m.18s., iE = +8m.34s., iS = +10m.56s., iE = +12m.5s., iN = +14m.52s.
Calcutta ePcPN = +9m.22s., eSSN = +12m.25s.
Warsaw iSSN = +13m.44s.
Budapest eN = +10m.31s., eE = +11m.32s., iN = +12m.0s., iE = +12m.21s., eE = +15m.5s.?, iE = +16m.5s.?
Triest iPPP = +8m.13s., iPcP = +9m.1s., i = +9m.31s., iSS = +13m.59s.

Continued on next page.

Upsala ePN = +7m.3s., eSN = +12m.35s., SE = +12m.44s., eE = +13m.36s., eSSE = +14m.35s., SSN = +14m.46s., iN = +15m.27s.
Potsdam iE = +8m.3s., iSN = +12m.40s., iZ = +13m.6s.
Rome iZ = +8m.26s., eZ = +8m.31s., iPPZ = +8m.57s., iN = +12m.43s.
Jena eSN = +12m.55s.
Hamburg iE = +18m.18s.
Stuttgart eZ = +7m.38s. and +8m.10s., eSSEN = +16m.7s., eE = +19m.41s.
De Bilt eSS = +16m.50s.
Uccle iSE = +14m.8s., iN = +17m.14s.
Algiers e = +16m.22s.
Kew iSSNZ = +17m.58s., iN = +21m.28s.
Oxford iSS = +18m.14s.
Aberdeen iN = +17m.56s., iSSE = +18m.9s.
Edinburgh PS = +15m.11s., SS = +18m.9s., S_cS = +18m.21s.
Granada SS = +19m.56s.
San Fernando i?N = +19m.8s., SSN = +20m.16s.
Lisbon iSN = +16m.49s., Z = +17m.40s., E = +20m.25s., SS?Z = +20m.35s., SS?E = +20m.55s., SSS?N = +22m.56s.
Scoresby Sund ePP = +11m.41s., ePPP = +12m.45s., i = +17m.9s., iS_cS = +19m.24s., iSS = +20m.49s.
Ivigtut e = +19m.42s.
Cape Town eE = +32m.5s.
East Machias eSS = +29m.8s., eSSS = +32m.23s.
Sitka i = +23m.27s.
Philadelphia eSSS = +34m.15s.
Tucson ePKKP = +29m.33s.
Huancayo eSSS = +43m.42s.
Long waves were also recorded at Berkeley, Nagano, La Plata, Pasadena, Riverview, Columbia, Harvard, Bozeman, St. Louis, Florissant, Butte, Ukiah, and Seattle.

May 4d. Readings also at 0h. (Scoresby Sund, Uccle, and Potsdam), 5h. (Ksara), 6h. (Huancayo), 7h. (Tucson, Pasadena, and Mount Wilson), 8h. (Tucson, Pasadena, Mount Wilson, and Palomar), 9h. (Tucson, Pasadena, Mount Wilson, and near Triest), 10h. (Samarkand, Tashkent, Andijan, Tchimkent, Frunse, and near Triest) 13h. (Fordham and Rome), 16h. (Baku), 17h. (Fordham), 19h. (near Berkeley), 21h. (Ksara), 22h. (Almata, near Berkeley (3), Tashkent, Andijan, Tchimkent, Frunse, and Triest), 23h. (near Berkeley).

May 5d. 2h. 3m. 43s. Epicentre 6°·5S. 80°·1W.

A = +·1708, B = −·9789, C = −·1125; δ = +7; h = +7;
D = −·985, E = −·172; G = −·019, H = +·111, K = −·994.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		7·3	140	i 1 47	− 3	i 3 1	−14	i 1 58	PP	—
Balboa Heights		15·4	2	3 43	+ 3	6 54	SS	—	—	—
La Paz		15·4	131	i 3 45	+ 5	i 6 54	SS	—	—	8·6
Fort de France		28·3	43	e 5 40	−17	e 12 0	SS	7 4	PPP	e 17·1
San Juan		28·3	29	e 5 58	+ 1	i 10 52	+ 9	e 6 47	PP	i 11·8
La Plata		34·9	147	6 45	−10	12 17	−10	—	—	15·3
Rio de Janeiro	E.	39·1	118	i 7 25	− 6	i 13 29	− 2	—	—	e 19·8
Columbia		40·3	358	e 7 38	− 2	e 13 37	− 2	e 9 25	PP	e 16·3
Bermuda		41·2	20	i 7 53	+ 5	i 14 11	+ 9	—	—	i 17·5
St. Louis		45·9	349	i 8 25	− 1	e 15 6	− 5	i 8 32	pP	21·4
Florissant		46·1	349	i 8 29	+ 1	i 15 13	− 1	i 8 36	pP	—
Philadelphia		46·4	6	i 8 31	+ 1	i 15 20	+ 2	e 10 14	PP	e 20·6
Pittsburgh		46·7	0	e 8 30	− 2	i 18 23	SS	e 10 32	PP	e 23·6
Pennsylvania		47·1	2	e 8 38	+ 3	—	—	e 10 37	PP	—
Fordham		47·5	7	i 8 39	+ 1	i 15 38	+ 4	i 10 36	PP	e 24·3
Tucson		48·4	324	e 8 45	− 1	i 15 46	0	i 10 6	P_cP	e 19·5
Chicago U.S.C.G.S.		48·5	351	e 8 43	− 3	e 15 42	− 6	e 18 33	S_cS	e 19·6
Harvard		49·4	9	i 8 41a	−12	e 15 45	−15	e 18 29	S_cS	e 20·3
Toronto		49·9	1	8 54	− 3	16 11	+ 4	e 18 47	S_cS	23·3
Ottawa		51·8	4	9 12	0	e 16 31	− 2	e 18 59	S_cS	24·3
East Machias		52·3	12	e 9 20	+ 5	e 16 46	+ 6	e 10 10	P_cP	e 21·3
La Jolla		52·7	320	e 9 17	− 1	—	—	—	—	—
Riverside		53·5	321	i 9 24	0	—	—	—	—	—
Seven Falls		54·0	8	9 30	+ 2	17 7	+ 4	—	—	23·3
Mount Wilson		54·1	321	i 9 27	− 2	—	—	i 10 38	P_cP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		54·1	321	i 9 30	+ 1	i 17 7	+ 2	i 10 34	P_cP	e 26·7
Haiwee	Z.	55·3	323	e 9 44	+ 6	—	—	—	—	—
Salt Lake City		55·3	330	e 9 38	0	i 17 22	+ 1	e 10 40	P_cP	e 22·1
Tinemaha		56·2	323	e 9 44	0	—	—	—	—	—
Santa Clara		58·5	321	e 10 11	+11	e 18 42	+39	—	—	e 29·0
Bozeman		58·8	335	10 2	0	i 18 7	0	e 10 40	P_cP	e 28·8
Berkeley		59·1	321	e 10 11	+ 7	i 18 13	+ 2	—	—	e 29·4
Butte		59·8	335	e 10 10	+ 1	e 18 33	+13	e 19 57	S_cS	e 25·6
Ukiah		60·4	322	e 10 21	+ 8	e 18 34	+ 6	—	—	e 25·6
Seattle		65·5	330	e 11 7	+20	e 19 45	+13	e 13 23	PP	e 27·0
Victoria		66·6	330	10 53	− 1	19 45	0	—	—	31·3
Ivigtut		71·9	16	e 11 25	− 2	e 20 50	+ 2	e 13 50	PP	e 33·8
Sitka		77·5	333	e 11 53	− 6	e 21 44	− 6	—	—	e 31·0
Lisbon		79·4	49	12 12	+ 3	22 23	+13	—	—	38·8
San Fernando		81·0	51	e 11 37	−41	e 21 33	−54	—	—	41·3
Granada		83·3	51	e 12 33k	+ 3	23 29	PS	15 43	PP	43·2
Toledo		83·5	49	i 12 32	+ 1	i 23 0	+ 8	—	—	—
Almeria		84·1	52	i 12 34	0	23 20	+22	12 54	P_cP	40·3
Scoresby Sund		86·0	16	e 12 42	− 1	e 23 10	[+ 2]	e 15 55	PP	e 35·3
College		86·6	336	e 12 54	+ 8	e 23 10	[− 2]	e 16 8	PP	e 34·8
Stonyhurst		88·0	35	i 12 55	+ 2	e 23 22	[+ 2]	—	—	e 47·3
Oxford		88·2	37	—	—	i 23 20	[− 1]	—	—	e 39·3
Kew		88·7	38	i 12 57a	0	e 23 21	[− 4]	e 29 47	SS	e 38·3
Aberdeen	E.	89·0	31	e 12 51	− 7	e 23 21	[− 6]	—	—	46·7
Clermont-Ferrand		89·9	44	e 13 3	+ 1	—	—	—	—	44·3
Paris		90·0	40	i 13 7	+ 4	23 17?	[−16]	16 41	PP	e 45·3
Uccle		91·5	39	i 13 10a	0	e 23 42	[− 1]	e 16 31	PP	e 39·3
De Bilt		92·2	37	i 13 14a	+ 1	e 23 47	[+ 2]	i 16 57	PP	e 43·8
Neuchatel		92·7	43	e 13 15	0	—	—	—	—	—
Basle		93·2	42	e 13 15	− 2	—	—	—	—	—
Strasbourg		93·4	41	e 13 37	+19	—	—	—	—	—
Cape Town		93·5	124	—	—	24 1	[+ 8]	25 44	PS	45·7
Zurich		93·8	43	e 13 21a	+ 1	—	—	—	—	—
Heligoland		94·0	35	—	—	e 23 53	[− 3]	—	—	e 46·3
Stuttgart		94·4	41	e 13 21	− 2	—	—	—	—	—
Hamburg		95·2	36	e 10 27a	?	e 24 1	[− 1]	e 17 17	PP	e 43·3
Rome		96·2	48	i 13 33a	+ 2	e 24 10	[+ 2]	e 17 25	PP	—
Copenhagen		96·8	34	e 13 36	+ 2	24 13	[+ 2]	17 30	PP	—
Potsdam		97·0	37	e 13 11	−24	e 24 14	[+ 2]	i 17 32	PP	e 39·3
Triest		97·3	44	i 13 50	+14	e 24 13	[0]	i 17 37	PP	e 47·6
Upsala		99·5	30	—	—	e 24 21	[− 4]	e 32 17?	SS	e 48·3
Warsaw		101·9	38	e 14 0	+ 3	i 24 36	[0]	e 18 10	PP	e 52·3
Pulkovo		105·2	29	—	—	i 24 52	[0]	—	—	—
Istanbul		108·7	49	25 17	SKS	(25 17)	[+10]	—	—	—
Moscow		110·7	31	e 18 38	[+ 4]	25 1	[−14]	—	—	—
Helwan		111·8	61	e 18 42	[+ 6]	e 25 52	SKKS	e 28 37	PS	—
Ksara		115·1	56	e 16 12	?	29 45	PS	e 19 52	PP	—
Sverdlovsk		121·1	23	e 18 56	[+ 1]	e 25 53	[0]	—	—	51·3
Baku		124·1	44	—	—	e 30 23	PS	e 41 23	SSS	56·3
Vladivostok		133·9	326	19 18	[− 1]	32 5	PS	22 49	PKS	66·2
Irkutsk		134·2	355	21 45	PP	26 23	[− 6]	22 47	PKS	53·3
Tashkent		135·9	33	e 19 24	[+ 1]	22 44	PKS	e 21 56	PP	60·9
Agra	E.	150·8	42	e 19 57	[+ 9]	—	—	—	—	—
Bombay		150·9	62	e 19 7	[−42]	e 38 45	?	e 23 31	PP	—
Kodaikanal	E.	157·5	77	e 24 17?	PP	—	—	—	—	—
Manila	Z.	157·8	293	20 2	[+ 4]	—	—	24 17	PP	—
Colombo	E.	160·1	89	e 19 25	[−37]	—	—	—	—	75·8

Additional readings :—
Huancayo i = +3m.14s.
Fort de France PPP = +7m.38s., SS = +14m.37s., SSS = +15m.22s.
La Plata P?Z = +6m.53s., S?N = +12m.23s.
St. Louis eSN = +15m.20s.
Florissant isS = +15m.25s.
Philadelphia iS_cS = +18m.21s.

Continued on next page.

Pittsburgh eZ = +8m.48s., ePPN = +11m.28s., eNW = +15m.32s.
Pennsylvania e = +8m.57s.
Fordham eN = +14m.2s., iE = +17m.4s., iS_cSE = +18m.30s.
Tucson i = +8m.52s., ePP = +10m.39s., eS_cS = +18m.36s.
Ottawa e = +9m.28s.
East Machias ePP = +11m.20s., ePPP = +12m.29s., eS_cS = +19m.1s., eSS = +20m.14s.
Mount Wilson iZ = +9m.35s.
Pasadena iEZ = +9m.35s.
Salt Lake City ePP = +11m.43s., eS_cS = +19m.34s., eSS = +21m.0s.
Bozeman ePP = +12m.12s., eS_cS = +19m.47s., eSS = +21m.54s.
Butte eSS = +21m.53s.
Seattle eS_cS = +20m.39s., eSS = +24m.7s.
Ivigtut ePPP = +16m.2s., iS_cS = +21m.39s., eSS = +24m.52s.
Sitka e = +11m.59s. and +21m.49s.
Lisbon Z = +12m.22s., N = +12m.26s.
Almeria PP = +16m.2s., PPP = +18m.5s., SKS = +22m.56s., PS = +23m.54s, PPS = +24m.13s., SS = +28m.34s.
Scoresby Sund i = +12m.45s. and +23m.16s., ePS = +23m.45s., iPPS = +24m.32s., eSS = +28m.38s.
College ePPP = +18m.9s., eS = +23m.18s., eSS = +29m.3s., eSSS = +32m.56s.
Stonyhurst eS = +23m.42s.
Kew SN = +23m.44s., iN = +23m.59s.
Aberdeen iSN = +23m.41s.
Uccle ePPE = +16m.47s., iSN = +24m.11s., iPSE = +25m.24s., eSSE = +30m.16s.
Hamburg eE = +26m.7s.
Rome eZ = +13m.43s., eE = +13m.49s., eZ = +21m.48s., eS = +25m.7s., ePSZ = +26m.29s.
Potsdam iZ = +13m.36s., iN = +25m.0s., iE = +26m.35s.
Triest ePPP = +19m.48s., eSKKS = +24m.39s., eS = +25m.15s., ePS = +26m.22s., ePPS = +27m.7s.
Warsaw eE = +25m.43s., eZ = +25m.46s.
Helwan eE = +15m.37s., eZ = +19m.29s., eE = +21m.42s. and +26m.37s.
Ksara PPS = +31m.56s.
Long waves were also recorded at Phu-Lien, Wellington, and Adelaide.

May 5d. 6h. 1m. 30s. Epicentre 34°·7N. 57°·5E. (as given by stations of U.S.S.R.).

A = +·4427, B = +·6950, C = +·5667 ; δ = +16 ; λ = 0 ;
D = +·843, E = −·537 ; G = +·304, H = +·478, K = −·824.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Baku		8·3	315	2 7	+ 3	3 39	− 1	—	—	5·5
Samarkand		9·0	54	2 13	0	i 3 59	+ 1	—	—	—
Tashkent		11·4	51	e 2 45	− 2	e 4 54	− 2	—	—	6·4
Andijan		13·2	58	e 3 4	− 7	i 5 26	−14	—	—	—
Frunse		15·6	53	—	—	i 6 23	−14	—	—	—
Almata		17·3	54	4 3	− 1	e 7 18	+ 2	—	—	—
Ksara		17·9	272	i 4 22a	+10	7 58	SS	—	—	10·4
Agra	E.	19·1	108	i 4 32a	+ 5	8 7	+10	—	—	—
Bombay		20·8	136	i 5 5	PP	i 8 53	+20	—	—	e 12·7
Sverdlovsk		22·2	5	4 56	− 4	8 56	− 4	—	—	10·8
Helwan		22·6	264	i 5 11k	+ 8	10 5	SSS	5 45	PPP	—
Semipalatinsk		22·8	40	e 4 42	−23	—	—	—	—	12·3
Istanbul		23·2	294	e 8 35	S	(e 8 35)	−43	—	—	—
Moscow		24·7	333	5 26	+ 2	9 53	+ 9	—	—	16·6
Calcutta	N.	29·5	106	e 5 32	−36	—	—	—	—	—
Kodaikanal	E.	30·4	139	—	—	e 11 30?	+14	—	—	—
Pulkovo		30·7	333	e 6 25	+ 6	e 11 36	+15	—	—	—
Warsaw	Z.	31·3	315	e 6 25	+ 1	e 9 45	?	—	—	—
Colombo	E.	34·5	139	—	—	e 14 0	SS	—	—	—
Potsdam		36·1	313	—	—	e 16 47	?	—	—	e 18·1

Additional reading :—
Helwan PPPZ = +6m.10s., iZ = +6m.22s., eE = +10m.40s., SSE = +11m.35s.
Long waves were also recorded at Scoresby Sund, Hamburg, Upsala, Rome, Vladivostok, Irkutsk, De Bilt, Uccle, Paris, and Kew.

May 5d. Readings also at 0h. (Baku, Andijan, Tchimkent, Tashkent, Sverdlovsk, and Rome), 1h. (Calcutta, Samarkand, Tchimkent, Andijan, and Baku), 2h. (Helwan, Agra, Sverdlovsk, Tashkent, Frunse, and Ksara), 6h. (La Plata, Huancayo, and La Paz), 7h. (Tucson), 9h. (Tinemaha, Haiwee, Pasadena, Mount Wilson, Riverside, and Tucson (2)), 16h. (Tucson and La Paz), 17h. (Granada, Helwan, Sverdlovsk, and Ksara), 18h. (Tucson), 21h. (Ksara), 23h. (Scoresby Sund).

May 6d. 12h. 54m. 5s. I } Epicentre 39°·6N. 69°·5E.
13h. 38m. 2s. II }

Given by the Russian stations.

$A = +·2706$, $B = +·7237$, $C = +·6349$; $\delta = +6$; $h = -2$;
$D = +·937$, $E = -·350$; $G = +·222$, $H = +·595$, $K = -·773$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Tashkent	1·7	355	i 0 34	+ 3	i 0 57	+ 3	i 0 41	PP	i 1·3
II	1·7	355	e 0 37	+ 6	i 1 16	?	—	—	—
I Samarkand	1·9	272	i 0 33	− 1	0 55	− 4	0 37	P_g	—
II	1·9	272	e 0 29	− 5	i 1 6	+ 7	—	—	—
I Andijan	2·4	62	0 46	+ 5	—	—	e 1 28	S_g	—
II	2·4	62	e 0 43	+ 2	—	—	e 1 23	S_g	—
I Tchimkent	2·7	2	0 47	+ 2	1 18	− 1	0 57	P_g	—
II	2·7	2	e 0 45	0	e 1 29	S*	e 1 0	P_g	—
I Frunse	5·0	48	e 1 23	+ 5	e 2 20	+ 2	1 47	P_g	—
II	5·0	48	e 1 14	− 4	—	—	—	—	—
I Almata	6·7	54	e 1 54	+12	e 3 10	+10	—	—	—
I Sverdlovsk	18·2	345	e 4 13	− 3	e 7 46	+ 9	10 7	L_q	11·6
I Ksara	27·5	268	e 4 47	−63	e 10 47	+17	—	—	—

Additional readings :—
Samarkand I $iS_g = +1$m.6s.
Tchimkent I $S^* = +1$m.24s., $iS_g = +1$m.33s.
Tchimkent II $S_g = +1$m.44s.
Frunse I $eP^* = +1$m.40s., $S^* = +2$m.33s., $eS_g = +2$m.54s.
Long waves were also recorded for shock I at Baku, Irkutsk, and Potsdam ; for shock II at Sverdlovsk.

May 6d. Readings also at 0h. (Tucson), 1h. and 2h. (Ksara), 9h. (La Paz and near Balboa Heights (2)), 10h. (near Manila), 13h. (La Paz, Tucson, Huancayo, and Triest), 14h. (Ottawa (2)), 16h. (Ottawa (2) and Tucson), 17h. (Ottawa), 18h. (near Branner, Ottawa, and Zi-ka-wei), 19h. (Potsdam and Ottawa), 21h. (near Mizusawa), 22h. (Istanbul), 23h. (near Berkeley).

May 7d. 22h. 23m. 40s. Epicentre 42°·2N. 43°·7E.

Intensity VIII at Tabazkuri, felt at Tiflis and over an area of 120,000 sq. kms. Macroseismic Epicentre 41°·8N. 43°·8E. Epicentre 42°·2N. 43°·7E. (Strasbourg).

E. Büss and A. Zchakaya.

"The Tabazkuri Earthquake of the night of May 7-8, 1940, according to Macroseismic Observations." Academie des Sciences de la R.S.S. de Georgie, Institut de Physique et Geophysique.

Annexe au Bull. trimestriel seismologique de Tbilissi, t XII No. 3 (English abstract), Tiflis, 1945. Isoseismic chart, p. 78.

$A = +·5372$, $B = +·5133$, $C = +·6692$; $\delta = -11$; $h = -2$;
$D = +·691$, $E = -·723$; $G = +·484$, $H = +·462$, $K = -·744$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Piatigorsk	1·9	346	i 0 40	+ 6	1 6	+ 7	—	—	—
Erevan	2·1	163	0 36	− 1	1 0	− 4	0 46	P_g	—
Sotchi	3·2	295	i 0 53	+ 1	1 51	S_g	0 58	P*	—
Baku	5·0	109	1 18	0	—	—	e 1 31	P*	—
Yalta	7·3	291	1 50	0	3 14	− 1	—	—	—
Ksara	10·4	219	i 2 34k	0	i 6 3	sS_g	8 23	PcP	—
Bucharest	13·0	285	e 3 8a	− 1	5 53	SS	3 16	PP	—
Moscow	14·1	347	3 25	+ 2	6 4	+ 2	—	—	—
Cluj	15·0	315	e 2 39	−56	e 8 7	L	—	—	(e 8·1)
Sofia	15·0	279	e 3 36	+ 1	—	—	—	—	e 10·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		15·6	223	i 3 41k	− 2	i 7 18	SSS	3 55	PP	e 8·8
Samarkand		17·8	92	i 4 9	− 2	e 7 27	− 1	—	—	—
Sverdlovsk		18·2	33	4 15	− 1	i 7 47	+10	—	—	9·7
Budapest	E.	18·2	296	i 4 18	+ 2	7 53	+16	8 31	SS	12·3
	N.	18·2	296	4 20	+ 4	i 7 53	+16	4 36	PP	10·8
Warsaw		18·3	311	4 17a	0	i 7 51	+12	5 35	PP	e 9·3
Tashkent		19·1	86	i 4 23	− 4	8 0	+ 3	—	—	e 12·3
Tchimkent		19·2	82	i 4 27	− 1	—	—	—	—	—
Pulkovo		19·4	342	i 4 33	+ 3	e 8 2	− 2	—	—	e 8·7
Andijan		21·5	86	e 4 54	+ 2	—	—	—	—	—
Prague		21·7	303	i 4 56a	+ 1	9 1	+10	—	—	e 11·8
Triest		21·8	291	i 4 57	+ 1	i 9 1	+ 9	i 5 26	PP	e 10·8
Frunse		22·7	80	i 5 7	+ 3	—	—	—	—	14·3
Potsdam		23·0	308	i 5 7a	0	i 9 27	+13	i 5 42	PP	i 11·2
Rome		23·1	280	i 5 10a	+ 2	i 9 27	+11	i 5 26	pP	i 13·1
Jena		23·6	304	i 5 15	+ 2	i 9 37	+12	—	—	e 12·3
Upsala		23·9	328	i 5 18	+ 2	i 9 36	+ 6	i 5 48	PP	—
Copenhagen		24·3	317	i 5 24	+ 4	9 46	+ 9	—	—	—
Almata		24·4	77	i 5 25	+ 4	—	—	—	—	14·0
Chur		24·7	294	e 5 24	0	e 9 51	+ 7	—	—	—
Stuttgart		24·9	298	i 5 27a	+ 1	e 9 54	+ 7	i 5 37	pP	e 12·5
Hamburg		25·1	310	i 5 30a	+ 2	e 9 55	+ 4	i 11 24	SSS	e 13·5
Zurich		25·3	295	e 5 30a	0	e 10 5	+11	—	—	—
Strasbourg		25·9	298	e 5 34	− 1	i 10 22	+18	i 10 43	SS	14·3
Basle		26·0	295	e 5 36	0	e 10 17	+11	—	—	—
Semipalatinsk		26·3	60	i 5 41	+ 2	—	—	—	—	16·3
Heligoland		26·4	311	e 5 44	+ 4	e 10 21	+ 9	—	—	e 14·3
Neuchatel		26·4	294	e 5 40	0	e 10 26	+14	—	—	—
De Bilt		27·7	306	i 5 55a	+ 3	e 10 41	+ 8	i 6 32	PP	e 13·7
Uccle		28·1	303	i 5 58a	+ 3	i 10 46	+ 6	i 6 29	PP	13·3
Clermont-Ferrand		29·3	291	e 6 6	0	—	—	—	—	—
Bergen		29·4	323	6 8	+ 1	11 10	+ 9	—	—	13·7
Paris		29·4	292	i 6 7	0	e 11 2	+ 1	—	—	e 17·3
Dehra Dun	N.	29·9	103	e 6 28	+16	e 12 0	+51	—	—	e 19·3
Kew		31·1	304	6 23	+ 1	e 11 30	+ 2	e 12 53	SS	i 17·8
Algiers		31·6	274	e 6 20?	− 6	e 11 33	− 2	—	—	15·3
Agra	E.	31·7	108	6 24	− 3	11 41	+ 4	e 7 28	PP	—
Oxford		31·7	305	—	—	e 11 40	+ 3	—	—	e 17·1
Stonyhurst		32·4	309	i 6 35	+ 1	i 11 50	+ 2	—	—	e 18·3
Aberdeen		32·5	316	i 6 34	0	i 11 54	+ 5	i 7 47	PP	19·0
Bombay		33·9	125	e 6 48	+ 1	i 12 17	+ 6	i 8 1	PP	17·0
Almeria		35·7	278	i 7 1	− 1	i 12 35	− 4	8 15	PP	17·3
Toledo		35·7	283	i 7 0	− 2	e 12 37	− 2	—	—	—
Granada		36·4	279	e 7 12	+ 4	—	—	8 37	PP	—
Hyderabad	N.	38·6	120	7 22	− 4	13 22	− 1	8 55	PP	19·8
San Fernando	E.	38·6	279	e 6 20	− 6	—	—	—	—	23·3
Lisbon		39·8	284	7 30	− 6	13 44	+ 2	—	—	22·3
Calcutta	N.	41·9	104	e 8 30	+36	i 14 13	0	e 16 30	SS	i 19·5
Scoresby Sund		42·8	335	i 8 7	+ 6	i 14 31	+ 5	e 9 45	PP	i 17·5
Colombo	E.	47·5	128	8 40	+ 2	15 40	+ 6	—	—	28·7
Ivigtut		55·0	325	—	—	i 17 20	+ 3	—	—	e 26·3
Hong Kong		61·2	86	18 44	S	(18 44)	+ 6	—	—	—
Vladivostok		61·8	57	e 12 45	PP	i 18 47	+ 1	e 14 29	PPP	30·2
Manila		71·0	88	i 11 24	+ 2	20 40	+ 3	—	—	—
College		72·9	7	—	—	e 21 6	+ 7	e 21 41	ScS	e 30·0
East Machias		73·8	317	—	—	e 21 16	+ 7	—	—	e 35·8
Seven Falls		73·8	320	11 39	+ 1	19 12	?	—	—	33·3
Ottawa		77·4	322	12 0	+ 2	21 55	+ 6	36 38	SS	e 34·3
Harvard		77·5	317	i 11 47	−72	—	—	—	—	e 36·3
Fordham		79·9	317	i 11 22k	−50	i 22 20	+ 4	—	—	e 41·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Toronto		80·4	322	—	—	e 22 20?	−1	—	—	42·3
Sitka		81·1	0	—	—	e 22 26	− 2	—	—	e 42·3
Pittsburgh	N.W.	83·2	320	—	—	e 22 55	+ 6	—	—	e 35·8
St. Louis		89·3	326	e 13 0	+ 1	e 23 51	+ 3	—	—	48·3
Bozeman		89·6	343	—	—	e 24 0	+ 9	—	—	e 35·9
San Juan		91·7	297	—	—	e 23 42	[− 1]	e 33 49	SSS	—
Salt Lake City		94·5	341	—	—	e 24 4	[+ 6]	—	—	e 38·6
Mount Wilson	Z.	102·1	344	e 18 17	PP	—	—	—	—	—
Tucson		102·3	338	e 14 0	+ 1	i 25 50	+10	e 18 5	PP	e 40·8
La Paz		117·0	88	e 20 9	PP	—	—	—	—	70·0

Additional readings :—
Piatigorsk $P^* = +46s.$
Erevan $S_g = +1m.10s.$
Sotchi $P_g = +1m.5s.$
Bucharest i = +3m.21s. and +3m.29s.
Cluj i = +2m.43s., N = +3m.36s.
Helwan PPPZ = +4m.5s., eZ = +4m.50s. and +5m.29s., iEZ = +6m.50s., eE = +7m.32s.
Warsaw iSSN = +8m.29s.
Triest iPPP = +5m.38s., i = +6m.51s., iSS = +9m.50s., iP_cS = +11m.37s.
Potsdam iPN = +5m.11s., iPPPZ = +5m.57s., iN = +6m.18s., iZ = +7m.0s., iN = +7m.4s. and +9m.23s., iSN = +9m.30s., iSZ = +9m.37s.
Rome iZ = +5m.13s., iE = +5m.36s., iPPZ = +5m.45s., iEZ = +5m.55s., iZ = +6m.20s, iE = +9m.31s.
Jena iSE = +9m.41s.
Upsala SSSE = +10m.54s.
Stuttgart ePPZ = +6m.5s., iSEN = +10m.3s., esS = +10m.26s., eE = +10m.34s.
Hamburg eP_cSN = +12m.26s.
Uccle iPPPEZ = +7m.9s., iSSN = +12m.6s.
Dehra Dun e?N = +16m.51s.
Agra SSE = +12m.59s.
Aberdeen iEN = +14m.1s.
Bombay iEN = +7m.15s., iE = +12m.22s., iEN = +12m.53s.
Almeria PPP = +8m.36s., SS = +14m.44s.
Granada PPP = +8m.47s.
Hyderabad S_cSN = +7m.36s.
Lisbon PE = +7m.36s.
Scoresby Sund i = +8m.12s., iPPP = +10m.23s., i = +14m.37s., eSS = +17m.25s.
College eSS = +25m.55s.
San Juan eS = +24m.14s.
Salt Lake City eS = +24m.45s.
Tucson ePS = +27m.22s., ePPS = +28m.28s.
Long waves were also recorded at Cape Town, Pasadena, Florissant, Berkeley, Irkutsk, and Phu-Lien.

May 7d. Readings also at 3h. (Tucson), 5h. (near Triest), 7h. (near Warsaw, Sofia, Cluj, and Bucharest), 8h. (Toledo), 10h. (Tucson), 13h. (Ksara), 17h. (near Triest, (2)), 18h. (Tucson, near Mizusawa, and Balboa Heights), 19h. (near Apia), 20h. and 21h. (Tucson), 22h. (Rome), 23h. (Ksara (2)).

May 8d. Readings at 6h. (near Triest), 7h. (Mount Wilson, Pasadena, Riverside, and Tinemaha), 8h. (Manila), 9h. (near Triest), 12h. (Fresno), 15h. (near Triest), 16h. (Balboa Heights, near Tananarive, and Ksara), 17h. (near Fresno, Berkeley, and Branner), 18h. (Tucson), 19h. (near Berkeley), 21h. (near Branner, Berkeley, and Tucson), 22h. (Rome), 23h. (Tucson).

May 9d. Readings at 0h. (Ksara (2) and Manila), 3h. (Harvard, Ksara, and Tucson), 4h. (Baku, Tashkent, Andijan, and Samarkand), 5h. (Sverdlovsk, Irkutsk, Tucson, and Balboa Heights), 11h. (Fresno and near Mizusawa), 13h. (Tucson), 14h. (Huancayo), 15h. (Adelaide Salt Lake City), 16h. (Toledo), 19h. (Tucson), 20h. (Rome), 21h. (near Berkeley), 23h. (near Berkeley).

May 10d. 1h. 25m. 1s. Epicentre 22°·0N. 109°·0W.

$A = -·3022$, $B = -·8775$, $C = +·3724$; $\delta = +1$; $h = +4$;
$D = -·946$, $E = +·326$; $G = -·121$, $H = -·352$, $K = -·928$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		10·3	352	e 2 28	− 4	i 4 28	− 2	—	—	i 5·2
La Jolla		13·1	328	i 3 17	+ 7	—	—	—	—	—
Riverside		14·0	330	e 3 25	+ 3	—	—	—	—	—
Pasadena		14·5	328	e 3 32	+ 4	—	—	—	—	e 6·5
Mount Wilson		14·6	329	i 3 34	+ 4	—	—	—	—	—
Santa Barbara	Z.	15·6	325	e 3 47	+ 4	—	—	—	—	—
Haiwee		16·1	334	e 3 51	+ 2	—	—	—	—	—
Tinemaha		17·0	334	e 4 3	+ 2	—	—	—	—	—
Fresno	N.	17·4	330	e 4 22	PP	—	—	—	—	—
Salt Lake City		18·9	353	e 4 22	− 2	e 8 17	SS	—	—	e 9·9
Berkeley		19·5	328	—	—	e 8 19	+13	—	—	e 10·4
Ukiah		21·0	328	—	—	e 8 53	+16	(e 9 5)	SS	e 9·1
Lincoln		21·5	28	e 5 6	+14	e 8 28	−19	—	—	e 11·1
St. Louis		23·1	40	e 5 9	+ 1	i 9 17	+ 1	i 5 23	PP	—
Florissant		23·1	40	e 5 9	+ 1	e 9 21	+ 5	—	—	—
Bozeman		23·7	356	e 5 12	− 2	e 9 26	− 1	—	—	e 12·1
Butte		24·1	356	e 5 15	− 3	e 9 37	+ 3	—	—	e 11·7
Chicago		26·7	36	—	—	e 10 3	−14	—	—	e 13·3
Victoria		28·9	340	—	—	e 10 59?	+ 6	—	—	15·0
Philadelphia		33·8	52	—	—	e 12 3	− 7	—	—	e 14·0
Ottawa		35·8	41	6 59	− 4	12 29	−12	—	—	18·0
Ksara		115·2	32	19 57	PP	—	—	—	—	—

Additional readings :—
Lincoln e = +8m.38s.
St. Louis eS = +9m.21s.
Florissant eZ = +5m.21s.
Bozeman e = +9m.33s.
Butte e = +9m.45s.
Chicago e = +10m.15s.
Long waves were also recorded at Ivigtut and other American and European stations.

May 10d. 1h. 43m. 34s. Epicentre 22°·0N. 109°·0W. (as at 1h. 25m.).

$A = -·3022$, $B = -·8775$, $C = +·3724$; $\delta = +1$; $h = +4$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		10·3	352	—	—	i 5 11	S*	—	—	e 5·6
La Jolla		13·1	328	e 3 9	− 1	—	—	—	—	—
Riverside		14·0	330	e 3 22	0	—	—	—	—	—
Pasadena		14·5	328	e 3 31	+ 3	—	—	—	—	e 6·1
Mount Wilson		14·6	329	e 3 29	− 1	—	—	—	—	—
Santa Barbara		15·6	325	e 3 43	0	—	—	—	—	—
Haiwee		16·1	334	e 3 50	+ 1	—	—	—	—	—
Tinemaha		17·0	334	e 4 0	− 1	—	—	—	—	—
Fresno	N.	17·4	330	e 4 21	PP	—	—	—	—	—
Salt Lake City		18·9	353	—	—	e 7 55	+ 2	—	—	e 9·7
Santa Clara		19·0	328	e 4 31	+ 5	e 8 9	+14	—	—	e 9·3
Berkeley		19·5	328	—	—	e 8 15	+ 9	—	—	e 10·1
Lincoln		21·5	28	—	—	e 8 33	−14	—	—	i 11·0
St. Louis		23·1	40	e 4 36	−32	i 9 14	− 2	—	—	—
Florissant		23·1	40	e 5 15	+ 7	e 9 12	− 4	—	—	—
Bozeman		23·7	356	—	—	e 9 28	+ 1	—	—	e 12·3
Butte		24·1	356	—	—	e 9 48	+14	—	—	e 13·6
Chicago		26·7	36	—	—	e 10 3	−14	—	—	e 13·0
Ottawa		35·8	41	7 0	− 3	—	—	—	—	18·4
Ksara		115·2	32	e 19 8	PP	e 28 42	?	—	—	—

Additional readings :—
Tucson i = +5m.20s.
St. Louis ePN = +5m.12s.
Bozeman e = +9m.39s.
Long waves were also recorded at Ivigtut, East Machias, Philadelphia, Ukiah, and Scoresby Sund.

May 10d. 18h. 59m. 34s. Epicentre 9°·2S. 106°·7E. (as on 1937 Dec. 17d.).

Intensity III at Djokjakarta and Soerakarta (Java). Epicentre 9°·5S. 108°·5E. (Batavia).

Aardbevingen in Ned. Indie waargenomen gedurende het Jaar, 1940, p. 1.

$A = -\cdot2837$, $B = +\cdot9457$, $C = -\cdot1589$; $\delta = +8$; $h = +7$;
$D = +\cdot958$, $E = +\cdot287$; $G = +\cdot046$, $H = -\cdot152$, $K = -\cdot987$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Perth		24·2	160	4 21	−58	9 24	−11	i 5 48	PP	13·2
Manila		27·5	30	i 5 46	− 4	10 31	+ 1	—	—	13·3
Phu-Lien		29·8	0	e 6 13	+ 2	e 11 15	+ 8	—	—	—
Colombo	E.	31·2	300	6 28	+ 5	11 46	+17	—	—	20·3
Hong Kong		32·2	14	6 29	− 3	11 45	0	7 47	PP	—
Kodaikanal	E.	34·9	304	i 7 2a	+ 7	i 12 45	+18	—	—	17·3
Calcutta		36·3	331	e 7 23	+16	i 13 4	+16	e 15 49	S_cS	e 21·1
Adelaide		38·8	137	i 16 16	S	(i 16 16)	SS	—	—	18·9
Bombay		43·5	310	e 8 12	+ 5	e 14 34	− 2	e 9 44	PP	e 25·2
Agra	E.	45·6	323	i 8 22k	− 2	15 8	+ 2	10 20	PPP	22·7
Brisbane	N.	47·3	118	—	—	i 19 8	SS	—	—	e 22·6
Riverview	N.	47·6	128	—	—	e 14 28	−67	—	—	e 23·5
Sydney		47·6	128	—	—	e 14 38	−57	—	—	e 23·5
Vladivostok		56·9	22	e 9 50	+ 1	e 17 38	− 4	—	—	28·4
Almata		58·8	336	e 10 4	+ 2	—	—	—	—	—
Frunse		59·6	333	e 10 6	− 2	—	—	—	—	—
Andijan		59·7	330	i 10 4	− 5	i 18 16	− 3	—	—	—
Tashkent		60·9	328	i 10 16	− 1	e 18 37	+ 3	—	—	e 27·4
Samarkand		61·0	326	i 10 19	+ 1	—	—	—	—	—
Irkutsk		61·3	358	e 10 16	− 4	18 36	− 3	—	—	30·4
Tchimkent		61·5	330	e 10 19	− 2	e 18 55	+13	—	—	—
Semipalatinsk		63·7	342	e 10 32	− 4	e 19 13	+ 3	—	—	—
Christchurch		66·3	134	6 21a	?	17 11	?	23 8	SS	33·7
Baku		71·9	317	11 31	+ 4	20 57	+ 9	—	—	37·4
Sverdlovsk		75·9	336	i 11 49	− 1	i 21 37	+ 5	—	—	33·4
Ksara		79·5	306	i 12 12k	+ 2	e 22 22	+11	e 15 24	PP	41·4
Helwan		82·1	302	i 12 23a	− 1	e 22 44	+ 6	e 23 14	PS	—
Moscow		86·1	328	e 12 43	− 1	—	—	—	—	—
Rome		99·2	310	e 17 50	PP	e 27 49	PPS	—	—	—
Scoresby Sund		110·9	344	e 19 17	PP	e 25 55	{−16}	e 29 12	PS	e 46·0
Santa Barbara	Z.	130·7	52	e 19 9	[− 4]	—	—	—	—	—
Tinemaha		130·9	48	i 19 10	[− 4]	—	—	—	—	—
Pasadena	Z.	132·0	51	e 19 11	[− 5]	—	—	i 22 35	PKS	—
Mount Wilson		132·1	51	i 19 10	[− 6]	—	—	i 22 33	PKS	—
Riverside	Z.	132·3	51	i 19 7	[− 9]	—	—	—	—	—
La Jolla	Z.	133·1	53	e 19 14	[− 4]	—	—	—	—	—
Palomar	Z.	133·3	52	e 19 13	[− 5]	—	—	—	—	—
Tucson		138·4	50	e 19 23	[− 4]	—	—	—	—	—
Florissant	Z.	146·8	24	i 19 39	[− 3]	—	—	e 23 30	PP	—
Harvard		146·8	356	i 19 35	[− 7]	—	—	—	—	—
St. Louis	N.	147·0	24	i 19 40	[− 3]	—	—	—	—	—
Fordham	Z.	148·5	0	i 19 44a	[− 1]	—	—	e 23 18	PP	—
La Paz		154·0	191	19 54k	[+ 1]	—	—	i 23 42	PP	84·4

Additional readings :—
Perth PP = +5m.11s., PPP = +5m.26s., i = +10m.48s., SS = +11m.9s., i = +11m.29s.
Adelaide iS = +18m.6s.
Bombay eE = +8m.42s., eEN = +18m.12s.
Agra SSE = +18m.17s.
Christchurch SKS? = +16m.38s., SSS = +26m.47s., L_q = +28m.11s.
Rome eSE = +28m.4s.
Scoresby Sund epPP = +19m.49s., eSPP = +29m.56s., eSS = +34m.51s., eSSS = +39m.3s.
Florissant iZ = +20m.7s.
St. Louis eN = +20m.8s.
Fordham iZ = +20m.2s.
Long waves were also recorded at Cape Town, Paris, Wellington, Huancayo, Pulkovo, Potsdam, Uccle, and De Bilt.

May 10d. Readings also at 0h. (near Berkeley (2)), 5h. (Tucson and near Tananarive), 6h. (near Manila), 8h. (Tucson), 9h. (near Tananarive), 14h. (Tucson), 16h. (near Apia), 18h. (2) and 20h. (near Berkeley), 21h. (Tucson (2)), 23h. (Tucson and near Berkeley).

May 11d. 7h. 38m. 21s. Epicentre 13°·7S. 167°·2E. (as on 1940 Feb. 20d.).

$A = -\cdot9478$, $B = +\cdot2153$, $C = -\cdot2354$; $\delta = +9$; $h = +6$;
$D = +\cdot222$, $E = +\cdot975$; $G = +\cdot230$, $H = -\cdot052$, $K = -\cdot972$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	19·0	222	i 4 15	−11	i 7 45	−10	—	—	—
Riverview	N.	24·8	213	—	—	e 10 27	SS	—	—	e 12·4
Sydney		24·8	213	—	—	e 10 21	SS	—	—	—
Manila		53·7	300	e 9 21	− 5	e 15 34	?	—	—	—
Pasadena		85·3	53	i 12 40	0	—	—	—	—	—
Mount Wilson		85·4	53	i 12 41	+ 1	—	—	—	—	—
La Jolla	Z.	85·6	55	e 12 43	+ 2	—	—	—	—	—
Riverside		85·9	53	i 12 44	+ 1	—	—	—	—	—
Palomar	Z.	86·0	54	i 12 46	+ 3	—	—	—	—	—
Haiwee	E.	86·1	51	e 12 44	0	—	—	—	—	—
Tinemaha	Z.	86·2	50	i 12 44	0	—	—	—	—	—
Tucson		90·6	57	e 13 7	+ 2	—	—	—	—	—
Ksara		131·7	304	e 20 55	PP	—	—	e 24 25	PPP	—

Riverview also gives eS?E = +10m.30s.
Long waves were also recorded at Wellington.

May 11d. 13h. 54m. 37s. Epicentre 52°·4N. 173°·5E. (as on 1940 April 19d.).

$A = -\cdot6087$, $B = +\cdot0694$, $C = +\cdot7903$; $\delta = -9$; $h = -6$;
$D = +\cdot113$, $E = +\cdot994$; $G = -\cdot785$, $H = +\cdot089$, $K = -\cdot613$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Nemuro	20·7	255	4 39	− 5	8 28	− 3	—	—	—
College	23·2	42	i 5 15	+ 6	e 9 24	+ 6	—	—	e 10·8
Sapporo	23·4	260	e 5 15	+ 4	—	—	—	—	e 12·1
Mori	24·4	258	5 21	0	—	—	—	—	—
Mizusawa	25·9	251	e 5 31	− 4	10 4	0	—	—	—
Sendai	26·7	250	5 28	−15	10 14	− 3	—	—	—
Tokyo Cen. Met. Ob.	29·1	248	6 9	+ 5	10 59	+ 3	—	—	i 12·8
Vladivostok	29·1	267	e 6 3	− 1	e 10 53	− 3	—	—	12·7
Nagano	29·3	252	6 5	− 1	11 52	+53	—	—	—
Sitka	29·3	60	e 6 3	− 3	i 10 53	− 6	e 7 5	PP	e 12·0
Yokohama	29·4	248	e 6 20	+13	e 11 50	+49	—	—	—
Osaka	32·3	252	e 5 40	−53	11 4	−42	—	—	—
Kobe	32·5	252	5 57	−37	11 45	− 4	—	—	—
Hamada	34·1	254	6 38	−10	—	—	—	—	—
Miyazaki	36·6	251	e 5 8	?	—	—	—	—	15·9
Honolulu	38·1	133	e 7 21	− 1	e 13 15	− 1	e 8 56	PP	e 15·4
Victoria	39·2	70	7 38	+ 7	13 32	0	16 15	SS	19·4
Seattle	40·3	70	e 8 29	+49	e 14 17	+28	—	—	e 17·4
Irkutsk	40·8	299	7 42	− 3	13 56	0	—	—	20·4
Ukiah	44·7	81	e 8 25	+ 9	i 14 53	− 1	e 10 8	PP	e 17·7
Berkeley	46·1	82	—	—	e 15 15	+ 1	i 19 35	SSS	i 23·1
Saskatoon	46·5	57	8 35	+ 4	15 23	+ 4	10 35	PP	21·4
Santa Clara	46·6	82	i 8 45	+13	e 15 27	+ 6	—	—	e 19·7
Butte	46·8	66	e 8 37	+ 4	e 15 23	− 1	e 10 32	PP	e 19·9
Bozeman	47·8	66	e 8 48	+ 7	i 15 35	− 3	e 10 9	P_cP	e 19·4
Fresno	48·3	81	e 8 55	+10	—	—	—	—	—
Tinemaha	49·0	80	i 8 52	+ 2	e 15 56	+ 1	—	—	—
Haiwee	49·8	81	e 8 59	+ 3	—	—	—	—	—
Santa Barbara	49·9	83	i 8 59	+ 2	—	—	—	—	—
Salt Lake City	50·4	72	e 9 8	+ 7	e 16 16	+ 2	e 12 9	PPP	e 20·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mount Wilson		51·0	82	i 9 6	0	—	—	—	—	—
Pasadena		51·0	82	i 9 6	0	i 16 22	0	—	—	e 20·4
Riverside		51·6	82	i 9 10	0	—	—	—	—	—
Palomar	z.	52·3	83	i 9 17	+ 2	—	—	i 10 53	P_cP	—
La Jolla		52·4	83	e 9 18	+ 2	—	—	—	—	—
Hong Kong		54·0	259	9 27	− 1	17 5	+ 2	11 25	PP	26·5
Semipalatinsk		54·2	307	9 30	+ 1	e 17 6	0	—	—	27·4
Manila		56·0	247	i 9 41a	− 2	i 17 34	+ 4	—	—	—
Tucson		56·8	79	e 9 49	+ 1	e 17 43	+ 2	i 10 36	P_cP	e 22·8
Scoresby Sund		56·9	6	e 9 52	+ 3	i 17 47	+ 5	e 10 41	P_cP	e 22·9
Sverdlovsk		58·0	323	i 9 58	+ 1	17 58	+ 1	—	—	26·4
Lincoln		58·9	62	e 10 5	+ 2	e 18 7	− 1	e 12 27	PP	e 23·4
Phu-Lien		59·7	264	—	—	e 18 19	0	—	—	—
Almata		60·7	303	e 10 19	+ 4	e 18 41	+ 9	—	—	31·4
Ivigtut		62·0	21	e 10 58	+34	i 18 50	+ 2	e 12 40	PP	e 25·5
Frunse		62·2	304	10 26	0	18 52	+ 1	—	—	63·4
Chicago U.S.C.G.S.		63·0	56	e 10 28	− 3	i 18 50	−11	e 12 31	PP	i 22·5
Florissant		63·8	60	i 10 35	− 1	e 19 9	− 2	—	—	30·9
St. Louis		64·0	60	e 10 36	− 2	i 19 12	− 1	—	—	30·9
Pulkovo		64·3	340	e 10 41	+ 2	i 19 17	0	—	—	e 34·8
Andijan		64·9	304	e 10 44	+ 1	e 19 27	+ 3	—	—	e 34·4
Tchimkent		65·1	307	e 10 42	− 3	e 19 26	− 1	—	—	e 33·4
Toronto		65·6	50	—	—	e 19 26	− 7	e 27 1	SSS	31·4
Ottawa		65·9	46	10 48	− 2	19 33	− 4	26 41	SSS	e 32·4
Tashkent		66·0	307	e 10 50	0	e 19 35	− 3	—	—	—
Moscow		66·3	334	10 53	+ 1	19 43	+ 1	—	—	33·5
Shawinigan Falls		66·3	43	10 51	− 1	e 19 36	− 6	—	—	34·4
Upsala		66·4	347	i 10 54	+ 1	i 19 40	− 3	—	—	e 30·4
Seven Falls		66·7	42	10 53	− 2	i 19 41	− 5	24 23	SS	33·4
Bergen		67·2	353	e 10 53	− 5	19 39	−13	—	—	e 35·7
Pittsburgh		67·8	52	e 10 26	−36	e 19 22	−38	—	—	—
Vermont		67·8	45	—	—	e 19 57	− 3	e 20 59	S_cS	e 27·9
Samarkand		68·4	307	e 11 11	+ 5	—	—	—	—	e 35·4
Pennsylvania		68·5	51	—	—	e 20 8	0	—	—	—
Calcutta	N.	69·6	280	e 11 24	+11	i 20 14	− 7	e 20 25	PS	e 32·0
Dehra Dun	N.	69·7	292	e 18 10?	?	e 28 9?	SSS	—	—	e 34·6
East Machias		70·0	42	e 11 18	+ 3	e 20 25	− 1	e 13 36	PP	e 35·9
Harvard		70·1	45	i 11 17	+ 1	e 20 21	− 6	e 21 11	S_cS	e 39·4
Fordham		70·4	48	e 11 17	− 1	i 20 29	− 1	i 16 29	PPP	e 34·4
Philadelphia		70·5	49	i 11 23	+ 5	i 20 32	0	e 14 1	PP	e 33·0
Aberdeen		70·7	357	e 12 38	+78	i 20 31	− 3	e 14 38	PP	e 25·6
Copenhagen		71·1	349	11 25	+ 3	20 42	+ 4	—	—	—
Halifax		71·6	39	—	—	e 20 37	− 7	e 29 23?	SSS	37·4
Agra	E.	72·2	290	11 25	− 4	21 17	PS	14 10	PP	—
Columbia		72·3	57	e 11 25	− 4	e 20 51	− 1	e 28 26	SSS	e 31·9
Heligoland		73·1	352	—	—	e 21 3	+ 2	—	—	e 37·4
Warsaw		73·2	342	e 11 35a	0	i 21 0	− 2	14 19	PP	e 34·4
Stonyhurst		74·1	357	—	—	e 21 13	+ 1	—	—	39·9
Potsdam	N.	74·3	348	i 11 43	+ 2	i 21 18	+ 3	i 14 17	PP	e 35·6
De Bilt		75·4	353	—	—	e 21 30	+ 3	e 26 46	SS	e 37·4
Baku		75·5	318	11 52	+ 4	26 47	SS	16 58	PPP	36·4
Jena		75·9	348	e 11 41	− 9	e 22 11	PS	—	—	e 37·4
Oxford		76·1	356	12 9	+18	i 21 53	+18	—	—	—
Kew		76·4	355	11 53	0	21 37	− 1	12 19	P_cP	e 40·4
Prague		76·4	345	11 55	+ 2	e 22 26	PS	e 14 47	PP	e 38·4
Uccle		76·8	354	i 11 55a	0	21 46	+ 4	e 14 41	PP	e 37·4
Budapest		78·1	342	e 12 5	+ 3	e 22 2	+ 6	—	—	46·4
Stuttgart		78·3	349	e 12 4	+ 1	e 21 58	− 1	e 26 53	SS	e 40·4
Kecskemet	z.	78·5	342	12 1	− 3	—	—	—	—	e 51·4
Strasbourg		78·7	350	e 12 6	0	e 21 5	−58	—	—	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.
Paris		78·9	354	i 12 9	+ 2	e 22 9	+ 4	—	—	e 37·4
Hyderabad		79·4	284	12 4	− 5	22 4	− 6	15 10	PP	—
Bucharest		79·6	336	e 10 23?	?	—	—	—	—	41·4
Basle		79·7	350	e 12 10	− 1	e 22 27	+14	—	—	—
Zurich		79·8	350	e 12 12a	0	e 22 31	+17	—	—	—
Chur		80·2	349	e 12 14	0	—	—	—	—	—
Neuchatel		80·3	350	e 12 14	0	e 22 23	+ 3	—	—	—
Triest		80·8	346	e 12 16	− 1	i 22 31	+ 6	e 15 26	PP	e 39·0
Bermuda		81·5	47	e 12 17	− 4	e 22 33	+ 1	—	—	e 33·1
Bombay		81·6	289	i 12 23	+ 2	i 22 33	0	i 15 24	PP	31·3
Sofia		81·8	337	e 12 26	+ 4	e 22 39	+ 4	—	—	42·4
Clermont-Ferrand		81·9	353	e 12 24	+ 1	—	—	—	—	e 43·4
Rome		84·6	346	i 12 37a	+ 1	i 23 8	+ 5	i 15 54	PP	e 39·1
Kodaikanal	E.	85·6	281	e 12 46	+ 5	i 23 29	+16	i 23 40	PS	39·5
Ksara		86·5	325	i 12 47a	+ 1	e 23 11	[0]	e 16 3	PP	—
Colombo	E.	86·8	277	—	—	23 18	[+ 5]	—	—	47·9
Riverview		88·1	198	e 18 8	PPP	e 23 38	+ 1	25 14	PPS	e 29·8
Toledo		88·1	358	e 12 52	− 2	e 23 39	+ 2	—	—	—
Granada		90·7	357	i 13 7k	+ 1	i 23 49	−12	16 38	PP	45·5
Algiers		90·8	352	e 13 8	+ 2	24 5	+ 3	—	—	—
Almeria		91·0	356	e 12 44	−23	23 24	[−15]	13 1	P_cP	42·9
San Fernando		91·5	0	—	—	e 22 45	[−57]	—	—	42·4
Helwan		91·7	327	i 13 11k	+ 1	23 43	[0]	17 5	PP	—
San Juan		92·7	56	e 13 5	−10	—	—	—	—	e 36·0
Wellington		93·3	180	—	—	23 48	[− 4]	30 23?	SS	43·4
Christchurch		95·6	181	10 42	?	24 3	[− 1]	40 20	L_q	46·5
Huancayo		112·4	81	e 18 30	[− 8]	e 25 25	[+ 3]	e 19 26	PP	e 47·6
La Paz		120·1	77	i 20 13a	PP	30 4	PS	38 12	?	59·4

Additional readings :—
College i = +9m.32s.
Mizusawa ePN = +5m.34s., eS = +10m.7s.
Sitka i = +10m.59s.
Honolulu eP_cP = +9m.29s., e = +13m.26s.
Ukiah ePPP = +10m.56s.
Saskatoon SS = +18m.29s.
Butte eS_cS = +18m.24s.
Bozeman ePP = +10m.43s., ePPP = +11m.32s., iS_cS = +18m.32s., eSS = +19m.2s.
Salt Lake City iS_cS = +18m.52s.
Hong Kong SS = +20m.53s.
Tucson i = +9m.59s., ePP = +12m.1s., ePPP = +13m.4s., e = +17m.49s., eS_cS = +19m.38s.
Scoresby Sund ePP = +11m.55s., iPPP = +13m.18s., iS_cS = +19m.35s., eSS = +21m.34s.
Lincoln ePPP = +13m.50s., i = +18m.10s., eS_cS = +20m.2s., eSS = +21m.47s.
Ivigtut ePPP = +14m.28s., eSS = +23m.5s.
Potsdam iSSN = +26m.23s.
Upsala eSN = +19m.43s.
Seven Falls SSS = +27m.41s.
Pittsburgh iSNW = +19m.26s.
Vermont eSS = +24m.37s.
Calcutta eSSN = +24m.23s.
Last Machias ePPP = +15m.34s., e = +20m.37s., eSS = +25m.4s., eSSS = +28m.13s.
Harvard eL_qEN = +35·4m.
Fordham iZ = +11m.26s., iE = +21m.21s.
Philadelphia eS_cS = +21m.32s., eSS = +24m.53s., eSSS = +27m.55s.
Aberdeen iN = +19m.2s.
Copenhagen +20m.13s.
Agra SSE = +25m.50s., SSSE = +28m.45s.
Columbia e = +11m.35s.
Warsaw PPPZ = +16m.5s., iSN = +21m.3s., iZ = +21m.45s., SSE = +25m.37s., SSN = +25m.54s., eSSSE = +27m.57s., iN = +29m.19s., iZ = +29m.35s.
De Bilt eSSS = +32m.23s.
Baku SSS = +29m.59s.
Jena ePN = +11m.50s., eSN = +22m.16s.
Kew ePPZ = +14m.41s., eZ = +18m.9s.
Prague e = +9m.32s.
Uccle SN = +21m.50s., iSSN = +27m.4s.
Stuttgart ePN = +12m.7s.
Hyderabad SSN = +27m.17s.

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Triest ePPP = +17m.5s., i = +19m.1s., iS_cS = +22m.51s., iPS = +23m.19s., eSS = +27m.33s., eSSS = +31m.19s.
Bermuda e = +12m.38s.
Bombay iE = +22m.43s., eE = +22m.49s., SSE = +27m.33s.
Rome ePPPZ = +18m.18s., eZ = +19m.18s., iZ = +23m.10s., ePSNZ = +24m.9s., eZ = +26m.3s., eSSN = +28m.48s., eSSSEN = +32m.33s.
Kodaikanal iE = +23m.5s.
Ksara ePS = +23m.57s.
Riverview eE = +28m.7s.
Granada iS = +23m.55s., PS = +25m.20s., SS = +30m.38s.
Almeria PP = +16m.37s., PS = +24m.46s.
Helwan eZ = +13m.38s., +16m.51s., and +18m.44s., eE = +24m.8s., SE = +24m.35s., eE = +25m.25s.
San Juan e = +13m.35s.
Wellington SKKS = +24m.30s., ? = +25m.36s., SSS = +34m.23s.?
Christchurch eE = +21m.16s., PPS = +24m.51s.
Huancayo ePPP = +21m.41s., eS = +27m.7s., ePS = +29m.2s., ePPS = +29m.35s., eSS = +34m.28s., ePSPS = +35m.25s., eSSS = +39m.9s.
Long waves were also recorded at Arapuni, Zinsen, Yalta, Erevan, La Plata, Cape Town.

May 11d. 21h. 0m. 19s. Epicentre 24°·3N. 94°·1E. (as on 1939, May 27d.).

A = −·0652, B = +·9101, C = +·4092; δ = −2; h = +4;
D = +·997, E = +·071; G = −·029, H = +·408, K = −·912.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	5·6	252	e 1 34	+ 7	i 2 26	− 7	i 1 43	P*	—
Phu-Lien		12·1	102	i 2 50	− 7	e 5 31	SS	—	—	—
Agra	E.	14·8	285	e 3 31	− 1	6 7	−11	3 42	PP	—
Dehra Dun	N.	15·5	296	e 3 46	+ 4	e 6 25	−10	—	—	e 8·8
Hyderabad		16·1	248	3 43	− 6	6 47	− 2	—	—	8·0
Hong Kong		18·5	93	4 15	− 4	7 44	0	4 30	PP	9·9
Bombay		20·5	260	i 4 41k	− 1	e 8 27	0	e 4 55	PP	i 15·9
Kodaikanal	E.	21·1	233	i 4 46k	− 2	i 8 36	− 3	—	—	10·4
Colombo	E.	22·0	221	4 49	− 9	8 49	− 7	—	—	—
Almata		23·6	329	5 25	+12	9 43	+18	—	—	—
Andijan		24·5	317	e 5 29	+ 7	i 9 56	+16	—	—	—
Frunse		24·6	324	—	—	e 10 10	+28	—	—	e 14·8
Karenko		25·1	84	5 25	− 3	—	—	—	—	—
Tashkent		26·7	316	i 5 48	+ 5	i 10 24	+ 7	—	—	—
Manila		27·1	106	e 5 42	− 4	12 40	?	—	—	—
Tchimkent		27·1	318	5 46	0	10 27	+ 3	—	—	—
Samarkand		27·5	310	e 5 42	− 8	—	—	—	—	—
Semipalatinsk		28·2	341	e 6 2	+ 6	e 10 51	+10	—	—	16·7
Irkutsk		29·0	13	6 11	+ 7	e 11 4	+10	—	—	16·2
Vladivostok		36·2	50	e 7 4	− 2	e 14 53	SS	e 15 29	SSS	17·5
Osaka		37·3	64	7 3	−13	13 29	+25	—	—	—
Nagoya		38·5	63	7 22	− 4	—	—	—	—	—
Oiwake		39·9	62	7 41	+ 4	13 13	−30	—	—	—
Baku		40·2	305	e 7 50	+10	13 59	+11	—	—	22·7
Sverdlovsk		40·5	333	i 7 47	+ 5	13 57	+ 5	—	—	20·7
Tokyo, Cen. Met. Ob.		40·8	63	7 48	+ 3	—	—	—	—	—
Sendai		41·9	60	5 4	?	—	—	—	—	—
Erevan		44·3	304	e 9 34	PP	—	—	—	—	—
Ksara		51·2	295	i 9 9a	+ 2	e 16 33	+ 8	e 17 11	PS	—
Moscow		51·5	324	9 10	+ 1	16 31	+ 2	—	—	30·6
Helwan		55·6	291	i 9 38k	− 2	i 17 27	+ 2	—	—	—
Pulkovo		56·2	328	e 9 47	+ 3	e 17 33	0	—	—	—
Potsdam	N.	65·8	319	—	—	e 19 26	− 9	—	—	e 34·7
Triest		66·5	311	e 10 52	− 2	e 19 42	− 2	e 11 17	P_cP	e 31·5
Rome		68·2	308	e 11 2a	− 2	e 20 2	− 2	e 13 38	PP	e 33·9
Stuttgart		68·9	316	e 11 8	− 1	e 20 9	− 4	—	—	e 37·7
Chur		69·1	315	e 11 9	− 1	—	—	—	—	—
Zurich		69·6	314	e 11 11	− 2	—	—	—	—	e 34·7
Uccle		71·4	319	e 11 34	+10	—	—	—	—	—
Paris		73·1	317	i 11 35	+ 1	e 26 26	SS	—	—	e 38·7

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		75·5	343	—	—	e 21 32	+ 4	i 22 0	S_eS	e 31·4
Toledo	z.	80·6	310	e 12 15	− 1	—	—	—	—	—
Granada		81·4	308	e 11 54k	−26	22 33	+ 2	—	—	48·7
Tucson		118·9	24	e 18 52	[+ 2]	—	—	—	—	—

Additional readings :—
Calcutta eP_gN = +1m.53s., iS_gN = +2m.48s.
Agra sSE = +6m.29s.
Hong Kong SS = +8m.7s.
Bombay isPE = +5m.13s., S = +8m.31s., iEN = +8m.48s., iE = +9m.7s.
Helwan eE = +18m.17s. and +18m.53s.
Potsdam iN = +19m.34s.
Triest ePP = +13m.18s., ePPP = +14m.30s.
Rome eZ = +20m.57s., eN = +21m.55s., eSS = +24m.53s.
Paris e = +18m.37s.
Long waves were also recorded at Zinsen, Upsala, Warsaw, Kew, De Bilt, and Stonyhurst.

May 11d. Readings also at 0h. (near Berkeley), 2h. (near Apia, Christchurch, Clermont-Ferrand, Strasbourg, Paris, Wellington, Haiwee, Pasadena, Mount Wilson, La Jolla, Palomar, Riverside, Tinemaha, Santa Barbara, and Tucson), 3h. (Frunse, Andijan, Tashkent, Baku, Sverdlovsk, Samarkand, Tchimkent, Pasadena, Mount Wilson, Palomar, Riverside, Tinemaha, Santa Barbara, Tucson, Scoresby Sund, and Helwan), 4h. (Rome and Riverview), 7h. (near Toledo, Almeria, and Granada), 9h. (Tucson and Berkeley), 12h. (Helwan), 13h. (Algiers, Mizusawa, near Hong Kong, and Granada), 14h. (Tucson), 19h. (near Florissant (2) and St. Louis (2)), 20h. (St. Louis, Tucson, Ottawa, Philadelphia, Salt Lake City, Lincoln, Pasadena, Mount Wilson, Riverside, Tinemaha, Santa Barbara, Scoresby Sund, and La Jolla), 21h. (near Berkeley), 23h. (Tucson).

May 12d. 20h. 43m. 16s. Epicentre 16°·8N. 106°·1W. (as on 1937, May 13d.).

A = −·2656, B = −·9203, C = +·2872 ; δ = −2 ; h = +5 ;
D = −·961, E = +·277 ; G = −·080, H = −·276, K = −·958.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		16·0	345	e 3 41	− 7	e 6 14	−32	i 3 56	PP	e 7·0
La Jolla	z.	18·9	331	e 4 25	+ 1	—	—	—	—	—
Palomar	z.	19·1	332	e 4 25	− 2	—	—	—	—	—
Riverside	z.	19·9	331	e 4 35	− 1	—	—	—	—	—
Pasadena		20·4	331	e 4 41	0	e 8 31	+ 6	—	—	e 9·5
Haiwee		22·5	334	e 4 59	− 3	—	—	—	—	—
Tinemaha		22·9	335	e 5 7	+ 1	—	—	—	—	—
Salt Lake City		24·4	350	e 5 20	− 1	e 9 35	− 4	—	—	e 9·7
Santa Clara		24·8	329	e 8 27	?	e 11 55	?	—	—	e 14·1
Lincoln		25·3	19	e 5 50	+20	e 9 26	−28	—	—	e 12·2
Berkeley		25·4	329	—	—	e 10 28	+32	e 10 40	SS	e 12·9
St. Louis		25·8	29	e 5 41	+ 7	e 10 8	+ 6	—	—	—
Florissant		25·9	29	i 5 40	+ 5	10 11	+ 7	—	—	—
Columbia		28·3	47	e 7 16	PPP	e 10 56	+13	—	—	e 16·5
Bozeman		29·1	353	—	—	e 10 50	− 6	—	—	—
Butte		29·6	353	—	—	e 10 59	− 5	—	—	e 13·9
Pittsburgh		32·7	39	—	—	e 14 33	SSS	—	—	e 17·4
Victoria		34·7	340	—	—	e 11 44?	−40	—	—	18·7
Fordham		36·7	43	—	—	e 13 4	+10	—	—	—
Ottawa		38·2	35	e 7 44	+21	e 13 20	+ 3	—	—	19·7
Huancayo		41·8	131	—	—	e 15 4	+53	—	—	e 18·1
Honolulu		48·9	284	—	—	e 19 51	SS	—	—	e 21·1
Ksara		118·0	35	e 20 50	PP	—	—	—	—	—

Additional readings :—
Tucson i = +3m.49s.
Lincoln e = +9m.58s.
Berkeley eE = +10m.32s.
Florissant ePE = +5m.43s., eZ = +9m.53s.
Long waves were also recorded at Harvard, Rome, Scoresby Sund, Seattle, Sitka, and Ukiah.

May 12d. Readings also at 3h. (Mizusawa, Tinemaha, Palomar, Tucson, Riverside, Pasadena, and Mount Wilson), 4h. (near Berkeley, Lick, and Branner), 9h. (near Berkeley, Lick (3), and Branner), 14h. (Samarkand, Andijan, Frunse, and Tchimkent), 16h. (Philadelphia, Bozeman, Berkeley, Riverside, Pasadena, Mount Wilson, Tucson, Salt Lake City, St. Louis, Florissant, and Fordham), 17h. (Scoresby Sund, Harvard, Florissant, Fordham, St. Louis, Tucson, and San Juan), 18h. (near Branner and San Juan), 19h. (San Juan), 23h. (Salt Lake City, Samarkand, Andijan, Frunse, Tchimkent, and Tashkent).

May 13d. Readings at 0h. (near Bucharest and Tucson), 5h. (near Rome and Tucson), 14h. (Riverside, Mount Wilson, Palomar, Tinemaha, Pasadena, and Tucson), 15h. (near Berkeley), 16h. (near Harvard, near Triest, and near Fordham), 17h. (near Berkeley), 18h. (Calcutta, Bombay, near Berkeley, and Tucson), 21h. (near Berkeley, and Toledo), 22h. (near Berkeley, Hong Kong, Zi-ka-wei, and Manila), 23h. (Potsdam, Uccle, Ksara, near Mizusawa, near Berkeley, and Tucson).

May 14d. Readings at 0h. (near Triest, Warsaw, near Sofia (2), Rome, and Potsdam), 1h. (near Wellington, Monowai, and Christchurch), 3h. (Potsdam and Warsaw), 5h. (Baku, Hukuoka, Erevan, Andijan, Moscow, Warsaw, Rome, Helwan, Sverdlovsk, and Ksara), 6h. (Granada), 7h. (Frunse, Andijan, Sverdlovsk, Samarkand, Tchimkent, and Tashkent), 8h. (Sitka, Balboa Heights, Tucson, and Huancayo), 9h. (Andijan, Samarkand, Tchimkent, and Tashkent), 11h. (Warsaw), 13h. (near Mizusawa), 14h. (La Plata, La Paz, and Granada), 15h. (Fordham, Tinemaha, Tucson, Mount Wilson, Pasadena, and Riverside), 16h. (Palomar, Manila, Mount Wilson, Pasadena, and Riverside), 17h. (Huancayo, Ksara, Helwan, and Rome), 19h. (near Berkeley), 20h. (near Harvard), 22h. (Strasbourg), 23h. (Strasbourg).

May 15d. Readings at 0h. (near Berkeley), 2h. (Strasbourg), 3h. (Tucson and Rome), 4h. (Tucson, Helwan, Ksara, and Perth), 5h. (Tucson and Rome), 6h. (St. Louis and near Mizusawa), 8h. (near Fresno, Lick, Berkeley, and Branner), 12h. (Tucson and Sofia), 14h. (Warsaw), 15h. (Upsala), 16h. (Tucson), 17h. (Pasadena and Mount Wilson), 18h. (Berkeley, Lick, and Branner), 20h. (Sverdlovsk, Tashkent, Granada, Baku, near Berkeley, Rome, Warsaw, Helwan (2), Ksara (2), and Strasbourg), 22h. (near Mizusawa), 23h. (Strasbourg).

May 16d. Readings at 0h. (near Berkeley (2)), 1h. (near Berkeley and Branner), 2h. (Perth), 3h. (Potsdam and Tucson), 5h. (near Triest), 6h. (near Almeria, Granada, and Toledo), 11h. (Sofia, Triest, and Rome), 12h. (near Osaka and Hukuoka), 14h. (Harvard, near Ottawa, Seven Falls, Shawinigan Falls, near Osaka, and Fordham), 15h. (Stuttgart, Manila, and Rome), 19h. (near Fordham), 20h. (Fresno, Berkeley, Tucson, Pasadena, Ukiah, Mount Wilson, Haiwee, Butte, Salt Lake City, Seattle, Riverside, and Tinemaha), 21h. (near Osaka, Hukuoka, Ksara, and Helwan), 22h. (near Osaka, Tucson, Pasadena, Ukiah, Mount Wilson, Haiwee, Tinemaha, Riverside, Seattle, Salt Lake City, and Butte), 23h. (Rome).

5/

May 17d. 1h. 59m. 40s. Epicentre 7°·5N. 81°·8W.

$A = +\cdot1466$, $B = -\cdot9807$, $C = +\cdot1297$; $\delta = +9$; $h = +7$;
$D = -\cdot989$, $E = -\cdot148$; $G = +\cdot019$, $H = -\cdot128$, $K = -\cdot992$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights	2·4	53	i 0 46	+ 5	i 1 8	− 4	—	—	—
San Juan	18·4	53	i 4 20	+ 2	i 7 59	SS	i 4 29	PP	e 10·8
Huancayo	20·4	163	e 4 47	+ 6	i 8 20	− 5	i 5 2	PP	e 10·6
Fort de France	21·2	70	e 4 44	− 5	i 8 50	+ 9	5 9	PP	e 11·5
Columbia	26·4	1	e 5 40	0	e 10 17	+ 5	e 6 10	PP	e 11·3
La Paz	27·3	151	i 5 52k	+ 4	i 10 48	+21	i 6 42	PP	14·2
Bermuda	29·1	31	e 6 6	+ 2	e 11 1	+ 5	e 7 21	PPP	e 12·9
St. Louis	32·0	347	e 6 28	− 2	i 11 42	0	i 7 36	PP	—
Florissant	32·2	347	i 6 30	− 2	e 11 47	+ 2	e 7 40	PP	—
Philadelphia	32·8	11	i 6 39	+ 2	e 11 52	− 2	e 7 40	PP	e 13·7
Pittsburgh	32·8	3	e 5 37	−60	e 11 57	+ 3	e 7 41	PP	e 18·8
Pennsylvania	33·3	6	i 6 44	+ 3	—	—	e 8 37	PPP	e 20·0
Fordham	33·9	12	e 6 44	− 3	e 12 10	−1	e 7 58	PP	e 16·5
Chicago U.S.C.G.S.	34·7	352	—	—	e 12 18	− 6	—	—	e 14·4
Lincoln	35·8	343	e 7 3	0	e 12 38	− 3	e 8 30	PPP	e 15·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Harvard		35·9	14	i 7 6	+ 2	e 12 47	+ 5	e 8 24	PP	e 18·3
Toronto		36·1	3	8 26	PP	12 52	+ 7	—	—	17·3
Tucson		36·7	316	i 7 9	− 1	e 12 51	− 3	i 8 8	PP	e 14·6
Ottawa		38·1	8	7 22	0	13 20	+ 4	8 59	PPP	18·3
East Machias		39·1	17	e 7 36	+ 5	e 13 40	+ 9	9 11	PP	e 16·2
Shawinigan Falls		39·6	10	7 37	+ 2	—	—	—	—	—
Seven Falls		40·5	11	7 49	+ 7	13 55	+ 3	9 29	PP	20·3
La Jolla	z.	41·6	313	e 7 49	− 2	—	—	—	—	—
Riverside		42·3	314	e 7 56	− 1	—	—	—	—	—
Salt Lake City		42·7	326	e 8 2	+ 2	e 14 26	+ 2	—	—	e 17·4
Mount Wilson	z.	42·9	314	i 8 1	− 1	—	—	—	—	—
Pasadena		42·9	314	i 8 2	0	i 14 32	+ 5	—	—	e 19·2
Haiwee	z.	43·8	317	e 8 11	+ 2	—	—	—	—	—
Santa Barbara		44·2	313	e 8 12	0	—	—	—	—	—
Tinemaha		44·5	317	i 8 15	0	—	—	—	—	—
Fresno	N.	45·4	316	e 8 29	+ 7	—	—	—	—	—
Bozeman		45·8	332	e 8 27	+ 2	e 14 58	−11	e 15 12	PS	e 18·4
Butte		46·8	332	e 8 36	+ 3	e 15 22	− 2	e 10 2	P_cP	e 19·0
Lick		47·0	316	e 8 38	+ 3	—	—	—	—	—
Berkeley		47·7	316	i 8 42	+ 2	e 15 47	+11	—	—	—
La Plata	E.	47·7	154	8 38	− 2	15 36	0	19 20	SS	26·6
	N.	47·7	154	8 39	− 1	15 39	+ 3	19 14	SS	26·3
Rio de Janeiro	E.	48·1	130	e 8 40	− 3	e 15 32	−10	—	—	—
Ukiah		48·9	317	—	—	e 16 5	+12	—	—	e 20·4
Seattle		52·9	327	e 9 20	0	e 19 7	S_cS	e 11 11	PP	e 20·6
Victoria		54·0	327	9 26	− 2	17 5	+ 2	e 19 14	SS	26·3
Sitka		64·6	332	e 10 46	+ 5	e 19 21	0	e 20 38	S_cS	—
Scoresby Sund		73·1	18	i 11 35	+ 1	e 21 0	− 1	e 16 4	PPP	e 29·4
College		73·3	337	e 13 58	PP	e 21 4	0	e 21 49	S_cS	e 29·6
Granada		75·9	54	i 11 59k	+ 9	—	—	—	—	—
Stonyhurst		77·5	37	e 12 0	+ 1	e 21 55	+ 5	—	—	e 39·3
Aberdeen		78·0	33	e 12 0	− 2	i 21 55	0	—	—	e 33·8
Paris		80·5	42	i 12 17	+ 2	e 22 36	+14	—	—	e 36·3
Clermont-Ferrand		80·9	47	e 12 16	− 1	—	—	—	—	—
Uccle		81·6	40	e 12 24	+ 3	e 22 34	+ 1	e 28 16	SS	e 36·3
Bergen		82·0	30	e 12 7	−16	e 22 44	+ 7	—	—	—
De Bilt		82·1	39	i 12 24a	0	e 22 44	+ 6	—	—	—
Hamburg		84·9	37	e 12 40	+ 2	e 23 11	+ 5	—	—	e 47·3
Stuttgart		84·9	42	e 12 39	+ 1	e 23 8	+ 2	—	—	—
Copenhagen		86·1	34	e 12 46	+ 2	23 22	+ 4	—	—	—
Potsdam		86·9	38	e 12 51	+ 3	i 23 24	− 2	i 24 25	PS	e 37·5
Rome		88·0	49	e 12 54a	+ 1	e 23 2	[−18]	e 17 4	PP	e 33·6
Upsala		88·1	30	—	—	e 23 40	+ 3	—	—	e 51·3
Triest		88·4	44	e 12 56	+ 1	i 23 26	[+ 4]	e 27 36	PS	e 41·8
Warsaw		91·7	37	e 13 13	+ 3	e 23 55	[+12]	—	—	e 44·3
Pulkovo		94·3	28	e 13 24	+ 1	e 24 4	[+ 7]	e 17 12	PP	—
Moscow		99·5	30	17 49	PP	24 34	[+ 9]	26 51	PS	58·0
Helwan	E.	105·7	57	—	—	e 25 8	[+14]	e 27 2	PS	—
Ksara		107·9	52	e 18 55	PP	(e 28 31)	PS	(e 34 53)	SSP	—
Sverdlovsk		108·8	20	e 18 55	PP	e 25 8	[+ 1]	e 28 22	PS	44·3
Manila		148·7	315	i 19 54	[+ 9]	—	—	i 23 30	PP	—

Additional readings :—
Huancayo i = +4m.52s., +5m.38s., +8m.35s., and +8m.47s.
Fort de France PPP = +5m.14s., SS = +9m.22s., SSS = +9m.26s.
Columbia e = +10m.26s., i = +10m.39s.
La Paz iSS = +11m.56s.
St. Louis ePN = +6m.35s., ePPPE = +7m.41s., ePPPPN = +8m.2s., iSE = +11m.46s., iSSE = +13m.39s., eE = +14m.45s.
Florissant iZ = +7m.10s., eN = +11m.39s., eE = +11m.43s.
Philadelphia ePPP = +8m.16s., i = +11m.58s. and +12m.6s.
Fordham iSE = +12m.16s.
Chicago e = +12m.24s.
Lincoln eP_cP = +8m.50s., e = +12m.42s.
Harvard eSN = +12m.56s.
Tucson ePPP = +8m.54s., eP_cP = +9m.31s., i = +13m.1s.
Ottawa SSS = +16m.20s.

Continued on next page.

East Machias $iP_cP = +9m.21s.$, ePPP = +9m.31s., e = +13m.53s.
Shawinigan Falls i = +7m.42s.
Seven Falls SS = +16m.56s.
Salt Lake City e = +14m.34s.
Butte eSS = +18m.26s.
Seattle ePPP = +12m.9s., eSS = +20m.6s.
Sitka e = +19m.25s., eSS = +24m.14s.
Scoresby Sund i = +21m.3s., eS_cS = +21m.43s., eSS = +25m.36s., eSSS = +28m.15s.
College ePPP = +15m.37s., eSSS = +28m.39s.
Granada i = +13m.52s.
Stuttgart ePZ = +12m.49s.
Potsdam iSN = +23m.29s., iN = +27m.6s.
Rome iSE = +23m.29s., SS = +29m.38s., SSS = +29m.55s.
Triest iS = +23m.48s., ePPS = +28m.7s., eSS = +29m.27s.
Pulkovo ePS = +25m.42s.
Ksara ePPS = (+29m.33s.); the last three readings have been diminished by 10m.
Sverdlovsk eS = +26m.38s.
Long waves were also recorded at Tashkent, Baku, Vladivostok, Phu-Lien, Irkutsk, Christchurch, Cape Town, Kew, and Toledo.

May 17d. Readings also at 2h. (Balboa Heights and near Berkeley), 3h. (near Balboa Heights (2), Baku, Helwan, and Ksara), 4h. (Ksara), 8h. (Manila), 10h. (Tinemaha Mount Wilson, Pasadena, Riverside, and Tucson), 11h. (Sverdlovsk, Almata, Tchimkent, Andijan, Samarkand, and Tashkent), 12h. (Bucharest and Tucson (2)), 13h. (near Manila), 15h. (Tucson (2)), 16h. (Balboa Heights), 18h. (near Berkeley and Sebastopol), 20h. (Ksara, Tucson, and near Berkeley), 21h. (Tucson).

May 18d. 5h. 3m. 58s. Epicentre 34°·1N. 116°·3W.

Intensity V-VI at Banning and Kenn Camp. Epicentre 34°03′N. 116°17′W. Little San Bernardino Mountains. Sensible to a distance of 150 kms.

F. Newman. United States Earthquakes, 1940, Washington, 1943, p. 20.

A = −·3677, B = −·7439, C = +·5580; $\delta = -5$; $h = 0$;
D = −·896, E = +·443; G = −·247, H = −·500, K = −·830.

		△	Az.	P.	O−C.	S.	O−C.		Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Palomar	Z.	0·9	212	i 0 18	− 2	—	—	—	—	—
Riverside		0·9	263	i 0 18a	− 2	i 0 30	− 4	—	—	—
La Jolla		1·5	213	i 0 28k	0	i 0 47	− 2	—	—	—
Mount Wilson		1·5	275	i 0 28a	0	i 0 47	− 2	—	—	—
Pasadena		1·6	275	i 0 29a	− 1	i 0 49	− 2	—	—	—
Haiwee		2·4	326	i 0 42a	+ 1	i 1 20	S*	—	—	—
Santa Barbara	Z.	2·8	277	e 0 47a	0	—	—	—	—	—
Tinemaha		3·4	332	i 0 55a	0	—	—	—	—	—
Fresno	N.	3·9	314	e 1 3	+ 1	i 2 3	S*	i 1 14	P*	—
Tucson		4·9	110	e 1 15	− 2	i 2 12	− 3	i 1 38	P_g	i 2·9
Lick		5·4	308	e 1 23	− 1	i 2 26	− 2	i 2 55	S_g	—
Santa Clara		5·6	307	i 1 49	P_g	i 3 0	S_g	—	—	—
Branner		5·8	306	e 1 30	+ 1	—	—	e 1 51	P*	—
Berkeley		6·1	309	e 1 22	−12	i 3 6	S*	e 2 3	P_g	—
San Francisco		6·2	308	e 1 40	+ 5	3 8	S*	—	—	—
Ukiah		7·5	315	—	—	e 3 30	+10	—	—	e 4·4
Ferndale		9·1	318	—	—	e 4 47	S*	—	—	—
Seattle		14·3	343	e 3 28	+ 2	e 6 15	+ 9	i 6 39	SSS	—
Victoria		15·4	342	—	—	e 6 0	−32	—	—	8·0
Lincoln		17·0	61	e 4 28	PP	e 7 28	SS	—	—	e 8·8
Florissant	E.	21·4	69	e 4 53	+ 2	—	—	—	—	—
St. Louis		21·5	69	e 4 54	+ 2	e 8 56	+ 9	—	—	—
Chicago		23·8	61	—	—	e 9 40	+12	—	—	e 12·0
San Juan		47·2	95	e 8 45	+ 9	e 18 19	S_cS	e 10 17	P_cP	—
Granada		85·4	48	e 13 58a	?	28 32	SS	17 37	PP	—
Triest		88·7	32	e 12 56	− 1	e 23 47	+ 4	—	—	—
Ksara		107·6	24	i 13 17	P	e 23 25	?	—	—	—
Helwan		109·4	30	i 13 32	?	—	—	—	—	—
Perth		136·6	258	i 24 45	PPP	i 26 57	[+24]	32 45	PS	57·6

For Notes see next page.

NOTES TO MAY 18d. 5h. 3m. 58s.

Additional readings :—
Tucson i = +1m.19s. and +2m.27s., iS_g = +2m.48s.
Lick iE = +2m.59s.
Berkeley iP = +1m.33s., eE = +1m.44s., eZ = +2m.56s., iZ = +3m.3s., iE = +3m.12s., iN = +3m.34s.
San Francisco eE = +3m.13s.
Ferndale eS_gN = +5m.7s., eE? = +6m.8s.
San Juan eSS = +19m.1s.
Helwan eE = +15m.8s.
Perth +17m.2s., S = +24m.20s., PS = +25m.7s., i = +26m.2s., SSS = +37m.29s., SSS = +42m.42s.
Long waves were also recorded at Bozeman, Columbia, Scoresby Sund, Salt Lake City, Butte, Honolulu, Paris, De Bilt, Warsaw, Sverdlovsk, Tashkent, Moscow, Baku, Fordham, East Machias, Harvard, Philadelphia, and Sitka.

May 18d. 5h. 51m. 21s. Epicentre 34°·1N. 116°·3W. (as at 5h. 3m.).

A = −·3677, B = −·7439, C = +·5580 ; δ = −5 ; h = 0.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	3·9	314	e 1 3	+ 1	i 2 3	S*	e 1 14	P*	—
Tucson		4·9	110	i 1 14	− 3	i 2 11	− 4	i 1 27	P*	i 2·9
Lick		5·4	308	e 1 21	− 3	i 2 58	S_g	—	—	i 3·1
Santa Clara	E.	5·6	307	i 1 57	P_g	—	—	—	—	—
Branner		5·8	306	e 1 29	0	—	—	e 1 50	P_g	—
Berkeley		6·1	309	e 1 30	− 4	i 3 1	S*	e 1 37	P*	—
San Francisco		6·2	308	e 1 40	+ 5	e 3 21	S_g	—	—	—
Salt Lake City		7·5	26	—	—	e 3 58	S_g	—	—	e 4·2
Ferndale		9·1	318	—	—	e 4 56	S_g	—	—	e 5·2
Seattle		14·3	343	—	—	e 6 3	− 3	e 6 24	SS	e 7·2
Lincoln		17·0	61	e 4 15	PP	e 7 50	SSS	—	—	e 9·5
St. Louis	N.	21·5	69	—	—	e 8 50	+ 3	—	—	—
Scoresby Sund		59·7	22	e 10 21	+12	—	—	e 13 54	PPP	e 30·3

Additional readings :—
Tucson iP_g = +1m.37s., iS_g = +2m.47s.
Berkeley iSE = +3m.21s.
Branner eE = +1m.32s.
Long waves were also recorded at Ukiah, Chicago, Granada, Ksara, Bozeman, Columbia, Butte, East Machias, and Philadelphia.

May 18d. 7h. 21m. 32s. Epicentre 34°·1N. 116°·3W. (as at 5h.).

A = −·3677, B = −·7439, C = +·5580 ; δ = −5 ; h = 0.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	3·9	314	e 1 5	+ 3	i 2 4	S*	i 1 15	P_g	—
Tucson		4·9	110	i 1 16	− 1	i 2 12	− 3	i 1 38	P_g	i 2·9
Lick		5·4	308	e 1 24	0	i 3 3	S_g	—	—	—
Santa Clara	E.	5·6	307	e 1 44	P*	i 3 1	S_g	—	—	—
Branner		5·8	306	e 1 32	+ 3	—	—	e 1 58	P_g	—
Berkeley		6·1	309	i 1 33	− 1	i 2 44	− 1	e 2 1	P_g	—
Ukiah		7·5	315	—	—	e 3 36	+16	—	—	e 4·5
Seattle		14·3	343	—	—	e 5 52	−14	—	—	e 6·6
St. Louis	N.	21·5	69	—	—	e 9 2	SS	—	—	—

Additional readings :—
Tucson i = +1m.20s. and +2m.17s., iS_g = +2m.48s.
Berkeley eZ = +2m.4s., eZ = +3m.10s., eE = +3m.17s., eN = +3m.22s.
Seattle e = +6m.4s.
Long waves were also recorded at Lincoln, Chicago, Bozeman, Butte, and Salt Lake City.

May 18d. Readings also at 1h. (near Berkeley, Branner, and Lick), 2h. (near Mizusawa), 4h. (near Triest, Stuttgart, near Apia (2), near Rome and Tucson), 5h. (Adelaide, Perth, Christchurch, Arapuni, Wellington, Riverview, Vladivostok, Manila, Chicago, Rome, Tucson, Philadelphia, and Columbia), 6h. (Salt Lake City, near Fresno, Lick, Philadelphia, and near Tucson (2)), 9h. (near Fresno and Tucson), 11h. (Pasadena, and Mount Wilson), 13h. (near Fresno and Tucson), 14h. (Balboa Heights (2)), 16h. (Riverside, Tinemaha, Tucson, Bozeman, Scoresby Sund, Pasadena, Mount Wilson, Philadelphia, Columbia, and near Mizusawa), 17h. (Tucson and Potsdam), 18h. (Tucson), 19h. (near Fresno, Lick, San Francisco, Branner, Berkeley, and near Tananarive,), 20h. (near Harvard), 23h. (Balboa Heights).

May 19d. 4h. 36m. 41s. Epicentre 32°·8N. 115°·5W.

Damage in Imperial Valley; Intensity X at the epicentre, IX at Imperial and Brawley; felt over an area of greater than 100,000 square miles; serious damage to irrigation canals; formation of a 40-mile fault.

Epicentre 32° 46′·5N. 115° 29′·1W. (Pasadena).

F. Neumann.
United States Earthquakes, 1940, p. 20-24, chart p.21, Washington 1943.

F. P. Ulrich.
"The Imperial Valley Earthquakes of 1940." Bulletin of the Seismological Society of America, vol. 31, No. 1, 13-31, 20 fig., Berkeley, Jan., 1941. Macroseismic Chart, fig. 2, p. 18.

J. P. Buwalda and C. F. Richter.
"The Imperial Valley Earthquake of May 18, 1940." Bulletin of the Geological Society of America, vol. 52, No. 12, Part 2, 1941, pp. 1944-1945.

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Seismic Activity in the Imperial Valley, California. Bulletin of the Seismological Society of America, vol. 31, No. 3, Berkeley and Los Angeles, 1941, pp. 245 to 254, 2 Tables.

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"The Imperial Valley Earthquake," Scientific Monthly, vol. 51, pp. 91-94, 3 fig., New York, July, 1940.

$A = -\cdot3626,\ B = -\cdot7602,\ C = +\cdot5391;\quad \delta = +1;\quad h = +1;$
$D = -\cdot903,\ E = +\cdot431;\quad G = -\cdot232,\ H = -\cdot487,\ K = -\cdot842.$

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Palomar	Z.	1·3	296	i 0 24	− 1	—	—	—	—
La Jolla		1·5	272	i 0 27a	− 1	—	—	—	—
Riverside	E.	2·0	308	i 0 33a	− 2	—	—	—	—
Mount Wilson		2·6	304	e 0 42a	− 2	—	—	—	—
Pasadena		2·6	301	i 0 42a	− 2	—	—	—	—
Boulder City		3·2	10	e 0 52	0	—	—	—	—
Haiwee		3·9	329	i 1 0	− 2	—	—	—	—
Santa Barbara		3·9	297	i 1 0a	− 2	—	—	—	—
Tucson		4·0	91	i 1 0a	− 3	i 2 3	S*	i 1 39	P_g	—
Tinemaha		4·8	333	i 1 14k	− 1	—	—	—	—	—
Fresno	N.	5·3	320	e 1 21	+ 1	i 2 51	S_g	i 1 42	P_g	—
Lick		6·8	314	e 1 46	+ 2	i 3 38	S_g	i 2 13	P_g	—
Santa Clara		7·0	312	e 1 56	+10	i 3 9	+ 1	—	—	—
Branner		7·1	312	e 1 56	+ 8	i 4 4	S_g	—	—	—
Berkeley		7·5	314	i 1 52	− 1	i 3 53	S*	—	—	—
San Francisco		7·5	313	e 2 3	+10	i 4 16	S_g	—	—	—
Salt Lake City		8·4	19	e 2 6	0	i 4 11	S_g	i 2 11	P*	—
Ukiah		8·9	318	e 2 9	− 3	e 3 44	−11	e 2 30	P*	—
Ferndale		10·5	321	e 2 55	PP	e 4 24	−11	—	—	e 5·3
Denver		10·9	49	e 2 41	+ 1	i 4 40	− 4	i 2 55	PPP	—
Bozeman		13·3	14	i 3 15	+ 2	i 5 38	− 4	i 5 51	SS	i 7·0
Butte		13·4	9	i 3 17	+ 3	i 5 53	+ 8	i 3 30	PPP	i 6·3
Spokane		15·0	355	e 3 43	+ 8	i 6 43	SS	i 3 56	PP	8·2
Victoria		16·7	342	4 0	+ 3	6 56	− 7	—	—	7·3
Lincoln		17·0	57	e 4 4	+ 3	e 7 0	−10	i 4 15	PP	i 8·5
Saskatoon		20·4	16	4 37	− 4	8 22	− 3	—	—	9·3
Florissant		21·2	68	e 4 49	0	e 8 35	− 6	i 8 54	SS	—
St. Louis		21·3	68	i 4 50	0	e 8 43	0	i 5 36	PPP	—
Chicago U.S.C.G.S.		23·9	61	i 5 18a	+ 2	i 9 32	+ 2	—	—	e 11·2
Chicago J.S.A.		23·9	61	i 5 21	+ 5	e 9 42	+12	i 5 53	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Cincinnati		25·8	68	i 5 41	+ 7	i 10 10	+ 8	—	—	12·8
Sitka		27·8	336	e 5 41	−12	i 10 53	+18	—	—	i 11·3
Cleveland		28·3	63	i 6 15	+18	i 11 8	+25	—	—	13·2
Columbia		28·7	78	e 6 4	+ 3	e 10 51	+ 1	e 7 4	PPP	e 12·1
Pittsburgh		29·4	67	e 6 2	− 5	i 11 1	0	—	—	—
Toronto		30·2	59	6 21	+ 7	11 29	+16	—	—	13·3
Pennsylvania		31·0	64	e 6 31	+10	e 11 34	+ 8	e 7 25	PP	i 16·2
Georgetown		31·6	68	e 6 25	− 1	i 11 38	+ 3	e 7 42	PP	—
Ottawa		33·0	56	6 42	+ 3	12 6	+ 9	8 1	PPP	16·3
Philadelphia		33·0	67	e 6 39	0	e 11 54	− 3	e 8 2	PPP	i 13·8
Fordham		34·0	65	i 6 54	+ 6	i 12 22	+ 9	—	—	—
Shawinigan Falls		35·2	54	7 15	+17	12 42	+11	14 43	SS	16·3
Harvard		35·8	62	e 7 5	+ 2	e 12 51	+10	—	—	i 18·6
Weston		35·9	62	e 7 7	+ 3	i 12 48	+ 6	14 58	SS	—
Seven Falls		36·6	54	7 14	+ 4	13 1	+ 8	8 39	PP	16·3
College		37·7	338	e 7 27	+ 8	e 13 3	− 7	e 9 34	PcP	e 14·8
East Machias		38·9	58	e 7 37	+ 8	e 13 33	+ 5	e 9 8	PP	i 19·7
Honolulu		39·2	264	e 7 27	− 4	e 13 22	−10	e 8 57	PP	e 16·2
Balboa Heights		40·8	117	e 7 34	−11	e 13 52	− 4	—	—	21·0
Port au Prince		41·1	100	e 8 8	+21	—	—	—	—	22·7
Halifax		41·5	58	e 7 55	+ 5	e 13 49	−18	e 17 19?	SSS	19·3
Bermuda		42·4	77	e 7 55	− 3	i 14 25	+ 5	i 9 46	PP	i 20·6
San Juan		46·4	98	e 8 26	− 4	e 15 15	− 3	e 10 26	PP	i 19·2
Fort de France		52·3	97	e 9 30	+15	e 17 24	+44	—	—	e 26·8
Huancayo		58·8	133	e 10 8	+ 6	e 18 5	− 2	i 10 54	PcP	i 23·8
Scoresby Sund		60·6	23	e 10 16	+ 1	e 18 33	+ 3	i 12 21	PP	e 24·8
La Paz		66·7	130	i 11 1a	+ 6	i 19 57	+11	i 11 39	PcP	33·2
Apia		70·9	239	19 0	?	(20 59)	+23	28 49	SSS	31·3
Aberdeen		74·3	32	i 11 55	+14	i 21 35	+20	i 14 41	PP	33·9
Edinburgh		74·6	33	e 12 17	+34	e 21 22	+ 4	—	—	e 31·3
Bergen		75·3	26	e 11 46	− 1	21 37	+11	26 26	SS	34·2
Stonyhurst		76·2	35	e 12 8	+16	i 21 54	+18	e 34 19?	L_g	e 38·3
Oxford		78·0	36	e 12 32	+30	e 21 33	−22	e 22 19	PS	e 30·8
Kew		78·7	36	e 12 12	+ 6	e 22 19?	+16	e 12 37	PcP	e 38·8
Sendai		79·8	309	12 16	+ 4	22 28	+14	—	—	—
Upsala		79·9	23	12 41	+29	22 25	+ 9	e 15 41	PP	e 34·3
Heligoland		80·6	31	e 12 25	+ 9	e 22 34	+11	—	—	e 36·3
De Bilt		80·8	33	i 12 24k	+ 7	e 22 33	+ 8	i 12 32	pP	—
Copenhagen		81·3	28	e 12 21	+ 1	22 36	+ 6	i 22 44	PS	34·3
Uccle		81·3	35	e 12 22	+ 2	e 22 35	+ 5	—	—	34·3
Lisbon		81·4	50	e 12 25?	+ 5	22 33	+ 2	23 37	PPS	38·2
Paris		81·8	37	i 12 29	+ 7	e 22 46	+11	—	—	39·3
Hamburg		81·9	30	e 12 21a	− 2	i 22 49	+13	e 17 47	PPP	e 34·6
Vladivostok		82·5	317	12 33	+ 7	i 22 57	+15	i 17 47	PPP	35·5
Nagano		82·5	309	12 33	+ 7	22 45	+ 3	—	—	—
Pulkovo		83·5	17	12 37	+ 6	i 23 3	+11	e 15 52	PP	39·5
Toledo		83·8	47	i 12 38	+ 6	e 23 0	+ 5	—	—	—
Potsdam		84·0	29	e 12 38	+ 5	i 23 3	+ 6	i 16 8	PP	—
Clermont-Ferrand		84·1	39	e 12 37	+ 3	—	—	—	—	e 40·3
Bagnères		84·3	42	—	—	e 25 19	?	—	—	—
Jena		84·5	31	e 12 39	+ 3	e 23 9	+ 7	—	—	e 35·3
Strasbourg		84·5	34	e 12 36	0	e 23 19	+17	—	—	36·3
San Fernando		84·6	51	e 11 43	−53	22 18	−45	—	—	33·3
Stuttgart		85·0	34	e 12 40	+ 2	e 23 13	+ 6	e 16 1	PP	e 35·3
Basle		85·1	35	e 12 44	+ 5	e 23 15	+ 7	—	—	—
Neuchatel		85·2	36	e 12 39	0	e 23 8	− 1	—	—	—
Osaka		85·4	308	12 46	+ 6	23 28	+17	—	—	—
Zurich		85·7	35	e 12 47	+ 5	e 23 17	+ 3	e 16 5	PP	—
Granada		85·8	49	e 12 47a	+ 5	i 23 18	+ 3	12 59	PcP	39·6
Prague		86·3	31	e 12 40	− 5	e 23 4	[− 5]	—	—	e 36·3
La Plata	E.	86·3	137	12 44	− 1	23 32	+12	16 13	PP	36·0
	N.	86·3	137	12 49	+ 4	23 25	+ 5	24 43	PPS	36·3
	Z.	86·3	137	12 53	+ 8	—	—	—	—	45·0
Chur		86·5	35	e 12 53	+ 7	e 23 31	+ 9	—	—	—
Almeria		86·7	48	12 53	+ 6	23 18	[+ 6]	13 14	PcP	38·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Warsaw		87·2	26	e 12 55k	+ 6	23 28	0	16 10	PP	e 39·3
Koti		87·4	309	12 58	+ 8	23 32	+ 2	—	—	—
Hamada		87·5	310	23 30	S	(23 30)	− 1	—	—	—
Irkutsk		88·4	337	e 13 1	+ 6	23 40	0	e 29 43	SS	39·3
Rio de Janeiro		88·4	119	e 13 24	+29	i 23 49	+ 9	i 29 40	SS	i 37·7
Moscow		88·9	15	13 2	+ 4	23 41	− 3	16 57	PP	42·5
Zinsen		89·2	316	e 22 50	S	(e 22 50)	−57	29 25	SS	—
Triest		89·4	34	e 13 3	+ 3	e 23 38	−11	e 16 28	PP	i 41·8
Miyazaki		89·8	308	13 5	+ 3	23 47	− 6	—	—	—
Algiers		90·1	45	i 13 19	+16	e 24 5	+10	16 48	PP	38·3
Sverdlovsk		90·2	2	e 13 9	+ 5	i 23 55	− 1	i 17 1	PP	43·3
Budapest		90·3	30	24 16	S	(24 16)	+19	—	—	40·3
Rome		91·6	38	e 13 16	+ 6	23 35	[− 7]	i 13 24	pP	39·5
Cluj		92·7	27	e 32 32	SSS	—	—	—	—	47·9
Bucharest		95·6	27	e 13 19?	− 9	—	—	—	—	45·3
Arapuni		95·2	228	—	—	25 19?	+39	—	—	39·3
Sofia		95·9	30	e 19 19?	PPP	e 24 13	[+ 6]	—	—	42·3
Semipalatinsk		96·0	351	—	—	(e 24 16)	[+ 9]	—	—	53·3
Wellington		97·7	226	—	—	25 19	+18	32 4	SS	43·3
Istanbul		99·6	27	17 29	PP	24 29	[+ 4]	—	—	i 39·3
Christchurch		100·3	225	15 31a	?	25 51	+28	27 31	PS	46·0
Brisbane	N.	105·5	249	—	—	e 25 37	{+ 3}	—	—	—
Baku		105·9	12	18 57	PP	25 19	[+25]	39 1	SSS	53·3
Andijan		106·5	354	e 18 4	PKP	—	—	30 17	PKKP	e 50·3
Hong Kong		107·5	313	20 27	?	25 24	[+23]	—	—	—
Samarkand		107·9	358	18 17	PKP	—	—	30 27	PKKP	e 71·3
Manila		108·4	302	e 14 30	P	25 6	[+ 1]	18 57	PP	50·3
Ksara		108·5	26	e 14 43	P	29 41	PPS	e 19 11	PP	53·3
Sydney		109·8	243	—	—	e 26 13	{+ 9}	—	—	e 45·0
Riverview		109·8	243	—	—	e 26 13	{+ 9}	e 45 43	L_q	e 50·9
Helwan		110·2	32	e 19 13	PP	e 29 10	PS	29 51	PPS	—
Phu-Lien		113·2	317	e 22 45	PKS	—	—	—	—	—
Dehra Dun	N.	115·9	348	—	—	e 25 53	[+18]	—	—	e 66·0
Agra	E.	119·0	346	e 23 12	PPP	e 26 2	[+15]	e 37 10	SSP	i 65·8
Calcutta	N.	120·5	335	e 20 5	PP	i 26 7	[+16]	e 22 58	PPP	i 67·9
Bombay		128·0	351	i 21 34	PP	i 31 54	PS	i 33 10	PPS	55·1
Kodaikanal	E.	135·5	343	—	—	e 40 2	SS	—	—	63·8
Tananarive		159·4	50	e 28 53	PPP	e 31 43	{+34}	50 37	SSS	69·7

Additional readings :—
Boulder City i = +58s.
Ukiah e = +3m.56s.
Denver iN = +2m.58s., iE = +3m.13s., iEN = +3m.32s., iE = +3m.36s., iN = +3m.40s., iEN = +3m.50s., iN = +4m.5s., iE = +4m.15s., iN = +4m.32s. and +4m.37s., iSE = +4m.50s., iSN = +4m.56s., iSSE = +5m.12s., iN = +5m.18s.
Bozeman i = +4m.16s., +6m.5s., and +6m.16s.
Spokane iPN = +3m.48s., ePE = +3m.51s., iPPN = +4m.0s., iE = +4m.6s.
Lincoln e = +4m.7s., i = +7m.8s.
Florissant iPE = +4m.54s., i = +5m.0s., iN = +8m.49s.
St. Louis i = +5m.0s., eN = +8m.49s., iE = +8m.57s.
Chicago U.S.C.G.S. i = +5m.23s., +9m.39s., and +9m.48s.
Chicago J.S.A. iPPP = +6m.6s.
Cincinnati i = +5m.57s. and +10m.19s.
Sitka e = +5m.58s., i = +6m.6s. and +11m.9s.
Columbia ePcP = +8m.49s., i = +11m.5s.
Pittsburgh iPZ = +6m.10s.
Pennsylvania e = +8m.32s., +9m.34s., +10m.31s., +12m.41s., +13m.48s., and +15m.1s.
Georgetown e = +10m.25s.
Ottawa i = +13m.1s., SS = +14m.23s.
Philadelphia i = +6m.47s., +6m.59s., +9m.22s., and +12m.5s.
Fordham iZ = +7m.10s.
Weston i = +13m.17s., SSS = +15m.56s.
Seven Falls SS = +15m.1s., SSS = +16m.11s.
College e = +7m.53s. and +13m.17s.
East Machias ePPP = +9m.31s., i = +13m.38s., and +13m.48s.
Honolulu e = +7m.44s., ePPP = +9m.23s.
Bermuda iSS = +17m.12s., i = +17m.24s.
San Juan e = +8m.34s., i = +8m.46s., iPPP = +11m.2s., i = +15m.30s., iSS = +18m.25s.
Huancayo i = +10m.17s. and +10m.26s., ePP = +12m.14s., iPPP = +13m.26s., i = +18m.21s., iSS = +22m.7s.
Scoresby Sund i = +10m.21s. and +10m.46s., iPPP = +14m.26s., i = +18m.41s., eSS = +22m.31s.

Continued on next page.

La Paz iZ = +11m.9s., PP = +13m.29s., PPP = +14m.51s., SS = +24m.14s.
Aberdeen iE = +14m.46s., iN = +21m.23s., iEN = +31m.25s.
Bergen e = +11m.54s.
Kew eSKSN = +22m.27s., ePSE = +22m.51s., eE = +25m.41s., eSSE = +27m.49s., eSSSZ = +31m.19s.?, eL_g = +36·3m.
Upsala eN = +13m.54s., PPPN = +17m.25s., iN = +25m.25s., eSSN = +27m.19s.?, SSE = +27m.25s., eSSSE = +30m.19s.?, eSSSN = +31m.19s.?
De Bilt iP_cP = +12m.47s., eSS = +33m.19s.
Lisbon iPZ = +12m.32s., N = +13m.33s., E = +13m.38s., iSE = +22m.47s., iSN = +22m.50s., N = +25m.33s., E = +27m.44s. and +28m.33s., N = +30m.3s.
Hamburg eZ = +21m.49s., iSN = +23m.38s., eSSZ = +27m.26s.
Vladivostok iS_cS = +23m.20s.
Pulkovo P = +13m.2s., iS = +23m.25s., eSS = +28m.25s.
Potsdam iPZ = +12m.47s., iZ = +13m.4s., iN = +13m.11s., iE = +18m.55s., iSE = +23m.18s.
Jena iP = +12m.48s., eSN = +23m.15s., eSE = +23m.19s.
Strasbourg i = +13m.11s., eSKSN = +21m.59s.
Stuttgart ePZ = +12m.45s., eSSSE = +32m.39s.
Granada PP = +16m.26s., PPP = +17m.47s., SKKS = +23m.7s., ePS = +25m.12s., ePPS = +25m.42s., SS = +29m.22s., SSS = +32m.27s.
La Plata E. PS = +24m.13s. and +27m.49s., SSS = +32m.25s.; N. +25m.19s. and +27m.19s., SS = +28m.37s. and +31m.37s.
Almeria PP = +16m.19s., PPP = +18m.31s., S = +23m.40s., PS = +24m.8s., SS = +29m.17s., SSS = +33m.27s.
Warsaw PPPZ = +18m.14s., iZ = +27m.49s., SSE = +29m.2s.
Irkutsk P = +13m.25s.
Rio de Janeiro iSSE = +29m.52s.
Moscow eP = +13m.27s., S = +24m.0s.
Triest ePPP = +18m.32s., iS = +24m.1s., iPS = +24m.50s., iPPS = +25m.23s., iSS = +29m.43s., iSSS = +33m.57s.
Algiers PPP = +18m.40s., ePPS = +25m.26s., SS = +29m.57s.
Sverdlovsk P = +13m.37s., iS = +24m.15s., iPS = +25m.14s.
Rome PP = +17m.10s., eSKKS = +23m.58s., iE = +27m.16s., SS? = +29m.12s., eSL = +29m.59s.?, i = +31m.53s. and +32m.10s., iSSS = +33m.3s., i = +36m.52s., iEN = +38m.48s.
Cluj eN = +44m.13s.
Wellington L_q = +40·3m.
Christchurch SKKSE = +26m.25s., L_q = +41m.35s.
Brisbane eN = +43m.31s.
Hong Kong S? = +34m.39s.
Manila S = +26m.39s., PSN = +28m.6s.
Ksara PKP,PKP = +38m.23s.
Riverview eN = +27m.19s., eE = +28m.25s.
Helwan i = +19m.39s., PPPE = +25m.51s., eE = +27m.39s., eEN = +30m.4s., SKKSN = +30m.29s., PSE = +32m.44s.
Dehra Dun eN? = +39m.34s.?
Agra eN = +23m.18s., eE = +24m.48s., iE = +41m.16s., L_qE = +57m.12s., eN = +57m.38s.
Calcutta eSKPN = +23m.35s., ePSKSN = +32m.52s., ePPSN = +35m.28s., eSSN = +41m.30s.
Bombay iN = +24m.37s., iEN = +24m.50s.
Kodaikanal eE = +49m.32s.
Tananarive PSKSE = +34m.40s.
Long waves were also recorded at Adelaide, Cape Town, Johannesburg, Chatham Ils., Seattle, Kalossa, Marseilles, Hyderabad, Piatigorsk, Almata, Tchimkent, and Yalta.

May 19d. 5h. 51m. 34s. Epicentre 32°·8N. 115°·5W. (as at 4h.).

A = −·3626, B = −·7602, C = +·5391; δ = +1; h = +1.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena	N.	2·6	301	i 0 44	0	i 1 17	0	—	—	—
Tinemaha	Z.	4·8	333	i 1 13	− 2	—	—	—	—	—
Fresno	N.	5·3	320	e 1 21	− 1	i 2 48	S_g	i 1 40	P_g	—
Lick		6·8	314	e 1 45	+ 1	e 3 36	S_g	—	—	—
Branner		7·1	312	e 1 56	+ 8	e 3 55	S_g	—	—	—
Berkeley		7·5	314	e 1 57	+ 4	i 4 1	S_g	—	—	—
San Francisco		7·5	313	e 2 17	P•	e 4 0	S_g	—	—	—
Salt Lake City		8·4	19	e 2 44	P_g	—	—	—	—	—
Spokane	N.	15·0	355	e 2 46	−49	—	—	—	—	e 7·4
Lincoln		17·0	57	i 4 29	+28	—	—	5 11	?	e 9·0
Florissant	E.	21·2	68	e 4 49	0	e 8 55	+14	—	—	—
St. Louis	E.	21·3	68	i 4 49	− 1	—	—	—	—	—
Ottawa		33·0	57	e 6 38	− 1	—	—	—	—	17·4

Additional reading:—
San Francisco eSN = +4m.3s.

May 19d. 6h. Pasadena suggests that this shock is a repetition of the 4h. shock, but the identification seems doubtful.

Pasadena iPEN =34m.9s., iSEN =34m.42s.
La Jolla iPNZ =34m.48s.
Fresno ePN =34m.52s., iP$_e$N =35m.5s., iSN =36m.13s.
Lick eP =35m.10s., eSE =37m.8s.
Berkeley ePZ =35m.24s., iSN =37m.26s.
Branner ePEN =35m.30s., eE =37m.4s., iE =37m.22s., iEN =37m.37s., iE =39m.33s.
San Francisco ePN =35m.36s., eE =35m.40s., eSN =37m.33s.
Salt Lake City e =36m.1s., iS =38m.42s.
Spokane eN =36m.6s., iN =38m.14s. and 43m.10s.
Lincoln e =37m.30s., iS =42m.21s.
Butte eP =38m.37s., iL =42·8m.
Florissant iPE =40m.5s., iE =40m.22s., iSE =44m.12s., eE =44m.29s.
St. Louis iPE =40m.5s., iSE =44m.15s.
Bozeman eP =40m.27s., eS =40m.41s., e =41m.15s., iL =41·8m.
Ottawa iZ =41m.55s., L =51·0m.
Chicago U.S.C.G.S. eS =45m.44s., eL =45·8m.
Long waves were also recorded at Vermont, Philadelphia, and East Machias.

May 19d. 15h. 17m. 49s. Epicentre 51°·3N. 148°·9E.

W. A. Lynch and Vincent Dillon.

The deep-focus earthquake of May 19d., 1940, in the Sea of Okhotsk.

Epicentre 50°01′ ±7′N. 148°58′ ± 10′E. (Lynch).
50°·9N. 148°·8E. (U.S.C.G.S.).

The calculated depth varied from 580-650kms. Bulletin of the Seismological Society of America, Vol. 33, No. 4, Oct., 1943. Berkeley, pp. 251-267, 9 tables, 3 figures.

$A = -·5376$, $B = +·3243$, $C = +·7783$; $\delta = -6$; $h = -6$;
$D = +·517$, $E = +·856$; $G = -·666$, $H = +·402$, $K = -·628$.

Tables for depth of focus 0·070 have been used.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		13·3	207	2 53	− 1	5 8	− 5	—	—	—
Vladivostok		14·1	241	i 3 5	+ 3	i 5 12	−17	—	—	i 7·8
Osaka		19·2	216	3 52	− 1	6 58	− 2	—	—	—
Hukuoka		22·2	224	e 4 24	+ 3	7 56	+ 5	—	—	—
Irkutsk		27·3	291	i 5 8	+ 1	i 9 22	+10	i 6 45	pP	—
College		34·5	42	e 6 22	+14	—	—	e 7 56	pP	e 14·1
Hong Kong		39·5	236	6 48	− 1	12 7	−11	9 32	PPP	—
Semipalatinsk		41·9	298	i 7 14	+ 5	12 53	+ 1	8 51	pP	23·2
Sitka		42·6	51	e 7 16	+ 2	e 13 3	+ 1	i 8 58	pP	i 22·0
Manila		42·9	222	i 7 15k	− 2	12 42	−25	i 16 11	SS	—
Phu-Lien		44·8	244	e 7 31	− 1	e 13 25	− 8	—	—	—
Almata		47·7	291	i 7 56	+ 2	e 14 13	− 1	—	—	—
Sverdlovsk		48·7	314	i 8 6	+ 5	i 14 29	+ 1	i 9 51	pP	—
Frunse		49·3	291	8 12	+ 6	14 40	+ 4	e 9 50	pP	—
Honolulu		50·9	105	e 8 15	− 3	e 14 42	−15	e 9 58	pP	e 20·0
Andijan		51·9	290	—	—	e 15 11	0	—	—	—
Tchimkent		52·5	293	i 8 30	+ 1	i 15 17	− 2	18 30	SS	—
Tashkent		53·3	293	i 8 38	+ 3	i 15 29	− 1	10 22	pP	e 29·3
Victoria		53·3	56	e 8 35	0	i 15 30	0	e 10 24	pP	—
Calcutta	N.	54·4	262	i 8 30k	−13	i 15 30	−14	e 10 29	pP	—
Seattle		54·4	57	e 9 3	+20	e 15 32	−12	e 12 36	S_cP	e 22·5
Samarkand		55·7	293	i 8 57	+ 5	i 16 1	0	17 34	S_cS	—
Dehra Dun	N.	55·8	277	e 9 20?	+27	e 16 34	+32	—	—	—
Spokane		56·9	54	e 9 18	+18	i 16 28	+11	—	—	—
Agra	E.	57·6	274	9 3	− 2	i 16 17	− 9	10 57	pP	—
Scoresby Sund		58·1	357	i 9 16k	+ 8	e 16 32	0	e 11 18	pP	i 24·1
Saskatoon		58·9	44	e 9 15	+ 1	i 16 37	− 5	—	—	—
Moscow		59·2	323	i 9 16	0	i 16 43	− 3	—	—	—
Ukiah		59·5	65	e 9 23	+ 5	e 16 31	−19	e 11 13	pP	i 24·3
Butte		60·4	52	e 9 27	+ 3	i 16 58	− 3	e 11 18	pP	e 24·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		61·0	65	i 9 26	− 2	e 15 37	?	i 11 22	pP	e 24·7
Branner		61·3	65	i 9 31	+ 1	e 17 9	− 3	—	—	—
Bozeman		61·4	52	e 9 32	+ 2	i 17 12	− 2	i 11 25	pP	i 24·9
Santa Clara		61·5	65	e 9 35	+ 4	i 17 11	− 4	i 12 31	PP	—
Lick	N.	61·6	65	e 9 33	+ 1	—	—	—	—	—
Upsala		62·4	335	i 9 40	+ 3	i 17 24	− 2	e 11 32	pP	—
Fresno		63·1	64	e 9 45	+ 3	—	—	e 11 40	pP	—
Tinemaha		63·7	63	i 9 47	+ 2	e 17 41	− 1	i 11 40	pP	—
Haiwee		64·6	63	i 9 52	+ 1	e 17 47	− 5	—	—	—
Salt Lake City		64·6	56	e 9 55	+ 4	e 17 41	−11	e 11 46	pP	i 26·0
Grozny		64·7	309	i 9 59	+ 7	i 17 53	− 1	—	—	—
Santa Barbara		64·8	66	i 9 55	+ 3	e 17 53	− 2	i 11 50	pP	—
Bergen		64·9	341	9 49	− 4	17 51	− 5	e 12 41	PP	e 25·2
Piatigorsk		65·5	311	i 9 53	− 4	—	—	—	—	—
Mount Wilson		65·9	65	i 10 0	+ 1	i 18 4	− 4	i 11 55	pP	—
Pasadena		65·9	65	i 9 59	0	i 18 3	− 5	i 11 54	pP	—
Riverside		66·5	65	i 10 5	+ 2	e 18 10	− 5	i 12 0	pP	—
Bombay		66·8	272	e 10 7	+ 2	i 18 13	− 6	i 12 1	pP	25·2
Copenhagen		67·4	336	i 10 11	+ 3	18 26	0	13 10	PP	—
La Jolla		67·4	65	i 10 5	− 3	—	—	—	—	—
Sotchi		67·4	312	10 15	+ 7	18 21	− 5	—	—	—
Erevan		67·6	307	i 10 15	+ 5	18 21	− 7	—	—	—
Warsaw		67·9	329	i 10 12a	0	i 18 31	− 1	12 12	pP	e 27·2
Yalta		69·2	316	e 10 32	+13	i 18 47	0	—	—	22·5
Aberdeen		69·3	344	—	—	i 26 27	SSS	—	—	e 33·5
Hamburg		70·0	336	i 10 26k	+ 2	e 18 57	+ 1	e 13 25	PP	—
Heligoland		70·0	339	e 10 25	+ 1	e 18 56	0	—	—	—
Potsdam		70·2	334	i 10 26k	+ 1	i 18 57	− 1	i 12 26	pP	28·2
Edinburgh		70·7	344	—	—	e 19 4	0	—	—	—
Tucson		71·4	61	i 10 33k	+ 1	i 19 9	− 3	i 12 31	pP	e 29·0
Cluj		71·6	324	10 37k	+ 3	e 19 14	0	19 21	PS	—
Prague		71·8	332	10 37k	+ 2	e 19 15	− 1	e 13 30	PP	e 26·2
Jena		71·9	334	e 10 37	+ 2	—	—	—	—	e 22·2
Lincoln		71·9	46	e 10 35	0	i 19 14	− 3	e 12 33	pP	e 29·4
De Bilt		72·5	338	i 10 42k	+ 3	e 19 26	+ 2	i 12 49	pP	—
Stonyhurst		72·5	343	e 13 41	sP	i 19 26	+ 2	—	—	27·2
Bucharest		72·6	321	i 10 42a	+ 3	19 25	0	19 31	PS	—
Budapest		72·6	327	i 10 43	+ 4	19 27	+ 2	—	—	28·7
Uccle		73·9	339	i 10 49k	+ 2	19 38	− 1	e 13 25	PcP	e 25·2
Istanbul		74·1	317	10 47	− 1	19 42	0	e 14 11?	PP	e 39·2
Kew		74·3	341	i 10 52	+ 3	e 19 44	0	i 13 50	PP	—
Stuttgart		74·5	334	i 10 53k	+ 3	e 19 44	− 2	e 12 57	pP	—
Sofia		75·1	321	e 10 57	+ 3	i 19 53	+ 1	e 12 49	pP	—
Strasbourg		75·1	335	e 10 55	+ 1	—	—	i 13 43	PP	—
Triest		76·0	330	i 11 0k	+ 2	i 19 58	− 4	i 12 59	pP	—
Basle		76·1	334	e 11 0	+ 1	e 20 3	0	—	—	—
Shawinigan Falls		76·1	28	i 11 0	+ 1	e 19 58	− 5	—	—	24·2
Zurich		76·1	334	e 11 0k	+ 1	e 20 3	0	e 13 3	pP	—
Chur		76·2	334	e 11 2	+ 2	e 20 0	− 4	—	—	—
Paris		76·2	338	i 11 2	+ 2	e 26 11?	SS	i 13 59	PP	—
Seven Falls		76·2	27	e 10 59	− 1	i 19 58	− 6	—	—	—
Ottawa		76·3	31	i 11 0	0	i 19 57	− 8	e 13 3	pP	29·2
Florissant		76·4	44	i 11 1	0	e 19 59	− 7	i 13 1	pP	—
St. Louis		76·6	44	e 11 0	− 2	e 19 59	− 9	e 12 58	pP	—
Toronto		76·6	34	e 10 53	− 9	i 20 0	− 8	—	—	32·2
Neuchatel		76·8	334	e 11 5	+ 2	e 20 14	+ 4	—	—	—
Ksara		76·9	308	i 11 6k	+ 3	20 52	PS	i 13 10	pP	—
Brisbane	N.	78·5	177	—	—	i 20 11	−17	—	—	—
Cincinnati		78·6	40	i 11 11	− 1	i 20 22	− 7	i 13 10	pP	—
Clermont-Ferrand		78·9	337	i 11 16	+ 2	e 20 11	−21	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pittsburgh	z.	79·2	36	i 11 17	+ 1	—	—	i 13 20	pP	—
East Machias		79·3	26	i 11 22	+ 6	i 20 34	− 2	e 13 26	pP	e 32·3
Pennsylvania		79·6	34	e 11 19	+ 1	i 20 44	+ 4	—	—	—
Rome		79·7	329	i 11 20k	+ 2	i 20 34	− 7	e 13 24	pP	29·3
Harvard		80·2	29	i 11 21k	0	i 20 41	− 5	i 13 26	pP	—
Fordham		80·9	32	i 11 26	+ 2	i 20 48	− 5	i 13 31	pP	—
Philadelphia		81·3	33	i 11 27k	0	i 20 49	− 8	e 13 28	pP	e 33·3
Helwan		82·3	309	i 11 32a	0	e 20 44	−23	13 35	pP	—
Columbia		84·4	40	e 11 41	− 1	i 21 20	− 7	e 13 44	pP	e 35·0
Toledo		86·2	340	i 11 50	− 1	e 21 24	−20	—	—	—
Algiers		87·3	333	i 11 58	+ 2	e 21 55	0	e 25 35	sS	35·2
Lisbon		88·3	343	12 1	0	—	—	—	—	—
Granada		88·6	339	i 12 1a	− 1	22 4	− 2	15 50	PP	51·5
Almeria		88·7	337	12 1	− 2	22 37	+30	12 27	P_cP	36·7
San Fernando		89·9	341	e 20 50	?	e 24 48	SP	—	—	40·2
Bermuda		91·6	28	e 12 15	− 1	i 22 25	− 8	i 26 31	sS	—
San Juan		104·1	34	e 13 22	P	i 24 16	+58	e 17 41	PP	e 43·1
Huancayo		127·0	58	i 14 42	P	e 24 12	[−17]	e 16 57	pP	e 51·7
La Paz	z.	134·5	53	i 18 23k	[0]	—	—	—	—	—
Rio de Janeiro	E.	150·1	23	e 23 11	PP	—	—	—	—	e 40·9

Additional readings :—
Mizusawa SN = +5m.11s.
College e = +6m.26s., ePP = +8m.10s., eP_cP = +8m.24s., esP = +8m.59s., esPP = +10m.31s.
Hong Kong S? = +11m.1s.
Semipalatinsk esS = +15m.51s.
Sitka i = +7m.21s., isP = +10m.1s., iS_cP = +11m.39s., i = +13m.6s., isS = +16m.15s., iSS = +17m.12s.
Sverdlovsk isP = +10m.52s.
Frunse esS = +17m.55s.
Honolulu e = +8m.19s., eP_cP = +9m.22s., ePP = +10m.18s., eS_cP = +12m.26s., eP_cS = +13m.17s., i = +14m.50s. and +14m.55s., eS_cS = +16m.53s., esS = +18m.15s.
Tchimkent S_cS = +17m.1s.
Tashkent sS = +18m.24s.
Victoria eE = +13m.19s., iN = +17m.26s.
Calcutta eN = +8m.58s., isPN = +11m.31s., eN = +16m.21s., isSN = +18m.53s.
Seattle eS_cS = +17m.11s., eSS = +19m.9s.
Agra eN = +9m.7s., sPE = +11m.56s., iN = +16m.22s., isSE = +19m.36s., sS = +19m.44s., SS = +21m.8s.
Ukiah esP = +12m.14s., eS_cP = +12m.50s., eP_cS = +13m.52s., esPP = +14m.18s., i = +16m.48s., eS_cS = +17m.51s., esS = +20m.3s., iSS = +20m.59s.
Scoresby Sund isP = +12m.13s., eS_cP = +13m.10s., eP_cS = +14m.10s., i = +16m.39s., isS = +19m.50s., iSS = +21m.4s.
Butte ePP = +11m.48s., esP = +12m.18s., esS = +20m.32s., eSS = +21m.6s.
Berkeley iPPPZ = +12m.25s., iSZ = +15m.40s., eE = +18m.22s., eSSEN = +20m.15s.
Branner eN = +9m.34s.
Bozeman eP_cP = +10m.2s., ePP = +12m.0s., esP = +12m.26s., epPP = +13m.32s., iS_cS = +18m.26s., esS = +20m.25s., eSS = +21m.29s.
Santa Clara iP_cPZ = +11m.28s., esSE = +20m.29s.
Upsala esPN = +12m.34s., eN = +12m.59s., PPPN = +13m.52s., e?E = +15m.47s., eE = +17m.46s., eN = +18m.32s., esSE = +20m.51s.
Fresno eN = +14m.19s. and +15m.31s.
Tinemaha iP_cPZ = +10m.17s.
Salt Lake City ePP = +12m.29s., esP = +12m.54s., epPP = +13m.58s., esPP = +14m.53s., i = +17m.51s., iS_cS = +18m.50s., esS = +21m.11s., eSS = +22m.11s.
Bergen SS = +21m.13s.
Mount Wilson iPKP,PKPZ = +38m.23s.
Pasadena iP_cPZ = +10m.17s., eEZ = +17m.14s., iN = +19m.0s., ePKP,PKPZ = +38m.22s.
Riverside ePKP,PKP_1Z = +38m.30s.
Bombay isP = +12m.53s., iEN = +19m.24s., esS = +21m.52s.
Copenhagen +15m.35s., eN = +17m.26s., +21m.53s., and +23m.6s.
Warsaw PPPZ = +13m.14s., iZ = +15m.42s. and +17m.4s., iSZ = +18m.38s., eZ = +21m.38s., iSSE = +21m.58s., eE = +25m.31s., iE = +27m.0s.
Hamburg eN = +18m.11s., eE = +22m.26s.
Heligoland eE = +22m.16s.
Potsdam iP_cPE = +10m.38s., iE = +11m.34s., ipP_cPE = +13m.2s., iPPN = +13m.18s., iPPZ = +13m.23s., isPPZ = +15m.56s., isPPN = +16m.1s., iZ = +17m.41s., iSE = +19m.1s., iS_cS = +19m.26s., isSE = +22m.28s.
Tucson iP_cP = +10m.44s., iPP = +13m.23s., isP = +13m.36s., ipPP = +15m.9s., isPP = +16m.8s., iS_cS = +19m.24s., ePKP,PKP = +38m.25s.
Cluj N = +9m.17s.

Continued on next page.

Prague eSS = +23m.41s.
Lincoln ePP = +13m.27s., e_sPP = +16m.21s., iS_cS = +19m.44s., isS = +22m.45s., esSP = +23m.30s., eSS = +24m.3s., esSS = +27m.32s.
Stonyhurst i = +22m.51s.
De Bilt iP_cP = +10m.49s., ePP = +13m.40s., eZ = +15m.19s., +16m.17s., and +18m.3s., eS_cS = +20m.1s., esS = +22m.56s.
Budapest eN = +18m.6s., iSN = +19m.33s.
Uccle eNZ = +16m.5s. and +17m.57s.
Kew eZ = +16m.32s., iE = +23m.20s.
Stuttgart iPZ = +10m.58s.k, iEN = +11m.47s., ePPZ = +13m.47s., epPP = +15m.38s., eN = +18m.15s., eSE = +19m.47s., esSN = +22m.51s., eSSEN = +24m.57s., esSS = +27m.39s.
Sofia eE = +18m.19s., eEN = +23m.27s.
Strasbourg e = +11m.11s.
Triest iP_cP = +11m.8s., iPP = +14m.52s., iPS = +20m.42s., isS = +23m.35s., iSS = +25m.16s., iSSS = +28m.14s.
Paris e = +18m.29s.
Seven Falls e = +23m.34s.
Ottawa e = +13m.56s. and +23m.33s.
Florissant iE = +11m.7s., iP_cPE = +11m.11s., iE = +13m.8s., ipP_cPE = +13m.13s., eZ = +16m.28s. and +18m.32s., iE = +20m.9s. and +20m.14s., iSKSZ = +20m.27s., iPSZ = +20m.41s., esSE = +23m.34s., esSZ = +23m.37s.
St. Louis iN = +18m.32s., isSE = +23m.32s.
Ksara sP = +14m.7s.
Cincinnati PP = +14m.11s., esS = +23m.56s.
East Machias esP = +14m.24s., epPP = +16m.22s., esPP = +17m.11s., iSP = +21m.15s., isS = +24m.9s., eSS = +26m.17s., esSS = +29m.12s.
Pennsylvania e = +17m.45s.
Rome iPP = +14m.19s., i = +17m.19s., iN = +19m.9s., i = +21m.26s. and +22m.48s., isS = +23m.53s., i = +26m.3s.
Harvard eE = +14m.21s., eZ = +21m.22s., esSE = +24m.7s., eZ = +25m.6s.
Fordham iZ = +11m.31s., iPPZ = +14m.28s., iN = +20m.55s., isSE = +24m.18s., iN = +24m.22s., iSSE = +29m.5s., iE = +29m.25s.
Philadelphia ePP = +14m.25s., iSP = +21m.40s., isS = +24m.28s., eSS = +26m.16s., esSS = +29m.21s.
Helwan iZ = +11m.39s. and +13m.56s., PPPEZ = +14m.35s., iEZ = +17m.38s., eE = +18m.26s., SE = +19m.35s., SSSE = +24m.41s.
Columbia eP_cP = +11m.46s., esP = +14m.49s., eSKS = +21m.14s., iSP = +22m.20s., isS = +24m.59s., isSP = +25m.54s., iSS = +27m.13s., esSS = +30m.20s., iSSS = +30m.43s.
Algiers e = +21m.11s.
Granada pPP = +16m.35s., PPP = +18m.31s., pPPP = +19m.22s., S = +23m.19s., pPPS = +25m.50s.
Almeria PP = +17m.27s., S_cS = +22m.57s., SS = +27m.34s., SSS = +31m.16s.
Bermuda eSKS = +21m.46s., i = +22m.31s., iSP = +23m.40s., i = +26m.10s., isSS = +32m.3s.
San Juan epPP = +19m.30s., ePPP = +20m.25s., esPP = +20m.49s., epPPP = +21m.44s., eSP = +25m.56s., esSP = +29m.50s., iSS = +31m.41s., esSS = +35m.0s., eSSS = +35m.54s.
Huancayo esP = +18m.7s., ePP = +20m.23s., jpPP = +22m.36s., eSKKS = +25m.37s., esSP = +23m.7s., iSS = +36m.58s., isSS = +39m.51s., iSSS = +41m.6s.
La Paz iZ = +20m.49s.

May 19d. 18h. 16m. 29s. Epicentre 22°·5S. 33°·0E.

Strong in Natal and Transvaal. Epicentre 22°·5S. 33°·0E. (Strasbourg).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V, 2e partie, Seismologie (1940), Strasbourg, 1948, p. 10.

$A = +·7756$, $B = +·5037$, $C = -·3805$; $\delta = +5$; $h = +4$;
$D = +·545$, $E = -·839$; $G = -·319$, $H = -·207$, $K = -·925$.

		Δ	Az.	P.	O−C.	S.	O−C.		Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.		m.
Johannesburg		5·8	230	i 1 25	− 4	i 2 31	− 7	—		—	3·0
Tananarive		14·1	78	e 3 27	+ 4	i 6 9	+ 7	i 3	36	PP	e 7·5
Cape Town		17·1	225	i 4 3	+ 2	i 6 51	−21	—		—	i 10·0
Helwan		52·1	358	i 9 13a	− 1	16 39	+ 1	10	37	PP	—
Colombo	E.	54·4	63	e 13 31?	?	—	—	—		—	—
Kodaikanal		54·4	57	—	—	e 17 31	+22	—		—	—
Ksara		56·1	3	i 9 46k	+ 3	17 45	+13	i 10	44	P_cP	—
Bombay		56·6	47	i 9 48	+ 1	i 17 44	+ 5	24	27	L_g	27·6
Istanbul		63·3	357	—	—	e 19 31?	PS	—		—	—
Baku		64·5	13	10 48	+ 7	e 19 46	PS	—		—	32·5

Continued on next page.

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.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Algiers		65·4	334	i 10 47	0	e 19 50	PS	e 25 55	SSS	—
Sofia		65·5	352	e 10 47	0	e 19 35	+ 3	e 12 55	PP	—
Agra	E.	65·8	44	—	—	i 19 35	0	—	—	—
Rome		66·8	343	i 10 57k	+ 1	i 19 52	+ 4	24 11	SS	e 33·7
Bucharest		66·9	355	e 10 55a	− 1	19 53	+ 4	20 20	PS	31·5
Almeria		67·8	330	11 0	− 2	20 51	PPS	14 32	PP	39·8
Granada		68·7	329	i 10 59a	− 8	i 20 0	−10	11 44	P_cP	36·6
San Fernando		69·4	326	e 10 12	−60	e 19 18	−60	—	—	42·5
Rio de Janeiro		69·5	254	e 19 9	?	—	—	—	—	e 32·5
Samarkand		69·5	27	e 10 31	−41	e 19 52	−28	—	—	—
Calcutta	N.	70·0	54	e 18 18	?	—	—	—	—	—
Triest		70·0	346	i 11 16	+ 1	i 20 29	+ 3	i 11 25	P_cP	e 33·8
Toledo		71·0	330	i 11 20	− 2	i 20 38	+ 1	—	—	—
Tashkent		71·9	28	i 11 28	+ 1	i 20 47	− 1	—	—	e 33·5
Chur		72·2	343	e 11 28	− 1	e 20 57	+ 6	—	—	—
Lisbon		72·6	327	11 30	− 1	—	—	—	—	40·8
Andijan		72·8	30	i 11 35	+ 3	—	—	—	—	—
Tchimkent		72·8	27	i 11 32	0	—	—	—	—	—
Zurich		72·9	343	e 11 32k	− 1	e 20 58	− 1	—	—	—
Neuchatel		73·1	342	e 11 33	− 1	e 21 2	+ 1	—	—	—
Clermont-Ferrand		73·2	339	e 11 34	− 1	—	—	—	—	43·5
Basle		73·4	343	e 11 35	− 1	e 20 57	− 8	—	—	e 40·4
Stuttgart		74·1	344	e 11 39k	− 1	e 21 15	+ 3	e 11 49	pP	e 41·5
Strasbourg		74·3	343	e 11 42	+ 1	i 21 18	+ 3	—	—	43·5
Warsaw		75·1	353	11 44k	− 2	21 40	+16	—	—	e 36·5
Frunse		75·5	30	11 53	+ 5	—	—	—	—	—
Jena		75·5	347	i 11 47	− 1	e 21 31	+ 3	—	—	e 33·5
Paris		76·0	340	i 11 51	0	e 21 16	−18	—	—	e 40·5
Potsdam		76·6	348	i 11 53k	1	i 21 41	+ 1	—	—	—
Almata		76·9	31	11 59	+ 3	—	—	—	—	—
Uccle		77·2	342	i 11 58k	+ 1	i 21 51	+ 4	i 22 6	PS	e 39·5
Moscow		78·0	3	i 12 1	− 1	e 22 11	+16	—	—	—
De Bilt		78·2	343	i 12 3k	0	i 22 4	+ 7	i 12 14	pP	e 37·5
La Plata		78·2	237	11 59	− 4	—	—	—	—	38·5
Hamburg		78·3	346	i 12 3k	0	e 22 1	+ 2	—	—	e 44·5
Kew		79·2	340	12 8	0	—	—	—	—	e 48·5
Heligoland		79·4	345	e 12 13	+ 4	—	—	—	—	e 43·5
Copenhagen		79·8	349	e 12 12k	0	i 22 18	+ 4	22 37	PS	—
Pulkovo		82·0	359	i 12 24	+ 1	i 22 37	0	15 34	PP	—
Sverdlovsk		82·4	15	12 27	+ 2	i 22 41	0	15 38	PP	38·5
Upsala		83·0	352	12 22	− 6	e 22 47	0	e 23 3	PS	e 41·5
Semipalatinsk		83·7	28	e 12 34	+ 2	—	—	—	—	—
Manila		93·6	76	i 13 23	+ 4	22 59	[−54]	—	—	—
La Paz		93·7	251	e 13 23	+ 3	—	—	—	—	49·2
Irkutsk		96·8	35	e 13 34	0	—	—	e 17 20	PP	51·5
Scoresby Sund		100·4	343	e 17 58	PP	e 24 18	[−11]	—	—	e 49·0
San Juan		105·0	284	—	—	e 24 53	[+ 2]	e 27 52	PS	—
Seven Falls		115·4	313	—	—	e 35 31?	SS	—	—	55·5
Ottawa		118·6	310	e 18 50	[0]	e 29 31	PS	e 20 7	PP	41·5
Salt Lake City		145·3	311	e 19 41	[+ 1]	—	—	—	—	—
Tucson		146·6	295	e 19 25	[−17]	—	—	—	—	—
Victoria		148·0	329	e 19 46	[+ 2]	e 30 31?	{+24}	—	—	75·5
Tinemaha		151·3	305	e 19 58	[+ 9]	—	—	—	—	—
Haiwee		151·4	304	i 19 58	[+ 9]	—	—	—	—	—
Riverside		151·6	300	i 19 57	[+ 8]	—	—	—	—	—
La Jolla		151·8	298	e 19 59	[+ 9]	—	—	—	—	—
Mount Wilson		152·1	301	i 19 59	[+ 9]	—	—	—	—	—
Pasadena		152·2	301	i 19 59	[+ 9]	—	—	—	—	e 75·5
Fresno	N.	152·5	308	e 20 1	[+10]	—	—	—	—	—
Santa Barbara		153·3	302	i 20 3	[+11]	—	—	—	—	—
Berkeley		153·8	311	e 19 57	[+ 4]	—	—	—	—	—
Branner		154·0	310	i 20 6	[+13]	—	—	—	—	—

For Notes see next page.

NOTES TO MAY 19d. 18h. 16m. 29s.

Additional readings :—
Johannesburg eSE = +2m.37s.
Tananarive E = +4m.12s., iEN = +6m.31s.
Cape Town i = +8m.49s.
Helwan iZ = +9m.23s. and +9m.54s., P_cPZ = +12m.1s., SN = +14m.26s., iZ = +16m.57s., eE = +19m.46s. and +23m.37s.
Bombay iE = +18m.25s. and +19m.27s.
Algiers e = +11m.31s.
Agra eN = +19m.41s.
Rome i = +27m.24s.
Bucharest eN = +11m.9s.
Almeria PPP = +15m.52s., S_cS = +21m.38s.
Granada PS = +21m.0s.
Triest iPP = +13m.52s., iPPP = +15m.31s., iPS = +20m.58s., isS = +21m.18s.
Lisbon Z = +11m.40s.
Stuttgart eNE = +12m.54s. and +13m.5s., ePPN = +14m.17s., iS = +21m.18s., isSN = +21m.33s.
Warsaw SZ = +21m.44s.
Jena iZ = +11m.56s.
Potsdam iPE = +11m.57s., iSE = +21m.55s.
De Bilt isS = +22m.21s.
La Plata PN = +12m.7s.
Kew Z = +12m.18s.
Sverdlovsk SS = +28m.1s.
Upsala PN = +12m.26s.
San Juan iPKKP = +29m.41s., ePSPS = +33m.41s., eSSS = +36m.13s.
Tucson i = +19m.45s. and +19m.54s.
Pasadena iZ = +20m.8s.
Berkeley eE = +56m.26s., eN = +56m.55s.
Branner iN = +20m.18s.
Long waves were also recorded at Brisbane, Aberdeen, Vladivostok, Phu-Lien, Stonyhurst, Prague, Riverview, Wellington, East Machias, Huancayo, Columbia, and Bozeman.

May 19d. Readings also at 2h. (near Tucson (2), Lick, and Fresno (2)), 3h. (near Mizusawa, near Tucson, and Fresno), 4h. (Colombo, Tucson, Vermont, Fresno, Butte, Berkeley, and Branner), 5h. (Denver, Fresno (4), Lick, Branner, Berkeley, and San Francisco), 6h. (East Machias, Fordham (2), Vermont, Lick, Fresno (2), Florissant, and near Pasadena), 7h. (Denver, near Tucson, Fresno (2)), 8h. (Fresno, East Machias, near Tucson (2), Lincoln, Philadelphia, Chicago, and Salt Lake City), 9h. (near Tucson (2) and Fresno (3)), 10h. (Tucson and Fresno), 11h. (near La Paz), 12h. (near Tucson (2) and Fresno), 13h. (Prague, near Tucson (2), and Fresno (2)), 14h. (Jersey and Tucson (3)), 15h. (near Tucson (3), Rome, Vermont, and Salt Lake City), 17h. (Tucson), 18h. (Almeria, near Lick, Branner, San Francisco, Philadelphia, near Tucson (2) and Salt Lake City), 19h. (Bozeman, near Tucson (3), Salt Lake City (2), and near Fresno), 20h. (De Bilt, near Triest, Tucson (2)), 21h. (San Juan and Tucson).

May 20d. Readings at 0h. (La Paz), 1h. (Tucson), 2h. (near Tananarive), 4h. and 6h. (near Tucson), 7h. (near Tucson (2) and Huancayo), 8h. (near Lick, Branner, and near Mizusawa (2)), 9h. (Tucson), 10h. (near Hukuoka), 11h. (Manila and near Tucson (2)), 16h. (Tucson and Rome), 17h. (Tucson (2) and Salt Lake City), 18h. (Rome), 21h. (Salt Lake City), 22h. (Salt Lake City and Tucson (2)).

May 21d. 18h. 48m. 52s. Epicentre 22°·0S. 178°·0W.

$A = -\cdot9275$, $B = -\cdot0324$, $C = -\cdot3724$; $\delta = -1$; $h = +4$;
$D = -\cdot035$, $E = +\cdot999$; $G = +\cdot372$, $H = +\cdot013$, $K = -\cdot928$.

Tables for depth of focus 0·040 have been used.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		10·1	37	2 22	+ 2	4 8	− 3	i 2 30	pP	—
Arapuni		16·9	198	i 5 32	?	6 56	SS	—	—	—
Tuai		17·3	193	—	—	6 43	− 3	14 48	S_cS	—
Wellington		20·2	197	4 13	− 1	7 34	− 6	14 59	S_cS	—
Christchurch		22·9	198	4 38a	− 2	8 16	−10	—	—	—
Brisbane		26·8	253	i 5 14	− 2	i 9 26	− 4	—	—	i 11·4
Riverview		29·6	240	e 5 41	0	i 10 9	− 5	—	—	—
Sydney		29·6	240	e 5 38	− 3	—	—	—	—	e 15·1
Adelaide		40·0	241	e 11 58	S	(e 11 58)	−55	i 16 12	SS	i 18·3
Honolulu		47·3	27	e 8 9	+ 2	e 14 35	− 2	e 10 15	PP	e 20·2
Perth		59·0	245	10 53	pP	17 8	− 6	12 33	PP	i 28·1
Tokyo Cen. Met. Ob.		69·9	325	10 43	+ 1	—	—	—	—	—
Manila		70·0	296	i 10 40k	− 2	(19 39)	+11	i 12 40	PP	19·6
Nagoya		71·1	323	10 52	+ 3	—	—	—	—	—
Sendai		71·3	328	10 50	0	19 49	+ 6	—	—	—
Kobe		71·8	322	10 52	− 1	19 48	− 1	20 2	PS	—
Mizusawa		71·8	328	e 10 55	+ 2	13 40	PP	—	—	—
Koti		72·0	319	10 55	+ 1	19 29	−22	—	—	—
Miyazaki		72·2	316	10 58	+ 3	19 56	+ 3	—	—	—
Santa Barbara		78·8	47	e 11 35	+ 2	e 21 8	+ 3	i 12 53	pP	—
Branner		79·1	42	e 11 37	+ 3	—	—	—	—	—
Santa Clara		79·2	42	e 12 58	pP	i 21 15	+ 6	—	—	—
Berkeley		79·3	42	i 11 37	+ 2	i 21 11	+ 1	i 12 56	pP	—
Lick	E.	79·4	42	e 11 36	0	e 21 13	+ 2	—	—	—
Ukiah		79·5	41	—	—	e 21 12	0	e 23 12	sS	—
Vladivostok		79·5	325	e 11 36	0	i 21 14	+ 2	i 12 57	pP	—
La Jolla		79·6	48	e 11 36	− 1	e 21 13	0	e 12 56	pP	—
Pasadena		79·7	47	i 11 36a	− 1	i 21 15	+ 1	i 12 56	pP	e 41·4
Fresno	N.	80·2	44	e 11 41	+ 1	e 21 20	0	e 13 4	pP	—
Riverside		80·2	47	i 11 38a	− 2	e 21 19	− 1	i 12 59	pP	—
Haiwee		81·0	46	e 11 44	0	e 21 29	+ 1	i 13 5	pP	—
Tinemaha		81·3	45	i 11 45	− 1	e 21 29	− 2	i 13 5	pP	—
Tucson		83·8	52	i 11 58	0	i 21 52	− 4	i 13 27	pP	e 34·9
Victoria		85·4	33	e 13 23	pP	e 22 10	− 1	—	—	—
Sitka		86·5	22	e 12 2	−10	i 22 17	− 5	e 13 26	pP	—
Salt Lake City		87·5	44	e 12 37	+21	i 22 14	[0]	e 13 53	pP	e 36·4
College		89·7	12	—	—	e 22 42	− 9	e 25 7	sS	—
Butte		89·9	39	e 12 26	− 2	e 22 24	[− 5]	e 24 57	PS	—
Bozeman		90·6	40	e 16 20	PP	e 22 30	[− 3]	e 24 51	PS	e 37·4
Huancayo		97·0	106	e 12 45	−15	i 24 3	+ 9	e 14 47	pP	e 43·3
Irkutsk		99·9	323	e 15 58	pP	23 14	[− 8]	17 18	PP	—
Calcutta	N.	101·3	290	—	—	e 24 37	+ 7	—	—	—
La Paz		101·4	113	e 15 28	?	(24 8)	−23	17 38	PP	24·1
Florissant		101·7	53	i 13 36	+14	e 23 26	[− 5]	e 14 42	pP	—
St. Louis		101·7	53	e 13 22	0	i 23 23	[− 8]	e 14 41	pP	—
Colombo	E.	103·8	271	e 16 38	?	—	—	—	—	—
Agra	E.	111·6	292	e 18 31	PP	e 24 4	[−10]	i 25 9	sSKS	—
Ottawa		113·8	48	i 18 3	[− 1]	e 24 16	[− 7]	e 28 45	PS	—
Bombay		114·1	281	e 18 42	PP	e 24 14	[−10]	e 28 45	PS	—
Fordham		114·5	54	—	—	i 24 19	[− 7]	e 28 15	PS	—
San Juan		116·4	79	e 14 43	P	i 24 26	[− 6]	e 19 17	PP	e 46·5
Sverdlovsk		125·2	325	i 18 25	[− 1]	e 24 54	[− 8]	19 52	pPKP	49·1
Scoresby Sund		129·5	10	e 17 8	pP	e 31 30	PS	e 20 46	PP	e 54·6
Baku		135·7	306	e 21 33	PP	32 16	PS	—	—	63·1
Moscow		137·3	331	e 18 46	[− 3]	31 45	PS	e 21 32	PP	—
Pulkovo		137·3	339	i 18 48	[− 1]	30 54	?	e 21 32	PP	—
Upsala		140·6	348	e 21 54	PP	e 28 30	?	i 22 29	PP	—
Copenhagen		145·5	350	i 19 3k	[− 1]	—	—	—	—	—
Warsaw		146·4	339	e 19 5k	[− 1]	e 25 45	[+ 2]	e 22 21	PP	e 38·1
Hamburg	z.	147·9	352	e 19 8	[+ 1]	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ksara		148·0	298	i 19 8k	[0]	32 36	PPS	i 20 41 pPKP	—
Potsdam		148·5	348	i 19 6	[− 3]	—	—	i 22 41 PP	e 65·3
Cluj		149·7	328	i 19 17	[+ 7]	—	—	— —	—
De Bilt		149·8	356	i 19 10	[0]	—	—	i 20 40 pPKP	—
Bucharest		150·1	324	e 19 23	[+12]	—	—	— —	50·1
Kew	z.	150·5	2	19 11	[− 1]	—	—	e 20 49 pP	—
Uccle	z.	151·2	357	i 19 12	[− 1]	—	—	e 20 45 pP	—
Helwan		152·5	292	e 19 18	[+ 3]	—	—	e 23 10 PP	—
Stuttgart		152·7	349	i 19 14k	[− 1]	—	—	e 21 58 ?	—
Strasbourg		153·1	352	e 19 17	[+ 1]	—	—	— —	—
Paris		153·2	358	i 19 15	[− 1]	—	—	— —	e 52·1′
Basle		154·1	351	e 19 16	[− 1]	—	—	— —	—
Triest		154·5	341	i 19 17	[0]	e 25 34	[−20]	i 20 56 pPKP	e 73·5
Clermont-Ferrand		156·3	358	e 19 19	[− 1]	—	—	— —	—
Rome		158·3	339	i 19 19k	[− 3]	i 25 34	[−24]	i 20 43 pPKP	—
Toledo		161·5	15	i 19 25	[− 1]	—	—	i 20 11 pPKP	43·1
Granada		164·1	16	i 19 33$_s$	[+ 4]	31 25	SKKS	20 41 pPKP	—

Additional readings :—
Apia S = +3m.32s., i = +4m.4s.
Wellington i = +11m.17s.
Brisbane iE = +6m.20s., iN = +6m.38s. and +8m.8s.
Adelaide PP = +12m.44s., iS = +14m.58s., iSS = +16m.38s., i = +17m.28s.
Honolulu e = +8m.15s., esS = +16m.41s., eSS = +18m.41s.
Perth i = +16m.46s., sS = +19m.26s., i = +26m.8s.
Manila PN = +10m.43s.
Santa Clara iSN = +13m.8s.
Vladivostok isP = +13m.32s., PP = +15m.6s., isS = +23m.36s.
La Jolla ePKP,PKPZ = +38m.31s.
Pasadena iN = +13m.16s., ePKP,PKPZ = +38m.30s.
Riverside ePKP,PKPZ = +38m.29s.
Tinemaha ePKP,PKPZ = +38m.26s.
Tucson iP$_c$P = +12m.3s., iPP = +15m.10s., epPP = +16m.38s., ePPP = +17m.22s., esS = +24m.27s., eSS = +27m.36s., eSSS = +31m.18s., ePKP,PKP = +38m.15s., i = +38m.20s. and +38m.24s.
Victoria e = +21m.53s.
Sitka esS = +24m.40s., eSS = +28m.2s.
Salt Lake City ePP = +15m.47s., i = +22m.33s., eSP = +23m.37s., isS = +24m.59s., eSS = +28m.22s., eSSS = +32m.23s.
Butte iS = +22m.55s., isS = +25m.22s., eSS = +28m.54s.
Bozeman iS = +23m.1s., eSP = +23m.50s., isS = +25m.26s., esPS = +26m.34s., eSS = +29m.12s.
Huancayo ePP = +16m.44s., epPP = +17m.47s., iPS = +25m.44s., esSS = +32m.24s.
Irkutsk sS = +25m.50s.
Florissant iEN = +24m.5s., eSN = +24m.35s.
St. Louis eE = +17m.33s. and +23m.27s., iE = +24m.5s., eSE = +24m.36s., eE = +25m.56s.
Ottawa e = +25m.26s.
Bombay eE = iN = +20m.57s., eEN = +23m.31s. and +30m.32s.
Fordham iE = +25m.31s., iN = +26m.25s.
San Juan ePKP = +18m.28s., ePPP = +21m.58s., eSKKS = +25m.39s., eS = +26m.55s., epS = +28m.27s., eSS = +37m.38s.
Scoresby Sund iPKP = +18m.34s., ipPP = +22m.0s., ePPP = +23m.45s., iSS = +37m.40s., isSS = +40m.7s., eSSS = +42m.39s.
Warsaw eZ = +20m.37s., +21m.15s., and +22m.29s., eN = +24m.41s., +25m.37s., +31m.33s. and +32m.47s.
Ksara sPKP = +22m.13s., PP = +22m.2s., pPP = +23m.1s., SPP = +31m.50s.
Potsdam iPKPN = +19m.11s., iPPN = +22m.50s.
Cluj eP*E = +19m.20s., eP$_g$E = +19m.24s., eP$_g$N = +19m.28s., SN = +19m.38s., S$_g$N = +19m.46s. ; readings given as for a local shock.
Kew iZ = +19m.16s., Z = +19m.25s.
Uccle iZ = +19m.18s.
Helwan eE = +19m.32s. and +26m.32s.
Stuttgart iPKP = +19m.22s. and +19m.34s.
Strasbourg e = +19m.25s.
Paris i = +19m.36s., e = +38m.0s.
Triest iPKP$_2$ = +19m.44s., iSKP = +22m.50s., ePP = +23m.18s., iPPP = +26m.50s., eSKKS = +29m.55s., iPSKS = +33m.43s., ePPS = +36m.59s., eSS = +42m.56s.
Rome PKP$_2$ = +19m.33s., i = +19m.57s. and +21m.53s., iPP = +23m.38s., SKKS = +29m.54s., SS = +43m.15s., iE = +45m.40s. and +51m.26s.
Granada PP = +24m.19s., SS = +46m.40s.
Long waves were also recorded at Tashkent.

May 21d. Readings also at 0h. (near Algiers), 1h. (near Cluj, Bucharest, Warsaw, Potsdam, Rome, Sofia, Branner, Berkeley, near Lick, and Fresno), 2h. (Triest, Bucharest, Sofia, Rome, Potsdam, and Warsaw), 5h. (Sofia and Bucharest), 6h. (Bucharest and Hamburg), 7h. (near Hong Kong, Zi-ka-wei, and Manila), 9h. (Granada, Rome, and Ksara), 10h. (near San Francisco, San Juan, Santa Clara, Ksara, Fresno, Lick, Berkeley, Branner, near Balboa Heights, and Tucson), 12h. (near Tucson (2)), 13h. (Branner and near Lick), 14h. (Tucson and Scoresby Sund), 15h. (near Tananarive), 18h. (near Branner, Triest, and Tucson), 19h. (Tucson (2)), 20h. (Mizusawa), 21h. (Jena, Sverdlovsk, Fresno, and near Tucson), 22h. (Tucson and Balboa Heights), 23h. (Tucson).

May 22d. Readings at 0h. (Lick and near Branner), 1h. (Balboa Heights and Tucson (3)), 6h. (near Sofia, Rome, Stuttgart, Warsaw, Potsdam (2), Basle, near Triest, Salt Lake City, near Tucson, and Ksara), 7h. (Granada), 10h. (near Tucson and near Mizusawa), 11h. (Salt Lake City, Fresno, Tucson, and Berkeley), 12h. (Mount Wilson, Riverside, Tinemaha, near Almeria, Toledo, Pasadena, Sitka, Tucson, Balboa Heights, near Granada, and Bozeman), 13h. (near Miusawa), 14h. (Salt Lake City, near Fresno, and near Tucson (2)), 16h. (Salt Lake City), 17h. (Bozeman, Istanbul, and Tucson (2)), 18h. (near Tucson), 20h. (Tucson (2) and Fresno), 21h. (Salt Lake City), 22h. (Columbia and Istanbul), 23h. (Ksara).

May 23d. 6h. 1m. 23s. Epicentre 50°·5N. 172°·5E.

$A = -·6331$, $B = +·0834$, $C = +·7695$; $\delta = -10$; $h = -6$;
$D = +·131$, $E = +·991$; $G = -·763$, $H = +·100$, $K = -·629$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		25·1	42	e 5 37	+ 9	e 9 36	−15	—	—	e 11·9
Vladivostok		28·5	270	e 6 6	+ 7	e 11 2	+16	—	—	13·4
Sitka		30·9	57	e 6 22	+ 2	e 11 8	−16	e 7 18	PPP	e 12·4
Honolulu		37·3	130	e 8 19	PP	—	—	—	—	e 16·2
Victoria		40·5	68	e 7 37?	− 5	—	—	—	—	18·6
Irkutsk		41·2	300	e 8 7	+19	17 19	SS	—	—	20·6
Seattle		41·6	68	—	—	e 13 48	−20	—	—	—
Ukiah		45·6	79	—	—	e 14 55	−11	—	—	—
Berkeley		47·0	80	—	—	e 15 3	−23	—	—	—
Santa Clara		47·5	80	i 9 7	+29	—	—	—	—	e 22·4
Butte		48·1	64	—	—	e 15 49	+ 7	—	—	—
Bozeman		49·2	64	—	—	e 15 31	−27	—	—	—
Tinemaha		50·0	78	e 8 53	− 5	—	—	—	—	—
Salt Lake City		51·6	70	e 10 20	P_cP	e 18 56	S_cS	—	—	e 20·1
Mount Wilson		51·9	81	i 9 7	− 5	—	—	—	—	—
Pasadena		51·9	81	e 9 8	− 4	—	—	—	—	—
Riverside	z.	52·5	81	i 9 14	− 3	—	—	—	—	—
Palomar	z.	53·2	80	e 9 19	− 3	—	—	—	—	—
Manila		54·7	248	e 10 17	+44	16 12	−61	—	—	20·8
Tucson		57·8	78	e 9 50	− 5	—	—	e 10 47	P_cP	e 26·4
Phu-Lien		58·9	265	—	—	e 18 27	+19	—	—	—
Scoresby Sund		58·9	7	e 10 42	+39	e 18 25	+17	e 12 40	PP	e 24·2
Sverdlovsk		59·2	324	10 2	− 3	18 7	− 5	—	—	27·1
Lincoln		60·4	61	—	—	e 18 13	−15	e 21 51	SS	e 29·3
Florissant	z.	65·3	59	e 10 52	+ 6	—	—	—	—	—
Andijan		65·5	305	e 10 48	+ 1	—	—	—	—	36·6
Pulkovo		65·9	340	e 10 47	− 3	19 29	− 8	—	—	32·4
Tashkent		66·7	307	—	—	i 19 48	+ 2	—	—	e 32·8
Moscow		67·7	333	10 58	− 3	19 52	− 6	—	—	30·3
Ottawa		67·7	45	—	—	e 19 37	−21	—	—	28·6
Upsala		68·1	347	—	—	e 19 43	−20	—	—	—
Seven Falls		68·5	41	—	—	e 19 55	−13	e 28 25	SSS	33·6
Samarkand		69·0	307	e 11 10	+ 1	e 20 10	− 4	—	—	34·6
Calcutta	N.	69·3	280	e 15 49	PPP	—	—	—	—	—
East Machias		71·8	40	e 16 3	PPP	e 28 2	SSS	—	—	e 33·7
Philadelphia		72·2	48	—	—	e 21 7	+16	—	—	e 32·5
Agra	E.	72·3	291	—	—	e 20 53	+ 1	—	—	—
Columbia		73·9	56	—	—	e 20 55	−15	—	—	e 36·1
Warsaw		74·8	343	e 11 50	+ 6	e 21 12	− 8	e 13 56	PP	e 39·6
Hamburg		75·3	351	e 12 11	+24	e 22 14	PPS	—	—	e 36·6

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Potsdam		76·0	348	e 11 49	− 2	e 21 36	+ 2	—	—	—
De Bilt	z.	77·2	353	e 11 51	− 6	—	—	—	—	—
Kew		78·2	356	e 12 7	+ 4	e 21 37?	−20	—	—	e 43·6
Uccle		78·6	354	e 12 2	− 3	e 21 53	− 9	—	—	e 37·6
Paris		80·7	354	e 12 37?	+21	—	—	—	—	—
Bucharest		81·1	336	e 14 37?	?	—	—	—	—	43·6
Bombay		81·6	289	e 8 5	?	e 22 39	+ 6	—	—	e 44·7
Triest		82·5	345	e 12 23	− 3	e 22 42	0	e 15 43	PP	—
Rome		86·3	346	12 35	−10	e 23 17	− 3	15 50	PP	e 40·6
Ksara		87·7	325	e 12 54	+ 2	e 23 37	+ 4	e 16 52	PP	—
Toledo		89·9	355	e 16 49	PP	—	—	—	—	48·6
Granada		92·6	357	i 13 17k	+ 2	24 18	0	16 48	PP	53·2
San Juan		94·3	55	—	—	e 25 44	PS	e 33 52	SSS	e 47·8

Additional readings :—
Sitka $eP_cP = +9m.4s.$
Scoresby Sund $ePPP = +13m.58s.$, $eSS = +22m.16s.$
Warsaw $ePPPZ = +16m.8s.$, $SSE = +25m.10s.$, $SSN = +25m.50s.$, $eE = +27m.48s.$
Bombay $e = +14m.2s.$
Triest $ePPP = +17m.43s.$, $eS = +23m.5s.$, $ePS = +23m.47s.$, $eSS = +29m.1s.$ $eSSS = +32m.37s.$?
Rome $e = +23m.31s.$
Ksara $e = +24m.42s.$ and $+25m.18s.$
Granada $eP_cP = +13m.45s.$, $PPP = +19m.10s.$, $PS = +24m.54s.$, $SS = +29m.51s.$
San Juan $ePSPS = +31m.16s.$
Long waves were also recorded at Baku, Prague, and Harvard.

May 23d. 19h. 10m. 4s. Epicentre 41°·8N. 44°·3E. (as given by stations of U.S.S.R.).

$A = +·5351$, $B = +·5222$, $C = +·6641$; $\delta = +5$; $h = -2$;
$D = +·698$, $E = -·716$; $G = +·475$, $H = +·464$, $K = -·748$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan	1·6	175	i 0 30	0	0 53	+ 2	i 0 40	P_gP_g	—
Grozny	1·8	35	e 0 35	+ 3	i 0 59	+ 3	i 0 39	P_g	—
Piatigorsk	2·4	338	i 0 38	− 3	i 1 10	− 2	—	—	—
Sotchi	3·8	299	i 1 0	− 1	1 46	− 1	1 9	P*	—
Baku	4·4	106	e 1 33	P_g	2 41	S_g	—	—	3·9
Ksara	10·4	222	e 3 28	+54	i 5 39	S_g	—	—	i 6·4
Samarkand	17·3	88	4 0	− 4	—	—	—	—	13·9
Sverdlovsk	18·3	30	i 4 17	0	7 40	+ 1	—	—	9·4
Warsaw	18·9	311	e 7 43	S	(e 7 43)	−10	e 8 15	SS	e 9·9
Pulkovo	20·0	339	e 4 23	−14	8 4	−13	—	—	—
Andijan	21·1	84	e 4 52	+ 4	—	—	—	—	—
Frunse	22·4	78	e 5 29	PP	—	—	—	—	—
Potsdam	23·6	308	—	—	e 11 6	SSS	—	—	e 12·8
Rome	23·6	281	—	—	e 9 26	+ 1	—	—	—

Additional readings :—
Grozny $eS_g = +1m.5s.$
Piatigorsk $S = +1m.0s.$
Long waves were also recorded at Hamburg and De Bilt.

May 23d. Readings also at 0h. (Salt Lake City and near Tucson), 3h. (near Tucson), 4h. (Sebastopol, Ksara, Grozny, and Erevan), 5h. (near Mizusawa), 7h. (Palomar, Riverside, Pasadena, Mount Wilson, Tinemaha, Haiwee, La Paz, and Tucson), 8h. (La Plata), 10h. (Rome and Tucson), 12h. (near Manila, Rome, and Tucson), 15h. (Tucson), 17h. (Fordham), 18h. (Tucson), 20h. (Sverdlovsk, Samarkand, and near Manila), 22h. (Triest), 23h. (Tucson).

May 24d. 15h. 15m. 9s. Epicentre 40°·3N. 73°·2E. (as given by stations of U.S.S.R.).

$A = +\cdot2211$, $B = +\cdot7322$, $C = +\cdot6443$; $\delta = +12$; $h = -2$;
$D = +\cdot957$, $E = -\cdot289$; $G = +\cdot186$, $H = +\cdot617$, $K = -\cdot765$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Andijan	0·8	305	0 18	0	i 0 30	− 1
Frunse	2·8	22	0 49	+ 2	i 1 21	− 1
Tashkent	3·1	289	i 0 44	− 7	—	—
Almata	4·1	42	1 13	P*	i 2 13	S_g
Samarkand	4·8	266	1 20	+ 5	i 2 20	+ 8

Long waves were also recorded at Sverdlovsk.

May 24d. 16h. 33m. 53s. Epicentre 10°·4S. 77°·2W.

Destruction in the regions of Lima and Callao.

Epicentre 10°·5S. 77°·0W. (Pasadena, Strasbourg).

O.M.Q.
El Terremoto de Lima, Boletin de la Sociedad Geograpfica de Lima, Tome 57, Trimestre No. 3, pp. 105-122, 8 fig., Lima, 1940.

$A = +\cdot2180$, $B = -\cdot9594$, $C = -\cdot1794$; $\delta = +16$; $h = +6$;
$D = -\cdot975$, $E = -\cdot222$; $G = -\cdot040$, $H = +\cdot175$, $K = -\cdot984$.

Pasadena quotes suggested depth 50km.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·4	132	i 0 49	+ 8	—	—	—	—	—
La Paz		10·7	126	i 2 35a	− 3	i 4 18	−21	—	—	5·0
Montezuma		14·5	147	e 3 45	PP	i 6 27	SS	i 4 6	PP	i 7·0
Balboa Heights		19·4	354	e 4 7?	−23	—	—	—	—	—
Port au Prince		29·2	11	i 6 25	+20	i 11 51	+53	7 23	PPP	15·4
Fort de France		29·6	35	i 5 48	−21	i 11 13	+ 9	6 47	PP	e 15·3
La Plata	E.	30·1	147	6 5	− 8	10 53	−19	—	—	15·0
	N.	30·1	147	6 6	− 7	11 15	+ 3	7 7	PP	15·2
	Z.	30·1	147	i 6 5	− 8	11 19	+ 7	7 1	PP	14·4
San Juan		30·6	22	e 6 18	0	i 11 40	+20	i 6 35	pP	e 12·9
Rio de Janeiro		34·7	115	(i 6 57)	+ 3	(i 12 25)	+ 1	—	—	i 12·4
Bermuda		44·1	15	i 8 14a	+ 2	i 14 55	+10	i 10 9	PP	—
Columbia		44·3	355	e 8 15	+ 2	i 14 51	+ 3	i 8 36	pP	e 24·0
Philadelphia		50·1	3	i 9 2a	+ 3	i 16 17	+ 7	i 11 18	PP	i 22·2
St. Louis		50·3	347	i 8 59	− 1	i 16 20	+ 7	—	—	17·1
Florissant		50·5	347	i 9 1	− 1	i 16 22	+ 6	i 11 35	PPP	17·3
Pittsburgh		50·6	357	i 9 3	+ 1	i 16 14	− 3	i 9 24	pP	—
Pennsylvania		50·9	359	i 9 6	+ 1	—	—	—	—	—
Fordham		51·1	4	i 9 6a	0	i 16 29	+ 5	i 16 58	PS	e 26·5
Ann Arbor		52·8	354	i 9 25	+ 6	i 16 49	+ 2	10 13	P_cP	—
Chicago, U.S.C.G.S.		52·8	350	e 9 19a	0	e 16 26	−21	i 10 25	P_cP	e 23·1
Chicago, J.S.A.		52·8	350	e 9 20	+ 1	i 16 57	+10	i 10 52	P_cP	—
Weston		52·8	6	i 9 22	+ 3	16 44	− 3	10 20	P_cP	i 25·1
Harvard		52·9	6	i 9 21a	+ 1	i 16 53	+ 5	i 9 41	pP	e 23·1
Tucson		53·2	324	i 9 21a	− 1	i 16 47	− 5	i 9 39	pP	e 21·6
Toronto		53·8	358	i 9 26	0	i 17 11	+10	21 49	SS	27·1
Lincoln		54·1	343	e 9 27	− 2	i 17 2	− 3	i 12 23	PPP	i 21·5
Ottawa		55·5	1	i 9 40	+ 1	i 17 41	+16	21 37	SS	26·1
East Machias		55·6	9	i 9 43a	+ 3	i 17 29	+ 5	i 10 5	pP	i 23·0
Denver		56·2	335	e 9 50	+ 6	e 17 36	+ 3	i 10 2	pP	e 27·6
Shawinigan Falls		56·8	5	9 50	+ 2	17 57	+16	12 47	PPP	29·1
La Jolla		57·5	320	e 9 51	− 2	e 17 55	+ 5	e 39 42	P′P′	—
Seven Falls		57·5	6	9 54	+ 1	i 17 57	+ 7	12 15	PP	26·1
Palomar	Z.	57·6	321	i 9 52a	− 2	e 17 57	+ 6	e 39 43	P′P′	—
Riverside		58·4	321	i 9 57a	− 3	e 18 0	− 2	39 39	P′P′	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mount Wilson		58·9	321	i 10 2a	− 1	e 18 18	+10	e 39 41	P′P′	—
Pasadena		59·0	321	i 10 1a	− 3	i 18 10	0	i 22 15	SS	e 25·1
Haiwee		60·1	323	e 10 10	− 1	—	—	—	—	—
Salt Lake City		60·1	330	e 10 10	− 1	e 18 11	−13	i 10 30	pP	i 23·1
Santa Barbara		60·1	320	e 10 9	− 2	e 18 24	0	e 39 40	P′P′	—
Logan		60·9	331	i 10 13	− 4	i 18 58	PS	—	—	33·0
Tinemaha		61·0	323	i 10 15	− 3	e 18 45	+10	39 37	P′P′	—
Fresno	N.	61·6	322	e 10 21	− 1	e 18 52	+ 9	e 13 14	PP	—
Lick	E.	63·2	321	e 10 37	+ 5	e 19 13	+10	—	—	e 29·1
Santa Clara		63·4	321	i 10 36	+ 2	i 19 21	+15	—	—	e 30·4
Branner		63·5	321	e 10 42	+ 8	e 19 9	+ 2	—	—	—
Bozeman		63·6	335	e 10 33	− 2	i 18 44	−24	i 10 56	pP	i 25·4
Berkeley		63·9	321	i 10 36a	− 1	e 19 4	− 8	i 10 54	pP	e 31·5
San Francisco		63·9	321	e 10 41	+ 4	e 19 12	0	—	—	e 31·5
Butte		64·5	334	e 10 41	0	i 19 18	− 1	i 11 0	pP	i 28·2
Ukiah		65·1	322	e 10 45	0	i 19 29	+ 2	i 13 10	PP	e 27·2
Ferndale		66·8	323	e 10 56	0	e 19 47	− 1	—	—	—
Saskatoon		67·2	341	10 47	−11	19 42	−10	24 33	SS	30·1
Spokane		67·9	332	e 10 45	−17	i 19 54	− 7	i 11 3	pP	—
Seattle		70·3	330	e 11 19	+ 2	i 20 18	−11	e 15 44	PPP	i 29·1
Victoria		71·4	330	11 21	− 3	20 41	− 1	25 19	SS	e 32·1
Lisbon		79·9	48	12 13	+ 1	22 24	+ 8	13 13	PP	33·4
San Fernando		81·3	51	i 12 15	− 5	i 22 5	−25	—	—	39·1
Sitka		82·3	333	i 12 24	− 1	i 22 25	−15	i 23 5	sS	i 34·6
Granada		83·5	51	i 12 34k	+ 3	i 23 2	+10	12 46	P_cP	41·5
Toledo		84·0	48	i 12 34	+ 1	i 23 19	+22	—	—	—
Almeria		84·2	51	i 12 35	+ 1	23 3	+ 4	12 54	P_cP	39·8
Honolulu		85·1	292	e 12 44	+ 5	e 22 56	[− 5]	i 12 51	P_cP	e 35·4
Bagnères		87·9	46	12 53	0	i 23 44	+ 9	16 39	pPP	e 39·1
Algiers		88·5	53	i 12 57	+ 1	23 57	+16	16 28	PP	43·1
Cape Town	E.	88·9	124	i 12 53	− 5	e 23 27	[+ 1]	e 16 20	PP	—
	N.	88·9	124	i 12 51	− 7	e 23 36	[+10]	e 16 11	PP	—
Scoresby Sund		88·9	16	i 12 59a	+ 1	i 23 53	+ 9	i 13 20	pP	—
Chatham Ils.		89·5	225	13 37	+37	24 7	+17	25 43	PPS	41·1
Oxford		89·5	38	i 12 59	− 1	i 24 1	+11	i 17 0	PP	—
Stonyhurst		89·5	35	i 13 2	+ 2	i 24 2	+12	29 47	SS	39·4
Edinburgh		89·8	33	13 5	+ 3	23 53	0	16 46	PP	—
Kew		90·0	38	i 13 2a	− 1	i 23 55	+ 1	i 16 59	PP	e 38·1
Aberdeen		90·7	31	i 17 3	PP	i 24 1	0	i 25 42	PS	36·6
Clermont-Ferrand		90·7	44	i 13 6	0	—	—	—	—	e 54·1
Paris		91·0	41	e 12 54	−13	i 24 24	+21	i 13 22	pP	43·1
College		91·3	336	e 13 7	− 2	e 23 41	[+ 1]	i 13 29	pP	—
Marseilles		91·7	47	e 17 20	PP	e 24 28	+18	—	—	e 37·1
Apia		91·9	255	i 13 14	+ 3	i 23 53	[+ 9]	24 47	PS	41·9
Uccle		92·7	38	i 13 15a	0	i 24 21	+ 3	i 17 13	PP	40·1
De Bilt		93·5	37	e 13 20a	+ 1	i 24 26	+ 1	e 17 26	PP	e 37·1
Neuchatel		93·6	43	e 13 20	+ 1	e 24 26	0	—	—	—
Basle		94·1	43	e 13 22	0	e 24 30	− 1	e 17 18	PP	—
Strasbourg		94·4	42	e 13 24	+ 1	e 24 39	+ 6	i 17 27	PP	i 39·1
Zurich		94·7	43	e 13 25a	+ 1	e 24 25	−11	e 17 18	PP	—
Bergen		95·3	29	13 21	− 6	e 24 29	−12	e 17 23	PP	—
Stuttgart		95·4	42	e 13 27a	− 1	e 23 59	[− 5]	i 17 27	PP	42·6
Heligoland		95·5	36	e 13 27a	− 1	e 23 55	[− 9]	e 17 39	PP	e 41·3
Chur		95·7	43	e 13 27	− 2	e 24 34	−10	—	—	—
Wellington		96·4	226	13 37k	+ 5	23 57	[−12]	14 2	pP	44·3
Hamburg		96·6	36	i 13 35a	+ 2	e 23 43	[−27]	e 17 44	PP	e 45·8
Rome		96·6	49	e 13 34a	+ 1	i 24 7	[− 3]	17 47	PP	e 39·4
Arapuni		96·8	229	13 31	− 3	24 7	[− 4]	17 37	PP	44·1
Christchurch		97·0	223	13 34k	− 1	24 2	[−10]	17 28	PP	44·5
Jena		97·2	40	e 13 33	− 3	i 24 37	−20	e 17 22	PP	e 41·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Triest		98·0	45	e 13 39	0	i 24 12	[− 5]	i 17 44	PP	i 47·2
Copenhagen		98·3	35	i 13 42a	+ 1	i 25 29	+23	17 28	PP	—
Potsdam		98·3	38	e 13 40	− 1	i 24 55	−11	i 17 57	PP	—
Prague		98·9	40	e 13 44	+ 1	e 25 37	+26	e 17 36	PP	e 42·1
Johannesburg		98·9	119	e 17 43	PP	i 24 49	[+27]	i 32 13	SS	i 47·6
Upsala		101·3	31	e 13 58	+ 4	e 24 52	[+19]	i 18 13	PP	e 42·1
Kalossa	E.	101·7	44	e 14 3	+ 7	i 25 7	[+31]	e 18 31	PP	e 42·6
	N.	101·7	44	e 14 7	+11	—	—	i 18 31	PP	e 40·1
Budapest	E.	101·8	43	14 6	+10	24 55	[+19]	18 28	PP	38·6
	N.	101·8	43	14 6	+10	24 46	[+10]	18 44	PP	38·1
Warsaw		103·2	39	i 14 4a	+ 1	25 3	[+20]	18 18	PP	e 45·1
Sofia		104·7	48	e 14 13	+ 4	25 18	[+28]	i 18 39	PP	37·7
Cluj		104·9	45	e 15 17	+67	e 26 10	+ 9	e 19 4	PP	e 46·4
Bucharest		106·7	47	e 14 18	P	25 29	[+31]	18 58	PP	51·1
Pulkovo		107·7	30	e 14 24	P	e 24 47	[−15]	18 16	PKP	—
Helwan		111·1	62	i 14 39k	P	25 9	[− 8]	19 19	PP	—
Moscow		112·4	33	14 44	P	e 26 48	{+26}	19 8	PP	38·1
Yalta		112·4	46	i 19 2	[+24]	29 27	PS	i 19 50	PP	—
Ksara		114·9	58	e 14 57	P	i 29 53	PS	19 38	PP	—
Riverview		116·4	224	i 20 5	PP	e 25 25	[−12]	i 29 28	PS	e 45·3
Sydney		116·4	224	e 19 52	PP	e 25 13	[−24]	i 29 25	PS	i 46·3
Tananarive		118·2	117	e 20 2	PP	26 0	[+17]	22 45	PPP	e 51·0
Brisbane		118·5	231	e 15 19	P	i 25 25	[−20]	i 20 7	PP	i 54·0
Erevan		120·8	49	20 31	PP	—	—	—	—	—
Grozny		120·9	46	i 19 1	[+ 7]	—	—	i 20 58	PP	—
Sverdlovsk		123·4	25	15 33	P	i 30 42	PS	i 20 41	PP	76·1
Adelaide	N.	123·6	215	i 20 52	PP	i 35 7	?	i 38 17	SSP	i 39·1
Baku		124·7	48	e 16 0	P	—	—	i 21 0	PP	—
Sapporo		133·3	322	e 19 17	[− 1]	—	—	e 22 31	PP	e 39·9
Mori		134·3	320	19 26	[+ 6]	—	—	i 23 2	?	59·2
Mizusawa	E.	135·5	316	e 19 36	[+14]	40 10	SS	—	—	—
		135·5	316	e 19 39	[+17]	40 3	SS	—	—	—
Perth		136·1	196	21 59	PP	27 7	[+35]	32 37	PS	62·9
Sendai		136·1	315	e 18 19	[−64]	—	—	—	—	—
Samarkand		136·9	41	19 23	[− 2]	—	—	—	—	41·1
Tchimkent		137·0	36	e 19 18	[− 7]	—	—	22 59	PKS	41·1
Tokyo,Cen. Met. Ob.		138·1	312	19 24	[− 3]	—	—	23 6	PKS	e 55·5
Irkutsk		138·2	358	19 27	[0]	32 48	PS	i 23 17	PKS	56·1
Maebasi		138·2	314	18 21	[−66]	39 9	SS	—	—	—
Yokohama		138·3	313	e 19 25	[− 2]	40 30	SS	—	—	e 63·7
Vladivostok		138·7	326	i 19 25	[− 3]	23 2	PKS	i 22 15	PP	40·4
Hatidyozima		139·2	309	19 35	[+ 6]	23 3	PKS	—	—	—
Frunse		139·4	32	19 32	[+ 3]	e 23 20	PKS	—	—	41·1
Andijan		139·6	36	19 31	[+ 1]	—	—	—	—	55·1
Almata		140·3	29	19 42	[+11]	—	—	e 23 25	PKS	40·1
Gihu		140·4	313	18 20	[−71]	33 3	PS	—	—	—
Osaka		141·6	313	19 25	[− 8]	26 43	[+ 1]	25 36	PPP	—
Hamada		143·9	316	19 30	[− 7]	—	—	(23 19)	PP	—
Matuyama		144·0	314	19 34	[− 3]	—	—	—	—	—
Zinsen		145·6	325	19 37	[− 3]	—	—	—	—	—
Hukuoka		145·8	315	19 40	[0]	42 15	PPS	—	—	69·1
Miyazaki		146·0	311	19 40	[− 1]	33 4	PS	—	—	42·0
Palau		148·6	297	19 47	[+ 2]	—	—	—	—	—
Nake		149·3	309	20 8	[+22]	—	—	—	—	—
Dehra Dun	N.	149·6	45	e 20 12	[+26]	e 30 56	{+40}	e 23 55	PP	e 60·5
Bombay		149·9	70	19 48	[+ 1]	30 40	{+23}	23 40	PP	65·9
Agra		151·3	50	19 50	[+ 1]	30 46	{+21}	23 33	PP	—
Zi-ka-wei		153·1	322	e 19 51	[− 1]	—	—	—	—	63·9
Miyakozima		154·3	307	20 3	[+ 9]	24 18	PP	—	—	—
Kodaikanal	E.	155·1	86	e 19 57	[+ 2]	i 31 14	{+28}	i 23 46	PKS	i 72·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Hyderabad		155·4	71	20 5	[+10]	31 16	{+28}	34 31 SKSP	—
Taihoku		157·0	311	20 18	[+21]	—	—	— —	—
Colombo	E.	157·1	97	19 57	[0]	—	—	— —	81·3
Taito		158·6	307	19 59	[0]	27 46	[+43]	— —	—
Calcutta	N.	161·7	46	e 20 29	[+27]	e 27 21	[+15]	i 24 2 SKP	i 77·1
Manila		161·8	284	i 20 4 s	[+ 2]	51 17?	SSS	— —	77·1
Hong Kong		163·9	319	20 13	[+ 8]	32 17	{+45}	24 51 PP	—
Phu-Lien		169·1	340	e 20 12	[+ 3]	e 31 33	{−25}	— —	—

Additional readings :—
Montezuma i = +6m.39s.
Port au Prince SS = +13m.21s.
Fort de France SS = +12m.59s.
La Plata E. +6m.17s. and +8m.13s.
La Plata N. +6m.20s., +8m.19s., and +14m.9s.
La Plata Z +8m.7s., SSS = +12m.37s.
San Juan i = +6m.23s., ipPP = +7m.48s., i = +11m.54s.
Rio de Janeiro records P as iS and S as iL.
Bermuda i = +8m.26s. and +8m.31s.
Columbia e = +8m.24s., isP = +8m.49s., iPP = +10m.5s., isPP = +10m.37s., ePPP = +10m.53s., i = +15m.5s., eSS = +17m.59s.
Philadelphia i = +9m.12s., +16m.27s., and +16m.33s., isS = +17m.10s., iS_cS = +18m.51s., iSS = +20m.11s.
Florissant iE = +9m.6s. and +18m.55s.
Pittsburgh iS = +16m.18s.
Pennsylvania i = +9m.12s. and +9m.33s.
Fordham iZ = +9m.29s.
Ann Arbor pPP = +11m.43s. and +18m.13s., SSS = +21m.55s.
Chicago, U.S.C.G.S. i = +9m.28s., epPP = +11m.49s., eP_cS = +14m.18s., i = +14m.38s., +16m.44s., and +19m.15s., isSS = +21m.4s., i = +21m.26s.
Chicago, J.S.A. i = +9m.40s., e = +16m.45s., iSS = +20m.14s.
Harvard iS_cSE = +19m.13s., eSSE = +20m.47s.
Weston e = +19m.13s. and +21m.51s.
Tucson i = +9m.33s. and +10m.5s., iP_cP = +10m.15s., i = +11m.1s., iPP = +11m.38s., isPP = +12m.17s., i = +13m.49s., iS_cP = +14m.24s., i = +14m.46s. and +17m.1s., isS = +17m.36s., iS_cS = +19m.22s., i = +20m.25s., iSS = +20m.39s., i = +21m.16s. and +21m.23s., ePKP,PKP = +39m.52s.
Toronto i = +9m.38s.
Lincoln i = +9m.43s., +17m.12s., +17m.33s., and +19m.35s., iSS = +20m.27s.
Ottawa i = +9m.53s., iN = +12m.15s. and +15m.1s., i = +17m.25s. and +19m.37s., SSSE = +23m.20s., i = +24m.47s.
East Machias i = +9m.52s., ipPP = +12m.17s., ePPP = +13m.10s., eP_cS = +14m.30s., i = +17m.49s., iSS = +21m.21s., isSS = +21m.47s., i = +22m.35s.
Denver iEN = +9m.56s., iE = +10m.16s. and +11m.18s., eN = +11m.36s., ePPEN = +11m.42s., eN = +13m.50s., iN = +14m.4s., eE = +14m.56s., iE = +15m.13s., eSEN = +17m.42s., isSE = +18m.0s., iE = +18m.22s., eE = +18m.56s. and +19m.55s.
Shawinigan Falls SS = +21m.44s., SSS = +24m.36s.
Seven Falls i = +10m.2s., SS = +22m.19s., SSS = +24m.25s.
Palomar iZ = +10m.10s.
Riverside iZ = +10m.16s.
Mount Wilson i = +10m.13s.
Pasadena iE = +10m.9s., ePKP,PKPZ = +39m.41s.
Salt Lake City e = +10m.20s., isP = +10m.50s., ePP = +12m.30s., ePPP = +13m.40s., iP_cS = +14m.49s., i = +18m.26s., isS = +18m.54s., i = +20m.21s., eSS = +22m.11s., esSS = +22m.59s.
Tinemaha iZ = +10m.27s.
Fresno ePPPN? = +14m.49s.
Branner eSE = +19m.21s.
Bozeman ePP = +12m.38s., iPPP = +14m.15s., i = +19m.8s., iSS = +23m.40s.
Berkeley iSN = +19m.11s., iSSN = +23m.31s.
Butte ipPP = +13m.28s., i = +19m.32s., isS = +19m.48s., iSS = +23m.16s.
Ukiah e = +10m.32s., isP = +11m.18s., i = +19m.50s., eSS = +23m.54s., i = +24m.14s.
Ferndale iSE = +20m.9s.
Saskatoon SSS = +27m.25s.
Spokane iP_cPN = +11m.18s., iN = +12m.10s., iSN = +20m.7s.
Seattle esP = +11m.50s., ePS = +21m.17s., i = +24m.26s., isSS = +25m.53s., eSSS = +27m.47s.
Victoria SSS = +28m.49s.
Lisbon Z = +12m.21s. and +12m.35s., PPZ = +15m.20s., Z = +15m.45s. and +16m.8s., E = +22m.41s.?, PSE = +23m.22s., E = +23m.36s., SSN = +27m.30s.
San Fernando iPE = +12m.24s., iN = +12m.32s., iSN = +22m.59s.
Sitka i = +12m.35s., iSKS = +22m.37s., i = +22m.47s., iSS = +27m.44s.
Granada PP = +15m.55s., PPP = +17m.12s., iS = +23m.20s., PS = +24m.27s., SS = +29m.13s., SSS = +33m.0s.

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Almeria PP = +16m.13s., PPP = +18m.31s., iS = +23m.18s., PPS = +24m.37s., SS = +28m.55s., SSS = +32m.43s.
Honolulu iS = +23m.4s., iPS = +24m.19s.
Bagnères sSS = +30m.5s.
Algiers i = +17m.7s., PPP = +18m.36s., PS = +24m.45s. and +25m.17s., SS = +30m.19s., e = +34m.21s.
Cape Town eSKSE = +22m.45s., iPPSN = +24m.59s., iPPSE = +25m.3s., iSSEN = +29m.29s., eSSSN = +33m.4s., iN = +36m.29s.
Scoresby Sund iP_cP = +13m.5s., i = +13m.9s., isP = +13m.38s., iPP = +16m.34s., iPPP = +18m.53s., isSP = +25m.38s.
Chatham Ils. SKS? = +24m.37s., ? = +24m.49s., L_q = +36·1m.
Stonyhurst SSS = +33m.37s.
Edinburgh SS = +30m.4s., SSS = +33m.43s.
Kew i = +12m.23s., iEN = +22m.51s., iSE = +24m.15s., iPSN = +25m.29s., iSS = +30m.16s., eSSSE = +33m.42s., iSSSN = +34m.0s., iZ = +34m.37s., eL_q = +36m.42s.
Aberdeen iE = +23m.7s., iSN = +24m.23s., iEN = +24m.33s., and +25m.4s., iN = +26m.2s., iSSEN = +30m.17s., iEN = +33m.32s.
Paris iP = +13m.9s., iPP = +17m.3s.
College ipPP = +17m.12s., i = +18m.14s., eSS = +30m.54s., eSSS = +34m.43s.
Uccle i = +13m.29s., iPPPE = +19m.17s., iSN = +24m.37s., iPPSE = +26m.4s., iSSE = +30m.56s. and +31m.6s., iSSS = +34m.44s.
Strasbourg i = +21m.38s., +22m.44s., and +29m.45s.
Bergen e = +13m.37s., +17m.38s., +24m.6s., and +24m.59s., SS = +31m.3s.
Stuttgart iPE = +13m.41s., ePPPNE = +19m.27s., iSKKSE = +24m.36s., iPSE = +26m.17s., eSSE = +31m.37s., eSSSN = +35m.13s., $ePPP_gN$ = +37m.19s.
Heligoland ePPPN = +20m.17s., iSKKSE = +24m.36s., eSKKSN = +24m.41s., iPSE = +26m.33s., eSSN = +31m.33s., eSSSN = +35m.27s., eSSSE = +35m.36s.
Wellington P = +13m.42s., PP = +17m.35s., i = +17m.47s., S? = +24m.47s., PS = +26m.1s., L_q = +38m.7s.
Hamburg ePPPE = +20m.29s., iSKKSE = +24m.34s., eSKKSZ = +24m.38s., iPSE = +26m.42s., eE = +31m.13s., eSSN = +31m.45s., iSSSE = +36m.3s., eL_qN = +41m.7s.
Rome iZ = +13m.39s., +13m.48s., iEZ = +14m.1s., iZ = +14m.9s., i = +18m.27s., +18m.59s., +19m.47s., +20m.52s., and +22m.56s., iS = +24m.43s., i = +25m.32s., iPSZ = +26m.15s., iE = +26m.44s., iSS = +32m.18s., iSSS = +35m.28s.
Arapuni e = +22m.25s., SS = +31m.31s., L_q = +38·3m.
Christchurch iEZ = +23m.46s., iEN = +24m.13s., SZ = +24m.58s.
Jena ePE = +13m.36s., iP = +13m.49s., eE = +17m.34s., ePPEN = +17m.49s., ePPZ = +17m.57s., eE = +19m.33s., iN = +24m.37s. and +24m.49s., iE = +26m.49s., iN = +32m.1s., iE = +32m.37s., e = +35m.37s., eE = +35m.54s.
Triest iPPP = +19m.41s., iSKKS = +24m.50s., iS = +25m.22s., iPS = +26m.50s., iSS = +32m.13s., iSSS = +36m.19s.
Copenhagen iZ = +13m.57s., +17m.55s., and +24m.41s., eE = +26m.58s., +31m.19s., and +36m.7s.
Potsdam ePN = +13m.46s., iPEZ = +13m.52s.s, iE = +17m.19s., iZ = +17m.33s., iN = +17m.36s., iE = +17m.42s., iZ = +18m.8s. and +18m.37s., iE = +24m.43s., iSN = +25m.29s., iPSE = +26m.56s., iZ = +27m.26s.
Prague e = +13m.54s., eSKKS = +24m.42s., ePPS = +27m.7s., eSS = +32m.37s., eSSS = +36m.31s.
Johannesburg ePPN = +17m.49s., iSN = +25m.43s., iPSEN? = +26m.55s., iSSE = +32m.31s., eG = +43·1m.
Upsala eN = +14m.8s., eE = +14m.44s., iSKKSE = +25m.2s., eSN = +25m.35s., iSN = +25m.49s., iPSE = +27m.32s., iPPSN = +28m.30s., SSE = +33m.8s., eSSSE = +36m.7s.?
Kalossa E. e = +18m.40s., +19m.4s., and i = +19m.44s.
Kalossa N. i = +19m.18s.
Budapest E. e = +17m.32s., S = +26m.11s., PSKS = +27m.33s., i = +28m.36s., SS = +33m.24s., i = +35m.56s.
Budapest N. S = +26m.0s., i = +27m.39s. and +28m.28s., PKKP = +29m.37s., SS = +32m.42s.
Warsaw PPPZ = +20m.42s., iSKSE = +25m.8s., eSKSZ = +25m.18s., iSKKSN = +25m.36s., SKKSE = +25m.56s., iPSE = +27m.40s., eZ = +30m.0s., iSSE = +33m.18s., iSSZ = +33m.22s., SSN = +33m.32s., iSSSE = +38m.16s.
Sofia ePEN = +14m.22s., eN = +17m.49s., SKKSN = +26m.36s., PSEN = +28m.8s., eE = +34m.4s.
Bucharest PKPN = +18m.26s., PPE = +19m.4s., ?N = +19m.17s., PPP?E = +21m.10s., PPP?N = +21m.35s., ?N = +23m.6s., PSE = +28m.25s., iE = +29m.41s., SSE = +34m.19s., SSSE = +38m.47s.
Pulkovo PP = +19m.0s.
Helwan PKPZ = +18m.17s., PPPE = +22m.2s., SKKSE = +26m.29s., PSE = +29m.7s., PPSE = +30m.17s., iE = +31m.30s., SSE = +35m.19s., SSSE = +39m.55s.
Moscow PKP = +18m.36s., SS = +35m.7s.
Ksara i = +15m.13s.
Riverview eSKSE = +25m.39s., iSKKSE = +26m.59s., PPSN = +30m.50s., iSSEN = +35m.48s.
Sydney e = +26m.55s., iSS = +35m.49s.

Continued on next page.

Tananarive PS = +30m.1s., iE = +30m.24s. and +30m.36s., SSE = +36m.45s., E = +37m.43s., SSSN = +41m.31s.
Brisbane iSKSE = +25m.31s., iSKKSN = +26m.55s., iSKKSE = +27m.1s., iPSEN = +29m.43s., iPPSE = +31m.1s., iPPSN = +31m.13s., iSSN = +36m.7s., iSSE = +36m.25s., iSSSEN = +39m.31s.
Sverdlovsk iPKP = +18m.58s.
Baku ePKP = +19m.14s.
Perth i = +23m.5s. and +29m.7s., PPP = +30m.7s., S = +35m.1s., PS = +38m.7s., PPS = +40m.0s., SS = +45m.19s., SSS = +49m.7s.
Tokyo e = +30m.29s.
Yokohama PZ = +19m.38s., PN = +19m.44s.
Osaka iPS = +33m.10s.
Dehra Dun e?N = +34m.17s., +38m.25s., +43m.16s., +47m.17s., and +57m.4s.
Bombay PKP_3 = +20m.13s., SKSPEN = +33m.49s., PPSEN = +36m.48s., SSEN = +42m.54s., L_qE = +57m.33s.
Agra iPKP, = +20m.8s., SKPEN = +33m.53s., PPPE = +27m.10s., PSKSE = +34m.8s., PSKSN = +34m.20s., PPSEN = +36m.53s., SSN = +43m.7s., SSE = +43m.14s., SSSN = +48m.59s.
Zi-ka-wei iE = +20m.27s., iN = +23m.55s.
Kodaikanal iSKSPE = +34m.25s., iSSE = +43m.52s., iSSSE = +50m.54s.
Hyderabad PKP_3E = +20m.32s., PPE = +24m.14s., SSE = +44m.18s.
Calcutta $iPKP_3N$ = +21m.14s., iPP = +24m.54s., iPPPN = +28m.41s., iPSKSN = +35m.26s., eSSN = +44m.16s., iSSSN = +51m.51s.
Manila ePN = +20m.7s.
Hong Kong SS? = +40m.21s.
Long waves were also recorded at Semipalatinsk.

May 24d. 19h. 8m. 59s. Epicentre 51°·5N. 12°·0E.

A = +·6114, B = +·1300, C = +·7806; δ = +5; h = −6;
D = +·208, E = −·978; G = +·764, H = +·162, K = −·625.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Jena	0·6	205	i 0 10	− 5	i 0 17	− 9	—	—	—
Potsdam	1·1	37	i 0 27	+ 5	—	—	—	—	—
Prague	2·1	133	e 0 46	P_g	e 1 16	S_g	—	—	—
Hamburg	2·4	329	e 0 46	P*	e 1 18	S_g	e 0 55	P_g	—
Stuttgart	3·3	213	e 0 53$_s$	0	i 1 34	− 1	e 1 0	P*	—
Ebingen	3·9	213	e 1 10	P*	e 1 45	− 5	i 1 21	P_g	—
Ravensburg	4·0	203	e 1 11	P*	e 1 56	+ 4	e 1 19	P_g	—
Strasbourg	4·0	225	e 1 18	P_g	e 2 8	S*	—	—	—
Copenhagen	4·2	4	i 1 9	+ 2	—	—	—	—	—
De Bilt	4·3	281	e 1 26	P_g	—	—	—	—	—
Zurich	4·7	210	e 1 15	+ 1	e 2 46	S_g	e 1 33	P_g	—
Basle	4·9	218	e 1 15	− 2	e 2 41	S_g	e 1 34	P_g	—
Chur	4·9	199	e 1 18	+ 1	e 2 44	S_g	—	—	—
Uccle	4·9	263	e 1 20	+ 3	—	—	—	—	—
Neuchatel	5·6	218	e 1 24	− 3	e 2 58	S_g	1 47	P_g	—
Triest	6·0	167	e 2 0	P_g	i 2 40	− 3	i 2 57	S*	—
Budapest	6·1	128	3 10	S*	—	—	—	—	—
Kalossa E.	6·8	134	e 3 11	S	(e 3 11)	+ 8	—	—	e 4·1
N.	6·8	134	e 3 22	S*	—	—	—	—	e 4·0
Kew Z.	7·7	276	e 1 56	0	i 4 16	S_g	—	—	i 4·5
Clermont-Ferrand	8·3	229	e 2 36	P*	i 4 38	S_g	—	—	—

Additional readings :—
Prague eS = +1m.26s.
Hamburg eZ = +1m.34s., eN = +1m.46s.
Stuttgart i = +1m.5s., iZ = +1m.9s., iSNE = +1m.25s., iSNW = +1m.37s., iS*NW = +1m.47s., iS_g = +1m.53s., iZ = +2m.5s.
Ebingen eS_gEN = +2m.9s.
Ravensburg eP_gEN = +1m.24s., eN = +1m.31s., iE = +2m.9s., iS_gE = +2m.19s.
Triest eP_g = +2m.9s.

May 24d. 21h. 57m. 51s. Epicentre 10°·4S. 77°·2W. (as at 16h.).

$A = +\cdot2180$, $B = -\cdot9594$, $C = -\cdot1794$; $\delta = +16$; $h = +6$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		2·4	132	i 0 44	+ 3	—	—	—	—	—
Montezuma		14·5	147	e 3 31	+ 3	e 6 0	−11	—	—	e 7·1
Balboa Heights	E.	19·4	354	i 4 36	+ 6	e 8 38	SS	—	—	—
La Plata	E.	30·1	147	5 56a	−17	10 57	−15	—	—	14·0
	N.	30·1	147	5 58a	−15	10 9?	−63	—	—	13·8
San Juan		30·6	22	i 6 23	+ 5	i 11 32	+12	e 7 20	PP	i 12·6
Rio de Janeiro	E.	34·7	115	i 6 50	− 4	i 12 18	− 6	—	—	i 17·5
	N.	34·7	115	i 6 47	− 7	i 12 21	− 3	—	—	i 17·5
Tacubaya		36·7	325	i 7 4	− 6	e 12 57	+ 3	—	—	—
Bermuda		44·1	15	i 8 12	0	i 14 56	+11	i 10 2	PP	i 18·7
Columbia		44·3	355	e 8 17	+ 4	e 14 56	+ 8	e 9 57	PcP	e 18·5
Philadelphia		50·1	3	i 9 1a	+ 2	i 16 20	+10	i 10 58	PP	e 21·7
St. Louis		50·3	347	i 8 59	− 1	i 16 14	+ 1	i 18 45	SS	—
Florissant		50·5	347	i 9 1	− 1	e 16 19	+ 3	—	—	—
Pittsburgh		50·6	357	i 9 3	+ 1	i 16 24	+ 7	i 18 49	SS	—
Fordham		51·1	4	i 9 6	0	i 16 34	+10	—	—	—
Chicago, U.S.C.G.S.		52·8	350	i 9 19	0	i 16 50	+ 3	e 20 33	SS	e 21·4
Harvard		52·9	6	e 9 23	+ 3	e 16 55	+ 7	e 19 7	ScS	e 28·1
Tucson		53·2	324	i 9 20a	− 2	e 16 56	+ 4	i 10 11	PcP	e 21·9
Toronto		53·8	358	9 27	+ 1	17 2	+ 1	—	—	30·2
Lincoln		54·1	343	e 9 40	+11	e 17 8	+ 3	e 10 19	PcP	e 22·5
Ottawa		55·5	1	i 9 41	+ 2	i 17 32	+ 8	i 19 27	?	e 27·1
East Machias		55·6	9	e 9 43	+ 3	e 17 38	+13	e 10 30	PcP	e 23·1
Shawinigan Falls		56·8	5	9 50	+ 2	17 48	+ 7	—	—	31·2
La Jolla		57·5	320	e 9 51	− 2	—	—	—	—	—
Seven Falls		57·5	6	9 53	0	i 18 0	+10	21 39	SS	26·2
Palomar	Z.	57·6	321	i 9 51a	− 3	—	—	e 39 41	P'P'	—
Riverside		58·4	321	i 9 56	− 4	e 18 3	+ 1	e 39 39	P'P'	—
Mount Wilson		58·9	321	i 10 0a	− 3	e 18 14	+ 6	39 37	P'P'	—
Pasadena		59·0	321	i 10 0a	− 4	i 18 12	+ 2	e 39 35	P'P'	—
Haiwee		60·1	323	e 10 9	− 2	—	—	—	—	—
Salt Lake City		60·1	330	e 10 12	+ 1	e 18 28	+ 4	e 10 58	PcP	e 24·4
Santa Barbara	Z.	60·1	320	e 10 9	− 2	—	—	—	—	—
Logan		60·9	331	i 10 14	− 3	i 18 38	+ 4	—	—	—
Tinemaha		61·0	323	i 10 15	− 3	—	—	e 39 36	P'P'	—
Fresno	N.	61·6	322	e 10 19	− 3	e 18 45	+ 2	—	—	—
Santa Clara		63·4	321	i 10 36	+ 2	i 19 14	+ 8	—	—	e 30·2
Bozeman		63·6	335	e 10 32	− 3	i 19 10	+ 2	e 13 17	PP	e 26·0
Berkeley	Z.	63·9	321	e 10 33	− 4	—	—	—	—	—
Butte		64·5	334	e 10 39	− 2	i 19 22	+ 3	e 14 57	PPP	e 26·1
Ukiah		65·1	322	i 10 49	+ 4	e 19 31	+ 4	e 23 52	SS	e 27·4
Saskatoon		67·2	341	10 46	−12	19 43	− 9	13 9?	PP	33·1
Seattle		70·3	330	e 11 20	+ 3	e 20 18	−11	e 28 20	SSS	e 28·6
Victoria		71·4	330	11 21	− 3	20 45	+ 3	—	—	39·1
Lisbon		79·9	.48	12 14	+ 2	22 25	+ 9	15 13	PP	35·1
San Fernando		81·3	51	e 12 24	+ 4	22 48	+18	—	—	42·1
Sitka		82·3	333	i 12 21	− 4	e 22 31	− 9	e 22 57	ScS	e 35·1
Granada		83·5	51	i 12 34k	+ 3	22 59	+ 7	12 46	PcP	43·1
Toledo		84·0	48	i 12 33	0	i 23 8	+11	—	—	—
Almeria		84·2	51	12 35	+ 1	22 53	− 6	12 52	PcP	39·6
Honolulu		85·1	292	e 15 48	PP	e 23 2	[+ 1]	e 17 29	PPP	e 34·3
Algiers		88·5	53	e 12 57	+ 1	e 23 26	[+ 3]	e 24 9?	PS	43·2
Cape Town		88·9	124	—	—	e 23 21	[− 5]	—	—	41·5
Scoresby Sund		88·9	16	i 12 58a	0	e 23 25	[− 1]	e 16 32	PP	i 36·4
Oxford		89·5	38	e 12 55	− 5	e 23 32	[+ 2]	e 16 56	PP	e 41·2
Stonyhurst		89·5	35	i 13 4	+ 4	e 23 9	[−21]	17 9	PP	47·5
Edinburgh		89·8	33	13 6	+ 4	23 36	[+ 4]	25 28	PS	—
Kew		90·0	38	i 13 1a	− 2	e 23 34	[+ 1]	e 16 39	PP	e 44·2
Aberdeen		90·7	31	i 13 5	− 1	i 23 34	[− 3]	e 30 6	SS	36·4
Clermont-Ferrand		90·7	44	e 13 5	− 1	—	—	—	—	e 49·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Paris		91·0	41	i 13 7	0	i 24 10	+ 7	i 16 57	PP	—
Apia		91·9	255	—	—	24 10	− 1	30 10	SS	50·9
Uccle		92·7	38	i 13 14a	− 1	23 54	[+ 6]	e 17 1	PP	40·2
De Bilt		93·5	37	i 13 20a	+ 1	e 23 55	[+ 2]	e 17 3	PP	e 46·2
Neuchatel		93·6	43	e 13 19	0	—	—	—	—	—
Basle		94·1	43	e 13 21	− 1	—	—	—	—	—
Strasbourg		94·4	42	—	—	e 29 26	?	—	—	42·1
Zurich		94·7	43	e 13 22	− 2	—	—	—	—	—
Bergen		95·3	29	e 13 9?	−18	e 24 9?	[+ 7]	e 17 9?	PP	e 48·1
Stuttgart		95·4	42	e 13 28	0	e 26 27	PS	e 17 31	PP	—
Heligoland	E.	95·5	36	—	—	e 24 6	[+ 2]	—	—	e 48·2
Chur		95·7	43	e 13 27	− 2	—	—	—	—	—
Hamburg		96·6	36	i 13 32a	− 1	e 24 14	[+ 4]	e 17 28	PP	e 48·1
Rome		96·6	49	i 13 33a	0	i 24 15	[+ 5]	17 32	PP	—
Christchurch		97·0	223	11 32	?	23 58	[−14]	37 49	L_g	44·3
Triest		98·0	45	i 13 39	0	i 24 18	[+ 1]	i 17 29	PP	e 48·0
Copenhagen		98·3	35	i 13 42	+ 1	24 21	[+ 3]	17 44	PP	—
Potsdam		98·3	38	i 13 40	− 1	i 24 22	[+ 4]	e 17 30	PP	—
Prague		98·9	40	e 17 9?	PP	e 24 27	[+ 5]	e 26 57	PS	e 49·1
Upsala		101·3	31	e 17 9?	PKP	e 24 29	[− 4]	e 18 23	PP	e 51·2
Budapest		101·8	43	e 18 2	PP	e 28 3	PPS	e 19 32	PPP	54·6
Warsaw		103·2	39	14 2a	− 1	24 38	[− 4]	18 20	PP	46·2
Sofia		104·7	48	e 17 50	?	e 27 57	PS	—	—	—
Bucharest	E.	106·7	47	17 47	?	27 5	+49	19 45	PPP	42·2
Pulkovo		107·7	30	e 14 25	P	e 25 3	[+ 1]	e 18 53	PP	—
Helwan		111·1	62	19 18	PP	29 39	PPS	e 21 48	PPP	—
Moscow		112·4	33	14 44	P	25 21	[− 1]	19 27	PP	59·0
Ksara		114·9	58	e 16 19	?	e 29 41	PS	e 19 45	PP	—
Riverview		116·4	224	—	—	e 35 57	SS	e 51 39	L_g	e 55·3
Sverdlovsk		123·4	25	i 18 56	[− 3]	e 30 46	PS	i 20 41	PP	62·6
Baku		124·7	48	e 20 53	PP	e 26 24	[+20]	—	—	55·1
Semipalatinsk		136·0	20	e 22 9	PP	—	—	—	—	—
Samarkand		136·9	41	e 19 22	[− 3]	—	—	i 22 9	PP	—
Tashkent		137·4	37	e 19 25	[− 1]	32 14	PS	e 22 14	PP	e 24·3
Irkutsk		138·2	358	e 19 26	[− 1]	i 40 33	SS	22 17	PP	e 59·1
Vladivostok		138·7	326	i 19 29	[+ 1]	i 29 8	{− 5}	i 22 19	PP	68·6
Frunse		139·4	32	e 19 27	[− 3]	—	—	—	—	—
Andijan		139·6	36	e 19 28	[− 2]	—	—	—	—	77·2
Almata		140·3	29	i 19 27	[− 4]	—	—	—	—	—
Bombay		149·9	70	i 16 35	?	i 33 39	?	i 23 27	PP	—
Agra	E.	151·3	50	e 19 53	[+ 4]	43 13	SS	23 16	PP	—
Kodaikanal	E.	155·1	86	e 20 0	[+ 5]	31 24	{+38}	24 5	PKS	72·4
Colombo	E.	157·1	97	e 20 39	[+42]	—	—	—	—	83·1
Calcutta	N.	161·7	46	e 19 27	[−35]	—	—	—	—	—
Manila	Z.	161·8	284	i 19 58	[− 4]	—	—	—	—	—
Phu-Lien		169·1	340	e 25 17	PP	—	—	—	—	—

Additional readings :—
Bermuda i = +8m.17s.
Columbia ePP = +10m.8s., ePPP = +10m.54s., eSS = +17m.45s.
Philadelphia i = +9m.14s., eSS = +19m.44s.
Harvard eSSE = +20m.45s.
Tucson i = +9m.30s., ePP = +11m.26s., ePPP = +12m.34s., eSS = +20m.38s.
Lincoln ePP = +11m.13s., eS_cS = +19m.11s., eSS = +20m.51s.
East Machias ePP = +11m.58s., ePPP = +13m.9s., e = +17m.47s., eS_cS = +19m.32s., eSS = +21m.22s.
Palomar iZ = +10m.4s.
Riverside iZ = +10m.7s.
Mount Wilson iZ = +10m.11s.
Pasadena iZ = +10m.10s.
Salt Lake City e = +10m.19s., ePP = +12m.35s., eS_cS = +19m.58s., eSS = +22m.34s.
Bozeman ePPP = +14m.21s., eSS = +23m.35s.
Butte eSS = +22m.56s.
Ukiah eSSS = +26m.21s.
Seattle e = +20m.38s.
Lisbon Z = +12m.24s. and +22m.57s.?, SE = +22m.37s., N = +22m.41s., E = +22m.53s.
San Fernando ePE = +12m.46s.

Continued on next page.

Sitka eSS = +28m.6s., eSSS = +31m.45s.
Granada ePP = +15m.45s., PPP = +18m.43s., iS = +23m.13s., SS = +28m.50s., SSS = +31m.54s.
Almeria PP = +15m.50s., PPP = +18m.25s., S = +23m.13s., S_cS = +23m.28s., PS = +24m.2s., SS = +28m.25s., SSS = +32m.8s.
Cape Town eN = +23m.28s. and +36m.25s.
Scoresby Sund ePPP = +18m.51s., eS = +23m.56s., ePS = +24m.25s., iPPS = +25m.32s., eSS = +29m.34s., iSSS = +33m.12s.
Oxford i = +24m.4s., +24m.35s., and +25m.16s.
Stonyhurst iS = +23m.41s., e = +30m.29s.
Edinburgh S = +24m.6s., SS = +30m.23s.
Kew iSN = +24m.16s., iEN = +24m.39s., ePSZ = +25m.20s., eN = +27m.29s., eSSN = +29m.54s., eL_gN = +37m.39s.
Aberdeen iE = +15m.24s., iSE = +24m.18s., iEN = +24m.48s.
Paris e = +37m.9s. ?
Apia +42m.9s. and +43m.31s.
Uccle SN = +24m.30s., SSE = +30m.46s.
De Bilt eSS = +31m.14s.
Bergen e = +26m.9s. ?
Stuttgart eSSE = +31m.53s.
Hamburg eSSE = +31m.42s.
Rome iZ = +15m.21s. and +16m.43s., i = +18m.31s., iS = +25m.5s., iPS = +26m.32s., SS = +30m.46s., iSL = +31m.50s., SSS = +34m.34s.
Christchurch SKS = +22m.1s.
Triest iPPP = +19m.43s., iS = +25m.22s., iPS = +26m.37s., iPPS = +28m.45s., eSS = +30m.23s., iSSS = +36m.33s.
Copenhagen +25m.17s., eE = +26m.47s.
Potsdam ePN = +13m.44s., iPPZ = +17m.43s., eSKKSZ = +24m.51s., iSN = +25m.14s. iPSZ = +26m.55s.
Prague e = +25m.33s. and +32m.9s.
Upsala eN = +25m.37s., PSE = +27m.15s., eSSE = +33m.9s. ?
Warsaw PPPZ = +20m.42s., SKKSE = +25m.44s., PSE = +27m.34s., PSZ = +27m.40s., SSN = +33m.22s., SSE = +33m.42s., SSSN = +38m.6s.
Bucharest eN = +17m.57s., SSE = +31m.9s.
Pulkovo iPS = +28m.26s.
Helwan eE = +29m.3s., SE = +31m.18s., eE = +33m.35s.
Moscow PPP = +22m.9s.
Baku S = +31m.9s., eSKKS = +28m.6s.
Tashkent PPP = +23m.14s.
Bombay i = +19m.55s.
Agra PSKS?E = +33m.50s.
Kodaikanal SKSPE = +34m.29s., SSE = +43m.41s., SSSE = +50m.5s.
Long waves were also recorded at Adlaide, Jena, Tananarive, and Wellington.

May 24d. Readings also at 0h. (Tucson and Berkeley), 1h. (Warsaw, Bucharest, and Tucson), 7h. (Rome and Aberdeen), 10h. (Berkeley), 11h. (Butte, Salt Lake City, and Tucson), 12h. (Rome, Granada, and Ksara), 15h. (Butte and Salt Lake City), 16h. (Tucson), 19h. (Jena), 20h. (Helwan and Huancayo), 21h. (Tucson), 22h. (near Mizusawa).

May 25d. Readings at 0h. (Tucson), 2h. (Rome), 5h. (near Tananarive, Palomar, Huancayo, Tucson, Tinemaha, Mount Wilson, and Riverside), 7h. (Jena and Tucson (2)), 8h. (Ksara and Helwan), 11h. (Rome (2)), 14h. (Rome), 16h. (Seattle and Rome), 17h. (Branner), 18h. (near Mizusawa), 19h. (Pasadena, Tucson (2), Tinemaha (2), Mount Wilson (2), Riverside, and near Berkeley), 20h. (Paris), 22h. (Balboa Heights and Berkeley), 23h. (La Paz and near Mizusawa).

May 26d. Readings at 0h. (Mount Wilson, Pasadena, La Jolla, Palomar, Riverside, and near Branner), 1h. (Huancayo, near Tananarive, and La Paz), 2h. (Tucson), 3h. (La Paz), 4h. (Manila and near Rome), 6h. (near Manila), 7h. (Berkeley and Branner), 8h. (near Tucson and Fresno), 15h. (Warsaw), 17h. (Triest and Rome), 20h. (La Paz), 21h. (Columbia), 22h. (near Mizusawa), 23h. (near Mizusawa).

May 27d. 4h. 10m. 34s. Epicentre 36°·3N. 71°·0E. (as on 1940, March 22d.).

Intensity VI at Srinagar, IV at Peshawar.

Epicentre : Hindou-Kouch, depth =180-200km.
36°·5N. 70°·5E. (Bombay).
37°·0N. 71°·0E. (Strasbourg), depth =240km.

See Government of India, Seismological Bulleton for 1940, p. 48.

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

Tables for depth of focus 0·025 have been used.

		Δ	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	− 1	—	—	—	—	—
Samarkand		4·6	319	i 1 13	+ 3	—	—	—	—	—
Tashkent		5·2	347	i 1 13	− 5	—	—	—	—	—
Tchimkent		6·1	351	i 1 30	+ 1	—	—	—	—	—
Frunse		7·1	22	i 1 42	0	—	—	—	—	—
Almata		8·3	32	i 1 58	0	—	—	4 0	SSS	—
Dehra Dun	N.	8·4	133	i 2 4	+ 5	i 3 38	+ 5	i 3 1	sP	—
Agra		10·9	145	e 2 31	− 1	4 26	− 5	3 23	sP	—
Semipalatinsk		15·6	22	e 3 28	− 3	—	—	—	—	—
Baku		17·0	290	e 3 52	+ 4	—	—	—	—	—
Bombay		17·4	174	i 3 58	+ 6	e 7 11	+13	i 4 53	sP	—
Hyderabad		19·9	159	4 25	+ 7	7 49	+ 2	—	—	9·5
Calcutta	N.	20·4	127	i 4 29k	+ 6	i 8 5	+ 9	e 5 25	pP	—
Sverdlovsk		21·7	345	i 4 35	− 1	8 19	0	i 5 42	sP	12·4
Sotchi		25·0	298	e 5 8	0	—	—	—	—	—
Kodaikanal	E.	26·6	166	e 4 56	−26	1 9 44	+ 3	i 10 53	SS	13·2
Irkutsk		28·4	44	5 35	− 4	10 4	− 6	6 21	pP	12·8
Ksara		28·8	275	i 5 45a	+ 3	e 10 25	+ 9	i 6 31	pP	—
Yalta		29·0	297	5 44	0	10 34	+14	6 34	pP	—
Moscow		29·8	321	i 5 49	− 2	10 29	− 3	6 34	pP	12·6
Colombo	E.	30·4	163	—	—	e 11 56	SS	—	—	—
Helwan		33·7	270	i 6 26a	+ 1	12 46	SS	7 14	pP	i 15·4
Bucharest		34·8	297	e 7 4	+30	—	—	e 7 50	PP	—
Pulkovo		35·1	325	i 6 35	− 2	i 11 49	− 5	7 20	pP	e 15·0
Cluj		36·5	303	e 6 47	− 2	—	—	7 59	PP	—
Sofia		36·9	295	e 6 55	+ 3	—	—	e 8 28	PPP	—
Warsaw		38·3	311	e 7 3a	0	e 12 47	+ 4	e 7 50	pP	e 18·4
Budapest	E.	39·6	303	7 16	+ 2	e 16 19	SSS	i 8 27	PP	—
Upsala		41·2	322	e 7 25	− 2	13 20	− 6	e 8 39	PP	e 18·8
Potsdam		43·2	311	i 7 42	− 2	—	—	i 8 56	PP	—
Triest		43·3	301	i 7 45	+ 1	i 13 57	0	i 8 35	pP	—
Copenhagen		43·6	315	i 7 47a	0	14 0	− 1	9 0	PP	—
Jena		44·2	308	e 7 52	0	—	—	—	—	—
Hamburg		45·0	313	i 7 57a	− 1	e 12 37	?	—	—	e 17·5
Rome		45·0	296	i 7 58a	0	e 14 20	− 1	i 9 11	pP	e 18·0
Stuttgart		46·0	306	e 8 6	0	e 14 44	+ 9	e 8 56	pP	—
Bergen		47·4	323	e 8 34	+17	—	—	e 11 8	?	—
De Bilt		48·1	312	i 8 22a	0	e 15 5	0	i 9 14	pP	—
Uccle		48·8	310	i 8 27	0	e 15 15	0	i 9 42	PP	e 19·4
Manila		49·4	103	e 8 34	+ 2	i 16 25	sS	—	—	—
Paris		50·4	307	i 8 40	0	e 17 24	?	e 20 26?	sSS	—
Clermont-Ferrand		50·7	303	e 8 26	−16	—	—	—	—	—
Kew		51·6	312	i 8 48	− 1	e 15 51	− 2	i 10 3	pP	—
Scoresby Sund		57·2	337	i 9 29	0	—	—	—	—	—
Toledo		57·5	298	i 9 30	− 1	—	—	—	—	18·5
Granada		58·3	295	i 9 36k	− 1	e 18 35	sS	10 57	P_cP	—
La Paz		138·8	288	22 11	PP	—	—	—	—	—

Additional readings :—
Bombay iN = +8m.15s., eEN = +8m.42s. and +9m.3s.
Calcutta esSN = +18m.57s.
Sverdlovsk L_g = +10m.26s.

Continued on next page.

Irkutsk sS = +11m.23s.
Ksara sP = +6m.57s., isS = +11m.35s.
Moscow pS = +11m.17s.
Helwan sPEZ = +7m.38s., PPZ = +8m.14s., PPPZ = +8m.56s., eE = +12m.6s., sSE = +14m.8s.
Pulkovo isP = +7m.45s., sS = +13m.5s.
Bucharest eN = +8m.5s.
Cluj ePE = +6m.50s., eP*E = +7m.3s., eSE = +8m.3s., S_gE = +8m.50s.; readings given as for a local shock.
Sofia eE = +9m.30s.
Warsaw ePN = +7m.6s., ePP? = +8m.16s., eN = +8m.56s., eZ = +9m.19s., eE = +9m.36s., iZ = +9m.41s., eE = +12m.38s., eS?E = +13m.4s., eSSE = +15m.15s., eSS?N = +15m.20s., eSSSEN? = +15m.48s., eZ = +15m.51s.
Budapest ePN = +7m.19s., iN = +9m.49s., iE = +9m.58s., iN = +12m.1s.
Upsala pPPE = +9m.41s., esPPE = +10m.8s., eN = +10m.18s., eSN = +13m.10s., esSN = +14m.42s., eN = +15m.51s., eSSE = +16m.23s., SSN = +16m.32s.
Potsdam ePN = +7m.48s., iE = +10m.34s.
Triest iPP = +8m.31s., iP_cP = +9m.36s., i = +10m.16s., isS = +15m.34s., iSS = +17m.34s., iSSS = +18m.44s.
Copenhagen i = +10m.38s.
Jena iPN = +7m.55s.
Rome iPPZ? = +9m.52s., iZ = +10m.54s., iN = +15m.45s.
Suttgart esPN = +9m.19s.
De Bilt iPP = +9m.37s., esS = +16m.29s., eSS = +18m.47s.
Uccle eEZ = +11m.32s., e = +16m.37s.
Kew iZ = +22m.33s.
Granada P_cS = +14m.29s., PKP,PKP = +40m.12s.

May 27d. 8h. Undetermined shock.

La Paz PZ = 1m.27s., SN = 8m.42s., LN = 15·4m.
Huancayo e = 1m.42s., i = 8m.39s.
Christchurch P = 2m.13s., S = 8m.35s., L_q = 11·5m., L = 15·7m.
Pasadena eZ = 3m.17s. and 5m.3s., iPZ = 5m.18s., iZ = 5m.58s., eLNZ = 31·8m.
Tucson eP = 4m.49s., iP = 5m.34s., i = 6m.13s.
Mount Wilson eZ = 5m.3s.
Tinemaha eZ = 5m.16s.
La Plata S?E = 6m.48s., L = 10·3m.
Santa Clara ePZ = 7m.30s., eLE = 34·3m.
San Juan e = 10m.5s.
Helwan eZ = 12m.15s. and 12m.36s.
Potsdam eZ = 12m.25s., eN = 13m.1s., eLN = 65·4m.
Warsaw eZ = 12m.38s., eN = 12m.44s. and 39m.38s., eLN = 62·0m.
Ksara ePKP = 12m.41s., PPS = 28m.43s., L = 64·0m.
Granada i = 15m.44s., L = 63·5m.
Ukiah e = 22m.27s.
Honolulu e = 26m.8s.
Sitka e = 26m.46s.
Adelaide e = 27m.10s.
Scoresby Sund e = 32m.59s.
Bozeman e = 33m.18s.
Cape Town N = 33m.36s., E = 34m.24s.
Berkeley eN = 33m.40s., eZ = 33m.57s., eE = 34m.28s.
Paris e = 34m.0s., eL = 61·0m.
Salt Lake City e = 35m.14s.
Rome e = 37m.0s.
Butte e = 37m.36s.
Long waves were also recorded at Wellington, De Bilt, Uccle, Kew, Bombay, and Seattle.

May 27d. 11h. Undetermined shock.

Apia 39m.30s., 43m.11s., 45m.43s., and 45m.52s.
Christchurch P = 44m.42s., S = 50m.17s., L_g = 52·2m., L = 55·2m.
Brisbane iE = 45m.12s., eN = 45m.36s., iEN = 49m.24s.
Arapuni i = 50m.0s.
Pasadena iPNZ = 52m.25s.
Mount Wilson iP = 52m.26s.
Riverside iPZ = 52m.27s.
Palomar iPZ = 52m.29s.
Haiwee eP = 52m.31s.
Tinemaha iP = 52m.32s.
Tucson eP = 52m.50s.
Riverview eN = 56m.18s.
Warsaw eZ = 59m.0s., eEN = 63m.0s.
Rome eZ = 59m.16s., e = 59m.57s., 61m.24s., and 62m.52s., i = 63m.43s., e = 66m.59s. and 100m.4s.

Continued on next page.

Uccle eZ =59m.17s.
Ksara ePKP =59m.31s., ePP =62m.56s., ePS =75m.55s.
Potsdam eZ =59m.37s., eE =63m.1s., eN =63m.7s., eLN =118·7m.
De Bilt iZ =59m.44s.
Helwan iPEZ =59m.45s.a, eZ =61m.5s.
Clermont-Ferrand 59m.51s.
Paris e =59m.52s., eL =120·0m.
Triest e =60m.11s.
Granada iPKP =60m.50s.k, i =64m.36s., e =78m.21s., L =130·5m.
Berkeley eN =79m.17s., eE =79m.59s., eZ =80m.29s.
Long waves were also recorded at Wellington.

May 27d. Readings also at 3h. (Fresno, Agra, and near Tucson), 4h. (Rome), 6h. (La Paz and Tucson), 8h. (Apia and near Mizusawa), 10h. (Cluj), 11h. (Ksara and near Mizusawa), 15h. (Pasadena, Tinemaha, Palomar, Riverside, Mount Wilson, and Tucson), 18h. (near Balboa Heights), 19h. (Rome), 23h. (Tucson).

May 28d. 9h. 40m. 42s. Epicentre 2°·2S. 139°·3E.

A = −·7576, B = +·6516, C = −·0382; δ = 0; h = +7;
D = +·652, E = +·758; G = +·029, H = −·025, K = −·999.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palau		10·6	334	2 36	0	5 37	+60	—	—	—
Manila		24·6	313	i 5 22	− 1	i 9 53	+11	—	—	12·8
Brisbane		28·4	154	i 5 54	− 4	i 10 0	−45	—	—	i 10·8
Titizima		29·2	6	6 6	+ 1	—	—	—	—	—
Miyakozima		30·0	336	6 21	+ 9	11 8	− 2	—	—	—
Taito		30·5	326	6 13	− 4	13 44	SSS	—	—	—
Adelaide		32·6	182	i 6 35	0	i 12 18	+27	i 7 39	PP	i 17·8
Riverview		33·4	162	i 6 42a	0	i 12 5	+ 2	—	—	—
Sydney		33·4	162	e 6 39	− 3	e 12 9	+ 6	—	—	e 19·0
Hong Kong		34·6	317	6 52	− 1	12 21	− 1	8 8	PP	—
Miyazaki		34·7	349	6 55	+ 1	11 45	−39	—	—	—
Kumamoto		35·8	348	7 1	− 2	—	—	—	—	—
Koti		36·0	352	7 3	− 2	12 3	−41	—	—	—
Hukuoka		36·6	349	e 7 10	0	12 55	+ 2	—	—	17·3
Osaka		36·8	356	i 7 12	+ 1	13 0	+ 4	—	—	—
Kobe		36·9	356	7 4	− 8	12 56	− 2	—	—	—
Perth		36·9	214	6 43	−29	12 16	−42	8 11	PP	17·3
Zi-ka-wei	N.	37·3	335	e 7 15	− 1	14 2	+58	i 8 48	PPP	—
Gihu		37·5	358	7 14	− 3	13 0	− 7	—	—	—
Hamada		37·5	350	7 17	0	13 27	+20	—	—	—
Yokohama		37·5	1	e 7 25	+ 8	e 13 2	− 5	—	—	e 18·0
Tokyo Cen. Met. Ob.		37·7	1	7 19	0	13 1	− 9	e 9 3	PPP	18·0
Nagano		38·7	359	7 26	− 1	13 20	− 5	—	—	—
Phu-Lien		39·3	307	e 7 31	− 1	13 29	− 5	—	—	—
Sendai		40·3	3	7 38	− 2	13 39	−10	—	—	—
Mizusawa		41·2	3	7 47	− 1	13 59	− 3	—	—	—
Zinsen		41·2	344	7 48	0	14 0	− 2	9 18	PP	17·3
Mori		44·1	2	8 14	+ 2	14 42	− 3	—	—	e 23·0
Sapporo		45·1	3	8 19	− 1	e 15 0	+ 1	—	—	e 21·7
Arapuni		48·8	143	9 0	+11	16 36	+44	—	—	23·3
Apia		49·7	107	e 8 58	+ 2	e 16 18?	+14	—	—	e 24·8
Wellington		50·3	146	8 53a	− 7	16 43	PPS	11 1	PP	26·6
Christchurch		50·7	149	9 1a	− 2	16 32	+14	21 38	L_g	25·1
Calcutta	N.	55·4	300	e 9 46	+ 8	i 17 25	+ 3	e 10 18	pP	i 27·4
Chatham Ils.		57·0	144	—	—	20 48	SS	—	—	32·3
Colombo	E.	60·0	279	10 13	+ 2	18 20	− 3	—	—	31·1
Irkutsk		61·8	337	10 22	− 1	e 23 0	SS	19 7	PS	30·3
Kodaikanal	E.	62·8	283	i 10 28a	− 2	i 18 50	− 8	12 37	PP	30·3
Hyderabad		63·0	291	10 35	+ 4	18 56	− 5	11 34	P_cP	29·6
Honolulu		65·7	66	e 10 50	+ 2	e 19 40	+ 6	e 13 30	PP	e 27·0

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Agra		65·8	301	10 52	+ 3	i 19 24	−11	e 14 31	PPP	31·2
Bombay		68·6	291	i 11 8	+ 1	e 20 3	− 6	13 32	PP	35·9
Almata		71·7	318	e 11 23	− 3	20 50	+ 5	—	—	—
Semipalatinsk		72·6	325	e 10 46	−45	e 20 11	−45	—	—	—
Frunse		73·3	316	i 11 35	0	i 21 2	− 2	—	—	—
Andijan		74·2	313	11 28	−12	21 12	− 2	—	—	41·3
Tchimkent		76·4	314	—	—	e 21 38	0	—	—	—
Samarkand		77·9	311	i 12 1	0	i 22 3	+ 9	—	—	43·3
College		84·8	24	e 12 39	+ 2	e 22 59	− 6	e 15 56	PP	e 35·4
Sverdlovsk		85·6	327	i 12 41	0	i 23 9	− 4	i 16 5	PP	39·3
Sitka		89·3	33	e 12 58	− 1	e 23 27	[− 1]	e 16 20	PP	e 36·7
Tananarive	N.	90·9	251	21 24	?	23 0	[−38]	—	—	23·8
Baku		91·0	310	13 13	+ 6	23 37	[− 2]	—	—	44·3
Grozny		93·5	313	i 13 3	−16	e 24 53	S_cS	—	—	—
Victoria		96·4	42	e 13 43	+11	e 24 12	[+ 3]	e 31 2	SS	40·3
Ukiah		97·2	51	e 13 40	+ 4	e 24 22	[+ 9]	e 17 47	PP	e 39·6
Seattle		97·3	43	e 13 32	− 4	e 24 16	[+ 3]	e 17 25	PP	e 40·1
Berkeley		98·0	53	i 13 40	+ 1	i 24 18	[+ 1]	i 17 49	PP	—
Santa Clara		98·3	53	e 13 53	+12	e 24 28	[+10]	e 32 24	SS	e 40·3
Lick		98·5	53	—	—	e 24 23	[+ 4]	—	—	e 53·1
Moscow		98·5	326	13 40	− 2	24 15	[− 4]	17 34	PP	40·8
Tinemaha		101·3	53	e 13 55	+ 1	—	—	e 18 4	PP	—
Pulkovo		101·4	331	13 53	− 2	e 24 43	[+ 9]	e 17 57	PP	e 48·9
Haiwee		101·6	54	e 14 0	+ 4	—	—	—	—	—
Pasadena		101·6	56	e 13 56	0	e 24 37	[+ 2]	e 18 6	PP	e 45·7
Mount Wilson		101·7	56	i 13 56	0	—	—	—	—	—
Riverside	Z.	102·3	56	e 13 58	− 1	—	—	e 18 11	PP	—
Ksara		102·4	303	e 13 58	− 1	e 27 15	PS	e 18 9	PP	—
Butte		104·1	43	e 18 48	PP	e 24 52	[+ 6]	e 32 27	SS	e 43·4
Bozeman		105·2	43	—	—	e 24 53	[+ 1]	e 27 54	PS	e 40·1
Logan		105·5	47	e 14 11	P	24 52	[− 1]	18 37	PP	48·5
Salt Lake City		105·7	48	e 14 14	P	e 24 56	[+ 2]	e 18 50	PP	e 43·2
Helwan		106·6	300	14 18	P	24 53	[− 4]	i 17 51	PKP	—
Upsala		107·3	333	e 18 35	PKP	e 25 44	[+43]	e 33 48	SS	e 42·3
Tucson		107·9	57	e 14 25	P	e 25 13	[+10]	i 18 54	PP	e 43·9
Bucharest		108·0	316	17 54	PKP	25 5	[+ 1]	18 44	PP	35·3
Warsaw		108·7	325	e 14 25	P	25 18	[+11]	e 18 52	PP	50·3
Sofia		110·4	315	e 19 6	PP	e 25 6	[− 8]	—	—	34·6
Scoresby Sund		110·7	353	e 14 35	P	e 25 26	[+11]	e 19 13	PP	e 44·6
Budapest		111·7	321	19 19	PP	28 54	PS	i 30 11	PPS	54·3
Copenhagen		111·8	331	e 14 42	P	28 48	PS	19 24	PP	—
Bergen		112·2	338	e 19 18	PP	e 28 51	PS	—	—	e 57·3
Potsdam		113·1	328	e 18 36	[− 3]	i 29 5	PS	19 33	PP	58·1
Prague		113·4	325	e 19 37	PP	e 26 48	{+19}	e 29 0	PS	e 54·3
Hamburg		114·1	330	e 19 38a	PP	e 29 18	PS	—	—	e 59·3
Jena		114·6	326	e 19 30	PP	e 29 18	PS	—	—	e 53·3
Heligoland		114·8	332	e 19 54	PP	—	—	—	—	e 50·3
Triest		115·8	321	e 18 38	[− 7]	i 25 53	[+18]	i 22 28	PPP	e 58·1
Lincoln		116·7	45	e 18 57	[+11]	e 25 39	[+ 1]	e 20 18	PP	e 48·5
Stuttgart		117·0	325	e 18 47	[0]	e 27 52	{+58}	e 19 56	PP	e 58·3
Aberdeen		117·2	338	i 20 6	PP	i 26 58	{+ 3}	—	—	56·3
De Bilt		117·3	330	i 20 5a	PP	e 29 44	PS	i 20 19	pPP	e 56·3
Chur		117·8	324	e 18 48	[0]	—	—	—	—	—
Zurich		118·1	324	e 18 45	[− 4]	—	—	e 20 5	PP	—
Rome		118·2	317	19 32	PP	i 25 40	[− 3]	29 54	PS	e 54·1
Edinburgh		118·5	337	e 23 18	PPP	—	—	—	—	—
Uccle		118·5	330	e 18 48	[− 2]	e 29 51	PS	i 20 13	PP	e 57·3
Basle		118·6	325	e 18 53	[+ 3]	—	—	—	—	—
Neuchatel		119·3	324	e 18 51	[0]	—	—	—	—	—
Kew		120·4	332	e 18 53	[0]	e 27 57	{+41}	e 20 17	PP	47·3
Oxford		120·6	333	e 20 25	PP	e 27 31	{+13}	e 23 2	PPP	—
Paris		120·7	328	e 15 26	P	e 30 3	PS	e 20 21	PP	—
Florissant	Z.	122·0	45	e 18 56	[− 1]	—	—	i 20 28	PP	57·1
St. Louis		122·1	45	e 18 57	[0]	e 26 3	[+ 6]	e 20 28	PP	56·3
Clermont-Ferrand		122·2	325	18 58	[+ 1]	—	—	e 19 56	?	66·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Toronto		126·3	34	e 22 18?	PKS	e 38 18?	SSP	— —	56·3
Algiers		127·0	315	e 21 10	PP	e 28 25	{+25}	— —	e 49·3
Ottawa		127·6	30	19 8	[+ 1]	e 38 18?	SS	e 22 18? PKS	56·3
Shawinigan Falls		127·7	27	e 19 9	[+ 2]	—	—	— —	65·3
Pittsburgh		128·0	37	e 21 2	PP	e 26 11	[− 4]	e 22 23 PKS	—
Seven Falls		128·2	26	e 19 12	[+ 4]	e 28 18	{+10}	e 21 18 PP	53·3
Pennsylvania		129·0	36	e 20 30	?	—	—	— —	e 58·3
Toledo	z.	129·9	323	e 19 12	[0]	—	—	— —	—
Almeria		130·7	319	19 35	[+22]	31 27	PS	24 31 PPP	69·6
Georgetown		130·7	37	i 19 15	[+ 2]	—	—	i 22 39 SKP	—
Columbia		130·9	45	e 22 4	PP	e 26 15	[− 7]	e 22 40 PKS	e 53·7
Philadelphia		131·1	35	e 21 28	PP	e 39 7	SS	i 22 41 PKS	e 58·8
Fordham		131·3	33	i 19 15	[+ 1]	i 31 52	PS	i 21 33 PP	—
Granada		131·3	320	i 19 32k	[+18]	25 44	[−39]	21 26 PP	67·9
Harvard		131·3	30	e 19 3	[−11]	—	—	e 21 30 PP	e 59·3
Weston		131·5	30	i 19 16	[+ 1]	e 39 18	SS	i 22 44 PKS	—
East Machias		133·1	25	e 16 22	P	e 39 17	SS	e 21 34 PP	e 53·3
Halifax		133·2	22	e 21 55	PP	—	—	— —	62·3
San Fernando		133·4	321	e 22 17	PP	e 26 18	[−10]	e 39 27 SS	68·3
Lisbon	N.	133·6	325	20 48?	?	32 3	PS	22 57 PP	—
Bermuda		142·4	34	e 19 27	[− 8]	i 41 32	SS	e 22 54 PP	e 55·7
Huancayo		142·8	113	e 19 36	[+ 1]	e 41 29	SS	e 22 34 PP	e 57·5
La Paz		147·2	126	i 19 44a	[+ 1]	29 32	{−31}	i 20 36 pPKP	69·8
San Juan		150·3	55	e 19 49	[+ 1]	e 27 45	[+51]	e 48 47 SSS	e 63·2
Rio de Janeiro		154·9	175	e 20 18	[+24]	—	—	— —	—

Additional readings :—
Adelaide i = +6m.50s. and +7m.18s., P_cP = +8m.45s., iSS = +15m.14s., S_cS = +16m.30s.
Riverview eE = +12m.28s., iE = +12m.35s., eEN = +12m.42s.
Hong Kong P_cP = +9m.34s., ? = +12m.42s., SS = +14m.38s., S_cS = +17m.13s.
Perth SS = +14m.28s., SSS = +15m.3s., SSSS = +15m.43s.
Tokyo Cen. Met. Ob. e = +10m.54s.
Zinsen P_cP = +9m.43s.
Wellington iZ = +9m.0s., PPP?Z = +11m.57s., SS = +20m.33s., L_q = +23m.5s.
Calcutta ePPN = +11m.38s., esSN = +18m.27s.
Kodaikanal iPSE = +19m.2s., iSSE = +22m.42s.
Hyderabad PSN = +19m.15s., S_cSN = +20m.35s., SSE = +22m.55s.
Honolulu e = +11m.1s., ePPP = +15m.15s., e = +19m.54s., eS_cS = +20m.51s., eSS = +23m.50s.
Agra S_cSE = +20m.41s., iE = +23m.21s., isSS?E = +24m.11s.
Bombay eE = +11m.46s., +15m.23s., and +17m.2s., eEN = +20m.53s., SSEN = +23m.57s.
College ePPP = +17m.31s., eS = +23m.3s., e = +23m.19s., ePPS = +24m.25s., eSS = +28m.49s., eSSS = +32m.23s.
Sitka eS = +23m.50s., ePS = +25m.9s.
Sverdlovsk iPS = +24m.14s.
Victoria eN = +25m.2s.
Ukiah ePPP = +19m.50s., eSS = +31m.32s.
Seattle ePPP = +19m.42s., eS = +25m.10s., eSS = +31m.17s., eSSS = +35m.55s.
Berkeley iSSE = +32m.14s.
Moscow S = +24m.56s.
Pulkovo eS = +25m.32s., ePS = +27m.5s.
Pasadena ePSE = +27m.1s., iSSE = +32m.48s.
Butte S = +25m.55s.
Bozeman eS = +26m.7s., e = +26m.15s., ePPS = +28m.33s., eSS = +33m.51s., eSSS = +37m.36s.
Salt Lake City ePPP = +20m.50s., eSS = +33m.39s., eSSS = +37m.38s.
Helwan PPEZ = +18m.42s., iEZ = +18m.53s. and +19m.48s., PPPE = +21m.3s., eE = +21m.48s., iE = +25m.8s., SKKSE = +25m.56s., SEN = +26m.33s., PSE = +28m.3s., SSE = +34m.18s.
Upsala eN = +18m.50s. and +26m.18s.?, e = +28m.6s., eSSS = +38m.18s.?
Tucson ePPP = +21m.11s., eS = +26m.23s., ePS = +28m.10s., ePPS = +29m.21s., eSS = +34m.6s., eSSS = +38m.28s.
Warsaw eEZ = +19m.28s., eE = +20m.8s., eEZ = +21m.20s., SKSN = +26m.16s., SN = +26m.40s., PSZ = +28m.20s., PPSZ = +29m.21s., SSE = +33m.44s., SSN = +34m.10s., SSSE = +38m.58s., SSSN = +39m.4s.
Scoresby Sund ePPP = +21m.46s., eS = +26m.53s., e = +27m.29s., iPS = +28m.50s., iSS = +34m.34s., iSSS = +39m.1s.
Budapest ePN = +19m.58s.
Copenhagen +18m.24s.

Continued on next page.

Bergen e = +20m.15s.
Potsdam ePKPZ = +18m.40s., iPPE = +19m.36s., iN = +27m.12s., iE = +29m.33s., iN = +35m.6s., iSSPE = +35m.48s., iSSPZ = +36m.0s.
Prague e = +33m.6s. and +37m.42s.
Hamburg eE = +45m.43s. and +56m.18s.?
Jena ePN = +19m.45s., eSE = +29m.30s.
Triest ePP = +23m.6s., eSKS = +29m.19s., eS = +30m.57s., ePS = +32m.48s., ePPS = +33m.46s., eSS = +38m.55s., iSSS = +43m.27s.
Lincoln ePS = +29m.46s., ePPS = +31m.24s., eSS = +36m.36s., eSSS = +40m.33s.
Stuttgart ePKKPN = +29m.7s., ePSN = +29m.58s., eSSN = +35m.44s.
Aberdeen iE = +24m.11s.
De Bilt isPP = +20m.27s.
Rome iN = +29m.23s., SKKS = +31m.18s., iN = +32m.36s., PS = +33m.10s., i = +36m.42s., +37m.26s.?, and +40m.54s.
Uccle eSSE = +36m.31s.
Kew i = +20m.26s., eZ = +23m.1s., eN = +30m.21s., eZ = +31m.18s.?, eEN = +40m.33s.
Paris i = +20m.29s., eSS = +41m.18s.?
Algiers e = +34m.30s.
Pittsburgh eNW = +28m.12s. and +31m.15s., eNE = +32m.31s. and +37m.18s.?
Seven Falls e = +38m.48s.
Almeria PKP = +22m.49s., SKS = +29m.53s., SS = +44m.17s.
Columbia ePPP = +24m.27s., eSKKS = +28m.7s., eSKSP = +31m.48s., ePPS = +33m.42s., eSS = +38m.28s., ePSPS = +39m.53s., eSSS = +44m.5s.
Fordham iSKP = +22m.43s., eSSEN = +39m.7s.
Granada SKP = +22m.35s., PPP = +24m.21s., ePPS = +33m.26s.
Harvard ePKSZ = +22m.43s.
Weston i = +23m.24s., eSSS = +44m.24s.
East Machias iPKS = +22m.44s., ePPP = +24m.36s., ePPS = +33m.33s., ePSPS = +40m.17s., eSSS = +44m.23s.
Huancayo iPPP = +26m.17s., ePPS = +35m.37s., ePSPS = +42m.9s., eSSS = +46m.24s.
La Paz iZ = +20m.6s., +21m.5s., and +21m.46s., ePPZ = +23m.44s., PPSZ = +36m.18s., SSN = +41m.38s., SSS = +47m.28s.
San Juan eSKSP = +33m.56s.
Long waves were also recorded at La Plata, Cape Town, and Stonyhurst.

May 28d. 14h. 23m. 23s. Epicentre 33°·8N. 134°·5E.

Strongly felt at Sumoto, rather strong at Tokusima, Tadotu, Muroto, Koti, Siomisaki, and Sakai; moderate at Okayama, Kobe, Kasiwara, and Kameyama, slight at Uwazima, Osaka, Matuyama, Owase, Toyooka, etc. Epicentre 33°·8N. 134°·5E. Radius 200-300kms. Shallow.

See Seismological Bulletin of the Central Met. Obs., Japan, for the year 1940, Tokyo, 1950, pp. 14-15, Macroseismic Chart p. 14.

$A = -\cdot5837$, $B = +\cdot5939$, $C = +\cdot5537$; $\delta = +1$; $h = +1$:
$D = +\cdot713$, $E = +\cdot701$; $G = -\cdot388$, $H = +\cdot395$, $K = -\cdot838$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Muroto	0·6	206	0 16k	+ 1	0 26	0	—
Sumoto	0·6	30	0 9k	− 6	0 17	− 9	—
Wakayama	0·7	52	0 15k	− 2	0 24	− 4	—
Koti	0·8	253	0 18k	0	0 29	− 2	—
Kobe	1·0	32	0 20k	− 1	0 36	0	—
Siomisaki	1·1	108	0 22a	0	0 35	− 4	—
Osaka	1·2	·45	1 0 21k	− 3	0 37	− 4	—
Owase	1·4	79	0 27a	0	0 42	− 4	—
Matuyama	1·5	271	0 23a	− 5	0 43	− 6	—
Simidu	1·6	232	0 29k	− 1	0 56	+ 5	—
Toyooka	1·7	9	0 29k	− 2	0 58	+ 4	—
Hirosima	1·8	288	0 31	− 1	0 59	+ 3	—
Kameyama	1·9	57	0 32k	− 2	0 54	− 5	—
Hikone	2·1	45	0 34k	− 3	0 55	− 9	—
Hamada	2·3	299	0 36a	− 4	1 1	− 8	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Gihu		2·4	49	0 39k	.− 2	1 7	− 5	—
Nagoya		2·4	56	0 40	− 1	1 7	− 5	—
Hamamatu		2·8	71	0 49	+ 2	1 17	− 5	—
Izuka		3·1	267	0 50a	− 1	1 48	Sg	—
Miyazaki		3·1	234	0 56k	P*	1 29	0	—
Omaesaki		3·1	75	0 57	P*	1 37	+ 8	—
Kumamoto		3·3	253	0 53a	0	1 47	Sg	—
Hukuoka		3·4	269	0 54a	− 1	1 52	Sg	—
Toyama		3·6	36	0 35	−23	1 26	−16	—
Unzendake		3·7	254	0 35	−25	1 35	−10	—
Kohu		3·8	60	0 59	− 2	1 54	S*	—
Hunatu		3·9	63	1 3	+ 1	1 46	− 4	—
Misima		3·9	68	1 1	− 1	1 42	− 8	—
Kagosima		4·0	238	1 5	+ 1	2 16	Sg	—
Nagasaki		4·0	258	1 7	+ 3	2 16	Sg	—
Wazima		4·0	26	1 2k	− 2	1 47	− 5	—
Nagano		4·1	45	1 4	− 1	1 49	− 6	—
Osima		4·1	76	1 4	− 1	2 7	S*	—
Hatidyozima		4·5	97	1 7	− 4	2 8	+ 3	—
Mera		4·5	76	1 19	P*	—	—	—
Kumagaya		4·6	61	1 12	0	2 16	S*	—
Maebasi		4·6	55	1 1	−11	2 16	S*	—
Yokohama		4·6	66	1 19	P*	—	—	—
Husan		4·7	286	0 53	−21	2 15	+ 5	—
Tokyo Cen. Met. Ob.		4·7	64	1 9	− 5	2 12	+ 2	—
Yakusima		4·8	226	1 15	0	—	—	—
Tomie		5·0	258	1 29	P*	2 37	Sg	—
Aikawa		5·2	35	1 17	− 4	2 45	Sg	—
Kakioka		5·2	61	1 35	P*	—	—	—
Tukubasan		5·2	60	1 29	+ 8	2 29	+ 7	—
Utunomiya		5·2	56	1 24	+ 3	—	—	—
Mito		5·5	60	1 31	+ 6	2 33	+ 3	—
Tyosi		5·6	67	1 40	P*	2 42	+ 9	—
Onahama		6·1	57	1 32	− 2	2 22	−23	—
Hukusima		6·2	48	1 41	+ 6	—	—	—
Sendai		6·8	47	1 41	− 3	3 8	+ 5	—
Nake		6·9	220	1 42	− 3	2 56	− 9	—
Akita		7·4	36	1 57	+ 5	2 39	−39	—
Zinsen		7·4	302	3 19	S	(3 19)	+ 1	—
Mizusawa		7·5	43	e 1 49	− 4	3 53	S*	—
Aomori		8·6	34	2 6	− 3	4 21	S*	+
Mori		9·6	28	2 23	+ 2	4 21	S*	—
Sapporo		10·7	28	2 47	PP	—	—	—
Manila		22·7	217	i 5 18	PP	i 9 51	SS	—
Andijan		49·0	297	e 8 47	− 3	15 49	− 6	—
Sverdlovsk		53·9	320	i 9 21	− 6	16 52	−10	24·6
Tinemaha	z.	82·2	51	i 12 32	+ 8	—	—	—
Pasadena		84·0	53	e 12 39	+ 6	—	—	—
Mount Wilson		84·1	53	i 12 40	+ 6	—	—	—
Riverside	z.	84·7	53	e 12 43	+ 6	—	—	—
Palomar	z.	85·4	53	e 12 43	+ 3	—	—	—

Mizusawa also gives eP = +1m.54s.
Long waves were also recorded at Irkutsk, Zi-ka-wei, Pulkovo, Baku, and Warsaw.

May 28d. Readings also at 1h. (Berkeley), 4h. (near Lick), 6h. (Triest), 13h. (Perth, Manila, Riverview, and Sydney), 14h. (Sofia), 15h. (near Istanbul, De Bilt, Rome, Potsdam, Bucharest, Triest, Sofia, and Ksara), 19h. (La Paz), 21h. (Sydney, Riverview, Manila, Tashkent, Sverdlovsk, near Tuai, Wellington, and Irkutsk), 22h. (Rome, Warsaw, Pulkovo, and Potsdam), 23h. (Tananarive, Samarkand, Colombo, Andijan, Warsaw, Potsdam, Pulkovo, Tashkent, Sverdlovsk, and Ksara (2)).

May 29d. 0h. 58m. 6s. Epicentre 1°·0S. 141°·5E.

$A = -·7825$, $B = +·6224$; $C = -·0173$; $\delta = -1$; $h = +7$;
$D = +·623$, $E = +·783$; $G = +·014$, $H = -·011$, $K = -1·000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		25·5	307	1 5 27 a	− 5	10 50	SS	—	—	15·1
Adelaide		33·9	185	i 10 23	?	—	—	11 18	P_cP	i 17·9
Riverview		33·9	166	—	—	e 15 24	SSS	—	—	i 17·7
Sydney		33·9	166	—	—	e 12 6	− 5	—	—	e 18·7
Perth		39·2	215	11 49	?	16 29	SS	18 56	SSS	e 21·6
Phu-Lien		40·4	305	e 7 35	− 6	e 13 35	−15	—	—	—
Irkutsk		61·6	335	10 24	+ 2	e 18 52	+ 9	—	—	32·9
Almata		72·4	317	e 11 31	+ 1	e 20 50	− 3	—	—	—
Frunse		73·9	315	e 11 41	+ 2	e 21 8	− 2	—	—	—
Andijan		75·0	313	e 11 43	− 2	—	—	—	—	—
Tashkent		77·4	312	e 12 1	+ 3	e 21 43	− 6	—	—	e 39·0
Samarkand		78·7	310	i 12 4	− 2	—	—	—	—	45·9
Sverdlovsk		85·8	327	i 12 45	+ 3	23 15	0	—	—	39·9
Mount Wilson	z.	99·2	56	e 18 11	PP	—	—	—	—	—
Palomar	z.	99·2	57	e 18 19	PP	—	—	—	—	—
Riverside	z.	99·8	56	e 18 12	PP	—	—	—	—	—
Pulkovo		101·4	331	e 13 57	+ 2	e 25 36	+ 4	e 18 10	PP	e 56·8
La Paz		145·4	122	e 19 44	[+ 4]	—	—	20 24	?	20·6

Additional readings :—
Perth PPP = +12m.34s., SSS = +19m.39s., i = +19m.54s.
Pulkovo ePS = +27m.13s., eSS = +32m.48s.
Long waves were also recorded at Wellington, Pasadena, Baku, Potsdam, Warsaw, Paris, and Rome.

May 29d. 1h. 57m. 46s. Epicentre 66°·6N. 135°·4W.

$A = -·2844$, $B = -·2804$, $C = +·9168$; $\delta = +3$; $h = -11$;
$D = -·702$, $E = +·712$; $G = -·653$, $H = -·644$, $K = -·399$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		5·4	257	e 1 26	+ 2	i 2 33	+ 5	e 1 50	P_g	—
Sitka		9·1	180	1 2 24	P*	i 4 26	S_g	—	—	i 4·8
Victoria		19·2	154	i 4 31	+ 3	8 13	+14	—	—	9·2
Seattle		20·2	153	—	—	e 7 45	−36	—	—	i 9·7
Saskatoon		20·4	122	i 5 3	PP	9 0	SS	—	—	e 10·2
Spokane		21·2	145	i 4 50	+ 1	e 8 46	+ 5	—	—	i 11·3
Butte		23·9	136	e 5 20	+ 4	e 9 40	+10	e 6 8	PPP	i 11·6
Bozeman		24·7	135	e 5 26 a	+ 2	e 9 37	− 7	e 6 1	PP	i 13·3
Ferndale		26·8	160	e 5 55	+11	—	—	e 9 17	P_cP	i 15·1
Ukiah		28·4	159	e 6 3	+ 5	e 10 25	−20	e 7 1	PPP	e 11·4
Salt Lake City		29·0	142	e 6 7	+ 3	e 10 59	+ 5	e 6 55	PP	e 12·3
Berkeley		29·7	158	e 6 12	+ 2	e 10 37	−29	i 7 18	PPP	i 16·0
San Francisco		29·8	158	e 6 18	+ 7	—	—	—	—	—
Branner		30·2	158	e 6 20	+ 6	e 11 46	+33	—	—	—
Lick	E.	30·3	158	e 6 43	+28	—	—	—	—	—
Santa Clara		30·3	158	e 6 30	+15	e 10 30	+15	—	—	e 14·8
Fresno	N.	31·2	156	e 6 27	+ 4	—	—	—	—	e 17·3
Tinemaha	z.	31·2	153	i 6 18	− 5	—	—	—	—	—
Denver		31·8	133	e 6 37	+ 9	—	—	i 7 19	PP	i 16·0
Halwee		32·2	153	i 6 36	+ 4	—	—	—	—	—
Lincoln		33·5	119	e 9 25	P_cP	e 12 16	+11	—	—	13·7
Santa Barbara		33·5	155	i 6 53	+10	—	—	—	—	—
Mount Wilson		34·0	153	i 6 49	+ 1	—	—	—	—	—
Pasadena		34·1	153	e 6 48	0	e 12 16	+ 2	—	—	e 15·8
Riverside		34·3	153	i 6 51	+ 1	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar	z.	35·1	152	e 6 53	− 4	—	—	—	—	—
La Jolla	z.	35·4	153	e 7 2	+ 2	—	—	—	—	—
Chicago, J.S.A.		35·9	110	e 7 5	+ 1	e 14 15	SS	i 8 29	PPP	—
Scoresby Sund		35·9	32	1 7 7k	+ 3	e 12 43	+ 1	e 8 24	PP	e 14·7
Tucson		37·4	145	e 7 18	+ 2	e 13 0	− 5	i 8 40	PP	e 15·1
Florissant		37·6	115	e 7 18	0	i 14 51	?	—	—	—
Ottawa		37·6	94	7 19	+ 1	13 8	0	15 42	SSS	e 17·2
Toronto		37·6	99	7 14	− 4	13 10	+ 2	15 39	SS	17·2
St. Louis		37·8	115	e 7 19	− 1	e 13 10	− 1	i 14 52	?	—
Shawinigan Falls		37·8	90	7 20	0	e 12 56	−15	e 15 19	SS	17·2
Seven Falls		38·1	88	e 7 26	+ 4	i 13 22	+ 6	8 56	PP	18·2
Vermont		39·3	93	e 7 33	+ 1	e 13 30	− 4	e 9 53	PPP	e 16·0
Pittsburgh		40·1	102	e 7 38	− 1	i 13 43	− 3	e 15 49	?	—
Pennsylvania		40·6	100	e 7 52	+ 9	i 13 43	−11	e 16 46	SS	—
East Machias		41·4	87	e 7 47	− 3	i 14 5	0	e 9 18	PP	e 16·5
Harvard		41·6	92	e 7 52	+ 1	e 17 34	S_cS	—	—	e 21·3
Weston		41·8	92	i 7 55	+ 2	i 14 14	+ 3	—	—	—
Fordham		42·1	96	i 7 57	+ 2	i 14 17	+ 1	e 9 29	PP	i 19·5
Philadelphia		42·4	98	e 8 0	+ 2	e 14 17	− 3	e 9 29	PP	i 17·5
Georgetown		42·5	100	e 7 57	− 2	14 22	0	9 31	PP	—
Halifax		43·0	85	—	—	14 27	− 2	16 49	SS	20·2
Honolulu		47·5	209	e 8 39	+ 1	e 15 36	+ 2	e 10 28	PP	e 19·2
Aberdeen		51·7	30	i 9 9	− 2	i 16 24	− 8	i 11 9	PP	25·2
Upsala		52·3	17	e 9 13	− 2	e 16 32	− 8	e 11 14	PP	e 23·2
Edinburgh		52·7	32	e 9 17	− 1	—	—	—	—	—
Bermuda		53·1	93	e 9 18	− 3	i 16 44	− 7	i 19 5	S_cS	e 24·3
Irkutsk		53·2	319	e 9 19	− 3	16 43	− 9	—	—	27·2
Pulkovo		53·5	9	e 9 21	− 3	e 16 49	− 8	—	—	e 23·6
Stonyhurst		54·7	33	e 12 14?	PPP	i 17 14	+ 1	—	—	27·2
Copenhagen		55·7	22	e 9 37	− 3	17 22	− 4	19 32	S_cS	—
Sverdlovsk		56·3	350	i 9 41	− 4	i 17 30	− 4	—	—	23·2
Heligoland		56·4	26	e 9 50	+ 5	e 17 32	− 4	—	—	e 25·2
Oxford		57·0	33	—	—	i 17 43	0	i 19 32	S_cS	e 27·2
Hamburg		57·3	25	e 9 49	− 3	e 17 42	− 5	17 51	PS	e 26·2
Kew		57·4	32	i 9 49	− 4	e 17 37	−12	e 19 37	S_cS	e 29·2
De Bilt		57·9	28	i 9 55a	− 1	e 17 52	− 3	e 12 4	PP	e 31·2
Moscow		57·9	4	e 9 51	− 5	17 47	− 8	—	—	28·4
Potsdam		59·0	23	i 10 0a	− 4	i 18 8	− 2	i 22 2	SS	e 26·2
Uccle		59·0	30	e 10 0k	− 4	18 7	− 3	—	—	e 26·2
Jena		60·1	24	e 10 7	− 4	e 18 8	−16	e 18 26	PS	e 27·2
Warsaw		60·2	17	e 10 7k	− 5	i 18 16	− 9	22 22	SS	e 26·2
Paris		60·5	31	i 10 16	+ 2	e 18 41	+12	—	—	e 30·2
Prague		61·4	22	e 10 25	+ 5	e 18 32	− 8	—	—	e 28·2
Stuttgart		61·8	26	i 10 22a	− 1	e 18 34	−12	e 12 46	PP	e 33·2
Basle		62·7	28	e 10 28	− 1	—	—	—	—	—
Neuchatel		63·1	28	e 10 30	− 2	—	—	—	—	—
Zurich		63·1	28	e 10 29	− 3	—	—	—	—	—
Clermont-Ferrand		63·6	32	e 10 33	− 2	—	—	—	—	34·9
Chur		63·7	27	e 10 34	− 2	e 19 7	− 3	—	—	—
Budapest	E.	64·6	19	10 45	+ 4	e 19 24	+ 3	—	—	e 38·2
	N.	64·6	19	e 11 20	+39	e 19 20	− 1	—	—	e 37·2
San Juan		65·1	101	e 10 57	+12	1 19 24	− 3	e 13 29	PP	e 25·8
Triest		65·6	24	i 10 50	+ 2	i 19 27	− 6	e 11 30	P_cP	e 29·3
Toledo	N.	67·5	39	i 11 5	+ 5	e 19 53	− 3	—	—	24·2
Almata		67·7	335	10 59	− 2	i 19 43	−15	—	—	39·2
Bucharest		68·4	14	e 11 10k	+ 4	19 55	−12	—	—	32·2
Frunse		68·4	337	e 11 13	+ 7	e 20 3	− 4	—	—	35·2
Rome		69·1	26	i 11 6k	− 4	20 8	− 7	13 49	PP	i 29·9
Sofia		69·8	17	e 11 18	+ 4	e 20 26	+ 3	—	—	—
Granada		70·2	40	i 11 10a	− 7	e 20 18	−10	11 43	P_gP	34·5
San Fernando		70·2	43	e 11 18	+ 1	e 20 20	− 8	e 28 18	SSS	33·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grozny		70·4	359	11 23	+ 5	20 29	− 1	—	—	—
Tashkent		70·7	341	e 11 19	− 1	i 20 29	− 5	—	—	e 33·4
Almeria		70·8	39	e 11 34	+14	20 22	−13	—	—	37·2
Andijan		70·9	339	e 11 25	+ 4	—	—	—	—	35·2
Algiers		72·1	34	e 11 29	+ 1	e 23 36	?	e 15 34	PP	41·2
Samarkand		72·7	342	i 11 30	− 2	—	—	—	—	34·2
Baku		73·3	357	e 11 43	+ 8	i 21 3	− 1	—	—	33·2
Hong Kong		77·5	297	21 45	S	(21 45)	− 5	26 59	SS	—
Ksara		79·7	8	i 12 10k	− 1	e 22 15	+ 2	—	—	—
Phu-Lien		81·5	303	—	—	e 22 25	− 7	—	—	—
Manila		82·0	288	e 12 28	+ 5	22 43	+ 6	—	—	38·1
Agra	E.	83·2	330	e 12 40	+11	22 38	−11	27 40	SS	—
Helwan		83·3	12	e 12 32	+ 2	22 59	+ 9	23 38	PS	—
Huancayo		89·7	122	e 13 0	− 1	e 23 35	[+ 4]	e 16 36	PP	e 36·6
Bombay		92·2	333	—	—	e 24 15	+ 1	—	—	e 47·3
La Paz	Z.	96·4	117	e 15 48	?	26 22	PS	—	—	47·2
Kodaikanal	E.	99·3	327	—	—	e 24 14?	[−10]	—	—	—
Rio de Janeiro		111·6	98	—	—	e 32 14	?	—	—	—

Additional readings :—
College e = +1m.33s.
Sitka i = +2m.29s., +2m.34s., +3m.44s., +4m.31s., and +4m.40s.
Seattle e = +8m.9s.
Spokane iE = +6m.59s.
Butte i = +5m.23s. and +9m.48s.
Bozeman ePPP = +6m.32s., e = +9m.50s., i = +10m.4s.
Ukiah ePcP = +8m.39s., e = +10m.49s.
Salt Lake City ePcP = +8m.49s., e = +11m.11s.
Berkeley ePNZ = +6m.19s., iPE = +6m.27s., iSN = +11m.28s., i = +14m.50s.
Denver iE = +6m.57s., iN = +7m.15s., eE = +9m.23s., eEN = +9m.49s., eSSE = +13m.19s., eN = +13m.31s.
Palomar iZ = +6m.59s.
Scoresby Sund iS = +12m.48s., i = +12m.58s.
Tucson i = +7m.21s., +7m.25s., and +7m.33s., iPPP = +8m.55s, i = +13m.21s.
Florissant iPN = +7m.21s.
Toronto SSS = +16m.30s.
Seven Falls SS = +15m.44s.
Vermont i = +13m.35s.
Pennsylvania e = +8m.48s. and +12m.48s., i = +14m.2s., e = +15m.36s., i = +17m.50s.
East Machias ePPP = +10m.11s.
Fordham iSSEN = +17m.13s.
Philadelphia i = +14m.20s.
Georgetown SS = +17m.22s.
Honolulu e = +8m.50s., eScS = +18m.24s.
Aberdeen iE = +18m.59s., iSSN = +19m.59s.
Upsala SE = +16m.37s., eE = +18m.56s., eSSN = +20m.33s., eSSE = +20m.39s.
Bermuda eSS = +20m.29s.
Kew iZ = +9m.58s., eSSSEZ = +24m.29s., eLqEN = +26·2m.
De Bilt eScS = +19m.39s.
Potsdam iPN = +10m.8s., eE = +10m.14s., iSZ = +18m.10s.
Uccle iZ = +10m.8s., SE = +18m.13s.
Warsaw eSSSE = +24m.40s., eSSSN = +24m.48s.
San Juan ePPP = +14m.53s., eScS = +20m.38s., eSS = +23m.44s.
Triest ePP = +13m.15s., ePPP = +14m.32s., i = +15m.26s., iPS = +19m.56s., iScS = +20m.40s., iSS = +23m.32s.
Bucharest eE = +11m.14s., eN = +11m.28s., SN = +20m.0s.
Rome iN = +16m.50s., i = +20m.19s., +21m.6s., and +27m.25s.
Granada PP = +14m.10s., PcS = +15m.16s., PS = +20m.31s., SS = +25m.3s., SSS = +28m.36s.
Helwan eE = +23m.11s.
Huancayo ePPP = +18m.40s., iS = +23m.57s., ePS = +24m.57s., ePPS = +25m.24s., eSS = +29m.32s., eSSS = +33m.42s.
Long waves were also recorded at Colombo, Semipalatinsk, La Plata, Lisbon, Bergen, and Wellington.

May 29d. 15h. 24m. 44s. Epicentre 39°·7N. 39°·7E. (as on 1940 April 22d.).

$A = +\cdot5936$, $B = +\cdot4928$, $C = +\cdot6362$; $\delta = -4$; $h = -2$;
$D = +\cdot639$, $E = -\cdot769$; $G = +\cdot490$, $H = +\cdot406$, $K = -\cdot772$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan		3·7	80	0 59	− 1	1 33	−12	—	—	—
Grozny		5·8	49	1 45	P*	2 53	S*	—	—	—
Yalta		6·3	321	2 10	P_g	e 3 42	S_g	—	—	4·2
Ksara		6·6	209	e 1 40	− 1	i 3 26	S*	—	—	—
Baku		7·9	81	e 2 3	+ 4	e 3 30	0	—	—	5·3
Bucharest		11·1	299	e 3 19	PPP	—	—	—	—	7·0
Helwan		12·0	218	2 49	− 6	5 55	SS	3 1	PP	7·0
Sofia		12·7	289	e 3 9	+ 4	—	—	—	—	e 6·6
Moscow		16·1	356	3 50	+ 1	7 5	SS	—	—	—
Warsaw		18·0	320	e 4 18	+ 5	i 7 48	SS	e 4 24	PP	e 11·3
Triest		19·9	297	i 4 53	PP	i 8 38	SS	i 9 18	SSS	e 10·3
Rome		20·7	285	4 46	+ 2	i 8 48	SS	i 5 23	PPP	e 11·0
Pulkovo		20·9	348	i 4 50	+ 4	e 8 50	+15	—	—	e 10·4
Samarkand		21·0	81	i 4 38	− 9	—	—	—	—	—
Sverdlovsk		21·9	31	4 54	− 3	8 59	+ 5	—	—	10·3
Potsdam		22·3	314	e 5 10	+ 9	i 9 17	+15	i 5 55	PPP	e 14·3
Tashkent		22·5	75	e 4 58	− 4	e 9 6	+ 1	—	—	e 15·2
Chur		23·0	300	e 5 11	+ 4	—	—	—	—	—
Stuttgart		23·5	304	e 5 16	+ 4	e 9 48	+25	—	—	—
Basle		24·4	300	e 5 24	+ 3	e 9 56	+17	—	—	—
Hamburg	N.	24·5	315	—	—	e 9 16?	−24	—	—	—
Upsala		24·5	333	—	—	e 10 1	+21	—	—	e 14·2
Andijan		24·9	77	e 5 19	− 7	—	—	—	—	—
Frunse		26·3	71	e 5 38	− 1	—	—	—	—	—
Uccle	N.	27·0	307	—	—	e 10 34	+12	—	—	—
Paris		27·9	302	—	—	e 11 16	SS	—	—	e 15·3
Almata		28·0	69	e 6 9	+14	e 10 55	+17	—	—	—
Granada		33·8	281	—	—	i 16 7	?	—	—	21·0
Agra	E.	34·1	99	—	—	e 11 57	−17	—	—	—
Scoresby Sund		43·3	335	—	—	e 14 44	+11	—	—	—
Calcutta	N.	44·5	97	—	—	e 17 55	SS	—	—	—

Additional readings :—
Erevan S* = +1m.39s.
Bucharest ePE = +3m.22s.
Helwan eZ = +6m.14s.
Triest iPP = +5m.19s., iPPP = +5m.31s., iS_cS = +16m.33s.
Potsdam ePE = +5m.22s.
Long waves were also recorded at De Bilt, Aberdeen, and Kew.

May 29d. Readings also at 0h. (Calcutta, Kodaikanal, Moscow, Potsdam, Baku, Sverdlovsk, Samarkand, Andijan, Warsaw, and Granada), 4h. (Sofia, Bucharest, Warsaw, and Granada), 5h. (near Triest, Fordham, St. Louis, and Florissant), 7h. (Rome), 8h. (Manila), 10h. (Rome and Strasbourg), 12h. (Tucson), 13h. (La Paz), 16h, (Tucson, Tinemaha, Pasadena, Riverside, and Mount Wilson), 17h. (Potsdam. Paris, and Warsaw), 19h. (near Manila), 20h. (near Stuttgart, Triest, and Strasbourg), 22h. (near Berkeley), 23h. (near Rome).

May 30d. Readings at 3h. (Fresno and Lick), 6h. (La Paz), 7h. (Tinemaha, Pasadena, Santa Barbara, Palomar, Haiwee, Riverside, Mount Wilson, and Tucson), 15h. (Sofia, Warsaw, Tucson, and near La Paz), 19h. (near Samarkand, Tashkent, Tchimkent, and Andijan), 21h. (Huancayo and Tucson), 23h. (near Lick).

May 31d. 0h. Epicentre near Samoa.

Apia eP =41m.37s., P*? =41m.42s., P_g =41m.47s., S =42m.10s., S*? =42m.17s., S_g = 42m.23s.
Honolulu eP =48m.28s., ePP =50m.11s., ePPP =50m.48s., eS =55m.4s., eL =58m.8s.
Wellington eZ =52m., L =55m.15s.
Santa Barbara ePZ =52m.22s.
Pasadena ePNZ =52m.27s.
Mount Wilson iPZ =52m.28s.
Riverside ePZ =52m.29s.
Manila eP =52m.30s., SEN =62m.6s.
Haiwee ePEN =52m.36s.
Tinemaha eP =52m.38s.
Tucson eP =52m.53s., e =53m.2s., i =53m.10s., eS =62m.37s., eSSS =70m.27s., eL = 78m.17s.
Sydney e =53m.24s., eL =58m.0s.
Huancayo eP =54m.27s., ePP =58m.22s., eSKS =65m.2s., eSS =72m.2s., eL =81m.38s.
Riverview eN =55m.30s., eLN =58m.0s.
Uccle ePZ =60m.39s., iZ =61m.7s., eE =82m.58s.
De Bilt eZ =60m.40s., eL =128m.
Potsdam eZ =60m.42s., eEN =63m.54s., eLN =116·8m.
Warsaw ePZ =60m.42s., eZ =63m.34s., eN =64m.20s. and 73m.58s., iE =82m.24s., eN =82m.34s., eLZ =104m.
Chur e =60m.43s.
Paris iPKP =60m.47s., eL =121m.
Ksara ePKP =60m.52s., ePP =64m.22s., SKKS =71m.6s.
Helwan PZ =61m.6s., eZ =61m.39s., eE =71m.48s. and 75m.6s.
Rome e =61m.21s. and 68m.44s.
Granada iPKP =61m.38s.a, PP =65m.33s., SKSP =75m.20s., ePPS =87m.10s., eL = 129m.24s.
Berkeley iE =61m.54s., eE =70m.45s., eN =71m.3s., eZ =76m.48s.
Victoria e =63m., L =80m.
Sitka eS =63m.7s., eL =74m.0s.
Salt Lake City eS_cS =63m.21s., eSS =68m.29s., eL =73m.37s.
Bozeman eS =63m.36s., eL =76m.30s.
St. Louis eE =64m.56s.
Philadelphia eSKS =65m.50s., ePS =68m.56s., eL =88m.55s.
La Paz eZ =67m.30s., PPZ =68m.30s., LZ =90·0m.
Seven Falls e =69m., L =101·0m.
San Juan ePS =69m.29s., ePPS =70m.48s., eSS =75m.25s., eL =85m.51s.
Scoresby Sund ePS =71m.16s., eSS =77m.16s., eSSS =81m.35s., eL =96m.18s.
Long waves were also recorded at Chaham Ils., Butte, Harvard, Fordham, Ukiah, and Kew.

May 31d. 2h. Undetermined shock. Epicentre South Pacific.

Apia iP =32m.56s.
Mount Wilson iPZ =43m.42s.
Pasadena ePZ =43m.42s.
Riverside ePZ =43m.43s.
Palomar iPZ =43m.44s.
Haiwee eP =43m.49s.
Tinemaha ePZ =43m.52s.
Tucson iP =44m.7s., i =44m.12s. and 44m.37s., eL =67·8m.
Riverview eN =48m.36s.
Warsaw ePZ =51m.48s., eZ =55m.2s., eE =57m.10s., eN =65m.0s., eLN =107·0m.
Uccle iPZ =51m.54s.
Paris iPKP =52m.0s., eL =109·0m.
Potsdam eZ =52m.0s., eLN =117·4m.
Ksara ePKP =52m.5s., ePP =55m.42s., PPS =69m.4s.
Granada iPKP =52m.26s.a, PP =56m.28s., PPS =70m.30s., SKKS =73m.43s., L = 118·3m.
Clermont-Ferrand 52m.57s.
Victoria e =54m.0s., L =70·0m.
San Juan e =60m.48s.
Berkeley eN =62m.12s., eE =62m.24s., eZ =69m.18s.
Ukiah e =62m.24s.
Perth i =63m.17s. and 69m.23s.
Bozeman e =63m.42s.
Salt Lake City e =65m.55s.
Philadelphia e =80m.36s.
Long waves were also recorded at Wellington, Rome, La Paz, and Harvard.

May 31d. 4h. 56m. 19s. Epicentre 2°·5S. 104°·0W. (Rough).

$A = -·2417$, $B = -·9694$, $C = -·0433$; $\delta = +3$; $h = +7$;
$D = -·970$, $E = +·242$; $G = +·010$, $H = +·042$, $K = -·999$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		29·9	110	e 6 12	0	e 11 10	+ 1	—	—	e 12·2
Tucson		35·2	351	e 7 0	+ 2	e 13 0	+29	e 8 25	PP	e 15·7
Palomar	Z.	37·7	344	e 7 19	0	—	—	—	—	—
La Paz		37·9	113	7 41	+21	13 31	+18	—	—	16·7
Riverside	Z.	38·4	343	e 7 27	+ 2	—	—	—	—	—
Mount Wilson	Z.	38·8	343	e 7 29	+ 1	—	—	—	—	—
Pasadena		38·8	343	e 7 26	− 2	—	—	—	—	e 17·1
San Juan		42·7	60	e 7 58	− 2	e 14 34	+10	e 9 56	PP	e 17·9
St. Louis	E.	42·9	16	—	—	e 14 45	+18	—	—	—
Berkeley		43·6	340	—	—	e 15 7	+29	—	—	e 21·2
Salt Lake City		43·6	352	—	—	e 14 58	+20	—	—	e 17·9
Ukiah		45·0	340	—	—	e 15 21	PPS	—	—	e 20·0
Bozeman		48·4	354	—	—	e 16 5	PS	e 18 47	S_cS	e 22·1
Philadelphia		49·8	30	—	—	e 16 16	+10	e 20 7	SSS	e 23·8
Ottawa		53·9	25	—	—	e 17 21	PPS	—	—	27·7
Seven Falls		57·4	26	—	—	e 18 17	PPS	—	—	28·7

Additional readings :—
Tucson e = +7m.20s., eP_cP = +9m.30s.
San Juan e = +8m.27s., ePPP = +10m.29s.
Long waves were also recorded at Honolulu, Butte, Seattle, East Machias, Santa Clara, Scoresby Sund, Warsaw, Riverview, Arapuni, Adelaide, and Wellington.

May 31d. 14h. 56m. 18s. Epicentre 34°·5N. 140°·6E.
(as given by Research Institute, Tokyo Imperial University).

$A = -·6382$, $B = +·5242$, $C = +·5638$; $\delta = -4$; $h = 0$;
$D = +·635$, $E = +·773$; $G = -·436$, $H = +·358$, $K = -·826$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Kiyosumi		0·7	332	0 28	+11	0 39	+11	—
Togane		1·1	350	0 28	+ 6	0 44	+ 5	—
Kamakura		1·2	314	0 28	+ 4	0 46	+ 5	—
Susaki		1·3	277	0 26	+ 1	0 46	+ 2	—
Komaba		1·4	327	0 25	− 2	0 45	− 1	—
Tokyo Imp. Univ.		1·4	331	0 25	− 2	0 46	0	—
Koyama		1·5	303	0 28	0	0 52	+ 3	—
Mitaka		1·5	324	0 28	0	0 48	− 1	—
Titibu		1·9	320	0 28	− 6	0 52	− 7	—
Osaka		4·2	273	1 11	P_g	2 8	S_g	—
Mizusawa	E.	4·7	5	1 1 7	− 7	1 58	−12	—
Sverdlovsk		56·6	320	9 37	−10	e 17 36	− 2	28·2
Tucson		85·6	54	e 12 31	−10	—	—	—

Mizusawa gives also iPN = +1m.10s.

May 31d. Readings also at 9h. (Calcutta, Fordham, La Paz, and Ksara), 1h. (near Helwan and La Paz), 2h. (Rome), 3h. (San Juan), 5h. (Harvard, near Fresno, Sverdlovsk, Rome, Ksara, Tucson, Tinemaha, Haiwee, Palomar, Riverside, Pasadena, and Mount Wilson), 10h. (Zurich, Basle, near Triest, and Neuchatel), 13h. (Mount Wilson, Pasadena, Haiwee, Riverside, Palomar, Tinemaha, and Tucson), 15h. (near Branner), 19h. (near Florissant and St. Louis), 22h. (Manila, La Paz, Huancayo, near Triest, Rome, and Ksara).

June 1d. 5h. 26m. 59s. Epicentre 34°·1N. 116°·3W. (as given by Pasadena and as on 1940, May 18d.).

$A = -·3677$, $B = -·7439$, $C = +·5580$; $\delta = -5$; $h = 0$;
$D = -·896$, $E = +443$; $G = -·247$, $H = -·500$, $K = -·830$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Palomar	Z.	0·9	212	i 0 19	− 1	—	—	—
Riverside		0·9	263	i 0 19$_a$	− 1	i 0 30	− 4	—
Mount Wilson		1·5	275	i 0 29	+ 1	i 0 49	0	—
Pasadena		1·6	275	i 0 30$_a$	0	i 0 51	0	—
Haiwee		2·4	326	i 0 43	+ 2	i 1 20	S$_g$	—
Fresno	N.	3·9	314	e 0 59	− 3	e 1 48	− 2	—
Tucson		4·9	110	e 1 17	0	i 2 13	− 2	i 2·9
Lick	E.	5·4	308	e 1 43	P$_g$	e 3 0	S$_g$	—
Branner		5·8	306	e 1 46	P*	—	—	—

Fresno readings have been diminished by 30m.
Tucson gives also i = +1m.26s., iP$_g$ = +1m.36s., i = +2m.18s. and +2m.37s., iS$_g$ = +2m.50s.
Long waves were also recorded at Salt Lake City.

June 1d. 15h. 10m. 0s. Epicentre 27°·0N. 54°·5E. (as on 1939, August 18d.).

$A = +·5181$, $B = +·7264$, $C = +·4516$; $\delta = +3$; $h = +3$;
$D = +·814$, $E = -·581$; $G = +262$, $H = +·368$, $K = -·892$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Baku	13·9	345	e 4 16	+55	—	—	9·9
Samarkand	16·4	36	e 3 48	− 5	6 59	+ 3	9·1
Ksara	17·4	297	e 4 9	+ 3	e 7 49	SS	10·5
Tashkent	18·8	36	e 4 22	− 1	i 7 54	+ 4	10·7
Andijan	20·1	42	e 4 45	+ 7	e 8 28	+ 9	e 11·3
Helwan	20·6	283	e 4 42	− 1	i 8 51	SS	i 12·8
Frunse	22·8	42	e 5 8	+ 3	e 9 18	+ 7	—
Almata	24·4	43	e 5 32	+11	e 9 54	+15	—
Sverdlovsk	30·1	7	—	—	e 11 14	+ 2	17·0

June 1d. Readings also at 0h. (Huancayo and Tucson), 3h. (near Perth), 5h. (Hatidyozima, Kobe, Kohu, Oiwake, Sendai, Tokyo and near Tucson), 6h. (near Tucson, Andijan, Tashkent, Samarkand, Lick, Salt Lake City, near Fresno, and near Tchimkent), 9h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and De Bilt), 10h. (Huancayo, Pasadena, Riverside, Tinemaha, and Tucson), 11h. (La Paz), 12h. (Granada, Rome, Ksara, and La Paz), 13h. (Huancayo), 14h. (Rome), 15h. (La Paz), 16h. (Fordham), 18h. (Tucson (2)), 19h. (near Basle (2), Neuchatel (2), Zurich (2), Stuttgart (2), near Chur (2), Triest (2), and near Berkeley), 21h. (Triest, Tucson, near Andijan, Samarkand, Tashkent, Almata, Frunse, and Sverdlovsk), 22h. (Tucson), 23h. (Fresno, La Paz, and Tucson (2)).

June 2d. 6h. 13m. 8s. Epicentre 34°·1N. 116°·3W. (as on 1d.).

$A = -·3677$, $B = -·7439$, $C = +·5580$; $\delta = -5$; $h = 0$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar	Z.	0·9	212	i 0 19	− 1	—	—	—	—	—
Riverside		0·9	263	i 0 18	− 2	i 0 29	− 5	—	—	—
Mount Wilson		1·5	275	i 0 29$_a$	+ 1	i 0 50	+ 1	—	—	—
Pasadena		1·6	275	i 0 30$_a$	0	i 0 50	− 1	—	—	—
Fresno	N.	3·9	314	e 1 15	P$_g$	e 2 4	S*	—	—	—
Tucson		4·9	110	e 1 17	0	i 2 12	− 3	i 1 27	P*	i 2·9
Lick	N.	5·4	308	e 1 32?	P*	—	—	—	—	—

Tucson also gives iS$_g$ = +2m.50s,

June 2d. 11h. 37m. 39s. Epicentre 51°·6N. 177°·8W.

$A = -·6232$, $B = -·0239$, $C = +·7817$; $\delta = 0$; $h = -6$;
$D = -·038$, $E = +·999$; $G = -·781$, $H = -·030$, $K = -·624$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sitka		25·0	59	—	—	e 9 54	+ 5	—	—	e 11·8
Honolulu		34·0	144	e 6 36	−12	e 12 36	+23	i 8 39	PcP	e 13·1
Nagano		34·3	262	6 51	+ 1	—	—	—	—	—
Victoria		34·4	73	—	—	e 12 6	−13	—	—	15·4
Seattle		35·4	74	e 10 51	?	—	—	—	—	—
Gihu		36·1	260	7 12	+ 7	—	—	—	—	—
Osaka		37·1	261	7 14	0	—	—	9 59	PPP	—
Kobe		37·5	261	7 16	− 1	13 16	+ 9	—	—	—
Ukiah		39·4	86	e 7 49	+16	—	—	—	—	e 17·0
Berkeley		40·8	87	e 7 44	− 1	e 13 54	− 2	e 16 50	SSS	e 20·2
Santa Clara		41·3	87	e 7 58	+ 9	e 14 13	+ 9	—	—	e 19·8
Lick		41·5	87	e 7 54	+ 4	—	—	—	—	—
Butte		42·0	70	e 7 51	− 3	e 14 17	+ 3	—	—	e 17·5
Bozeman		43·1	70	e 8 5	+ 1	e 14 24	− 6	—	—	e 17·9
Tinemaha		43·8	85	i 8 10	+ 1	—	—	—	—	—
Haiwee		44·6	85	e 8 16	0	—	—	—	—	—
Salt Lake City		45·5	77	e 8 22	− 1	e 15 2	− 3	e 9 51	PcP	e 18·7
Mount Wilson		45·7	88	i 8 23	− 1	—	—	—	—	—
Pasadena		45·7	88	e 8 23	− 1	e 15 3	− 5	—	—	e 18·6
Riverside		46·3	88	e 8 27	− 2	—	—	—	—	—
Palomar	Z.	47·1	88	i 8 33	− 2	—	—	—	—	—
Tucson		51·5	84	e 9 8	− 1	e 16 33	+ 4	i 10 15	PcP	e 23·9
Lincoln		54·4	66	e 12 44	PPP	—	—	e 19 26	ScS	e 25·5
Scoresby Sund		57·0	10	e 9 48	− 2	i 17 43	0	e 10 42	PcP	i 24·0
Chicago		58·9	61	—	—	e 18 19	+11	e 20 4	ScS	e 25·1
Florissant		59·4	65	i 10 5	− 1	i 18 10	− 5	—	—	—
St. Louis		59·5	65	i 10 4	− 3	i 18 9	− 7	—	—	—
Sverdlovsk		61·7	328	i 10 23	+ 1	18 45	+ 1	—	—	31·4
Toronto		61·9	54	—	—	e 18 51	+ 4	—	—	33·4
Ottawa		62·4	51	—	—	e 18 21?	−32	—	—	25·4
Seven Falls		63·5	46	—	—	e 18 45	−22	—	—	31·4
Fordham		66·7	53	i 10 57k	+ 2	e 19 59	+13	—	—	—
Philadelphia		66·7	54	e 10 56	+ 1	e 19 38	− 8	—	—	e 31·2
East Machias		66·8	46	e 10 56	0	e 19 47	− 1	e 20 51	ScS	e 27·2
Columbia		68·0	62	e 11 0	− 3	e 19 58	− 4	—	—	e 27·4
Upsala		68·2	352	e 13 21?	PP	—	—	—	—	e 35·4
Andijan		69·6	310	e 11 4	− 9	—	—	—	—	—
Tchimkent		69·7	313	e 11 7	− 7	—	—	—	—	—
Samarkand		73·0	312	e 11 33	0	—	—	—	—	29·4
Calcutta	N.	75·0	287	—	—	e 21 18	− 5	—	—	—
Hamburg	Z.	75·0	355	e 11 44	− 1	—	—	—	—	e 42·4
Warsaw		75·3	348	e 11 47	0	e 21 9	−17	e 16 27	PPP	e 40·3
Potsdam		76·0	353	e 20 16	?	e 21 30	− 4	—	—	e 34·0
De Bilt		76·6	358	i 11 54a	0	—	—	—	—	e 36·4
Agra	E.	77·4	297	e 11 49	− 9	—	—	—	—	e 42·0
Bermuda		77·9	52	e 12 0	− 1	e 21 49	− 5	—	—	e 31·7
Uccle		78·0	359	i 12 0	− 2	e 22 9	+14	—	—	e 37·4
Baku		79·4	325	e 12 13	+ 4	—	—	—	—	e 39·4
Paris		80·0	0	12 13?	0	e 31 21?	SSS	—	—	—
Clermont-Ferrand		83·0	359	i 13 29	+61	—	—	—	—	—
Rome		86·4	353	i 11 44	−61	e 23 16	− 5	e 24 12	PS	e 51·7
Bombay		86·8	296	—	—	e 23 18	− 7	e 29 21	SS	e 51·2
San Juan		88·5	62	—	—	e 23 38	− 3	—	—	e 42·9
Ksara		89·9	333	i 13 1	− 1	e 25 13	PS	e 16 38	PP	46·4
Granada		91·4	3	i 13 8k	− 1	i 25 31	PS	e 16 36	PP	47·6

For Notes see next page.

Notes to June 2d. 11h. 37m. 39s.

Additional readings :—
Honolulu e = +6m.39s.
Ukiah e = +8m.5s.
Berkeley eZ = +7m.56s., eN = +14m.14s., eEZ = +19m.3s.
Salt Lake City ePP = +10m.12s., ePPP = +10m.59s., eSS = +18m.14s.
Palomar iZ = +8m.49s.
Tucson i = +9m.11s., +9m.18s., and +9m.24s., ePP = +11m.24s., eS_cS = +18m.55s.
Scoresby Sund e = +10m.12s. and +13m.36s., eSS = +21m.37s.
Last Machias e = +11m.12s.
Warsaw eZ = +16m.36s., iN = +21m.59s.
Rome e = +33m.19s.
Long waves were also recorded at Christchurch, Wellington, Prague, Kew, Toledo, Irkutsk, and Huancayo.

June 2d. 12h. 9m. 32s. Epicentre 11°·3N. 138°·9E.

A = −·7392, B = +·6448, C = +·1946 ; δ = +5 ; h = +6 ;
D = +·657, E = +·754 ; G = −·147, H = +·128, K = −·981.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palau		5·9	228	1 31	0	2 33	− 7	—	—	—
Manila		17·8	282	i 4 9k	− 2	i 7 42	SS	i 8 18	SSS	—
Miyazaki		21·6	343	4 56	+ 2	8 43	− 6	—	—	—
Simidu		22·1	347	3 21	?	9 3	+ 5	—	—	—
Koti		22·7	348	5 4	0	9 14	+ 5	—	—	—
Osaka		23·4	354	5 11	0	9 48?	+27	—	—	—
Kameyama		23·5	357	3 3	?	5 13	?	—	—	—
Nagoya		23·8	358	5 16	+ 1	—	—	—	—	—
Gihu		24·1	358	5 19	+ 1	9 54	+20	—	—	—
Hamada		24·3	346	6 4	PPP	9 38	+ 1	—	—	—
Nagano		25·8	359	5 28	− 6	10 18	+16	—	—	—
Hong Kong		26·0	298	5 38	+ 2	10 9	+ 3	6 17	PP	12·6
Sendai		26·9	5	5 40	− 5	10 23	+ 3	—	—	—
Brisbane	N.	40·9	160	—	—	e 17 34	SSS	—	—	e 20·6
Riverview		46·4	166	—	—	e 19 20	SSS	—	—	e 25·9
Sydney		46·4	166	—	—	e 18 40	SS	—	—	—
Irkutsk		49·5	302	8 53	− 1	16 1	− 1	—	—	25·5
Almata		62·0	314	e 10 22	− 2	e 18 50	+ 2	—	—	—
Frunse		63·6	313	e 10 53	0	—	—	—	—	—
Andijan		64·9	309	e 10 42	− 1	—	—	—	—	—
Tchimkent		67·2	311	e 10 52	− 6	e 19 49	− 3	—	—	—
Tashkent		67·3	310	10 59	0	19 56	+ 2	—	—	—
Samarkand		69·0	308	e 11 12	+ 3	—	—	—	—	—
Sverdlovsk		74·2	326	i 11 40	0	21 11	− 3	—	—	33·5
Moscow		87·1	326	i 12 46	− 3	23 26	− 2	—	—	—
Pulkovo		89·4	331	e 13 0	0	23 46	− 3	—	—	—
Santa Barbara	z.	92·9	54	i 13 16	0	—	—	—	—	—
Tinemaha		93·3	52	i 13 19	+ 1	—	—	—	—	—
Haiwee		93·8	52	e 13 22	+ 2	—	—	—	—	—
Pasadena		94·2	54	i 13 22	0	—	—	—	—	—
Mount Wilson		94·3	54	i 13 22	− 1	—	—	—	—	—
Ksara		94·4	305	e 13 24	+ 1	—	—	e 17 17	PP	—
Riverside	z.	94·9	54	i 13 25	0	—	—	—	—	—
Palomar	z.	95·5	55	e 13 28	0	—	—	—	—	—
Tucson		100·6	54	e 13 52	+ 1	—	—	—	—	—
La Paz		153·3	104	i 19 56k	[+ 4]	40 48	?	24 12	PP	78·5

Additional readings :—
Hong Kong ? = +10m.34s.
Riverview eN = +19m.36s.
Long waves were also recorded at Uccle, Potsdam, Warsaw, Hamburg, and Upsala.

June 2d. 19h. 17m. 24s. Epicentre 32°·5S. 179°·0W. (as on 1939 Oct. 30d.).

A = −·8449, B = −·0147, C = −·5347; $\delta = -2$; $h = +1$;
D = −·017, E = +1·000; G = +·535, H = +·009, K = −·845.

Tables for depth of focus 0·050 have been used.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tuai		7·0	205	1 56	+13	3 23	+19	—	—	—
Arapuni		7·1	216	2 0	pP	3 30	sS	—	—	—
Hastings		7·9	204	1 36	−18	3 3	−20	—	—	—
Bunnythorpe		8·9	208	1 36?	−30	3 12	−33	—	—	—
Wellington		10·1	208	2 28	+18	4 18	+ 7	2 41	PP	—
Christchurch		12·9	209	3 16	pP	5 34	sS	—	—	—
Apia		19·7	23	4 2	− 3	—	—	—	—	—
Brisbane	N.	24·7	276	i 6 42	?	i 10 36	SSS	—	—	—
Riverview		25·0	259	e 5 56	PP	e 10 55	SSS	—	—	—
Sydney		25·0	259	e 6 6	PPP	e 10 36	SS	—	—	—
Adelaide		35·2	254	—	—	e 13 36	SS	—	—	—
Manila		74·0	300	12 45	?	i 19 44	−18	—	—	—
Santa Barbara	Z.	86·8	46	i 12 5	− 1	—	—	—	—	—
Pasadena		87·5	47	i 12 7	− 3	e 22 17	− 2	—	—	—
Mount Wilson		87·7	47	i 12 8k	− 3	—	—	i 14 30	?	—
Palomar	Z.	87·8	48	i 12 10k	− 1	—	—	—	—	—
Riverside		87·9	47	i 12 8k	− 4	—	—	—	—	—
Haiwee		89·0	45	e 12 16	− 1	—	—	—	—	—
Tinemaha		89·5	44	i 12 17	− 2	—	—	—	—	—
Tucson		91·0	51	e 12 24	− 2	i 22 53	+ 3	—	—	—
Huancayo		94·8	107	—	—	e 22 45	[+ 1]	—	—	—
La Paz	Z.	97·9	116	22 59	S	(e 22 59)	[− 1]	i 25 30	PS	—
Calcutta	N.	103·9	288	—	—	e 24 11	−28	—	—	—
St. Louis	N.	108·6	55	—	—	e 25 17	S	e 33 6	SS	—
San Juan		118·7	85	e 22 8	PPP	—	—	—	—	—
Sverdlovsk		133·0	320	i 18 31	[− 3]	—	—	—	—	47·6
Scoresby Sund		139·9	11	e 21 33	PP	—	—	—	—	—
Moscow		145·6	324	e 18 48	[− 8]	—	—	(e 21 30)	PP	—
Pulkovo		146·5	333	i 18 53	[− 6]	—	—	—	—	—
Ksara		150·8	281	e 19 6	[+ 2]	e 28 30	SKKS	—	—	—
Helwan		154·0	272	19 5	[− 4]	e 29 6	SKKS	e 21 45	PP	—
Copenhagen		155·5	345	i 19 30	[+19]	—	—	—	—	—
Warsaw		155·5	330	e 19 7	[− 4]	—	—	—	—	e 41·6
Potsdam		158·3	340	—	—	e 29 31	SKKS	e 36 17	PPS	—
De Bilt	Z.	160·2	352	i 19 53a	[+36]	e 25 49	[+61]	i 23 33	PP	—
Uccle	Z.	161·5	355	e 19 16	[− 2]	—	—	—	—	—
Stuttgart		162·6	341	e 20 2a	[+43]	—	—	—	—	—
Triest		163·6	327	i 19 50	[+30]	e 24 40	[−11]	—	—	—
Paris		163·7	356	e 19 16	[− 4]	—	—	e 23 52	PP	—
Zurich		164·0	340	e 20 4	[+43]	—	—	—	—	—
Chur		164·3	338	e 20 9	[+48]	—	—	—	—	—
Clermont-Ferrand		166·7	355	e 20 20	[+57]	—	—	—	—	—
Rome		166·9	318	e 21 2	pPKP	—	—	24 6	PP	—
Granada		174·0	38	i 19 27k	[0]	38 10	PPS	i 24 51	PP	—

Additional readings :—
Hastings +1m.44s.
Wellington +3m.10s.
Tucson i = +12m.29s., +12m.37s., and +14m.21s.
Scoresby Sund i = +21m.37s.
Ksara e = +20m.52s. and +34m.26s.
Helwan eZ = +21m.5s.
Paris e = +30m.36s.?
Rome e = +26m.30s., +29m.56s., and +36m.22s.?
Granada $iPKP_2$ = +20m.58s., PP(Δ > 180°) = +27m.13s., ePPP = +28m.49s., e = +34m.25s.
Long waves were also recorded at Baku.

June 2d. 22h. 58m. 51s. Epicentre 71°·0N. 18°·0W. (as on 1938 Aug. 28d.).

$A = +·3115$, $B = -·1012$, $C = +·9448$; $\delta = -8$; $h = -12$;
$D = -·309$, $E = -·951$; $G = +·899$, $H = -·292$, $K = -·328$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		1·4	248	—	—	i 0 49	+ 1	—	—	—
Copenhagen		20·2	125	e 4 37	− 2	—	—	—	—	—
Oxford		20·8	151	—	—	e 8 29	− 4	—	—	e 10·5
Kew		21·2	149	—	—	e 8 47	+ 6	—	—	e 11·2
De Bilt		21·7	140	i 4 55	0	—	—	—	—	e 11·2
Potsdam		23·3	128	—	—	e 9 22	+ 2	—	—	e 11·3
Warsaw		25·6	117	e 5 33	+ 1	—	—	—	—	e 13·2
Clermont-Ferrand		27·3	148	e 5 50	+ 2	—	—	—	—	—
Moscow		27·9	93	6 8	+14	10 46	+ 9	—	—	—
Calcutta	N.	74·1	67	e 15 59	PPP	—	—	—	—	—

Additional readings :—
Scoresby Sund i = +58s., +1m.19s., +1m.33s., +2m.47s., and +3m.1s.
Warsaw eN = +5m.37s.
Long waves were also recorded at Upsala, Zurich, Edinburgh, Granada, Rome, Baku, Sverdlovsk, and Stonyhurst.

June 2d. 23h. 23m. 22s. Epicentre 71°·0N. 18°·0W. (as at 22h.).

$A = +·3115$, $B = -·1012$, $C = +·9448$; $\delta = -8$; $h = -12$;
$D = -·309$, $E = -·951$; $G = +·899$, $H = -·292$, $K = -·328$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		1·4	248	—	—	i 0 45	− 1	—	—	—
Upsala	N.	18·2	111	e 4 6	−10	—	—	—	—	—
Stonyhurst		18·6	151	—	—	e 7 48	+ 2	—	—	9·3
Copenhagen		20·2	125	e 4 33	− 6	—	—	—	—	—
Oxford		20·8	151	—	—	8 30	− 3	—	—	e 9·9
Kew		21·2	149	i 4 49	0	e 8 44	+ 3	—	—	e 10·6
Hamburg		21·4	131	e 4 50	− 1	e 8 54	+ 9	—	—	e 12·9
De Bilt		21·7	140	i 4 53k	− 2	e 8 46	− 5	—	—	e 10·6
Pulkovo		22·3	96	e 4 57	− 4	e 9 0	− 2	—	—	e 10·8
Uccle		22·7	144	e 5 6	+ 2	e 9 10	+ 1	—	—	e 11·1
Potsdam		23·3	128	e 5 7	− 3	—	—	—	—	e 11·6
Jena	N.	24·2	130	e 5 19	0	—	—	—	—	—
Paris		24·3	147	e 5 22	+ 2	e 9 38?	+ 1	—	—	e 11·6
Strasbourg		25·5	138	e 5 36	+ 4	—	—	—	—	—
Warsaw		25·6	117	e 5 31k	− 1	i 9 56	− 3	—	—	e 12·6
Stuttgart		25·7	137	e 5 38	+ 5	e 9 58	− 3	—	—	—
Prague		25·8	128	e 5 37	+ 3	e 10 3	+ 1	—	—	e 13·1
Clermont-Ferrand		27·3	148	e 5 51	+ 3	—	—	—	—	—
Moscow		27·9	93	5 52	− 2	10 42	+ 5	—	—	—
Triest		29·7	132	e 5 14	−56	e 11 8	+ 2	e 13 9	SSS	e 16·3
Rome		32·9	138	e 6 41	+ 3	e 11 52	− 4	e 13 27	SS	e 15·6
Sverdlovsk		34·4	73	6 53	+ 2	12 23	+ 4	—	—	16·6
Granada		34·7	160	7 3	+ 9	12 36	+12	—	—	18·2
Baku		45·3	95	10 59	PPP	e 18 32	SS	—	—	25·6
Ksara		46·8	114	e 8 37	+ 4	e 15 50	PPS	e 10 32	PP	—
Helwan	Z.	49·2	120	e 8 54	+ 2	—	—	e 10 47	PP	—
Tashkent		50·7	77	e 9 11	+ 8	e 16 19	+ 1	—	—	25·8
Tucson		60·8	284	e 10 30	+14	—	—	—	—	—

Additional readings :—
Scoresby Sund i = +51s., +57s., +1m.10s., +1m.19s., +1m.32s., +2m.56s., +4m.16s., +4m.48s., and +5m.4s.
Potsdam eE = +5m.14s.
Strasbourg e = +5m.41s.
Warsaw SE = +10m.1s.
Triest ePP = +6m.13s.
Granada S = +10m.36s.
Long waves were also recorded at Edinburgh, Salt Lake City, East Machias, Aberdeen, Bucharest, and Toledo.

June 2d. Readings also at 0h. (Riverside, Mount Wilson, Pasadena, Fresno, Lick, Santa Clara, Branner, Philadelphia, Berkeley, Ukiah, and Tucson), 2h. (Mizusawa), 6h. (near Tuai, Huancayo, Lick, near Berkeley, and Branner), 7h. (near Tananarive. Tucson, La Paz, Pasadena, Mount Wilson, Riverside, and Tinemaha), 8h. (Tashkent, Agra, Andijan, and Samarkand), 11h. (La Paz), 13h. (Perth), 14h. (Sitka), 15h. (Bozeman, Fordham, and Philadelphia), 23h. (Tucson, Lincoln, Berkeley, Butte, near Harvard, Haiwee, Palomar, Tinemaha, Riverside, Pasadena, Mount Wilson, and Ukiah).

June 3d. 18h. 5m. 20s. Epicentre 25°·1N. 109°·7W.

$A = -·3056$, $B = -·8536$, $C = +·4219$; $\delta = +2$; $h = +3$;
$D = -·941$, $E = +·337$; $G = -·142$, $H = -·397$, $K = -·907$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		7·1	354	e 1 43	− 5	i 3 12	+ 2	i 2 6	P*	—
Palomar	z.	10·3	325	i 2 31	− 1	—	—	—	—	—
Riverside		11·1	325	i 2 42	− 1	—	—	—	—	—
Mount Wilson		11·6	325	e 2 49	− 1	—	—	—	—	—
Pasadena		11·6	325	i 2 48	− 2	e 5 5	+ 4	—	—	e 5·2
Santa Barbara		12·7	320	e 3 4	− 1	—	—	—	—	—
Haiwee		13·1	329	i 3 9	− 1	—	—	—	—	—
Tinemaha		14·0	331	i 3 25	+ 3	—	—	—	—	—
Fresno	N.	14·5	326	e 3 31	+ 3	—	—	—	—	e 9·4
Denver		15·2	14	e 3 35	− 3	e 6 36	+ 8	i 3 46	pP	e 7·9
Salt Lake City		15·7	355	e 3 43	− 1	e 6 53	SS	i 7 6	SSS	e 8·1
Lick		15·9	325	e 3 45	− 2	e 6 58	SS	—	—	e 8·3
Santa Clara		16·1	322	i 3 51	+ 2	i 6 40	− 9	—	—	—
Branner		16·2	323	e 3 53	+ 3	e 7 5	SS	e 4 13	PPP	e 8·0
Berkeley		16·6	323	e 3 53	− 3	i 7 7	+ 7	e 4 0	PP	e 8·8
Ukiah		18·0	325	e 4 14	+ 1	i 7 43	+11	e 4 32	PP	e 8·7
Lincoln		19·1	34	e 4 27	0	e 7 52	− 5	—	—	e 8·6
Ferndale		19·7	327	e 4 45	+11	e 8 20	+10	—	—	e 10·4
Bozeman		20·6	358	e 4 43	0	e 8 28	− 1	e 4 54	PP	e 10·3
Butte		21·0	357	e 4 48	+ 1	e 8 52	+15	i 5 11	PP	e 9·9
Florissant		21·3	46	e 4 48	− 2	i 8 44	+ 1	i 5 1	pP	i 10·2
St. Louis		21·3	46	i 4 47	− 3	i 8 44	+ 1	—	—	11·5
Spokane		23·4	347	i 5 6	− 5	i 10 27	SSS	—	—	e 12·7
Seattle		24·6	340	e 5 31	+ 8	e 9 53	+11	e 6 2	PP	e 10·3
Chicago U.S.C.G.S.		24·7	42	i 5 24	0	e 9 38	− 6	e 7 56	P_cP	e 12·2
Chicago J.S.A.		24·7	42	e 5 37	+13	e 10 0	+16	—	—	—
Victoria		25·7	340	e 5 16	−17	10 3	+ 2	—	—	11·7
Columbia		26·4	63	e 5 37	− 3	e 9 58	−14	e 6 27	PP	e 11·2
Saskatoon		27·1	5	6 16	+30	11 16	SS	—	—	14·7
Pittsburgh		29·1	51	e 6 8	+ 4	i 10 53	− 3	—	—	—
Georgetown		30·7	55	e 6 15	− 4	e 11 16	− 5	—	—	13·7
Pennsylvania		30·8	52	e 6 15	− 5	e 11 20	− 3	e 7 9	PP	e 16·7
Toronto		30·9	46	—	—	e 11 28	+ 4	e 12 40?	SS	15·7
Philadelphia		32·4	55	e 6 37	+ 3	e 11 30	−18	e 13 17	SS	i 17·2
Fordham		33·6	54	i 6 47a	+ 3	i 12 10	+ 4	e 8 4	PPP	—
Ottawa		34·0	45	6 45	− 3	11 57	−16	—	—	e 15·7
Vermont		35·3	48	—	—	i 12 30	− 3	e 15 0	SSS	i 18·3
Harvard		35·8	52	i 7 0	− 3	e 12 38	− 3	e 15 13	SSS	19·5
Weston		35·9	52	e 7 1	− 3	i 12 41	− 1	15 18	SSS	e 16·8
Shawinigan Falls		36·3	44	7 9	+ 2	12 34	−14	—	—	15·7
Seven Falls		37·8	44	7 18	− 2	13 5	− 6	9 3	PPP	17·7
East Machias		39·3	50	e 7 26	− 6	i 13 36	+ 2	e 9 7	PP	i 20·5
Bermuda		39·8	69	e 7 29	− 7	i 13 45	+ 3	e 9 5	PP	e 17·0
San Juan		40·9	90	i 7 48	+ 2	e 13 55	− 3	e 9 20	PP	e 16·7
Halifax		41·9	51	—	—	e 14 0	−13	e 17 29	SSS	20·7
Honolulu		44·4	275	e 8 2	−10	e 14 28	−18	e 9 43	PP	i 20·6
College		46·7	339	e 8 32	0	e 15 20	− 2	e 10 27	PP	e 19·0
Huancayo		49·9	134	e 8 58	+ 1	e 16 16	+ 9	e 10 3	P_cP	e 20·5
La Paz	z.	57·9	131	1 9 58k	+ 2	i 19 38	?	11 45	PP	29·7
Scoresby Sund		65·8	22	e 10 45	− 4	e 19 34	− 1	e 13 7	PP	e 26·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Aberdeen		78·2	32	—	—	e 21 57	0	—	—	33·1
Edinburgh		78·2	34	—	—	e 22 0	+ 3	—	—	—
Stonyhurst		79·6	35	—	—	e 22 10	− 2	—	—	39·7
Bergen		79·9	27	—	—	e 22 20	+ 4	—	—	—
Oxford		81·3	37	—	—	e 22 29	− 1	—	—	e 37·2
Kew		81·9	37	i 12 23	0	e 22 32	− 4	e 27 50	SS	e 40·7
Lisbon		82·6	51	—	—	e 22 49	+ 6	—	—	39·9
De Bilt		84·4	34	i 12 39	+ 3	e 22 56	− 5	e 23 56	PS	e 39·2
Heligoland	E.	84·6	32	—	—	e 23 10	+ 7	—	—	e 42·7
Uccle		84·7	36	e 12 39	+ 2	23 5	+ 1	e 28 36	SS	e 37·7
Paris		84·8	38	e 12 40?	+ 3	e 23 14	+ 9	—	—	37·7
Upsala	E.	85·0	24	e 15 31	PP	e 23 12	+ 5	—	—	e 39·7
	N.	85·0	24	e 15 51	PP	e 23 8	+ 1	e 28 28	SS	e 39·7
Toledo		85·3	49	e 12 48	+ 8	e 23 15	+ 5	—	—	—
Hamburg		85·9	32	e 12 42	− 1	e 23 11	− 5	—	—	e 41·7
Granada		87·0	51	i 12 56k	+ 8	i 23 32	+ 5	13 32	PcP	43·4
Almeria		87·9	50	—	—	e 23 0	[−20]	—	—	43·7
Potsdam		88·1	32	e 13 5	+11	i 23 41	+ 4	e 24 23	PS	e 38·7
Basle		88·4	37	—	—	e 23 47	+ 7	—	—	—
Jena		88·4	33	e 13 0	+ 5	e 23 28	[+ 6]	—	—	e 33·7
Stuttgart		88·5	35	e 13 35	+39	e 23 38	− 3	—	—	e 41·3
Zurich		89·0	37	e 13 40	+42	e 23 44	− 1	—	—	—
Pulkovo		89·3	19	13 0	+ 1	23 25	[− 4]	16 25	PP	e 34·9
Prague		90·3	32	—	—	e 23 40?	[+ 6]	e 29 49	SS	e 41·7
Vladivostok		91·6	319	13 5	− 5	—	—	e 16 49	PP	46·1
Warsaw		91·8	28	e 13 14	+ 3	e 23 47	[+ 4]	—	—	e 40·7
Rome		94·6	40	e 13 32	+ 8	e 23 54	[− 5]	e 17 16	PP	e 38·0
Moscow		94·8	17	13 27	+ 2	e 24 0	[0]	16 54	PP	—
Sverdlovsk		98·0	5	13 42	+ 3	e 24 16	[− 1]	i 17 38	PP	45·7
Istanbul		103·9	30	24 47	S	(24 47)	[+ 1]	—	—	e 50·7
Almata		111·7	354	e 19 14	PP	—	—	—	—	—
Baku		112·1	17	e 29 47	PPS	e 35 4	SS	e 39 4	SSS	49·7
Frunse		112·2	356	e 19 20	PP	e 28 56	PS	—	—	—
Ksara		112·8	31	e 19 22	PP	e 28 58	PS	e 21 50	PPP	51·7
Helwan		113·8	36	19 37	PP	e 29 18	PS	—	—	—
Andijan		114·5	358	e 19 38	PP	—	—	—	—	66·7
Samarkand		115·5	3	—	—	e 29 24	PS	—	—	55·7
Manila		116·8	302	19 52	PP	—	—	—	—	53·7
Calcutta	N.	129·5	338	e 22 27	PKS	—	—	—	—	—
Colombo	E.	146·9	342	e 18 40?	[−62]	—	—	—	—	—

Additional readings :—
Tucson i = +1m.53s. and +2m.42s., eS = +2m.57s., +3m.16s., +3m.28s., and +3m.38s.
Denver iN = +3m.39s., iSPN = +3m.54s., iE = +4m.3s., eE = +5m.18s., esSE = +6m.49s.
Branner eSE = +7m.9s.
Berkeley eN = +3m.57s., iN = +7m.12s. and +8m.13s.
Lincoln e = +4m.30s. and +8m.4s.
Bozeman ePPP = +5m.18s., e = +8m.37s., i = +8m.48s.
Butte i = +9m.1s.
Florissant iPZ = +4m.52s., isSE = +9m.0s.
Columbia e = +10m.15s.
Pittsburgh iSNW = +10m.57s., iNE = +11m.9s.
Pennsylvania e = +9m.59s., i = +10m.12s., e = +12m.58s., i = +16m.1s.
Philadelphia e = +6m.46s., i = +11m.42s.
Fordham iSSN = +14m.12s.
Vermont eScS = +17m.25s.
Harvard eLgE = +17·7m.
East Machias e = +7m.34s. and +16m.23s.
Bermuda e = +7m.36s.
San Juan ePPP = +9m.54s., i = +14m.5s.
Honolulu ePPP = +10m.20s., e = +17m.18s.
Huancayo e = +9m.1s. and +9m.21s., ePP = +11m.13s., ePPP = +11m.56s., e = +16m.23s., eScS = +18m.55s., eSS = +19m.46s.
Scoresby Sund e = +19m.38s., eSS = +23m.51s.
Kew eSKSE = +22m.44s., eLgEN = +32·7m.
Lisbon eSE = +22m.57s.
Hamburg iN = +23m.23s.
Granada PS = +24m.29s., SS = +29m.14s., SSS = +32m.24s.

Continued on next page.

Potsdam eE = +14m.59s., eSE = +23m.44s.
Jena eN = +23m.40s.
Pulkovo eSS = +30m.16s.
Rome e = +20m.40s., eS = +24m.38s., e = +28m.2s., eSS = +30m.47s.
Moscow ePS = +25m.45s.
Sverdlovsk ePS = +26m.18s.
Vladivostok P_cP = +13m.20s.
Ksara ePPS = +30m.0s.
Helwan i = +27m.43s., e = +31m.40s.
Long waves were also recorded at Tashkent, Sitka, Bucharest, Agra, Budapest, Sofia, Algiers, Bombay, and Strasbourg.

June 3d. Readings also at 0h. (near Bunnythorpe, Wellington, Scoresby Sund, Warsaw, Uccle, and Kew), 1h. (Potsdam), 2h. (near Mizusawa), 4h. (La Paz), 5h. (near Berkeley, Branner, Lick, Fresno, and Tucson), 6h. (near La Paz), 11h. (La Plata), 15h. (Mizusawa), 16h. (La Paz), 19h. (Tucson), 20h. (Tucson and Salt Lake City), 22h. (La Paz, La Plata, and Tucson), 23h. (La Paz and near Stuttgart).

June 4d. 0h. Undetermined shock.

Brisbane iPEN? = 2m.0s., iSEN? = 5m.12s.
Manila iPZ = 6m.5s., SEN = 9m.45s.
Clermont-Ferrand i = 6m.22s.
Pasadena iP = 9m.23s.a, eZ = 10m.8s.
Mount Wilson iP = 9m.24s.a, iZ = 10m.9s.
Riverside iP = 9m.26s.a, eZ = 10m.10s.
Tinemaha iP = 9m.26s.
Palomar iPZ = 9m.28s.a, eZ = 10m.12s.
Tucson iP = 9m.50s.
Ksara e = 16m.1s. and 19m.10s.
Rome iZ = 16m.16s.
Paris e = 16m.19s., eL = 40m.
Almeria PKP = 16m.26s., PP = 21m.28s.
Granada iPKP = 16m.36s., PP = 21m.14s., PPS = 34m.56s., SSS = 47m.10s.
Toledo iPZ = 16m.41s., LN = 47m.
Triest iPKP = 19m.11s., $iPKP_2$ = 19m.54s.
Zurich iS = 19m.19s.

June 4d. 10h. 35m. 8s. Epicentre 33°·1N. 116°·4W.

Strong at Borego, San Diego, etc.

Epicentre: District of San Diego 33° 07′N. 116° 25′W., near Veranga.

F. Neumann.

United States Earthquakes, 1940. Washington, 1943, p. 25.

A = −·3732, B = −·7519, C = +·5435; δ = +2; h = +1;
D = −·896, E = +·445; G = −·242, H = −·487, K = −·839.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar	Z.	0·5	303	i 0 11	− 3	—	—	—	—	—
Riverside		1·2	318	i 0 24	0	—	—	—	—	—
Mount Wilson		1·8	309	i 0 33	+ 1	i 0 57	+ 1	—	—	—
Pasadena		1·8	306	e 0 32	0	i 0 57	+ 1	—	—	—
Fresno	N.	4·6	324	e 1 25	P*	e 2 23	S*	—	—	—
Tucson		4·8	98	i 1 13	− 2	i 2 8	− 4	i 1 31	P_g	i 2·8
Lick		6·0	317	e 1 49	P*	e 3 17	S_g	—	—	—
Santa Clara	E.	6·0	315	—	—	e 3 25	S_g	—	—	—

Additional readings:—
Tucson iP_g = +1m.34s., i = +1m.51s. and +2m.32s., iS_g = +2m.42s.
Long waves were also recorded at Salt Lake City.

June 4d. Readings also at 0h. (Manila), 1h. (Scoresby Sund, near Branner, Lick, Berkeley, and Santa Clara), 2h. (Rome), 3h. (Tucson), 5h. (Huancayo and near Berkeley), 7h. (Adelaide, Christchurch, Wellington, Istanbul, Rome, and Triest), 8h. (Ksara, Granada, Huancayo, and near La Paz), 9h. (Wellington and near Tuai), 12h. (Wellington (2), Tuai (2), Perth, and Granada), 13h. (near Triest and near Tucson), 14h. (Prague, Granada, and near Triest (2)), 17h. (Granada and near Manila), 23h. (Balboa Heights and Tucson).

June 5d. 11h. 1m. 10s. Epicentre 67°·0N. 135°·5W.

$A = -\cdot2803$, $B = -\cdot2755$, $C = +\cdot9196$; $\delta = +13$; $h = -11$;
$D = -\cdot701$, $E = +\cdot713$; $G = -\cdot656$, $H = -\cdot645$, $K = -\cdot393$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		5·4	254	e 1 19k	− 5	i 2 19	− 9	i 1 36	P*	i 2·7
Sitka		9·5	179	i 2 26	+ 6	i 4 9	− 1	i 2 51	PP	i 4·3
Victoria		19·5	155	i 4 24	− 7	8 1	− 5	—	—	9·8
Saskatoon		20·6	123	i 4 40	− 3	8 15	−14	8 50?	SS	10·8
Seattle		20·6	154	e 4 59	PP	e 8 6	−23	—	—	e 10·1
Spokane		21·5	145	e 4 49	− 3	e 8 57	+10	i 5 22	PP	i 11·3
Butte		24·3	137	e 5 22	+ 2	i 9 44	+ 7	i 10 4	SS	i 12·0
Bozeman		25·0	136	i 5 26a	− 1	i 9 51	+ 2	e 6 2	PP	e 10·6
Ferndale		27·2	162	e 6 55	+68	e 10 55	+30	—	—	—
Ukiah		28·7	159	e 6 5	+ 4	e 10 57	+ 7	e 6 52	PP	—
Salt Lake City		29·3	142	e 6 4	− 2	e 10 56	− 3	e 6 56	PP	e 12·1
Berkeley		30·2	158	e 6 12	− 2	i 11 18	+ 5	e 7 13	PP	—
Lick		30·7	158	e 6 17	− 2	e 11 0	−21	—	—	15·6
Santa Clara		30·7	158	e 6 19	0	e 10 34	−47	—	—	e 13·2
Tinemaha		31·5	153	i 6 23	− 3	—	—	—	—	—
Fresno	N.	31·6	156	e 6 27	+ 1	—	—	—	—	—
Denver		32·1	133	i 6 23	− 8	e 11 35	− 8	e 7 26	PP	e 15·1
Haiwee		32·5	153	i 6 33	− 1	—	—	—	—	—
Lincoln		33·8	120	e 8 3	PP	i 12 12	+ 2	e 9 8	PcP	i 15·6
Santa Barbara		33·9	156	i 6 45	− 2	—	—	e 8 9	PP	—
Mount Wilson		34·3	153	i 6 50a	0	—	—	—	—	—
Pasadena		34·4	153	i 6 49a	− 2	e 12 17	− 2	e 8 8	PP	e 14·5
Riverside		34·7	153	i 6 52a	− 2	—	—	—	—	—
Scoresby Sund		35·6	33	e 7 2k	+ 1	e 12 28	−10	e 8 21	PP	i 14·2
Chicago, J.S.A.		36·1	110	e 7 3	− 2	i 12 43	− 2	i 8 13	PP	—
Chicago, U.S.C.G.S.		36·1	110	i 7 3	− 2	e 12 36	− 9	e 8 18	PP	i 18·5
Ann Arbor		37·2	105	i 7 20	+ 5	i 13 2	0	8 44	PP	—
Ottawa		37·6	95	7 20	+ 2	i 13 8	0	15 14	SS	16·8
Toronto		37·6	99	7 23	+ 5	13 8	0	14 40	SS	16·8
Tucson		37·7	145	i 7 18a	− 1	e 13 12	+ 2	i 8 44	PP	i 18·9
Florissant		37·8	115	i 7 18	− 2	i 13 21	+10	i 13 14	PcS	—
Shawinigan Falls		37·8	90	7 21	+ 1	—	—	—	—	16·8
St. Louis		38·0	115	e 7 19	− 2	e 13 15	+ 1	8 45	PP	—
Seven Falls		38·1	89	7 20	− 2	13 17	+ 1	15 26	SS	17·8
Vermont		39·4	94	e 7 35	+ 2	e 13 35	0	e 9 42	PPP	i 18·2
Pittsburgh		40·2	103	e 7 35	− 5	i 13 40	− 8	—	—	—
East Machias		41·4	88	e 7 53	+ 3	i 14 16	+11	i 16 31	SS	i 20·6
Harvard		41·7	93	i 7 52	0	i 14 10	0	e 16 26	SS	e 17·8
Weston		41·9	93	i 7 55	+ 1	i 14 14	+ 1	17 9	SS	i 20·5
Fordham		42·2	97	i 7 59a	+ 3	i 14 20	+ 3	i 9 38	PP	—
Philadelphia		42·5	98	e 7 55	− 4	e 13 55	−27	e 9 31	PP	i 18·6
Georgetown		42·6	101	e 7 55	− 4	i 14 18	− 5	—	—	—
Halifax		43·0	84	e 9 38	PP	e 14 24	− 5	—	—	17·8
Columbia		45·4	109	e 8 21	− 1	e 15 2	− 2	e 9 34	PP	e 18·9
Honolulu		47·8	209	e 8 43	+ 2	e 15 35	− 3	e 10 8	PcP	e 19·3
Sapporo		48·7	285	8 45	− 3	—	—	—	—	—
Bergen		49·7	25	e 9 6	+10	e 16 11	+ 7	e 19 50?	SS	21·8
Aberdeen		51·4	31	e 13 4	?	i 16 23	− 5	(i 20 6)	SS	25·4
Upsala		51·9	18	e 9 9	− 3	e 16 31	− 4	e 19 50?	SS	e 22·8
Mizusawa		52·2	282	8 19	−56	e 16 35	− 4	—	—	—
Vladivostok		52·2	292	i 12 4	PPP	17 4	PPS	e 20 26	SS	27·2
Edinburgh		52·3	32	—	—	e 16 50	+10	—	—	—
Irkutsk		52·8	319	e 11 14	PP	16 37	−10	20 32	SS	28·8
Sendai		53·0	282	9 21	0	16 53	+ 3	—	—	—
Pulkovo		53·1	10	e 9 22	+ 1	i 16 48	− 3	—	—	e 25·3
Stonyhurst		54·4	33	e 13 40	?	i 17 12	+ 3	21 0	SS	27·8
Copenhagen		55·3	22	i 9 36	− 2	17 21	0	—	—	—
Nagano		55·4	283	9 40	+ 2	17 42	PPS	—	—	—
Tokyo Cen. Met. Ob.		55·7	281	9 43	+ 3	17 32	+ 6	—	—	—
Sverdlovsk		55·9	350	e 9 41	− 1	17 30	+ 1	24 20	Lq	32·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Heligoland		56·0	27	e 9 41	− 2	e 17 32	+ 2	e 22 17	SS	e 25·6
Hamburg		57·0	25	e 9 50	0	e 17 46	+ 3	e 22 40	SS	e 28·8
Gihu		57·1	283	9 51	+ 1	26 48	L	—	—	(26·8)
Kew		57·1	32	i 9 49	− 1	e 17 45	0	i 10 59	P_cP	e 28·8
Moscow		57·5	6	9 52	− 1	17 49	− 1	—	—	27·3
De Bilt		57·6	28	e 9 53k	− 1	e 17 53	+ 2	—	—	e 25·8
Kameyama		57·7	283	9 59	+ 4	17 58	+ 5	—	—	—
Osaka		58·1	284	10 1	+ 3	18 3	+ 5	—	—	—
Potsdam		58·6	23	i 10 2	+ 1	i 18 5	+ 1	i 21 55	SS	—
Uccle		58·7	30	i 10 0k	− 2	18 5	− 1	18 53	PS	25·8
Zinsen		59·0	294	9 58	− 6	18 6	− 4	—	—	—
Jena		59·8	23	e 10 7	− 2	e 18 20	0	—	—	e 26·8
Warsaw		59·8	17	e 10 8	− 1	18 16	− 4	22 11	SS	e 24·8
Koti		60·0	285	10 14	+ 3	18 14	− 9	—	—	—
Paris		60·2	31	e 10 11	− 1	e 18 27	+ 2	—	—	e 26·8
Hukuoka		61·1	288	—	—	26 50?	?	—	—	33·8
Prague		61·1	22	e 10 16	− 2	e 18 30	− 7	—	—	e 30·8
Strasbourg		61·4	27	e 10 20	0	e 18 45	+ 5	—	—	32·8
Stuttgart		61·5	26	e 10 19k	− 2	e 18 42	0	e 22 40	SS	e 28·8
Miyazaki		61·6	286	10 20	− 2	—	—	—	—	—
Basle		62·4	27	e 10 28	+ 1	e 19 8	+15	—	—	—
Zurich		62·7	27	e 10 28	− 1	—	—	—	—	—
Clermont-Ferrand		63·2	32	e 10 31	− 1	—	—	—	—	—
Chur		63·4	27	e 10 33	− 1	e 19 9	+ 3	—	—	—
Budapest		64·2	19	19 17	S	(19 17)	+ 1	i 19 26	PS	e 37·8
San Juan		65·2	102	e 10 52	+ 7	i 19 23	− 5	e 11 13	P_cP	e 26·5
Triest		65·3	24	e 10 48	+ 2	i 19 33	+ 4	e 13 9	PP	i 30·6
Lisbon		67·0	44	10 56	− 1	19 51	+ 1	—	—	31·4
Toledo		67·2	40	i 10 57	− 1	e 19 56	+ 4	—	—	—
Almata		67·3	335	—	—	i 19 53	− 1	—	—	38·8
Bucharest		68·0	14	e 11 6	+ 3	20 0	− 2	13 38	PP	34·8
Frunse		68·1	337	11 2	− 2	—	—	—	—	39·8
Yalta		68·6	9	i 11 10	+ 3	i 20 11	+ 2	—	—	—
Rome		68·7	27	i 11 6k	− 1	i 20 0	−10	e 21 0	PPS	i 31·9
Balboa Heights		68·9	118	e 10 50?	−19	—	—	—	—	—
Sofia		69·4	17	e 11 15	+ 3	e 20 17	− 1	—	—	31·1
Tchimkent		69·4	341	i 11 13	+ 1	—	—	—	—	e 42·8
Sotchi		69·7	5	e 11 12	− 2	—	—	—	—	—
Granada		69·9	40	i 11 15	0	i 20 32	+ 8	11 42	P_cP	34·6
San Fernando		69·9	43	e 11 17	+ 2	i 20 28	+ 4	e 25 7	SS	34·8
Grozny		70·0	0	11 16	+ 1	20 23	− 3	—	—	—
Almeria		70·5	39	11 18	0	20 28	− 4	14 .2	PP	73·8
Andijan		70·5	338	i 11 13	− 5	—	—	—	—	e 45·8
Istanbul		71·6	13	11 24	− 1	19 44	−60	14 16	PP	43·8
Algiers		71·8	35	e 11 29	+ 3	e 21 32	PPS	e 28 58	SSS	e 33·8
Samarkand		72·3	343	11 28	− 1	i 20 51	− 1	—	—	43·8
Baku		72·9	357	—	—	20 58	− 1	29 14	SSS	33·8
Hong Kong		77·3	297	16 40	PPP	21 50	+ 2	26 58	SS	38·8
Ksara		79·3	8	e 12 13	+ 4	e 22 24	+15	e 15 14	PP	38·3
Dehra Dun	N.	79·7	331	—	—	e 22 15	+ 2	e 30 50?	SSS	e 38·7
Phu-Lien		81·2	303	e 12 19	0	e 22 28	− 1	—	—	—
Manila		81·9	288	e 12 25	+ 2	22 46	+10	—	—	39·7
Agra	E.	82·8	330	e 13 38	+71	22 38	− 7	28 0	SS	—
Helwan		82·9	12	12 26	− 2	22 48	+ 2	12 53	pP	—
Calcutta	N.	84·9	320	e 12 40	+ 2	i 23 7	+ 1	e 15 49	PP	e 40·4
Huancayo		90·0	122	e 13 6	+ 3	e 23 33	[0]	e 16 25	PP	i 36·0
Bombay		91·8	334	e 13 14	+ 3	i 24 10	− 1	i 16 54	PP	42·3
Hyderabad	N.	92·1	328	—	—	24 16	+ 3	—	—	—
La Paz		96·6	118	e 15 12	?	26 10	PS	32 20	SSP	46·0
Kodaikanal	E.	99·3	328	e 14 48	+63	—	—	—	—	—
Colombo	E.	102·0	324	e 19 29	PPP	—	—	—	—	46·8
Rio de Janeiro		111·7	98	e 34 50	S	(e 34 50)	SS	—	—	e 51·8
Riverview	N.	114·5	242	—	—	e 36 11	SSP	e 52 56	L_g	e 55·1
Christchurch		117·1	220	18 3	[−44]	28 29	PS	22 45	PPP	55·4

For Notes see next page.

NOTES TO JUNE 5d. 11h. 1m. 10s.

Additional readings :—
College i = +1m.41s.
Sitka i = +2m.37s. and +3m.52s.
Victoria iS = +7m.38s.
Seattle i = +8m.29s.
Spokane i = +6m.9s., eN = +10m.37s.
Butte i = +9m.51s.
Bozeman i = +5m.33s., iPPP = +6m.21s., ePcP = +8m.1s., i = +9m.57s. and +10m.1s.
Ferndale eE = +9m.32s.
Ukiah ePcP = +8m.28s., i = +11m.23s.
Salt Lake City ePcP = +8m.17s., e = +11m.2s., i = +11m.9s., +11m.19s., and +11m.33s.
Berkeley eN = +7m.9s.
Denver ePPPE = +7m.35s., eN = +7m.42s., eE = +12m.17s., iSSE = +13m.18s., iE = +14m.6s., eN = +14m.22s., iE = +14m.32s.
Lincoln e = +13m.49s.
Scoresby Sund e = +7m.34s., ePPP = +8m.54s., i = +12m.37s. and +12m.48s.
Chicago J.S.A. iPPP = +8m.37s., iSS = +14m.44s.
Chicago U.S.C.G.S. i = +12m.44s., e = +14m.0s., i = +14m.51s., +15m.17s., and +16m.24s.
Ann Arbor SSS = +15m.14s.
Ottawa e = +15m.51s.
Tucson i = +7m.22s., +7m.28s., +7m.43s., and +8m.48s., iPPP = +8m.58s., iPcP = +9m.40s., i = +13m.18s., e = +16m.0s., iScS = +17m.38s.
Florissant eN = +13m.0s., iE = +14m.46s.
St. Louis iE = +14m.27s. and +14m.52s.
Vermont e = +13m.43s., iSS = +16m.8s., i = +17m.20s., iScS = +17m.38s.
Harvard eScSE = +17m.10s.
Weston eSSS = +17m.54s.
Fordham iSS = +17m.29s.
Philadelphia i = +7m.58s., +14m.15s., and +14m.19s., iSS = +16m.47s., i = +17m.21s., iScS = +17m.57s.
Columbia ePP = +10m.5s., ePPP = +11m.23s., eScS = +18m.17s.
Honolulu e = +9m.8s., ePP = +10m.36s., ePPP = +11m.28s., i = +15m.45s., eScS = +18m.35s.
Aberdeen ePPPEN = +15m.42s., iPSN = +20m.29s.
Upsala iPN = +9m.16s., e = +18m.55s., iN = +20m.38s., SSSN = +21m.27s., eSSSE = +21m.38s.
Mizusawa PN? = +8m.32s.
Vladivostok iPPP = +12m.59s.
Stonyhurst i = +24m.28s. and +24m.47s.
Copenhagen +19m.16s.
Heligoland eSSSE = +24m.20s.
Hamburg eE = +18m.42s., e = +25m.14s.
Kew ePPZ = +12m.0s., ePPPZ = +13m.12s., ePS = +17m.54s., eScSE = +19m.44s., eEZ = +19m.57s., SSN = +21m.24s., eSSSEZ = +24m.22s., eLqEN = +26·8m.
Potsdam ePNW = +10m.5s., ePE = +10m.12s., eSSNW = +21m.58s.
Uccle iZ = +10m.3s., SSN = +21m.52s.
Warsaw iZ = +10m.11s., iSE = +18m.19s., iZ = +18m.22s., eE = +23m.28s.
Budapest ePN = +19m.21s.
San Juan ePP = +12m.52s., ePPP = +14m.33s., eScS = +20m.33s., eSS = +23m.20s.
Triest ePPP = +14m.29s., ePS = +20m.1s., eSS = +23m.28s., e = +23m.54s., eSSS = +26m.16s.
Lisbon Z = +11m.2s.
Bucharest PcPN = +11m.22s.
Rome iEN = +11m.11s., e = +19m.10s., i = +25m.42s.
Granada PP = +14m.21s., PPP = +15m.36s., iSZ = +20m.35s., ScSZ = +20m.42s., PSZ = +21m.25s., SS = +25m.32s., SSS = +28m.30s.
San Fernando iSSSN = +28m.32s.
Istanbul SS = +25m.36s.
Algiers e = +13m.30s.
Hong Kong ? = +30m.27s.
Helwan iZ = +12m.32s. and +14m.2s., SE = +23m.6s., sSE = +24m.0s., PSEN = +26m.56s., SSE = +29m.13s.
Calcutta eScSN = +23m.22s., eSSN = +28m.24s., eSSSN = +32m.12s.
Huancayo e = +13m.13s., eS = +24m.0s., iPS = +25m.3s., eSS = +29m.24s., eSSS = +33m.35s., i = +34m.26s.
Bombay iEN = +25m.1s., iE = +25m.15s., iPSEN = +25m.39s., eEN = +29m.56s.
Christchurch eZ = +24m.20s., SKKSN = +29m.46s., LqE = +48·8m.
Long waves were also recorded at Branner, Arapuni, Wellington, Adelaide, Tananarive, Cape Town, and La Plata.

June 5d. 14h. 47m. 45s. Epicentre 18°·0N. 120°·0E.
(approximate Epicentre as on 1939 April 10d.).

$A = -·4758$, $B = +·8242$, $C = +·3071$; $\delta = 0$; $h = +5$;
$D = +·866$, $E = +·500$; $G = -·154$, $H = +·266$, $K = -·952$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		3·5	165	i 1 6s	P*	2 10	Sg	—	—	—
Hong Kong		6·9	309	1 33	−12	3 10	+ 2	1 56	P*	3·6
Phu-Lien		13·0	285	e 3 2	− 7	—	—	—	—	—
Osaka		21·5	37	4 59	+ 7	8 32	−15	5 26	PPP	—
Vladivostok		27·0	20	e 6 48	+63	e 12 7	SSS	—	—	16·0
Calcutta	N.	30·0	284	e 9 52	?	e 11 4	− 6	—	—	(e 15·4)
Irkutsk		36·4	344	8 47	PP	17 15	?	—	—	e 18·2
Agra	E.	39·7	291	e 7 31	− 5	e 15 37	SS	e 9 8	PP	—
Kodaikanal	E.	41·9	266	e 3 15?	?	—	—	—	—	—
Almata		44·1	315	e 8 14	+ 2	—	—	—	—	—
Bombay		44·7	279	e 8 19	+ 3	e 14 48	− 6	—	—	—
Frunse		45·6	313	e 8 21	− 3	—	—	—	—	—
Andijan		46·6	309	e 8 26	− 6	e 15 19	− 2	—	—	27·2
Tchimkent		49·0	311	e 8 53	+ 3	—	—	—	—	—
Samarkand		50·4	306	i 9 1	0	—	—	—	—	—
Sverdlovsk		58·5	327	i 10 0	0	18 10	+ 7	—	—	29·2
Moscow		71·1	324	e 11 20	− 2	—	—	—	—	—
Pulkovo		74·5	329	e 11 47	+ 5	—	—	—	—	—
Ksara		75·4	300	e 11 50	+ 3	e 21 43	+16	e 14 48	PP	—
Helwan		80·1	298	i 12 14k	+ 1	e 22 15	− 3	—	—	—
Warsaw		81·3	322	—	—	e 22 15?	−15	—	—	e 41·2
Potsdam		85·8	324	—	—	e 23 16	+ 1	—	—	e 45·2
Hamburg	E.	87·0	325	—	—	e 23 15?	[+ 1]	—	—	e 47·2
Granada		103·6	317	23 42	?	33 38	SSP	—	—	63·0

Additional readings :—
Hong Kong ? = +2m.10s., +2m.47s. and +3m.23s.
Osaka SS = +9m.24s.
Long waves were also recorded at Rome and De Bilt.

June 5d. Readings also at 1h. (near Branner, Lick, and Berkeley), 2h. (Tucson (2), near Apia, Riverside, Mount Wilson, and Tinemaha), 11h. (La Paz), 12h. (near Mizusawa and Wellington), 13h. (near Hukuoka), 15h. (near Mizusawa), 18h. (near Branner, Kew, and Tucson), 20h. (Tucson), 21h. (near Tucson), 22h. (near Tucson and near Mizusawa), 23h. (near La Paz).

June 6d. Readings at 0h. (Calcutta), 1h. (Almeria and near Granada), 3h. (near Algiers), 6h. and 8h. (2) (Tucson), 11h. (Manila), 13h. (Scoresby Sund), 14h. (Balboa Heights, Rome, and Zurich), 15h. (Toledo and Tucson), 16h. (Wellington and Arapuni), 18h. (near Balboa Heights), 20h. (near Granada), 21h. (Tucson), 22h. (Fresno, Lick, and near Tucson), 23h. (Fresno (3) and near Tucson (4)).

June 7d. 7h. 17m. 14s. Epicentre 9°·7S. 151°·5E.

$A = -·8664$, $B = +·4704$, $C = -·1674$; $\delta = -5$; $h = +7$;
$D = +·477$, $E = +·879$; $G = +·147$, $H = -·080$, $K = -·986$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	E.	17·7	176	i 4 22	PP	i 7 27	+ 2	—	—	18·9
Riverview		24·0	180	e 5 17	0	i 9 38	+ 6	10 36	SS	e 12·3
Adelaide		27·8	203	i 7 6	PPP	10 24	−11	—	—	i 14·4
Wellington		37·6	151	8 43	PP	13 6	− 2	18 30	ScS	16·0
Christchurch		38·4	155	7 24	− 1	13 16	− 4	15 8	Lq	19·0
Manila		38·7	308	i 7 28	+ 1	i 13 27	+ 2	—	—	19·1
Perth		39·7	230	11 11	?	16 21	SS	17 46	SSS	19·8
Kameyama		46·5	344	8 35	+ 4	—	—	—	—	—
Osaka		46·5	342	8 28	− 3	15 10	− 9	—	—	—
Tokyo Cen. Met. Ob.		46·5	347	8 37	+ 6	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kobe		46·8	342	8 34	+ 1	15 24	0	—	—	—
Nagano		47·8	346	8 44	+ 3	—	—	—	—	—
Hong Kong		48·5	311	9 36	+50	15 50	+ 2	—	—	—
Sendai		48·7	349	8 48	0	15 47	− 3	—	—	—
Mizusawa	E.	49·5	350	(9 25)	+31	9 25	P	—	—	—
Zinsen		52·4	334	9 22	+ 6	—	—	—	—	—
Vladivostok		55·5	343	i 9 40	+ 1	e 17 28	+ 4	—	—	25·7
Irkutsk		73·8	331	11 37	− 1	21 9	0	—	—	e 38·8
Kodaikanal	E.	76·3	283	—	—	e 21 46?	+ 9	—	—	—
Agra	E.	80·0	299	e 12 11	− 2	i 22 15	− 2	—	—	—
Bombay		82·6	290	—	—	i 22 40	− 3	—	—	—
Sitka		89·3	31	—	—	e 23 24	[− 5]	—	—	e 38·6
Samarkand		91·9	309	—	—	25 15	PS	—	—	—
Victoria		93·9	42	—	—	e 23 46?	[− 9]	—	—	39·8
Pasadena		95·6	56	e 13 29	+ 1	—	—	—	—	e 50·3
Mount Wilson	Z.	95·7	56	e 13 30	+ 1	—	—	—	—	—
Tinemaha	Z.	96·0	54	e 13 32	+ 2	—	—	—	—	—
Sverdlovsk		98·5	326	13 41	− 1	25 6	− 2	—	—	40·8
Tucson		101·6	59	e 18 7	PP	e 24 59	[+24]	—	—	e 41·4
Baku		105·0	309	e 19 18	?	43 10	?	—	—	67·8
Moscow		111·4	326	18 22	[−14]	—	—	—	—	—
Ksara		116·6	302	e 20 32	PP	e 30 18	PPS	—	—	—
Scoresby Sund		119·1	357	e 20 6	PP	e 25 57	[+10]	e 36 44	SS	e 54·6
Warsaw		121·7	327	e 20 31	PP	e 28 9	?	e 37 9	SS	e 58·8
Rome		131·8	318	e 19 16	[+ 1]	e 39 27	SS	e 21 42	PP	—
Paris		133·2	332	21 51	PP	—	—	—	—	—
San Juan		142·6	72	e 14 10	?	—	—	—	—	—

Additional readings :—
Riverview iE = +9m.43s.
Adelaide i = +11m.44s.
Christchurch i?Z = +16m.26s.
Perth PP = +11m.51s.
Sitka e = +23m.32s.
Scoresby Sund eS = +30m.5s., eSSS = +41m.10s.
Warsaw eE = +37m.13s.
Rome iPP = +22m.45s.
Long waves were also recorded at Berkeley, Huancayo, Honolulu, East Machias, Bozeman, Harvard, Ukiah, Arapuni, and Sydney.

June 7d. 19h. 49m. 24s. Epicentre 39°·6N. 38°·1E. (as on 1940 Feb. 3d.).

A = +·6080, B = +·4767, C = +·6349 ; δ = 0 ; h = −2 ;
D = +·617, E = −·787 ; G = +·500, H = +·392, K = −·773.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Erevan	5·0	80	1 21	+ 3	2 27	S*	—	—	—
Yalta	5·7	330	i 1 20	− 8	i 2 22	−13	—	—	—
Piatigorsk	5·8	38	1 27	− 2	2 37	− 1	2 55	S*	—
Ksara	6·0	198	e 1 35	+ 3	e 2 45	+ 2	3 20	S_g	—
Sebastopol	6·0	328	1 22	−10	—	—	—	—	—
Grozny	6·8	55	1 44	0	3 9	+ 6	—	—	—
Istanbul	7·0	284	1 26	−20	3 45	S_g	—	—	—
Baku	9·1	81	e 2 19	+ 5	—	—	—	—	5·4
Bucharest	10·1	303	—	—	e 3 36	−49	—	—	i 7·5
Sofia	11·6	291	—	—	e 5 48	SSS	—	—	e 7·6
Warsaw	17·2	323	—	—	e 6 53	−21	e 7 15	SS	e 11·6
Rome	19·5	286	e 4 36	+ 5	e 7 48	−18	—	—	—
Potsdam	21·5	315	—	—	e 8 18	−29	—	—	—
Samarkand	22·2	80	e 4 43	−17	e 8 48	−12	—	—	10·7
Sverdlovsk	22·7	33	4 49	−15	8 47	−22	—	—	10·6

Additional readings :—
Erevan S_g = +3m.6s.
Istanbul P_g = +1m.44s.
Warsaw eE = +6m.59s.
Potsdam eE = +8m.30s.
Long waves were also recorded at Granada, Hamburg, Moscow, Paris, Tashkent, and Pulkovo.

June 7d. 23h. 9m. 34s. Epicentre 42°·0N. 42°·0E.

$A = +·5539$, $B = +·4988$, $C = +·6666$; $\delta = -4$; $h = -2$;
$D = +·669$, $E = -·743$; $G = +·495$, $H = +·446$, $K = -·745$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Piatigorsk		2·2	21	0 36	− 2	—	—	—	—	—
Erevan		2·6	134	0 48	+ 4	1 22	+ 5	0 53	P_g	—
Grozny		3·0	65	0 48	− 2	1 27	0	0 54	P^*	—
Baku		6·2	104	—	—	2 45	− 3	—	—	3·4
Ksara		9·5	212	e 2 17	− 3	—	—	e 2 45	PPP	—
Istanbul		9·8	268	2 42	PPP	4 52	SSS	—	—	—
Moscow		14·1	348	e 3 12	−11	—	—	—	—	—
Helwan		14·9	219	e 2 23	?	i 6 38	SS	—	—	i 8·1
Warsaw		17·5	313	e 3 47	−20	e 7 45	SS	e 7 53	SSS	e 11·4
Samarkand		19·0	90	—	—	1 7 21	−34	—	—	—
Sverdlovsk		19·1	33	(4 5)	−22	—	—	—	—	10·4
Pulkovo		19·2	342	—	—	e 8 20	SS	—	—	—
Tashkent		20·4	83	e 4 39	− 2	e 7 54	−31	—	—	—
Triest		20·7	290	e 4 10	−34	e 8 32	+ 1	e 4 38	PP	—
Rome		21·9	279	e 4 44	−13	e 8 25	−29	—	—	e 11·8
Potsdam		22·1	308	—	—	e 9 12	+14	e 9 26?	SS	15·6

Additional readings :—
Ksara i = +3m.15s.
Long waves were also recorded at Sofia, Paris, and Granada.

June 7d. Readings also at 5h. (Fresno and near Tucson), 8h. (Mizusawa and near Apia), 9h. (Collmberg and Paris), 10h. (Scoresby Sund, Tucson (2), Fresno, Palomar, Riverside, Pasadena, Mount Wilson, and Tinemaha), 11h. (Bermuda), 12h. (La Paz, Palomar, Riverside, Pasadena, Mount Wilson, Tucson, and Tinemaha), 15h. (Tucson), 16h. (near Berkeley, Branner, Lick, and Fresno), 17h. (near Harvard and Tucson), 20h. (Ksara), 21h. (Tucson).

June 8d. 3h. 59m. 45s. Epicentre 18°·1S. 172°·2W. (as on 1937 Aug. 24d.).

$A = -·9424$, $B = -·1291$, $C = -·3088$; $\delta = +14$; $h = +5$;
$D = -·136$, $E = +·991$; $G = +·306$, $H = +·042$, $K = -·951$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Apia		4·3	6	e 0 52	−16	1 17	−43	—	—	—
Wellington		25·7	204	—	—	e 9 15	−46	—	—	i 13·9
Honolulu		41·6	21	—	—	e 12 39	?	—	—	—
Pasadena	z.	73·1	45	e 11 45	+11	—	—	—	—	—
Mount Wilson	z.	73·2	45	e 11 33	− 2	—	—	—	—	—
Manila		73·4	292	i 11 38k	+ 2	21 41	PS	—	—	—
Palomar	z.	73·5	46	e 11 38	+ 2	—	—	—	—	—
Riverside	z.	73·5	45	e 11 38	+ 2	—	—	—	—	—
Tucson		77·2	50	e 11 58	+ 1	—	—	—	—	—
Victoria		79·3	31	—	—	e 22 15?	+ 6	—	—	40·2
Vladivostok		79·6	322	e 12 8	− 2	e 22 12	− 1	—	—	37·0
Sitka		81·0	19	—	—	e 22 5	−22	—	—	—
San Juan		110·3	76	—	—	e 25 20	[+ 6]	—	—	—
Warsaw		144·4	345	e 19 51	[+13]	e 41 8	SS	—	—	e 79·2
Potsdam		145·6	355	e 20 18	[+38]	e 33 27	PS	—	—	e 79·2
De Bilt		146·0	2	e 20 2	[+21]	—	—	—	—	80·2
Kew		146·1	8	20 6	[+25]	—	—	—	—	e 78·2
Uccle	z.	147·3	4	e 19 48	[+ 5]	—	—	—	—	—
Paris		149·1	7	19 54	[+ 8]	—	—	—	—	e 80·2
Ksara		150·4	306	e 19 59	[+11]	—	—	e 23 48	PP	—
Basle		150·6	0	e 19 55	[+ 7]	—	—	—	—	—
Triest		152·1	351	e 20 11	[+20]	—	—	—	—	—
Clermont-Ferrand		152·2	6	e 19 55	[+ 4]	—	—	—	—	—
Helwan		155·5	302	i 20 24	[+29]	e 30 51	{+ 3}	e 23 57	PP	—
Rome		156·0	352	e 20 26	[+30]	e 44 8	SS	e 24 25	PP	e 78·0

For Notes see next page.

NOTES TO JUNE 8d. 3h. 59m. 45s.

Additional readings :—
Apia $P_g = +1m.2s.$, $S_g = +1m.34s.$
Manila ePEN = +11m.44s.
Warsaw eN = +19m.56s., eE = +41m.28s.
Uccle i = +20m.16s., e = +21m.13s.
Paris i = +20m.23s.
Triest e = +21m.30s.
Helwan eZ = +20m.45s.
Rome eZ = +21m.24s., ePPP = +28m.6s., e = +39m.10s.
Long waves were also recorded at Salt Lake City, Huancayo, Riverview, Berkeley, East Machias, Ukiah, Scoresby Sund, Sydney, Fordham, Harvard, La Paz, and Sverdlovsk.

June 8d. Readings also at 3h. (San Juan, Mount Wilson, Palomar, Riverside, and Tucson), 4h. (Bozeman), 7h. (Scoresby Sund), 11h. (Pasadena, Mount Wilson, Palomar, Riverside, and Tucson), 12h. (near Fordham), 14h. (near Mizusawa, and near Granada), 16h. (Tucson), 17h. (Fresno, and near Tucson), 18h. (Berkeley), 19h. (Tucson), 20h. (Ksara).

June 9d. Readings at 0h. (Tucson), 1h. (Sydney, Riverview, Perth, and Adelaide), 2h. (Potsdam, Wellington, and Tucson), 7h. (near Mizusawa and Sofia), 11h. (Triest and Rome), 17h. (near Chur, Basle, Zurich, Stuttgart, and Triest), 18h. (Toledo), 19h. (Warsaw, Rome, and Triest).

June 10d. Readings at 1h. (St. Louis), 3h. (Sofia), 5h. (Warsaw and Mizusawa), 9h. (near La Paz), 11h. (Huancayo, near Manila, and Rome), 12h. (San Juan, La Paz, and near Mizusawa), 13h. (Pasadena, Tucson, Mount Wilson, and Tinemaha), 14h. (Pennsylvania), 19h. (near Rome and Berkeley (2)), 20h. (Rome), 21h. (Harvard, Fordham, and Scoresby Sund), 23h. (near Berkeley, Lick, and Branner).

June 11d. 8h. 42m. 10s. Epicentre 8°·0S. 124°·5E.

$A = -·5610$, $B = +·8162$, $C = -·1383$; $\delta = +3$; $h = +7$;
$D = +·824$, $E = +·566$; $G = +·078$, $H = -·114$, $K = -·990$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		22·7	351	i 5 9	+ 5	i 9 26	+17	—	—	—
Perth		25·1	198	5 32	+ 4	i 9 50	− 1	i 10 32	SS	15·8
Adelaide		29·8	158	5 4	−67	9 54	?	—	—	13·8
Brisbane		33·2	130	e 6 32	− 8	i 11 38	−22	e 12 14	SS	i 16·9
Phu-Lien		33·6	329	e 6 52	+ 8	12 16	+10	—	—	—
Riverview		35·6	141	e 6 58	− 3	i 12 29	− 9	—	—	e 18·3
Sydney		35·6	141	—	—	e 12 8	−30	—	—	e 15·2
Koti		42·2	12	7 54	− 2	—	—	—	—	—
Kobe		43·7	14	8 8	0	14 32	− 7	—	—	—
Nagano		46·3	16	8 30	+ 1	15 7	− 9	—	—	—
Calcutta	N.	46·6	312	e 8 48	+16	i 15 42	PS	i 19 27	SSS	i 25·2
Colombo	E.	46·9	287	8 41	+ 7	—	—	—	—	24·7
Sendai		48·5	19	8 43	− 3	15 37	−11	—	—	—
Mizusawa		49·4	18	8 38	−15	—	—	10 50	PP	—
Kodaikanal	E.	50·2	291	e 9 7	+ 7	16 25	+14	—	—	25·1
Vladivostok		51·3	8	e 9 6	− 2	i 16 26	0	—	—	23·5
Hyderabad		52·0	300	9 18	+ 5	16 41	+ 5	11 11	PP	26·7
Wellington		55·4	136	—	—	e 23 50?	SSS	—	—	29·8
Agra	E.	57·0	310	i 9 46a	− 4	i 17 41	− 2	10 40	P_cP	—
Bombay		57·6	298	i 9 58	+ 4	i 18 3	+12	i 13 43	PPP	30·1
Frunse		68·0	322	11 4	+ 1	20 8	+ 6	—	—	—
Andijan		68·2	320	e 11 6	+ 2	e 20 10	+ 6	—	—	—
Samarkand		71·2	316	i 11 23	0	i 20 41	+ 1	—	—	—
Sverdlovsk		82·9	330	i 12 29	+ 1	i 22 47	+ 1	—	—	39·8
Baku		83·6	312	e 12 40	+ 8	—	—	—	—	45·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		93·3	303	e 13 22	+ 4	e 25 57	PS	e 17 10	PP	46·8
Moscow		94·9	325	13 26	+ 1	—	—	—	—	—
Helwan	E.	96·7	299	e 17 38	PP	e 26 26	PS	i 27 6	PPS	—
Istanbul		99·3	310	e 15 27	?	e 26 11	PS	—	—	—
Warsaw		104·5	322	e 14 4	− 4	e 27 40	PS	i 18 34	PP	e 54·8
Upsala		105·3	330	—	—	e 27 50?	PS	—	—	—
Potsdam		109·3	323	i 19 8	PP	i 28 35	PS	e 21 24	PPP	e 53·8
Hamburg	Z.	110·9	325	e 19 33	PP	—	—	—	—	—
Rome		111·7	311	e 19 26	PP	e 30 3	PPS	e 21 47	PPP	—
Berkeley		113·2	52	—	—	e 28 59	PS	e 47 0	?	—
De Bilt		114·1	324	i 19 49k	PP	—	—	—	—	e 61·8
Scoresby Sund		114·1	349	e 19 43	PP	e 25 33	[+ 4]	e 21 44	PPP	—
Uccle		115·0	323	e 19 52	PP	e 30 38	PPS	—	—	e 58·8
Tinemaha	Z.	116·5	53	e 18 45	[− 1]	—	—	—	—	—
Pasadena	Z.	117·0	56	e 18 45	[− 2]	—	—	—	—	e 55·4
Mount Wilson	Z.	117·1	56	e 18 44	[− 3]	—	—	—	—	—
Tucson		123·4	57	e 18 58	[− 1]	—	—	—	—	e 58·4
Almeria		124·1	309	—	—	e 24 38	?	e 35 46	SS	—
Toledo	Z.	124·3	313	e 20 47	PP	—	—	—	—	—
Granada		124·8	310	21 6	PP	42 12	SSS	24 0	PPP	69·0
Fordham	Z.	143·4	23	e 19 30	[− 6]	—	—	—	—	—
Huancayo		152·0	135	e 19 56	[+ 6]	—	—	—	—	—
La Paz		152·6	153	i 19 54k	[+ 3]	—	—	i 23 40	SKP	76·8
San Juan		165·4	44	e 23 2	?	—	—	—	—	—

Additional readings :—
Perth PP = +7m.15s., S = +11m.17s., SS = +13m.28s.
Brisbane iN = +13m.38s., iE = +15m.14s., iN = +15m.26s., iE = +16m.20s., iN = +16m.26s., iE = +16m.44s.
Mizusawa SE? = +10m.55s.
Hyderabad SSE = +20m.26s.
Agra P_cS?E = +13m.34s., SSE = +21m.46s.
Bombay iS_cSEN = +19m.50s., iSSE = +22m.0s.
Ksara PKKP = +30m.12s.
Warsaw eE = +16m.14s., +21m.0s., and +22m.36s., iE = +27m.52s.
Potsdam eN = +19m.14s., iPPZ = +21m.44s., eN = +29m.38s.
Rome e = +43m.39s.
Scoresby Sund ePS = +29m.11s., ePPS = +30m.29s., eSS = +35m.33s., eSSS = +39m.43s.
Almeria e = +26m.48s.
La Paz PP = +24m.10s.

June 11d. 18h. Undetermined shock.

College e = 52m.42s.
Victoria e = 52m.42s. and 56m.45s., L = 58·0m.
Sitka eS = 53m.12s.
Tinemaha ePZ = 54m.14s.
Haiwee ePEN = 54m.22s.
Santa Barbara e = 54m.32s.
Mount Wilson iPZ = 54m.33s., i = 54m.41s.
Riverside ePZ = 54m.37s., eZ = 54m.44s.
Pasadena eZ = 54m.40s., eLEZ = 64·1m.
Palomar iPZ = 54m.41s., iZ = 54m.48s.
Tucson eP = 55m.19s., esP = 55m.52s.
East Machias eP = 57m.24s., e = 57m.57s., eL = 76·7m.
Toledo eZ = 60m.7s.
Berkeley eN = 61m.35s., eZ = 62m.17s.
Ksara e = 62m.9s. and 71m.37s.
Long waves were also recorded at Bozeman, Harvard, Scoresby Sund, Uccle, and Rome.

June 11d. Readings also at 1h. (near Lick), 5h. (near La Paz), 6h. (Rome), 9h. (near La Paz), 10h. (Agra, La Paz, and Huancayo), 11h. (Rome), 12h. (near Rome), 14h. (Rome), 16h. (Fordham), 17h. (Huancayo), 19h. (near Fresno, Mizusawa, Lick, La Paz, and Tucson), 20h. (Tucson, Rome, Uccle, Scoresby Sund, and Warsaw), 22h. (Berkeley).

June 12d. 5h. 37m. 16s. Epicentre 44°·6N. 149°·4E. (as on 1940, April 14d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		8·2	231	e 1 59	− 4	3 21	−17	—	—	—
Vladivostok		12·7.	269	e 3 3	− 2	i 5 55	SS	—	—	6·7
Manila		38·4	227	e 8 20	PP	14 44	?	—	—	—
Almata		50·6	296	e 9 5	+ 3	—	—	—	—	—
Sverdlovsk		53·6	317	e 9 24	− 1	—	—	—	—	26·7
Andijan		54·8	295	—	—	e 17 41	+27	—	—	—
Moscow		64·7	324	10 41	− 1	—	—	—	—	—
Scoresby Sund		65·1	357	—	—	e 29 58	L_q	—	—	—
Tinemaha	z.	66·6	61	e 10 57	+ 3	—	—	—	—	—
Pasadena	z.	68·5	63	e 11 7	+ 1	—	—	—	—	—
Mount Wilson	z.	68·6	63	e 11 7	0	—	—	—	—	—
Riverside	z.	69·1	63	e 11 12	+ 2	—	—	—	—	—
Warsaw		73·8	330	e 11 38	0	—	—	—	—	e 39·7
Tucson		74·4	60	e 11 44	+ 2	—	—	—	—	—
Istanbul		79·3	319	—	—	e 20 44?	?	—	—	—
Ksara		81·3	309	e 12 22	+ 2	e 22 28	− 2	e 15 29	PP	—

Tucson e = +12m.0s.
Long waves were also recorded at Agra, Tashkent, Baku, Irkutsk, Bozeman, and some European stations.

June 12d. 11h. 48m. 33s. Epicentre 53°·0S. 145°·0E. (as on 1937, October 12d.).

A = −·4951, B = +·3467, C = −·7967 ; δ = +6 ; h = −6 ;
D = +·574, E = +·819 ; G = +·653, H = −·457, K = −·604.

Rough.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Adelaide		18·6	344	4 7	−14	(i 7 27)	−19	—	—	i 7·4
Riverview		19·7	15	e 4 41	+ 7	i 8 33	SSS	—	—	e 9·4
Sydney		19·7	15	e 4 30	− 4	e 8 24	SS	—	—	e 8·4
Christchurch		20·6	73	5 31	PPP	9 3	SSS	9 39	L_q	11·2
Wellington		23·2	71	—	—	i 10 27?	SSS	—	—	12·2
Brisbane	N.	26·2	17	i 5 45	+ 7	i 10 27	+18	—	—	i 13·4
Perth		29·7	304	6 5	− 5	10 7	−59	6 44	PP	11·8
Manila		70·4	335	e 11 13	− 5	20 15	−15	—	—	—
Kodaikanal	E.	85·0	294	—	—	i 22 47	[−14]	e 30 17	?	39·0
Hyderabad		90·4	299	—	—	23 39	[+ 4]	—	—	—
Bombay		94·7	295	—	—	i 23 33	[−26]	—	—	—
Agra	E.	98·7	304	—	—	e 24 9	[−11]	—	—	—
La Paz	z.	105·1	148	e 21 7	PPP	—	—	—	—	51·4
Ksara		127·3	277	e 20 39	PP	e 30 23	PS	—	—	58·4
Victoria		127·3	57	e 21 27?	PP	—	—	—	—	59·4
Istanbul		136·2	281	22 27?	PP	—	—	—	—	—
Rome		146·4	269	e 20 1	[+19]	e 23 31	PKS	e 34 55	PPS	—
Warsaw		146·7	291	—	—	e 41 33	SS	—	—	e 74·4
Triest		147·9	277	e 20 22	[+38]	—	—	e 23 33	PP	—
Chur		151·1	276	e 19 56	[+ 7]	—	—	—	—	—
Potsdam		151·3	288	e 20 0	[+11]	—	—	—	—	e 75·4
Zurich		151·9	276	e 19 59a	[+ 9]	—	—	—	—	—
Stuttgart	z.	152·1	279	e 20 4	[+13]	—	—	e 20 22	?	—
Almeria		152·2	248	e 20 4	[+13]	—	—	—	—	80·4
Basle		152·6	276	e 20 2	[+11]	—	—	—	—	—
Neuchatel		152·7	275	e 19 56	[+ 5]	—	—	—	—	—
Strasbourg		152·9	278	e 20 20	[+28]	—	—	—	—	—
Granada		153·1	246	20 11a	[+19]	—	—	23 58	PP	e 73·6
Hamburg	z.	153·4	290	e 20 3	[+11]	—	—	—	—	—
Clermont-Ferrand		154·5	269	e 20 6	[+12]	—	—	—	—	e 88·4
Toledo		155·2	250	e 20 15	[+20]	e 29 48	{−59}	—	—	79·4
Scoresby Sund		161·5	346	—	—	e 29 57	{−83}	—	—	—

For Notes see next page.

NOTES TO JUNE 12d. 11h. 48m. 33s.

Additional readings :—
Riverview iN = +8m.37s.
Christchurch P_cPZ = +9m.47s.
Brisbane eE = +6m.9s., iE = +10m.39s. and +12m.33s.
Perth i = +8m.41s.
Warsaw eN = +41m.37s.
Potsdam eZ = +20m.7s. and +20m.41s.
Granada i = +20m.33s., PPP = +26m.42s., PPS = +37m.31s.
Long waves were also recorded at Huancayo and other American and European stations.

June 12d. 13h. 59m. 48s. Epicentre 35°·5N. 141°·0E. (as on 1939, December 31d.).

Strong at Katuura, Tyosi, Kakioka, Yokohama ; moderate at Tukubasan, Ito, Tokyo ; slight at Mera, Osima, Misima, Onahama, Kohu, Hukusima, and Omaesaki.

Epicentre 35°·3N. 141°·0E. Radius 200-300km. Shallow.

See Seismological Bulletin of the Central Met. Obs., Japan, for the year 1940 ; Tokyo, 1950, pp. 16-17 ; Macroseismic Chart, p. 16.

Hagiwara, Takahiro.
"The Earthquake that accompanied the eruption of Miyake-Sima, June 12, 1940."

Bulletin of the Earthquake Institute, Vol. 19, Part II, p. 325-330, 5 fig. Bibliography.

A = −6342, B = +·5135, C = +·5781 ; δ = +9 ; h = 0 ;
D = +·629, E = +·777 ; G = −·449, H = +·364, K = −·816.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tyosi	0·2	335	0 11k	+ 1	0 19	+ 3	—	—	—
Togane	0·5	277	0 21	+ 7	0 32	+ 9	—	—	—
Kakioka	1·0	318	0 21a	0	0 39	+ 3	—	—	—
Mito	1·0	334	0 21a	0	0 41	+ 5	—	—	—
Tokyo, Cen. Met. Ob.	1·0	281	0 22a	+ 1	0 45	+ 9	—	—	—
Tokyo, Imp. Univ.	1·0	281	0 21	0	0 45	+ 9	—	—	—
Tukubasan	1·0	315	0 21a	0	0 38	+ 2	—	—	—
Komaba	1·1	278	0 21	− 1	0 45	+ 6	—	—	—
Mera	1·1	239	0 21k	− 1	0 34	− 5	—	—	—
Yokohama	1·1	267	0 23a	+ 1	0 42	+ 3	—	—	—
Kamakura	1·2	262	0 21	− 3	0 46	+ 5	—	—	—
Onahama	1·4	357	0 31	+ 4	1 7	?	—	—	—
Utunomiya	1·4	320	0 28a	+ 1	0 52	+ 6	—	—	—
Kumagaya	1·5	296	0 29a	+ 1	0 56	+ 7	—	—	—
Osima	1·5	241	0 24	− 4	0 40	− 9	—	—	—
Koyama	1·6	265	0 21	− 9	0 52	+ 1	—	—	—
Misima	1·7	257	0 29a	− 2	1 2	+ 8	—	—	—
Maebasi	1·8	300	0 35a	+ 3	1 21	+25	—	—	—
Susaki	1·8	243	0 30	− 2	0 50	− 6	—	—	—
Hunatu	1·9	270	0 31	− 3	1 0	+ 1	—	—	—
Kohu	2·0	274	0 34	− 1	1 18	+16	—	—	—
Hukusima	2·3	349	0 41a	+ 1	1 25	+16	—	—	—
Omaesaki	2·4	248	0 38k	− 3	1 13	+ 1	—	—	—
Hatidyozima	2·6	202	0 38	− 6	1 16	− 1	—	—	—
Hamamatu	2·8	254	0 51	+ 4	1 37	+15	—	—	—
Sendai	2·8	358	0 46a	− 1	1 28	+ 6	1 38	S_g	—
Nagoya	3·3	264	0 55	+ 2	1 52	S_g	—	—	—
Toyama	3·3	291	0 59	P*	2 13	+38	—	—	—
Aikawa	3·4	318	0 54k	− 1	1 48	S_g	—	—	—
Gihu	3·5	269	0 57a	0	1 56	S_g	—	—	—
Mizusawa	3·7	4	e 0 59	− 1	1 48	+ 3	—	—	—
Kameyama	3·8	263	1 2k	+ 1	2 8	S_g	—	—	—
Wazima	3·8	301	1 2a	+ 1	2 0	S*	—	—	—
Hikone	3·9	269	1 6k	P*	2 21	S_g	—	—	—
Akita	4·2	350	1 15a	P*	2 38	S_g	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kyoto		4·3	265	1 10	+ 2	—	—	—	—	—
Osaka		4·6	261	1 29	P_g	2 32	S_g	—	—	—
Siomisaki		4·8	247	1 17	+ 2	2 57	S_g	—	—	—
Hatinohe		5·0	4	1 19	+ 1	2 23	+ 5	—	—	—
Toyooka		5·0	273	1 32	P*	2 40	S_g	—	—	—
Wakayama		5·0	257	1 21	+ 3	2 16	− 2	2 28	S*	—
Aomori		5·3	358	1 23	+ 1	2 40	S*	—	—	—
Muroto		6·1	250	1 34	0	2 59	S*	—	—	—
Koti		6·5	254	1 42	+ 3	2 58	+ 3	—	—	—
Matuyama		7·0	259	1 52	+ 6	3 39	S*	—	—	—
Hirosima		7·1	266	1 48	0	4 6	S_g	—	—	—
Simidu		7·2	250	1 57	+ 8	3 40	S*	—	—	—
Hamada		7·3	269	1 52	+ 2	3 39	+24	—	—	—
Sapporo		7·5	2	1 55	+ 2	3 14	− 6	—	—	—
Nemuro		8·6	23	2 11	+ 2	—	—	—	—	—
Izuka		8·7	261	2 8	− 2	—	—	—	—	—
Kumamoto		8·9	255	2 17	+ 5	4 46	S_g	—	—	—
Hukuoka		8·9	261	e 2 19	+ 7	5 0	S_g	—	—	—
Unzendake		9·4	256	2 42	PPP	4 26	+19	—	—	—
Kagosima		9·5	249	2 35	PPP	—	—	—	—	—
Nagasaki		9·6	257	2 29	PP	3 30	−42	—	—	—
Husan		9·8	272	2 24	0	4 22	+ 5	—	—	—
Taikyu		10·1	276	2 31	+ 3	5 19	S*	—	—	—
Vladivostok		10·4	320	e 2 32	− 2	i 4 48	SS	—	—	5·7
Zinsen		11·8	281	2 53	0	—	—	—	—	—
Nake		12·1	237	3 0	+ 3	—	—	—	—	—
Zi-ka-wei	E.	16·9	260	e 3 58	− 1	—	—	—	—	i 11·2
Manila		27·5	227	e 6 21	PP	11 37	SS	—	—	15·7
Irkutsk		30·9	315	e 6 19	− 1	e 13 24	SSS	e 7 29	PPP	17·2
Phu-Lien		33·5	253	—	—	e 11 58	− 7	—	—	17·2
Semipalatinsk		45·6	309	8 22	− 2	15 6	0	—	—	26·2
Calcutta	N.	47·3	269	e 10 45	PP	—	—	—	—	—
Almata		49·0	301	8 52	+ 2	15 55	0	—	—	29·2
College		50·6	32	—	—	e 16 7	−10	—	—	e 20·4
Frunse		50·8	301	e 9 2	− 2	16 18	− 2	—	—	31·2
Andijan		53·0	298	e 9 19	− 2	16 48	− 2	—	—	—
Agra	E.	53·7	280	e 9 20	− 6	16 46	−13	19 1	S_cS	—
Tchimkent		54·5	300	e 9 31	− 1	e 17 7	− 3	—	—	—
Tashkent		55·0	299	e 9 23	−12	17 13	− 4	—	—	e 27·5
Sverdlovsk		56·1	320	9 43	0	17 31	− 1	—	—	26·2
Hyderabad		57·9	269	—	—	17 46	− 9	—	—	—
Bombay		61·8	274	—	—	i 18 46	0	—	—	—
Colombo	E.	62·6	258	—	—	e 17 42	?	—	—	—
Kodaikanal	E.	62·6	263	—	—	e 18 50	− 6	e 25 51	SSS	33·9
Victoria		67·8	46	—	—	e 20 12?	+12	—	—	32·2
Moscow		68·3	324	e 11 0	− 5	e 20 2	− 4	—	—	—
Baku		68·8	305	11 12	+ 4	20 12	+ 1	—	—	34·7
Pulkovo		69·3	330	e 11 6	− 5	e 20 13	− 4	—	—	35·1
Scoresby Sund		73·6	356	e 11 38	+ 1	e 21 7	0	e 14 38	PP	e 32·7
Berkeley		73·9	55	—	—	e 21 5	− 5	e 21 14	PS	e 38·4
Upsala		74·2	335	—	—	e 21 10	− 4	—	—	e 39·2
Bozeman		76·4	43	—	—	e 21 33	− 5	e 21 51	PS	e 32·8
Tinemaha		77·0	53	i 12 1	+ 5	—	—	—	—	—
Santa Barbara	Z.	77·5	57	i 11 59	0	—	—	—	—	—
Haiwee		77·7	55	e 12 5	+ 5	—	—	—	—	—
Warsaw		78·2	328	e 10 36	?	e 21 52	− 5	e 27 54	SS	e 42·2
Mount Wilson		78·7	56	e 12 2	− 4	—	—	—	—	—
Pasadena	Z.	78·7	56	e 12 2	− 4	—	—	—	—	—
Riverside		79·3	56	e 12 5	− 4	—	—	—	—	—
Palomar	Z.	80·0	56	e 12 14	+ 1	—	—	—	—	—

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Potsdam	81·4	332	e 12 20	0	i 22 27	− 4	e 15 28	PP	e 40·8
Istanbul	81·5	316	e 15 12?	?	22 35	+ 3	27 55	SS	40·2
Hamburg	81·7	334	—	—	e 22 36	+ 2	—	—	e 42·2
Ksara	81·8	305	e 12 23	+ 1	e 23 32	+57	e 15 36	PP	45·2
De Bilt	84·6	334	e 12 39	+ 3	e 22 57	[− 1]	e 15 59	PP	e 44·2
Tucson	84·8	53	e 12 35	− 2	e 28 18	SS	e 15 50	PP	e 34·3
Stuttgart	85·8	330	e 12 44k	+ 2	e 23 18	+ 3	—	—	e 45·2
Uccle	86·0	335	e 12 42	− 1	e 23 5	[− 3]	e 29 9	SS	e 42·2
Trieste	86·2	326	e 13 3	+19	i 23 16	− 3	e 23 59	PS	—
Strasbourg	86·5	331	e 12 58	+12	—	—	—	—	—
Helwan	87·3	305	—	—	e 23 12	[− 4]	—	—	—
Basle	87·4	330	e 12 55	+ 5	—	—	—	—	—
Rome	89·7	325	e 13 9	+ 8	e 23 23	[− 8]	e 16 27	PP	e 39·2
Seven Falls	92·9	20	—	—	e 24 6	−14	—	—	47·2
Toledo	98·4	333	14 58	?	—	—	—	—	50·2
Almeria	100·4	332	e 14 45	?	—	—	—	—	53·2
Granada	100·6	333	18 7	PP	—	—	20 18	PPP	52·4
La Paz z.	147·9	60	19 46	[+ 2]	—	—	—	—	74·2

Additional readings :—
Yokohama +52s.
Agra iE = +21m.13s.
Scoresby Sund ePPP = +16m.24s., e = +21m.12s., eS$_c$S = +21m.41s., eSS = +25m.50s., eSSS = +29m.19s.
Berkeley eN = +32m.54s.
Warsaw ePP?Z = +13m.46s., ePPP?E = +15m.50s.
Potsdam ePN = +12m.26s., ePPZ = +15m.33s., ePPPN = +17m.24s., iN = +27m.50s., eEN = +35m.0s.
Tucson e = +12m.39s., i = +12m.56s., ePPP = +17m.39s., eS$_c$S = +23m.21s., eSSS = +31m.55s.
Helwan iEN = +23m.24s., iE = +23m.54s., eEN = +35m.0s.
Rome e = +34m.38s.
Long waves were also recorded at Budapest, Ukiah, Sitka, Huancayo, East Machias, Bergen, Sofia, Stonyhurst, Aberdeen, Bucharest, Jena, San Fernando, Harvard, and Kew.

June 12d. 14h. 11m. 24s. Epicentre 35°·5N. 141°·0E. (as at 13h.).

Very strong at Kakioka ; moderate at Tyosi, Yokohama, Mito, Katuura ; slight at Tukubasan, Osima, Onahama, Ito, Tokyo, and Hukusima.

Epicentre 35°·2N. 141°·0E. Radius 200-300km. Shallow.

See Seismological Bulletin of the Central Met. Obs., Japan, for the year 1940. Tokyo, 1950, pp. 17-18. Macroseismic chart, p. 17.

A = −·6342, B = +·5135, C = +·5781 ; δ = +9 ; h = 0.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tyosi	0·2	335	0 9k	− 1	0 18	+ 2	—	—	—
Togane	0·5	277	0 23	+ 9	0 34	+11	—	—	—
Kakioka	1·0	318	0 22a	+ 1	0 41	+ 5	—	—	—
Mito	1·0	334	0 22a	+ 1	0 42	+ 6	—	—	—
Tokyo, Cen. Met. Ob.	1·0	281	0 27	+ 6	0 49	+13	—	—	—
Tokyo, Imp. Univ.	1·0	281	0 22	+ 1	0 44	+ 8	—	—	—
Tukubasan	1·0	315	0 21	0	0 40	+ 4	—	—	—
Komaba	1·1	278	0 23	+ 1	0 44	+ 5	—	—	—
Mera	1·1	289	0 18	− 4	0 29	−10	—	—	—
Yokohama	1·1	267	0 16a	− 6	0 47	+ 8	—	—	—
Kamakura	1·2	262	0 23	− 1	0 46	+ 5	—	—	—
Onahama	1·4	357	0 26	− 1	1 1	+15	—	—	—
Utunomiya	1·4	320	0 30	+ 3	0 50	+ 4	—	—	—
Kumagaya	1·5	296	0 30	+ 2	0 58	+ 9	—	—	—
Osima	1·5	241	0 23	− 5	0 39	−10	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Misima		1·7	257	0 28	− 3	0 59	+ 5	—	—	—
Maebasi		1·8	300	0 35	+ 3	1 19	+23	—	—	—
Susaki		1·8	243	0 28	− 4	0 46	−10	—	—	—
Hunatu		1·9	270	0 31	− 3	1 12	+13	—	—	—
Kohu		2·0	274	0 18	−17	1 5	+ 3	—	—	—
Hukusima		2·3	349	0 42	+ 2	1 23	+14	—	—	—
Omaesaki		2·4	248	0 40	− 1	1 14	+ 2	—	—	—
Hatidyozima		2·6	202	0 38	− 6	1 10	− 7	—	—	—
Nagano		2·6	297	0 46a	+ 2	1 25	S_g	—	—	—
Hamamatu		2·8	254	0 50	+ 3	1 49	+27	—	—	—
Sendai		2·8	358	0 48a	+ 1	1 22	0	1 36	S_g	—
Toyama		3·3	291	0 58	P*	2 2	S_g	—	—	—
Aikawa		3·4	318	0 56k	+ 1	1 55	S_g	—	—	—
Gihu		3·5	269	1 0	+ 3	1 48	S*	2 1	S_g	—
Mizusawa		3·7	4	0 56	− 4	1 39	− 6	—	—	—
Wazima		3·8	301	1 2	+ 1	2 0	S*	—	—	—
Hikone		3·9	269	1 1a	− 1	2 16	S_g	—	—	—
Akita		4·2	350	1 12	P*	2 35	S_g	—	—	—
Miyako		4·2	10	0 43	−24	1 42	−15	—	—	—
Kyoto		4·3	265	1 9	+ 1	—	—	—	—	—
Osaka		4·6	261	1 32	P_g	2 26	S*	—	—	—
Kobe		4·8	262	1 47	+32	2 39	S_g	—	—	—
Siomisaki		4·8	247	1 24	P*	3 21	+69	—	—	—
Hatinohe		5·0	4	1 19	+ 1	2 26	+ 8	—	—	—
Toyooka		5·0	273	1 30	P*	2 48	S_g	—	—	—
Wakayama		5·0	257	1 19	+ 1	2 58	S_g	—	—	—
Aomori		5·3	358	1 23	+ 1	2 27	+ 2	—	—	—
Muroto		6·1	250	1 41	+ 7	3 20	S_g	—	—	—
Koti		6·5	254	1 40	+ 1	3 1	+ 6	—	—	—
Mori		6·6	358	1 41	0	2 59	+ 1	—	—	—
Matuyama		7·0	259	1 53	+ 7	3 48	S_g	—	—	—
Hirosima		7·1	266	1 56	+ 8	3 58	S_g	—	—	—
Simidu		7·2	250	2 1	P*	—	—	—	—	—
Hamada		7·3	269	2 9	P*	4 5	S_g	—	—	—
Sapporo		7·5	2	1 55	+ 2	3 26	+ 6	—	—	—
Nemuro		8·6	23	1 58	−11	—	—	—	—	—
Izuka		8·7	261	1 38	−32	—	—	—	—	—
Kumamoto		8·9	255	2 13	+ 1	4 52	S_g	—	—	—
Hukuoka		8·9	261	e 2 31	P*	5 13	L	—	—	(5·2)
Unzendake		9·4	256	2 46	PPP	4 5	− 2	—	—	—
Kagosima		9·5	249	2 44	PP	—	—	—	—	—
Nagasaki		9·6	257	2 55	PPP	—	—	—	—	—
Husan		9·8	272	2 27	+ 3	4 51	S*	—	—	—
Taikyu		10·1	276	2 31	+ 3	5 17	S_g	—	—	—
Zinsen		11·8	281	2 53	0	—	—	—	—	—
Tinemaha		77·0	53	e 11 53	− 3	—	—	—	—	—
Santa Barbara	z.	77·5	57	i 11 56	− 3	—	—	—	—	—
Haiwee		77·7	55	e 11 58	− 2	—	—	—	—	—
Pasadena		78·7	56	i 12 2	− 4	—	—	—	—	—
Riverside		79·3	56	i 12 4	− 5	—	—	—	—	—
Palomar	z.	80·0	56	i 12 9	− 4	—	—	—	—	—
Prague		82·6	329	—	—	e 23 0	+17	—	—	—
Tucson		84·8	53	i 12 34	− 3	—	—	—	—	—
Stuttgart	z.	85·8	330	e 12 40	− 2	—	—	—	—	—
Strasbourg		86·5	331	—	—	e 28 56	SS	—	—	42·6
La Paz		147·9	60	19 50	[+ 6]	—	—	—	—	—

Tucson also gives i = +12m.41s.

June 12d. 16h. Pacific—Grampus Is. ?

Mizusawa P = 7m.17s., S = 8m.26s.
Vladivostok eP = 8m.10s., iS = 11m.5s., L = 11m.54s.
Irkutsk P = 12m.0s., L = 23m.
Almata P = 14m.10s.
Frunse eP = 14m.22s.
Tashkent eP = 14m.56s., eL = 34m.48s.
Moscow eP = 15m.48s., eL = 40m.48s.
Tinemaha ePZ = 16m.12s.
Tucson eP = 16m.50s.
Ksara eP = 17m.54s., e = 28m.38s.
Rome e = 21m.40s., 53m.18s., 59m.52s.
Agra eE = 23m.9s.
Scoresby Sund e = 35m.17s.
Long waves are also recorded at Pulkovo, Sverdlovsk, and other European stations.

June 12d. 18h. 36m. 49s. Epicentre 31°·5N. 142°·4E.

$A = -\cdot6768$, $B = +\cdot5212$, $C = +\cdot5199$; $\delta = 0$; $h = +1$;
$D = +\cdot610$, $E = +\cdot792$; $G = -\cdot412$, $H = +\cdot317$, $K = -\cdot854$.

Pasadena suggests depth 100km.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Osaka		6·5	300	1 43	+ 4	3 2	+ 7	—	—	—
Mizusawa		7·7	353	e 1 56	0	3 17	− 8	—	—	—
Vladivostok		14·3	327	e 3 26	0	6 29	SS	—	—	7·8
Manila		25·8	234	i 5 36 a	+ 2	i 11 14	SSS	—	—	14·4
Irkutsk		34·6	318	6 54	+ 1	—	—	—	—	20·2
Almata		52·1	303	i 9 15	+ 1	—	—	—	—	—
Agra	E.	55·6	283	e 9 42	+ 2	—	—	—	—	—
Andijan		56·0	300	9 44	+ 1	i 17 31	+ 1	—	—	—
Tchimkent		57·6	303	9 44	−10	17 51	0	—	—	—
Tashkent		58·1	302	e 9 59	+ 1	e 17 59	+ 1	—	—	27·1
Sverdlovsk		59·9	321	i 10 11	+ 1	e 18 24	+ 3	—	—	26·2
Baku		72·1	307	e 11 34	+ 6	20 55	+ 5	—	—	36·6
Moscow		72·3	325	e 11 27	− 2	e 20 47	− 5	—	—	—
Pulkovo		73·4	331	i 11 34	− 2	e 21 2	− 3	—	—	e 35·8
Berkeley		75·2	55	—	—	e 24 30	?	—	—	e 36·2
Scoresby Sund		77·7	355	e 12 2	+ 2	e 21 39	−13	e 12 12	P_cP	e 38·5
Tinemaha		78·4	54	e 12 4	0	—	—	—	—	—
Santa Barbara		78·7	57	i 12 6	0	—	—	—	—	—
Haiwee		79·1	54	i 12 8	0	—	—	—	—	—
Mount Wilson		80·0	57	i 12 13k	0	—	—	—	—	—
Pasadena		80·0	57	i 12 12k	− 1	—	—	—	—	e 41·2
Riverside		80·6	57	i 12 14	− 2	—	—	—	—	—
Palomar	z.	81·3	57	i 12 18	− 2	—	—	—	—	—
Warsaw		82·2	328	e 12 24	0	e 22 43	+ 4	—	—	e 46·2
Ksara		85·1	307	i 12 40k	+ 1	e 24 7	PS	e 28 7	SS	—
Tucson		86·1	54	e 12 44	0	e 23 6	[− 2]	e 32 56	SSS	e 43·3
Helwan		90·5	306	i 13 5	0	e 23 59	0	e 16 43	PP	—
Basle		91·5	331	e 13 10	0	—	—	—	—	—
Rome		93·6	325	e 16 59	PP	—	—	—	—	e 45·3

Additional readings :—
Mizusawa eSN = +3m.22s.
Berkeley eN = +26m.17s. and +32m.44s.
Scoresby Sund eS_cS = +21m.58s.
Pasadena iZ = +12m.33s.
Tucson esP = +13m.25s.
Long waves were also recorded at Ukiah, Potsdam, Granada, De Bilt, Uccle, and Prague,

June 12d. Readings also at 0h. (Wellington, Christchurch, and New Plymouth), 1h. (Mizusawa and near La Paz), 2h. (near Apia, Tinemaha, Mount Wilson, Riverside, and Tucson), 5h. (near Rome), 8h. (Sitka), 9h. (Rome, East Machias, Scoresby Sund, Palomar, Honolulu, Ukiah, College, Harvard, Berkeley, Ksara, Tinemaha, Mount Wilson, Riverside, Tucson, Agra, Bozeman, and Pasadena), 10h. (near La Paz, Warsaw, Granada, Huancayo, and Adelaide), 12h. (Agra), 14h. (Tucson), 15h. (Mizusawa, Tucson, Palomar, Tinemaha, Mount Wilson, Strasbourg, and Riverside), 17h. (Tucson), 18h. (Bozeman, Tinemaha, Mount Wilson, Riverside, Mizusawa, and Palomar), 19h. (near Berkeley), 21h. (near Branner).

June 13d. 11h. 1m. 53s. Epicentre 41°·0N. 30°·0E.

A = +·6555, B = +·3784, C = +·6535; δ = −7; h = −2;
D = +·500, E = −·866; G = +·566, H = +·327, K = −·757.

Approximate epicentre.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Istanbul	0·7	275	0 22	+ 5	0 42	+14	1 1	SS	—
Bucharest	4·5	321	e 1 15	+ 4	2 12	+ 7	2 23	S*	3·0
Yalta	4·6	40	1 7	− 5	1 57	−10	1 16	P_g	—
Sofia	5·2	291	e 1 25	+ 4	i 2 57	S_g	—	—	—
Ksara	8·6	145	e 2 26	P*	—	—	—	—	i 4·6
Helwan	11·2	174	i 2 47	+ 3	e 4 37	−15	—	—	—
Warsaw	12·8	334	e 3 20	+12	e 5 43	+13	—	—	e 8·1
Baku	15·1	82	e 3 44	+ 8	e 6 26	+ 1	—	—	9·1
Moscow	15·6	16	3 34	− 9	e 6 14	−23	—	—	—
Zurich	16·6	299	e 4 48	?	—	—	—	—	—
Pulkovo	18·8	1	e 4 24	+ 1	e 7 40	−10	—	—	—
Clermont-Ferrand	20·2	292	e 4 38	− 1	—	—	—	—	—
Uccle	20·3	307	e 4 39	− 1	—	—	—	—	e 11·1
Sverdlovsk	25·3	40	5 24	− 6	—	—	—	—	13·1

Additional readings:—
Bucharest eN = +1m.19s., eE = +1m.58s.
Warsaw eE = +3m.32s., +6m.55s., and +7m.3s., eZ = +7m.7s., eN = +7m.18s., eZ = +7m.37s.
Long waves were also recorded at Rome, Triest, and Granada.

June 13d. 16h. 35m. 20s. Epicentre 35°·4N. 140°·7E. (as on 1938, July 27, and near the position determined at Tokyo).

A = −·6322, B = +·5174, C = +·5767; δ = −4; h = 0;
D = +·633, E = +·774; G = −·446, H = +·365, K = −·817.

Depth of focus 0·010 has been assumed.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Togane	0·3	302	0 20	+ 5	0 25	− 1	—	—	—
Kiyosumi	0·5	239	0 20	+ 4	0 27	− 1	—	—	—
Tokyo, Imp. Univ.	0·8	293	0 18	0	0 28	− 4	—	—	—
Kamakura	0·9	265	0 20	+ 1	0 31	− 3	—	—	—
Komaba	0·9	287	0 18	− 1	0 28	− 6	—	—	—
Mitaka	1·0	286	0 20	0	0 32	− 4	—	—	—
Tukubasan	1·0	329	0 20	0	0 31	− 5	—	—	—
Koyama	1·4	268	0 20	− 5	0 37	− 7	—	—	—
Susaki	1·6	242	0 28	0	0 46	− 3	—	—	—
Yosiwara	1·7	262	0 20	− 9	0 38	−13	—	—	—
Mizusawa	3·7	5	e 1 6	+10	2 4	+25	—	—	—
Osaka	4·3	261	1 35	?	2 29	?	—	—	—
Vladivostok	10·3	321	e 2 32	+ 6	4 46	+26	—	—	5·6

June 13d. Readings also at 5h. (near Tananarive), 6h. (near Lick), 11h. (Ksara, near Helwan, Bucharest, Sofia, and Warsaw), 12h. (De Bilt, Uccle, Potsdam, Kalocsa, Budapest, Triest, Rome, and Tucson), 14h. (Baku, Moscow, Pulkovo, Warsaw, Potsdam, Helwan, Triest, Ksara, Bucharest, Rome, and Uccle), 15h. (Huancayo and Sverdlovsk), 16h. (near Tucson), 20h. (Tucson, Tashkent, near Andijan, Tchimkent, and Samarkand), 21h. (Ksara, La Paz, and Rome), 22h. (Tucson, Mount Wilson, Pasadena, Riverside, Tinemaha, Granada, and Wellington), 23h. (Potsdam, Rome, Uccle, and Warsaw).

June 14d. Readings at 1h. (Bucharest (2), Sofia, and Warsaw), 2h. (Triest and Bucharest), 3h. (Huancayo, La Paz, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and Warsaw), 6h. (near Berkeley and Branner), 7h. (Agra, Sverdlovsk, Tashkent, Colombo, Kodaikanal, Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 9h. (Fresno), 10h. (Tucson), 13h. (Rome and near Tucson), 16h. (near Phu-Lien and Agra), 17h. (two small shocks, American and Asiatic, Berkeley, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, College, Scoresby Sund, Fordham, East Machias, Warsaw, Ksara, Potsdam, Vladivostok, Andijan, and Tashkent (2), Frunse, Sverdlovsk, and Agra), 18h. (Baku, Balboa Heights and Rome), 20h. (Ksara), 22h. (Fresno, Rome, and Tucson).

June 15d. 9h. 9m. 5s. Epicentre 35°·5N. 141°·0E. (as on 12d.).

$A = -·6342$, $B = +·5135$, $C = +·5781$; $\delta = +9$; $h = 0$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		3·7	4	e 1 1	+ 1	1 46	+ 1	—	—	—
Osaka		4·6	261	1 23	P*	2 19	S*	—	—	—
Vladivostok		10·4	320	e 2 36	+ 2	e 4 56	SSS	—	—	5·3
Sverdlovsk		56·1	320	e 9 43	0	—	—	—	—	26·9
Tinemaha		77·0	53	i 11 56	0	—	—	—	—	—
Santa Barbara	z.	77·5	57	i 12 0	+ 1	—	—	—	—	—
Haiwee		77·7	55	i 12 0	0	—	—	—	—	—
Mount Wilson	z.	78·7	56	i 12 5	− 1	—	—	—	—	—
Pasadena	z.	78·7	56	i 12 4	− 2	—	—	—	—	—
Riverside	z.	79·3	56	e 12 8	− 1	—	—	—	—	—
Ksara		81·8	305	e 12 18	− 4	e 22 58	PS	—	—	—
Tucson		84·8	53	i 12 37	0	—	—	—	—	—

Long waves were also recorded at De Bilt, Warsaw, Rome, Uccle, Baku, and Potsdam.

June 15d. Readings also at 2h. (near Triest, near Wellington, Christchurch, and Tuai), 6h. (near Manila), 7h. (Triest), 13h. (Warsaw), 14h. (Tucson, Pasadena, Mount Wilson, Haiwee, and Tinemaha), 15h. (near Mizusawa), 19h. (La Paz), 22h. (Potsdam, Rome, near Berkeley (2), La Paz, and Warsaw), 23h. (near Triest).

June 16d. Readings at 0h. (Columbia, near Triest, and near Hukuoka), 6h. (Huancayo, La Paz, near Andijan, Samarkand, Tashkent, and Tchimkent), 9h. (Fresno), 11h. (near Christchurch, New Plymouth, and Wellington), 13h. (Andijan, Calcutta, Samarkand, Frunse, Sverdlovsk, and Mizusawa).

June 17d. 10h. 26m. 47s. Epicentre 20°·4N. 154°·7W.

Felt strongly in the islands of Hawaii.

Epicentre 20°·7N. 155°·3W. (U.S.C.G.S.).

See Annales de l'Institut de Physique du Globe de Strasbourg, Tome V; 2e partie, Seismologie, 1940, Strasbourg, 1948, p. 12.

$A = -·8480$, $B = -·4009$, $C = +·3465$; $\delta = -11$; $h = +5$;
$D = -·427$, $E = +·904$; $G = -·313$, $H = -·148$, $K = -·938$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hawaii		1·1	209	0 25	+ 3	—	—	—	—	—
Honolulu		3·1	287	e 0 40	−11	i 1 10	−19	—	—	e 1·3
Ferndale		32·8	47	e 6 43	+ 6	e 11 58	+ 4	—	—	—
Branner		32·9	53	e 6 44	+ 6	e 11 59	+ 3	—	—	e 14·7
Ukiah		32·9	49	e 6 40	+ 2	e 11 57	+ 1	e 7 49	PP	e 13·4
Berkeley		33·0	52	e 6 38	− 1	i 11 58	+ 1	i 13 59	SS	—
Santa Clara		33·1	53	e 6 35	− 5	e 12 1	+ 2	—	—	e 14·0
Lick		33·3	53	e 6 42	+ 1	e 12 12	+10	e 14 40	SSS	—
Santa Barbara		33·9	59	i 6 47	0	—	—	—	—	—
Fresno	N.	34·5	54	e 6 54	+ 2	e 12 22	+ 2	—	—	e 15·0
Pasadena		35·0	60	i 6 56a	0	i 12 57	+29	i 9 28	P_cP	e 14·4
Mount Wilson		35·1	60	i 6 56a	− 1	—	—	i 9 29	P_cP	—
La Jolla		35·5	63	e 7 0	0	—	—	—	—	—
Haiwee	z.	35·7	57	e 6 59	− 3	—	—	—	—	—
Riverside		35·7	60	i 7 1	− 1	—	—	i 9 32	P_cP	—
Tinemaha		35·8	55	i 7 4	+ 1	—	—	—	—	—
Seattle		37·7	37	e 7 23	+ 4	—	—	e 8 47	PP	e 14·9
Apia		37·9	207	—	—	e 15 15	SS	—	—	e 19·1
Victoria		38·6	35	i 7 22	− 4	i 13 11	−12	8 48	PP	17·2
Sitka		39·7	17	i 7 36	0	e 13 23	−17	i 8 58	PP	i 16·1

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Tucson		40·8	64	e 7 45	0	e 13 50	− 6	e 9 21	PP		e 16·2
Salt Lake City		41·6	51	e 7 51	0	e 14 7	− 1	e 9 18	PP		e 16·9
Logan		41·9	49	i 7 56	+ 2	e 14 16	+ 3	9 46	PPP		e 22·4
Butte		42·8	43	e 8 3	+ 2	e 14 29	+ 3	—	—		e 17·6
Bozeman		43·7	44	e 8 9	+ 1	e 14 38	− 1	e 9 30	P_cP		i 20·9
College		44·7	4	e 8 19	+ 3	e 14 45	− 9	e 10 8	PP		e 18·0
Lincoln		53·0	54	e 9 20	− 1	e 16 42	− 8	e 10 23	P_cP		e 21·4
Florissant		57·7	57	e 9 51	− 4	e 17 47	− 6	e 12 5	PP		e 24·3
St. Louis		57·8	57	e 9 53	− 2	e 17 50	− 4	e 12 5	PP		24·8
Sendai		57·8	303	10 0	+ 5	18 0	+ 6	—	—		—
Chicago, U.S.C.G.S.		59·8	53	i 10 9	0	e 18 9	−11	e 13 55	PPP		e 25·2
Nagano		60·0	302	10 12	+ 1	—	—	—	—		—
Nagoya		61·2	299	10 19	0	—	—	—	—		—
Kobe		62·7	299	10 38	+ 9	18 57	0	—	—		—
Koti		64·2	297	10 49	+10	19 13	− 3	—	—		—
Vladivostok		64·4	308	e 10 41	+ 1	e 19 7	−11	—	—		30·0
Arapuni		64·5	206	—	—	e 19 13?	− 6	—	—		29·2
Pittsburgh		65·6	54	e 10 45	− 3	e 19 28	− 5	19 53	PS		e 30·4
Columbia		65·7	61	e 10 46	− 2	e 19 32	− 2	e 13 10	PP		e 29·9
Toronto		65·7	50	10 37	−11	19 19	−15	27 1	SSS		32·2
Pennsylvania		67·2	54	i 10 53	− 5	e 19 34	−18	i 13 8	PP		e 31·9
Wellington		67·6	205	i 10 45	−16	20 59	PPS	27 13?	L_g		31·2
Georgetown		68·1	55	e 11 3	− 1	e 19 56	− 7	e 13 36	PP		29·2
Ottawa		68·2	48	e 11 3	− 1	e 19 59	− 5	—	—		e 32·2
Philadelphia		69·3	55	i 11 10	− 1	e 20 11	− 6	e 13 42	PP		e 28·5
Shawinigan Falls		70·0	46	11 19	+ 4	20 22	− 4	—	—		33·2
Vermont		70·1	49	e 11 18	+ 2	e 20 29	+ 2	e 13 53	PP		e 32·7
Fordham		70·2	53	i 11 13	− 4	e 20 27	− 1	i 13 59	PP		—
Christchurch		70·3	205	4 13a	?	14 42	?	—	—		—
Seven Falls		71·2	46	11 21	− 2	20 36	− 4	25 13	SS		33·2
Harvard		71·6	51	i 11 22	− 3	e 20 48	+ 4	e 13 54	PP		—
East Machias		74·1	48	e 11 38	− 2	i 21 7	− 5	e 14 38	PP		e 29·6
Riverview		74·6	224	—	—	e 23 17	?	—	—		e 32·7
Sydney		74·6	224	—	—	e 21 7	−11	—	—		e 33·9
Halifax		76·7	47	—	—	e 21 19	−22	—	—		36·2
Bermuda		79·3	60	e 11 59	−10	e 22 5	− 4	—	—		e 33·0
Manila		79·8	282	e 12 8	− 4	22 31	+17	—	—		38·7
Irkutsk		80·6	323	12 18	+ 2	22 18	− 5	—	—		37·2
San Juan		82·5	73	e 12 26	0	e 22 29	−13	e 15 39	PP		e 33·2
Hong Kong		83·5	292	—	—	22 55	+ 3	—	—		—
Scoresby Sund		83·5	15	e 12 32	+ 1	e 22 50	− 2	e 15 51	PP		e 34·2
Huancayo		84·4	105	e 12 41	+ 5	e 23 13	+12	e 15 55	PP		e 34·6
Phu-Lien		90·6	292	e 13 16	+11	e 23 30	[− 7]	—	—		—
La Paz		92·5	106	i 13 18a	+ 4	23 24	[−23]	17 1	PP		55·9
Sverdlovsk		97·5	341	13 44	+ 7	24 10	[− 4]	17 40	PP		38·2
Aberdeen		99·4	14	—	—	e 25 26	+11	e 26 36	PS		e 49·6
Upsala		99·8	3	e 18 0	PP	e 24 13?	[−13]	e 32 13?	SS		e 47·2
Pulkovo		100·0	357	—	—	25 15	− 5	—	—		—
Edinburgh		100·2	15	e 22 23	?	—	—	—	—		—
Almata		100·8	324	e 17 27	PKP	e 24 33	[+ 2]	—	—		—
Moscow		103·5	353	14 11	+ 7	e 24 41	[− 3]	e 18 18	PP		—
Kew		105·0	16	i 18 35	PP	e 25 41	{+11}	e 20 41	PPP		e 50·2
Calcutta	N.	105·2	301	e 15 35	?	—	—	—	—		—
Hamburg	Z.	105·2	9	e 18 31	PP	—	—	—	—		60·2
De Bilt		105·7	12	e 18 37	PP	e 27 52	PS	e 33 40	SS		e 49·7
Potsdam		106·7	7	e 14 13	P	e 25 2	[+ 4]	e 18 31	PP		e 50·0
Uccle		106·8	14	e 18 43	PP	e 25 15	[+17]	e 27 32	PS		e 46·2
Warsaw		107·6	2	e 18 57	PP	i 25 5	[+ 3]	i 28 41	PPS		—
Prague		109·2	7	—	—	(e 25 21)	[+12]	e 34 23	SS		—
Stuttgart		109·7	10	—	—	e 28 36	PS	e 34 27	SS		e 58·2
Agra		110·4	310	—	—	e 25 11	[− 3]	e 28 34	PS		—
Clermont-Ferrand		111·1	16	e 19 17	PP	34 13?	SS	—	—		52·2
Trieste		113·4	8	i 14 52	P	i 29 8	PS	e 19 39	PP		e 54·0
Toledo	Z.	114·1	24	e 19 35	PP	—	—	—	—		—
Baku		115·3	339	e 19 53	PP	e 27 48	{+66}	—	—		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.
Bucharest		115·5	359	e 17 13?	?	e 31 13?	PPS	—	—	38·2
Rome		116·4	11	e 19 57	PP	e 31 6	PPS	—	—	e 55·6
Granada		116·6	26	e 19 24a	PP	e 25 9	[−29]	e 22 24	PPP	55·0
Sofia		117·2	1	e 30 31	PS	—	—	—	—	38·2
Almeria		117·3	25	—	—	e 28 43	PS	—	—	63·2
Istanbul		118·8	356	28 40	PS	36 42	SS	—	—	—
Bombay		119·2	306	e 20 36	PP	e 30 25	PPS	—	—	—
Colombo	E.	119·9	290	—	—	e 29 43	PS	—	—	—
Kodaikanal	E.	120·4	295	—	—	e 30 13?	PS	—	—	—
Ksara		125·1	349	e 19 14	[+12]	e 32 37	PPS	e 21 3	PP	—
Helwan		129·7	353	e 21 34	PP	i 38 49	SS	—	—	—

Additional readings :—
Honolulu i = +45s. and +49s.
Ferndale ePN = +6m.52s., eE = +11m.44s.
Ukiah e = +6m.44s., ePPP = +7m.58s., e = +12m.7s.
Berkeley ePEN = +6m.41s., iE = +14m.3s., eSEN = +14m.7s., iE = +14m.51s.
Pasadena iZ = +7m.7s.
Mount Wilson iZ = +7m.8s.
La Jolla iZ = +7m.8s.
Seattle e = +7m.38s., ePPP = +9m.5s.
Apia iN = +17m.46s.
Victoria SSSE = +16m.3s.
Sitka i = +13m.34s.
Tucson i = +7m.51s., +7m.56s., and +8m.23s., ePPP = +9m.59s., i = +14m.0s. and +14m.5s.
Salt Lake City e = +7m.58s. and +8m.13s., ePPP = +9m.56s.
Logan L_q = +20m.26s.
Butte e = +8m.24s. and +14m.36s.
Bozeman e = +8m.26s., ePP = +9m.48s., ePPP = +10m.29s., i = +14m.50s., eSS = +17m.16s.
College ePPP = +10m.27s.
Lincoln ePP = +11m.23s., ePPP = +12m.56s., e = +16m.49s., eS_cS = +19m.16s., eSS = +20m.5s.
Florissant iPZ = +9m.54s., eEZ = +13m.33s., eS_cSE = +19m.48s.
St. Louis eE = +13m.31s., eN = +19m.41s. and +24m.23s.
Chicago U.S.C.G.S. i = +18m.18s., eS_cS = +20m.1s., eSS = +22m.20s.
Columbia eSS = +23m.21s.
Pennsylvania i = +11m.6s. and +11m.39s., e = +14m.22s. and +20m.58s.
Georgetown e = +13m.39s., SS = +24m.41s.
Philadelphia ePPP = +15m.45s., eS_cS = +20m.59s., eSS = +24m.39s.
Vermont eSS = +24m.43s.
Fordham iZ = +12m.7s.
Christchurch iZ = +5m.50s., PP = +7m.40s., SS = +20m.25s., L_q = +27m.23s.
Harvard eZ = +15m.28s.
East Machias e = +11m.49s., eS_cS = +21m.43s., eSS = +26m.3s., eSSS = +29m.14s.
Bermuda e = +12m.6s.
San Juan e = +12m.58s., ePPP = +17m.21s., e = +22m.42s., ePS = +23m.29s., eSS = +27m.26s., eSSS = +31m.23s.
Scoresby Sund i = +12m.38s., +12m.59s., and +22m.57s., eS_cS = +23m.15s., iPS = +23m.34s., ePPS = +24m.18s., eSSS = +32m.18s.
Huancayo e = +12m.43s., ePPP = +17m.48s., eS_cS = +23m.29s., iPPS = +24m.13s., eSS = +28m.39s., eSSS = +32m.13s.
La Paz iZ = +18m.7s., PS = +26m.3s., PPS = +26m.43s.
Sverdlovsk SS = +31m.49s.
Aberdeen eE = +44m.41s.
Upsala eE = +25m.18s., and +34m.13s.?
Moscow eS = +26m.7s.
Kew e = +19m.9s. and +19m.49s., eZ = +22m.21s., e = +27m.41s., eZ = +28m.37s., eE = +32m.9s., eN = +32m.41s., iNZ = +33m.46s., eEN = +35m.17s., eN = +36m.39s., eE = +37m.41s.
Potsdam ePPZ = +18m.37s., eE = +21m.55s. and +26m.18s., ePSN = +28m.3s., eZ = +28m.13s., eE = +32m.13s., eSSN = +33m.49s., eZ = +34m.13s.
Uccle eN = +28m.19s., SSN = +33m.53s.
Warsaw eN = +19m.5s., eZ = +22m.43s., eE = +26m.19s., iE = +32m.3s. and +36m.5s.
Agra eE = +35m.16s.
Triest eN = +20m.14s., ePPSN = +30m.17s., eSS = +35m.5s., eSSS = +38m.55s.
Baku PS = +30m.22s., SS = +35m.55s.
Rome eZ = +21m.38s., e = +23m.40s.
Granada iPP = +20m.3s., SKKS = +27m.48s., PS = +29m.29s., PPS = +30m.38s., SS = +35m.16s., PSS = +36m.22s.
Istanbul SS = +42m.13s.?
Ksara eSS = +38m.13s.
Helwan eE = +40m.25s.
Long waves were also recorded at Tashkent, Bergen, Stonyhurst, San Fernando, and Cape Town.

June 17d. 22h. 43m. 10s. Epicentre 37°·3N. 70°·9E. (as given by stations of U.S.S.R.).

$A = +\cdot2609$, $B = +\cdot7535$, $C = +\cdot6034$; $\delta = -8$; $h = -1$;
$D = +\cdot945$, $E = -\cdot327$; $G = +\cdot197$, $H = +\cdot570$, $K = -\cdot797$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Andijan		3·6	18	1 1	+ 3	e 1 43	+ 1	1 55	S_g	—
Samarkand		3·9	309	i 1 4	+ 2	1 54	+ 4	—	—	—
Tashkent		4·2	343	1 9	+ 2	e 2 38	S_g	e 1 19	P*	e 3·5
Tchimkent		5·1	349	i 1 23	+ 3	e 2 26	+ 6	—	—	—
Frunse		6·3	27	i 1 35	− 1	i 2 52	+ 2	e 2 7	P_g	—
Almata		7·5	36	e 1 52	− 1	—	—	—	—	—
Agra	E.	11·8	147	e 2 48	− 5	e 4 14	−52	—	—	—
Semipalatinsk		14·7	24	e 3 27	− 4	—	—	—	—	—
Baku		16·7	287	—	—	7 17	+14	—	—	—
Sverdlovsk		20·7	344	—	—	8 38	+ 7	—	—	11·4
Moscow		29·0	321	e 5 55	− 9	—	—	—	—	—
Pulkovo		34·2	325	—	—	e 12 28	+12	—	—	—

Additional readings :—
Tashkent $eP_g = +1m.23s.$
Long waves were recorded at Phu-Lien.

June 17d. Readings also at 0h. (Jena), 2h. (Mount Wilson, Riverside, Tinemaha, College, Scoresby Sund, Tucson, Potsdam, Rome, and Ksara), 5h. (Sofia), 11h. (Mount Wilson, Tucson, Pasadena, Riverside, and Tinemaha), 12h. (Adelaide), 13h. (Calcutta), 14h. (Manila), 16h. (Zi-ka-wei), 18h. (Mount Wilson, Berkeley, Honolulu, and Tucson), 19h. (San Juan, La Paz, and Balboa Heights), 20h. (Irkutsk, Bombay, Hyderabad, Agra, Vladivostok, Warsaw, De Bilt, Upsala, Hamburg, Tashkent, Hong Kong, Phu-Lien, near Mizusawa, Calcutta, Manila, Ksara, Rome, Potsdam, Scoresby Sund, Sverdlovsk, and Colombo), 21h. (Bozeman), 23h. (Moscow, Baku, Honolulu, Ukiah, Berkeley, Pasadena, Mount Wilson, Riverside, Tucson, Calcutta, Ksara, Sverdlovsk, and Colombo).

June 18d. 13h. 52m. 33s. Epicentre 5°·4N. 123°·0E.
Intensity II at Ternate and Batjan. Epicentre 5°·4N. 123°·0E.; depth 600kms. (Batavia).
Aardbevingen in Ned. Indie waargenomen gedurende het Jaar, 1940, p. 15.

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

Tables for depth of focus 0·080 have been used.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Manila		9·4	347	i 2 13a	+ 1	i 4 0	+ 2	—	—	—
Taito		17·3	356	3 32	0	6 30	+ 8	—	—	—
Hong Kong		18·8	335	3 46	0	5 44	−64	—	—	—
Miyakozina		19·4	8	3 54	+ 2	7 3	+ 5	—	—	—
Phu-Lien		22·1	317	e 4 18	+ 1	e 7 52	+ 9	—	—	—
Zi-ka-wei		25·7	358	e 4 50	+ 1	i 8 40	0	—	—	—
Miyazaki		27·5	17	e 7 11	?	9 0	− 8	—	—	—
Titizima		28·3	39	5 8	− 4	9 9	−12	—	—	—
Hukuoka		28·9	14	e 9 20	S	(e 9 20)	−10	—	—	(14·8)
Koti		29·7	18	5 20	− 4	9 21	−21	—	—	—
Hamada		30·5	15	9 47	S	(9 47)	− 8	—	—	(15·0)
Osaka		31·3	20	5 11	−26	10 6	− 1	—	—	—
Nagoya		32·3	23	5 43	− 3	10 13	− 9	—	—	—
Yokohama		33·6	25	—	—	e 9 33	−69	—	—	—
Tokyo Cen. Met. Ob.		33·9	25	10 5	?	10 23	−24	—	—	—
Nagano		34·1	22	5 57	− 4	10 39	−11	—	—	—
Sendai		36·5	24	6 19	− 2	11 12	−14	—	—	—
Mizusawa		37·4	23	e 6 28	0	11 28	−11	—	—	—
Calcutta	N.	37·6	301	e 6 45	+15	i 12 2	+18	1 9 0	PPP	—
Vladivostok		38·4	11	9 20	?	16 17	SSS	—	—	e 17·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mori		39·8	20	6 47	− 1	12 8	− 6	—	—	—
Sapporo		40·9	21	6 57	+ 1	12 22	− 8	15 16	SS	—
Adelaide		42·3	162	i 6 7	−61	i 12 53	+ 3	7 14	P_cP	23·7
Colombo	E.	42·9	274	i 7 16	+ 4	i 13 3	+ 4	—	—	—
Brisbane		43·7	140	i 7 9	− 9	i 13 3	− 7	i 9 3	PP	—
Hyderabad	E.	45·1	290	7 28	− 1	13 32	+ 3	9 14	PP	19·5
Kodaikanal	E.	45·3	280	i 7 34k	+ 3	i 13 39	+ 7	i 16 30	SS	i 20·1
Riverview		47·2	149	i 7 48	+ 2	i 14 0	+ 1	i 14 43	sS	—
Sydney		47·3	149	e 7 42	− 4	i 13 54	− 6	—	—	e 21·7
Agra	E.	47·9	303	7 48	− 3	i 14 8	0	8 7	pP	—
Irkutsk		49·2	345	7 59	− 1	14 21	− 5	—	—	20·4
Bombay		50·7	290	i 8 10	− 2	i 14 47	+ 1	i 10 1	PP	—
Almata		55·3	321	8 44	0	15 47	0	—	—	—
Frunse		56·7	319	8 57	+ 3	16 7	+ 2	—	—	—
Andijan		57·3	316	8 59	+ 1	—	—	9 42	P_cP	—
Semipalatinsk		57·3	330	8 57	− 1	16 12	− 1	—	—	—
Tashkent		59·6	316	i 9 14	0	i 16 45	+ 3	11 11	pP	e 23·5
Tchimkent		59·8	317	9 13	− 2	—	—	—	—	—
Arapuni		65·2	136	—	—	e 19 3	PS	—	—	e 35·4
Christchurch		66·1	143	9 52a	− 3	17 57	− 4	i 12 18	PP	24·5
Wellington		66·2	140	9 54	− 2	17 57	− 5	12 18	PP	29·5
Sverdlovsk		70·6	330	i 10 20	− 2	i 18 48	− 5	12 14	pP	42·1
Baku		73·7	310	e 10 47	+ 7	27 33	SSS	13 45	PP	34·0
Honolulu		78·0	70	e 11 10	+ 6	i 20 12	− 1	e 13 0	pP	e 31·4
Moscow		83·0	325	11 29	0	20 56	− 7	13 28	pP	—
Kew		84·6	303	i 11 40k	+ 3	24 54	sS	i 13 42	pP	—
College		84·8	26	e 13 38	pP	e 21 6	−15	e 22 38	PS	e 33·8
Pulkovo		86·7	330	e 11 48	+ 1	e 21 14	−24	13 30	pP	e 37·3
Helwan		88·8	300	i 11 57a	0	21 30	−28	14 1	pP	—
Istanbul		89·4	311	12 0	0	21 6	−63	24 46	sS	e 48·4
Bucharest		91·2	315	e 15 57	PP	e 21 47	−32	e 24 57	sS	—
Sitka		91·7	32	e 14 12	pP	i 22 27	+ 4	i 26 7	sS	—
Upsala		93·0	331	e 18 27?	PPP	i 22 39	+ 5	e 25 3	sS	e 35·4
Warsaw		93·1	323	e 12 14k	− 3	i 22 33	− 2	e 29 19	SS	—
Sofia		93·4	313	e 12 24	+ 6	e 22 0	−38	e 24 57	sS	—
Prague		97·6	322	e 16 51	PP	e 27 3	?	—	—	—
Potsdam		97·7	325	e 12 39	+ 1	i 23 19	+ 5	i 16 47	PP	—
Bergen		98·6	334	—	—	e 25 43	PS	—	—	—
Hamburg		99·0	327	e 17 4a	PP	e 26 50	PS	—	—	e 52·0
Triest		99·4	317	e 16 45	PKP	i 22 50	[+19]	i 18 30	pPKP	—
Scoresby Sund		100·7	349	e 12 49	− 2	i 22 36	[− 1]	e 16 6	sP	i 40·3
Victoria		101·2	39	e 16 27?	pP	i 22 37	[− 3]	e 35 47	SSS	—
Stuttgart		101·3	322	e 17 3	PP	e 22 40	[0]	e 18 57	pPP	—
Rome		101·4	313	e 12 54	0	i 23 46	+ 1	i 17 16	PP	e 45·1
De Bilt		101·7	326	e 12 59	+ 3	e 22 44	[+ 1]	e 17 22	PP	—
Chur		101·8	320	e 17 18	PP	—	—	—	—	—
Zurich		102·2	321	e 17 13	PP	e 22 38	[− 7]	—	—	—
Basle		102·8	321	e 17 12	PP	e 22 42	[− 5]	—	—	—
Uccle		103·3	326	e 17 34	PP	i 24 3	+ 3	—	—	—
Neuchatel		103·4	320	e 17 25	PP	—	—	—	—	—
Aberdeen	E.	103·5	333	—	—	e 22 42	[− 8]	—	—	—
Ukiah		104·7	47	e 17 39	PP	e 22 54	[− 2]	e 28 4	sS	e 44·3
Cape Town	E.	105·1	237	20 58	PPP	24 50	+34	27 30	PPS	—
Berkeley		105·8	48	e 17 41	PKP	e 22 57	[− 4]	32 1	SS	—
Santa Clara	E.	106·2	48	e 17 43	PKP	e 22 59	[− 3]	e 26 8	?	—
Clermont-Ferrand		106·3	321	e 17 27?	PKP	—	—	—	—	—
Bozeman		110·1	37	e 14 38	P	e 23 16	[− 1]	e 18 9	PP	e 45·4
Pasadena		110·2	51	e 17 22	[− 7]	e 23 17	[0]	i 20 16	PPP	—
Mount Wilson	z.	110·3	51	e 17 22	[− 7]	—	—	i 20 14	PPP	—
Riverside		110·9	51	e 17 37	[+ 7]	—	—	—	—	—
Salt Lake City		112·0	42	—	—	e 23 20	[− 5]	e 26 59	SP	—
Toledo		113·7	317	e 18 24	PP	e 28 21	PS	—	—	—
Almeria		114·0	313	i 18 49	PP	25 52	SKKS	21 42	PPP	70·4
Granada	z.	114·7	315	18 52	PP	37 38	SSS	21 47	PPP	69·9
Tucson		116·6	50	e 17 44	[+ 2]	e 28 52	PS	e 18 57	PP	e 52·7

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis	126·5	32	e 20 13	PP	e 26 0	sSKS	e 36 20	sS	—
East Machias	129·2	9	e 15 33	P	e 37 11	SS	e 20 38	PP	e 50·8
Harvard	130·5	13	i 20 40	PP	—	—	e 22 19	pPP	—
Fordham	131·4	16	i 20 44	PP	e 23 47	[−39]	e 22 25	pPP	—
Philadelphia	131·9	18	e 20 45	PP	e 37 22	SS	e 31 45	PPS	—
Bermuda	141·8	10	e 20 47	PP	e 39 11	SS	e 23 40	pPP	e 60·9
San Juan	154·7	20	e 19 6	[+17]	e 24 58	[− 6]	e 21 55	sPKP	e 61·0
Huancayo	160·7	111	e 18 55	[− 2]	e 36 53	pPS	e 23 41	PP	e 63·8
La Paz	164·5	136	i 19 7a	[+ 6]	i 25 49	[+36]	23 17	PP	—

Additional readings :—
Hong Kong ? = +5m.13s.
Phu-Lien e = +6m.53s. and +10m.8s.
Hukuoka S and L given as P and S.
Hamada S and L given as P and S.
Calcutta eN = +11m.24s.
Vladivostok SS = +16m.33s.
Adelaide PP = +7m.24s., iS_cS = +15m.56s., iSS = +16m.13s.
Brisbane iE = +7m.15s. and +16m.3s., iN = +16m.9s., iEN = +16m.51s., iE = +18m.3s., iN = +19m.57s., iE = +20m.39s.
Hyderabad SSE = +16m.28s., S_cSE = +17m.17s.
Riverview iEN = +16m.39s., iN = +17m.24s.
Agra PPE = +9m.30s., P_cPE = +9m.36s., iE = +10m.30s., SSE = +16m.40s., S_cSE = +17m.25s., SSSE = +17m.48s.
Bombay iEN = +12m.57s., iE = +17m.0s., eEN = +18m.2s.
Tashkent sS = +19m.59s.
Christchurch sSEN = +18m.53s.
Wellington iZ = +11m.42s., S_cPZ = +14m.15s., iZ = +18m.27s., sS = +18m.52s., SS = +22m.29s.
Sverdlovsk sS = +22m.15s.
Moscow sS = +24m.33s.
Ksara PP = +15m.15s.
College eS = +21m.13s., esS = +24m.53s., eSSS = +30m.37s.
Pulkovo sS = +24m.3s.
Helwan PPZ = +15m.37s., PPPE = +17m.48s., SEN = +21m.51s., sSE = +25m.37s.
Sitka eSKS = +21m.45s., iSKKS = +21m.51s.
Upsala eE = +21m.52s., eN = +25m.57s., eE = +26m.8s., eN = +30m.2s.
Warsaw eE = +18m.52s., iE = +21m.57s., +25m.9s., +26m.13s., and +27m.29s.
Potsdam ePN = +12m.42s., ePPN = +16m.52s., iSKSE = +22m.18s., isSN = +26m.59s., isSPE = +28m.27s., iSSSZ = +34m.28s.
Hamburg iE = +22m.30s.
Triest ipPKP = +22m.29s., iS = +27m.28s., isS = +30m.50s., i = +31m.14s., eN = +33m.22s., eSS = +35m.4s.
Scoresby Sund ePP = +17m.6s., epPP = +19m.5s., esPP = +19m.59s., iS = +23m.44s., iSP = +25m.11s., eSPP = +26m.8s., ipS = +26m.23s., esS = +27m.23s., esSP = +29m.0s., eSS = +30m.46s., esSS = +34m.17s.
Victoria e = +25m.11s.
Stuttgart eSN = +23m.49s., esSN = +27m.41s., eEN = +28m.57s., eSSN = +31m.8s., esSSN = +34m.53s., eN = +35m.59s.
Rome ePPPZ = +20m.3s., eZ = +22m.3s., eEN = +22m.37s., eSKSZ = +23m.21s., e = +27m.32s., eN = +29m.56s.
De Bilt ePPP = +20m.3s., esSKS = +23m.58s.
Ukiah eSKKS = +23m.35s., eS = +24m.10s., eSP = +25m.48s., epS = +26m.53s., eSPP = +27m.0s., esSP = +29m.35s., eSS = +31m.45s., eSSS = +36m.31s.
Berkeley eE = +25m.59s.
Bozeman eS = +23m.54s., eSP = +26m.45s., esS = +28m.40s., esSP = +30m.16s., eSS = +32m.56s., esSS = +36m.29s., eSSS = +37m.41s.
Pasadena iEN = +26m.45s.
Mount Wilson iZ = +17m.44s.
Almeria PKS = +22m.16s., PPP = +24m.44s., SKKS = +28m.32s., PS = +31m.54s., PPS = +33m.56s., SS = +39m.56s., SSS = +45m.12s.
Granada SKKSZ = +28m.36s., PSZ = +31m.26s., PPSZ = +34m.20s., SSPZ = +37m.58s., SSSZ = +45m.57s.
Tucson epPP = +20m.45s., ePPP = +21m.51s., eS = +26m.13s., epS = +28m.21s., esSS = +37m.50s.
St. Louis eEN = +24m.9s., eN = +27m.12s.
East Machias ePKS = +21m.34s., eSKKS = +26m.17s., eSPP = +31m.19s., esPS = +33m.27s., eSSS = +43m.19s.
Fordham eNZ = +21m.39s., iE = +37m.13s., iEN = +39m.35s.
Bermuda eSKP = +21m.22s., esSS = +42m.53s.
San Juan e = +19m.35s., epPP = +25m.36s., ePPP = +26m.42s., eSKSP = +32m.2s.
Huancayo epPP = +25m.24s., epPPP = +29m.11s., iPSKS = +33m.44s., ePSP = +37m.42s., eSS = +43m.20s., esSS = +46m.32s., eSSS = +49m.45s.
La Paz iSPKP = +22m.5s., SKKS = +29m.43s., iPSKS = +33m.23s.

June 18d. 18h. 38m. 59s. Epicentre 52°·4N. 173°·5E. (as on 1940 May 11d.).

$A = -·6087$, $B = +·0694$, $C = +·7903$; $\delta = -9$; $h = -6$;
$D = +·113$, $E = +·994$,; $G = -·785$, $H = +·089$, $K = -·613$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		23·2	42	e 5 12	+ 3	i 9 31	+13	—	—	i 9·8
Sapporo		23·4	260	5 10	− 1	6 21	?	—	—	—
Mizusawa		25·9	251	e 5 35	0	10 25	+21	—	—	—
Sendai		26·7	250	5 44	+ 1	11 4	SS	—	—	—
Vladivostok		29·1	267	e 6 8	+ 4	i 10 53	− 3	—	—	12·6
Nagano		29·3	252	6 7	+ 1	10 17	−42	—	—	—
Sitka		29·3	60	e 6 11	+ 5	e 11 8	+ 9	e 12 9	SS	i 14·2
Nagoya		31·1	250	6 25	+ 3	—	—	—	—	—
Kobe		32·5	252	6 32	− 2	11 42	− 7	—	—	—
Koti		34·2	252	6 48	− 1	—	—	—	—	—
Zinsen		35·7	264	7 0	− 2	12 39	0	—	—	—
Honolulu		38·1	133	e 7 36	+14	e 13 16	0	—	—	e 15·3
Victoria		39·2	70	—	—	e 13 33	+ 1	—	—	16·0
Seattle		40·3	70	e 8 1	+21	e 13 57	+ 8	e 9 20	PP	e 16·4
Irkutsk		40·8	299	e 7 39	− 6	e 13 53	− 3	—	—	20·0
Ukiah		44·7	81	e 8 24	+ 8	e 17 55	SS	e 10 8	PP	e 18·4
Berkeley		46·1	82	e 8 28	0	e 15 13	− 1	e 18 20	SS	e 22·0
Branner	E.	46·4	82	e 8 36	+ 6	—	—	—	—	—
Saskatoon		46·5	57	—	—	e 15 19	0	e 18 31	SS	24·0
Santa Clara		46·6	82	e 8 36	+ 4	e 15 18	− 3	—	—	e 19·8
Bozeman		47·8	66	e 8 44	+ 3	e 15 37	− 1	e 9 55	P_cP	e 19·3
Fresno	N.	48·3	81	e 8 43	− 2	—	—	—	—	—
Tinemaha		49·0	80	e 8 51	+ 1	—	—	—	—	—
Haiwee		49·8	81	e 8 58	+ 2	—	—	—	—	—
Logan		49·8	70	e 9 0	+ 4	e 15 58	− 8	10 26	P_cP	e 27·2
Santa Barbara		49·9	83	i 8 58	+ 1	—	—	—	—	—
Salt Lake City		50·4	72	e 9 6	+ 5	e 16 13	− 1	e 10 6	P_cP	e 20·6
Mount Wilson		51·0	82	i 9 6k	0	—	—	—	—	—
Pasadena		51·0	82	i 9 5k	− 1	i 16 22	0	—	—	e 21·0
Riverside		51·6	82	i 9 10k	0	—	—	—	—	—
La Jolla	Z.	52·4	83	e 9 18	+ 2	—	—	—	—	—
Hong Kong		54·0	259	9 25	− 3	17 1	− 2	—	—	—
Semipalatinsk		54·2	307	e 9 25	− 4	17 1	− 5	—	—	27·0
Manila		56·0	247	e 9 41	− 2	17 34	+ 4	—	—	—
Tucson		56·8	79	e 9 48	0	e 17 41	0	e 10 46	P_cP	e 25·2
Scoresby Sund		56·9	6	i 9 50	+ 1	e 17 46	+ 4	i 12 5	PP	e 22·4
Sverdlovsk		58·0	323	i 9 54	− 3	21 31	SS	—	—	26·0
Lincoln		58·9	62	e 10 3	0	e 18 8	0	e 12 9	PP	e 22·8
Almata		60·7	303	e 10 12	− 3	18 26	− 6	—	—	—
Frunse		62·2	304	i 10 23	− 3	i 18 45	− 6	—	—	—
Chicago U.S.C.G.S.		63·0	56	e 10 35	+ 4	i 19 2	+ 1	—	—	e 26·2
Florissant		63·8	60	e 10 35	− 1	i 19 9	− 2	—	—	e 30·1
St. Louis		64·0	60	e 10 36	− 2	e 19 11	− 2	—	—	29·9
Pulkovo		64·3	340	i 10 38	− 1	i 19 15	− 2	—	—	e 31·7
Andijan		64·9	304	i 10 43	0	19 22	− 2	—	—	35·3
Tchimkent		65·1	307	e 10 42	− 3	e 19 24	− 3	—	—	—
Toronto		65·6	50	—	—	e 19 46	+13	—	—	31·0
Ottawa		65·9	46	10 49	− 1	19 33	− 4	27 1?	SSS	33·0
Tashkent		66·0	307	10 49	− 1	e 19 32	− 6	—	—	34·4
Moscow		66·3	334	10 51	− 1	19 38	− 4	—	—	—
Shawinigan Falls		66·3	43	e 10 49	− 3	e 19 37	− 5	—	—	35·0
Upsala		66·4	347	10 52	− 1	e 19 40	− 3	e 24 1?	SS	e 35·0
Seven Falls		66·7	42	e 14 1?	PP	19 43	− 3	e 24 1?	SS	31·0
Samarkand		68·4	307	e 11 4	− 2	e 20 4	− 3	—	—	—
Pennsylvania		68·5	51	e 11 1	− 5	i 20 6	− 2	i 14 3	PP	34·4
Calcutta	N.	69·6	280	e 11 26	+13	i 20 26	+ 5	e 20 40	PS	—
East Machias		70·0	42	e 11 18	+ 3	e 20 20	− 6	e 13 48	PP	e 28·2
Harvard		70·1	45	e 11 16	0	e 20 21	− 6	—	—	e 36·0
Fordham		70·4	48	i 11 16a	− 2	e 20 17	−13	i 21 36	PPS	e 35·6
Georgetown		70·4	51	e 11 16	− 2	i 20 29	− 1	21 11	PPS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Philadelphia		70·5	49	e 11 14	− 4	e 20 18	−14	e 21 32	S_cS	e 28·9
Aberdeen		70·7	357	—	—	i 20 34	0	—	—	e 37·4
Copenhagen		71·1	349	i 11 22a	0	20 40	+ 2	—	—	—
Agra	E.	72·2	290	e 11 31	+ 2	e 20 40	−11	e 21 2	PS	—
Columbia		72·3	57	e 11 35	+ 6	e 20 53	+ 1	e 21 35	S_cS	e 29·7
Warsaw		73·2	342	11 35a	0	20 58	− 4	14 17	PP	e 38·0
Hamburg		73·5	349	e 11 38	+ 2	e 21 9	+ 3	e 21 52	PS	e 39·0
Potsdam		74·3	348	i 11 39a	− 2	e 21 1	−14	e 25 54	SS	e 39·0
De Bilt		75·4	353	i 11 49a	+ 2	i 21 29	+ 2	—	—	e 38·0
Baku		75·5	318	11 49	+ 1	22 7	PS	15 15	PP	37·0
Jena		75·9	348	i 11 47	− 3	—	—	—	—	e 43·0
Oxford		76·1	356	—	—	i 21 33	− 2	—	—	e 40·0
Kew		76·4	356	i 11 50	− 3	e 21 40	+ 2	e 15 48	PP	37·0
Prague		76·4	345	—	—	e 21 37	− 1	—	—	e 38·0
Uccle		76·8	354	i 11 55	0	21 48	+ 6	27 5	SS	e 37·0
Budapest		78·1	342	12 2	0	e 22 1?	+ 5	—	—	47·0
Stuttgart		78·3	349	e 12 3a	0	e 22 16	+17	—	—	e 42·7
Kalossa	N.	79·0	342	e 12 9	+ 2	—	—	—	—	—
Hyderabad	E.	79·4	284	—	—	i 22 19	+ 9	—	—	—
Bucharest		79·6	336	e 13 1?	+51	—	—	—	—	41·0
Basle		79·7	350	e 12 12	+ 1	e 22 16	+ 3	—	—	—
Zurich		79·8	350	e 12 11a	− 1	e 22 19	+ 5	—	—	—
Chur		80·2	349	e 12 13	− 1	e 22 34	[+ 6]	—	—	—
Neuchatel		80·3	350	e 12 14	0	—	—	—	—	—
Triest		80·8	346	e 12 15	− 2	e 22 31	+ 6	e 15 37	PP	e 38·7
Bermuda		81·5	47	e 12 19	− 2	e 22 23	− 9	—	—	e 33·1
Bombay		81·6	289	—	—	e 23 6	PS	—	—	—
Sofia		81·8	337	e 12 31	+ 9	e 22 37	+ 2	—	—	—
Clermont-Ferrand		81·9	353	e 12 22	− 1	—	—	—	—	e 44·0
Istanbul		81·9	333	12 28	+ 5	23 5	PS	—	—	e 47·7
Rome		84·6	346	i 12 37a	+ 1	e 23 5	+ 2	e 15 54	PP	e 38·1
Ksara		86·5	325	i 12 46	0	e 24 43	PS	—	—	47·0
Colombo	E.	86·8	277	—	—	e 23 1?	[−12]	—	—	—
Riverview	N.	88·1	198	—	—	e 24 31	PS	—	—	e 44·0
Toledo		88·1	358	e 12 53	− 1	e 23 22	[+ 1]	—	—	—
Lisbon		89·2	2	—	—	23 25	[− 2]	—	—	44·2
Granada	Z.	90·7	357	i 13 7k	+ 1	i 23 54	− 7	16 48	PP	47·7
Almeria		91·0	356	e 13 17	+10	e 26 21	PPS	—	—	48·0
San Fernando	N.	91·5	0	—	—	e 23 27	[−15]	—	—	56·0
Helwan		91·7	327	e 13 10	0	23 41	[− 2]	16 46	PP	—
San Juan		92·7	56	e 13 13	− 2	e 24 19	+ 1	e 16 38	PP	e 36·3
Wellington		93·3	180	—	—	i 23 43	[− 9]	—	—	43·0
La Paz	Z.	120·1	77	i 20 21	PP	—	—	—	—	59·6

Additional readings :—
Sitka i = +11m.16s.
Honolulu e = +7m.39s. and +13m.23s.
Seattle e = +8m.40s.
Ukiah ePPP = +10m.48s., eS_cS = +18m.14s.
Berkeley iPZ = +8m.33s., eE = +8m.58s. and +14m.14s.
Bozeman ePP = +10m.57s., ePPP = +11m.24s., eS_cS = +18m.32s.
Salt Lake City e = +9m.35s., ePP = +10m.43s., eS_cS = +18m.51s., eSS = +19m.32s.
Tucson ePP = +13m.3s., eS_cS = +19m.37s., eSS = +21m.39s.
Scoresby Sund i = +10m.3s., ePPP = +13m.24s., i = +17m.56s., eS_cS = +19m.29s., eSS = +21m.41s.
Lincoln ePPP = +13m.25s., eS_cS = +19m.49s., eSS = +21m.34s.
Florissant iE = +19m.16s., iN = +19m.27s.
Upsala eSSSE = +27m.1s.?
Seven Falls e = +27m.25s.
Pennsylvania i = +11m.35s.
Calcutta eSSN = +24m.47s.
East Machias ePPP = +15m.34s., eS_cS = +21m.16s.
Georgetown SS = +25m.27s.
Philadelphia e = +11m.25s. and +20m.27s., eSS = +25m.10s., eSSS = +27m.46s.
Agra eE = +21m.34s., SSSE = +28m.41s.
Columbia e = +20m.57s., eSS = +25m.30s., eSSS = +29m.5s.
Warsaw SN = +21m.1s., PSN = +21m.41s., SSE = +25m.45s., SSN = +25m.49s., SSSN = +28m.37s., iN = +29m.35s.

Continued on next page,

Potsdam eSZ = +21m.13s., eSSN = +26m.1s.
Baku SS = +26m.49s.
Jena iPN = +11m.50s.
Kew P_gPN = +12m.22s., iN = +16m.4s., PPPZ = +17m.18s., eSSN = +26m.48s., eSSS = +30m.16s., L_g = +32·0m.
Stuttgart eN = +22m.36s.
Kalossa eE = +12m.15s.
Triest ePPP = +17m.9s., eSS = +27m.27s., eSSS = +30m.56s.
Bermuda e = +22m.29s.
Rome ePPPN = +18m.7s., eZ = +18m.17s., ePSZ = +24m.2s., eN = +24m.13s., eSSN = +28m.44s., eSSSN = +32m.14s., eZ = +32m.57s.
Granada PSZ = +25m.20s., PPSZ = +25m.31s., SSZ = +30m.23s., SSSZ = +34m.37s.
Helwan SE = +24m.29s., PSE = +25m.25s.
San Juan eSKS = +24m.2s., eSS = +30m.9s., eSSS = +33m.42s.
Long waves were also recorded at Cape Town, Kodaikanal, Huancayo, and Bergen.

June 18d. Readings also at 0h. (Calcutta), 2h. (Wellington), 3h. (Honolulu), 6h. (near Fresno and Tucson), 8h. (La Paz, Wellington, and Huancayo), 10h. (near Hukuoka), 11h. (Prague), 16h. (near La Paz, Fordham, and Rio de Janeiro), 17h. (near Mizusawa and Osaka), 19h. (Sofia, Bucharest, Triest, and near Mizusawa), 22h. (Potsdam and Tucson).

June 19d. 14h. 10m. 9s. Epicentre 42°·9N. 11°·7E.

Intensity VII at Radicofani, VI-VII at Abbadia San Salvadore. Epicentre 42°53′N. 11°43′E. Shallow. Macroseismic area 40kms. approx.

Domenico di Filippo. It terremoto del Monte Amiata de 19 giugno, 1940, XVIII.

Estratto da "La Ricerca Scientifica," Anno 12°, No. 7-8, Luglio-Settembre, 1941, XIX, pag. 887.
Public. de l'Institut Geophysique de Rome, No. 66, carte isoseiste, p. 887.

A = +·7195, B = +·1490, C = +·6782; δ = −16; h = −3;
D = +·203, E = −·979; G = +·664, H = +·138, K = −·735.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rome		1·2	150	i 0 25$_s$	+ 1	i 0 42	+ 1	—	—	—
Triest		3·2	28	e 0 51	− 1	i 1 27	− 5	i 0 59	P_g	—
Chur		4·3	339	e 1 8	0	—	—	—	—	—
Zurich		5·0	334	e 1 19	+ 1	—	—	—	—	—
Ravensburg		5·1	344	e 1 39	P_g	e 2 48	S_g	—	—	—
Neuchatel		5·3	323	e 1 23	+ 1	—	—	—	—	—
Basle		5·5	330	e 1 26	+ 1	—	—	—	—	e 3·4
Stuttgart		6·2	343	e 1 35	0	e 2 34	−14	i 2 4	P_g	—
Jena		8·1	358	e 2 15	P*	—	—	—	—	—
Uccle	z.	9·4	330	—	—	e 5 14	S_g	—	—	—
Potsdam		9·6	7	—	—	e 3 56	−16	e 5 11	S_g	6·2

Additional readings :—
Rome iZ = +30s., iS_gE = +45s., iEN = +1m.19s., iE = +1m.41s. and +2m.1s.
Triest eP* = +54s., i = +1m.30s., iS* = +1m.36s.
Ravensburg eE = +1m.45s.
Stuttgart eS_gEN = +3m.14s.
Potsdam eE = +4m.33s., iN = +5m.47s., iE = +5m.56s.
Long waves were also recorded at Hamburg, Toledo, Warsaw, De Bilt, Kew, and Clermont-Ferrand.

June 19d. Readings also at 2h. (Mizusawa), 4h. (near Mizusawa and near Triest), 5h. (near Wellington and New Plymouth), 8h. (Warsaw, Scoresby Sund, and Tucson), 9h. (Ksara), 13h. (Mount Wilson, Tucson, Riverside, and Pasadena), 18h. (Vladivostok, Sverdlovsk, Granada, Toledo, Tucson, Riverside, Pasadena, Warsaw, and Rome), 19h. (Baku, Berkeley, Apia, Christchurch, Wellington, Potsdam, Uccle, Ksara, Tucson, Riverside, and Pasadena), 20h. (Tuai, Calcutta, Phu-Lien, Wellington, Apia, Rome, Warsaw, Scoresby Sund, and near New Plymouth), 21h. (Columbia), 23h. (Manila).

June 20d. Readings at 1h. (near Rome and Triest), 4h. (Ksara, Sofia, and Helwan), 8h. (La Paz and Wellington), 9h. (Ksara), 10h. (Rome), 11h. (near Osaka), 14h. (Rome), 16h. (near Fordham and Johannesburg), 17h. (Ksara, near Fordham, and Harvard), 18h. (near Mizusawa).

June 21d. 8h. 50m. 34s. Epicentre 36°·2N. 139°·9E.
(as given by Tokyo Imperial University and on 1939 June 30d.).

$A = -·6187$, $B = +·5210$, $C = +·5880$; $\delta = -3$; $h = 0$;
$D = +·644$, $E = +·765$; $G = -·450$, $H = +·379$, $K = -·809$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Tukubasan	0·2	84	0 18	+ 8	0 26	+10
Tokyo Imp. Univ.	0·5	192	0 19	+ 5	0 28	+ 5
Komaba	0·6	198	0 18	+ 3	0 27	+ 1
Mitaka	0·6	208	0 18	+ 3	0 28	+ 2
Titibu	0·7	252	0 18	+ 1	0 27	− 1
Togane	0·7	149	0 18	+ 1	0 32	+ 4
Kamakura	0·9	198	0 18	− 2	0 31	− 3
Kiyosumi	1·1	168	0 18	− 4	0 40	+ 1
Koyama	1·1	221	0 18	− 4	0 32	− 7
Yosiwara	1·4	224	0 18	− 9	0 37	− 9

June 21d. Readings also at 5h. (Triest, near Branner (2), Lick (2), and Berkeley (2)), 6h. (near Mizusawa), 8h. (near Mizusawa, Ksara, Helwan, and Istanbul), 14h. (Toledo), 16h. (Christchurch, Rome, Granada, Riverview, La Paz, Cape Town, Bozeman, Huancayo, Wellington, Brisbane, Arapuni, Ksara, and Scoresby Sund), 17h. (De Bilt, Sofia, Kew, Scoresby Sund, and Toledo), 18h. (Balboa Heights), 20h. (near Branner), 21h. (near Lick, Berkeley, and Branner).

June 22d. 0h. Local Japanese shock. Tokyo Imperial University gives Epicentre 35°·7N. 139°·9E.

Komaba P = 23m.49s., S = 23m.58s.
Tokyo Imp. Univ. P = 23m.49s., S = 23m.58s.
Kamakura P = 23m.50s., S = 24m.1s.
Koyama P = 23m.50s., S = 24m.1s.
Mitaka P = 23m.50s., S = 24m.0s.
Titibu P = 23m.50s., S = 24m.4s.
Togane P = 23m.50s., S = 23m.59s.
Tukubasan P = 23m.50s., S = 23m.58s.
Yosiwara P = 23m.50s., S = 24m.6s.

June 22d. 11h. 36m. 42s. Epicentre 0°·1N. 122°·7E. (as on 1939 Dec. 21d.).

Intensity V in Celebes and the Moluccas. Epicentre 0°·0 123°·0E.; depth 150km. (Batavia).

Aardbevingen in Ned. Indie Waargenomen gedurende het Jaar 1940, p. 16.

$A = -·5402$, $B = +·8415$, $C = +·0017$; $\delta = -6$; $h = +7$;
$D = +·842$, $E = +·540$; $G = -·001$, $H = +·001$, $K = -1·000$.

Tables for depth of focus 0·020 have been used.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palau		13·8	58	2 10	−60	4 30	−69	—	—	—
Manila		14·5	353	i 3 22k	+ 3	6 18	sS	—	—	—
Kosyun		21·9	355	4 53	pP	8 44	sS	—	—	—
Hong Kong		23·6	340	5 0	+ 3	9 1	+ 5	5 27	PP	—
Phu-Lien		25·9	324	e 5 20	+ 1	i 9 41	+ 6	—	—	—
Naha		26·4	9	5 57	pP	9 48	+ 5	—	—	—
Zi-ka-wei	N.	31·0	359	e 6 0	− 4	11 0	+ 4	i 7 2	PP	—
Perth		32·6	190	6 18	0	10 21	−60	6 41	pP	—
Miyazaki		32·7	15	6 20	+ 1	11 23	0	—	—	15·0
Hukuoka		34·1	13	e 6 32	+ 1	14 25	SS	—	—	19·3
Matuyama		34·9	15	6 36	− 2	11 54	− 3	—	—	—
Hamada		35·7	13	6 44	− 1	12 12	+ 3	—	—	—
Osaka		36·4	18	6 51	+ 1	11 5	?	7 45	PP	—
Kobe		36·4	18	6 46	− 4	12 18	− 2	—	—	—
Kameyama		36·9	20	6 54	− 1	12 27	0	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zinsen		37·4	4	7 3	+ 4	12 31	− 4	—	—	—
Adelaide		37·9	159	i 7 3	0	i 12 38	− 4	8 28	PP	1 17·8
Yokohama		38·6	23	e 7 8	− 1	e 12 50	− 3	—	—	—
Tokyo Cen. Met. Ob.		38·8	23	6 12	−59	12 46	−10	—	—	—
Nagano		39·1	20	7 13	0	12 59	− 1	—	—	—
Mito		39·7	23	7 23	+ 5	13 3	− 6	—	—	—
Brisbane	E.	40·0	136	i 7 18	− 2	i 13 6	− 8	i 7 54	pP	—
Calcutta	N.	40·2	307	i 7 19k	− 3	i 13 16	− 1	e 8 44	PP	—
Sendai		41·5	22	7 31	− 2	13 35	− 1	—	—	—
Mizusawa		42·4	21	7 40	0	i 13 47	− 2	—	—	—
Riverview		43·1	144	e 7 44	− 2	i 13 59	0	i 8 23	pP	—
Sydney		43·1	144	i 7 36	−10	i 13 54	− 5	e 10 12	PPP	—
Colombo	E.	43·3	280	7 47	0	14 1	− 1	—	—	—
Mori		44·8	18	8 2	+ 3	14 25	+ 1	i 8 43	pP	—
Sappporo		45·9	19	e 8 10	+ 2	14 38	− 1	17 49	SS	—
Kodaikanal	E.	46·1	285	e 8 9a	− 1	i 14 43	+ 1	i 17 53	SS	i 21·9
Hyderabad	E.	46·8	295	8 13	− 2	14 53	+ 1	10 13	PP	21·5
Agra		50·6	307	i 8 42a	− 2	i 15 40	− 5	9 25	pP	—
Dehra Dun	N.	52·0	310	e 9 7	+12	e 16 22?	+18	—	—	e 20·7
Bombay	E.	52·4	294	i 9 1	+ 3	i 16 6	− 4	i 10 58	PP	23·6
Irkutsk		54·2	346	9 11	0	16 28	− 6	9 52	P_eP	27·3
Almata		59·3	323	9 48	+ 1	17 45	+ 4	—	—	33·3
Frunse		60·5	321	9 57	+ 2	18 4	+ 8	—	—	32·3
Andijan		60·9	318	10 2	+ 4	—	—	—	—	—
Arapuni		61·7	134	10 18?	+15	18 36	+25	21 36	SS	26·1
Semipalatinsk		61·8	331	e 10 4	0	—	—	—	—	e 24·3
Christchurch		62·1	142	10 3a	− 3	18 16	0	10 43	pP	—
Wellington		62·5	138	10 5a	− 4	18 18	− 3	10 46	pP	28·3
Tashkent		63·3	317	i 10 12	− 2	i 18 31	0	e 10 24	pP	e 26·1
Samarkand		64·2	314	e 10 21	+ 1	18 45	+ 2	—	—	—
Apia		66·3	106	e 19 13	S	(e 19 13)	+ 5	e 25 58	SSS	e 27·8
Sverdlovsk		75·0	331	i 11 22	− 3	i 20 44	− 4	12 1	pP	36·9
Baku		78·1	312	i 11 41	− 2	i 21 10	−12	21 45	PS	36·3
Honolulu		80·2	68	i 11 58	+ 4	i 21 48	+ 4	i 12 44	pP	—
Sotchi		84·8	314	e 12 19	+ 2	—	—	—	—	—
Moscow		87·2	326	12 28	− 1	e 22 38	[0]	13 12	pP	38·8
Ksara		87·3	304	12 29a	− 1	i 23 2	+ 8	i 13 16	pP	—
Yalta		88·9	314	12 42	+ 5	—	—	—	—	—
College		89·7	25	e 13 24	pP	i 22 53	[0]	e 15 51	PP	e 34·6
Helwan		91·1	299	i 12 45k	− 3	23 2	[0]	13 13	pP	—
Pulkovo		91·1	329	e 12 44	− 4	e 23 1	[− 1]	i 13 30	pP	42·2
Istanbul		92·3	310	12 59	+ 6	23 12	[+ 4]	26 18	SS	—
Bucharest		94·7	314	e 13 19	+15	i 23 25	[+ 3]	—	—	38·3
Sitka		96·4	32	e 13 47	pP	i 23 28	[− 3]	e 17 31	PP	e 39·6
Sofia		96·8	312	e 13 21	+ 7	e 23 37	[+ 3]	e 13 47	pP	—
Warsaw		97·1	322	e 13 15k	0	i 23 36	[+ 1]	i 13 58	pP	e 49·3
Upsala		97·5	331	e 18 0	pPP	e 23 35	[− 2]	e 30 44	SS	e 31·3
Kecskemet	Z.	98·8	317	e 17 34	PP	—	—	—	—	—
Budapest		99·1	318	17 39	PP	i 23 48	[+ 3]	e 18 20	pPP	e 39·3
Kalocsa	E.	99·4	316	e 17 31	PP	i 23 48	[+ 2]	—	—	—
	N.	99·4	316	e 17 48	PP	e 23 48	[+ 2]	e 26 18	PS	—
Copenhagen		101·2	326	e 13 35a	+ 1	i 23 56	[+ 1]	17 49	PP	—
Prague		101·6	321	e 17 6	PKP	e 23 57	[− 1]	e 26 48	PS	e 50·3
Potsdam		101·8	324	e 17 51	PP	i 23 58	[− 1]	—	—	—
Cape Town		101·9	236	—	—	23 43	[−16]	26 31	PS	47·8
Bergen		103·1	333	e 17 46	PP	i 24 7	[+ 3]	e 19 18	PPP	e 32·3
Jena		103·1	321	e 16 48	?	i 24 4	[0]	e 18 9	PP	e 36·3
Triest		103·1	316	i 12 46	−56	i 24 2	[− 2]	i 15 2	pP	—
Hamburg		103·2	326	e 14 18	pP	i 24 8	[+ 4]	e 18 6	PP	e 38·3
Heligoland		104·2	327	e 14 36	pP	i 24 12	[+ 2]	—	—	e 39·3
Rome		194·9	313	e 13 52	P	i 24 20	[+ 8]	e 18 10	PP	i 49·0

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Stuttgart		105·2	321	e 14 9	P	e 24 14	[0]	e 16 59	sP	—
Victoria		105·5	39	18 36	PP	24 15	[0]	27 16	PS	—
Chur		105·6	319	e 18 4	PKP	e 24 14	[− 2]	—	—	—
Scoresby Sund		105·8	349	e 13 55	P	i 24 20	[+ 3]	e 18 35	PP	—
Zurich		106·1	320	e 17 6	?	e 24 16	[− 2]	e 18 0	PKP	—
De Bilt		106·5	325	i 13 59	P	i 24 24	[+ 4]	i 14 43	pP	—
Seattle		106·5	39	e 18 35	PP	e 24 11	[− 9]	e 27 14	sS	e 44·4
Basle		106·6	320	e 17 9	?	e 25 40	S	—	—	—
Uccle		107·5	324	e 14 3	P	i 24 25	[+ 1]	i 18 33	PP	e 44·3
Aberdeen		108·0	332	e 21 52	?	i 24 27	[0]	—	—	e 41·6
Ukiah		108·5	48	e 18 12	PKP	e 24 31	[+ 2]	e 18 56	PP	e 44·3
Edinburgh		109·1	331	—	—	e 24 23	[− 8]	—	—	—
Berkeley		109·4	49	e 19 24	pPP	i 24 36	[+ 4]	i 27 53	PS	—
Kew		109·8	326	e 18 56	PP	i 24 35	[+ 1]	i 19 33	P_cP	42·3
Santa Clara		109·9	50	e 18 42	PP	i 27 42	PS	e 33 43	SS	e 50·8
Stonyhurst		109·9	329	e 19 18	pPP	i 24 35	[+ 1]	—	—	e 42·8
Clermont-Ferrand		110·2	319	e 18 16	[+ 4]	e 27 57	PS	e 18 59	PP	—
Oxford		110·2	327	e 18 51	PP	24 31	[− 4]	27 55	PS	e 54·3
Santa Barbara	z.	112·4	52	i 18 18	[+ 2]	—	—	—	—	—
Tinemaha		112·8	49	e 14 27	P	—	—	i 18 19	PKP	—
Butte		113·3	37	e 19 33	PP	e 24 51	[+ 3]	e 28 29	SP	e 46·6
Haiwee		113·3	50	i 18 19	[+ 1]	—	—	—	—	—
Algiers		113·4	310	e 15 29	sP	i 24 52	[+ 4]	i 20 2	pPP	—
Mount Wilson		113·8	52	e 14 42	P	—	—	i 18 20	PKP	—
Pasadena		113·8	52	e 14 43	P	i 24 54	[+ 4]	i 18 20	PKP	—
Bozeman		114·4	37	e 15 47	sP	e 24 53	[+ 1]	e 19 21	PP	e 48·9
Riverside	z.	114·4	52	i 14 45	P	—	—	i 18 21	PKP	—
Palomar	z.	115·0	53	e 14 41	P	1 33 1	SKKP	i 18 25	PKP	—
Salt Lake City		116·1	43	e 14 38	P	e 25 1	[+ 2]	e 19 30	PP	—
Toledo		117·3	316	i 18 29	[+ 3]	—	—	e 19 29	PP	—
Almeria		117·4	312	e 19 28	PP	—	—	e 21 12	PPP	66·3
Granada	z.	118·1	313	19 28	PP	25 1	[− 5]	30 46	PPS	65·4
Tucson		120·2	51	e 18 32	[0]	e 25 26	[+14]	e 19 21	pPKP	e 50·2
San Fernando		120·4	314	e 20 20	PP	e 25 15	[+ 2]	e 39 47	SSS	60·3
Lisbon		121·4	316	18 37	[+ 3]	25 15	[− 1]	20 49	PP	—
Chicago U.S.C.G.S.		130·0	29	e 21 47	SKP	e 27 39	SKKS	e 40 36	sSS	e 57·7
Florissant		130·8	34	e 18 52	[0]	e 25 46	[+ 3]	i 21 50	PP	—
St. Louis		131·0	34	e 18 55	[+ 2]	i 27 49	SKKS	e 21 53	SKP	—
Seven Falls		131·5	11	e 22 3	?	—	—	—	—	59·3
Shawinigan Falls		131·6	13	e 18 56	[+ 2]	e 27 53	SKKS	e 23 22	PPP	—
Ottawa		131·9	17	18 54	[0]	25 50	[+ 4]	22 4	PP	58·3
Toronto		132·1	21	e 22 7	?	e 27 50	SKKS	i 23 3	SKP	39·3
East Machias		134·4	10	e 16 7	P	e 25 59	[+ 7]	e 18 52	PKP	e 49·5
Halifax		135·1	5	e 22 18	PP	e 39 18?	SS	—	—	60·3
Harvard		135·7	14	i 18 50	[−11]	e 28 16	SKKS	e 19 44	pPKP	e 33·3
Fordham		136·6	16	i 19 3	[0]	i 28 24	SKKS	e 20 8	pPKP	—
Philadelphia		136·9	19	e 19 8	[+ 5]	i 28 25	SKKS	i 22 23	SKP	—
Columbia		139·4	30	e 22 27	SKP	e 28 41	SKKS	e 33 12	PS	e 55·9
La Plata		145·3	179	20 2	pPKP	—	—	22 12	PP	43·0
Bermuda		147·0	11	e 19 19	[− 3]	e 29 21	SKKS	i 20 8	pPKP	—
Rio de Janeiro	N.	153·5	210	e 19 47	[+16]	—	—	—	—	—
Balboa Heights		156·0	66	e 19 38	[+ 3]	—	—	—	—	—
Huancayo		158·5	124	e 19 33	[− 5]	e 29 38	SKKS	i 20 19	pPKP	e 59·8
San Juan		159·7	24	e 19 41	[+ 2]	i 43 58	SS	e 24 37	PP	e 64·4
La Paz		160·5	147	i 19 42	[+ 2]	i 26 30	[+ 2]	i 20 18	pPKP	73·0

Additional readings :—
Hong Kong ? = +7m.45s.
Zi-ka-wei iE = +13m.32s.
Perth PP = +6m.31s., i = +6m.58s., +7m.13s., +8m.0s., and +8m.23s., S = +9m.40s.
Adelaide iN = +8m.0s., P_cP = +9m.25s., SS = +13m.44s., iN = +15m.5s. and +15m.34s., S_cS = +16m.48s.
Brisbane iE = +9m.24s., +14m.12s., and +16m.0s.
Calcutta eP_cPN = +9m.36s., eSSN = +15m.46s., iS_cS = +17m.33s.
Riverview iEN = +10m.23s., isSE = +15m.3s., iN = +17m.7s., iSSE = +17m.15s.
Sydney e = +14m.57s., i = +17m.15s.

Continued on next page.

Mori i = +11m.11s.
Hyderabad PSE = +15m.13s., SSE = +18m.28s.
Agra P_cPE = +10m.13s., PP = +10m.35s., SP = +15m.30s., i = +15m.46s., sS = +16m.57s. and +17m.2s., S_cSE = +8m.15s., SSN = +19m.18s., SSE = +19m.21s.
Dehra Dun e?N = +18m.41s.
Bombay iE = +9m.35s., +9m.56s., and +17m.18s., S_cSE = +18m.38s., L_qE = +20m.48s.
Irkutsk PP = +10m.58s.
Christchurch i = +11m.3s. and +14m.49s., iEZ = +19m.0s., sSN = +19m.24s., iE = +20m.5s.
Wellington SPZ = +11m.6s., PP?Z = +12m.18s., iZ = +15m.8s., sS = +19m.18s., S_cS = +19m.28s., L_q = +25m.23s.
Apia PP = +20m.20s.
Baku SS = +26m.0s.
Honolulu esP = +13m.0s., ePKP = +18m.34s., iSP = +22m.14s., iPS = +23m.4s., eSSS = +30m.57s.
Moscow eS = +22m.48s.
Ksara sS = +24m.27s., SS = +29m.7s.
College epPP = +17m.6s., iPS = +24m.43s., eSS = +29m.23s., eSSS = +33m.4s.
Helwan PPEZ = +16m.28s., iE = +19m.18s., SE = +23m.30s., SPE = +24m.28s., iE = +25m.0s. and +29m.51s.
Pulkovo iS = +23m.23s., eSS = +29m.30s.
Sitka iS = +24m.19s., epS = +25m.21s., eSS = +30m.48s.
Warsaw eZ = +17m.9s., eE = +17m.50s., eZ = +18m.17s., eN = +23m.24s., iN = +24m.22s., eN = +25m.18s., iZ = +25m.26s., iE = +27m.42s. and +31m.28s.
Upsala eN = +23m.8s., eE = +24m.22s. and +24m.51s., eN = +27m.18s.? and +29m.18s.?
Budapest eN = +24m.42s., eE = +27m.2s., iN = +31m.45s.
Copenhagen +18m.31s., eEN = +24m.59s., eEZ = +26m.24s., eE = +27m.41s., eEN = +28m.13s.
Prague e = +24m.58s., +32m.18s., and +41m.18s.?
Potsdam eE = +18m.30s., iE = +19m.6s., eN = +19m.16s., iNW = +25m.3s.
Cape Town SKKSE = +24m.53s., SE = +25m.25s., PPSE = +27m.7s., SSE = +31m.31s., SSSE = +36m.51s.
Jena iEN = +18m.43s.
Triest iPKPE = +16m.23s., ipPKP = +18m.53s., iPS = +25m.11s., i = +26m.57s., iSSE = +28m.8s., i = +32m.25s.
Hamburg iE = +18m.45s., eN = +25m.20s.
Rome ePPPZ = +20m.26s., iN = +25m.32s., ePSN = +27m.22s., ePPSZ = +28m.16s., iSSN = +32m.50s., iZ = +33m.14s., iN = +34m.12s., iZ = +37m.35s., iN = +40m.20s., eZ = +41m.54s., iN = +44m.30s.
Stuttgart PP = +18m.19s., e = +18m.58s., epPP = +19m.56s., e = +21m.41s., eSEN = +25m.34s., and +25m.38s., ePSN = +26m.54s., eSSN = +32m.52s., eSSE = +32m.58s.
Victoria SS = +42m.36s.
Scoresby Sund epP = +14m.46s., epPP = +19m.6s., ePPP = +20m.34s., epPPP = +21m.34s., eSKKS = +24m.46s., isS = +27m.14s., iSP = +27m.20s., iPS = +28m.5s., ePPSE = +28m.52s., eSS = +32m.52s.
De Bilt iPP = +18m.27s., ipPP = +19m.10s., esSKS = +25m.12s., iS = +25m.48s., esS +27m.18s., eSS = +33m.18s.
Seattle ePPP = +20m.48s., eSKKS = +25m.0s., eS = +25m.36s., iSP = +27m.29s., ePPS = +29m.8s., eSS = +33m.14s., eSSS = +37m.35s.
Uccle eZ = +18m.16s., iZ = +19m.17s., iSKKSE = +25m.17s., iSNZ = +25m.52s., iPSE = +27m.31s., iPPSEN = +28m.41s.
Aberdeen iEN = +22m.43s., iE = +29m.50s., iN = +29m.53s.
Ukiah epPP = +19m.26s., ePPP = +21m.25s., eS = +26m.26s., epS = +26m.55s., esS = +27m.36s., eSP = +27m.42s., epPS = +28m.39s., ePPS = +29m.28s., eSS = +33m.41s., esSS = +34m.54s., eSSS = +38m.23s.
Berkeley eN = +19m.47s. and +19m.59s.
Kew ePPEN = +22m.4s., eP_cSZ = +24m.4s., iE = +25m.20s., iN = +26m.15s., iSZ = +27m.48s., S_cSZ = +28m.56s., eEN = +30m.24s., eSS = +32m.40s., L_qEN = +38·3m.
Stonyhurst i = +27m.57s.
Oxford PPP = +25m.30s.
Butte epPPP = +22m.30s., eSKKS = +25m.55s., eS = +26m.37s., eSPP = +29m.55s.
Algiers e = +21m.18s., +26m.14s., and +34m.18s.?
Mount Wilson iPKKPZ = +29m.4s.
Pasadena iZ = +21m.41s., iEN = +26m.0s., iPSEZ = +28m.37s., ePKKPZ = +29m.6s.
Bozeman epPP = +19m.58s., eSPP = +21m.12s., eSKKS = +26m.2s., iS = +26m.53s., isS = +28m.39s., ePS = +29m.57s., ipPS = +30m.5s., iSSS = +40m.31s.
Riverside ePKKPZ = +29m.0s.
Palomar ePKKPZ = +29m.7s.
Sale Lake City epPP = +20m.22s., eSKKS = +26m.15s., eSP = +28m.53s., eSS = +35m.20s.
Granada PPPZ = +23m.26s., SKKSZ = +26m.35s., SZ = +28m.56s., PPSZ = +32m.26s., SSZ = +37m.36s., SSSZ = +41m.56s.
Tucson i = +18m.37s., ePP = +20m.0s., epPP = +20m.43s., ePPP = +22m.35s., eS = +27m.48s., iSP = +29m.34s., ipPS = +30m.30s., eSPP = +30m.59s., iSS = +36m.21s., iSSS = +40m.18s.,

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San Fernando eSKSE = +32m.26s.
Lisbon N = +22m.55s.?, E = +23m.18s.? and +26m.34s., Z = +29m.34s.
Chicago U.S.C.G.S. epPKS = +22m.55s., eSKSP = +30m.54s.
Florissant iE = +22m.2s., iEN = +22m.18s., +23m.3s., and +27m.47s.
St. Louis iN = +22m.2s.
Shawinigan Falls i = +22m.4s.
Ottawa PPS = +34m.22s., SS = +40m.18s.?
East Machias epPKP = +20m.2s., ePP = +21m.33s., eSKP = +22m.20s., ePKS = +22m.33s., esPKS = +23m.38s., iSKKS = +28m.14s., ePS = +32m.21s., isPS = +33m.19s., eSS = +38m.51s., eSSS = +44m.22s.
Harvard iSKPZ = +22m.18s.?, esSKPZ = +23m.34s.
Fordham i = +22m.21s., iN = +23m.24s., iZ = +23m.40s. and +33m.48s., iSSEN = +39m.36s.
Philadelphia isPP = +23m.17s., ePPP = +25m.26s., eSP = +31m.59s., iSPP = +33m.45s., eSS = +40m.8s.
Columbia ePKS = +22m.49s., epPKS = +23m.25s., esPKS = +23m.49s., ePPP = +25m.38s., eSS = +40m.8s.
La Plata N = +20m.48s., E = +20m.54s., NZ = +21m.6s., N = +23m.36s. and +24m.18s., E = +34m.18s., N = +35m.54s. and +36m.48s.
Bermuda e = +19m.22s.
Huancayo isPKP = +20m.51s., i = +21m.23s., ePP = +23m.52s., epPP = +24m.38s., esPP = +25m.3s., eSKSP = +33m.23s., iPPS = +37m.56s., eSS = +42m.29s., esSS = +44m.33s., i = +46m.49s., eSSS = +48m.32s.
San Juan esPP = +25m.58s., ePPP = +28m.35s., eSSS = +50m.17s.
La Paz ipPKP$_2$ = +21m.14s., isPKP$_2$ = +21m.28s., iPPZ = +24m.6s., pPP = +24m.57s., pSKS = +28m.46s., SSZ = +46m.2s.

June 22d. Readings also at 1h. (near Mizusawa), 2h. (Salt Lake City), 3h. (near Berkeley), 7h. (Rome), 9h. (College), 11h. (near Tananarive), 12h. (Rome), 14h. (Zurich, Neuchatel, and Clermont-Ferrand), 16h. (Tuai, New Plymouth, Christchurch, and Wellington), 18h. (near Samarkand, Tashkent, Andijan, Tchimkent, and Sverdlovsk), 19h. (Marseilles), 23h. (Manila).

June 23d. 6h. 55m. 34s. Epicentre 75°·2N. 14°·5W.

A = +·2489, B = −·0644, C = +·9664 ; δ = +3 ; $'h$ = −13 ;
D = −·250, E = −·968 ; G = +·936, H = −·242, K = −·257.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Scoresby Sund		5·2	209	e 1 21 a	0	i 2 22	0	i 1 43	P_g	i 4·0
Upsala		19·2	127	—	—	e 7 59	0	—	—	—
Copenhagen		22·1	136	i 4 56 a	− 3	9 6	+ 8	—	—	—
Pulkovo		22·2	109	e 4 57	− 3	i 8 53	− 7	—	—	e 10·0
Hamburg		23·8	143	e 5 14 k	− 1	e 9 41	+13	—	—	e 14·6
De Bilt		24·5	149	e 5 25	+ 3	e 9 57	+17	—	—	15·4
Kew		24·5	158	e 5 30	+ 8	9 54	+14	—	—	e 14·0
Uccle		25·7	152	e 5 39	+ 6	—	—	—	—	—
Warsaw		27·0	128	e 5 43	− 2	10 21	− 1	—	—	e 14·4
Moscow		27·6	105	—	—	10 52	+20	—	—	—
Clermont-Ferrand		30·5	155	e 6 16	− 1	—	—	—	—	—
Sverdlovsk		32·5	81	e 6 32	− 2	—	—	—	—	15·4
Rome		35·5	145	e 7 0	0	e 13 29	+53	e 8 27	PP	—
Seven Falls		36·6	252	—	—	e 12 58	+ 5	—	—	17·4
East Machias		37·9	247	e 7 46	+26	e 13 24	+11	e 9 17	PP	e 17·6
Ottawa		39·4	257	7 36	+ 3	13 34	− 1	9 8	PP	19·4
Philadelphia		44·4	253	—	—	i 14 55	+ 6	—	—	e 18·3
Baku		44·9	102	—	—	15 2	+ 6	e 18 20	SS	21·4
Chicago U.S.C.G.S.		45·8	268	—	—	e 15 22	+13	e 18 28	SS	e 22·6
Irkutsk		46·7	48	e 8 25	− 7	e 15 4	−18	—	—	e 25·4
Ksara		47·8	120	e 8 40	− 1	e 15 52	+14	e 10 28	PP	—
Bozeman		48·0	290	e 10 32	PP	—	—	—	—	e 20·0
Butte		48·1	292	—	—	e 16 9	+27	—	—	e 21·5
Andijan		50·3	81	e 8 54	− 6	—	—	—	—	—
Helwan	z.	50·6	126	i 9 4	+ 2	—	—	—	—	—

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		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Columbia		51·5	257	—	—	e 16 28	− 1	—	—	—
Tinemaha	z.	57·9	293	e 9 57	+ 1	—	—	—	—	—
Haiwee		58·7	293	i 10 3	+ 1	—	—	—	—	—
Vladivostok		59·9	28	—	—	e 18 11	PS	—	—	32·7
Mount Wilson		60·6	292	i 10 15k	0	—	—	—	—	—
Riverside	z.	60·6	292	e 10 13	− 2	—	—	—	—	—
Pasadena		60·7	292	i 10 14	− 1	—	—	—	—	e 29·4
Tucson		60·7	285	e 10 16	+ 1	e 19 6	PPS	e 10 54	P_eP	e 26·9
Palomar	z.	61·1	291	i 10 19	+ 1	—	—	—	—	—
San Juan		63·0	237	—	—	e 19 9	+ 8	—	—	e 26·5

Additional readings :—
Scoresby Sund i = +1m.26s., +2m.32s., and +2m.40s.
Upsala eN = +8m.4s.
Warsaw ePN = +5m.48s.
Rome eSS? = +15m.10s.
Ottawa SSSE = +16m.26s.?
Columbia e = +16m.45s.
Tucson ePP = +13m.17s., ePPP = +14m.16s.
Long waves were also recorded at Aberdeen, Harvard, Ukiah, and Salt Lake City.

June 23d. 18h. 59m. 33s. Epicentre 10°·0N. 68°·0W.

A = +·3690, B = −·9133, C = +·1725 ; δ = +3 ; h = +7 ;
D = −·927, E = −·375 ; G = +·065, H = −·160, K = −·985.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
San Juan		8·5	12	e 2 6	− 1	e 3 33	−12	—
Balboa Heights		11·4	268	e 2 45	− 2	—	—	4·8
Bermuda		22·4	9	—	—	e 9 5	+ 1	—
Huancayo		23·1	199	e 5 8	0	e 9 17	+ 1	e 10·0
La Paz		26·3	180	5 42	+ 3	10 32	+21	13·9
Tucson		45·3	307	e 8 21	0	—	—	—
Palomar	z.	50·4	306	e 9 1	0	—	—	—
Riverside	z.	51·0	307	e 9 6	0	—	—	—
Mount Wilson	z.	51·6	307	e 9 9	− 1	—	—	—
Pasadena		51·7	307	i 9 10	− 1	—	—	—
Tinemaha		52·6	310	e 9 18	0	—	—	—
Santa Barbara	z.	53·0	307	e 9 19	− 2	—	—	—

Additional readings :—
Bermuda e = +9m.8s.
Huancayo e = +5m.11s. and +9m.29s.
Tucson e = +8m.26s. and +8m.45s.
Long waves were also recorded at La Plata, Bozeman, and Rome.

June 23d. 21h. 41m. 25s. Epicentre 25°·3N. 110°·5W.

A = −·3170, B = −·8479, C = +·4250 ; δ = +5 ; h = +3 ;
D = −·937, E = +·350 ; G = −·149, H = −·398, K = −·905.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tucson		6·9	358	e 1 37	− 8	i 2 47	−18	—	—	—
La Jolla		9·6	323	e 2 26	+ 5	—	—	—	—	—
Palomar	z.	9·7	327	e 2 25	+ 3	—	—	—	—	—
Riverside		10·5	327	e 2 34	− 1	—	—	—	—	—
Mount Wilson	z.	11·0	325	e 2 43	+ 1	—	—	—	—	—
Pasadena		11·0	325	i 2 40	− 2	—	—	—	—	e 4·8
Santa Barbara	z.	12·1	320	e 2 59	+ 2	—	—	—	—	—
Haiwee		12·5	331	e 3 3	+ 1	—	—	—	—	—
Tinemaha	z.	13·5	333	e 3 15	0	—	—	—	—	—
Fresno	N.	13·9	327	e 4 22	?	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Lick	N.	15·3	324	e 3 46	+ 7	e 6 50	SS	—	—	—
Salt Lake City		15·5	357	e 3 38	− 4	e 6 39	+ 4	6 49	SS	e 7·8
Santa Clara		15·5	324	e 4 8	PPP	e 6 57	SSS	—	—	e 7·6
Berkeley		16·1	324	e 3 52	+ 3	i 6 57	+ 8	e 3 57	PP	e 8·2
Logan		16·4	355	i 3 51	− 2	i 7 7	+11	—	—	—
Ukiah		17·4	326	e 3 50	−16	e 6 51	−28	—	—	e 7·6
Ferndale		19·1	329	—	—	e 8 14	SS	—	—	i 12·4
Bozeman		20·3	0	e 4 33	− 7	e 7 57	−26	e 5 8	PPP	e 10·1
Butte		20·7	359	e 4 39	− 5	e 8 41	+10	e 4 57	PP	e 10·7
Florissant		21·7	47	e 4 53	− 2	i 8 45	− 6	—	—	—
St. Louis	E.	21·7	47	e 4 53	− 2	e 8 45	− 6	—	—	e 11·2
Seattle		24·2	341	e 6 15	PPP	e 9 21	−14	—	—	e 10·5
Chicago, U.S.C.G.S.		25·1	43	—	—	e 9 46	− 5	—	—	e 11·2
Victoria		25·3	340	5 29	− 1	10 1	+ 7	—	—	12·6
Columbia		27·0	64	e 5 51	+ 6	e 10 19	− 3	e 8 10	P_cP	e 15·0
Pennsylvania		31·2	52	—	—	e 14 5	SSS	—	—	i 16·1
Toronto		31·3	46	—	—	e 11 25	− 6	—	—	e 15·6
Philadelphia		32·9	56	—	—	e 11 41	−15	—	—	e 13·7
Fordham	N.	34·1	54	—	—	e 12 12	− 2	—	—	e 13·7
Ottawa		34·3	45	6 51	+ 1	12 15	− 2	—	—	17·6
Sitka		36·8	338	e 8 30	PP	e 12 55	− 1	—	—	e 19·8
Seven Falls		38·2	45	—	—	e 14 23	+66	—	—	18·6
East Machias		39·8	50	e 7 32	− 4	e 13 35	− 7	—	—	e 15·7
Bermuda		40·4	69	e 9 5	PP	—	—	—	—	e 17·1
San Juan		41·6	90	e 7 50	− 1	e 13 52	−16	e 9 40	PP	e 16·6
Honolulu		43·5	275	e 8 8	+ 1	i 14 25	−11	e 9 33	P_cP	e 18·6
Scoresby Sund		65·9	22	—	—	e 19 31	+ 6	e 23 30	SS	e 26·7
Upsala		85·1	24	e 18 35?	PPP	—	—	—	—	e 47·6
Triest		93·1	36	—	—	e 24 37	+15	—	—	e 40·6
Ksara		113·1	28	e 18 46	PP	e 28 32	PS	—	—	57·6

Additional readings :—
Tucson i = +1m.49s., +2m.55s., and +3m.14s.
Bozeman e = +4m.40s., +8m.26s., and +8m.34s., i = +8m.40s.
Butte e = +8m.52s.
Seattle e = +9m.35s.
Chicago, U.S.C.G.S. e = +10m.1s.
Columbia e = +10m.25s.
Philadelphia e = +11m.51s.
East Machias e = +7m.52s. and +13m.44s.
San Juan e = +14m.13s.
Honolulu ePP = +9m.46s.
Long waves were also recorded at Saskatoon, Uccle, De Bilt, Hamburg, Harvard, Kew, College, and Warsaw.

June 23d. Readings also at 1h. (La Paz and Ksara), 3h. (Ksara), 6h. (Rome), 8h. (Ksara, Agra, Almata, Irkutsk, Sverdlovsk, Frunse, Andijan, Tchimkent, Semipalatinsk, and Helwan), 9h. (De Bilt and Warsaw), 10h. (near Triest (2)), 12h. (Almata, Moscow, Samarkand, Pulkovo, Baku, Vladivostok, Calcutta, Kodaikanal, Bombay, Colombo, Upsala, Hamburg, Dehra Dun, Agra, Irkutsk, Sverdlovsk, Frunse, Andijan, Warsaw, Rome, and Ksara), 13h. (Kew and De Bilt), 15h. (Ksara), 16h. (La Paz), 17h. (Tucson), 18h. (Pittsburgh), 19h. (near Tchimkent, Almata, Frunse, Samarkand, Andijan, and near Branner), 21h. (Ksara and Rome), 22h. (near Tananarive), 23h. (Tucson).

June 24d. 2h. 33m. 44s. Epicentre 21°·5N. 146°·0E. (as on 1937, Jan. 29d.).

$A = -·7721$, $B = +·5208$, $C = +·3644$; $\delta = +16$; $h = +4$;
$D = +·559$, $E = +·829$; $G = -·302$, $H = +·204$, $K = -·931$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
Titizima	6·6	328	2 50	S	(2 50)	− 8	—
Mito	15·6	343	6 18	S	(6 18)	−19	(9·4)
Gihu	16·0	332	3 46	− 2	6 59	+13	—
Kobe	16·2	325	3 50	0	6 56	+ 5	—
Nagano	16·5	338	3 54	0	7 1	+ 3	—
Vladivostok	24·6	334	e 5 22	− 1	i 9 48	+ 6	12·5
Manila	24·7	258	e 5 35	+11	11 23	?	—

June 24d. 9h. 57m. 17s. Epicentre 45°·7N. 26°·8E. (as on 1939, September 5d.).

$A = +\cdot6255$, $B = +\cdot3160$, $C = +\cdot7133$; $\delta = -10$; $h = -4$;
$D = +\cdot451$, $E = -\cdot893$; $G = +\cdot637$, $H = +\cdot322$, $K = -\cdot701$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bucharest		1·4	198	i 0 35	+ 8	i 0 44	− 2	—	—	—
Cluj		2·4	296	0 46	+ 5	e 1 10	− 2	e 0 51	P_g	—
Sofia		3·9	221	i 1 6	+ 4	i 1 44	− 6	—	—	—
Istanbul		4·9	160	1 23	+ 6	2 15	0	—	—	—
Kecskemet	Z.	5·1	286	e 1 15	− 5	e 2 20	0	e 1 25	P*	—
Kalossa		5·5	281	1 29	+ 4	2 29	− 1	2 55	S_g	3·3
Budapest	E.	5·6	291	1 26	− 1	2 43†	+10	1 51	P_g	3·7
	N.	5·6	291	1 28	+ 1	2 40	+ 7	1 50	P_g	3·7
Warsaw		7·5	332	i 1 55k	+ 2	i 3 31	+11	—	—	—
Triest		9·1	275	i 2 16k	+ 2	i 3 59	− 1	e 5 0	S_g	i 5·3
Prague		9·4	303	i 2 24	+ 6	e 4 25	+18	—	—	—
Rome		11·0	255	e 2 38	− 4	e 4 44	− 3	—	—	e 6·7
Potsdam		11·2	312	i 2 41	− 3	e 5 13	SSS	—	—	—
Jena		11·4	303	e 2 43	− 4	e 5 1	+ 5	3 1	PP	e 5·9
Chur		12·0	282	e 2 52	− 3	—	—	—	—	—
Ravensburg	E.	12·0	286	e 2 53	− 2	e 5 10	− 1	e 3 22	PPP	—
Moscow		12·1	30	i 2 55	− 2	i 4 59	−15	—	—	—
Ebingen		12·4	288	i 2 59	− 2	e 5 28	+ 7	e 3 28	PPP	—
Stuttgart		12·4	291	i 2 58k	− 3	e 5 21	0	e 7 58	P_cP	—
Zurich		12·7	284	e 3 2k	− 3	—	—	—	—	—
Basle		13·4	285	e 3 17	+ 3	—	—	—	—	e 7·3
Hamburg		13·4	312	e 3 8	− 6	e 5 57	SS	—	—	e 7·4
Copenhagen		13·5	323	i 3 10k	− 5	—	—	—	—	—
Grozny		13·7	93	—	—	e 6 24	SSS	—	—	—
Ksara		13·8	146	i 3 22k	+ 3	i 6 4	+10	7 42	P_cP	—
Neuchatel		13·8	283	e 3 14	− 5	—	—	—	—	—
Pulkovo		14·3	7	i 3 20	− 6	i 5 45	−21	—	—	e 7·2
Heligoland		14·8	312	e 3 26	− 6	e 6 22	+ 4	—	—	—
Upsala		15·2	342	i 3 30	− 8	6 10	−18	i 3 43	PP	—
De Bilt		15·6	304	i 3 39k	− 4	i 6 44	+ 7	—	—	—
Uccle		15·8	297	i 3 43k	− 2	e 6 41	− 1	—	—	—
Helwan		16·2	166	i 3 51k	+ 1	6 52	+ 1	4 4	PP	—
Clermont-Ferrand		16·6	279	e 3 53	− 3	i 7 0	0	—	—	—
Baku		17·7	100	e 4 5	− 5	i 7 33	+ 7	—	—	—
Kew		18·8	298	i 4 20	− 3	i 7 46	− 4	i 4 53	PP	—
Bergen		19·4	329	i 4 26	− 4	e 7 59	− 5	—	—	—
Oxford		19·4	300	4 26	− 4	i 7 59	− 5	—	—	—
Almeria		23·6	258	5 6	− 7	—	—	(5 38)	PP	—
Sverdlovsk		23·7	50	i 6 11	+57	i 10 17	−10	—	—	13·0
Granada		24·2	261	i 5 14	− 5	—	—	—	—	—
Samarkand		29·9	88	i 6 26	+14	—	—	—	—	—

Additional readings :—
Bucharest iN = +41s., iSN = +53s.
Cluj iE = +54s., eS*EN = +1m.14s.
Sofia iN = +1m.35s.
Kecskemet PZ = +1m.20s., eZ = +1m.51s., iZ = +2m.9s., SZ = +2m.36s., S_gZ = +3m.3s.
Kalossa PS = +2m.26s., PSS = +2m.43s., iN = +3m.15s.
Budapest E PPP = +1m.56s., PPS = +2m.26s., PsS = +2m.40s., S_g = +3m.10s., SsS = +3m.20s.
Budapest N e = +2m.20s., PS = +2m.33s., PS = +2m.56s., S_g = +3m.6s.
Warsaw iSN = +3m.34s.
Triest iP* = +2m.22s. and +2m.28s., i = +2m.33s., iP_gP_g = +2m.54s., i = +4m.10s., eS = +4m.44s.
Rome iZ = +2m.46s. and +3m.39s., iE = +4m.49s. and +5m.39s., eZ = +5m.57s., iE = +6m.24s.
Potsdam iSE = +5m.52s., iSSNW = +6m.7s., iSSSE = +6m.20s.
Jena iN = +3m.10s., eN = +4m.24s., iN = +5m.30s.
Ravensburg eE = +3m.44s. and +4m.49s.
Stuttgart eNE = +4m.30s. and +7m.28s., eE = +9m.38s.
Upsala i = +6m.31s.
Uccle iS = +6m.47s.
Helwan SSE = +7m.21s.
Kew eSSN = +8m.10s., $ePcPZ$ = +8m.29s.
Almeria P_g = +5m.9s., S_g = +5m.26s., +5m.30s. and +5m.56s., PS = +6m.4s. (readings are given as for a local shock).
Granada i = +5m.24s. and +5m.30s.

June 24d. Readings also at 0h. (near Almata, Frunse, and Andijan), 1h. (Bucharest, near Apia and Tucson (2)), 2h. (Bucharest, near Almeria, Ksara, Granada, Toledo, Triest, Sofia (2), and Warsaw), 3h. (Semipalatinsk, Tchimkent, East Machias, Warsaw, near Almata, Frunse, Andijan, Rome, and Samarkand), 4h. (Sverdlovsk, near Apia (2), and Warsaw), 7h. (Ksara, and near Wellington), 8h. (Kew, Huancayo, Pasadena, Mount Wilson, Tinemaha, Riverside, La Paz, Uccle, De Bilt, Ksara, Warsaw, and Tucson), 9h. (near Almata, Samarkand, Frunse, and Andijan), 14h. (San Juan), 16h. (near Fresno and near Tucson), 17h. (Rome), 18h. (Rome), 21h. (Columbia and near Fresno), 22h. (Berkeley), 23h. (Rome (2)).

June 25d. 2h. 52m. 21s. Epicentre 52°·0N. 158°·7E.

$A = -\cdot5760$, $B = +\cdot2246$, $C = +\cdot7860$; $\delta = +2$; $h = -6$;
$D = +\cdot363$, $E = +\cdot932$; $G = -\cdot732$, $H = +\cdot286$, $K = -\cdot618$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		17·7	230	4 9	− 1	4 55	PPP	—	—	—
Sendai		18·5	227	4 19	0	7 45	+ 1	—	—	—
Vladivostok		20·0	253	e 5 1	PP	i 8 31	+14	—	—	11·0
Mito		20·3	226	4 44	+ 4	8 24	+ 1	—	—	—
Gihu		22·8	229	5 5	0	9 10	− 1	—	—	—
Kobe		24·2	232	5 19	0	9 57	+22	—	—	—
College		29·8	44	—	—	e 11 9	+ 2	—	—	—
Bozeman		56·0	57	e 9 43	0	i 21 17	SS	e 10 45	P_cP	e 22·4
Tinemaha		57·9	69	i 9 56	0	—	—	—	—	—
Santa Barbara	z.	58·8	73	e 10 2	0	—	—	—	—	—
Mount Wilson		60·0	71	i 10 9a	− 2	—	—	—	—	—
Pasadena		60·0	71	i 10 9a	− 2	—	—	—	—	e 28·4
Riverside	z.	60·5	71	i 10 13	− 1	—	—	—	—	—
Palomar	z.	61·3	72	i 10 17	− 3	—	—	—	—	—
Tucson		65·6	68	i 10 48	0	—	—	—	—	—
Warsaw		70·2	333	e 9 39?	?	—	—	e 12 39?	PP	e 39·6
Florissant		71·5	50	i 11 20	− 4	i 20 38	− 5	i 21 2	PS	—
St. Louis		71·7	50	i 11 23	− 3	e 20 40	− 5	e 25 19	SS	—
Ottawa		72·3	40	e 11 27	− 2	—	—	—	—	19·6
Bucharest		75·6	325	—	—	e 31 9	?	—	—	43·6
Fordham	z.	76·9	38	i 11 54k	− 2	—	—	—	—	—
Ksara		81·0	314	e 12 18	0	e 23 2	PS	e 23 56	PPS	—
Rome		82·0	335	e 18 49	?	e 22 37	0	—	—	e 33·2
Helwan	z.	86·4	315	i 12 43	− 2	—	—	—	—	—

Additional readings :—
Bozeman ePPP = +13m.17s.
Warsaw eN = +11m.39s.?
St. Louis eN = +29m.24s.
Fordham iZ = +12m.8s. and +12m.14s.
Long waves were also recorded at Agra, Berkeley, Baku, Moscow, Sverdlovsk, Irkutsk, Uccle, De Bilt, and Prague.

June 25d. Readings also at 2h. (Agra, Phu-Lien, Colombo, Manila, and Ksara), 3h. (near Andijan, Frunse, and Almata), 4h. (Bermuda, East Machias, San Juan, Helwan, Tinemaha, Mount Wilson, Riverside, Palomar, Florissant, St. Louis, La Paz, and Tucson), 5h. (Rome, Uccle, De Bilt, Warsaw, Pasadena, Bozeman, Berkeley, Ksara, and Tucson), 6h. (near Triest and Philadelphia), 9h. (Huancayo and La Paz), 10h. (Triest), 11h. (near Mizusawa), 19h. (near Berkeley), 21h. (near Tuai, Wellington and Tucson), 23h. (near Sofia).

June 26d. 7h. Local Japanese shock.

Tokyo Imperial University gives Epicentre 36°·27N. 139°·36E.

Kamakura P = 28m.53s., S = 29m.6s.
Kiyosumi P = 28m.53s., S = 29m.15s.
Koyama P = 28m.53s., S = 29m.9s.
Mitaka P = 28m.53s., S = 29m.7s.
Titibu P = 28m.53s., S = 29m.4s.
Togane P = 28m.53s., S = 29m.10s.
Tukubasan P = 28m.53s., S = 29m.6s.
Komaba P = 28m.54s., S = 29m.8s.
Tokyo, Imp. Univ. P = 28m.54s., S = 29m.7s.
Susaki P = 29m.1s., S = 29m.21s.
Mizusawa eP = 29m.26s., S = 30m.5s.

June 26d. 8h. 0m. 7s. Epicentre 3°·5S. 102°·3E. (as on 1938, January 18d.).

Intensity V in South Sumatra.

Epicentre 4°·0S. 103°·0E. (Batavia).

Aardbevingen in Ned. Indie Waargenomen gedurende het Jaar, 1940, p. 16.

$A = -\cdot2126$, $B = +\cdot9753$, $C = -\cdot0606$; $\delta = +8$; $h = +7$;
$D = +\cdot977$, $E = +\cdot213$; $G = +\cdot013$, $H = -\cdot059$, $K = -\cdot998$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Phu-Lien		24·5	10	e 5 28	+ 6	e 9 53	+13	—	—	—
Colombo	E.	24·6	294	5 24	+ 1	9 47	+ 5	—	—	—
Manila		25·8	45	i 5 38a	+ 4	i 10 28	+26	—	—	13·2
Kodaikanal	E.	28·2	300	e 6 32	PP	i 11 54	SS	—	—	i 14·6
Hong Kong		29·1	24	5 58	− 6	10 52	− 4	6 57	PP	—
Calcutta	N.	29·2	333	i 6 57	PP	i 11 0	+ 2	—	—	—
Hyderabad	E.	31·4	312	e 6 31	+ 6	i 12 34	+62	—	—	18·4
Agra	E.	38·4	325	e 8 5	+40	13 4	−16	—	—	—
Adelaide		45·9	138	i 10 3	PP	i 14 53	−18	—	—	—
Almata		51·9	348	e 9 15	+ 3	16 37	+ 2	—	—	—
Andijan		51·9	331	e 9 15	+ 3	16 36	+ 1	—	—	—
Frunse		52·5	335	9 15	− 2	16 42	− 1	—	—	—
Vladivostok		53·5	27	i 9 24	0	i 17 1	+ 4	—	—	32·2
Samarkand		53·8	326	e 9 43	+17	17 14	+13	—	—	—
Tashkent		53·8	330	i 9 25	− 1	16 58	− 3	—	—	e 23·2
Brisbane	N.	53·9	122	—	—	i 16 47	−15	—	—	—
Riverview	N.	54·5	130	—	—	e 17 2	− 8	—	—	e 27·9
Sydney		54·6	130	—	—	e 16 56	−15	—	—	—
Mizusawa		55·5	37	—	—	17 28	+ 4	—	—	—
Irkutsk		55·6	2	e 9 40	0	17 30	+ 5	—	—	29·9
Baku		64·8	318	—	—	i 19 23	0	—	—	e 29·9
Sverdlovsk		68·9	338	i 11 5	− 4	i 20 8	− 5	—	—	33·9
Ksara		72·6	307	e 11 30	− 1	i 21 3	+ 7	21 37	PS	—
Helwan		75·4	302	e 11 59	+12	21 17	−10	21 59	PS	—
Moscow		79·0	329	12 4	− 3	21 59	− 7	—	—	—
Bucharest		82·6	315	e 12 29	+ 3	22 35	− 8	—	—	—
Pulkovo		84·0	331	12 32	− 1	—	—	—	—	e 40·3
Sofia		84·3	313	e 12 35	0	e 22 49	−11	—	—	—
Warsaw		87·4	323	e 12 46a	− 4	e 23 13	[− 3]	e 16 28	PP	e 48·9
Upsala		90·3	330	e 15 53	?	e 23 53?	− 4	e 32 53?	SSS	—
Triest		91·5	315	—	—	e 23 35	[− 7]	—	—	—
Rome		92·2	311	—	—	e 23 41	[− 4]	e 25 50	PS	e 48·5
Potsdam		92·3	322	—	—	i 24 12	− 3	—	—	e 45·9
Hamburg	E.	94·2	323	—	—	e 23 53?	[− 4]	—	—	57·9
Scoresby Sund		104·2	343	—	—	e 25 2	[+15]	e 27 38	PS	e 43·6
Granada	Z.	104·8	307	18 44	PP	24 44	[− 6]	27 48	PS	54·9
Haiwee		130·7	43	e 19 24	[+11]	—	—	e 22 34	SKP	—
Mount Wilson		131·6	46	e 19 14	[− 1]	—	—	e 22 35	SKP	—
Pasadena		131·6	45	e 19 14	[− 1]	—	—	i 22 35	SKP	—
Riverside	Z.	132·2	45	e 19 17	[+ 1]	—	—	e 22 37	SKP	—
Palomar	Z.	133·0	46	e 19 31	[+13]	—	—	i 22 41	SKP	—
Seven Falls		136·2	352	—	—	e 40 11	SS	—	—	59·9
Tucson		137·8	43	e 19 15	[−11]	e 26 9	[−26]	20 3	pPKP	e 52·5
Ottawa		138·3	357	—	—	e 40 23	SS	—	—	68·9
Florissant		143·0	16	i 19 33	[− 3]	e 41 14	SS	i 22 42	SKP	—
St. Louis		143·2	16	e 19 26	[−10]	e 41 21	SS	—	—	—
La Paz	Z.	158·0	206	20 20	[+22]	—	—	—	—	—

For Notes see next page.

NOTES TO JUNE 26d. 8h. 0m. 7s.

Additional readings :—
Hong Kong ? = +11m.11s.
Hyderabad iE = +16m.32s.
Ksara i = +11m.46s.
Helwan iE = +21m.37s., SSE = +26m.31s.
Warsaw eN = +19m.29s., eN = +23m.25s., eE = +23m.37s., eZ = +24m.25s. and +33m.45s.
Rome eN = +30m.47s.
Potsdam eZ = +24m.31s.
Scoresby Sund esS = +27m.19s., epPS = +28m.21s., eSS = +33m.27s.
Granada PPZ = +19m.41s., SKKSZ = +26m.47s., iZ = +32m.25s., SSZ = +33m.53s.
Pasadena iZ = +23m.1s.
Palomar iZ = +23m.6s.
Tucson ePP = +22m.29s., ePKS = +22m.56s., epPP = +23m.5s., esPP = +23m.32s., esPKS = +24m.21s., eSKKS = +28m.21s., ePSKS = +32m.13s.
Long waves were also recorded at Wellington, Kew, Sotchi, De Bilt, Philadelphia, and East Machias.

June 26d. Readings also at 2h. (Rome), 4h. (near Tucson), 5h. (near Ferndale), 7h. (Sofia and Bucharest), 8h. (Lick, Branner, and near Fresno), 12h. (near Mizusawa), 13h. (Huancayo, La Paz, Tucson, La Plata, Riverside, Pasadena, Mount Wilson, and Palomar), 16h. (La Paz), 19h. (Mount Wilson, Palomar, near Rome, and Tucson), 20h. (near Triest), 22h. (near La Paz).

June 27d. 6h. 52m. 17s. Epicentre 28°·2N. 139°·0E. (as on 1937, January 5d.).

$A = -\cdot6661$, $B = +\cdot5791$, $C = +\cdot4701$; $\delta = +4$; $h = +2$;
$D = +\cdot656$, $E = +\cdot755$; $G = -\cdot355$, $H = +\cdot308$, $K = -\cdot883$.

Tables for depth of focus 0·050 have been used.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Osaka		7·1	336	1 42	− 2	2 45	−21	—	—	—
Mizusawa		11·0	9	e 2 19	−12	3 57	−33	—	—	—
Vladivostok		16·0	341	i 3 12	−16	i 5 49	−25	—	—	7·4
Manila		21·5	235	e 4 27	+ 5	8 20	sS	—	—	—
Andijan		55·1	302	e 9 30	pP	e 15 52	−21	—	—	34·7
Tinemaha		82·7	52	i 11 48	+ 2	—	—	—	—	—
Haiwee		83·4	53	i 11 51	+ 1	—	—	—	—	—
Pasadena		84·2	55	i 11 55	+ 1	—	—	—	—	—
Mount Wilson		84·3	55	i 11 55	+ 1	—	—	—	—	—
Riverside	z.	84·9	55	i 11 57	0	—	—	—	—	—
Palomar	z.	85·6	55	i 12 2	+ 1	—	—	—	—	—
Tucson		90·5	53	e 12 25	+ 1	—	—	e 13 10	pP	—

June 27d. 8h. Undetermined shock.
Istanbul P = 12m.0s.?, S_g = 14m.38s.
Sofia iPEN = 12m.34s., iE = 12m.37s., iSEN = 13m.2s.
Bucharest ePN = 13m.4s., eP* = 13m.18s., P_gN = 13m.31s., iSEN = 14m.13s.
Cluj N = 13m.33s., E = 13m.42s., eP = 13m.58s., P*N = 14m.8s., eP_gEN = 14m.18s., N = 14m.29s., iSN = 14m.58s., eN = 15m.8s., S*E = 15m.17s., S*N = 15m.21s.
Ksara e = 15m.10s.
Kalossa ePE = 15m.16s., ePN = 15m.19s., eE = 15m.30s., eN = 15m.37s., eLE = 15m.50s.
Triest eP = 15m.34s., eSP = 16m.8s., e = 16m.32s., i = 16m.47s., iS = 16m.51s., i = 16m.59s., iS = 17m.18s., iS_g = 17m.28s.
Warsaw eN = 16m.0s., eEZ = 17m.0s.
Budapest ePE = 16m.0s., ePN = 16m.12s., iE = 16m.22s., L = 17·0m.
Rome ePE = 16m.32s., eE = 17m.11s., iSE = 17m.24s., eE = 17m.36s., eL_gEN = 17m.51s.
Potsdam eN = 18m.25s., eE = 19m.12s., eZ = 20m.8s.
Long waves were also recorded at Kew, Uccle, Hamburg, and De Bilt.

June 27d. 13h. Local Japanese shock.

Tokyo Imperial University gives epicentre 36°·29N. 139°·52E.

Tokyo, Imp. Univ. P =37m.17s., S =37m.27s.
Komaba P =37m.19s., S =37m.29s.
Koyama P =37m.19s., S =37m.33s.
Mitaka P =37m.19s., S =37m.29s.
Togane P =37m.19s., S =37m.33s.
Tukubasan P =37m.19s., S =37m.26s.

June 27d. Readings also at 3h. (near Rome and near Mizusawa), 4h. (near Triest), 5h. (Ksara and near Mizusawa), 9h. (Potsdam, near Triest, Stuttgart, Rome, and Chur), 11h. (Tinemaha, Pasadena, Mount Wilson, Riverside, Palomar, and Calcutta), 19h. (Huancayo and La Paz).

June 28d. Readings at 3h. (Istanbul, Bucharest, Helwan, and Sofia), 4h. (Warsaw and Potsdam), 9h. (Toledo), 10h. (Granada), 11h. (Clermont-Ferrand), 15h. (Rome), 19h. (Warsaw and near Fordham), 20h. (near Mizusawa, near Tucson, Bucharest, Warsaw, Istanbul, Helwan, and Sofia), 21h. (Potsdam and Rome), 23h. (near Lick).

June 29d. Readings at 0h. (Balboa Heights), 1h. (near Frunse, Almata, and Andijan), 2h. (Columbia, Pasadena, Riverside, and Tucson), 3h. (Rome), 5h. (Rome), 6h. (Honolulu), 13h. (Ottawa), 14h. (Buacharest, Sofia, Warsaw, near Triest, and Rome), 16h. (Tucson and Balboa Heights), 18h. (Budapest).

June 30d. 13h. 5m. 37s. Epicentre 36°·0S. 178°·0W.

A = −·8105, B = −·0283, C = −·5852; δ = +17; h = 0;
D = −·035, E = +·999; G = +·585, H = +·020, K = −·811.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Arapuni		5·4	248	e 1 29	+ 5	2 53	S_g	—	—	—
Hastings		5·4	227	1 23?	− 1	2 19	− 9	—	—	—
New Plymouth		7·0	242	1 45	− 1	3 0	− 8	2 3	P*	—
Wellington		7·7	225	1 58	+ 2	3 25	0	15 28	S_cS	—
Christchurch		10·4	221	2 40	+ 6	4 24	− 8	—	—	—
Riverview		25·3	266	e 5 36	+ 6	—	—	—	—	e 10·3
Pasadena		89·4	46	e 12 57	− 3	—	—	—	—	—
Mount Wilson	z.	89·5	46	e 12 58	− 2	—	—	—	—	—
Palomar	z.	89·6	47	i 12 58	− 3	—	—	—	—	—
Riverside	z.	89·7	46	e 12 59	− 2	—	—	—	—	—
Tucson		92·5	51	e 13 13	− 1	—	—	—	—	—
Ksara		152·2	276	e 19 52	[+ 1]	e 34 43	?	—	—	—

Additional readings:—
New Plymouth +1m.52s.
Wellington +3m.22s.
Riverview eN = +5m.43s.
Mount Wilson e = +16m.29s.
Palomar iZ = +13m.23s.

June 30d. Readings also at 6h. (near Wellington and New Plymouth), 9h. (Tucson, near Hukuoka and near Osaka), 10h. (La Paz (2)), 11h. (La Paz), 13h. (La Paz), 14h. (Potsdam, Bucharest, Sofia, Triest, Istanbul, Ksara, and Warsaw), 15h. (Warsaw), 17h. (near La Paz and near Mizusawa), 20h. (La Paz), 21h. (near Mizusawa and La Plata).

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/

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