

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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The International Seismological Summary. 1942 April, May, June.

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

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

The second quarter of 1942 contains 90 epicentres, 50 of which are repetitions from previous determinations.

Cases of abnormal focal depth are noted below :—

April	3d. 16h.	16·6S.	174·0W.	0·025
	11d. 1h.	14·7N.	91·2W.	0·010
	13d. 3h.	45·7N.	26·8E.	0·010
	14d. 20h.	30·5N.	128·5E.	0·015
	20d. 8h.	33·0N.	137·8E.	0·050
	28d. 10h.	1·0N.	123·3E.	0·040
May	14d. 15h.	0·0	80·0W.	Suggested Deep.
	15d. 16h. 17m.	36·8N.	135·5E.	0·040
	15d. 16h. 55m.	36·3N.	71·0E.	0·030
	22d. 10h.	4·4N.	74·5W.	Suggested Deep.
	28d. 1h.	0·1S.	123·8E.	0·015
June	3d. 16h.	14·7S.	167·3E.	Suggested Deep.
	4d. 7h.	7·5S.	129·0E.	0·020
	5d. 2h.	23·7S.	65·7W.	0·030
	6d. 14h.	5·0S.	146·0E.	0·005
	14d. 3h.	14·5N.	148·0E.	0·005
	15d. 13h.	30·5S.	180	0·040
	18d. 5h.	18·8S.	70·5W.	Suggested Deep.
	19d. 19h.	42·2N.	146·1E.	" "
	20d. 10h.	19·1N.	100·7W.	" "
	27d. 2h.	29·8N.	139·0E.	0·060
	28d. 0h.	14·7N.	88·8W.	Suggested Deep.
	29d. 6h.	33·0S.	70·0W.	0·005

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

KEW OBSERVATORY,
RICHMOND, SURREY.

October, 1952.

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1942 APRIL, MAY, JUNE.

April 1d. Readings at 2h. (Harvard and Fordham), 9h. (near Berkeley), 10h. (Wellington and Auckland), 11h. (near Andijan, Tashkent, and Tchinkent), 13h. (near Algiers (2)), 15h. (near Andijan, Tashkent, and Tchinkent), 18h. (La Paz, near Branner, and Lick), 19h. (near Berkeley), 21h. (Berkeley), 22h. (Tashkent, Tchinkent, Agra, Almata, and near Berkeley).

April 2nd. Readings at 0h. (near Berkeley and near Tucson), 1h. (Stuttgart), 4h. (near Huancayo and La Paz), 6h. (Trieste), 7h. (near Berkeley and Tucson), 8h. (Wellington, Auckland, Riverview, Christchurch, Arapuni, and near La Paz), 10h. (near Balboa Heights), 13h. (near Mizusawa), 14h. (Pasadena, Mount Wilson, Riverside, and Riverview), 19h. (near Branner and Berkeley), 21h. (La Paz), 22h. and 23h. (near Berkeley).

April 3d. 16h. 21m. 42s. Epicentre $16^{\circ}6'S$. $174^{\circ}0'W$. Depth of focus 0.025. (As on 1939 October 30d.).

$$A = -.9536, B = -.1002, C = -.2839; \quad \delta = -1; \quad h = +5;$$

$$D = -.105, E = +.995; \quad G = +.282, H = +.030, K = -.959.$$

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		
				m.	s.		m.	s.		m.	s.	
Apia		3.5	38	i 0	58	+ 2	1 1	42	+ 3	1 1	52	S*
Auckland		22.4	205	4	18?	-25	8	7	-24	1 4	58	pP
Santa Barbara	z	72.4	45	i 11	6	- 1	—	—	—	—	—	—
La Jolla	z	73.2	48	e 11	12	0	—	—	—	—	—	—
Pasadena		73.3	46	i 11	11k	- 1	—	—	—	1 13	57	PP
Mount Wilson		73.4	46	i 11	13k	0	—	—	—	e 13	56	PP
Fresno	N.	73.7	42	e 11	15	0	—	—	—	—	—	—
Palomar	z.	73.7	48	i 11	15	0	—	—	—	—	—	—
Riverside		73.7	46	i 11	14k	- 1	—	—	—	—	—	—
Haiwee		74.5	44	i 11	19	0	—	—	—	—	—	—
Tinemaha		74.9	44	i 11	24k	+ 3	—	—	—	—	—	—
Tucson		77.5	51	i 11	36k	0	—	—	—	e 12	9	pP
Copenhagen		140.7	355	e 18	58	[- 8]	—	—	—	—	—	—
Jena	E.	145.5	354	i 19	4	[- 11]	—	—	—	—	—	—
Uccle	z.	145.9	3	e 19	14	[- 2]	—	—	—	—	—	—
Stuttgart		147.8	356	i 19	16k	[- 3]	—	—	—	1 20	10	pPKP
Basle		149.1	358	e 19	18	[- 3]	—	—	—	—	—	—
Zurich		149.2	357	e 19	23k	[+ 2]	—	—	—	—	—	—
Neuchatel		149.7	357	e 19	19	[- 3]	—	—	—	—	—	—
Clermont-Ferrand		150.8	4	i 19	29 ^a	[+ 6]	—	—	—	—	—	—
Granada		157.8	20	19	32	[- 2]	—	—	—	20	18	pPKP

Additional readings:—

Auckland i=9m.15s.

Pasadena eZ=13m.7s.

Tucson i=11m.49s.

Jena iP=19m.13s.

Stuttgart iP?=19m.20s., e=21m.10s.

Zurich i=19m.28s.

Granada PP=23m.52s.

April 3d. Readings also at 3h. (near Berkeley), 4h. (near Fresno), 6h. (Stuttgart), 8h. (near Berkeley), 10h. (near Tashkent), 11h. (near Harvard), 12h. (near Stuttgart, Ravensburg, Basle, and Zurich), 14h. (near Tashkent), 16h. (near Berkeley, near Mizusawa, and near La Paz), 22h. (Triest and Stuttgart), 23h. (Riverview, Calcutta, Agra, and St. Louis).

April 4d. Readings at 1h. (near Tashkent), 2h. (Tucson), 3h. (Stuttgart), 4h. (Potsdam, Bombay, and Agra), 8h. (near Berkeley), 15h. (Tucson), 17h. (near Berkeley, Florissant, and St. Louis), 18h. (La Paz), 21h. (Cape Girardeau), 22h. (Riverview), 23h. (Bermuda, Agra, Granada, Almeria, Copenhagen, Pasadena, Mount Wilson, Riverside, Tinemaha, Huancayo (2), Berkeley, Tucson, and Stuttgart).

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April 5d. Readings at 0h. (Kew), 1h. (near Tucson), 2h. (Mizusawa), 3h. (Calcutta), 6h. (Riverview, near Tashkent, and Andijan), 7h. (near Lick and Fresno), 8h. (Agra), 9h. (Fresno and near Tucson), 23h. (near Berkeley).

April 6d. Readings at 0h. and 1h. (near Tucson), 3h. (near Berkeley and near Mizusawa), 4h. (Chihuahua, near Tucson (2), St. Louis, Pasadena, Mount Wilson, Riverside, and Tinemaha), 12h. (near Tucson), 15h. (Florissant), 16h. (near Mizusawa), 17h. (near Tucson), 23h. (East Machias and near Berkeley).

April 7d. Readings at 3h. (Fordham, Salt Lake City, Tucson, Pasadena, Berkeley, and near Chicago), 6h. (near Berkeley, Fresno, and Lick), 8h. (Berkeley), 11h. (near Berkeley, Fresno, and Lick), 13h. (Agra, Bombay, Calcutta, and near Tashkent), 20h. and 21h. (near Berkeley), 22h. (Stuttgart, Zurich, Neuchatel, Basle, Jena, near Trieste, and near Berkeley), 23h. (near Berkeley).

April 8d. 15h. 40m. 24s. Epicentre 13°·2N. 120°·6E.

A = -·4958, B = +·8383, C = +·2269; $\delta = +5$; $h = +6$;
D = +·861, E = +·509; G = -·116, H = +·195, K = -·974.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Taihoku	11·8	4	2 55	+ 2	5 7	+ 1	—	—
Naha	14·5	26	3 33	+ 5	—	—	—	—
Miyazaki	21·1	27	4 46	- 2	8 46	+ 7	—	—
Hukuoka	22·1	22	i 5 4	+ 5	i 9 4	+ 6	—	10·0
Matuyama	23·3	26	5 10	0	9 31	+11	—	—
Taiyu	23·7	16	5 16	+ 2	9 30	+ 3	—	—
Hamada	24·0	23	e 5 16	- 1	9 44	+12	—	—
Kôbe	25·1	29	5 31	+ 3	10 5	+14	—	—
Nagoya	26·4	31	5 41	+ 1	9 33	-39	—	—
Yokohama	28·0	35	5 53	- 2	e 12 1	SS	e 6 36	PP
Nagano	28·2	29	e 5 57	+ 1	9 7	?	—	—
Tokyo Cen. Met. Ob.	28·3	34	5 46	-11	11 24	+41	—	—
Sendai	30·8	32	6 14	- 6	11 34	+11	—	—
Mizusawa	N. 31·6	31	6 26	- 0	11 44	+ 9	—	—
Calcutta	N. 32·0	290	6 31k	+ 1	i 11 39	- 3	i 7 29	PP 13·9
Mori	33·6	27	6 39	- 5	12 7	+ 1	—	—
Sapporo	34·7	26	6 55	+ 1	i 12 33	+ 9	—	—
Nemuro	36·9	30	e 7 18	+ 6	—	—	—	21·2
Colombo	E. 40·6	264	7 41	- 2	13 53	- 1	9 28	PP
Hyderabad	40·8	280	7 55	+10	14 6	+10	9 26	PP
Irkutsk	41·1	344	i 7 47	0	i 13 58	- 3	—	—
Agra	E. 42·1	295	i 9 3k	?	i 15 26	+70	9 20	pP
Kodaikanal	E. 42·3	271	i 7 54k	- 3	i 14 11	- 8	—	—
Dehra Dun	N. 42·7	300	e 7 59	- 1	i 13 52	-32	i 17 12	SSS 23·5
Perth	45·1	185	8 21	+ 1	15 16	+17	10 14	PP 22·1
Bombay	E. 46·2	283	i 8 30a	+ 2	i 15 14	- 1	i 10 14	PP i 22·2
Semipalatinsk	49·5	327	8 54	0	15 56	- 6	—	—
Andijan	50·2	311	c 9 1	+ 1	i 15 47	-24	—	—
Brisbane	51·2	143	i 9 0	- 7	i 16 15	-10	i 9 12	pP
Stalinabad	52·2	309	i 9 16	+ 1	i 16 39	0	—	—
Tashkent	52·6	312	9 13	- 5	16 43	- 1	—	—
Riverview	55·0	149	i 9 41k	+ 6	i 17 18	+ 1	i 11 53	PP e 24·7
Sydney	55·0	149	i 9 48	+13	i 17 33	+16	—	23·0
Sverdlovsk	62·8	328	i 10 27	- 3	i 18 54	- 4	—	—
Auckland	71·3	137	9 36?	?	18 26	?	18 46	S _c S 29·6
Apia	72·2	109	e 11 22	- 7	c 20 58	+ 7	c 14 22	PP
Arapuni	72·5	138	10 36?	-54	19 36?	?	20 12?	S _c S
Christchurch	73·7	143	11 28a	-10	21 11	+ 3	—	e 35·8
Wellington	73·7	140	11 40	+ 2	20 58	-10	14 36?	PP 31·6
Honolulu	77·6	70	c 12 2	+ 2	e 21 32	-19	e 14 50	PP e 31·2

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Ksara	78.4	301	e 12	6	+ 2	i 22	2	+ 2	—	—	—
Tananarive	78.7	247	i 12	11	+ 5	e 22	2	- 1	i 12	17	PcP e 37.8
College	78.8	25	e 12	4	- 2	e 21	32	- 32	e 15	9	PP e 32.6
Helwan	82.9	298	i 12	24k	- 4	e 22	45	- 1	12	28	PcP
Bucharest	84.1	314	e 12	35	+ 1	i 22	57	- 1	e 15	52	PP 37.6
Upsala	85.1	330	e 12	31?	- 8	e 23	1	[0]	16	2	PP e 40.6
Warsaw	85.5	322	12	42	+ 1	i 23	31	+ 19	e 15	45	PP e 38.6
	85.5	322	12	38a	- 3	23	23	+ 11	i 16	7	PP e 38.6
Sitka	86.4	31	e 12	46	+ 1	e 23	11	[+ 1]	e 29	26	SS e 36.9
Sofia	86.4	312	e 12	46	+ 1	i 23	10	[0]	i 29	12?	SS 39.2
Belgrade	87.9	315	e 12	52	- 1	e 23	16	[- 3]	e 16	34	PP e 56.1
Copenhagen	89.1	327	i 12	57	- 1	i 23	42	- 4	16	21	PP
Potsdam	90.0	324	i 13	2a	- 1	i 23	47	- 7	i 16	37	PP 40.6
Prague	90.0	321	13	3a	0	e 23	32	[- 1]	—	—	38.6
Cheb	91.3	323	e 13	7	- 2	e 24	7	+ 1	e 17	0	PP e 41.6
Jena	92.0	323	i 13	12	0	i 24	21	+ 9	i 16	49	PP e 40.6
	92.0	323	e 13	10	- 2	i 24	4	- 8	i 16	52	PP e 39.6
Triest	92.1	319	e 13	10	- 2	i 23	42	[- 3]	i 16	51	PP e 40.6
Scoresby Sund	92.2	348	i 13	13	0	e 25	17	PS	i 16	58	PP e 39.0
Stuttgart	93.7	322	e 13	13a	- 7	e 23	48	[- 6]	i 17	12	PP 41.6
De Bilt	94.5	326	i 13	24a	+ 1	i 24	33	- 1	i 17	27	PP e 42.6
Zurich	94.7	322	e 13	20a	- 4	e 23	53	[- 6]	e 17	12	PP
Strasbourg	94.7	323	e 13	23	- 1	i 23	59	[0]	i 17	30	PP 42.6
Basle	95.2	322	e 13	25	- 2	e 23	44	[- 18]	e 17	19	PP
Aberdeen	95.5	332	i 13	30	+ 2	i 23	51	[- 13]	i 17	37	PP 44.8
Uccle	95.6	325	e 13	25a	- 3	i 24	3	[- 1]	i 17	21	PP 43.6
Neuchatel	95.9	322	e 13	29	- 1	e 24	44	- 2	—	—	—
Lille	96.4	325	e 20	36	?	e 24	6	[- 3]	—	—	45.6
Victoria	96.6	38	13	35	+ 2	24	8	[- 2]	17	8	PP 40.6
Seattle	97.6	38	e 19	52	PPP	e 25	30	+ 30	—	—	e 47.6
Paris	97.6	324	i 17	53	PP	i 24	12	[- 3]	i 31	38	SS e 44.6
Stonyhurst	97.6	330	i 17	36	PP	24	15	[0]	32	2	SS e 39.6
Kew	97.8	326	i 13	34a	- 4	i 24	13	[- 3]	i 17	35	PP e 44.6
Johannesburg	98.0	245	—	—	—	i 24	18	[+ 1]	e 26	36	PS i 41.6
Oxford	98.1	328	e 17	36	PP	23	59	[- 18]	i 26	34	PS e 36.1
Clermont-Ferrand	98.8	321	i 13	43k	0	i 26	55	PS	i 17	46	PP e 49.8
Ferndale	99.7	45	e 17	57	PP	i 27	58	PPS	—	—	i 46.6
Ukiah	101.0	46	e 17	56	PP	e 25	52	+ 22	e 28	0	PPS e 43.1
Berkeley	102.3	47	e 13	59	0	e 25	52	+ 12	e 27	12	PS e 39.8
Branner	102.6	47	e 14	32	+ 32	e 24	32	[- 7]	e 18	25	PP e 46.0
Santa Clara	102.8	47	e 13	42	- 19	e 25	38	- 7	e 18	12	PP e 46.2
Algiers	103.1	313	e 14	2	0	24	36	[- 6]	e 16	56	PP 42.6
Saskatoon	103.7	28	e 18	38	PP	e 28	30?	PPS	e 37	36?	SSS 43.6
Butte	104.1	35	e 17	1	?	e 24	10	[- 36]	e 18	24	PP e 44.5
Bozeman	105.2	35	e 14	13	P	e 24	24	[- 28]	e 18	17	PKP e 44.1
Ivigtut	105.3	354	e 17	46	PKP	e 25	15	[+ 23]	e 32	52	SS e 44.6
Tinemaha	105.5	46	e 14	19	P	—	—	—	e 18	34	PP
Fresno	105.6	47	e 17	55	PKP	—	—	—	e 18	27	PP
Santa Barbara	105.7	49	e 18	47	PP	—	—	—	—	—	—
Haiwee	106.1	46	e 14	25	P	—	—	—	e 18	40	PP
Almeria	106.9	316	i 14	18	P	24	57	[- 2]	19	1	PP 49.6
Mount Wilson	107.0	48	e 14	24	P	—	—	—	i 18	41	PP
Pasadena	107.0	48	e 14	17	P	e 24	54	[- 5]	i 18	42	PP i 44.0
Logan	107.1	38	e 17	52	PKP	e 25	5	[+ 5]	e 18	47	PP 49.7
Granada	107.5	317	i 18	9k	PKP	26	21	S	19	9	PP 50.4
Riverside	107.6	48	e 14	27	P	—	—	—	e 18	53	PP
Salt Lake City	107.7	40	e 14	31	P	e 24	59	[- 3]	e 18	48	PP e 44.6
San Fernando	109.6	318	e 19	20	PP	29	6	PPS	i 34	48	SS 52.6
Lisbon	110.2	321	17	43	[- 50]	28	50	PS	19	10	PP 49.5
Denver	112.3	37	e 19	36	PP	—	—	—	—	—	—
Tucson	113.2	46	e 14	33	P	e 25	8	[- 17]	e 19	25	PP e 47.1
Lincoln	116.1	30	e 19	40	PP	e 29	12	PS	e 22	24	PPP e 48.4
Seven Falls	119.1	8	20	13	PP	28	0?	?	29	39	PS 50.6
Shawinigan Falls	119.3	10	e 18	56	[+ 5]	30	0?	PS	20	10	PP
Chicago U.S.C.G.S.	119.4	24	e 20	11	PP	e 25	16	[- 32]	e 29	56	PS e 49.8

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ottawa	119.8	13	18 52	[0]	30 8	PS	20 10	PP e 51.6
Florissant	120.3	28	i 15 31	P	i 25 36	[-15]	i 20 30	PP —
Toronto	120.5	17	20 24	PP	27 18?	{+ 1}	30 21	PS 50.6
Vermont	121.2	11	i 20 24	PP	i 30 32	PS	e 36 48	SS e 50.6
Buffalo	121.4	16	e 18 32	[-24]	—	—	i 19 54	PP —
East Machias	121.8	6	e 20 17	PP	e 26 0	[+ 4]	e 30 26	PS e 54.6
Pittsburgh	123.3	18	e 18 54	[- 5]	i 30 33	PS	i 20 36	PP —
Harvard	123.5	10	e 19 0	[0]	e 28 10	{+33}	e 20 40	PP e 52.6
Fordham	124.6	13	i 19 3	[+ 2]	27 48	{+ 3}	i 20 44	PP —
Philadelphia	125.1	14	e 20 46	PP	e 30 46	PS	e 38 41	SS e 52.1
Georgetown	125.6	16	e 19 7	[+ 4]	30 55	PS	20 52	PP —
Columbia	128.3	23	e 21 10	PP	e 33 1	PPS	e 23 30	PKS e 55.6
Tacubaya	E. 129.2	51	19 32?	[+22]	—	—	—	—
Bermuda	134.5	6	e 19 13	[- 7]	e 27 9	[+39]	e 21 51	PP 56.3
San Juan	147.9	12	e 19 36	[- 8]	e 28 6	?	e 23 25	PP e 62.1
Balboa Heights	150.3	42	e 20 0	[+12]	e 33 46	PS	—	— e 75.6
Fort de France	152.2	3	e 19 53	[+ 3]	—	—	—	—
La Plata	E. 158.4	184	20 48?	[+49]	44 30?	SSP	24 36?	PP 63.6
	N. 158.4	184	20 10	[+11]	49 36?	SSS	24 16	PP 75.6
	Z. 158.4	184	20 1	[+ 2]	—	—	24 25	PP 76.2
Rio de Janeiro	161.9	237	e 23 36	PKS	—	—	—	—
Huancayo	164.4	87	e 20 0	[- 5]	e 28 10	[+62]	e 32 31	? e 62.8
La Paz	170.9	113	i 20 16a	[+ 6]	i 27 4	[- 8]	i 23 38	PKS 72.1

Additional readings:—

Miyazaki i=7m.19s.
Mizusawa SE=11m.47s.
Calcutta iSSN=13m.9s.
Mori i=9m.16s.
Sapporo S=15m.19s.
Hyderabad SSE=16m.48s.
Agra E PP=10m.42s., PPP=11m.4s., sS=15m.52s., SS=18m.47s., SSS=19m.15s.
Perth SS=18m.36s.
Bombay E i=8m.41s., 9m.3s., 13m.6s., and 16m.20s., iSS=18m.39s.
Brisbane iEN=9m.49s., iN=10m.35s., iE=10m.40s., iSE=16m.19s., iE=16m.31s., iN=16m.34s.
Riverview iP=9m.50s., iE=10m.45s., iPcP?N=11m.6s., iZ=12m.4s., iPPPNZ=12m.49s., iSE=17m.21s., iZ=17m.30s., iN=17m.33s., iE=17m.41s., iN=18m.9s., iE=18m.39s., iN=18m.58s., iScSE=19m.40s., iSSE=20m.49s., iN=21m.52s., iSSEZ=22m.0s., iE=23m.10s., iN=23m.18s., iE=23m.36s.
Auckland Q=25m.46s.
Wellington iZ=13m.9s., PPP?Z=15m.44s., iZ=17m.59s., i=23m.6s., SS?=25m.41s., i=26m.44s., Q?=29m.12s.
Honolulu ePPP=17m.3s., e=26m.14s.
Tananarive PP=15m.2s., i=22m.20s., iPS=22m.42s., SS=27m.4s.
College e=18m.0s., ePPS=22m.46s., e=23m.50s., eSS=27m.18s.
Helwan i=15m.42s., PPPN=18m.0s., SZ=23m.24s.
Bucharest ePP?N=15m.56s., ePPPN=17m.39s., ePSE=23m.46s., eSS?E=28m.16s., eSSS?N=32m.4s.
Upsala iPE=12m.37s., PP?N=16m.17s., PPP?N=17m.45s., ePPPE=18m.3s., eE=19m.36s., eSE=22m.58s., eE=29m.14s., eSSSN=32m.13s., e=34m.36s.?
Warsaw iZ=12m.57s., eE=16m.34s., iPP?Z=17m.3s., eN=18m.51s., SKSZ=23m.3s., PSN=24m.22s., SSE=29m.15s., SSZ=29m.28s., SSN=29m.36s., eN=32m.1s., eN=32m.1s., eE=32m.22s., eZ=32m.39s., eSSS?N=33m.17s., iSSS?Z=33m.32s., eSSS?Z=33m.43s.
Sitka e=15m.38s. and 24m.23s.
Sofia iE=14m.41s., 15m.4s., iSSN=28m.54s.?, iSSSEN=32m.30s.?, eN=35m.0s.
Belgrade i=13m.1s.
Copenhagen i=23m.26s., 24m.10s., PS=24m.41s., 25m.26s.
Potsdam iPcPN=13m.11s., iZ=16m.53s., i=16m.56s., iSKSEN=23m.31s., iS=23m.52s., iZ=24m.13s., iN=24m.18s., iPSE=25m.4s., iPPSZ=25m.20s., iSSN=29m.58s., iSSZ=30m.4s., iSSSEN=33m.22s., iZ=33m.46s.
Prague PS=23m.57s., eSS=27m.36s.?
Cheb eSS=31m.16s.
Jena i=13m.24s. and 17m.5s., e=23m.36s.?, eN=25m.36s.?, eSSN=30m.13s., eSS=30m.19s., eN=33m.6s.?, and 36m.0s.
Triest i=24m.9s.
Scoresby Sund e?=18m.9s., ePPPZ=19m.12s., e=22m.46s., ePS=23m.4s., e=25m.30s. and 30m.21s.
Stuttgart iP=13m.16s., i=13m.20s., iPPE=17m.24s., ePPPN=18m.36s., iPPPP?=19m.44s., iSN=24m.26s., ePSE=25m.22s., iPPSE=25m.59s., iSSN=30m.46s., eSSS?NE=33m.46s.

Continued on next page.

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De Bilt iZ = 13m.42s., eSS = 31m.6s., eN = 36m.36s.?
 Zurich ePKP = 16m.53s.
 Strasbourg e = 13m.28s., i = 14m.37s., eS = 24m.33s., e = 25m.11s., ePPS = 26m.22s., e = 27m.29s., SS = 30m.51s., SSS = 34m.36s.?
 Aberdeen iPP = 16m.42s., iPS = 24m.36s., i = 26m.21s.
 Uccle iZ = 13m.46s., SKKSEN = 24m.30s., SN = 24m.42s., iPSZ = 25m.54s., iPPSE = 26m.17s., SSE = 31m.16s., SSN = 31m.19s., iEN = 38m.36s.
 Victoria PS = 26m.6s.?, SS = 32m.6s.?
 Seattle e = 27m.26s., 34m.43s., and 34m.58s., eSSS = 36m.44s.
 Paris e = 22m.36s.? and 29m.56s., i = 37m.22s.
 Stonyhurst 24m.37s., iS = 26m.42s., PPS = 27m.17s.
 Kew ePPPE = 20m.17s., e = 22m.39s., iSKKSEN = 24m.40s., iSNZ = 25m.15s., iPS = 26m.27s., iPPSEZ = 26m.55s., iSSE = 31m.39s., iSSEN = 31m.59s.?, eSSS = 35m.6s.?, eQ = 39m.6s.?
 Ukiah eSS = 32m.42s.
 Berkeley eE = 24m.39s., eSZ = 25m.59s.
 Branner ePN = 14m.35s., ePKPN = 18m.2s.
 Santa Clara ePSE = 27m.32s., eSSE = 33m.18s., eSSSSE = 40m.2s.
 Algiers e = 19m.10s., S = 25m.51s., e = 33m.36s.
 Butte ePPS = 28m.33s., eSS = 33m.31s., e = 38m.44s.
 Bozeman e = 25m.8s., eS = 26m.8s., ePS = 27m.49s., e = 28m.25s., eSS = 33m.49s.
 Ivigtut e = 24m.4s., 29m.15s., 31m.14s., and 31m.53s.
 Almeria i = 17m.22s., PKP = 18m.0s., SKKS = 26m.17s., PS = 28m.22s., PPS = 29m.24s., SS = 34m.37s., SSS = 29m.17s.
 Mount Wilson iZ = 18m.9s., iPKKP = 30m.3s., ePKP, PKPZ = 37m.58s.
 Pasadena eZ = 17m.15s., iPS = 28m.1s., iPPSZ = 29m.7s., iPKKPZ = 30m.3s., eSSZ = 33m.12s.?. ePKP, PKPZ = 37m.52s.
 Logan ePS = 28m.0s., eSS = 33m.46s., e = 41m.56s.
 Granada PPP = 21m.37s., PS = 29m.43s., SS = 34m.9s., Q = 42m.12s.?
 Riverside eZ = 18m.9s., ePKKPZ = 29m.43s., ePKP, PKPZ = 37m.56s.
 Salt Lake City eS = 26m.17s., ePS = 27m.57s., eSS = 33m.52s.
 Lisbon PPN = 19m.26s., N = 22m.0s., PPS?N = 29m.21s., SS = 34m.18s., and 34m.37s.
 Denver eN = 23m.10s., iN = 23m.20s., eN = 23m.54s.
 Tucson i = 18m.45s., iPP = 19m.29s., iPPP? = 21m.35s., ePS = 28m.49s., eSS? = 34m.49s., e = 37m.14s., eSSS = 39m.11s.
 Lincoln e = 34m.30s.
 Seven Falls PPS = 31m.0s.?, SS = 36m.9s., SSS = 41m.0s.?
 Chicago U.S.C.G.S. e = 22m.50s. and 32m.15s., eSS = 36m.26s.
 Ottawa SKPZ = 21m.43s., PPP = 22m.48s., eZ = 32m.36s.?, SS = 36m.42s., SSS = 41m.6s.?
 Florissant iPKPZ = 19m.9s., iSKPE = 21m.56s., ePPPE = 23m.24s., iSKKSE = 26m.53s., iSE = 28m.1s., ePSN = 30m.6s., eSPN = 30m.16s.
 Toronto SS = 37m.15s.
 Vermont e = 38m.6s. and 40m.34s.
 East Machias e = 34m.38s., eSS? = 37m.20s.
 Harvard e = 29m.16s.
 Fordham iSKP = 22m.16s.
 Philadelphia i = 20m.54s., e = 43m.8s., and 48m.53s.
 Georgetown SKS = 22m.44s.
 Columbia eSS = 38m.6s.
 Bermuda i = 22m.53s., e = 24m.29s., and 31m.59s., eSS = 39m.29s., eSSS = 44m.49s., e = 49m.41s.
 San Juan eSSS = 47m.30s., e = 55m.23s.
 La Plata E. PPS? = 34m.6s.?, 37m.30s., SS = 41m.6s.?, E = 44m.30s.?, SSS = 50m.24s.?,
 La Plata N. PP = 20m.42s.?, SKKS = 27m.54s.?, 29m.42s.?, PPS = 34m.30s.?, 36m.36s.?, 51m.36s.?, Q = 61.5m.
 La Plata z. PP = 20m.38s., SKSP = 32m.36s.?, SS = 40m.12s.?
 Huancayo e = 20m.57s., 31m.6s., and 38m.14s., eSS = 45m.28s., i = 47m.34s.
 La Paz iPKP,Z = 20m.30s., iPPN = 24m.9s., iN = 25m.10s., iSKKS = 30m.8s., PSKS = 33m.16s., iSSN = 42m.54s., iSSS = 46m.36s.

April 8d. 19h. 29m. 49s. Epicentre 13°·2N. 120°·6E. (as at 15h.).

A = -·4958, B = +·8383, C = +·2269; $\delta = +5$; $\lambda = +6$;

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Karenko	10·7	5	2 41	+ 3	—	—	—	—
Naha	14·5	26	3 31	+ 3	—	—	—	—
Kumamoto	21·6	24	e 4 58	+ 4	9 5	+16	—	—
Kotl	23·4	28	e 5 11	0	9 32	+11	—	—
Zinsen	24·8	10	e 5 2	-23	9 47	+ 1	—	—
Kobe	25·1	29	5 33	+ 5	10 7	+16	—	—
Nagoya	26·4	31	e 5 38	- 2	—	—	—	—
Nagano	28·2	29	5 58	+ 2	—	—	—	—
Tokyo Cen. Met. Ob.	28·3	34	e 6 45	SS	—	—	—	—
Sendai	30·8	32	6 19	- 1	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Calcutta	N.	32.0	290	e 6 37	+ 7	i 11 32	-10	i 14 34	SS	—
Colombo		40.6	264	7 42	- 1	13 49	- 5	—	—	24.3
Hyderabad		40.8	280	8 1	+16	14 6	+10	—	—	—
Irkutsk		41.1	344	e 7 44	- 3	13 56	- 5	—	—	—
Kodaikanal	E.	42.3	271	e 7 53	- 4	e 14 11	- 8	—	—	20.5
Bombay	E.	46.2	283	8 30	+ 2	15 18	+ 3	e 10 26	PP	—
Andijan		50.2	311	e 9 0	0	16 12	+ 1	—	—	—
Tashkent		52.6	312	9 16	- 2	16 44	0	—	—	—
Riverview	Z.	55.0	149	i 9 17?	-18	e 21 59?	SS	—	—	i 30.8
Sverdlovsk		62.8	328	10 26	- 4	18 33	-25	—	—	—
Ksara		78.4	301	e 12 11	+ 7	e 22 8	+ 8	—	—	—
Helwan		82.9	298	i 12 26	- 2	22 41	- 5	15 56	PP	—
Bucharest		84.1	314	—	—	e 22 56	- 2	—	—	44.2
Upsala		85.1	330	—	—	e 37 11	?	e 38 11?	?	e 43.2
Warsaw		85.5	322	e 12 38 _a	- 3	e 22 56	[- 8]	—	—	e 45.2
Sofia		86.4	312	e 12 43	- 2	e 23 20	- 1	—	—	—
Copenhagen		89.1	327	e 12 56	- 2	—	—	—	—	44.2
Potsdam		90.0	324	e 12 59?	- 4	e 24 59?	PS	e 16 29	PP	e 47.2
Cheb		91.3	323	e 24 17	S	(e 24 17)	+11	—	—	e 50.2
Scoresby Sund		92.2	348	—	—	e 24 14	0	e 30 38	SS	e 47.6
Stuttgart		93.7	322	i 13 19	- 1	—	—	e 17 4	PP	e 50.2
Uccle		95.6	325	e 13 27	- 1	e 24 48	+ 5	e 17 22	PP	e 47.2
Mount Wilson	Z.	107.0	48	e 19 3	PP	—	—	—	—	—
Tucson		113.2	46	e 19 28	PP	—	—	—	—	e 54.7
Fort de France		152.2	3	e 19 53	[+ 3]	—	—	—	—	—
Huancayo		164.4	87	—	—	e 35 54	PS	—	—	e 78.6
La Paz		170.9	113	e 29 54	PPP	—	—	—	—	85.2

Additional readings:—

Calcutta iSSSN = 16m.0s.

Helwan e = 13m.25s., 16m.47s., SKKSN = 23m.11s., SN = 23m.20s.

Bucharest eS?E = 23m.7s.

Warsaw PZ = 12m.44s., eSN? = 23m.2s.

Scoresby Sund e = 36m.29s.

Stuttgart i = 13m.30s.

Uccle SSN = 31m.17s.

Long waves were also recorded at Lisbon, Granada, Pasadena, Jena, San Juan, Philadelphia, Fordham, San Fernando, Almeria, Bozeman, Kew, Aberdeen, De Bilt, Prague, Paris, and Strasbourg.

April 8d. 23h. 56m. 2s., Epicentre 13°·2N. 120°·6E. (as on 19h.).

A = -·4958, B = +·8383, C = +·2269; $\delta = +5$; $h = +6$.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Taito		9.5	3	e 2 24	+ 4	—	—	—	—	
Naha		14.5	26	3 32	+ 4	—	—	—	—	
Koti		23.4	28	e 5 12	+ 1	9 27	+ 6	—	—	
Zinsen		24.8	10	e 5 21	- 4	9 50	+ 4	—	—	
Kamayama		25.9	32	e 5 36	+ 1	—	—	—	—	
Nagoya		26.4	31	e 5 42	+ 2	—	—	—	—	
Yokohama		28.0	35	e 6 37	PP	—	—	—	—	
Nagano		28.2	29	e 5 58	+ 2	—	—	—	—	
Calcutta	N.	32.0	290	e 4 49	?	i 11 40	- 2	—	—	
Colombo	E.	40.6	264	7 45	+ 2	13 51	- 3	—	—	23.8
Hyderabad		40.8	280	—	—	13 58	+ 2	—	—	—
Irkutsk		41.1	344	e 7 43	- 4	13 56	- 5	—	—	—
Kodaikanal	E.	42.3	271	e 8 1	+ 4	e 14 16	- 3	9 36	PP	21.0
Bombay	E.	46.2	283	8 37	+ 9	15 15	0	—	—	—
Andijan		50.2	311	e 8 58	- 2	—	—	—	—	—
Tashkent		52.6	312	9 15	- 3	16 43	- 1	—	—	—
Sverdlovsk		62.8	328	e 10 26	- 4	i 18 52	- 6	—	—	—
Ksara		78.4	301	e 12 6	+ 2	e 21 58	- 2	—	—	—
Helwan		82.9	298	i 12 25	- 3	22 43	- 3	15 58	PP	—
Bucharest		84.1	314	—	—	e 22 51	- 7	23 9	PS	52.0

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Warsaw	85.5	322	e 12 38 _a	- 3	e 23 18	+ 6	e 29 32	SS e 48.0
Cheb	91.3	323	—	—	e 23 58?	- 8	—	e 51.0
Stuttgart	93.7	322	i 13 18	- 2	—	—	e 17 1	PP 55.0
Uccle	95.6	325	e 20 24	PPP	—	—	—	e 50.0
Granada	107.5	317	e 32 43	?	—	—	—	e 53.9
Tucson	113.2	46	e 32 55	?	—	—	—	e 54.1
La Paz	170.9	113	e 20 28	[+18]	—	—	—	—

Helwan also gives $iZ = 12m.49s.$, $eZ = 13m.28s.$, $eSE = 23m.19s.$

Long waves were also recorded at Agra, Riverview, Scoresby Sund, Huancayo, San Juan, Fordham, Pasadena, Berkeley, and other European stations.

April 8d. Readings also at 0h. (Mizusawa), 1h. (near Berkeley), 12h. (La Paz and near Tashkent), 14h. (near Berkeley, Lick, Fresno, Santa Clara and Branner), 17h. (Stuttgart), 19h. (Osaka, Naha, Koti, Nagoya, and Kamayana), 20h. (Berkeley, Kumamoto, Osaka, Naha, Koti, and Nagoya).

April 9d. 4h. 42m. 25s. Epicentre $14^{\circ}2N$. $120^{\circ}6E$. (as on 1940 March 28d.).

Apparently not from the epicentre of April 8d.

$A = -.4937$, $B = +.8348$, $C = +.2438$; $\delta = +7$; $h = +6$;
 $D = +.861$, $E = +.509$; $G = -.124$, $H = +.210$, $K = -.970$.

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Karenko	9.7	4	e 2 24	+ 2	6 25	?	—	—
Naha	13.6	28	3 29	+12	—	—	—	—
Koti	22.6	28	e 5 7	+ 4	9 26	+19	—	—
Zinsen	23.8	10	e 5 19	+ 4	9 44	+16	—	—
Kobe	24.3	29	e 5 26	+ 6	9 49	+12	—	—
Kameyama	25.0	32	e 5 30	+ 3	9 24	-25	—	—
Nagoya	25.5	32	e 5 18	-14	—	—	—	—
Nagano	27.3	30	e 5 58	+10	—	—	—	—
Tokyo Cen. Met. Ob.	27.4	34	e 8 25	?	—	—	—	—
Sendai	30.0	33	6 12	0	—	—	—	—
Calcutta	N. 31.7	290	e 7 56	PPP	i 11 32	- 5	—	i 19.6
Irkutsk	40.1	344	e 7 41	+ 2	13 53	+ 7	—	—
Hyderabad	40.6	280	7 42	- 1	13 45	- 9	9 25	PP 19.8
Colombo	E. 40.7	264	7 39	- 5	13 45	-10	—	22.1
Agra	E. 41.7	295	e 7 7	-45	e 14 2	- 8	i 9 42	PP —
Kodaikanal	E. 42.3	271	e 7 58	+ 1	e 14 18	- 1	9 35	PP —
Bombay	45.9	283	8 32	+ 6	15 12	+ 1	—	—
Frunse	48.7	315	e 8 43	- 5	—	—	—	—
Andijan	49.5	311	e 8 56	+ 2	16 8	+ 6	—	—
Riverview	55.9	149	—	—	e 17 21	- 8	—	e 25.9
Sverdlovsk	61.9	327	e 10 23	- 1	18 49	+ 2	—	—
Ksara	77.9	301	e 12 3	+ 2	22 13	+19	—	—
Helwan	82.4	298	i 11 42 _k	-43	22 40	- 1	—	—
Bucharest	83.4	314	—	—	e 22 46	- 5	—	44.6
Warsaw	84.7	322	e 12 36	- 1	e 23 1	- 3	—	e 47.6
Sofia	85.7	312	e 12 37	- 5	e 23 5	[- 1]	—	—
Copenhagen	88.3	327	e 12 55	0	—	—	25 24	PPS 33.6
Cheb	90.5	322	e 23 38	SKS	(e 23 38)	[+ 2]	e 29 35?	SS e 51.6
Stuttgart	92.9	322	i 13 14	- 2	—	—	e 16 58	PP —
Uccle	94.8	325	e 13 2	-23	e 31 14	SSP	11 17	? e 47.6
Granada	106.8	318	—	—	e 22 38	?	—	52.4
Tucson	112.5	45	19 24	PP	e 28 55	PS	—	53.1
Fort de France	151.2	3	e 19 54	[+ 5]	—	—	—	—
Huancayo	164.3	83	—	—	e 41 44	?	46 26	SSP 76.8
La Paz	171.3	107	e 21 49	?	—	—	26 45	? 83.6

For Notes see next page.

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NOTES TO APRIL 9d. 4h. 42m. 25s.

Additional readings:—

Calcutta iN = 11m.50s., eN = 12m.17s.

Hyderabad SSE = 16m.51s.

Agra iE = 17m.21s.

Riverview eN = 17m.35s. and 20m.2s.

Helwan eZ = 12m.35s. and 13m.35s.

Bucharest iS?E = 23m.7s.

Warsaw eSN? = 23m.6s.

Sofia eN = 23m.12s.

Copenhagen SS = 27m.45s.

Tucson e = 37m.20s.

Huancayo e = 47m.39s.

Long waves were also recorded at Scoresby Sund, San Juan, and other European and American stations.

April 9d. Readings also at 0h. (La Paz), 1h. (Apia), 4h. (near Berkeley), 5h. (near Andijan), 6h. (near Mizusawa), 20h. (Agra), 21h. (Stuttgart), 23h. (near Balboa Heights and near Berkeley).

April 10d. 11h. Undetermined shock. Epicentre South Pacific.

Christchurch P = 39m.13s., S = 44m.40s., Q = 46m.33s., L = 48m.40s.

La Paz iPZ = 42m.11s., iSN = 50m.43s., L = 61m.30s.

Huancayo eP = 42m.28s., e = 46m.55s., eS? = 50m.36s., e = 54m.43s., eL = 60.7m.

Palomar ePZ = 44m.42s., eZ = 44m.50s.

Tucson eP = 44m.43s., eL = 73.4m.

Pasadena iPNZ = 44m.46s., iZ = 44m.53s.

Riverside ePZ = 44m.46s., iZ = 44m.51s.

Mount Wilson ePZ = 44m.47s.

Tinemaha ePZ = 45m.2s., eZ = 45m.8s.

Wellington S? = 45m.40s., i = 47m.27s., L = 48.5m.

Riverview eNZ = 49m.24s.?, eLNZ = 57.1m.

Arapuni e = 50m.0s.

Helwan iZ = 52m.0s., eZ = 53m.18s.

Long waves were also recorded at Auckland.

April 10d. 13h. 35m. 28s. Epicentre 43°·5N. 138°·0E.

$$A = -.5408, B = +.4869, C = +.6859; \delta = 0; h = -3; \\ D = +.669, E = +.743; G = -.510, H = +.459, K = -.728.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	E.	5.0	150	e 1 17	- 1	e 2 13	- 5	—	—
Irkutsk		24.0	304	5 21	+ 4	9 40	+ 8	—	—
Calcutta	N.	45.8	289	—	—	e 15 1	- 8	e 18 36	SS
Tashkent		49.4	293	8 52	- 1	15 59	- 1	—	—
Agra	E.	50.5	272	e 3 39	?	e 16 9	- 7	—	—
Copenhagen		71.0	331	e 11 22	0	—	—	—	—
Potsdam		73.4	329	e 11 32?	- 4	—	—	—	e 44.5
Jena	N.	75.1	327	e 11 51	+ 5	—	—	—	—
Mount Wilson	z.	76.2	56	e 11 52	0	—	—	—	—
Pasadena	z.	76.2	56	e 11 52	0	—	—	—	—
Riverside	z.	76.8	56	i 11 56	+ 1	—	—	—	—
Palomar	z.	77.5	56	e 11 59	0	—	—	—	—
Stuttgart		77.7	328	i 12 0 _a	0	—	—	—	—
Uccle	z.	77.8	332	e 11 56	- 5	—	—	—	—
Helwan	z.	80.9	302	i 12 16	- 1	—	—	—	—
Tucson		81.9	53	i 12 24	+ 1	—	—	e 14 43	PP
La Paz	z.	145.1	48	i 19 40 _k	[+ 1]	—	—	—	—

Additional readings:—

Mizusawa ePN = 1m.21s.

Jena eN = 11m.55s.

Mount Wilson iZ = 12m.1s.

Pasadena iZ = 12m.0s.

Riverside eZ = 12m.4s.

Palomar eZ = 12m.7s.

Stuttgart i = 12m.9s.

Helwan iZ = 12m.26s.

Long waves were also recorded at Bucharest, Kew, Warsaw, Trieste, and Granada.

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April 10d. Readings also at 1h. (near Stalinabad), 2h. (Scoresby Sund), 3h. (near Almeria), 7h. (Calcutta, near Mizusawa, near Berkeley, Branner, and Lick), 10h. (Stuttgart), 12h. (Port au Prince), 19h. (near Harvard and near Berkeley), 21h. (East Machias).

April 11d. 1h. 25m. 11s. Epicentre 14°·7N, 91°·2W. Depth of focus 0·010.

U.S.A. Coast and Geodetic suggest epicentre 15°·3N, 91°·1W.
Jesuit Seismological Association 14°·7N, 91°·2W.

A = -·0203, B = -·9674, C = +·2522; δ = -12; h = +6;
D = -1·000, E = +·021; G = -·005, H = -·252, K = -·968.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Oaxaca	E.	5·8	294	e 1 18	- 7	—	—	—	—
Merida	N.	6·4	13	i 1 39	+ 6	—	—	—	—
Vera Cruz	Z.	6·5	314	e 1 39	+ 4	—	—	—	—
Puebla	N.	8·0	304	e 1 45	-10	—	—	—	—
Tacubaya	Z.	9·0	303	e 2 6	- 3	—	—	—	—
Balboa Heights	N.	12·8	115	e 3 3	+ 3	—	—	—	—
St. Louis		23·9	2	i 5 4	- 2	e 9 9	- 3	i 5 31	pP
Florissant		24·0	2	i 5 6	0	e 9 11	- 3	i 5 32	pP
San Juan		24·3	78	e 5 10	+ 1	e 9 33	+15	i 5 43	pP
Tucson		25·0	318	i 5 15	- 1	e 9 20	-10	i 5 41	pP
Lincoln		26·5	353	e 5 57	+27	e 10 36	+41	—	—
Georgetown		27·1	26	i 5 37	+ 1	i 10 11	+ 6	i 6 25	pP
Chicago U.S.C.G.S.		27·2	6	i 5 33	- 3	e 10 10	+ 4	e 6 30	PP
Pittsburgh		27·5	20	i 5 37	- 2	i 10 29	+18	—	—
Philadelphia		28·8	28	i 5 54	+ 3	e 10 39	+ 7	i 6 48	PP
La Jolla		29·8	313	e 6 46	PP	e 16 29	ScS	e 9 0	PcP
Palomar	Z.	29·8	314	i 5 59	- 1	i 9 0	PcP	i 6 24	pP
Bermuda		29·9	49	i 6 3	+ 2	e 10 55	+ 5	e 7 8	PP
Buffalo		30·1	19	i 5 30	-32	e 11 47	+54	e 6 20	pP
Fordham		30·1	27	i 6 4	+ 2	i 11 4	+11	i 12 48	SS
Riverside	Z.	30·5	314	i 6 5	- 1	—	—	i 9 2	PcP
Huancayo		30·9	149	e 6 16	+ 6	i 11 15	+10	e 7 31	PPP
Mount Wilson		31·1	314	i 6 11	0	—	—	i 6 35	pP
Pasadena		31·1	314	i 6 11 ^a	0	i 11 10	+ 2	i 6 36	pP
Salt Lake City		31·6	330	e 6 13	- 3	e 11 12	- 4	e 6 58	pP
Haiwee		32·1	317	e 6 19	- 1	e 16 45	ScS	e 9 6	PcP
Harvard		32·5	28	i 6 24	+ 1	—	—	—	—
Tinemaha		32·8	318	i 6 27	+ 1	e 16 45	ScS	i 9 10	PcP
Ottawa		33·3	20	i 6 31	+ 1	e 12 37 [?]	+54	—	—
Vermont		33·4	24	e 6 29	- 2	e 12 3	+19	—	i 14·1
Shawinigan Falls		35·3	23	e 6 49	+ 2	—	—	e 8 19	PP
Butte		36·0	336	e 7 18	+25	e 12 8	-16	e 8 20	PP
Seven Falls		36·5	24	e 7 0	+ 2	—	—	e 8 37 [?]	PP
La Paz		38·5	142	i 7 17 ^k	+ 3	i 13 9	+ 7	i 8 1	pP
Scoresby Sund		69·3	19	—	—	e 21 1	PPS	—	e 28·1
Kew		79·2	40	e 11 54 ^a	- 2	e 22 32	+46	e 12 10	PcP
Granada		79·4	54	e 12 33	+36	i 22 38	+50	27 37	SS
Almeria		80·4	55	e 12 1	- 1	22 7	+ 8	15 29	PP
Uccle		82·2	40	e 12 11	- 1	e 22 15	- 2	e 22 57	PS
De Bilt		82·4	38	—	—	e 22 19	0	—	e 38·8
Clermont-Ferrand		82·6	45	e 12 13	- 1	—	—	—	—
Neuchatel		84·8	43	e 12 24	- 1	—	—	e 15 48	PP
Basle		85·1	42	e 12 25	- 1	—	—	—	—
Copenhagen		85·5	33	12 29	+ 1	22 54	+ 4	23 34	PS
Stuttgart		85·8	41	12 29	- 1	—	—	i 13 3	pP
Zurich		85·8	42	e 12 29 ^a	- 1	e 22 59	+ 6	—	—
Jena		86·6	38	e 12 36	+ 2	—	—	—	—
Potsdam		87·0	37	i 12 37 ^k	+ 1	i 23 8	+ 4	i 16 1	PP
Triest		89·7	43	—	—	e 23 30	0	—	e 37·8
Helwan		109·1	52	e 18 45	PP	e 28 17	PS	—	e 39·6
Keara		110·2	45	18 49 [?]	PP	28 35	PS	—	—

For Notes see next page.

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NOTES TO APRIL 11d. 1h. 25m. 11s.

Additional readings :—

St. Louis iPPN = 5m.44s., isPN = 6m.9s., ipSEN = 9m.39s., isSEN = 9m.55s.
 Florissant esSE = 9m.56s.
 San Juan e = 5m.19s., and 5m.53s., i = 10m.5s.
 Tucson iPP = 6m.41s., e = 9m.44s., i = 10m.21s.
 Georgetown isS = 10m.48s.
 Chicago e = 7m.33s., 8m.35s., and 10m.47s.
 Bermuda e = 6m.43s.
 Buffalo iPPP = 6m.44s., c = 13m.18s.
 Fordham iPcS? = 12m.22s.
 Riverside ipPcPZ = 9m.31s., eScPZ = 12m.36s., iScSEN = 16m.31s.
 Mount Wilson isPZ = 6m.47s., iPcPZ = 9m.4s.
 Pasadena iPPZ = 7m.55s., iPcP = 9m.5s., ipPcPZ = 9m.32s., eScSZ = 16m.25s.,
 iScSEN = 16m.35s.
 Salt Lake City e = 12m.2s.
 Ottawa e = 7m.54s. and 14m.49s.?
 Kew eQN = 33m.49s.?
 Stuttgart ePP? = 15m.55s.
 Jena eN = 13m.5s.
 Potsdam iScSE = 23m.47s.

April 11d. Readings also at 1h. (Tucson), 4h. (near Fort de France), 5h. (near Tucson), 8h. (near Branner, Lick, Santa Clara, Fresno, and Berkeley (2)), 16h. (Riverview, Calcutta, Agra, Wellington, Auckland, Arapuri, and Sydney), 17h. (Warsaw, Kew, Uccle, De Bilt, and Potsdam), 18h. (near Berkeley), 20h. (Berkeley, Tchimkent, Stalinabad, near Tashkent, and near Mizusawa), 22h. (near Tucson, and near Berkeley), 23h. (near Berkeley).

April 12d. 0h. 1m. 52s. Epicentre 46°·3N. 13°·8E. (as given by Strasbourg).

A = +·6733, B = +·1654, C = +·7206; $\delta = -5$; $h = -4$;
 D = +·239, E = -·971; G = +·700, H = +·172, K = -·693.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Triest	0·7	183	i 0 8	- 9	i 0 20	S _r	—	—
Ravensburg	3·2	298	i 0 46	- 6	e 1 48	S _r	e 1 5	P _r
Zurich	3·7	288	e 1 2	+ 2	e 2 6	S _r	—	—
Ebingen	3·8	300	—	—	e 2 9	S _r	—	—
Stuttgart	4·0	310	i 1 6 _a	+ 2	e 1 54	+ 2	i 1 20	P _r
Basle	4·4	287	e 1 14	+ 4	e 2 13	S*	—	—
Strasbourg	4·7	302	1 41	P _r	2 15	S*	—	—
Neuchatel	4·8	282	e 1 17	+ 2	e 2 38	S _r	—	3·0
Jena	N. 4·9	340	e 1 20	+ 3	i 2 16	+ 1	e 1 39	P _r
Potsdam	6·1	356	—	—	e 2 56?	S*	i 3 25	S _r
Warsaw	7·6	36	—	—	e 3 51	S*	e 4 9	S _r

Additional readings :—

Ravensburg iS_rNE = 1m.51s.
 Zurich eP_r = 1m.14s.
 Stuttgart i = 1m.34s., eEN = 1m.38s., iS_r = 2m.15s.
 Strasbourg S_r = 2m.39s., iS_r = 2m.49s.
 Potsdam iEZ = 3m.29s.
 Warsaw eN = 4m.25s., eE = 4m.32s., eN = 4m.48s., eZ = 4m.52s., and 5m.15s., eE = 5m.24s. and 5m.40s., eZ = 5m.45s., eE = 6m.19s.

April 12d. Readings also at 6h. (near Tchimkent), 12h. (near Tucson and near Andijan), 21h. (Riverside, Palomar, Mount Wilson, Pasadena, Cape Girardeau, and Tucson), 22h. (near Berkeley, and Tashkent), 23h. (Tchimkent, Samarkand, Stalinabad, and Stuttgart).

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April 13d. 3h. 7m. 16s. Epicentre 45°·7N. 26°·8E. Depth of focus 0·010.
(as on 1940 November 23d.).

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

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.
Bucharest	1·4	198	e 0 31	+ 6	i 0 52	+ 8	—	—	—
Sofia	3·9	221	e 0 57	- 2	i 1 38	- 6	—	—	—
Belgrade	4·5	262	e 0 52	-15	—	—	—	—	—
Warsaw	7·5	332	e 2 3	pP	e 3 12	0	e 3 26	sS	e 4·7
Triest	9·1	271	—	—	e 4 22	sS	—	—	—
Stuttgart	12·4	291	e 2 54	0	—	—	—	—	—
Zurich	12·7	284	e 2 54	- 4	—	—	—	—	—
Copenhagen	13·5	323	e 3 12	+ 3	—	—	—	—	7·8

Additional readings:—

Belgrade i = 57s., 1m.29s., and 1m.43s.

Warsaw eN = 2m.34s., eE = 2m.38s., cN = 3m.44s., eZ = 3m.48s., cN = 4m.10s., eZ = 4m.17s., eE = 4m.26s.

Triest i = 4m.33s.

Long waves were also recorded at Cheb and Potsdam.

April 13d. 7h. 46m. 20s. Epicentre 1°·3S. 15°·3W.

A = +·9643, B = -·2638, C = -·0225; δ = -3; h = +7;
D = -·264, E = -·965; G = -·022, H = +·006, K = -1·000.

		Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.		L. m.
Rio de Janeiro	E.	34·6	230	e 2 40	?	(e 12 15)	- 7	e 8 2	PP	e 12·3
	N.	34·6	230	e 2 40	?	(i 13 22)	+60	e 8 7	PP	i 13·4
San Fernando		38·5	11	e 7 29	+ 3	e 13 30	+ 8	e 8 48	PP	—
Almeria		39·8	15	i 7 36	0	i 13 47	+ 5	i 9 13	PP	19·7
Granada		39·8	13	i 7 41k	+ 5	i 14 0	+18	9 32	PPP	19·1
Lisbon		40·2	7	7 41k	+ 1	13 55	+ 7	9 18	PP	18·8
Algiers		41·6	22	e 7 53	+ 2	i 14 12	+ 4	i 9 22	PP	21·3
Fort de France		48·1	290	e 8 43	0	e 15 37	- 5	—	—	—
Marseilles		48·1	20	e 8 43	0	i 15 48	+ 6	—	—	24·7
Clermont-Ferrand		49·6	17	i 8 56a	+ 1	—	—	i 10 50	PP	e 27·5
Besançon		51·8	19	—	—	e 16 40	+ 7	—	—	27·7
La Plata		51·9	225	9 8	- 4	16 28?	- 7	11 21	PP	22·3
Neuchatel		51·9	19	e 9 33	+21	e 16 39	+ 4	—	—	—
Paris		52·2	14	—	—	i 16 45	+ 6	e 20 22	SS	26·7
Basle		52·6	19	e 9 12	- 6	e 16 46	+ 2	—	—	—
Zurich		52·8	20	e 9 17	- 2	e 16 49	+ 2	—	—	—
San Juan		53·3	294	i 9 26	+ 3	i 16 58	+ 4	e 12 7	PPP	e 22·7
Triest		53·3	25	i 9 23	0	i 16 58	+ 4	e 11 23	PP	e 27·0
Strasbourg		53·6	18	e 9 23	- 2	i 17 2	+ 4	e 14 40	PcS	e 29·5
Kew		54·1	11	i 9 28a	- 1	i 17 2	- 3	i 11 24	PP	e 24·2
Lille		54·1	14	e 14 52	?	—	—	—	—	28·7
Helwan		54·2	51	9 30	+ 1	17 8	+ 2	11 30	PP	—
La Paz		54·2	250	i 9 27a	- 2	i 17 10	+ 4	i 17 46	PS	23·7
Oxford		54·2	10	i 9 34	+ 5	i 17 12	+ 6	21 8	SS	e 23·7
Stuttgart		54·2	19	e 9 23	- 6	i 17 8	+ 2	e 11 29	PP	e 27·7
Uccle		54·5	14	i 9 31a	- 1	e 17 2	- 8	i 21 5	SS	22·7
De Bilt		55·9	15	i 9 43a	+ 1	i 17 36	+ 7	e 13 16	PPP	e 28·7
Sofia		55·9	34	e 9 43	+ 1	e 17 36	+ 7	—	—	29·7
Stonyhurst		56·0	8	—	—	i 17 43	+13	i 23 49	SSS	i 29·3
Cheb		56·4	21	e 9 50	+ 5	e 17 41	+ 5	—	—	e 29·7
Jena	E.	56·9	21	e 9 40?	- 9	e 17 40?	- 2	—	—	e 25·7
Prague		57·2	23	9 49k	- 2	e 17 47	+ 1	e 11 55	PP	e 29·7
Bermuda		57·5	310	e 9 53	0	e 17 30	-20	e 12 27	PP	e 24·1
Potsdam		57·9	19	i 9 59a	+ 3	i 18 7	+12	i 13 38	PPP	e 27·7
Bucharest		58·5	34	e 10 1	+ 1	i 18 7	+ 4	i 13 29	PPP	e 22·7
Aberdeen		59·2	8	i 13 44	PPP	i 22 1	SS	i 24 45	SSS	i 30·0
Ksara		59·4	49	e 10 9	+ 3	e 18 24	+ 9	12 25	PP	—
Huancayo		60·5	257	e 10 15	+ 1	e 18 28	- 1	e 12 15	PP	e 27·8
Copenhagen		61·1	17	e 10 17a	- 1	18 33	- 4	12 40	PP	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Warsaw	E.	61.5	24	e 10 26	+ 5	18 47	+ 5	e 14 12	PPP e 29.7
	N.	61.5	24	e 10 37	+16	18 44	+ 2	19 11	PS e 31.7
	Z.	61.5	24	10 20 _a	- 1	18 52	+10	e 12 36	PP e 28.7
Halifax		62.7	323	—	—	e 18 16?	-41	—	24.7
Tananarive		64.0	110	i 10 38	0	e 19 31	+18	i 11 2	P _c P 29.8
East Machias		65.0	321	—	—	e 19 13	-13	—	e 26.8
Upsala		66.2	17	i 10 53	+ 1	19 41	+ 1	e 14 55	PPP e 28.7
Ivigtut		67.2	343	—	—	e 18 36	?	e 22 40	? e 25.7
Fordham		67.6	316	i 11 0	- 1	e 20 0	+ 3	—	—
Philadelphia		68.2	314	—	—	e 20 7	+ 3	e 24 18	SS e 29.4
Seven Falls		68.3	323	e 11 16?	+11	e 20 16?	+10	—	29.7
Vermont		68.6	319	—	—	e 20 15	+ 6	e 27 58	SSS e 31.3
Georgetown		69.2	312	e 10 53	-17	e 20 25	+ 9	—	—
Ottawa		70.6	320	11 17	- 2	20 38	+ 5	25 10?	SS 32.7
Columbia		70.8	307	—	—	e 20 43	+ 8	e 24 57	SS e 31.9
Pittsburgh		71.8	313	i 11 31	+ 5	i 20 55	+ 9	—	—
Scoresby Sund		71.8	357	e 11 44	+18	e 20 50	+ 4	e 14 7	PP e 32.6
Chicago U.S.C.G.S.		77.7	313	e 12 5	+ 5	e 21 51	- 1	e 14 55	PP e 34.6
St. Louis		79.1	309	e 12 10	+ 2	i 22 9	+ 2	i 22 53	PS i 36.5
Sverdlovsk		83.4	33	i 12 33	+ 3	—	—	—	—
Lincoln		84.3	311	e 12 38	+ 3	e 22 59	- 1	e 23 51	PS e 38.9
Tashkent		86.8	48	12 51	+ 7	e 24 23	PS	e 16 21	PP —
Tchinkent		87.1	47	12 49	0	i 24 26	PS	—	—
Bombay		88.6	71	i 13 0	+ 4	i 23 24	[0]	—	— 37.7
Frunse		90.8	47	e 13 25	+19	—	—	—	—
Agra	E.	93.5	63	e 13 17	- 2	i 23 53	[0]	i 17 2	PP —
Hyderabad		94.0	73	e 13 56	+35	23 58	[+ 2]	—	40.2
Bozeman		94.9	315	—	—	e 23 4	[-57]	e 30 11	SS e 41.3
Colombo	E.	95.3	84	e 13 30	+ 3	24 5	[+ 3]	—	43.5
Tucson		95.4	301	e 13 28	0	e 24 7	[+ 4]	e 17 11	PP e 44.2
Logan		95.7	312	—	—	e 24 46	+ 2	e 31 11	SS e 39.3
Salt Lake City		95.8	310	—	—	e 24 8	[+ 3]	e 25 58	PS e 37.5
Butte		96.0	316	—	—	e 30 22	SS	—	e 39.4
Riverside	Z.	100.3	304	e 13 55	+ 5	—	—	e 18 4	PP —
Mount Wilson	Z.	101.3	304	e 18 7	PP	—	—	—	—
Pasadena		101.4	304	e 18 10	PP	i 33 40?	SS	—	e 42.4
Victoria		102.9	319	—	—	e 24 4?	[-37]	e 33 6	SSP 47.7
Santa Clara	E.	104.0	308	—	—	e 33 17	SS	—	e 50.5
Berkeley		104.2	308	i 17 50	PKP	e 27 40	PS	i 33 20	SS e 38.5
Ukiah		104.7	309	—	—	e 27 43	PS	e 33 26	SS e 43.1
College		108.0	340	—	—	e 26 41	{+50}	e 28 17	PS e 44.0
Irkutsk		108.7	34	e 19 1	PP	25 11	[+ 4]	28 29	PS —
Christchurch		134.8	188	16 52	?	39 42	SS	22 4	PP 62.8
Riverview		142.8	161	e 22 11	PP	e 41 16?	SS	—	e 63.3

Additional readings :—

San Fernando eSSE = 15m.58s.
 Almeria PPP = 9m.40s., PS = 14m.1s., SS = 16m.41s., SSS = 17m.33s.
 Granada PPP = 10m.2s., P_cS = 13m.50s., S_cS = 17m.26s.
 Lisbon E = 16m.33s., SS?E = 16m.42s.
 Algiers ipPP = 9m.36s., iPPP = 9m.53s., i = 10m.8s., and 11m.5s., iSS = 17m.12s.
 Paris e = 24m.41s.
 La Plata ePN = 9m 10s., N = 9m.20s., P_cPE = 9m.52s.?. PPPN = 11m.40s.?, PPPE = 11m.53s., S?N = 16m.15s., SN = 16m.34s.
 San Juan eP = 9m.34s., ePPP = 12m.43s., e = 13m.29s., and 19m.48s.
 Trieste i = 12m.57s., ePS? = 17m.10s., eSS = 20m.42s.
 Kew iNZ = 9m.34s., ePPPZ = 12m.21s., eN = 15m.30s., iSEZ = 17m.11s., iS_cSNZ = 19m.10s., eSSEN = 21m.7s., eSSZ = 21m.18s., eSSSEN = 22m.52s.
 Helwan PPPZ = 12m.28s., PSN = 17m.48s.
 La Paz iPPZ = 10m.34s., iS?N = 15m.24s., iSSN = 20m.50s.
 Stuttgart i = 9m.28s., eP_cP = 9m.56s., ePPPEN = 12m.8s., eP_cSN = 14m.33s., eSSN = 21m.30s., eSSSN = 23m.20s.
 Uccle iSEN = 17m.13s.
 De Bilt eSSS = 24m.10s.
 Stonyhurst 27m.26s.
 Jena eS = 17m.43s., eE = 19m.40s.?.
 Prague ePPP = 13m.2s.

Continued on next page.

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Bermuda e = 10m.38s. and 14m.25s., iS = 17m.55s., e = 18m.46s., eSS = 21m.50s.
 Potsdam iPEN = 10m.3s., iZ = 10m.23s., iPcPEZ = 10m.52s., iZ = 11m.44s.?, iPPPE = 13m.44s.?, iPcSN = 14m.52s., iPcSZ = 14m.55s., iSZ = 18m.12s., iScSE = 19m.58s., iSKS?Z = 20m.14s.
 Bucharest ePEN = 10m.4s., iN = 15m.49s.
 Huancayo e = 13m.23s.
 Copenhagen i = 14m.10s. and 18m.43s.
 Warsaw ePPPZ = 13m.56s., eSSN? = 23m.42s., eN = 26m.52s.
 Tananarive PS = 19m.46s., SS = 23m.29s.
 Upsala eSSE = 23m.58s., eSSN = 24m.5s., eSSSE = 27m.10s.?
 Philadelphia eSSS = 27m.31s.
 Vermont e = 22m.48s.
 Ottawa SSS = 28m.40s.?
 Scoresby Sund e = 12m.39s. and 15m.28s., eSS = 25m.36s., e = 28m.22s.
 Chicago U.S.C.G.S. e = 22m.46s., eSS = 27m.16s., e = 30m.10s.
 St. Louis iZ = 12m.18s., iSSSEN = 30m.31s., iSSSEN = 33m.35s.
 Lincoln e = 28m.2s.
 Bombay iE = 23m.50s., iN = 23m.57s.
 Agra eE = 6m.59s.
 Bozeman eS = 24m.55s.
 Tucson e = 18m.7s., 23m.22s., ePS = 26m.7s., eSS = 31m.10s.
 Salt Lake City eS = 24m.51s., eSS = 31m.5s.
 Pasadena iPSE = 27m.9s., eZ = 28m.13s.
 Berkeley ePE = 18m.0s., iN = 38m.1s.
 Ukiah e = 30m.11s.
 College eSS = 34m.8s.
 Irkutsk PPS = 29m.21s., SSS = 38m.11s.
 Christchurch PKP = 19m.59s., SKP = 22m.57s., Q = 54m.28s.
 Long waves were also recorded at Auckland, Harvard, Arapuni, Wellington, and Seattle.

April 13d. 10h. Undertermined shock.

Bombay eE = 39m.19s., eN = 49m.15s., eE = 51m.18s. and 56m., eL?N = 57m.
 Tananarive P = 40m.42s., e = 41m.36s., eS = 43m.48s., eL = 45m.18s.
 Colombo eE = 41m.
 Agra eE = 43m.14s. and 51m.0s.
 Helwan PZ = 44m.3s., eZ = 48m.21s., e = 50m.5s. and 54m.6s., eN = 55m.8s.
 Mount Wilson ePKP = 51m.57s., eZ = 53m.9s.
 Pasadena ePKPZ = 52m.1s., eLEZ = 110m.
 Riverside ePKPZ? = 52m.1s., eZ = 53m.18s.
 St. Louis iZ = 52m.3s., eZ = 53m.7s.
 Tucson eP? = 52m.4s., e = 54m.14s., 55m.10s., and 58m.44s., eL = 116m.23s.
 La Paz iP?N = 54m.54s., iS?N = 61m.52s., iSSN = 64m.38s., LN = 69.5m.
 Sydney e = 60m.24s.?
 Huancayo e = 62m.13s., 69m.42s., and 90m.38s., eL = 104m.37s.
 Bermuda e = 66m.37s., eL = 104m.42s.
 Almeria e = 66m.54s., L = 77.5m.
 Long waves were also recorded at Ukiah, San Fernando, Granada, Riverview, Berkeley, Salt Lake City, Bozeman, Chicago U.S.C.G.S., Scoresby Sund, Vermont, East Machias, De Bilt, and Kew.

April 13d. 14h. 6m. 32s. Epicentre 31°·4N. 131°·5E. (as on 1937 August 26d.).

Intensity VI at Miyazaki; V at Aso, Kumamoto, Ooita; IV at Saga, Kagosima; II-III at Hukuoka, Koti, Siomosaki, and Yakusima.
 Epicentre 32°·1N. 132°·0E. Macro seismic radius 200-300km.
 See Seismological Bulletin of the Central Met. Obs. Japan for the year 1942, Tokyo 1950, pp 18-19. Macro seismic chart p.18.

$$A = -.5666, B = +.6404, C = +.5185; \quad \delta = -1; \quad h = +1; \\ D = +.749, E = +.663; \quad G = -.344, H = +.388, K = -.855.$$

	Δ	Az.	P.		O - C.	S.		O - C.	Supp.	
			m.	s.		m.	s.		m.	s.
Miyazaki	0.5	354	0	14	0	—	—	—	—	—
Kagosima	0.8	282	0	30 ^a	S	(0 30)	- 1	0 45	—	?
Yakusima	1.3	222	1	6	S	(1 6)	+ 22	—	—	—
Kumamoto	1.6	334	0	28 ^a	- 2	0 44	- 7	—	—	—
Unzendake	1.7	322	0	29	- 2	0 46	- 8	—	—	—
Simidu	1.8	42	0	28 ^a	- 4	0 44	- 12	—	—	—
Hukuoka	2.4	337	0	39	- 2	1 11	- 1	—	—	—
Izuka	2.4	343	0	49	P*	1 17	+ 5	—	—	—
Matuyama	2.6	23	0	42 ^k	- 2	1 15	- 2	—	—	—
Siomisaki	2.6	349	1	2	+ 18	—	—	—	—	—

Continued on next page.

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	Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.	
			m.	s.		m.	s.		m.	s.
Tomie	2.6	298	0	47	+ 3	1	31	S _r	—	—
Koti	2.8	39	0	41	- 6	1	4	-18	—	—
Muroto	2.9	51	0	49	- 8	1	6	-18	—	—
Hirosima	3.0	15	0	47	- 3	1	22	- 5	—	—
Hamada	3.5	8	0	53	- 4	1	29	-11	—	—
Nake	3.5	210	1	6	P*	1	51	S*	—	—
Sumoto	4.1	44	1	0 _a	- 5	1	58	+ 3	—	—
Husan	4.2	331	1	18	P*	1	58	+ 1	—	—
Wakayama	4.2	47	1	2 _a	- 5	2	4	+ 7	—	—
Kobe	4.5	43	1	7 _k	- 4	1	56	- 9	—	—
Osaka	4.7	45	1	8	- 6	2	20	S*	—	—
Owase	4.8	55	1	10	- 5	1	58	-14	—	—
Kyoto	5.0	44	1	16	- 2	2	24	+ 6	—	—
Toyooka	5.0	33	1	14	- 4	2	22	+ 4	—	—
Taikyu	5.1	322	1	20	0	2	30	+10	—	—
Kameyama	5.4	49	1	20	- 4	2	50	S*	—	—
Hikone	5.5	45	1	19	- 6	2	47	S*	—	—
Nagoya	5.9	50	1	28	- 3	2	24	-16	—	—
Gihu	6.0	46	1	26	- 6	2	24	-19	—	—
Hamamatu	6.2	56	1	39	+ 4	2	54	+ 6	—	—
Naha	6.2	214	1	44	+ 9	—	—	—	—	—
Omaesaki	6.5	59	1	46	+ 7	2	53	- 2	—	—
Shizuoka	6.8	57	1	37	- 7	3	11	+ 8	—	—
Toyama	7.0	41	1	55	+ 9	3	37	S*	—	—
Keizyo	7.2	330	2	47	+58	—	—	—	—	—
Kohu	7.2	53	1	47	- 2	3	53	S _r	—	—
Misima	7.2	57	1	47	- 2	3	44	S _r *	—	—
Hunatu	7.3	54	2	6	P*	4	14	S _r *	—	—
Zinsen	7.3	328	1	50	0	3	40	S _r *	—	—
Osima	7.4	61	1	46	- 6	3	17	- 1	—	—
Wazima	7.4	35	1	49	- 3	3	41	S*	—	—
Nagano	7.7	45	1	53	- 3	3	56	S _r	—	—
Mera	7.8	61	1	55	- 3	—	—	—	—	—
Yokohama	7.9	57	2	6	+ 7	4	6	S*	—	—
Maebasi	8.0	49	2	7	+ 7	4	9	S*	—	—
Kumagaya	8.1	52	2	1	- 1	3	35	0	—	—
Tokyo Cen. Met. Ob.	8.1	56	2	8	+ 6	4	18	S*	—	—
Miyakozima	8.6	221	2	41	P _r	—	—	—	—	—
Utonomiya	8.6	51	2	8	- 1	4	28	S*	—	—
Kakioka	8.7	54	2	10	0	—	—	—	—	—
Heizyo	9.0	330	3	58	S	(3 58)	0	—	—	—
Isigakizima	9.6	225	2	36	+15	—	—	—	—	—
Sendai	10.3	46	2	27	- 5	5	28	S _r	—	—
Mizusawa	E. 11.0	43	e 2	31	-11	5	35	S _r ?	—	—
Arisan	12.3	233	3	51	?	—	—	—	—	—
Taito	12.6	230	3	11	+ 8	—	—	—	—	—
Agra	E. 46.5	278	e 8	41	+10	e 15	14	- 5	—	—
Helwan	Z. 82.8	300	e 12	36	+ 9	—	—	—	—	—
Tinemaha	Z. 85.7	49	e 12	41	- 1	—	—	—	—	—
Mount Wilson	Z. 87.5	51	e 12	47	- 4	—	—	—	—	—
Pasadena	Z. 87.5	51	e 12	49	- 2	—	—	—	—	—
Riverside	Z. 88.1	51	e 12	50	- 4	—	—	—	—	—
Palomar	Z. 88.9	51	e 12	54	- 4	—	—	—	—	—
Tucson	93.5	49	i 13	18	- 1	—	—	—	—	—

Additional readings :—

Mizusawa PN = 2m.35s.

Tinemaha iZ = 12m.53s.

Mount Wilson iZ = 13m.2s.

Pasadena iZ = 13m.1s.

Riverside iZ = 13m.10s.

Tucson i = 13m.30s.

Long waves were also recorded at De Bilt, Bucharest, Upsala, Potsdam, Cheb, Prague, Trieste, Uccle, Kew, and Warsaw.

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April 13d. Readings also at 4h. (La Paz, Palomar, Tucson, Riverside, Pasadena, Mount Wilson, and Huancayo), 7h. (Agra and La Paz), 8h. (near Mizusawa and Christchurch), 9h. (Sydney), 11h. (La Paz), 18h. (near Stalinabad, Copenhagen, Lick, Branner, Fresno, Agra, Tchimkent, Frunse, Andijan, and Tashkent, and near Berkeley), 19h. (Tchimkent, Frunse, near Andijan, and Tashkent), 21h. (near Florissant), 23h. (near Berkeley).

April 14d. 20h. 38m. 56s. Epicentre $30^{\circ}5N$. $128^{\circ}5E$. Depth of focus 0.015.

Intensity IV at Yakusima, II-III at Ooita, Nake, Uwazima, and Kagosima.

Epicentre $30^{\circ}5N$. $128^{\circ}5E$. Macroseismic radius 200-300km.

See Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1942. Tokyo 1950, pp. 19-20. Macroseismic chart p. 19.

$$A = -.5373, B = +.6755, C = +.5050; \quad \delta = +2; \quad h = +1; \\ D = +.783, E = +.623; \quad G = -.314, H = +.395, K = -.863.$$

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.
			m.	s.		m.	s.	
Yakusima	1.8	92	0	43	+11	1	9	+13
Kagosima	2.1	59	0	38 _k	+2	1	6	+3
Tomie	2.1	6	0	56	+20	1	28	+25
Nake	2.3	158	0	1	?	0	30	?
Nagasaki	2.5	28	0	53	+12	1	21	+9
Unzendake	2.7	34	0	26	-18	1	0	-17
Kumamoto	3.0	39	1	4 _a	+16	1	40	+16
Hukuoka	3.5	27	1	6 _a	+12	1	46	+10
Naha	4.4	190	1	22	+16	2	16	+19
Husan	4.6	6	1	17	+8	2	7	+5
Matuyama	4.9	46	1	16 _a	+3	2	6	-3
Hirosima	5.1	40	1	17	+1	2	10	-4
Koti	5.3	53	1	19 _a	+1	2	11	-8
Hamada	5.3	34	1	23	+5	2	8	-11
Taikyu	5.3	1	1	32	+14	2	20	+1
Muroto	5.6	59	1	19 _a	-3	2	15	-11
Sumoto	6.7	53	1	35 _a	-2	2	42	-11
Siomisaki	6.8	63	1	39	0	2	49	-6
Wakayama	6.8	55	1	38 _a	-1	2	47	-8
Kobe	7.1	52	1	41 _a	-2	2	53	-9
Zinsen	7.1	348	3	18	S	(3	18)	+16
Keizyo	7.2	351	3	22	S	(3	22)	+17
Osaka	7.2	54	1	44	0	3	9	+4
Toyooka	7.3	45	1	46	+1	—	—	—
Kyoto	7.6	52	1	48	-1	—	—	—
Kameyama	8.0	55	1	55	0	3	23	-1
Hikone	8.1	52	1	51 _a	-5	3	14	-13
Taihoku	8.2	230	2	19	+22	—	—	—
Ghu	8.5	53	2	1	-1	—	—	—
Nagoya	8.5	55	2	2	0	3	30	-6
Toyama	9.6	48	2	16	0	—	—	—
Kohu	9.9	56	2	20	0	4	10	0
Misima	9.9	60	2	21	+1	—	—	—
Hunatu	10.0	57	2	21	0	4	29	+17
Nagano	10.2	50	2	25	+1	4	29	+12
Maebasi	10.6	53	2	32	+3	—	—	—
Yokohama	10.6	60	2	34	+5	4	29	+3
Kumagaya	10.7	56	2	34	+3	4	28	-1
Kakioka	11.3	57	2	38	-1	—	—	—
Utunomiya	11.3	55	2	36	-3	4	38	-5
Sendai	12.8	50	2	56	-2	5	6	-12
Mizusawa	E. 13.5	47	e 3	6	-1	5	14	-21
Copenhagen	78.4	329	11	46	-2	—	—	—

Long waves were also recorded at Triest.

April 14d. Readings also at 3h. (Fresno), 7h. (La Paz and Ksara), 8h. (La Paz), 12h. (Tashkent, Frunse, Tchimkent, and near Stalinabad), 13h. (Mizusawa and near Tashkent), 15h. (Granada), 18h. (Ottawa), 19h. (Harvard, and near Tashkent), 20h. (Calcutta, Bombay, Agra, Copenhagen, and Philadelphia), 21h. (near Bucharest, Sofia (2), and near Berkeley), 23h. (near Berkeley and near Mizusawa).

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April 15d. Readings at 1h. (near Branner), 2h. (near Huancayo and La Paz), 3h. and 5h. (near Balboa Heights), 6h. (near Stalinabad), 11h. and 12h. (Rio de Janeiro), 21h. (Helwan and Ksara), 23h. (Stuttgart, Christchurch, Riverview, and near Berkeley).

April 16d. Readings at 1h. (Huancayo, near San Juan, Tinemaha, Riverside, Mount Wilson, Pasadena, Tucson, and near La Paz), 2h. (near Bucharest, Belgrade, Sofia, Chur, Basle, Triest, and Stuttgart), 3h. (Warsaw, Potsdam, Zurich, and Jena), 6h. (near Berkeley), 7h. (near Istanbul and near Tucson), 11h. (near Tucson), 12h. (Riverview, Auckland, Christchurch, Wellington, Palomar, Arapuni, Pasadena, Mount Wilson, and Riverside), 15h. (La Paz), 16h. (near Stalinabad and near Berkeley), 18h. (near Tashkent and near Mizusawa), 19h. (Copenhagen and near Mizusawa), 20h. (Santa Barbara, Tucson, Pasadena, Mount Wilson, Riverside, Palomar, and Tinemaha), 21h. (near St. Louis, and Florissant, Stuttgart and Copenhagen), 22h. (near Tashkent), 23h. (near Andijan).

April 17d. Readings at 1h. (Auckland, Christchurch, and Wellington), 7h. (La Paz), 10h. (Ksara, Tacubaya, and Stuttgart), 11h. (La Paz), 13h. (near Lick), 18h. (near Andijan), 19h. (Huancayo, La Paz, and near Berkeley), 21h. (San Juan), 22h. (Philadelphia and Tucson).

April 18d. 5h. 45m. 39s. Epicentre $41^{\circ}5N$. $112^{\circ}3W$., attributed by U.S.C.G.S.

$$A = -.2850, B = -.6950, C = +.6601; \quad \delta = -2; \quad h = -2; \\ D = -.925, E = +.379; \quad G = -.250, H = -.611, K = -.751.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Logan		0.4	55	i 0 11	- 2	i 0 20	- 1	—	—
Salt Lake City		0.8	155	i 0 17	- 1	i 0 35	+ 4	—	i 1.6
Butte		4.5	6	e 1 29	P _r	e 2 11	+ 6	—	e 2.6
Tinemaha		6.4	229	e 1 36	- 2	i 3 20	S*	—	—
Haiwee	E.	7.0	222	—	—	e 3 36	S*	—	—
Spokane	E.	7.2	332	—	—	e 3 5	- 8	e 3 38	S*
Fresno	N.	7.5	234	e 2 17	P*	e 3 53	S*	—	—
Lick		8.3	243	—	—	e 4 19	S*	—	—
Riverside	Z.	8.5	211	i 2 8	+ 1	i 4 28	S _r	—	—
Pasadena	Z.	8.7	214	i 2 12	+ 2	—	—	—	—
Tucson		9.3	173	e 2 23	+ 6	—	—	—	i 5.1

Additional readings :—

Tinemaha i = 1m.57s.

Tucson e = 2m.56s. and 3m.19s.

April 18d. Readings also at 1h. (Riverview, Sydney, near Fresno, and Lick), 4h. (near Berkeley and Lick), 6h. (near Tucson), 8h. (Huancayo and La Paz), 9h. (near Berkeley), 16h. (near Mizusawa), 18h. (Riverview, Tananarive, Agra, Kodaikanal, Tashkent, Helwan, and near Ksara), 19h. (San Fernando, Philadelphia, La Paz, near Berkeley (2), and Lick), 20h. (La Paz), 22h. (Ottawa, Tucson, Mount Wilson, Pasadena, Palomar, Merida, Oaxaca, Tacubaya, Vera Cruz, Puebla, Riverside, and Tinemaha), 23h. (Cape Girardeau, Tacubaya, and San Juan).

April 19d. Readings at 1h. (Tananarive, Agra, Bombay, Colombo, Kodaikanal, Tashkent, Sverdlovsk, Helwan, Uccle, Granada, Riverview, Huancayo, and La Paz), 2h. (De Bilt, Potsdam, Warsaw, San Fernando, Kew, Scoresby Sund, Philadelphia, Bozeman, Salt Lake City, Tucson, Pasadena, San Juan, and La Paz), 3h. (Berkeley), 5h. (near Berkeley), 6h. (Stuttgart, near Basle, and Zurich), 16h. (Ksara and near Lick), 18h. (Tacubaya and Vera Cruz), 20h. (near Balboa Heights, San Juan, near Berkeley, and near Branner), 22h. (East Machias), 23h. (Bucharest, Sofia, Triest, Potsdam, Stuttgart, Warsaw, and near Berkeley).

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April 20d. 1h. 35m. 40s. Epicentre 37°·8N. 22°·1E. (as on 1942 March 11d.).

A = +·7340, B = +·2980, C = +·6103; $\delta = +3$; $h = -1$;
D = +·376, E = -·927; G = +·565, H = +230, K = -·792.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Sofia		5·0	11	e 1	31	P*	i 2	31	S*	—	—	—
Bucharest	N.	7·2	24	e 1	38	-11	e 3	42	S*	—	—	4·4
Triest		10·0	324	i 4	20	S	(i 4	20)	- 2	—	—	(i 5·9)
Helwan	Z.	11·0	133	e 2	53	+11	e 4	44	- 3	—	—	—
Ksara		11·9	105	e 2	41	-13	e 5	1	- 8	—	—	e 8·5
Chur		13·0	318	e 3	7	- 2	e 5	29	- 6	—	—	—
Zurich		13·8	318	e 3	25k	+ 6	—	—	—	—	—	—
Basle		14·4	317	e 3	26	- 1	—	—	—	—	—	e 8·4
Neuchatel		14·4	316	e 3	25	- 2	—	—	—	—	—	—
Stuttgart		14·4	324	e 3	24	- 3	—	—	—	—	—	e 7·1
Warsaw		14·4	358	e 4	5	+38	e 6	30	+21	—	—	e 7·5
Jena		15·1	334	e 3	50?	+14	—	—	—	—	—	e 8·8
Potsdam		15·9	340	e 3	50	+ 3	e 7	8?	+24	—	—	e 8·3
Uccle		18·1	322	e 4	15	+ 1	e 7	46	+11	—	—	10·3
De Bilt		18·6	328	i 4	32	+11	e 8	5	+19	—	—	e 10·3
Copenhagen		19·0	345	4	25	- 1	8	2	+ 7	—	—	9·3
Almeria		19·6	275	4	32	0	e 9	33	?	5	14	pP 14·3
Granada		20·4	277	i 4	38	- 3	e 9	46	?	5	16	pP 13·6
Kew		20·9	320	—	—	—	e 8	40	+ 5	—	—	e 11·3
Scoresby Sund		40·0	339	—	—	—	e 14	4	+20	—	—	e 23·9

Additional readings:—

Bucharest eN = 2m.50s.

Triest readings are given as iP and iS?

Helwan eEZ = 4m.14s.

Stuttgart i = 3m.40s. and 3m.59s.

Warsaw eSE = 6m.33s.

Jena eE = 4m.2s.?, eN = 4m.7s.

Potsdam eN = 7m.2s.?, iS?N = 7m.13s.

Copenhagen 4m.44s. and 4m.52s.

Almeria i = 4m.57s., sP = 5m.37s.

Granada PP = 5m.44s., sP_cP = 8m.28s., P_cS = 10m.58s.

Kew eEZ = 8m.48s., eE = 10m.36s.

Long waves were also recorded at Belgrade, Cheb, and Upsala.

April 20d. 8h. 40m. 25s. Epicentre 33°·0N. 137°·8E. Depth of focus 0·050.

(as on 1941 Feb. 4d.).

Intensity V at Tsubasan; IV at Kohu, Tyosi, Mito, Sendai; II-III at Kashiwara, Hikone, Takada, Obihiro.

Epicentre 33°·9N. 137°·3E. Macro seismic radius over 300km. Deep focus.

Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1942, Tokyo 1950, pp. 20-22, macro seismic chart p. 20.

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

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Omaesaki		1·6	12	0	52	+ 3	1	18	- 9	—	—	—
Hamamatu		1·7	358	0	49 _a	- 1	1	29	0	—	—	—
Hatidyozima		1·7	87	1	0	+10	1	32	+ 3	—	—	—
Owase		1·7	309	0	48	- 2	—	—	—	—	—	—
Siomisaki		1·8	285	0	53	+ 3	1	29	- 1	—	—	—
Susaki		1·9	31	0	55	+ 4	1	33	+ 2	—	—	—
Shizuoka		2·0	14	0	54	+ 2	1	29	- 3	—	—	—
Kameyama		2·2	329	0	53 _a	0	1	28	- 7	—	—	—
Osima		2·2	37	0	56 _k	+ 3	1	36	+ 1	—	—	—
Nagoya		2·3	342	0	52 _a	- 2	1	28	- 8	—	—	—
Osaka		2·3	311	0	55	+ 1	1	35	- 1	—	—	—
Misima		2·4	24	0	54 _k	- 1	1	17	-20	—	—	—
Koyama		2·5	23	1	0	+ 5	1	42	+ 3	—	—	—
Mera		2·5	41	0	58 _k	+ 3	1	38	- 1	—	—	—
Wakayama		2·5	299	0	55	0	1	35	- 4	—	—	—

Continued on next page.

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	Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Gihu	2.6	340	0	52 _a	-	4	1	30	-10	—	—	—
Hunatu	2.6	18	0	57 _k	+	1	1	36	-4	—	—	—
Hikone	2.7	330	0	53 _a	-	4	1	34	-8	—	—	—
Kohu	2.7	14	0	57 _k	-	0	1	36	-6	—	—	—
Kyoto	2.7	320	0	54	-	3	—	—	—	—	—	—
Kobe	2.8	308	0	55	-	3	1	30	-13	—	—	—
Sumoto	2.8	299	0	58	-	0	1	37	-6	—	—	—
Kiyosumi	2.9	43	1	0	+	1	1	44	-1	—	—	—
Yokohama	2.9	32	1	0 _k	+	1	1	40	-5	—	—	—
Komaba	3.0	30	1	1	+	1	1	43	-3	—	—	—
Mitaka	3.0	28	1	0	-	0	1	41	-5	—	—	—
Muroto	3.1	275	1	0 _a	-	1	1	43	-5	—	—	—
Titibu	3.2	20	1	0	-	2	1	40	-10	—	—	—
Tokyo Cen. Met. Ob.	3.2	31	0	58 _k	-	4	1	44	-6	—	—	—
Tokyo Imp. Univ.	3.2	31	1	1	-	1	1	43	-7	—	—	—
Togane	3.3	40	1	0	-	2	1	45	-7	—	—	—
Kumagaya	3.4	22	1	2 _k	-	1	1	43	-10	—	—	—
Maebasi	3.5	17	1	2 _k	-	2	1	46	-9	—	—	—
Toyooka	3.5	316	1	1 _a	-	3	1	44	-11	—	—	—
Koti	3.6	279	1	6	+	1	1	50	-7	—	—	—
Nagano	3.7	5	1	1	-	5	1	45	-13	—	—	—
Toyama	3.7	353	1	4 _a	-	2	1	48	-10	—	—	—
Tukubasan	3.7	30	1	5 _k	-	1	1	49	-9	—	—	—
Tyosi	3.7	42	1	5	-	1	1	51	-7	—	—	—
Kakioka	3.8	31	1	1 _k	-	6	1	50	-10	—	—	—
Utsunomiya	3.9	26	1	5 _k	-	3	1	50	-12	—	—	—
Mito	4.0	33	1	8 _k	-	1	1	56	-8	—	—	—
Wazima	4.4	351	1	8 _a	-	6	1	55	-16	—	—	—
Onahama	4.7	33	1	1	-	16	1	54	-23	—	—	—
Aikawa	5.0	4	0	59	-	21	1	52	-31	—	—	—
Hamada	5.2	294	1	20	-	2	2	20	-7	—	—	—
Hokusima	5.2	24	1	19 _k	-	3	2	15	-12	—	—	—
Sendai	5.8	25	1	25	-	4	2	26	-13	—	—	—
Izuka	6.0	278	1	31 _k	-	0	2	36	-7	—	—	—
Kumamoto	6.0	270	1	35 _k	+	4	2	44	+1	—	—	—
Hukuoka	6.2	277	1	37	+	3	2	43	-4	—	—	—
Kagosima	6.3	259	1	42	+	7	2	55	+6	—	—	—
Unzendake	6.4	269	1	42 _k	+	6	2	53	+1	—	—	—
Mizusawa	6.7	23	1	35	-	5	2	42	-16	—	—	—
Yakusima	6.7	249	1	45	+	5	3	7	+9	—	—	—
Akita	6.9	15	1	58 _a	+	16	3	7	+5	—	—	—
Titizima	7.0	146	1	58	+	15	3	28	+24	—	—	—
Miyako	7.4	26	1	43 _k	-	5	2	59	-14	—	—	—
Husan	7.6	288	1	47 _k	-	3	2	54	-23	—	—	—
Tomie	7.6	269	1	33	-	17	2	53	-24	—	—	—
Hatinohe	8.1	21	1	50 _k	-	6	3	6	-22	—	—	—
Taikyu	8.1	293	1	54 _k	-	2	3	19	-9	—	—	—
Aomori	8.2	16	1	51	-	6	3	13	-17	—	—	—
Nake	8.5	239	2	10	+	9	3	50	+14	—	—	—
Mori	9.4	13	3	10 _a	?	?	—	—	—	—	—	—
Keizyo	9.9	300	2	12	-	6	3	56	-10	—	—	—
Zinsen	10.2	299	2	17 _k	-	4	4	5	-8	—	—	—
Sapporo	10.5	14	2	19	-	6	3	45	-34	—	—	—
Naha	11.2	235	2	42	+	9	4	40	+6	—	—	—
Heizo	11.5	305	2	57	+	20	4	57	+16	—	—	—
Nemuro	12.0	29	2	38	-	5	4	35	-17	—	—	—
Miyakozima	13.7	236	3	10	+	7	5	45	+17	—	—	—
Isigakizima	14.8	237	3	22	+	7	—	—	—	—	—	—
Taihoku	16.3	245	3	37	+	6	—	—	—	—	—	—
Sintiku	16.8	245	3	42	+	6	6	27	-3	—	—	—

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		Δ	Az.	P.		O-C.		S.		O-C.		Supp.		L. m.
				m.	s.	s.	m.	s.	s.	m.	s.			
Arisan		17.7	241	4	6	+21								
Taito		17.9	239	3	50	+3		6	2	-48				
Tainan		18.3	242	3	59	+8								
Takao		18.6	241	4	2	+8								
Irkutsk		30.9	319	i 5	45	-2	i 10	22	-3		6	49	pP	
Semipalatinsk		45.2	311	e 7	45	0	e 13	47	-11					
Agra	E.	51.5	280	i 8	31k	-2	i 15	21	-3	i 9	42	pP		
Andijan		51.8	298	8	35	0	15	27	-2					
Tchinkent		53.5	301	i 8	48	+1	15	58	+6					
Tashkent		54.0	300	8	50	-1	15	51	-7	9	59	pP		
College		54.1	31	8	53	+1	e 16	0	0	e 10	5	pP	e 22.0	
Stalinabad		55.1	297	i 8	59	0	i 16	10	-3					
Hyderabad		55.2	268	9	2	+3	16	16	+2	10	17	pP	24.5	
Sverdlovsk		56.3	320	i 9	7	0	i 16	21	-7	i 10	17	pP		
Bombay		59.3	273	i 9	30	+2	i 17	7	0	i 10	42	pP		
Colombo	E.	59.5	257	9	33	+4	17	14	+4					
Kodaikanal	E.	59.7	263	i 10	35k	pP	i 18	15	pS					
Riverview		67.7	168	i 10	35a	+13	i 19	12	+22	i 20	45	sS		
Victoria		71.4	45	e 10	51	+7	e 19	44	+11	e 22	52	?		
Upsala		75.2	333				i 20	7	-8	e 22	22	sS		
Scoresby Sund		75.8	354	i 11	10	0	i 20	16	-6	e 11	36	pP	e 31.0	
Berkeley		77.5	53	11	24	+5	e 20	51	+11	e 23	1	sS	31.4	
Branner	N.	77.8	53	e 11	24	+3								
Lick		78.2	53	e 11	29	+6								
Warsaw		78.8	326	e 11	28	+2	i 20	48	-5	i 12	43	pP	35.6	
Butte		78.9	42	e 11	31	+5	e 20	56	+2	e 14	48	PP	e 42.2	
Fresno	N.	79.8	53	e 11	37	+6	e 21	3	-1					
Copenhagen		80.1	332	i 11	34	+1	i 21	2	-5	12	50	pP		
Tinemaha		80.6	52	i 11	41a	+6	e 21	19	+7	e 14	56	PP		
Ksara		81.0	304	e 11	41?	+3	e 21	20	+4	e 13	0	pP		
Bucharest		81.1	317	e 11	42	+4	i 21	15	-2	e 14	25	PP	33.1	
Santa Barbara		81.1	55	i 11	44a	+6				i 13	18	pP		
Halwee	E.	81.3	53	e 11	45	+6								
Mount Wilson		82.3	54	i 11	50a	+6				i 15	3	PP		
Pasadena		82.3	54	i 11	50a	+6	e 21	34	+5	i 15	2	PP	e 34.1	
Potsdam		82.3	330	e 11	42	-2	i 21	23	-6	i 13	2	pP	e 44.6	
Salt Lake City		82.5	46	e 11	51	+6	e 21	39	+8	e 12	21	pP		
Riverside		82.9	54	i 11	53a	+6				i 15	7	PP		
La Jolla		83.7	55	i 11	57a	+6								
Palomar	Z.	83.7	54	e 11	57	+6								
Sofia		83.7	317	e 11	54	+3	i 21	41	-2	e 13	12	pP		
Jena		83.9	329	e 11	53	+1	i 21	40	-5	i 13	11	pP	e 36.6	
Cheb		84.2	328				e 21	35?	-13	e 29	35	?	e 45.6	
De Bilt		85.7	333	i 13	21k	pP	i 21	52	-10					
Helwan		86.5	303	i 12	5	0	i 21	56	-14	13	26	pP		
Stuttgart		86.6	329	i 12	6a	+1	e 22	5	-6	i 13	25	pP		
Triest		86.8	324	e 13	23	pP	i 21	56	-16					
Uccle		87.0	333	e 12	8k	+1	e 21	58	-16	i 13	26	pP		
Chur		87.9	327	e 12	12	0	e 22	18	-5					
Zurich		87.9	328	e 12	12	0	e 22	20	-3	13	31	pP		
Basle		88.2	329	i 12	14	+1	e 22	23	-2	e 13	34	pP		
Kew		88.2	335	e 12	15	+2	i 22	23	-2	i 13	34	pP		
Tucson		88.4	52	i 12	21	+7	i 22	19	-8	i 13	8	pP	e 44.8	
Neuchatel		88.9	329	e 12	12	-4	e 22	23	-9					
Paris		89.3	332				e 22	12	[0]					
Lincoln		91.0	37				e 22	25	[+ 2]					
Clermont-Ferrand		91.5	330	e 12	30	+2	e 22	53	-2					e 57.6
Florissant		95.7	36	i 12	52	+4	i 22	53	[+ 5]	e 25	22	sS		
St. Louis		95.9	36	i 12	20	-29	e 23	9	[+19]	e 25	31	sS		
Shawinigan Falls		96.1	20	e 12	54	+4	e 22	55	[+ 4]	e 16	47?	PP		
Seven Falls		96.2	19				e 23	38	+3	e 26	1	PPS	31.6	
Ottawa		96.3	23	e 12	53	+3	e 22	53	[+ 2]	e 25	58	PPS		
Cape Girardeau	N.	97.3	36	e 12	58	+3	i 23	0	[+ 2]	e 17	56	pPP		
Philadelphia		101.2	25	e 17	27	PP	e 23	18	[+ 2]					
Granada		101.4	329	14	26	pP	24	26	+7	18	24	pPP		

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
San Fernando	E. 103.1	331	—	—	e 24 31	- 2	—	55.6
San Juan	124.0	27	e 19 20	pPKP	e 27 29	?	e 36 26	SS e 51.1
Fort de France	129.2	23	e 18 29	[+ 3]	—	—	—	—
Huancayo	143.2	62	i 18 56	[+ 3]	—	—	—	e 61.6
La Paz	151.4	63	19 19	[+14]	29 21	SKKS	23 3	PP —

Additional readings:—

Agra E. iPP? = 10m.31s., e = 11m.38s., iS_cS? = 17m.31s., SS = 19m.16s., SSS = 20m.56s.
 College ePP = 10m.46s., eSS = 20m.2s., e = 21m.31s.
 Hyderabad PPE = 11m.0s., SSE = 19m.48s.
 Bombay esP?N = isP?E = 11m.37s., sSEN = 19m.21s.
 Upsala iN = 20m.37s., eN = 38m.59s.?
 Scoresby Sund ePPP = 15m.34s., esS = 20m.58s., e = 22m.18s., i = 22m.37s., e = 23m.14s., eSS = 24m.38s., e = 25m.26s.
 Berkeley eSNZ = 21m.1s.
 Branner iPE = 11m.28s.
 Warsaw EZ = 13m.19s., 14m.30s., and 16m.30s., PSZ = 21m.28s., ePSN = 21m.32s.
 Butte e = 18m.38s., and 23m.17s., eSS? = 26m.45s.
 Copenhagen 13m.26s., 23m.20., 26m.11s.
 Tinemaha eSKP, PKPZ = 41m.12s.
 Bucharest eN = 12m.59s., ePPPN = 15m.59s., eSSN = 26m.9s., SSS?N = 28m.43s.
 Mount Wilson iSKP, PKPZ = 40m.48s.
 Pasadena iZ = 12m.9s., and 13m.47s., eN = 16m.36s., iSKP, PKP = 41m.12s.
 Potsdam iPZ = 11m.46s., isPZ = 13m.40s., iPPZ = 14m.55s., iSZ = 21m.19s., eSSN = 26m.35s.?, iSSE = 26m.49s.
 Salt Lake City e = 13m.24s., ePPP = 16m.39s., e = 23m.59s., esS = 22m.12s., eSS = 26m.41s., eSSS = 36m.29s., e = 39m.5s.
 Riverside iSKP, PKPZ = 41m.11s.
 Jena iPN = 11m.59s., e = 21m.35s.?
 De Bilt eE = 24m.20s. and 27m.40s.
 Helwan sPZ = 14m.2s., PPZ = 15m.29s., eZ = 17m.20s., PPPZ = 17m.33s., eZ = 22m.59s., SP = 23m.23s., PSE = 23m.44s., sSEN = 24m.17s.
 Stuttgart i = 13m.39s., esP = 14m.3s., ePP = 15m.47s., eSNE = 21m.56s., iSN = 22m.9s., esSN = 24m.29s., ePKP, PKP = 38m.10s.
 Uccle esPZ = 14m.2s., iE = 22m.9s., ipS?N = 22m.34s., iE = 23m.9s., eE = 24m.28s.
 Kew eEN = 22m.6s., iEN = 22m.30s.?, e = 23m.59s., 24m.41s. and 28m.5s.?
 Tucson iP = 12m.43s., e = 14m.11s., iPP = 15m.47s., e = 22m.7s., 24m.3s., and 24m.45s.
 Lincoln e = 22m.54s. and 25m.16s.
 Florissant iZ = 16m.46s. and 18m.35s., i = 26m.2s.
 St. Louis eZ = 16m.16s., eN = 18m.7s., iSN = 22m.21s., eN = 24m.49s., eE = 26m.41s.
 Ottawa eZ = 16m.7s. and 16m.45s.
 Philadelphia e = 25m.55s. and 28m.5s.
 Granada pPP = 19m.10s., sPP = 19m.21s.
 San Juan eSP = 29m.36s., e = 31m.10s.
 Huancayo i = 19m.5s.
 La Paz iPKPN = 19m.23s., iN = 31m.53s.

April 20d. Readings also at 0h. (near Berkeley), 4h. (Calcutta), 5h. (Agra, Almata, Tashkent, Tchinkent, and near Andijan), 11h. (near Berkeley (2)), 12h. (near Huancayo and La Paz), 14h. (near College, Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 15h. (La Paz, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and Irkutsk), 16h. (Tucson), 18h. (Apia and near Branner), 22h. (near Mizusawa (2) and near Berkeley), 23h. (Pasadena, Riverside, Tucson, Kew, Copenhagen, Stuttgart (2), Warsaw, Potsdam, Andijan, and Calcutta).

April 21d. Readings also at 4h. (De Bilt, Scoresby Sund, Uccle, Kew, and Potsdam), 7h. (Ksara (2)), 8h. (near Andijan), 11h. (near Algiers), 12h. (near Algiers), 15h. (near Mizusawa), 18h. (near Tashkent, near Lick, and Berkeley (2)), 20h. (near Stalinabad, Andijan, and Tashkent), 22h. (Ksara).

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April 22d. 11h. 49m. 35s. Epicentre 8°·1N. 83°·2W. (foreshock of 23h.).

A = +·1172, B = -·9832, C = +·1400; $\delta = +2$; $h = +6$;
D = -·993, E = -·118; G = +·017, H = -·139, K = -·990.

		Δ	Az.	P.		O - C.	S.		O - C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Balboa Heights	N.	3·7	78	e 0	12	-48	—	—	—	—	—	0·7	
San Juan		19·5	56	e 3	50	-41	e 7	11	-55	4	21	PP	e 9·5
Huancayo		21·5	159	e 4	58	+ 6	e 7	53	-54	—	—	—	e 10·7
La Paz		28·6	148	5	43	-17	11	53	SS	—	—	—	16·2
Tucson		35·1	317	i 7	1	+ 4	—	—	—	—	—	—	25·5
Riverside	Z.	40·7	315	e 7	44	0	—	—	—	—	—	—	—
Mount Wilson	Z.	41·3	315	e 7	50	+ 1	—	—	—	—	—	—	—
Pasadena	Z.	41·3	315	e 7	53	+ 4	—	—	—	—	—	—	—
Tinemaha	Z.	42·9	318	e 8	1	- 1	—	—	—	—	—	—	—

Long waves were also recorded at Fordham.

April 22d. 23h. 20m. 11s. Epicentre 8°·1N. 83°·2W. (as at 11h.).

A = +·1172, B = -·9832, C = +·1400; $\delta = +2$; $h = +6$;
D = -·993, E = -·118; G = +·017, H = -·139, K = -·990.

		Δ	Az.	P.		O - C.	S.		O - C.	Supp.		L.	
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
San Juan		19·5	56	i 4	33	+ 2	e 8	7	+ 1	i 5	4	PPP	e 10·0
Huancayo		21·5	159	e 4	52	0	e 9	0	+13	i 6	19	PPP	e 10·3
Fort de France		22·6	71	e 5	4	+ 1	e 9	3	- 4	—	—	—	—
Columbia		25·9	3	e 5	36	+ 1	e 10	0	- 4	—	—	—	e 13·6
La Paz		28·6	148	5	49	-11	e 12	7	SS	—	—	—	15·8
Bermuda		29·5	33	e 6	29	+21	e 11	7	+ 5	—	—	—	14·4
St. Louis		31·1	349	e 6	19	- 3	e 11	22	- 6	e 6	34	pP	16·0
Philadelphia		32·5	13	—	—	—	e 11	46	- 3	e 13	43	SS	e 15·5
Fordham		33·7	14	e 7	48	PP	e 12	2	- 6	—	—	—	e 16·3
Chicago		33·8	353	—	—	—	e 11	55	-15	e 12	59	3	e 15·6
Tucson		35·1	317	i 6	57	0	e 12	39	+ 9	e 8	46	PPP	e 16·2
Ottawa		37·7	9	e 7	17	- 2	—	—	—	—	—	—	15·8
Palomar	Z.	40·0	314	e 7	40	+ 2	—	—	—	—	—	—	—
Seven Falls		40·3	13	—	—	—	e 13	47	- 2	—	—	—	18·8
Riverside	Z.	40·7	315	e 7	44	0	—	—	—	—	—	—	—
Mount Wilson		41·3	315	i 7	49	0	—	—	—	—	—	—	—
Pasadena	Z.	41·3	315	i 7	50	+ 1	—	—	—	i 8	16	?	e 24·0
Tinemaha	Z.	42·9	318	i 8	3	+ 1	—	—	—	—	—	—	—
Bozeman		44·5	333	—	—	—	e 14	52	+ 1	—	—	—	e 25·3
Rio de Janeiro	E.	49·8	129	e 16	17	S	(e 16	17)	+11	—	—	—	—
Scoresby Sund		73·0	18	e 21	40	PS	e 20	57	- 3	e 28	55	SSS	e 34·1
Granada		76·9	54	i 12	3	+ 7	e 21	47	+ 4	—	—	—	—
Almeria		77·8	54	—	—	—	e 21	44	- 9	e 22	41	PS	—
Uccle		82·2	40	e 23	26	PS	e 22	37	- 2	e 28	17	SS	e 35·8
Cheb		87·4	40	—	—	—	e 23	23	- 7	—	—	—	e 42·8
Triest		89·1	44	—	—	—	e 23	23	[- 4]	—	—	—	—
Christchurch		105·8	227	27	26	PS	37	6	SSS	47	57	Q	51·4

Additional readings:—

St. Louis eNZ = 6m.37s., ePP?N = 6m.44s., eN = 6m.52s., 7m.34s., 8m.0s., 8m.58s., 9m.38s., 10m.36s., and 10m.46s., esSN = 11m.50s., eSSN = 12m.58s., eSSSN = 14m.12s.

Granada e = 18m.16s., i = 24m.18s.

Christchurch S_cS = 37m.53s.

Long waves were also recorded at Harvard and other European stations.

April 22d. Readings also at 0h. (Scoresby Sund), 4h. (College, Uccle, Kew, and Scoresby Sund), 6h. (Scoresby Sund), 7h. (Tucson), 12h. (Kodaikanal and near Balboa Heights), 18h. (near Berkeley), 19h. (East Machias), 23h. (near Berkeley and Branner).

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April 23d. Readings at 2h. (near Tashkent), 6h. (near Berkeley), 7h. and 8h. (near Tashkent), 9h. and 10h. (La Paz), 11h. (Copenhagen, Jena, Pasadena, Palomar, Mount Wilson, Riverside, Tinemaha, and Tucson), 12h. (near Huancayo, La Paz, Mount Wilson, Pasadena, Riverside, and Tucson), 16h. (near Mizusawa), 18h. (Stuttgart, Triest, and near Sofia), 19h. (Tashkent), 21h. (Tashkent and near Stalinabad), 22h. (near Branner), 23h. (near Florissant and St. Louis, and near Berkeley).

April 24d. Readings at 0h. (Tacubaya), 1h. (near Basle, Triest, Zurich, Stuttgart, and near Berkeley (2)), 6h. (Wellington, Auckland, Riverview, and Apia), 7h. (La Paz and near Ksara), 15h. (Riverview and near Mizusawa), 16h. (Stuttgart, Basle, Stonyhurst, Zurich, Uccle, and near Mizusawa (2)), 17h. (near Tashkent, Andijan, Stalinabad, and near Berkeley), 18h. (Mount Wilson, Tinemaha, Riverside, Pasadena, and Tucson), 19h. (Chicago U.S.C.G.S.), 20h. (Cape Girardeau), 21h. (near La Paz), 22h. (near Berkeley (2)).

April 25d. 19h. Undetermined shock. Pasadena quotes Epicentre $19^{\circ}0N$. $70^{\circ}5W$.

Port au Prince $iP = 38m.6s.$, $iS = 38m.36s.$, $i = 38m.51s.$

San Juan $iP = 38m.12s.$, $iS = 38m.49s.$, $iL = 38m.56s.$

Fort de France $e = 39m.22s.$

Fordham $e = 42m.1s.$ and $45m.55s.$, $i = 46m.25s.$

Ottawa $eZ = 42m.47s.$, $L = 49m.$

Tucson $iP = 44m.37s.$, $ePPP = 46m.34s.$

Riverside $iPZ = 45m.24s.$, $iZ = 45m.35s.$

Pasadena $ePZ = 45m.26s.$

Mount Wilson $ePZ = 45m.30s.$

Tinemaha $iP = 45m.34s.$

Stuttgart $eP? = 67m.1s.$

Long waves were also recorded at Kew, Granada, Scoresby Sund, Chicago U.S.C.G.S., Bermuda, East Machias, and Harvard.

April 25d. Readings also at 0h. (Balboa Heights), 3h. 5h. and 11h. (near Berkeley), 13h. (Tashkent, Andijan, near Huancayo, and near La Paz (2)), 16h. (Merida), 18h. (Denver, near La Paz, and near Berkeley), 19h. (near Almata), 20h. (near Balboa Heights), 23h. (Merida).

April 26d. Readings at 0h. (near La Paz), 2h. (Riverside, Puebla, Oaxaca, Vera Cruz, Tacubaya, Tinemaha, and Tucson), 4h. (near Balboa Heights), 5h. (Tashkent, Tchimbkent, near Frunse, and near Berkeley), 7h. (near Ksara), 9h. (Columbia), 15h. (Tucson), 19h. (near Berkeley).

April 27d. 9h. 16m. 41s. Epicentre $43^{\circ}6N$. $29^{\circ}2W$. (as on 1941 October 20d.).

$A = +.6342$, $B = -.3544$, $C = +.6872$; $\delta = +5$; $h = -3$;
 $D = -.488$, $E = -.873$; $G = +.600$, $H = -.335$, $K = -.726$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Lisbon	15.9	101	3 17k	-30	(6 56)	+12	—	6.9
San Fernando	19.0	105	(4 31)	+5	4 31	P	—	9.3
Granada	20.5	100	1 4 43	+1	i 8 36	+9	5 0 PP	i 10.4
Kew	20.9	58	—	—	e 8 39	+4	—	e 9.8
Almeria	21.4	99	1 4 51	0	8 57	+12	5 11 PP	10.8
Paris	22.4	67	e 5 4	+2	e 9 10	+6	—	11.3
Clermont-Ferrand	23.0	73	e 5 7	0	i 9 21	+7	—	e 10.8
Uccle	23.8	60	5 17	+2	9 27	-1	—	11.3
De Bilt	24.4	57	i 5 24	+3	i 9 44	+5	—	e 11.3
Basle	25.9	68	e 4 46	-49	—	—	—	—
Zurich	26.6	68	e 5 40	-2	—	—	—	—
Stuttgart	26.9	65	e 5 43	-2	e 10 31	+11	—	—
East Machias	27.2	286	—	—	e 10 34	+9	—	e 13.4
Scoresby Sund	27.2	5	—	—	e 10 48	+23	—	11.7
Cheb	28.9	63	—	—	e 10 55	+2	—	e 15.3
Potsdam	29.2	58	e 6 11	-4	e 10 49?	-9	—	e 12.3
Seven Falls	29.2	292	—	—	e 10 25?	-33	—	14.2
Bermuda	30.1	260	e 6 47	+34	—	—	—	e 13.1
Prague	30.2	62	—	—	e 11 19?	+6	e 12 19?	SS
Triest	30.4	71	e 6 16	0	e 11 2	-14	—	e 15.3

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Fordham		32.9	282	e 6 43	+ 5	e 12 9	+13	—	—
Ottawa		32.9	291	6 43	+ 5	12 10	+14	7 37?	PP 16.3
Warsaw		34.1	59	e 6 47	- 1	e 12 13	- 1	e 7 50	PP e 16.3
Chicago U.S.C.G.S.		42.2	290	—	—	e 14 26	+ 9	—	e 20.6
St. Louis		45.3	287	—	—	e 15 17	+15	e 18 45	SS e 22.4
Florissant	z.	45.4	287	e 8 25	+ 3	e 15 20	+16	—	— e 22.7
Helwan		49.4	85	e 8 52	- 1	16 1	+ 1	—	—
Sverdlovsk		54.9	42	(e 9 34)	- 1	(17 15)	- 1	—	—
Bozeman		55.8	304	—	—	e 17 28	0	—	e 27.1
Tucson		63.0	290	e 10 36	+ 5	—	—	e 12 59	PP e 31.5
Tinemaha	z.	65.0	299	i 10 48	+ 4	—	—	—	—
Riverside	z.	66.3	296	e 10 55	+ 3	—	—	—	—
Palomar	z.	66.4	295	e 10 46	- 7	—	—	—	—
Mount Wilson	z.	66.6	296	e 10 59	+ 5	—	—	—	—
Berkeley		67.6	301	i 15 10	PPP	—	—	—	e 34.3

Additional readings:—

Lisbon PZ = 3m.43s. a, PE = 3m.46s.

Almeria PPP = 5m.28s., P_cP = 9m.5s., SSS = 9m.43s.

Uccle SE = 9m.31s.

Stuttgart i = 5m.59s., eSNW = 10m.34s.

Warsaw eZ = 8m.22s., eN = 15m.55s.

St. Louis eSSS?EN = 19m.42s.

Florissant ePZ = 8m.33s.

Sverdlovsk, 10 minutes has been added to both readings.

Long waves were also recorded at Harvard, Butte, Honolulu, and Upsala.

April 27d. Readings also at 1h. (Stuttgart, Tucson, Kodaikanal, Agra, Colombo, Pasadena, Mount Wilson and Riverside), 10h. (near Bucharest), 11h. (Copenhagen, near Sofia, Warsaw, Tucson, and Stuttgart), 13h. (Calcutta, Irkutsk, Riverview, Hyderabad, Cheb, Warsaw, Colombo, Agra, Tashkent, Helwan, Kodaikanal, and near Berkeley), 14h. (Potsdam, Scoresby Sund, De Bilt, Kew, Granada, and Upsala), 15h. (Balboa Heights), 18h. (near Berkeley), 19h. (near Honolulu), 20h. (near Florissant), 21h. (near Berkeley, and St. Louis), 22h. (near Stalinabad, Tashkent, and Helwan).

April 28d. 10h. 19m. 54s. Epicentre 1°·0N. 123°·3E. Depth of focus 0·040. (as on 1939 March 25d.).

A = -·5489, B = +·8357, C = +·0173; δ = -2; h = +7;
D = +·836, E = +·549; G = -·009, H = +·014, K = -1·000.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Taito		21.7	355	i 4 31	+ 2	—	—	—	—
Nake		27.9	12	5 21	- 5	—	—	—	—
Kobe		35.3	18	6 36	+ 6	—	—	—	—
Gihu		36.5	20	6 40	0	—	—	—	—
Nagano		38.1	19	6 54	+ 1	12 24	0	—	—
Calcutta	N.	40.2	305	e 10 0	?	e 12 30	-26	—	— e 21.9
Sendai		40.5	22	i 7 14	+ 1	13 1	+ 1	—	—
Mizusawa		41.3	21	7 21	+ 2	13 12	0	—	—
Riverview		43.4	145	i 7 36 _a	0	i 13 44	+ 2	e 17 3	SS e 18.6
Colombo	E.	43.7	279	7 38	- 1	(13 41)	- 5	(9 24)	PP 13.7
Sapporo		44.9	18	7 50	+ 2	—	—	—	—
Irkutsk		53.5	346	—	—	i 16 6	+ 4	—	—
Almata		58.6	323	e 9 31	+ 2	—	—	—	—
Andijan		60.7	317	e 9 41	- 2	—	—	—	—
Tashkent		63.0	317	i 9 56	- 2	i 10 52	pP	—	—
Ksara		87.3	303	e 12 16?	0	e 24 6?	PPS	—	—
Helwan		91.2	300	i 12 30 _a	- 4	i 25 21	PS	13 45	pP
Potsdam		101.4	325	i 17 36 _k	PP	—	—	—	—
Stuttgart		104.1	322	i 13 34	+ 2	—	—	e 17 58	PP
Zurich		105.8	321	e 17 48	PP	—	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Santa Barbara	z.	111.4	53	e 18	1	[+ 1]	—	—	—
Tinemaha		111.7	49	i 18	3	[+ 3]	—	i 18 58	PP
Pasadena		112.7	52	i 18	4k	[+ 2]	—	i 18 55	PP
Mount Wilson		112.8	52	i 18	4k	[+ 1]	—	i 18 56	PP
Riverside	z.	113.4	52	i 18	5	[+ 1]	—	e 18 59	PP
Palomar	z.	114.0	52	i 18	5	[0]	—	—	—
Tucson		119.6	51	i 18	16	[0]	—	e 19 28	PP
Cape Girardeau	N.	131.2	35	e 21	30	PP	—	e 22 4	pPP

Additional readings :—

Colombo PP given as S, S given as L

Helwan eZ = 14m.27s. and 15m.42s., PPZ = 16m.15s., sPPZ = 17m.45s.

Stuttgart e = 16m.49s.

Pasadena iZ = 21m.10s.

Tucson e = 20m.10s.

Cape Girardeau eN = 23m.17s.

April 28d. Readings also at 0h. (Granada, Riverview, and near Almeria), 7h. (near Tashkent), 8h. (Palomar, Riverside, Mount Wilson, Pasadena, near Honolulu, and near Almeria, and Granada), 11h. (near Sofia), 12h. (Cape Girardeau), 14h. (near Andijan and Tashkent), 15h. (near Tashkent and Stalinabad), 19h. (Oaxaca), 21h. (Berkeley (2)), 22h. (Salt Lake City), 23h. (near Berkeley).

April 29d. 11h. 40m. 50s. Epicentre 13°·7S. 167°·2E. (as on 1940 May 11d.).

A = -·9478, B = +·2153, C = -·2354; $\delta = +9$; $h = +6$;
D = +·222, E = +·975; G = +·230, H = -·052, K = -·972.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	E.	19.0	222	i 4	24	- 2	i 7 50	- 5	—
	N.	19.0	222	i 4	20	- 6	i 7 47	- 8	—
Auckland		24.0	166	5	16	- 1	9 36	+ 4	5 55 PP
Riverview		24.8	213	5	26	+ 1	i 9 35	- 11	i 5 47 PP
Sydney		24.8	213	e 6	4	PP	i 9 49	+ 3	—
Arapuni		25.4	164	—	—	—	9 46?	- 10	—
Wellington		28.3	168	5	58	+ 1	11 27	SS	7 1 PPP
Christchurch		30.1	172	6	7a	- 6	10 55	- 17	12 50 P _c S
Honolulu		48.9	45	—	—	—	e 14 56	- 57	e 16 45 ?
Berkeley		83.5	49	e 11	7	?	i 22 52	0	— e 37.2
Irkutsk		85.0	327	e 13	10	+ 32	22 55	[- 6]	—
Pasadena		85.3	53	i 12	41	+ 1	e 23 40?	+ 30	i 16 1 PP
Mount Wilson		85.4	53	i 12	44	+ 4	—	—	—
Riverside	z.	85.9	53	i 12	42	- 1	—	—	—
Palomar		86.0	54	i 12	42	- 1	—	—	—
Tinemaha		86.2	50	i 12	46	+ 2	—	—	—
Victoria		87.0	38	—	—	—	e 23 42	+ 15	e 25 53 ?
Tucson		90.6	57	e 13	7	+ 2	e 24 5	+ 5	e 16 30 PP
Colombo	E.	91.6	277	23	18	S	(23 18)	[- 24]	—
Salt Lake City		92.1	48	—	—	—	e 23 42	[- 3]	e 25 5 PS
Agra	E.	95.4	297	—	—	—	i 23 52	[- 11]	—
Florissant		108.1	54	e 15	27	P	e 27 26	?	e 29 2 PPS
St. Louis	E.	108.2	54	e 14	57	P	e 25 27	[+ 22]	e 19 22 PP
Sverdlovsk		110.4	327	18	17	[- 17]	25 6	[- 7]	26 1 S
Chicago U.S.C.G.S.		110.7	50	—	—	—	e 26 0	[- 10]	e 28 43 PS
Huancayo		112.9	110	—	—	—	e 29 32	PPS	e 36 1 ?
Ottawa		118.6	45	e 18	50	[0]	e 25 40?	[- 5]	e 30 28? PPS
Philadelphia		119.8	52	—	—	—	e 25 35	[- 14]	e 30 16 PPS
Fordham		120.7	50	e 20	22?	PP	—	—	— e 54.2
Scoresby Sund		123.0	4	—	—	—	e 30 42	PS	e 37 15 SS
San Juan		128.7	77	e 22	32	?	e 28 56	{+ 45}	e 23 22 PPP
Warsaw		133.0	333	e 19	18	[0]	—	—	e 22 24 PKS
Copenhagen		133.8	341	i 19	22k	[+ 3]	—	—	22 56 PKS
Potsdam		136.2	338	e 19	22?	[- 1]	—	—	e 22 16? PP
Helwan	z.	136.3	299	e 19	25	[+ 2]	—	—	e 22 37 PP

Continued on next page.

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	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Jena	137.9	338	e 19 33	[+ 6]	—	—	—	—
Stuttgart	140.6	338	e 19 27	[- 4]	—	—	i 23 1. PP	—
Zurich	142.0	337	e 19 34	[0]	—	—	—	—
Chur	142.0	336	e 19 32	[- 2]	—	—	—	—
Basle	142.2	338	e 19 32	[- 2]	—	—	—	—
Neuchatel	142.9	338	e 19 33	[- 2]	—	—	—	—
Clermont-Ferrand	145.4	341	e 19 32	[- 7]	—	—	—	—

Additional readings :—

Auckland e = 10m.45s.

Riverview PPPZ = 6m.5s., iEZ = 9m.48s., iSSN = 10m.13s., iZ = 10m.23s., iE = 10m.31s.

Wellington iZ = 6m.19s. and 10m.32s., Q? = 12m.56s., S_cS = 16m.20s.

Pasadena iZ = 16m.44s., iEZ = 24m.40s.

Tucson e = 15m.10s., iPS = 24m.58s.

Salt Lake City e = 26m.12s. and 30m.43s.

Florissant ePP?Z = 19m.33s.

St. Louis eSKPE = 21m.46s., ePPPPE = 24m.55s., eSKKSE = 26m.40s., eSN = 27m.28s., eSP?E = 28m.29s., ePPSE = 30m.31s., eSS?E = 34m.45s., eSSS?E = 34m.57s., ePSSE = 38m.22s., eSSSE = 39m.2s., eSSSSE = 42m.2s.

Chicago U.S.C.G.S. e = 34m.43s.

Ottawa e = 37m.10s.?

Philadelphia e = 26m.37s., eSS? = 35m.40s., e = 37m.24s.

Fordham e = 21m.8s.

Scoresby Sund e = 29m.31s. and 41m.14s.

San Juan e = 35m.8s.

Warsaw eE = 23m.16s., eZ = 23m.19s.

Helwan iZ = 22m.46s. and 23m.43s.

Stuttgart i = 19m.30s., 19m.35s., e = 20m.4s., and 20m.25s.

Long waves were also recorded at Harvard, Kew, and Ukiah.

April 29d. Readings also at 1h. (Balboa Heights and Berkeley), 6h. (Andijan), 7h. (Oaxaca), 8h. (Stuttgart), 9h. (Uccle (2), and Sofia), 10h. (Auckland), 12h. (Kew, Copenhagen, Fordham, and Tucson), 15h. (Apia), 16h. (Mount Wilson, Pasadena, Tucson, Riverside, Palomar, and Tinemaha), 17h. (Tucson, Tacubaya, Puebla, Oaxaca, Riverside, Palomar, and Tinemaha), 18h. and 19h. (near Berkeley), 19h. (Tacubaya), 20h. (Cape Girardeau), 22h. (near Tananarive).

April 30d. Readings at 1h. (Riverside, Mount Wilson, Pasadena, Tucson, Riverview, Sydney, Ottawa, and near Fresno), 2h. (Granada, Harvard, Huancayo, and near Berkeley), 3h. (Kew, De Bilt, and near Berkeley), 5h. (Huancayo), 12h. (near Lick), 16h. (Sofia), 18h. (near La Paz), 22h. (near Berkeley), 23h. (near Tashkent and Copenhagen).

May 1d. Readings at 9h. (near Mizusawa), 11h. (Huancayo), 12h. (Logan), 14h. (Harvard), 17h. (Riverside, Tinemaha, Mount Wilson, Pasadena, Tucson, and Harvard), 20h. (Granada and Almeria), 21h. (Harvard, near Berkeley, and near near La Paz).

May 2d. Readings at 3h. (near Berkeley), 5h. (Warsaw, Irkutsk, near Tashkent, and Potsdam), 6h. (Triest, Stuttgart, and Chur), 7h. (Potsdam), 8h. (near Fresno), 10h. (Harvard, and near Apia), 12h. (near Samarkand), 13h. (near Andijan), 14h. (Granada), 15h. (Harvard and near Apia), 20h. (La Paz, near Balboa Heights, near Berkeley, Ottawa, San Juan, Philadelphia, St. Louis, and Florissant), 21h. (Ottawa, Oaxaca, Vera Cruz, Puebla, Tacubaya, San Juan, Philadelphia, St. Louis, Florissant, Palomar, Riverside, Pasadena, Tucson, and Cape Girardeau), 22h. (Kew, near Berkeley, and Granada), 23h. (Harvard).

May 3d. Readings at 0h. (near Samarkand), 2h. (Bucharest, Warsaw, Potsdam, Sofia, Stuttgart, and Triest), 3h. (La Plata, and near Andijan), 5h. (Oaxaca, Tacubaya, Vera Cruz, near Tucson, Samarkand, Andijan, and Tashkent), 7h. (Sofia and Mizusawa), 8h. (Triest and Stuttgart), 10h. (Auckland, Tucson, Stuttgart, Potsdam, Warsaw, Riverside, Tinemaha, Palomar, Mount Wilson, Pasadena, Riverview, Christchurch, De Bilt, near Apia, and Wellington), 11h. (Harvard, Granada, and Kew), 18h. (near Fresno, Lick, Berkeley, and Branner), 20h. (near Lick, Berkeley, and Branner).

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May 4d. Readings at 0h. (Riverview, Auckland, Christchurch, and Wellington), 1h. (Kew and Granada), 3h. (Ksara), 12h. (near Tashkent and near La Paz (2)), 14h. (near Balboa Heights), 16h. (Mount Wilson, Tinemaha, Tucson, and Riverside), 20h. (Mizusawa), 21h. (Cape Girardeau and La Paz), 22h. (Cape Girardeau, and near Berkeley), 23h. (near Berkeley).

May 5d. 3h. Undetermined shock.

Bombay eP?N = 32m.26s.; eP_g?EN = 33m.20s., eS?E = 34m.13s., eS_g?EN = 34m.58s.
 Agra eE = 32m.44s., SE = 34m.33s., iE = 35m.34s., eE = 36m.1s.
 Stalinabad eP = 33m.27s., eS = 37m.44s.
 Hyderabad eN = 33m.53s., S = 35m.20s.
 Colombo P?E = 35m.23s.
 Calcutta N. e = 37m.0s., eS = 38m.27s., eSS = 38m.56s., eL = 39m.17s.
 Warsaw eZ = 38m.14s., eE = 38m.24s., eN = 44m.10s., eLN = 57.0m.
 Potsdam eZ = 38m.54s., eE = 45m.48s.?, eN = 45m.50s. and 49m.36s.?, eEZ = 50m.0s., eLEN = 59m.
 Stuttgart e = 39m.6s.
 Helwan eN = 41m.46s. and 43m.25s., e = 45m.50s. and 46m.21s.
 Copenhagen 46m.4s., L = 60.0m.
 Uccle eN = 47m.0s., eLN = 62.0m.
 Granada e = 48m.42s., L = 59.0m.
 Upsala eN = 49m.0s., e = 58m.0s.
 Kew eZ = 57m.2s., eL = 61.0m.
 Long waves were also recorded at De Bilt and Kodaikanal.

May 5d. 16h. 4m. 37s. Epicentre 6°.5S. 67°.6E.

A = +.3787, B = +.9187, C = -.1125; δ = +8; h = +7;
 D = +.925, E = -.381; G = -.043, H = -.104, K = -.994.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Colombo	18.1	43	4 13	- 1	—	—	—	—
Kodaikanal	E. 19.3	29	i 4 25	- 4	—	—	—	9.0
Tananarive	23.1	236	e 5 7	- 1	—	—	5 28	PP 11.1
Bombay	N. 25.7	11	e 5 40	+ 7	—	—	—	e 13.4
Calcutta	N. 35.3	34	—	—	c 16 18	? 1	—	e 21.3
Tashkent	47.6	2	8 41	+ 2	15 41	+ 6	—	—
Helwan	Z. 50.2	318	e 9 5	+ 5	—	—	i 11 3	PP —
Sverdlovsk	63.4	355	i 10 33	- 1	19 6	0	—	—
Irkutsk	66.4	23	e 10 53	0	e 19 41	- 2	—	—
Warsaw	70.6	331	e 11 22	+ 3	e 24 23?	SS	—	e 54.4
Chur	73.8	323	e 11 38	0	—	—	—	—
Zurich	74.6	323	e 11 42	- 1	—	—	—	—
Jena	74.7	327	e 11 44	+ 1	—	—	—	—
Potsdam	Z. 74.7	329	e 11 41?	- 2	—	—	—	—
Stuttgart	74.9	324	e 11 43a	- 1	—	—	—	—
Neuchatel	75.4	322	e 11 47	0	—	—	—	—
Uccle	Z. 78.6	325	e 12 7	+ 2	—	—	—	—
Tinemaha	149.1	9	i 19 51	[+ 5]	—	—	—	—
Haiwee	E. 150.1	8	e 19 55	[+ 8]	—	—	—	—
Santa Barbara	Z. 151.4	11	e 19 56	[+ 7]	—	—	—	—
Mount Wilson	Z. 151.9	9	e 19 57	[+ 7]	—	—	e 23 39	PP —
Pasadena	Z. 152.0	9	e 19 58	[+ 8]	—	—	—	—
Riverside	Z. 152.3	9	e 19 58	[+ 7]	—	—	—	—
Palomar	Z. 153.0	7	e 19 59	[+ 7]	—	—	—	—
La Jolla	Z. 153.4	8	e 20 1	[+ 9]	—	—	—	—
Tucson	154.4	357	e 19 53	[0]	—	—	—	—

Additional readings:—

Bombay eN = 9m.13s.

Tucson e = 20m.40s.

Long waves were also recorded at Kew, Granada, and Riverview.

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May 5d. Readings also at 0h. (near Stalinabad), 3h. (near Tashkent and Scoresby Sund), 4h. (near Bucharest), 7h. (near Samarkand), 9h. (La Paz), 10h. (near Ksara), 11h. (near Stuttgart, Zurich, and Mizusawa), 13h. (near Granada), 15h. (Stuttgart and Harvard), 22h. (near Berkeley and near San Juan), 23h. (near Sofia, Triest, near Belgrade and Stuttgart).

May 6d. 21h. 18m. 3s. Epicentre $10^{\circ}8'N$, $64^{\circ}9'W$. (fore-shock of 22h. quake).

$A = +.4168$, $B = -.8897$, $C = +.1861$; $\delta = -8$; $h = +6$;
 $D = -.906$, $E = -.424$; $G = +.079$, $H = -.169$, $K = -.983$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Fort de France	5.4	43	1	16	-8	2	11	-17	1	25	P	—
San Juan	7.7	351	e 2	24	P _s	—	—	—	—	—	—	e 3.5
Bermuda	21.4	2	e 5	6	+15	e 8	46	+1	—	—	—	e 9.6
Huancayo	25.0	205	e 5	28	+1	e 9	36	-13	—	—	—	e 11.3
La Paz	27.3	186	6	53	+65	11	57	SS	—	—	—	15.9
Tucson	47.3	305	e 8	36	-1	—	—	—	—	—	—	—
Riverside	z. 53.1	305	e 9	19	-2	—	—	—	—	—	—	—
Mount Wilson	z. 53.7	305	e 9	25	-1	—	—	—	—	—	—	—
Pasadena	53.8	305	i 9	25	-1	—	—	—	—	—	—	—

Additional readings:—

Fort de France $S_s = 2m.18s.$

Tucson $e = 9m.31s.$

Long waves were also recorded at Philadelphia and La Plata.

May 6d. 22h. 50m. 12s. Epicentre $10^{\circ}8'N$, $64^{\circ}9'W$. (as at 21h.).

$A = +.4168$, $B = -.8897$, $C = +.1861$; $\delta = -8$; $h = +6$;
 $D = -.906$, $E = -.424$; $G = +.079$, $H = -.169$, $K = -.983$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Fort de France	5.4	43	1	17	-8	2	15	-13	1	27	P	—
San Juan	7.7	351	e 0	50	-66	e 1	57	?	—	—	—	i 3.1
Balboa Heights	14.5	265	e 3	23	-5	—	—	—	—	—	—	—
Bermuda	21.4	2	e 4	53	+2	e 8	47	+2	e 6	2	PPP	e 9.7
Huancayo	25.0	205	e 5	24	-3	e 9	48	-1	i 11	28	SSS	i 12.3
La Paz	27.3	186	5	52	+4	i 10	53	+26	—	—	—	15.3
Columbia	27.4	331	—	—	—	e 10	20	-8	—	—	—	e 14.7
Philadelphia	30.4	346	—	—	—	e 10	34	-42	—	—	—	e 12.6
Ottawa	35.7	347	e 7	6?	+4	e 12	36?	-3	—	—	—	14.8
St. Louis	35.8	326	e 7	2	-1	e 12	22	-19	e 8	23	PP	—
Florissant	36.0	326	e 6	41	-24	e 12	22	-22	—	—	—	e 22.8
Seven Falls	36.5	354	—	—	—	e 12	56	+5	—	—	—	15.8
Chicago U.S.C.G.S.	36.7	331	—	—	—	e 12	50	-4	—	—	—	e 16.7
Tucson	47.3	305	i 8	38	+1	—	—	—	—	—	—	e 28.6
Salt Lake City	50.9	316	e 9	5	0	e 16	10	-11	—	—	—	e 21.2
Bozeman	52.4	322	—	—	—	e 19	11	SS	—	—	—	e 24.5
Riverside	z. 53.1	305	e 9	22	+1	—	—	—	—	—	—	—
Butte	53.5	322	—	—	—	e 17	7	+10	—	—	—	e 25.6
Mount Wilson	z. 53.7	305	e 9	27	+1	—	—	—	—	—	—	—
Pasadena	53.8	305	i 9	27	+1	—	—	—	—	—	—	e 28.8
Tinemaha	54.5	309	e 9	32	0	—	—	—	—	—	—	—
Granada	60.7	53	i 10	15	0	i 18	39	+7	10	45	pP	27.2
Almeria	61.6	54	e 10	25	+3	e 18	57	+14	11	10	P _c P	30.1
Scoresby Sund	65.4	14	—	—	—	e 19	31	+1	—	—	—	e 31.8
Uccle	68.6	40	e 11	6?	-1	e 20	6?	-3	—	—	—	e 32.8
Stuttgart	71.5	42	e 11	20	-4	—	—	—	e 14	18	PP	—

Additional readings:—

Fort de France $iPS_s = 1m.57s.$

San Juan $i = 3m.2s.$

St. Louis $eZ = 7m.16s.$ and $8m.15s.$, $iZ = 11m.15s.$, $eN = 13m.25s.$ and $14m.5s.$

Tucson $e = 10m.12s.$ and $13m.12s.$

Granada $P_cP = 10m.57s.$, $PP = 12m.34s.$, $pPP = 13m.9s.$, $P_cS = 14m.30s.$, $pP_cS = 14m.48s.$ and $19m.9s.$, $S_cS = 20m.17s.$, $Q = 25m.12s.$?

Almeria $PP = 13m.9s.$, $PPP = 14m.19s.$, $PS = 19m.32s.$, $S_cS = 20m.30s.$

Long waves were also recorded at Cheb, College, Kew, Ukiah, Berkeley, De Bilt, and Warsaw.

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May 6d. Readings also at 8h. (Tucson, Bozeman, Tinemaha, and Ukiah), 10h. (Jena and near Lick), 15h. (Harvard), 21h. (near Berkeley), 22h. (Branner, Fresno, and Lick).

May 7d. Readings at 0h. (La Paz, Huancayo, and near Fort de France), 2h. (Tashkent, Samarkand, and near Andijan), 4h. (Jena), 7h. (La Paz, Huancayo, Triest, near Sofia, Stuttgart, Bucharest, and near Fort de France), 8h. (La Paz), 11h. (Sofia), 17h. (Kew), 19h. (Sofia, Bombay, Calcutta, Dehra Dun, and Kodaikanal), 21h. (Tucson, Pasadena, Mount Wilson, Riverside, Tinemaha, Stuttgart, near Mizusawa, Triest, and Tacubaya), 23h. (Warsaw).

May 8d. Readings at 2h. (Kew, Agra, and Calcutta), 6h. (Logan), 8h. (Frunse, near Tashkent (2), Samarkand (2), Granada, near Almeria, Marseilles, near Strasbourg, Stuttgart, Ravensburg, Neuchatel, Zurich, De Bilt, and Tchimkent (2)), 11h. (near Tchimkent), 15h. (near La Paz), 17h. (Tucson), 19h. (near Berkeley), 20h. (near Florissant and St. Louis), 22h. (near Mizusawa).

May 9d. 4h. 37m. 1s. Epicentre $35^{\circ}7'N$. $25^{\circ}9'E$. (as on 1940, Feb. 29d.).

$$A = +.7322, B = +.3555, C = +.5810; \quad \delta = +6; \quad h = 0;$$

$$D = +.437, E = -.900; \quad G = +.523, H = +.254, K = -.814.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Sofia	7.3	345	i 1 55	+ 5	—	—	—	—
Helwan	7.4	140	i 1 41	-11	2 53	-25	2 13	P*
Ksara	8.4	99	e 1 56	-10	1 3 18	-25	—	—
Bucharest	8.7	2	e 2 12	+ 2	3 57	+ 7	—	—
Triest	13.5	321	e 3 19	+ 4	e 5 46	- 1	i 3 27	PP 6.1
Chur	16.5	318	e 3 59	+ 5	—	—	—	—
Zurich	17.4	318	e 4 7	+ 1	—	—	—	—
Stuttgart	17.9	323	i 4 14	+ 2	e 7 27	- 3	e 4 29	PP
Neuchatel	18.1	316	e 4 15	+ 1	—	—	—	—
Clermont-Ferrand	19.9	307	i 4 36	0	(e 8 25)	+10	—	— e 8.4
Uccle	21.6	321	i 4 54 _a	0	e 8 52	+ 3	—	—
Copenhagen	22.0	341	e 4 54	- 4	9 33	SS	—	—
Almeria	22.9	281	e 5 8	+ 2	e 9 10	- 3	5 24	pP
Granada	23.7	283	i 5 19	+ 5	9 38	+11	5 43	pP
Kew	24.5	314	e 5 21	- 1	e 9 56	+16	10 13	SS e 12.1
Harvard	71.7	309	e 11 22	- 4	—	—	—	—
Tinemaha	z. 100.3	332	e 17 15	PP	—	—	—	—
Tucson	101.2	324	17 57	PP	—	—	—	—
Riverside	z. 102.6	329	e 18 8	PP	—	—	—	—
Mount Wilson	z. 102.7	329	e 18 5	PP	—	—	—	—

Additional readings:—

Helwan S*Z = 3m.14s.

Stuttgart i = 5m.15s.

Almeria sP = 5m.38s., PP = 8m.46s., P_cS = 12m.18s.

Granada PP = 5m.59s., sPP = 6m.30s., sS = 10m.5s., SS = 10m.47s.

Kew eN = 10m.21s., eNZ = 10m.29s., eZ = 11m.18s.

May 9d. Readings also at 0h. (near Berkeley), 3h. (Harvard, Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Huancayo, and near La Paz), 6h. (Triest (2), Stuttgart, and near Sofia), 10h. (Arapuni and Wellington), 12h. (Port au Prince), 15h. (Mount Wilson, Riverside, Tucson, Huancayo, La Paz, Stuttgart, Granada, Wellington, Arapuni, Auckland, and Riverview), 16h. (Kew, Pasadena, and Scoresby Sund), 20h. (near Berkeley), 22h. and 23h. (2) (near Mizusawa).

May 10d. Readings at 2h. (near Andijan and Harvard), 3h. (Mount Wilson, Tucson, Riverside and Stuttgart), 4h. (near Apia and Tucson), 7h. (Riverside, Tinemaha, Tucson, and near Mizusawa), 8h. (Copenhagen, Wellington, La Paz, Tinemaha, Riverside, and Mount Wilson and Tucson), 10h. (near Mizusawa), 11h. (Kew), 12h. (Kew, De Bilt, Bermuda, La Paz, near San Juan, Huancayo, and near Fort de France), 13h. (La Paz, San Juan, near Fort de France, and near Huancayo), 14h. (near Andijan), 20h. (Tucson, St. Louis, La Paz, Huancayo, Mount Wilson, Riverside, Tinemaha, and San Juan), 21h. (Scoresby Sund, Harvard, and Kew).

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May 11d. Readings at 2h. (Oaxaca and Tacubaya), 3h. (near La Paz), 9h. (near Andijan (2), Tashkent, and Sverdlovsk), 11h. (Columbia, Pasadena, Mount Wilson, and Riverside), 16h. (Balboa Heights), 17h. (Riverview, Christchurch, Auckland, Arapuni, Sydney, and Wellington), 18h. (Kew, De Bilt, Granada, and Uccle), 23h. (Tucson, Copenhagen, Kew, Sverdlovsk, Irkutsk, Mount Wilson, Pasadena, Uccle, Stuttgart, Riverside, and near Mizusawa).

May 12d. Readings at 0h. (St. Louis, Prague, Cheb, De Bilt, and Granada), 1h. (Salt Lake City, and near Lick), 8h. (La Paz, La Plata, and Huancayo), 13h. (Granada), 14h. (Huancayo), 19h. (Almeria and Granada).

May 13d. 20h. Undetermined shock.

Irkutsk eP = 40m.58s., eS = 49m.14s.
 Sverdlovsk eP = 42m.28s., eS = 52m.28s.
 Berkeley iPZ = 43m.43s., ePE = 46m.3s., eSN = 55m.57s., eLN = 67m.3s.
 Tinemaha iPZ = 43m.48s., eZ = 46m.3s.
 Mount Wilson ePZ = 43m.51s., eZ = 46m.1s.
 Riverside ePZ = 43m.52s., eZ = 45m.56s.
 Pasadena eZ = 43m.55s., and 46m.0s., iSEN = 54m.29s., iEN = 56m.39s., eLZ = 72m.0s.
 Tucson e = 44m.21s., e = 46m.31s., eL = 76m.48s.
 Victoria eE = 53m.17s., e = 55m.26s., L = 73m.
 San Juan e = 54m.3s., eS = 55m.22s., e = 62m.1s., eL = 98m.1s.
 Scoresby Sund e = 54m.43s., e = 57m.49s., eL = 79m.8s.
 Riverview eZ = 55m.48s., eLZ = 58.6m.
 Long waves were also recorded at Huancayo and other European stations.

May 13d. Readings also at 3h. (Scoresby Sund), 6h. (near Bucharest and Sofia), 8h. (Kew, De Bilt, and Scoresby Sund), 9h. (Warsaw and Cheb), 10h. (Kew, De Bilt, and Scoresby Sund), 11h. (Pasadena, Mount Wilson, and Warsaw), 13h. (near Granada and Almeria), 14h. (Huancayo), 15h. (Florissant (2)), 17h. (Scoresby Sund), 18h. (Kew), 22h. (Tucson).

May 14d. 2h. 13m. 22s. Epicentre $0^{\circ}0' 80^{\circ}0'W$. This position is not approximate. The residual corrections to latitude and longitude are only $-0^{\circ}02'$ and $-0^{\circ}05'$.
 Towns of Rio Chico, Muisn, and Bellavieta completely destroyed.
 Mapa sismico y tectonico de Columbia (Banco de la Republica, Bol. grafico 7, Febrero de 1947). Epicentre $1^{\circ}0'S. 79^{\circ}0'W$.

$$A = +.1736, B = -.9848, C = .0000; \quad \delta = -3; \quad h = +7;$$

$$D = -.985, E = -.174; \quad G = .000, H = .000; \quad K = -1.000.$$

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.9	2	e 2 11	- 1	e 4 0	+ 5	—	4.6
Huancayo	12.8	159	i 3 6	0	i 5 33	+ 3	—	—
Port au Prince	19.9	23	i 4 46	+10	i 8 32	SS	5 6	PPP i 10.5
La Paz	20.2	146	i 4 37 ^a	- 2	i 8 19	- 2	—	—
San Juan	22.8	37	i 5 5	0	i 9 13	+ 2	—	i 10.6
Fort de France	23.7	54	i 5 13	- 1	i 9 44	+17	5 47	PP e 12.3
Puebla	N. 26.0	319	e 5 21	-15	—	—	—	—
Tacubaya	E. 26.9	318	e 5 42	- 3	—	—	—	—
Manzanillo	N. 30.5	311	i 6 9	- 8	—	—	—	—
Guadalajara	E. 30.7	314	e 6 6	-13	—	—	—	—
Mobile	32.5	347	e 6 29	- 5	i 11 32	-17	—	—
Columbia	33.8	358	i 6 42	- 4	i 12 10	0	i 7 58	PP e 14.4
Mazatlan	z. 34.5	314	e 6 52	0	—	—	—	—
Bermuda	35.3	23	i 6 59	0	i 12 39	+ 6	i 8 15	PP i 17.1
Cape Girardeau	38.2	349	e 7 18	- 5	i 13 11	- 6	i 8 58	PP —
Georgetown	38.8	6	7 41	+13	13 26	0	—	—
St. Louis	39.6	348	i 7 31	- 4	i 13 25	-13	i 9 27	PPP —
Florissant	39.8	348	i 7 34	- 2	i 13 25	-17	e 16 30	Q —
Philadelphia	40.0	8	i 7 36	- 2	i 13 46	+ 2	e 9 15	PP i 16.8
Pittsburgh	40.3	0	i 7 38	- 2	? 13 34	-15	i 9 28	PP —
La Plata	E. 40.4	152	e 7 39	- 2	13 45	- 5	16 50	SS 22.5
	N. 40.4	152	7 40	- 1	13 46	- 4	16 49	SS 23.0
	z. 40.4	152	7 40	- 1	13 50	0	17 26	SSS 22.8
Pennsylvania	40.7	3	i 7 48	+ 4	i 14 6	+11	e 9 48	PPP 17.2
Fordham	41.0	9	7 47	+ 1	13 44	-15	—	—

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Ann Arbor	42.2	357	e 8	2	+ 6	i 14	20	+ 3	9	26	PP	i 19.7
Chicago U.S.C.G.S.	42.2	352	i 7	52	- 4	i 14	7	-10	i 9	45	PPP	i 17.1
Rio de Janeiro E.	42.4	126	e 7	59	+ 1	—	—	—	—	—	—	—
Harvard	43.0	11	i 8	2	- 1	i 14	30	+ 1	i 9	12	PP	e 19.6
Tucson	43.3	322	i 8	2	- 3	i 14	32	- 1	i 9	48	PP	i 17.7
Lincoln	43.4	343	e 8	8	+ 2	e 14	28	- 7	e 9	55	PP	e 17.7
Toronto	43.5	1	8	16	+ 9	14	42	+ 6	10	16	PPP	21.6
Vermont	44.7	8	i 8	15	- 1	i 14	58	+ 4	e 9	52	PP	18.1
Ottawa	45.4	5	i 8	18	- 4	i 15	1	- 3	10	13	PP	21.6
Denver	45.7	334	e 8	38	+14	i 15	5	- 3	i 10	20	PP	e 18.8
East Machias	46.0	14	i 8	28	+ 1	i 15	7	- 5	i 10	17	PP	e 19.0
Halifax	46.8	17	8	33	0	15	22	- 2	10	26	PPP	23.6
Shawinigan Falls	46.8	9	8	35	+ 2	15	26?	+ 2	18	38?	SS	23.6
Seven Falls	47.6	10	8	39	0	i 15	37	+ 2	10	23	PP	22.6
La Jolla z.	47.9	317	e 8	40	- 2	—	—	—	—	—	—	—
Palomar z.	48.0	318	i 8	44	+ 1	—	—	—	e 40	6	P'P'	—
Riverside	48.7	318	i 8	43	- 5	e 15	51	+ 1	e 39	58	P'P'	—
Mount Wilson	49.3	318	e 8	51	- 2	—	—	—	—	—	—	—
Pasadena	49.3	318	i 8	50	- 3	i 15	55	- 4	e 19	32?	SS	i 21.6
Salt Lake City	49.8	330	e 9	3	+ 7	e 16	6	0	i 10	22	PP	e 20.8
Haiwee	50.3	321	e 9	6	+ 6	e 16	7	- 6	—	—	—	—
Logan	50.5	331	e 9	1	- 1	i 16	14	- 2	e 10	18	PP	i 21.9
Santa Barbara z.	50.5	318	e 9	2	0	—	—	—	—	—	—	—
Tinemaha	51.1	321	e 9	6	0	e 16	22	- 2	e 39	46	P'P'	—
Fresno N.	51.9	320	e 9	13	+ 1	e 16	33	- 2	—	—	—	—
Bozeman	53.1	335	e 9	21	0	i 16	48	- 3	e 11	33	PP	i 21.9
Santa Clara	53.6	319	i 9	18	- 7	i 17	1	+ 3	i 9	38	pP	e 23.2
Branner	53.8	319	e 9	29	+ 3	i 17	3	+ 2	—	—	—	e 26.2
Butte	54.0	334	e 9	31	+ 3	e 16	52	-11	e 11	48	PP	i 20.8
Berkeley	54.2	319	i 9	25	- 4	e 17	5	- 1	—	—	—	—
Ukiah	55.5	321	i 9	42	+ 3	i 17	26	+ 2	i 11	47	PP	e 23.5
Saskatoon	56.6	342	9	50	+ 3	i 17	36	- 2	11	56	PP	26.6
Ferndale	56.9	322	i 10	12	+23	e 17	50	+ 8	—	—	—	i 28.6
Spokane N.	57.5	332	e 9	49	- 4	i 17	49	- 1	e 12	47	PP	e 25.6
Seattle	60.0	329	e 13	46	PPP	—	—	—	—	—	—	e 21.8
Victoria	61.1	329	10	18	0	i 18	35	- 2	—	—	—	e 26.6
Ivigtut	65.7	17 (i 10 46)	—	—	- 2	(e 19 28)	—	- 6	(e 23 42)	—	SS	(e 26.0)
Sitka	72.1	333	e 11	31	+ 3	e 20	49	- 1	e 14	13	PP	e 35.6
Lisbon	75.1	50	e 11	44	- 2	i 21	27	+ 3	14	54	PP	31.5
San Fernando	77.0	53	i 11	45	-11	i 21	51	+ 6	14	45	PP	36.6
Honolulu	78.7	292	e 12	8	+ 2	i 22	5	+ 2	e 15	19	PP	e 33.7
Granada	79.2	52	i 12	9 _a	+ 1	i 22	14	+ 6	13	0	pP	40.2
Scoresby Sund	79.8	17	e 12	9	- 2	i 22	9	- 5	i 15	3	PP	i 32.3
Almeria	80.0	53	i 12	12	- 1	i 22	32	+15	15	36	PP	38.6
College	80.7	337	e 12	16	0	i 22	21	- 3	e 15	20	PP	e 33.4
Stonyhurst	82.7	36	i 12	30	+ 3	i 22	50	+ 6	i 15	48	PP	34.3
Oxford	83.0	39	i 12	30	+ 2	i 22	48	+ 1	i 16	26	PPP	e 33.6
Aberdeen	83.4	33	i 12	32	+ 2	i 22	54	+ 3	i 15	42	PP	38.8
Kew	83.6	39	i 12	29 _a	- 2	i 22	53	0	e 15	41	PP	e 37.6
Algiers	84.4	54	12	38	+ 2	i 23	19	+18	13	0	pP	34.6
Paris	85.1	42	i 12	41	+ 2	23	4	- 4	e 15	57	PP	32.6
Clermont-Ferrand	85.2	45	e 12	38	- 1	i 23	14	+ 5	12	42	?	e 37.5
Lille	85.6	40	12	38?	- 3	—	—	—	e 17	8?	PPP	—
Uccle	86.4	39	e 12	43 _a	- 2	i 23	15	[+ 5]	i 15	31	PP	36.6
Marseilles	86.6	47	e 13	1	+15	e 23	31	+ 8	e 16	32	PP	e 33.3
De Bilt	87.0	38	i 12	48 _a	0	i 23	31	+ 4	i 16	18	PP	e 35.6
Besancon	87.3	43	i 12	49	- 1	23	19	[+ 3]	e 16	23	PP	33.6
Neuchatel	87.9	43	e 12	51	- 2	e 23	22	[+ 3]	—	—	—	—
Strasbourg	88.5	42	i 12	56?	0	e 23	38?	[+15]	e 16	38	PP	36.9
Zurich	89.0	43	e 12	57 _a	- 1	e 23	52	+ 7	—	—	—	—

Continued on next page.

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	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
Stuttgart	89.5	42	i 12	58 ^a	- 2	e 23	32	[+ 2]	e 16	33	PP	e 42.6
Chur	89.7	43	e 13	0	- 1	e 23	34	[+ 3]	e 22	30	?	—
Jena	91.0	39	e 13	10	+ 3	e 23	38	[- 1]	e 16	38	PP	e 40.6
Copenhagen	91.4	34	e 13	8	- 1	i 23	42	[+ 1]	16	50	PP	—
Cheb	91.5	39	e 13	13	+ 3	e 23	47	[+ 5]	e 16	52	PP	e 43.6
Apia	91.7	256	e 13	27	+17	i 23	51	[+ 8]	e 16	47	PP	i 42.2
Potsdam	91.9	37	i 13	13	+ 2	i 23	59	[+15]	i 16	50	PP	e 34.6
Triest	92.6	44	i 13	17	+ 2	i 23	8	[-40]	i 25	38	PS	i 44.6
Prague	92.9	39	13	16 ^a	0	e 23	53	[+ 4]	16	58	PP	37.6
Upsala	93.8	30	e 13	21	+ 1	23	57	[+ 3]	e 25	38	PS	e 43.6
Belgrade	97.4	45	e 17	29	PP	i 24	15	[+ 1]	e 19	14	PPP	e 48.4
Sofia	99.8	47	e 13	51	+ 4	24	27	[+ 1]	e 17	54	PP	39.7
Arapuni	101.3	231	13	56 [?]	+ 2	24	44 [?]	[+11]	27	26 [?]	PPS	46.6
Wellington	101.4	228	14	1	+ 6	24	36	[+ 2]	18	14	PP	47.0
Bucharest	101.5	44	e 13	56	+ 1	i 25	44	+11	e 18	2	PP	42.6
Auckland	102.2	232	14	25	+27	24	48	[+10]	18	42	PP	49.6
Istanbul	104.3	47	17	46	PKP	27	46	PS	20	46	PPP	—
Johannesburg	106.2	117	e 18	56 [?]	PP	e 25	20 [?]	[+24]	e 28	14 [?]	PS	e 50.6
Helwan	108.4	59	14	30 ^k	P	24	56	[- 9]	18	53	PP	52.8
Ksara	111.3	54	e 18	21	[-14]	e 29	3	PS	e 19	33	PP	—
Sverdlovsk	115.2	22	i 14	58	P	i 25	32	[0]	i 19	39	PP	—
Sydney	121.4	229	e 20	2	PP	—	—	—	—	—	—	e 29.6
Riverview	121.5	229	e 15	39	P	e 26	0	[+ 6]	i 20	23	PP	e 56.1
Brisbane	E. 122.3	237	i 20	48	PP	e 25	59	[+ 1]	—	—	—	—
	N. 122.3	237	e 20	53	PP	e 25	50	[- 8]	—	—	—	—
Sapporo	123.4	325	e 20	50	PP	—	—	—	—	—	—	e 37.6
Tananarive	125.2	113	e 20	42	PP	26	12	[+ 6]	31	0	PS	54.3
Mizusawa	E. 125.9	320	e 19	17	[+13]	e 26	42	[+34]	—	—	—	—
	N. 125.9	320	e 19	23	[+19]	e 26	45	[+37]	—	—	—	—
Sendai	126.5	320	19	7	[+ 2]	—	—	—	—	—	—	—
Irkutsk	127.8	356	19	11	[+ 4]	e 28	31	{+26}	e 21	9	PP	—
Tokyo Cen. Met. Ob.	128.7	318	e 18	43	[-26]	e 28	16	{+ 5}	e 21	26	PP	e 61.9
Yokohama	128.9	317	e 19	20	[+10]	—	—	—	—	—	—	e 61.6
Nagano	129.3	320	19	21	[+10]	—	—	—	—	—	—	—
Gihu	130.1	318	19	25	[+13]	—	—	—	—	—	—	—
Hatidyozima	130.1	316	e 19	17	[+ 5]	—	—	—	—	—	—	—
Tashkent	130.4	30	19	20	[+ 8]	—	—	—	16	22	P	—
Almata	132.2	22	19	24	[+ 8]	—	—	—	—	—	—	—
Andijan	132.3	28	19	23	[+ 7]	32	15	PS	22	49	PKS	—
Kobe	132.3	320	19	28	[+12]	—	—	—	—	—	—	—
Koti	134.1	320	e 19	34	[+14]	—	—	—	—	—	—	—
Zinsen	135.3	330	e 16	49	P?	—	—	—	—	—	—	—
Hukuoka	136.0	322	e 22	51	PP	e 28	50	{- 7}	(40 12)	SS	SS	40.2
Kumamoto	136.4	320	19	31	[+ 8]	—	—	—	—	—	—	—
Miyazaki	136.5	319	19	42	[+18]	40	5	SS	—	—	—	63.6
Naha	142.7	316	19	55	[+20]	—	—	—	—	—	—	—
Dehra Dun	N. 143.3	32	e 19	51	[+15]	e 41	44	SS	—	—	—	e 85.1
Perth	144.9	203	i 19	41	[+ 2]	30	8	{+19}	23	0	PP	68.1
Agra	E. 145.7	35	e 19	39	[- 1]	26	56	{+ 9}	23	15	PP	72.1
Bombay	147.4	53	e 19	46	[+ 3]	i 30	18	{+14}	i 23	32	PP	i 69.6
Karenko	148.3	320	e 19	54	[+10]	—	—	—	—	—	—	—
Hyderabad	152.6	49	19	56	[+ 5]	30	32	{ 0}	23	37	PP	71.6
Calcutta	N. 154.9	25	e 19	54	[0]	i 27	46	[+47]	23	51	PP	e 73.6
Kodaikanal	E. 155.4	64	—	—	—	25	38	?	32	50	?	73.6
Colombo	158.8	71	20	9	[+10]	—	—	—	—	—	—	83.6

Additional readings:—

Port au Prince P = 5m.16s., SS = 9m.7s.
 Fort de France PPP = 6m.0s., SS = 10m.30s., SSS = 10m.40s.
 Columbia iPPP = 8m.19s., e = 8m.39s.
 Bermuda i = 11m.40s., 13m.48s., and 15m.7s.
 Cape Girardeau iEN = 7m.24s., iN = 7m.41s. and 8m.15s., eE = 16m.1s.
 St. Louis iP = 7m.34s., iZ = 7m.37s., iE = 13m.33s.
 Philadelphia i = 14m.1s.
 Pittsburgh iZ = 7m.42s., i = 7m.48s. and 17m.51s., iZ = 8m.7s., i = 8m.10s., iZ = 8m.17s.
 and 8m.40s., i = 8m.45s. and 10m.39s.

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La Plata E. 15m.2s. ?, Q = 19m.26s. ?
 La Plata N. PP = 9m.26s. ?, 14m.50s. ?, Q = 19m.32s.
 La Plata Z. 8m.5s., PS = 14m.16s. and 14m.50s.?, Q = 19m.50s. ?
 Pennsylvania e = 8m.4s. and 15m.37s.
 Ann Arbor SS = 16m.44s.
 Chicago U.S.C.G.S. ePPP = 10m.14s., i = 10m.40s.
 Harvard i = 8m.6s., iP_cP = 10m.4s., i = 14m.0s., iSS = 17m.0s.
 Tucson i = 8m.12s. and 9m.4s.
 Vermont i = 17m.0s.
 Ottawa iN = 15m.18s., SS = 17m.38s., SSS = 18m.48s.
 Denver iPEN = 8m.45s., iEN = 10m.46s., eN = 12m.10s., eE = 15m.18s., eEN = 16m.10s.
 East Machias i = 8m.31s. and 12m.54s.
 Halifax SS = 18m.26s.?, SSS = 19m.14s. ?
 Seven Falls PPP = 10m.57s., SS = 18m.38s. ?
 Palomar iZ = 8m.55s.
 Pasadena iZ = 9m.0s., iPPZ = 10m.49s., ePKP,PKPZ = 40m.0s.
 Salt Lake City i = 11m.26s., iPPP = 12m.1s., e = 18m.32s., eS_cS = 18m.48s.
 Logan iP? = 9m.11s., iS_cS = 18m.46s., i = 18m.55s.
 Tinemaha i = 9m.15s.
 Bozeman IP = 9m.25s., i = 10m.49s., iPPP = 12m.20s.
 Branner ePN = 9m.33s.
 Butte i = 11m.8s. and 12m.54s.
 Berkeley ePEN = 9m.29s., iSNZ = 17m.21s.
 Ukiah eP? = 9m.47s., ePPP = 12m.52s., e = 16m.40s.
 Saskatoon SSS = 22m.38s. ?
 Spokane eP_cPN = 10m.49s., iSP?N = 19m.35s., eSSS?N = 24m.17s.
 Ivigtut, 1 minute has been added to all readings; e = (12m.22s.) and (12m.53s.).
 Sitka ePPP = 16m.16s., e = 23m.5s., eSS = 25m.24s., e = 31m.18s.
 Lisbon IPZ = 11m.47s., iE = 12m.7s., E = 21m.19s.
 San Fernando PSE = 22m.30s., SSE = 27m.32s.
 Honolulu e = 14m.28s., ePPP = 17m.32s., i = 23m.10s., eSS = 27m.21s., eSSS = 30m.58s.
 Granada P_cP = 12m.22s., pP_cP = 13m.34s., PP = 15m.18s., pPP = 16m.10s., PPP = 17m.13s., SKS = 22m.36s., SS = 27m.28s., SSS = 30m.48s., Q = 35m.38s.?
 Scoresby Sund iP = 12m.13s., i = 14m.31s. and 16m.35s., ePPP = 17m.2s., iPPS = 23m.22s., iSS = 27m.34s.
 Almeria P_cP = 12m.36s., PS = 23m.12s., PPS = 23m.31s., SS = 27m.51s., SSS = 31m.41s.
 College e = 16m.54s. and 19m.20s., eSS = 27m.39s., eSSS = 32m.29s.
 Stoneyhurst i = 12m.50s., 21m.58s., PS = 24m.8s., SS = 27m.58s.
 Aberdeen iN = 16m.14s., iPPPE = 17m.39s., iN = 19m.2s., iPSE = 23m.39s., iSSN = 27m.59s., iSSSN = 31m.29s., QEN = 35m.49s.
 Kew P_cPE = 12m.38s.?, ePPPE = 17m.39s., iEN = 21m.59s. and 22m.18s.?, iS = 23m.5s., iS_cSE = 23m.15s., iPSE = 23m.56s., ePPSN = 24m.12s., ePPSE = 24m.23s., eSSE = 26m.55s., eSSN = 27m.6s., eE = 29m.10s.?, eSSSN = 31m.7s., eSSSE = 31m.26s., eQ = 34m.8s. ?
 Algiers PP = 16m.7s., eSKS = 22m.55s., PS = 24m.5s., SS = 29m.14s.
 Paris iPKP = 12m.57s., iSKKS = 23m.10s., S = 23m.21s.
 Uccle IPZ = 12m.47s., iEN = 13m.0s., iZ = 13m.8s., iE = 13m.59s., iZ = 14m.9s., iE = 22m.35s., iSEN = 23m.24s., iPSEZ = 24m.1s., iSS?N = 28m.34s., iSSS?N = 32m.17s.
 Marseilles iS = 23m.41s., iPS = 24m.29s.
 De Bilt iP = 12m.51s.
 Strasbourg iS = 23m.50s.?, ePPS = 26m.2s.?, eSS = 29m.32s. ?
 Stuttgart iPZ = 13m.5s., iP_cP? = 13m.28s., ePPP = 18m.17s., iSNE = 23m.56s., iSPE = 25m.8s., eQ?E = 38m.8s.?, ePKP,PKP = 38m.48s.
 Chur eS = 23m.55s.
 Jena iPE = 13m.21s., iPN = 13m.28s., eE = 16m.22s., iE = 23m.44s., i = 24m.9s., e = 30m.1s.
 Copenhagen iP = 13m.13s. and 18m.56s., e = 22m.56s.?, SKKS = 24m.2s., S = 24m.42s., PS = 25m.34s., SS = 29m.44s. ?
 Cheb e = 25m.10s., eSS = 30m.10s.
 Apia e = 22m.53s., SS = 30m.40s.
 Potsdam ePNW = 13m.16s., iEN = 13m.33s., iNW = 13m.37s.?, eE = 14m.38s.?, iNW = 16m.34s., iPPPNW = 19m.17s., iSNW = 24m.17s., iPSE = 25m.37s. ?
 Trieste iS = 24m.2s.
 Prague PPP = 19m.9s., ePS = 24m.56s.?, ePPS = 25m.38s.?, eSS = 30m.38s.?, eSSS = 34m.38s. ?
 Upsala ePN = 13m.26s., eN = 16m.8s., eE = 16m.24s., SKKS = 24m.23s., ePPSN = 26m.7s., eSS?N = 30m.34s., eSS?E = 31m.1s., eN = 37m.20s. and 39m.38s.
 Belgrade ePKP = 18m.13s., e = 31m.51s., iSS = 32m.59s.
 Sofia e? = 23m.50s., eSN = 25m.26s.?, iPSE = 27m.5s., SSEN = 32m.26s. ?
 Arapuni SS = 23m.8s.?, Q? = 41m.26s. ?
 Wellington PPPZ = 20m.23s., pS = 25m.51s., PS = 26m.23s., SPZ = 27m.15s., PPS = 27m.58s., i = 29m.28s., SS = 32m.41s., i = 39m.46s., Q = 42m.23s.
 Bucharest iPPEN = 20m.15s., iSKEN = 24m.33s., iPS?EN = 26m.52s., iPPS?EN = 27m.41s., iSS?EN = 32m.31s., eSSS?EN = 36m.39s.
 Auckland PPP? = 19m.47s., pS = 25m.50s., PS = 26m.31s., PPS = 28m.8s., i = 31m.33s., SS? = 34m.21s., PPP? = 37m.18s., Q = 42m.38s.
 Istanbul PPP = 24m.46s., PS = 33m.46s.
 Johannesburg i?N = 26m.26s., eSSN = 33m.38s.?, iSSE = 34m.26s.?

Continued on next page.

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Helwan iZ = 14m.47s. and 18m.2s., PPPZ = 21m.23s., PSE = 28m.26s.
 Sverdlovsk IS = 27m.29s.
 Riverview iEZ = 20m.43s., eSKKSEN = 27m.39s., eSN = 28m.41s., iPSZ = 30m.27s.,
 iPSE = 30m.30s., iSSN = 37m.10s., eQEN = 50m.44s.
 Tananarive e = 22m.39s., SKKS = 28m.15s., SS = 38m.16s., SSS = 43m.12s.
 Irkutsk SKSP = 31m.42s., SS = 37m.32s. †
 Tokyo, Cen. Met. Ob. SSEN = 37m.51s.
 Andijan SSS = 42m.44s.
 Perth SKS = 23m.48s., PSKS = 33m.20s., PPS = 36m.43s., SS = 41m.53s., SSS = 47m.2s.
 Agra iPKPE = 19m.42s., iPKP₂E = 20m.15s., iE = 23m.47s., 26m.18s., 26m.37s., and
 27m.9s., SKKSE = 30m.5s., iE = 33m.13s., PSKSE = 33m.30s., PPSE = 36m.22s.,
 SSE = 41m.45s., SSSE = 46m.48s.
 Bombay iPPPE = 26m.17s., iE = 33m.34s., iPSKS?EN = 33m.42s., iPPSE = 37m.48s.,
 iE = 38m.43s., 38m.52s., and 41m.43s., iSSE = 42m.13s., iSSN = 42m.24s., iE =
 47m.27s., eSSS = 47m.36s., iE = 47m.58s., 54m.5s., 58m.33s., and 59m.43s., eQ =
 62m.58s., iE = 67m.7s.
 Hyderabad PKP₂N = 20m.26s., PKSN = 23m.58s., SKSPN = 34m.5s.
 Calcutta N. ePKP₂ = 20m.16s., SKP = 23m.28s., iPPP = 27m.23s., iPSKS = 34m.13s.,
 iPPS = 37m.19s., iSS = 43m.32s., iSSS = 48m.23s.
 Kodaikanal E. SKKS = 29m.48s., i = 36m.2s., 39m.3s., and 45m.27s.

May 14d. 2h. 54m. 18s. Epicentre 0°·0, 80°·0W. (as at 2h. 13m.).

A = +·1736, B = -·9848, C = ·0000; $\delta = -3$; $h = +7$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8·9	2	e 2 16	+ 4	e 4 3	+ 8	—	—
La Paz	20·2	146	i 4 39	0	—	—	—	11·0
Fort de France	23·7	54	i 5 18	+ 4	—	—	—	—
Tacubaya	E. 26·9	318	e 5 47	+ 2	—	—	—	—
St. Louis	39·6	348	i 7 33	- 2	e 13 34	- 4	—	—
Florissant	N. 39·8	348	i 7 32	- 4	—	—	—	—
Tucson	43·3	322	i 8 4	- 1	—	—	i 10 9	PPP
La Jolla	47·9	317	e 8 42	0	—	—	—	—
Palomar	Z. 48·0	318	e 8 45	+ 2	—	—	—	—
Riverside	Z. 48·7	318	e 8 44	- 4	—	—	—	—
Mount Wilson	49·3	318	i 8 50	- 3	—	—	—	—
Pasadena	49·3	318	i 8 52	- 1	—	—	—	—
Haiwee	50·3	321	e 9 5	+ 5	—	—	—	—
Santa Barbara	50·5	318	e 9 6	+ 4	—	—	—	—
Tinemaha	Z. 51·1	321	e 9 8	+ 2	—	—	—	—
San Fernando	E. 77·0	53	e 11 42	- 14	—	—	—	—
Granada	79·2	52	i 12 34 _k	+ 26	i 22 26	+ 18	—	—
Almeria	80·0	53	i 12 29	+ 16	—	—	12 50	P _e P
Clermont-Ferrand	85·2	45	e 12 42	+ 3	—	—	—	—
Stuttgart	89·5	42	i 13 2 _a	+ 2	—	—	i 13 34	P _e P

Additional readings :—

Tucson i = 9m.2s.

Almeria i = 13m.28s.

Stuttgart ePP? = 16m.34s.

May 14d. 8h. 38m. 49s. 0°·0, 80°·0W. (as at 2h.).

A = +·1736, B = -·9848, C = ·0000; $\delta = -3$; $h = +7$;

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8·9	2	e 2 11	- 1	—	—	—	—
Huancayo	12·8	159	e 3 10	+ 4	i 5 43	+ 13	e 3 40	PPP
La Paz	20·2	146	i 4 41 _a	+ 2	i 8 47	SS	—	11·8
San Juan	22·8	37	i 5 9	+ 4	e 9 19	+ 8	15 38	PP
Fort de France	23·7	54	e 5 19	+ 5	—	—	—	—
Tacubaya	E. 26·9	318	5 46	+ 1	—	—	—	—
Columbia	33·8	358	—	—	e 12 10	0	—	e 14·0
Bermuda	35·3	23	e 7 1	+ 2	i 12 44	+ 11	e 8 18	PP
Cape Girardeau	N. 38·2	349	e 11 11	†	—	—	—	—
St. Louis	39·6	348	e 7 34	- 1	i 13 37	- 1	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Florissant	39.8	348	e 7 32	- 4	i 14 37	+55	—	—
Philadelphia	40.0	8	e 7 39	+ 1	e 13 28	-16	e 9 18	PP
Pittsburgh	40.3	0	—	—	e 13 47	- 2	—	—
La Plata	40.4	154	7 39	- 2	13 47	- 3	17 11?	SSS
Chicago U.S.C.G.S.	42.2	352	e 7 53	- 3	e 14 8	- 9	—	e 17.3
Rio de Janeiro	E. 42.4	126	e 9 48	PP	—	—	—	e 23.2
Tucson	43.3	322	e 8 0	- 5	e 14 30	- 3	e 9 45	PP
Vermont	44.7	8	—	—	e 14 59	+ 5	—	e 18.2
Ottawa	45.4	5	e 8 21	- 1	e 15 3	- 1	e 10 17?	PP
Seven Falls	47.6	10	—	—	e 15 41	+ 6	e 18 39	SS
Palomar	z. 48.0	318	e 8 40	- 3	—	—	—	—
Riverside	z. 48.7	318	e 8 40	- 8	—	—	—	—
Pasadena	49.3	318	i 8 51	- 2	i 15 56	- 3	—	—
Salt Lake City	49.8	330	e 9 0	+ 4	e 15 49	-17	—	e 21.5
Tinemaha	z. 51.1	321	e 9 0	- 6	—	—	—	—
Bozeman	53.1	335	—	—	e 16 51	0	e 21 55	SSS
Butte	54.0	334	—	—	e 17 9	+ 6	—	e 28.3
Berkeley	54.2	319	i 9 26	- 3	i 17 2	- 4	—	e 25.7
Victoria	61.1	329	e 10 17?	- 1	e 18 37	0	—	31.2
Scoresby Sund	79.8	17	e 12 13	+ 1	e 22 1	-13	e 15 30	PP
Kew	z. 83.6	39	e 12 36	+ 5	—	—	e 17 58	PPP
Uccle	N. 86.4	39	—	—	e 23 27	+ 6	—	e 22.7
De Bilt	87.0	38	i 12 52	+ 4	i 23 21	- 6	—	e 43.2
Copenhagen	91.4	34	—	—	23 45	[+ 4]	—	—
Potsdam	91.9	37	13 16	+ 5	e 23 50	[+ 6]	—	56.2

Additional readings :—

La Plata N = 8m.35s.?, SE = 13m.53s. ?
 Tucson ePPP = 10m.22s.
 Ottawa eE = 18m.18s.
 Scoresby Sund eSS = 27m.19s.
 Copenhagen 24m.15s.
 Potsdam eZ = 23m.53s.?, eSN = 24m.17s.?
 Long waves were also recorded at Riverview.

May 14d. 15h. 46m. 42s. Epicentre 0°·0, 80°·0W. (as at 8h.).

Pasadena suggests deep.

A = +.1736, B = -.9848, C = .0000; $\delta = -3$; $h = +7$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.9	2	e 2 10	- 2	—	—	—	—
Huancayo	12.8	159	e 3 15	+ 9	e 6 18	L	—	(e 6.3)
La Paz	20.2	146	4 45	+ 6	e 8 34	+13	—	12.0
San Juan	22.8	37	e 5 11	+ 6	e 9 15	+ 4	e 6 8	PP
Fort de France	23.7	54	e 5 16	+ 2	—	—	—	e 10.3
Cape Girardeau	N. 38.2	349	e 7 19	- 4	—	—	—	—
St. Louis	39.6	348	e 7 22	-13	e 13 28	-10	e 9 1	PP
Tucson	43.3	322	i 8 4	- 1	—	—	e 9 54	PP
Ottawa	45.4	5	e 8 0	-22	—	—	—	e 23.1
Palomar	z. 48.0	318	i 8 43	0	—	—	—	15.3
Riverside	48.7	318	i 8 44	- 4	—	—	—	—
Pasadena	49.3	318	i 8 50k	- 3	—	—	—	—
Tinemaha	z. 51.1	321	i 9 4k	- 2	—	—	—	—
Berkeley	54.2	319	—	—	i 21 8	SS	—	e 28.8
Stuttgart	89.5	42	e 13 0	0	—	—	—	—

Additional readings :—

St. Louis iNZ = 7m.33s., eZ = 7m.57s., ePPP?NZ = 9m.23s., ePPPP?NZ = 9m.43s.,
 eSSS?N = 17m.14s.
 Tucson i = 8m.29s.
 Ottawa eZ = 8m.19s.
 Pasadena eZ = 9m.24s.
 Stuttgart e = 14m.48s.
 Long waves were also recorded at La Plata and Harvard.

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May 14d. Readings also at 0h. (near Tashkent, near Apia, Almeria, Tucson, Tinemaha, and Riverside), 4h. (La Paz, Riverside, Tinemaha, Palomar, and Tucson), 8h. (Pasadena, Tinemaha, Tucson, and Riverside), 9h. (La Paz), 10h. (Cape Girardeau, Haiwee, Belgrade, Chicago U.S.C.G.S., Philadelphia, Salt Lake City, Tinemaha (2), Riverside, Palomar (2), Tucson (2), Pasadena (2), and Berkeley), 12h. (Ukiah, Riverside, Tucson, Tinemaha, Pasadena, Palomar, and La Paz), 15h. (La Paz), 18h. (near Berkeley), 20h. (La Paz), 21h. (near St. Louis and Florissant).

May 15d. 2h. 51m. 45s. Epicentre $61^{\circ}5N$. $30^{\circ}0W$. (as on 1941, Aug. 9d.).

$A = +.4153$, $B = -.2398$, $C = +.8775$; $\delta = -2$; $h = -9$;
 $D = -.500$, $E = -.866$; $G = +.760$, $H = -.439$, $K = -.480$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Scoresby Sund	9.6	16	e 3	4	?	—	—	—	—	—	e 4.5	
Aberdeen	14.8	95	—	—	—	e 6	37	+19	—	—	—	
Stonyhurst	16.5	105	e 3	51	- 3	—	—	—	—	—	8.5	
Oxford	18.4	109	i 4	13	- 5	7	41	0	—	—	e 8.7	
Kew	19.0	109	i 4	25	- 1	e 7	55	0	e 8	20	SS	8.8
De Bilt	21.2	100	e 4	48	- 1	e 8	40	- 1	—	—	e 10.3	
Uccle	21.7	105	e 4	52	- 3	e 8	41	-10	—	—	e 10.3	
Copenhagen	22.5	85	e 5	7	+ 5	9	18	+13	—	—	—	
Upsala	23.0	74	—	—	—	e 9	15?	+ 1	—	—	—	
Clermont-Ferrand	24.8	114	e 5	45	+20	—	—	—	—	—	e 13.4	
Potsdam	24.8	91	e 5	28	+ 3	—	—	—	—	—	15.3	
Jena	25.0	95	e 5	27	0	—	—	—	—	—	e 13.3	
Stuttgart	25.3	102	i 5	31	+ 1	—	—	—	—	—	—	
Neuchatel	25.6	107	e 5	32	0	—	—	—	—	—	—	
Cheb	25.9	97	e 10	2	S	(e 10	2)	- 2	e 11	50	SSS	13.3
Zurich	26.1	105	e 5	37	0	—	—	—	—	—	—	
Warsaw	28.7	85	e 6	2	+ 1	e 10	53	+ 3	e 12	4	SS	e 17.3
Granada	29.4	134	i 6	8	+ 1	11	0	- 1	7	1	PP	13.3
Triest	29.7	102	—	—	—	e 10	40	-26	—	—	—	
Almeria	30.1	133	e 5	57	-16	e 10	52	-20	—	—	13.3	
Ottawa	30.8	261	e 6	28	+ 8	—	—	—	—	—	11.3	
Bozeman	47.3	290	e 11	47	PPP	e 16	2	PPS	—	—	e 24.9	
Tinemaha	z. 57.4	289	e 10	3	+10	—	—	—	—	—	—	
Tucson	z. 57.9	279	i 10	7	+11	—	—	—	—	—	—	
Riverside	z. 59.6	287	e 10	17	+ 9	—	—	—	—	—	—	
Mount Wilson	z. 59.7	287	i 10	19	+10	—	—	—	—	—	—	
Pasadena	z. 59.8	287	e 10	20	+11	—	—	—	—	—	—	
Palomar	z. 59.9	285	i 10	21	+11	—	—	—	—	—	—	

Additional readings:—

Kew ePP = 4m.31s., eS = 8m.0s.

Stuttgart e = 5m.41s.

Warsaw eZ = 11m.57s.

Long waves were also recorded at Ivigtut, Paris, San Fernando, Harvard, Logan, and Salt Lake City.

May 15d. 10h. 50m. 36s. Epicentre $0^{\circ}0$, $80^{\circ}0W$. (as on 14d.).

$A = +.1736$, $B = -.9848$, $C = .0000$; $\delta = -3$; $h = +7$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	$^{\circ}$	$^{\circ}$	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Balboa Heights	8.9	2	e 2	9	- 3	—	—	—	—	—	—	
Huancayo	12.8	159	e 3	14	+ 8	e 5	46	+16	3	47	?	6.4
La Paz	20.2	146	i 4	47 _a	+ 8	i 8	45	+24	—	—	—	12.6
San Juan	22.8	37	e 5	5	0	i 8	44	-27	i 5	40	PP	i 9.3
Fort de France	23.7	54	e 5	12	- 2	i 9	35	- 8	—	—	—	—
Columbia	33.8	358	—	—	—	e 12	1	- 9	—	—	—	e 13.6
Bermuda	35.3	23	e 7	1	+ 2	e 12	33	0	—	—	—	e 15.2
Cape Girardeau	N. 38.2	349	e 7	18	- 5	e 13	5	-12	—	—	—	—
St. Louis	E. 39.6	348	i 7	33	- 2	e 13	29	- 9	e 17	41	ScS	—
Florissant	39.8	348	e 7	29	- 7	i 13	30	-12	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pittsburgh	40.3	0	—	—	e 13 39	-10	—	—
La Plata	40.4	152	11 36?	?	14 0?	+10	—	26.4
Chicago U.S.C.G.S.	42.2	352	—	—	e 13 54	-23	—	e 17.1
Harvard	43.0	11	i 8 0	- 3	i 14 22	- 7	e 18 0	SS e 19.4
Tucson	43.3	322	e 8 5	0	14 28	- 5	e 9 36	PP 18.2
Ottawa	45.4	5	8 19	- 3	14 54	-10	10 4	PP 22.4
Seven Falls	47.6	10	8 38	- 1	15 29	- 6	—	19.4
La Jolla	47.9	317	e 8 46	+ 4	—	—	—	—
Palomar	z. 48.0	318	e 8 43	0	—	—	—	—
Riverside	z. 48.7	318	e 8 46	- 2	—	—	—	—
Mount Wilson	z. 49.3	318	i 8 52	- 1	—	—	—	—
Pasadena	49.3	318	e 8 51	- 2	i 15 59	0	e 19 41	SS e 34.0
Salt Lake City	49.8	330	e 8 58	+ 2	e 16 4	- 2	—	e 19.8
Logan	50.5	331	e 9 5	+ 3	e 16 12	- 4	e 20 11	SS 28.3
Tinemaha	z. 51.1	321	e 9 7	+ 1	—	—	—	—
Bozeman	53.1	335	—	—	e 16 47	- 4	—	e 21.6
Santa Clara	53.6	319	e 9 10	-15	e 17 43	PPS	—	—
Butte	54.0	334	—	—	e 17 4	+ 1	e 19 18	? 26.8
Berkeley	54.2	319	e 9 30	+ 1	e 15 3	?	20 36	SS e 23.7
Victoria	61.1	329	—	—	e 18 36	- 1	—	30.4
Granada	79.2	52	i 12 14	+ 6	i 22 11	+ 3	13 5	pP 38.8
Scoresby Sund	79.8	17	e 12 11	- 1	e 22 6	- 8	e 15 19	PP e 31.2
Almeria	80.0	53	e 12 24	+11	22 15	- 2	12 37	pP 38.4
Kew	83.6	39	e 12 30 _a	- 1	e 22 53	0	e 23 54?	PS 34.4
Clermont-Ferrand	85.2	45	e 12 41	+ 2	e 23 15	+ 6	—	—
Uccle	86.4	39	e 12 46	+ 1	i 23 21	0	e 23 14	SKS —
De Bilt	87.0	38	i 12 51	+ 3	e 23 29	+ 2	e 24 27	PS e 44.4
Basle	88.4	43	e 12 57	+ 2	—	—	—	—
Zurich	89.0	43	e 13 16	+18	—	—	—	—
Stuttgart	89.5	42	e 13 2 _a	+ 2	—	—	—	—
Copenhagen	91.4	34	—	—	24 12	+ 5	23 47	SKS —
Potsdam	91.9	37	e 13 13	+ 2	24 11	0	23 54?	SKS e 45.4
Warsaw	106.8	37	e 13 32	P	e 25 6	[+ 8]	—	e 50.4

Additional readings:—

Pittsburgh i = 14m.23s.
 Tucson i = 8m.57s., ePPP = 10m.21s.
 Ottawa SSE = 18m.14s., SSSN = 18m.54s. ?
 Berkeley eSSE = 19m.17s.
 Granada P_cP = 12m.24s., PS = 22m.56s., SS = 27m.39s., sSS = 29m.13s.
 Scoresby Sund e = 12m.50s., eSS = 27m.14s.
 Almeria PP = 15m.31s., sS = 22m.43s., PS = 23m.9s., PPS = 23m.34s., SS = 27m.33s.
 Kew eP_cP?Z = 12m.41s., eZ = 16m.29s.
 Uccle eE = 16m.26s.
 Potsdam eZ = 24m.30s., iE = 24m.40s.
 Warsaw eZ = 17m.33s., eEN = 24m.10s., eE = 25m.13s.
 Long waves were also recorded at Seattle.

May 15d. 11h. 51m. 19s. Epicentre 0°·0, 80°·0W. (as at 10h.).

A = +.1736, B = -.9848, C = .0000; $\delta = -3$; $h = +7$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.9	2	e 2 11	- 1	—	—	—	—
Huancayo	12.8	159	e 3 18	PP	5 41	SS	13 47	PPP e 6.7
La Paz	20.2	146	i 4 48 _a	+ 9	i 8 41	+20	—	12.2
San Juan	22.8	37	e 5 5	0	i 9 11	0	i 5 42	PP i 10.6
Fort de France	23.7	54	e 5 13	- 1	e 9 29	+ 2	—	—
Columbia	33.8	358	e 6 47	+ 1	e 11 57	-13	—	e 14.7
Bermuda	35.3	23	i 6 55	- 4	e 12 12	-21	—	13.7
Cape Girardeau	N. 38.2	349	e 7 24	+ 1	e 13 6	-11	—	—
St. Louis	39.6	348	e 7 33	- 2	e 13 22	-16	—	e 18.5
Florissant	39.8	348	e 7 35	- 1	e 13 25	-17	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pittsburgh	40.3	0	—	—	i 13 40	- 9	—	—
La Plata	40.4	152	5 59?	?	13 53?	+ 3	17 5?	SSS e 21.6
Fordham	41.0	9	e 7 50	+ 4	i 13 53	- 6	i 17 12	SSS e 23.2
Chicago U.S.C.G.S.	42.2	352	e 7 54	- 2	e 13 53	-24	(e 17 8)	SS e 17.1
Harvard	43.0	11	i 8 1	- 2	i 14 23	- 6	e 17 47	SS —
Tucson	43.3	322	e 8 4	- 1	e 14 30	- 3	(e 18 10)	SSS e 18.2
Ottawa	45.4	5	8 18	- 4	14 53	-11	10 7	PP 22.7
Seven Falls	47.6	10	8 41?	+ 2	15 28	- 7	—	— 19.7
La Jolla	z. 47.9	317	e 8 47	+ 5	—	—	—	—
Palomar	z. 48.0	318	e 8 44	+ 1	—	—	—	—
Riverside	z. 48.7	318	e 8 45	- 3	—	—	—	—
Mount Wilson	z. 49.3	318	e 8 52	- 1	—	—	—	—
Pasadena	49.3	318	e 8 52	- 1	i 15 55	- 4	—	e 33.7
Salt Lake City	49.8	330	e 9 0	+ 4	e 16 2	- 4	e 11 9	PP e 19.8
Logan	50.5	331	e 9 2	0	e 16 11	- 5	e 11 8	PP e 21.3
Tinemaha	z. 51.1	321	e 9 7	+ 1	—	—	—	—
Bozeman	53.1	335	e 9 23	+ 2	e 16 48	- 3	e 19 10	? e 22.4
Butte	54.0	334	e 10 6	+38	e 17 3	0	e 19 16	SeS e 21.8
Berkeley	54.2	319	e 9 26	- 3	e 17 2	- 4	e 21 0	SS —
Saskatoon	56.6	342	—	—	e 17 33	- 5	—	— 29.7
Victoria	61.1	329	10 22	+ 4	18 34	- 3	e 20 5	SeS 26.7
San Fernando	E. 77.0	53	e 11 49	- 7	e 21 30	-15	—	—
Granada	79.2	52	i 12 12	+ 4	i 22 11	+ 3	13 15	pP 36.7
Scoresby Sund	79.8	17	e 12 40	+28	e 21 57	-17	e 27 8	SS e 31.1
Almeria	80.0	53	12 13	0	i 22 14	- 3	12 30	pP 39.7
College	80.7	337	—	—	e 22 18	- 6	—	— e 33.5
Kew	83.6	39	e 12 30 a	- 1	22 50	- 3	e 15 52	PP e 35.2
Paris	85.1	42	—	—	e 23 9	+ 1	—	—
Clermont-Ferrand	85.2	45	e 12 43	+ 4	i 23 16	+ 7	—	—
Uccle	86.4	39	e 12 45	0	i 23 20	- 1	e 23 11	SKS e 39.7
De Bilt	87.0	38	e 12 50 a	+ 2	i 23 29	+ 2	i 24 27	PS e 44.7
Stuttgart	89.5	42	e 13 1	+ 1	—	—	—	—
Copenhagen	91.4	34	e 13 11	+ 2	24 12	+ 5	23 46	SKS —
Cheb	91.5	39	e 13 2	- 8	e 23 50	[+ 8]	—	e 45.7
Potsdam	91.9	37	i 13 14 k	+ 3	e 24 11?	0	e 23 41?	SKS e 43.7
Triest	92.6	44	—	—	i 24 20	+ 2	—	—
Prague	92.9	39	—	—	(e 22 41?)	?	—	e 22.7
Upsala	N. 93.8	30	—	—	e 33 41?	?	—	—
Warsaw	96.8	37	e 13 36	+ 2	e 24 57	+ 3	e 26 19	PS e 48.7
Bucharest	101.5	44	e 17 11?	PP	e 24 33	[- 1]	e 32 5?	SS 34.7
Helwan	z. 108.4	59	e 18 54	PP	—	—	—	—
Agra	E. 145.7	35	—	—	e 29 57	{+ 2}	i 41 52	SS —

Additional readings :—

La Paz iSZ = 8m.44s., iSN = 8m.52s.

Bermuda e = 10m.14s. and 12m.7s.

La Plata SN = 13m.59s. ?

Fordham i = 14m.14s.

Tucson e = 9m.18s. and 10m.0s.

Ottawa eE = 18m.15s.

Butte eSS = 20m.35s.

Berkeley IPZ = 9m.31s., eSE = 17m.8s., eE = 19m.16s.

Granada sP = 13m.52s., PP = 15m.17s., SKS = 21m.7s., PS = 23m.11s., SPS = 24m.10s.,

SS = 27m.31s., sSS = 29m.11s.

Scoresby Sund e = 13m.42s.

Almeria PP = 15m.20s., PPP = 17m.13s., sS = 22m.42s., PS = 23m.11s., PPS = 23m.34s.,

SS = 27m.29s., SSS = 30m.52s.

Kew ePcP?Z = 12m.37s., ePPPN = 17m.49s., eS = 23m.0s., eScSN = 23m.14s., ePSZ =

23m.41s., eSS = 28m.11s.?, eSSSEN = 32m.11s. ?

Warsaw eZ = 17m.25s., 17m.41s., and 19m.26s., eN = 22m.27s., eE = 22m.59s., eZ =

23m.40s., eE = 24m.8s., eN = 24m.13s., eE = 25m.4s., 29m.8s., and 31m.20s.

Long waves were also recorded at Honolulu, Tananarive, Riverview, Wellington, Christchurch, and Arapuni.

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May 15d. 14h. 8m. 36s. Epicentre 24°·0N. 90°·3E. (as on Feb. 21d.).

Intensity VI at Faridpur ; V at Bogra Town, Mymensingh, Barisal, and Cornilla.
Epicentre N.W. of Assam, about 27°N. 91°E. (Bombay), Government of India Seismological Bulletin, 1942, p. 29.

$$A = -.0048, B = +.9146, C = +.4045; \quad \delta = +14; \quad h = +4;$$

$$D = +1.000, E = +.005; \quad G = -.002, H = +.404, K = -.915.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Calcutta	N.	2.3	231	i 0 41	+ 1	1 0	- 9	0 50	—
Agra	E.	11.5	289	2 46	- 2	4 50	- 9	3 11	5.5
Hyderabad	N.	12.9	242	5 5	S	(5 5)	-28	—	—
Bombay	N.	17.0	256	—	—	i 6 51	-19	i 7 19	e 8.4
Kodaikanal	E.	18.3	226	i 4 12	- 5	i 7 32	- 7	—	9.1
Colombo	E.	19.7	213	4 27	- 7	7 56	-14	—	—
Almata		22.1	335	e 6 7	?	—	—	—	—
Andijan		22.5	323	e 5 5	+ 3	e 9 42?	SS	—	—
Tashkent		24.6	320	5 28	+ 5	9 54	+12	—	—
Irkutsk		30.2	17	—	—	e 11 11	- 2	—	—
Sverdlovsk		39.2	335	7 36	+ 5	13 38	+ 6	—	—
Copenhagen		63.7	323	10 27	- 9	—	—	—	—
Potsdam		63.7	319	e 10 36	0	—	—	—	35.4
Stuttgart		66.6	315	i 10 55 _a	+ 1	—	—	—	—

Additional readings :—

Agra eP_gE = 3m.40s.

Bombay iN = 7m.45s.

Long waves were also recorded at De Bilt and Uccle.

May 15d. 16h. 17m. 48s. Epicentre 36°·8N. 135°·5E. Depth of focus 0.040.

Intensity II-III at Kakioka. Epicentre 36°·2N. 135°·6E. Macroseismic Radius 200-300km. Depth 300 km.
Seismological Bulletin of the Central Meteorological Observatory, Japan for the year 1942, Tokyo 1950, p.p. 22, 23, with macroseismic chart.

$$A = -.5725, B = +.5626, C = +.5964; \quad \delta = -3; \quad h = -1;$$

$$D = +.701, E = +.713; \quad G = -.425, H = +.418, K = -.803.$$

		Δ	Az.	P.	O-C.	S.	O-C.
		°	°	m. s.	s.	m. s.	s.
Wazima		1.2	62	0 49 _k	+ 9	1 29	+17
Toyama		1.3	95	0 46 _k	+ 5	—	—
Toyooka		1.4	204	0 45 _k	+ 3	1 19	+ 5
Hikone		1.6	158	0 44 _k	+ 1	1 17	+ 1
Gihu		1.7	144	0 44 _k	0	1 19	+ 1
Kyoto		1.8	174	0 45 _k	+ 1	1 19	0
Nagoya		2.0	144	0 47 _k	+ 1	1 26	+ 4
Kameyama		2.1	158	0 46	- 1	1 24	+ 1
Kobe		2.1	187	0 46	- 1	1 22	- 1
Nagano		2.2	94	0 52	+ 4	—	—
Osaka		2.2	180	0 48	0	1 29	+ 4
Wakayama		2.4	186	0 50	+ 1	1 27	- 1
Aikawa		2.5	61	0 58 _a	+ 8	1 42	+12
Sumoto		2.5	192	0 48 _a	- 2	—	—
Kohu		2.7	115	0 53	+ 1	1 35	+ 2
Hamamatu		2.8	139	0 51 _k	- 2	1 32	- 3
Owase		2.8	168	0 50	- 3	1 30	- 5
Hunatu		2.9	116	0 55	+ 1	1 37	+ 1
Maebasi		2.9	98	0 56	+ 2	—	—
Shizuoka		3.0	128	0 54 _k	- 1	1 37	- 1
Kumagaya		3.2	102	0 58 _k	+ 1	1 44	+ 2
Misima		3.3	121	0 57	- 1	1 43	- 1
Siomisaki		3.4	176	0 54	- 5	1 36	-10
Hirosima		3.5	226	1 0	0	1 46	- 2
Utunomiya		3.5	92	1 4	+ 4	1 52	+ 4

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.
	°	°	m. s	s.	m. s.	s.
Koti	3.6	206	0 58	- 4	1 45	- 5
Tokyo Cen. Met. Obs.	3.6	106	1 0	- 2	1 48	- 2
Yokohama	3.6	111	1 1k	- 1	1 49	- 1
Matuyama	3.7	217	0 59k	- 4	—	—
Muroto	3.7	197	0 57a	- 6	1 44	- 8
Kakioka	3.8	97	1 2a	- 2	1 54	0
Osima	3.8	122	0 58	- 6	1 50	- 4
Tukubasan	3.8	97	1 2	- 2	1 51	- 3
Mera	4.0	116	1 2	- 4	1 54	- 4
Mito	4.0	94	1 7	+ 1	1 59	+ 1
Hokusima	4.1	75	1 10k	+ 3	2 4	+ 4
Onahama	4.3	87	1 15	+ 6	2 12	+ 8
Tyosi	4.5	102	1 9	- 3	2 2	- 6
Mizusawa	5.0	62	1 23	+ 5	2 21	+ 3
Hatidyozima	5.1	135	1 16	- 3	2 12	- 8
Hukuoka	5.3	234	1 20	- 1	2 24	- 1
Kumamoto	5.6	226	1 22k	- 3	2 27	- 4
Aomori	5.7	44	1 34	+ 8	2 57	+ 24
Miyazaki	5.9	216	1 24	- 4	2 24	- 14
Hatinohe	6.0	50	1 35	+ 5	2 46	+ 6
Mori	6.6	35	1 39	+ 2	2 57	+ 4
Sapporo	7.7	34	1 58	+ 8	3 28	+ 11
Nake	9.8	213	2 8	- 8	—	—
Sverdlovsk	52.1	318	8 41	- 2	15 41	- 2
Copenhagen	75.9	331	11 14	- 3	—	—
La Paz	150.9	52 e	28 28	?	—	—

Mizusawa also gives SE = 2m.27s.

May 15d. 16h. 55m. 29s. Epicentre 36°·3N. 71°·0E. Depth of focus 0·030
(as on 1942 March 22d.).

Intensity VII at Srinagar, VI at Chakdara, V at Peshawar, IV at Muzafarabad.
Epicentre 36°·5N. 70°·5E. Hindu Kush (Bombay). Depth 180-200km.
Government of India, Seismological Bulletin 1942, p.29.

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

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Stalinabad	2.9	322	1 0 44	- 6	i 1 15	- 14	—	—
Andijan	4.6	14	i 1 9	- 2	i 2 0	- 5	—	—
Samarkand	4.6	319	—	—	2 18	+ 13	—	—
Agra	10.9	145	2 32k	+ 1	4 29	- 1	—	—
Semipalatinsk	15.6	22	3 28	- 2	—	—	—	—
Bombay	17.4	174	i 3 56	+ 6	i 7 16	+ 21	i 4 49	pP
Hyderabad	N. 19.9	159	e 4 15	- 1	7 56	+ 14	—	—
Calcutta	20.4	127	e 4 26	+ 5	i 8 6	+ 14	e 8 28	SS
Sverdlovsk	21.7	345	4 33	- 1	8 15	0	—	—
Kodaikanal	E. 26.6	166	—	—	10 31	sS	12 31	? 13.5
Colombo	E. 30.4	163	e 1 31	?	—	—	—	—
Warsaw	38.3	311	e 7 45	pP	e 12 51	+ 13	e 8 21	PP
Potsdam	43.2	311	i 7 37	- 3	17 1	SS	8 47	PP
Copenhagen	43.6	315	i 7 42	- 2	17 22	SS	8 50	PP
Stuttgart	46.0	306	i 8 1	- 2	—	—	e 8 48	pP

Additional readings :—

Hyderabad ?N = 11m.49s.

Calcutta PeP = 8m.44s.

Warsaw eZ = 8m.4s., and 9m.29s., eN = 12m.17s., eE = 14m.29s., eN = 15m.8s., eE = 15m.37s. and 16m.20s.

Potsdam eN = 8m.31s., iEZ = 10m.27s., eE = 17m.13s.?, eZ = 17m.31s.?

Copenhagen 10m.31s.

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May 15d. 18h. 12m. 1s. Epicentre $0^{\circ}0' 80^{\circ}0'W$. (as at 11h.).

$$A = +.1736, B = -.9848, C = .0000; \quad \delta = -3; \quad h = +7.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.9	2	e 1 59 [†]	-13	—	—	—	—
Huancayo	12.8	159	e 3 23	+17	e 5 16	-14	3 37	PPP e 5.9
La Paz	20.2	146	i 4 49 ^k	+10	i 8 52	SS	—	i 11.8
San Juan	22.8	37	e 5 5	0	e 9 14	+ 3	e 7 48	? e 10.9
Rio de Janeiro	E. 42.4	126	e 17 59	SSS	—	—	—	e 23.0
Harvard	43.0	11	i 7 59	- 4	—	—	—	—
Tucson	43.3	322	i 8 7	+ 2	e 16 52	SS	e 9 48	PP e 21.5
Riverside	Z. 48.7	318	i 8 49	+ 1	—	—	—	—
Pasadena	Z. 49.3	318	e 8 57	+ 4	—	—	—	—
Mount Wilson	Z. 49.3	318	e 8 53	0	—	—	—	—
Tinemaha	Z. 51.1	321	i 8 51	-15	—	—	—	—

Long waves were also recorded at Granada and Stuttgart.

May 15d. Readings also at 2h. (San Juan, La Paz, Ottawa, Berkeley, Lisbon, Tucson, Tinemaha, Mount Wilson, Pasadena, and Riverside), 3h. (Granada), 6h. and 9h. (La Paz), 10h. (Santa Clara), 11h. (Tananarive), 12h. (Stuttgart and Honolulu), 13h. (Tucson, Pasadena, Mount Wilson, Riverside, Tinemaha, La Paz, (2), Kodai-kanal, and Colombo), 15h. (La Paz), 16h. (La Paz, and near Mizusawa (2)), 19h. (Lick), 20h. (La Paz and near Mizusawa).

May 16d. 3h. 28m. 34s. Epicentre $12^{\circ}6'S. 70^{\circ}4'W$.

$$A = +.3275, B = -.9197, C = -.2168; \quad \delta = +11; \quad h = +6; \\ D = -.942, E = -.335; \quad G = -.073, H = +.204, K = -.976.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Paz	4.5	151	i 1 11 ^a	0	i 2 0	- 5	i 2 13	S* i 2.4
Huancayo	4.9	276	i 1 17	0	i 2 16	+ 1	—	—
St. Louis	54.2	341	i 9 32	+ 3	e 17 6	0	—	—
Harvard	54.8	0	i 9 42	+ 8	—	—	—	—
Tucson	59.0	320	i 10 4	0	—	—	i 11 44	PP e 26.9
Riverside	Z. 64.4	319	i 10 39	- 1	—	—	—	—
Mount Wilson	Z. 64.9	319	i 10 43 ^a	0	—	—	—	—
Pasadena	Z. 65.0	319	e 10 44	0	—	—	—	—
Tinemaha	Z. 66.8	320	i 10 57 ^a	+ 1	—	—	—	—

Additional readings:—

Huancayo iZ=1m.51s.
St. Louis iZ=10m.3s. and 10m.18s.
Riverside iZ=11m.9s.
Mount Wilson iZ=11m.14s.
Pasadena iZ=11m.14s.
Tinemaha eZ=11m.23s.

May 16d. 5h. 28m. 41s. Epicentre $0^{\circ}4'N. 80^{\circ}4'W$. (foreshock of May 17d. 15h.).

$$A = +.1668, B = -.9860, C = +.0070; \quad \delta = +7; \quad h = +7; \\ D = -.986, E = -.167; \quad G = +.001, H = -.007, K = -1.000.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.5	5	e 2 19 [†]	+12	—	—	—	—
Huancayo	13.3	158	e 3 6	- 7	e 5 41	- 1	—	e 6.2
La Paz	20.7	146	i 4 38	- 6	i 8 38	+ 7	—	12.1
San Juan	22.7	37	e 5 14	+10	—	—	e 5 29	PP e 9.6
Tucson	42.7	322	i 8 0	0	—	—	e 9 39	PP e 22.0
La Jolla	47.4	317	e 8 37	- 1	—	—	—	—
Palomar	Z. 47.4	318	i 8 40	+ 2	—	—	—	—
Riverside	Z. 48.1	318	i 8 43	0	—	—	—	—
Mount Wilson	Z. 48.7	318	i 8 47	- 1	—	—	—	—
Pasadena	Z. 48.7	318	i 8 48	0	—	—	—	—
Tinemaha	Z. 50.5	321	i 9 2	0	—	—	—	—

Long waves were also recorded at Rio de Janeiro.

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May 16d. 18h. 58m. 2s. Epicentre $0^{\circ}4N$. $80^{\circ}4W$. (as at 5h.).

$A = +.1668$, $B = -.9860$, $C = +.0070$; $\delta = +7$; $h = +7$.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Huancayo	13.3	158	e 3 12	- 1	e 5 30	-12	—	e 6.3
La Paz	20.7	146	i 4 40k	- 4	i 8 34	+ 3	—	11.6
San Juan	22.7	37	e 5 14	+10	e 9 43	SS	—	e 11.1
Tucson	42.7	322	i 8 2	+ 2	—	—	—	e 25.0
La Jolla	z. 47.4	317	e 8 39	+ 1	—	—	—	—
Palomar	z. 47.4	318	e 8 38	0	—	—	—	—
Riverside	z. 48.1	318	i 8 44	+ 1	—	—	—	—
Mount Wilson	z. 48.7	318	i 8 50	+ 2	—	—	—	—
Pasadena	z. 48.7	318	i 8 49	+ 1	—	—	—	—
Tinemaha	z. 50.5	321	i 8 46	-16	—	—	—	—

Additional readings :—
 La Paz iPZ = 4m.44s.
 Tinemaha eZ = 9m.4s.

May 16d. 19h. 31m. 23s. Epicentre $0^{\circ}4N$. $80^{\circ}4W$. (as at 18h.).

$A = +.1668$, $B = -.9860$, $C = +.0070$; $\delta = +7$; $h = +7$;
 $D = -.986$, $E = -.167$; $G = +.001$, $H = -.007$, $K = -1.000$.

	Δ	Fz.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Huancayo	13.3	158	e 3 10	- 3	e 5 30	-12	—	e 6.0
La Paz	20.7	146	i 4 41	- 3	i 8 39	+ 8	—	12.3
San Juan	22.7	37	i 5 15	+11	e 9 23	+14	—	11.1
Fort de France	23.8	55	e 5 20	+ 5	—	—	—	—
St. Louis	39.1	348	i 7 32	+ 1	e 14 43	SS	i 9 8 PP	e 19.1
Tucson	42.7	322	i 8 2	+ 2	—	—	i 9 25 PP	e 21.8
Ottawa	45.0	5	e 8 17	- 2	—	—	—	16.6
Riverside	48.1	318	i 8 43	0	—	—	—	—
Mount Wilson	z. 48.7	318	i 8 49	+ 1	—	—	—	—
Pasadena	48.7	318	i 8 49	+ 1	e 15 55	+ 5	—	e 25.5
Tinemaha	50.5	321	e 9 3	+ 1	—	—	—	—
Berkeley	53.6	319	—	—	i 17 3	+ 5	—	e 28.6
Granada	79.2	53	i 12 14	+ 6	i 22 24	+16	12 26 P _c P	37.5
Almeria	80.1	53	i 12 13	0	22 19	+ 1	12 29 PP	40.1
Uccle	E. 86.3	39	—	—	e 23 11	[+ 1]	—	—
Stuttgart	89.4	41	e 13 2	+ 2	—	—	—	—
Cheb	91.5	39	—	—	i 21 37?	?	—	—
Potsdam	91.8	38	—	—	23 37	[- 6]	—	—

Additional readings :—
 St. Louis eN = 16m.56s.
 Granada pP_cP = 12m.54s., i = 13m.17s. and 13m.36s., iPP = 15m.27s., SS = 27m.47s.
 Almeria PP = 15m.13s., S_cS = 22m.36s., sS = 22m.41s., PS = 23m.8s., PPS = 23m.29s.,
 SS = 27m.18s.
 Uccle eN = 23m.27s.
 Potsdam eN = 24m.25s.?
 Long waves were also recorded at Columbia.

May 16d. Readings also at 0h. (Balboa Heights and near Fresno), 2h. (near Berkeley), 8h. (Balboa Heights), 11h. (Stalinabad, Tchinkent, Tashkent, and near Frunse), 12h. (Sverdlovsk, Tucson, Tinemaha, and La Paz), 17h. (near Mizusawa), 18h. (near Berkeley), 20h. (Palomar, Riverside (2), Mount Wilson (2), Pasadena (2), Tinemaha (2), Florissant, Huancayo, and Tucson), 21h. (Palomar, Riverside, Mount Wilson, Pasadena, Tucson, Tinemaha, and near Branner), 23h. (near La Paz).

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May 17d. 15h. 14m. 18s. Epicentre 0°·4N. 80°·4W. (as on 16d.).

A = +·1668, B = -·9860, C = +·0070; $\delta = +7$; $h = +7$;
D = -·986, E = -·167; G = +·001, H = -·007, K = -1·000.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Balboa Heights	8·5	5	e 2	13	+ 6	e 3	43	- 2	—	—	—	
Huancayo	13·3	138	i 3	14	+ 1	i 5	19	-23	—	—	i 6·3	
La Paz	20·7	146	i 4	46 _a	+ 2	i 8	44	+13	—	—	11·7	
San Juan	22·7	37	i 5	5	+ 1	i 9	13	+ 4	—	—	i 10·4	
Fort de France	23·8	55	e 5	3	-12	i 9	19	- 9	—	—	—	
Columbia	33·4	358	e 6	45	+ 3	e 11	59	- 4	—	—	e 15·4	
Bermuda	35·0	23	e 6	57	+ 1	i 12	27	- 1	e 8	3	PP	15·2
Cape Girardeau	37·7	349	e 7	16	- 3	e 13	1	- 9	—	—	e 17·4	
St. Louis	39·1	348	e 7	27	- 4	e 13	19	-12	e 9	6	PP	—
Florissant	39·3	348	i 7	33	+ 1	i 13	37	+ 3	e 8	40	pP	—
Philadelphia	39·7	8	7	33	- 3	13	30	-10	e 16	4	SS	e 18·2
Fordham	40·7	9	7	43	- 1	i 13	55	0	e 9	12	PP	—
La Plata	40·9	152	7	46	0	13	57	- 1	9	50	PPP	22·9
Chicago U.S.C.G.S.	41·7	352	e 7	46	- 6	e 13	59	-11	—	—	e 17·0	
Harvard	42·7	11	i 7	59	- 1	i 14	18	- 6	i 8	20	pP	—
Tucson	42·7	322	e 8	1	+ 1	e 14	24	0	i 9	36	PP	e 17·8
Rio de Janeiro	42·9	126	e 8	0	- 2	i 14	22	- 5	—	—	i 21·2	
Lincoln	42·9	343	e 10	20	PPP	e 17	47	SS	—	—	e 25·2	
Toronto	43·1	1	8	10	+ 6	14	48?	+18	—	—	21·7	
Ottawa	45·0	5	8	18	- 1	i 14	51	- 7	9	52	PP	21·7
Halifax	46·5	17	e 8	36?	+ 5	(14 42)	-37	—	—	—	14·7	
Seven Falls	47·3	10	e 7	48?	-49	i 15	22	- 9	—	—	24·7	
Palomar	z. 47·4	318	e 8	39	+ 1	—	—	—	—	—	—	
Riverside	z. 48·1	318	i 8	43	0	—	—	—	—	—	—	
Mount Wilson	z. 48·7	318	i 8	49	+ 1	—	—	—	—	—	—	
Pasadena	48·7	318	i 8	49	+ 1	e 15	52	+ 2	—	—	e 24·3	
Salt Lake City	49·3	330	e 8	51	- 2	—	—	—	—	—	e 23·1	
Logan	50·0	331	e 8	59	+ 1	e 15	52	-17	e 10	51	PP	e 24·6
Tinemaha	50·5	321	e 9	3	+ 1	—	—	—	—	—	—	
Bozeman	52·5	335	e 9	12	- 5	e 16	42	- 1	e 11	3	PP	e 22·0
Santa Clara	N. 53·1	319	e 9	21	0	e 16	52	+ 1	—	—	—	
Butte	53·5	334	e 9	28	+ 4	e 16	53	- 4	—	—	e 22·4	
Berkeley	53·6	319	i 9	23	- 2	i 16	59	+ 1	—	—	e 26·3	
Ukiah	54·9	321	e 9	34	- 1	e 17	17	+ 1	e 13	2	PPP	e 22·3
Saskatoon	56·1	342	—	—	—	e 17	28	- 4	—	—	23·7	
Victoria	60·6	329	10	18?	+ 3	18	32	+ 2	—	—	30·7	
San Fernando	77·1	53	e 11	57	0	e 21	50	+ 4	—	—	—	
Granada	79·2	52	i 12	11	+ 3	i 22	6	- 2	12	18	P _c P	40·6
Scoresby Sund	79·5	17	e 12	4	- 6	e 21	59	-12	e 15	17	PP	e 27·2
Almeria	80·1	53	i 12	13	0	22	6	-12	12	34	pP	40·7
College	80·2	337	—	—	—	e 22	14	- 5	—	—	e 33·4	
Stonyhurst	82·6	36	—	—	—	22	39	- 4	i 35	48	?	49·7
Kew	83·5	39	e 12	27 _a	- 4	i 22	50	- 2	e 15	15?	PP	e 38·7
Paris	85·1	42	—	—	—	23	8	0	—	—	—	
Clermont-Ferrand	85·2	45	e 12	40	+ 1	i 23	6	- 3	—	—	—	
Uccle	86·3	39	e 12	44	- 1	e 23	9	[- 1]	e 24	12	PS	e 43·7
De Bilt	87·0	38	i 12	49	+ 1	i 23	27	0	—	—	—	
Neuchatel	87·9	43	e 12	53	0	—	—	—	—	—	—	
Zurich	89·0	43	e 12	58 _k	0	e 23	46	+ 1	—	—	—	
Stuttgart	89·4	41	e 13	0	0	e 23	40	- 9	—	—	—	
Chur	89·7	43	e 12	55	- 6	e 23	39	[+ 8]	—	—	—	
Copenhagen	91·3	34	—	—	—	23	10	[- 31]	—	—	—	
Cheb	91·5	39	e 13	21	+11	e 23	50	[+ 8]	—	—	e 46·7	
Potsdam	91·8	38	e 13	12	+ 1	i 23	45	[+ 2]	e 16	30?	PP	e 42·7
Triest	92·6	44	e 13	15	0	i 24	20	+ 2	—	—	—	
Prague	92·8	39	—	—	—	e 23	42?	[- 7]	—	—	—	
Upsala	93·7	30	e 18	42?	PPP	e 23	42?	[- 12]	—	—	—	
Warsaw	96·7	37	i 13	35	+ 2	24	11	[+ 1]	17	23	PP	e 48·7
Bucharest	101·5	44	e 17	12?	PKP	i 24	32	[- 2]	e 17	59	PP	39·7
Helwan	108·6	59	e 18	3	PKP	—	—	—	e 19	0	PP	—
Agra	145·6	35	e 19	40	[+ 1]	i 41	57	SS	—	—	—	
Bombay	147·5	53	i 19	49	[+ 6]	—	—	—	—	—	—	
Calcutta	N. 154·7	25	e 23	54	PP	i 30	41	{- 3}	—	—	—	

For Notes see next page.

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NOTES TO MAY 17d. 15h. 14m. 18s.

Additional readings :—

Balboa Heights eSE = 13m.36s.
 Bermuda eS = 12m.5s., i = 14m.2s.
 Cape Girardeau iPN = 7m.23s.
 St. Louis iPZ = 7m.33s., eZ = 9m.9s., eN = 10m.8s., cE = 13m.1s., eSSE = 16m.28s., eScSE = 17m.30s.
 Florissant iPP = 9m.34s., esSZ = 14m.55s., iSSZ = 16m.53s.
 Philadelphia e = 7m.49s. and 14m.33s.
 Fordham ePcS? = 13m.26s., iSS = 17m.7s., iSSS = 17m.48s.
 La Plata pPcPE = 10m.50s., sPP = 11m.24s., SZ = 13m.54s., SN = 14m.4s., SSE = 14m.48s.?, PSN = 15m.18s.?, ScS = 17m.12s.?, QN = 18m.30s.?.
 Chicago U.S.C.G.S. e = 9m.0s.
 Harvard iPP = 9m.25s., i = 10m.58s., iScS = 17m.42s.
 Rio de Janeiro iSN = 14m.15s.
 Lincoln eSS = 21m.24s.
 Ottawa PPPN = 10m.30s., iE = 18m.12s.
 Logan eScS = 18m.54s., eSS = 19m.45s.
 Bozeman e = 12m.34s., eScS = 19m.6s.
 Ukiah eSS = 21m.22s.
 Victoria eE = 19m.54s.?
 Granada sP = 12m.50s., sPcP = 13m.9s., PP = 15m.20s., pPP = 15m.37s., sPP = 15m.48s., PPP = 17m.22s., 22m.54s., sS = 23m.8s., SS = 27m.41s., sSS = 28m.15s., SSS = 30m.53s.
 Scoresby Sund e = 18m.33s.
 Almeria PP = 15m.22s., PPP = 17m.11s., sS = 22m.44s., PS = 23m.13s., PPS = 23m.37s., SS = 27m.30s., SSS = 30m.49s.
 Stonyhurst e = 21m.57s.
 Kew eSN = 23m.1s., ePSZ = 23m.40s., eSSNZ = 27m.55s.?, eSSS = 33m.12s.?, eQNZ = 35m.42s.?
 Uccle iSN = 23m.18s.
 Stuttgart e = 13m.5s., eSN = 23m.44s.
 Copenhagen 23m.40s.
 Potsdam ePP?N = 16m.42s.?, iS = 24m.15s., eSZ = 24m.18s.?
 Warsaw PPPZ? = 18m.27s., eZ = 20m.26s. and 21m.42s., ePSN? = 24m.57s., PSE? = 25m.12s., eZ = 26m.18s., eE = 26m.57s., eZ = 29m.20s., eSS?E = 31m.4s., eSS?N = 31m.30s., eN = 32m.59s.
 Helwan eZ = 18m.18s., 19m.18s., and 22m.32s., eEN = 22m.52s.
 Long waves were also recorded at Colombo, Riverview, Arapuni, Wellington, and Tananarive.

May 17d. Readings also at 0h. (Sofia and near Berkeley (2)), 3h. (Riverside, Mount Wilson, and Tinemaha), 9h. (near Apia), 12h. (Scoresby Sund), 13h. (De Bilt), 15h. (Cheb), 16h. (Huancayo), 17h. and 18h. (near Harvard), 19h. (La Paz (2), Huancayo, and near Mizusawa), 20h. (La Paz), 21h. (Palomar and Tucson), 22h. (Sverdlovsk, La Plata, Palomar, La Paz, Tucson, Huancayo, Mount Wilson, and Tinemaha), 23h. (Granada and Branner).

May 18d. 0h. 35m. 46s. Epicentre 42°·8N. 17°·9E. (as on 1940, Aug. 31d.).

Intensity V at Stolac (Dinardes). Epicentre 43° 04'N. 17° 56'E.

J. Mihailovic.

Annuaire microséismique et Macroséismique, Année, 1942, Beograd, 1950, p. 27.

A = +·7004, B = +·2262, C = +·6770; δ = +6; h = -3;
 D = +·307, E = -·952; G = +·644, H = +·208, K = -·736.

	Δ	Az.	P.		O - C.		S.		O - C.		Supp.		L. m
			m.	s.	s.		m.	s.	s.	m.	s.		
Belgrade	2·8	42	e 0	44	- 3	i 1	14	- 8	i 0	51	P _g	—	
Triest	4·1	316	i 1	7	+ 2	i 1	53	- 2	i 1	17?	P _g	—	
Bucharest	6·2	72	e 1	44?	+ 9	e 3	0	S*	—	—	—	—	
Chur	7·2	307	e 1	50	+ 1	e 3	9	- 4	—	—	—	—	
Prague	7·7	344	e 3	16?	S	(e 3	16?)	- 9	e 3	55	S*	—	
Ravensburg	7·7	313	e 2	9	P*	e 3	29	+ 4	e 2	39	P _g	—	
Zurich	8·0	308	c 2	0a	0	—	—	—	—	—	—	—	
Ebingen	8·3	314	—	—	—	e 3	33	- 7	e 4	19	S _g	—	
Stuttgart	8·5	316	i 2	6	- 1	e 3	34	- 11	e 2	32	P*	—	
Basle	8·7	307	e 2	9	- 1	e 4	10	S*	—	—	—	—	
Neuchatel	8·8	302	e 2	10	- 1	e 4	3	+ 10	—	—	—	—	
Jena	9·2	334	e 2	14?	- 2	e 4	14	+ 11	e 2	41	P*	e 4·6	
Warsaw	9·7	12	2	22	0	4	48	S*	—	—	—	e 6·1	
Potsdam	10·1	343	—	—	—	e 4	14	- 11	—	—	—	i 5·4	
Granada	17·4	258	4	1k	- 5	7	4	- 15	—	—	—	i 9·8	

For Notes see next page.

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NOTES TO MAY 18h. 0d. 35m. 46s.

Additional readings :—

Belgrade iSS = 1m.21s.
 Triest iS* = 2m.8s.
 Ravensburg iS_g?N = 4m.7s., iNE = 4m.19s.
 Ebingen iN = 4m.34s.
 Stuttgart e = 3m.59s., eS_g = 4m.31s.
 Jena eSN? = 4m.28s.
 Warsaw eZ = 2m.57s., SZ = 4m.53s., eN = 5m.10s., eE = 5m.35s., eZ = 5m.41s.
 Potsdam eEZ = 4m.26s. ?
 Long waves were also recorded at Cheb, Copenhagen, De Bilt, Uccle, and Kew.

May 18d. Readings also at 2h. (near San Juan and near Mizusawa), 3h. (Mount Wilson, Pasadena, and Tucson), 7h. (near Kiyosumi, Mitaka, and Tokyo Imp. Univ., and near Mizusawa), 8h. (Mount Wilson, Palomar, Tinemaha, and Tucson), 11h. (Andijan, near Tashkent, and Auckland), 12h. (near Mitaka and Tokyo Imp. Univ. and near Mizusawa), 14h. (Pasadena, Palomar, Tinemaha, and Tucson), 15h. (Mount Wilson, Riverside, Palomar, and Tucson), 16h. (Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, and Copenhagen), 17h. (near Mitaka and Tokyo Imp. Univ., and near Mizusawa), 18h. (De Bilt), 19h. (near Berkeley), 20h. (Tacubaya).

May 19d. Readings at 0h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, and near Berkeley), 3h. (near Algiers), 7h. (Tacubaya), 8h. (Stuttgart and near Balboa Heights), 10h. (Kodaikanal, Ksara, and Warsaw), 11h. (Ottawa, Shawinigan Falls, Mount Wilson, Tucson, Pasadena, and Palomar), 12h. (Philadelphia), 14h. (Granada), 15h. (Basle, Neuchatel, Zurich, Stuttgart, Uccle, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and near Apia), 17h. (Tacubaya (2)), 20h. (near Harvard), 21h. (St. Louis).

May 20d. Readings at 1h. (near Algiers), 6h. (near La Paz), 10h. (La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, and near Tucson), 11h. (Mount Wilson, Pasadena (2), Palomar (2), Riverside (2), near Tucson, Berkeley, Salt Lake City, Florissant (2), St. Louis (2), Cape Girardeau (2), Wellington, Auckland (2), Christchurch (2), Riverview (2), and Chihuahua (2)), 12h. (Berkeley, Palomar (2), Salt Lake City, near Harvard, near Ottawa, Seven Falls, Shawinigan Falls, and Tucson (2)), 13h. (La Paz, Huancayo, Mount Wilson, Pasadena, Riverside, Branner, Fresno, near Lick, and Berkeley), 14h. (Belgrade and Stuttgart), 15h. (Tucson), 16h. (Helwan, Ksara, Fort de France, and near Tashkent, and Florissant), 17h. (Mount Wilson, Pasadena, Riverside, Palomar, Salt Lake City, Tucson, Ukiah, Berkeley, Santa Clara, Huancayo, Granada, Potsdam, Stuttgart, Kew, Warsaw, Helwan, Kodaikanal, and Riverview), 18h. (De Bilt, Uccle, Kew, Harvard, and Tucson), 22h. (La Plata).

May 21d. 3h. 42m. 29s. Epicentre 37°·3N. 20°·6E. (as on 1939, April 1d.).

A = +·7465, B = +·2806, C = +·6034; δ = +9; h = -1;
 D = +·352, E = -·936; G = +·565, H = +·212, K = -·797.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Sofia	5·8	21	e 1 35	+ 6	i 3 19?	S _g	—	—
Belgrade	7·5	359	e 1 55	+ 2	e 4 22	S _g	e 2 37	P _g
Bucharest	8·2	28	e 2 9	+ 6	e 3 40	+ 2	—	4·2
Triest	9·8	331	e 2 23	- 1	i 4 9	- 8	—	—
Helwan	11·6	127	2 43	- 7	4 37	-24	—	—
Chur	12·6	323	e 3 4	+ 1	e 5 4	-22	—	—
Ksara	12·9	101	e 3 11	+ 4	e 5 16	-17	—	—
Zurich	13·4	322	e 3 14	0	—	—	—	—
Prague	13·5	343	3 14	- 1	e 6 13	SSS	—	—
Basle	14·0	321	e 3 21	- 1	e 7 40	L	—	(e 7·7)
Algiers	14·0	273	i 3 20	- 2	e 5 57	- 2	i 3 51	PPP 8·5
Neuchatel	14·0	318	e 3 19	- 3	—	—	—	—
Cheb	14·1	338	—	—	e 5 55	- 7	e 6 28	SSS 7·5
Stuttgart	14·1	328	e 3 22 _a	- 1	e 6 17	SS	i 3 36	PP —
Warsaw	14·9	1	3 38	+ 4	e 6 40	SS	e 4 2	PPP e 7·5

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Jena	15.1	337	e 3 50	PP	—	—	—	e 7.5	
Clermont Ferrand	15.5	308	e 3 42	0	e 8 14	L	—	(e 8.2)	
Potsdam	16.0	343	e 3 48	0	i 7 4?	SS	i 3 56	e 8.5	
Uccle	17.8	324	e 4 11 _a	0	7 35	+ 7	—	10.7	
Almeria	18.4	276	e 4 6	-12	7 39	- 2	4 17	pP	
De Bilt	18.4	330	i 4 21 _k	+ 3	e 7 55	+14	i 4 41	PP	e 10.5
Copenhagen	19.2	347	i 4 29	+ 1	8 10	+11	—	—	
Granada	19.3	278	i 4 19 _k	-10	i 8 3	+ 1	4 31	pP	11.1
Kew	20.5	321	i 4 41	- 1	e 8 31	+ 4	e 4 50	PP	e 10.0
Oxford	21.2	321	e 4 45	- 4	i 8 52	+11	—	—	
San Fernando	21.4	276	e 4 50	- 1	e 9 18	SS	—	—	
Upsala	22.7	356	5 10	+ 6	9 11	+ 2	—	—	e 10.5
Aberdeen	25.0	329	—	—	i 9 58	+ 9	—	—	e 14.8
Sverdlovsk	32.9	41	—	—	11 53	- 3	—	—	—
Tashkent	37.5	68	7 16	- 1	8 45	PP	—	—	—
Scoresby Sund	40.0	339	e 9 20	PP	e 13 51	+ 7	e 17 24	SSS	e 21.3

Additional readings :—

Sofia iS?EN = 3m.42s.

Belgrade e = 3m.57s. and 5m.43s.

Helwan eN = 5m.1s., S*N = 5m.19s.

Algiers eSS? = 6m.24s.

Stuttgart i = 4m.5s., eSN = 6m.21s., e = 6m.24s.

Warsaw eN = 3m.45s., eS?Z = 6m.43s.

Potsdam iZ = 3m.52s., iN = 7m.7s.?, iZ = 7m.13s.?

Almeria PP = 4m.28s., P_cP = 8m.13s., sP_cP = 8m.47s.

De Bilt iZ = 5m.1s.

Granada PP = 4m.43s., sPP = 5m.1s., sS = 8m.28s., SS = 8m.54s., pP_cP = 9m.8s.

Kew eZ = 5m.47s., eP_cP? = 8m.43s., eSS = 8m.59s., eS_cS? = 15m.44s.

May 21d. Readings also at 0h. (Mount Wilson, Pasadena, Palomar, La Jolla, Tucson, Huancayo, La Paz, Stuttgart, San Juan, Fort de France, and near Balboa Heights), 1h. (Columbia (2)), 2h. (Scoresby Sund), 5h. (Copenhagen, Stuttgart, Potsdam, Warsaw, Sofia, Triest, and near La Paz), 7h. (Tashkent, Frunse, near Stalinabad, Arapuni, Auckland, Wellington (2), Tucson, Riverview, and Pasadena), 10h. (near Mizusawa), 18h. (Potsdam and Stuttgart).

May 22d. 10h. 30m. 39s. Epicentre 4°·4N. 74°·5W.

Violent. Suggested depth 130km. Epicentre Cunday, state of Tolima, 4°·0N. 74°·5W.

"Mapa sismico y tectonico de Colombia." Banco de la Republica Bol. grafico 7; Feb. 1947. Pasadena suggests depth 100-150km.

$$A = +.2665, B = -.9609, C = +.0762; \quad \delta = +16; \quad h = +7; \\ D = -.964, E = -.267; \quad G = +.020, H = -.073, K = -.997.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Balboa Heights	6.7	312	e 1 42	0	e 3 20	+20	—	—	
San Juan	16.1	30	e 3 49	0	e 6 55	+ 6	—	e 8.4	
Huancayo	16.3	183	e 3 52	0	e 6 13	-40	—	e 7.1	
Fort de France	16.7	53	e 3 58	+ 1	e 7 8	+ 5	—	—	
La Paz	21.7	163	5 9	+14	9 1	+10	—	11.1	
Bermuda	28.4	17	e 6 7	+ 9	—	—	—	e 12.2	
Philadelphia	35.4	359	i 7 1	+ 1	e 12 24	-10	e 8 16	PP	e 15.5
Cape Girardeau	35.5	340	e 6 59	- 1	e 12 34	- 2	—	—	
St. Louis	37.0	340	i 7 12	- 1	e 13 9	+10	e 8 41	PP	e 18.0
Florissant	37.2	340	e 7 12	- 3	i 13 12	+10	e 8 44	PP	—
Harvard	38.0	5	e 7 25	+ 4	e 13 12	- 2	e 16 11	SS	—
Ottawa	40.8	359	7 45	0	14 6	+10	17 21?	SSS	20.4
Tucson	43.9	315	e 8 8	- 2	—	—	—	—	e 25.0
Palomar	z. 48.8	312	18 48	- 1	—	—	—	—	—
La Jolla	z. 48.9	311	e 9 9	+19	—	—	—	—	—
Mount Wilson	z. 50.1	312	e 8 52	- 7	—	—	—	—	—
Pasadena	z. 50.2	312	i 8 57	- 3	—	—	—	—	—
Tinemaha	51.6	316	e 9 9	- 1	—	—	—	—	—
Stuttgart	82.6	42	i 12 26 _a	0	—	—	—	—	—
Copenhagen	84.7	35	12 38	+ 1	23 1	- 3	—	—	—
Potsdam	85.1	38	e 12 39	0	e 23 3?	- 5	—	—	e 37.4

For Notes see next page.

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NOTES TO MAY 22d. 10h. 30m. 39s.

Additional readings :—

Philadelphia e = 9m.12s. and 13m.26s.
 Cape Girardeau eE = 12m.49s.
 St. Louis eE = 12m.54s., eScP?EN = 13m.17s., eScSE = 16m.41s.
 Florissant eE = 12m.57s., eScPN = 13m.19s., eScSE = 17m.23s.
 Tucson i = 9m.6s.
 Palomar eZ = 9m.0s.
 Mount Wilson eZ = 8m.58s., iZ = 9m.2s.
 Stuttgart e = 12m.38s., and 13m.9s.
 Long waves were also recorded at La Plata, Berkeley, De Bilt, Kew, and Warsaw.

May 22d. Readings also at 15h. (near Tucson, near Fresno, and Lick), 18h. (La Paz, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, near Berkeley, Riverview (2), and Sydney), 19h. (Agra, Kodaikanal, Warsaw, Kew, Scoresby Sund, Chicago, Columbia, Philadelphia, Salt Lake City, Berkeley, Ukiah, Tucson (2), Granada, Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tinemaha, San Juan, Riverside (2), Tinemaha, San Juan, Huancayo, and Riverview), 20h. (De Bilt, Kew, Berkeley, Ukiah, and Huancayo), 21h. (Agra, Bombay, and Calcutta), 22h. (Huancayo, La Paz, near Mitaka, and Tokyo, Imp. University), 23h. (Mount Wilson, Tucson, Palomar, San Juan, Kew, and near Mizusawa).

May 23d. 12h. 49m. 1s. Epicentre 4°·9S. 143°·8E. (as on 1937 May 12d.).

A = -·8041, B = +·5885, C = -·0849 ; $\delta = +12$; $h = +7$;
 D = +·591, E = +·807 ; G = +·069, H = -·050, K = -·996.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	E.	24·1	160	e 5 27	+ 9	i 9 48	+14	—	—
Riverview		29·6	167	e 6 13	+ 4	—	—	—	e 15·1
Sydney		29·6	167	—	—	e 11 23?	+19	—	e 14·8
Perth		37·5	220	e 12 14	?	(13 24)	+17	i 15 22	SS
Koti		39·5	347	7 38	+ 4	13 5	-32	—	—
Kobe		40·2	350	7 41	+ 1	—	—	—	—
Yokohama		40·3	355	7 57	+17	—	—	—	—
Nagoya		40·4	352	e 7 48	+ 7	—	—	—	—
Nagano		41·7	355	e 7 49	- 3	—	—	—	—
Auckland		42·6	142	11 54	?	—	—	—	19·0
Sendai		43·0	358	8 2	- 1	14 33	+ 4	—	—
Mizusawa		43·9	358	8 8	- 2	14 32	-10	—	—
Calcutta	N.	60·7	299	—	—	i 18 36	+ 4	e 22 53	SS
Colombo	E.	64·9	280	—	—	e 15 59?	?	—	—
Irkutsk		66·1	335	e 10 49	- 2	19 37	- 2	—	—
Kodaikanal	E.	67·7	283	e 10 54	- 7	—	—	—	—
Agra	E.	71·0	301	e 11 25	+ 3	i 20 59	+22	—	—
Tashkent		81·7	312	i 12 23	+ 1	—	—	15 36	PP
Sverdlovsk		90·3	327	13 2	- 2	23 55	- 2	—	—
Victoria		95·5	43	—	—	e 23 56	[- 8]	—	45·0
Berkeley		96·1	52	—	—	i 23 57	[-10]	—	e 43·6
Pasadena		99·4	57	i 13 43	- 3	—	—	—	e 41·0
Mount Wilson	Z.	99·5	57	e 13 41	- 5	—	—	—	—
Riverside	Z.	100·0	57	e 13 46	- 2	—	—	—	—
Palomar	Z.	100·5	57	e 13 44	- 7	—	—	—	—
Bozeman		104·1	44	—	—	e 24 41	[- 5]	—	50·2
Tucson		105·6	58	e 14 26	+11	—	—	e 18 17	PP
Helwan	Z.	111·9	300	e 19 20	PP	—	—	e 20 26	?
Warsaw		113·5	326	e 19 31	PP	e 29 8	PS	—	e 57·0
Scoresby Sund		113·9	356	—	—	e 27 28	{+56}	e 29 16	PS
Potsdam		117·8	329	e 19 59	PP	e 22 29?	PKS	—	e 48·0
Stuttgart		121·8	326	e 19 7	[+11]	e 23 21	PKS	e 20 39	PP
De Bilt		121·9	332	—	—	e 30 44	PS	e 37 59	SSP
Uccle		123·1	331	—	—	e 28 23?	{+48}	e 32 5?	PPS
Kew		124·8	334	e 20 55	PP	e 23 30	PPP	e 32 24	PPS
Ottawa		127·0	35	e 19 15	[+ 9]	—	—	—	47·0
Seven Falls		128·5	30	—	—	—	—	e 32 17?	PPS
Granada		136·2	322	22 18	PP	e 30 10	{+72}	—	e 60·4
San Fernando	E.	138·2	323	e 15 58	?	49 28	?	—	—

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NOTES TO MAY 23d. 12h. 49m. 1s.

Additional readings:—

Perth PPP = 13m.46s., S = 17m.32s., SS = 18m.24s., the reading entered as S is given as PP, and all phases have been wrongly identified.

Warsaw eN = 29m.11s., eE = 29m.15s.

Scoresby Sund e = 33m.22s. and 36m.22s.

Potsdam eZ = 20m.3s.

Granada SKKS = 31m.15., S = 32m.23s., PS = 34m.26s., SS = 41m.52s., eSSS = 47m.10s.

Long waves were also recorded at Arapuni, Wellington, Aberdeen, Cheb, Upsala, and other American stations.

May 23d. 15h. 47m. 30s. Epicentre 33°·1N. 116°·1W. (as on 1940 February 28d.).

Intensity V four miles east of Descanso. Epicentre 32° 59'N., 115° 59'W.

R. R. Bodle, United States Earthquakes 1942, Washington 1944, p.10, map of epicentres p.5.

A = -·3693, B = -·7538, C = +·5435; $\delta = -1$; $h = +1$;
D = -·898, E = +·440; G = -·239, H = -·488, K = -·839.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Palomar	Z.	0·7	291	i 0 16 _a	- 1	—	—	—	—
La Jolla		1·0	256	i 0 20 _a	- 1	i 0 37	+ 1	—	—
Riverside		1·4	277	i 0 26 _k	- 1	i 0 46	0	—	—
Mount Wilson		2·0	305	i 0 35	0	i 1 5	+ 3	—	—
Pasadena		2·0	301	e 0 34	- 1	i 1 5	+ 3	—	—
Santa Barbara		3·2	294	e 0 56	+ 4	i 1 35	+ 3	—	—
Haiwee		3·4	333	e 1 6	P _g	i 1 56	S _g	—	—
Tinemaha		4·4	336	e 1 9	- 1	—	—	—	—
Tucson		4·5	100	i 1 7	- 4	—	—	i 1 20	P*
Fresno	N.	4·8	321	i 1 22	P*	e 2 24	S*	e 1 33	P _g
Lick	E.	6·2	313	e 1 42	+ 7	i 1 44	?	—	—
Santa Clara	Z.	6·4	313	e 3 34	S _g	—	—	—	—
Branner		6·6	312	e 2 1	P*	e 3 40	S _g	e 2 7	P _g
Berkeley		6·9	315	e 2 0	P*	e 3 30	S*	—	—
Prague		86·3	29	e 13 30?	+45	—	—	—	e 3·6

Tucson also gives i = 1m.12s.

Long waves were also recorded at other American stations

May 23d. 20h. 1m. 21s. Epicentre 30°·0N. 69°·5E.

A = +·3038, B = +·8126, C = +·4975; $\delta = +12$; $h = +1$;
D = +·938, E = -·350; G = +·174, H = +·466, K = -·868.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Dehra Dun	N.	7·4	85	e 2 5	+13	e 2 59	-19	—	i 3·7
Agra	E.	8·0	108	e 2 20	+20	3 29	- 4	2 32	P _g
Andijan		11·0	12	e 2 48	+ 6	—	—	—	—
Bombay		11·4	164	e 2 46	- 1	e 5 8	+12	e 3 19	PPP
Almata		14·5	22	3 29	+ 1	—	—	—	—
Hyderabad	N.	14·9	146	e 4 23	?	6 31	+11	—	—
Calcutta	N.	18·4	110	—	—	e 7 32	- 9	—	i 9·9
Kodaikanal		21·0	159	e 4 39	- 8	8 37	0	—	—
Colombo		24·9	155	e 7 39	?	—	—	—	e 12·2
Sverdlovsk		27·5	349	5 49	- 1	10 27	- 3	—	—
Helwan		33·0	279	6 39	0	e 12 54	+57	15 9	SSS
Irkutsk		33·9	38	e 8 37	PPP	—	—	—	—
Warsaw		41·8	316	e 7 51	- 2	e 14 15	+ 4	—	e 16·7
Potsdam		46·6	315	e 8 32	0	e 18 51?	SS	e 10 24	PP
Copenhagen		47·4	320	8 37	- 1	15 30	- 2	—	—
Stuttgart		48·9	310	e 8 47	- 3	—	—	—	—
Granada		59·9	298	13 11	?	23 28	?	—	e 28·7

Additional readings:—

Helwan eZ = 7m.48s.

Warsaw eE = 14m.24s.

Potsdam eE = 8m.39s.?, and 19m.21s.?

Long waves were also recorded at Cheb, Kew, Scoresby Sund, De Bilt, and Upsala.

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May 23d. Readings also at 1h. (Auckland and Stuttgart), 2h. (Stuttgart, De Bilt, Uccle, Kew, Warsaw, Potsdam, Upsala, Bombay, Kodaikanal, Calcutta, Agra, and Dehra Dun), 3h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, Berkeley (2), Granada, Honolulu, Riverview, Wellington, Arapuni, Auckland, and near Tokyo Imp. University), 4h. (Potsdam, Kew, Uccle, Scoresby Sund, Philadelphia, and Ukiuh), 6h. (Agra), 7h. (Kew), 8h. (Agra), 11h. (near La Paz), 14h. (Copenhagen), 16h. (near Philadelphia), 19h. (near Florissant, St. Louis, and near Mizusawa), 22h. (near Harvard), 23h. (near Berkeley).

May 24d. 3h. 26m. 28s. Epicentre 5°·3N. 96°·9E.

A = -·1196, B = +·9885, C = +·0917; δ = -15; h = +7;
D = +·993, E = +·120; G = -·011, H = +·091, K = -·996.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Colombo	17·0	276	4 2	+ 1	7 32	SS	—	9·5
Calcutta	N. 19·0	336	e 4 25	- 1	i 8 5	+10	i 4 38	PP
Kodaikanal	E. 19·9	287	i 4 17	-19	i 8 4	-11	—	—
Hyderabad	21·7	306	4 56	+ 1	8 54	+ 3	9 19	SS
Bombay	27·1	303	e 5 48	+ 2	i 10 31	+ 7	i 10 39	SS
Perth	41·2	156	i 7 44	- 4	i 14 2	0	i 10 7	PP
Andijan	41·6	332	e 7 49	- 2	i 14 9	+ 1	—	—
Stalinabad	41·8	327	i 7 54	+ 1	—	—	—	—
Hukuoka	41·9	44	e 7 41	-13	—	—	—	—
Zinsen	42·0	36	14 21	S	(14 21)	+ 7	—	(22·8)
Hamada	43·8	44	e 8 24	+15	—	—	—	—
Koti	44·1	46	8 12	0	14 41	- 4	—	—
Kobe	45·9	46	8 31	+ 5	15 16	+ 5	—	—
Irkutsk	47·2	7	i 8 40	+ 4	i 15 36	+ 7	—	—
Nagoya	47·4	46	e 8 41	+ 3	—	—	—	—
Nagano	49·0	44	8 50	0	—	—	—	—
Tokyo Cen. Met. Ob.	49·7	47	e 10 12	PP	16 6	+ 2	—	—
Sendai	51·6	45	9 13	+ 3	—	—	—	—
Mizusawa	52·2	43	8 12	-63	e 9 18	P	—	—
Tananarive	54·2	242	e 9 30	+ 1	e 17 8	+ 2	—	27·3
Sverdlovsk	58·8	338	10 1	- 1	18 4	- 3	—	—
Ksara	63·1	305	e 10 35?	+ 3	e 19 3	+ 1	—	—
Riverview	64·3	132	—	—	e 18 35	-42	—	e 31·9
Helwan	66·2	300	i 10 49k	- 3	19 32	- 8	13 18	PP
Bucharest	72·6	315	e 11 32	+ 1	e 20 50	- 6	e 14 6	PP
Warsaw	77·2	322	e 12 2	+ 5	e 21 41	- 6	e 22 17	PS
Upsala	80·1	330	e 19 32?	?	i 22 11	- 7	e 25 32	? e 40·5
Prague	81·1	320	e 16 8	PP	e 22 20?	- 8	—	—
Triest	81·4	316	e 12 0?	-20	i 22 22	- 9	—	e 44·5
Potsdam	82·1	322	i 12 3k	-21	i 22 34	- 4	—	e 46·5
Cheb	82·5	320	e 12 29	+ 3	e 22 38	- 4	—	e 45·5
Copenhagen	82·5	326	e 12 25	- 1	22 39	- 3	—	—
Chur	84·4	317	e 12 35	- 1	e 22 54	- 7	—	—
Wellington	84·4	132	—	—	22 55	- 6	—	31·5
Stuttgart	84·5	318	e 12 36	0	e 22 53	- 9	e 15 46	PP
Zurich	85·0	317	e 12 14	-24	e 22 32	[-29]	—	—
Basle	85·7	317	e 12 27	-15	e 22 32	[-34]	—	—
De Bilt	86·9	322	e 12 47	- 1	e 23 12	[- 1]	—	e 43·5
Uccle	87·6	321	e 12 50	- 1	e 23 15	[-·2]	—	—
Clermont-Ferrand	88·9	315	—	—	e 23 32?	[+ 6]	—	—
Kew	90·4	322	e 13 6a	+ 2	e 24 27	+29	e 17 27?	PP?
Aberdeen	90·5	327	—	—	i 23 39	[+ 3]	—	51·0
Almeria	94·3	308	—	—	23 48	[- 9]	28 2	PPS
Scoresby Sund	94·3	343	e 13 22	- 1	i 23 56	[- 1]	e 25 48	PS
Granada	95·1	308	16 58a	PP	23 57	[- 4]	28 5	PPS
Victoria	115·9	28	19 50?	PP	29 56?	PS	35 50?	SS
Bozeman	123·5	23	—	—	e 37 35	SS	—	e 55·8
Seven Falls	126·7	350	—	—	e 28 50?	{+52}	e 36 50	? 52·5
Salt Lake City	127·1	27	e 21 9	PP	e 38 25	SS	e 33 52	? e 67·8
Mount Wilson	128·7	38	e 19 11	[+ 2]	—	—	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Pasadena	128.7	38	e 19 12	[+ 3]	e 31 32?	PS	e 21 4	PP e 62.5
Ottawa	129.1	353	e 19 8?	[- 2]	e 39 4	SSP	—	— e 64.5
Riverside	129.2	38	e 19 11	[+ 1]	—	—	—	—
Harvard	131.3	347	i 22 38	PKS	—	—	—	e 75.5
Tucson	134.3	33	i 19 21	[+ 1]	—	—	e 22 5	PP e 67.1
Philadelphia	134.4	352	e 21 59	PP	e 28 48	{ 0 }	e 33 42	PPS e 66.2
Florissant	z. 135.4	8	e 19 19	[- 2]	—	—	e 22 1	PP —
San Juan	151.1	325	e 19 53	[+ 4]	e 33 42	?	e 23 10	PP e 72.7
La Paz	161.6	232	i 20 7k	[+ 5]	44 55	SS	1.24 36	PP e 81.1
Huancayo	169.8	228	e 18 20	?	e 47 55	SSS	e 21 41	? e 84.6

Additional readings:—

Calcutta N iSS = 8m.27s., iP_cP = 8m.43s., eS_cS = 16m.4s.

Perth i = 18m.25s.

Zinsen L given as S.

Helwan iZ = 11m.5s., P_cPZ = 11m.35s., PPPZ = 14m.38s., PSN = 20m.2s.

Bucharest ePSE = 21m.26s.

Warsaw eSN = 22m.13s.

Potsdam ePE = 12m.20s.?

Stuttgart e = 12m.51s.

Kew eS = 23m.55s., ePSZ = 24m.51s., ePPSN = 25m.30s., eSSZ = 29m.32s.?, eQ = 36m.32s.?

Almeria SS = 33m.10s.

Scoresby Sund iPKP = 17m.20s., i = 24m.36s., e = 31m.18s., eSSS = 38m.2s.

Granada SKKS = 24m.36s., SS = 33m.14s.

Pasadena eSKPZ = 22m.23s.

Harvard e = 25m.16s.

Tucson e = 22m.15s., iPKP? = 22m.49s., e = 35m.12s.

Philadelphia ePP = 22m.59s., eSS? = 39m.53s.

Florissant eZ = 22m.53s.

San Juan eSS = 42m.49s., e = 56m.4s.

Huancayo e = 20m.10s., ePP = 26m.15s., e = 39m.15s., and 51m.14s.

Long waves were also recorded at Nake, College, Butte, Columbia, Auckland, Arapuni, and Stonyhurst.

May 24d. 21h. 19m. 32s. Epicentre 22°·9N. 121°·5E. (as on 1941 February 4d).

A = -·4818, B = +·7862, C = +·3869; $\delta = -7$; $h = +4$;
D = +·853, E = +·522; G = -·202, H = +·330, K = -·922.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. a.	s.	m. s.	m.
Mizusawa	23.3	42	e 5 6,	- 4	9 16	- 4	—	—
Calcutta	N. 30.6	276	—	—	e 10 21	-59	—	1 14.8
Irkutsk	32.2	340	e 6 33	+ 1	e 11 45	0	—	—
Hyderabad	N. 40.7	271	—	—	13 59	+ 4	—	—
Kodaikanal	E. 43.9	261	e 7 46	-24	—	—	—	—
Bombay	45.5	274	i 8 51	+28	—	—	—	e 28.4
Tashkent	47.2	306	8 39	+ 3	15 36	+ 7	—	—
Sverdlovsk	55.2	324	9 37	0	17 22	+ 2	—	—
Upsala	77.2	330	—	—	e 21 28?	-19	e 22 28?	PS e 37.5
Warsaw	78.3	323	19 21	?	e 22 1	+ 2	e 21 28	? e 40.5
Helwan	79.1	297	i 12 7	- 1	22 8	+ 1	12 37	P _c P —
Prague	83.0	322	e 9 46?	?	e 23 12	PS	—	e 47.5
Triest	85.5	318	—	—	e 23 15	+ 3	—	e 46.9
Stuttgart	86.6	322	e 12 46	0	—	—	—	—
Uccle	88.2	326	e 13 22?	+28	—	—	—	e 43.5
Granada	101.0	318	26 58	PS	36 4	SSS	—	53.8

Helwan also gives e = 13m.40s., and 14m.19s.

Long waves were also recorded at other European stations.

May 24d. Readings also at 2h. (near Mizusawa), 3h. (Pasadena, Mount Wilson, San Fernando, Riverside and Tucson), 5h. (Butte), 7h. (near Frunse, near Ottawa, and Shawinigan Falls), 8h. (near Tucson, near Stalinabad, and Tashkent), 9h. (Pasadena, Mount Wilson, and Tucson), 11h. (Prague, near Shawinigan Falls, Ottawa, and Seven Falls), 14h. and 16h. (Mount Wilson, Tucson, San Juan, Huancayo, and La Paz), 23h. (near Triest).

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May 25d. Readings at 2h. (near Tashkent), 4h. (near Berkeley), 6h. (Stuttgart, Sofia, and Bucharest), 7h. (Warsaw), 11h. (near La Paz), 13h. (Mount Wilson, Riverside, Palomar, Tucson, Huancayo, and La Paz), 14h. (near Tashkent, Stalinabad, and Frunse), 17h. (Mizusawa and near Balboa Heights), 19h. (Pasadena, Riverside, Tucson, Palomar, and Prague), 21h. (Cape Girardeau).

May 26d. Readings at 0h. (near Frunse), 1h. (Balboa Heights), 2h. (Fresno, near Branner, and Lick), 3h. (Huancayo, La Plata, La Paz, Tucson, Mount Wilson, and San Juan), 4h. (Sverdlovsk), 5h. (Sofia), 6h. (Helwan and Ksara), 7h. (Pasadena, Mount Wilson, Tucson, Riverside, Basle, Neuchatel, Stuttgart, Auckland, and Riverview), 8h. (near Lick (2)), 10h. (Huancayo), 13h. (Riverview, Pasadena, Mount Wilson, Riverside, Tucson, Tashkent, Almata, Sverdlovsk, Stuttgart, and near Mizusawa), 14h. (Potsdam and near Mizusawa), 16h. (La Paz and Huancayo), 19h. (La Paz (2)), 21h. (Sverdlovsk, Harvard, and Huancayo), 22h. (Mount Wilson, Tucson, near Almata, Tashkent, and Kodaikanal), 23h. (Pasadena).

May 27d. 6h. 31m. 42s. Epicentre 34°·0S. 177°·0W. (as given by Wellington).

A = -·8297, B = -·0435, C = -·5566; $\delta = +10$; $h = 0$;
D = -·052, E = +·999; G = +·556, H = +·029, K = -·831.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Apia	20·6	14	e 4 30	-13	i 8 23	- 6	i 4 41	pP
Sydney	26·3	261	e 5 36	- 3	e 10 12	+ 1	—	e 12·3
Riverview	26·4	261	i 5 39k	- 1	e 10 18	+ 6	10 44	SS e 12·3
Brisbane	F. 26·5	278	e 5 41	0	e 9 51	-23	—	—
	N. 26·5	278	e 5 42	+ 1	e 9 46	-28	—	—
Honolulu	57·9	22	e 13 9	PPP	e 17 26	-29	—	e 19·8
Pasadena	87·4	45	e 12 49	- 1	e 23 31	+ 1	i 24 59	PPS i 36·2
Mount Wilson	Z. 87·5	45	e 12 51	0	—	—	—	—
Santa Clara	E. 87·5	41	—	—	e 23 40	+ 9	—	e 35·9
Palomar	Z. 87·6	47	e 12 52	+ 1	—	—	—	—
Berkeley	87·7	41	—	—	e 23 33	0	e 29 8	SS e 42·1
Riverside	Z. 87·7	45	e 12 52	0	—	—	—	—
Ukiah	88·2	39	e 16 38	PP	23 41	+ 3	29 26	SS 37·8
Tinemaha	N. 89·4	43	e 13 0	0	—	—	—	—
Tucson	90·6	51	i 13 8	+ 3	e 23 43	[+ 6]	e 30 43	SSP 36·5
La Plata	N. 90·8	134	—	—	23 6? [-32]	—	25 29	PS 43·3
Huancayo	92·8	106	e 13 47	+31	24 2 [-17]	—	e 17 59	PP e 43·0
Victoria	95·0	33	—	—	e 24 12 [+11]	—	—	45·3
Salt Lake City	95·6	43 (e 13 50)	—	+22	(e 23 39) [-25]	—	—	(e 40·2)
La Paz	95·8	114	e 13 48	+19	i 24 20 [+14]	—	i 25 12	SKKS 45·3
Logan	96·2	41	—	—	e 24 28 [+21]	—	26 19	PS 40·4
Butte	98·6	39	—	—	e 24 23 [+ 3]	—	e 27 13	PPS e 42·3
Bozeman	99·2	40	—	—	e 24 21 [- 2]	—	e 31 21	SS e 39·8
College	101·2	11	—	—	e 24 33 [0]	—	32 18	SS e 36·0
Florissant	108·0	55	e 14 58	P	i 25 8 [+ 4]	—	e 29 11	PPS —
Kodaikanal	E. 108·5	270	e 14 8?	P	25 3 [- 3]	—	18 48	PP —
Irkutsk	109·8	319	e 18 5	[-28]	25 7 [- 4]	—	e 19 45	PP —
Chicago	111·3	53	e 28 48	PS	e 25 27 [+10]	—	e 34 53	SS e 47·6
Columbia	112·4	62	e 29 24	PPS	e 35 25 SSP	—	—	e 52·6
Agra	116·4	286	e 19 33	PP	i 25 32 [- 5]	—	i 29 35	PS —
Bombay	116·8	275	e 21 8	?	e 25 43 [+ 5]	—	—	e 60·3
San Juan	117·1	85	e 19 36	PP	e 28 49 ?	—	e 40 7	SSS e 57·2
Philadelphia	119·1	60	e 21 12	?	e 27 12 {+ 4}	—	e 35 57	SS e 52·8
Fordham	120·4	58	e 20 19	PP	e 36 43 SS	—	e 30 45	PS e 55·7
Ottawa	120·6	53	e 19 0?	[+ 6]	e 37 18? SSP	—	e 30 18?	PS 63·3
Bermuda	124·2	71	e 20 57	PP	38 12 SSP	—	e 30 58	PS e 57·9
Seven Falls	124·4	51	e 21 12?	PP	37 42? SS	—	30 42?	PS 60·3
Scoresby Sund	141·0	12	e 20 49	PP	e 29 32 {+ 5}	—	35 25	PPS e 50·1
Upsala	152·4	345	—	—	e 42 18? SS	—	e 72 18?	Q 77·3
Helwan	Z. 155·7	267	e 19 55	[0]	23 33 SKP	—	27 45	PPP —

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Copenhagen	157.3	346	e 20 24?	[+27]	30 39	{-20}	24 0?	PP —
Warsaw	157.6	330	20 1k	[+4]	30 59	{-1}	e 24 43	PP e 81.3
Bucharest	159.4	308	e 20 36?	[+36]	e 30 28	{-41}	—	— 50.3
Potsdam	160.3	341	e 20 18	[+17]	e 44 18?	SS	e 37 54?	PPS e 78.3
De Bilt	161.8	355	—	—	e 44 48	SS	50 48	SSS e 84.3
Sofia	161.9	303	e 20 6?	[+3]	e 30 18	?	—	— —
Kew	162.4	6	e 24 2	PP	e 31 20	{-5}	e 45 8	SS e 72.3
Cheb	162.5	339	e 31 27	S	(e 31 27)	{+1}	—	— e 88.3
Uccle	163.2	358	e 35 10	?	e 44 55	SS	—	— —
Stuttgart	164.5	344	e 20 55	[+50]	e 30 33	?	—	— —
Triest	165.8	328	e 28 4	PPP	—	—	—	— —
Basle	166.0	347	e 17 50	?	e 27 7	[-2]	—	— —
Lisbon	169.1	61	29 20	PPP	46 32	SS	—	— 88.4
San Fernando	z. 172.1	69	e 20 28	[+18]	27 7	[-5]	25 59	PP e 90.3
Algiers	177.2	0	e 31 18?	PPP	e 47 14	SS	—	— e 92.3

Additional readings:—

Apia ePP = 5m.2s.
 Berkeley iSKSN = 23m.43s., eN = 29m.22s., eE = 31m.18s., eN = 33m.31s., eSSSE = 36m.9s., iSSSN = 36m.25s., eE = 38m.7s., eEN = 39m.37s., eE = 41m.17s.
 Ukiah e = 23m.24s., eSKS? = 24m.40s., e = 28m.50s.
 Tucson e = 16m.14s., and 17m.31s., ePPS = 25m.26s., e = 28m.56s.
 La Plata SKKSE = 23m.48s., ?, PSN = 24m.32s., SSSE = 39m.0s.
 Huancayo e = 14m.4s., eS = 25m.47s., i = 31m.8s., eSSS = 37m.37s.
 Salt Lake City. All readings have been increased by 1 hour.
 Butte e = 33m.28s.
 College e = 24m.54s., ePS = 25m.32s.
 Florissant ePPZ = 19m.5s., ePPPZ = 21m.26s., ePPPPZ = 23m.22s., eS? = 27m.21s.
 Kodaikanal PSE = 28m.33s.
 Irkutsk S = 27m.27s., PS = 29m.43s.
 San Juan ePP = 21m.2s., e = 21m.56s. and 30m.39s.
 Philadelphia e = 24m.28s., ePS? = 29m.55s., e = 42m.30s.
 Fordham eSSS? = 41m.43s.
 Ottawa eE = 23m.18s.?, eN = 28m.18s.?.
 Scoresby Sund e = 22m.52s., 27m.23s. and 35m.32s., eSSS = 40m.48s.
 Helwan PKKPZ = 20m.27s.
 Warsaw eZ = 20m.33s., ePKP?Z = 21m.9s., ePPP?Z = 28m.31s., eN = 28m.48s., eE = 38m.45s.
 Potsdam ePKP?Z = 21m.2s., eN = 30m.18s., and 45m.18s.?.
 Kew eZ = 25m.24s. and 33m.37s., eNZ = 35m.17s., eZ = 41m.50s., eN = 43m.25s., eZ = 46m.48s., eEZ = 51m.8s.?, e = 52m.18s.?.
 San Fernando PPPZ = 29m.51s.
 Long waves were also recorded at Perth, Tananarive, Ivigtut, and other American and European stations.

May 27d. Readings also at 0h. (La Paz), 2h. (Oaxaca, Tacubaya, Vera Cruz), 3h. (Kodaikanal, Agra, Dehra Dun, and near Bombay), 4h. (De Bilt), 13h. (near Almata), 14h. (near La Paz), 16h. (Huancayo), 17h. (Cape Girardeau), 21h. (La Paz), 22h. (near La Paz and near Berkeley).

May 28d. 0h. 40m. 4s. Epicentre 40°·4N. 124°·2W. (as on 1940 Nov. 19d.).

A = -·4293, B = -·6316, C = +·6456; $\delta = +2$; $h = -2$;
 D = -·827, E = +·562; G = -·363, H = -·534, K = -·764.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Ukiah	1.5	149	e 0 29	+ 1	e 0 49	0	—	— i 1.1
Berkeley	2.9	149	e 0 48	0	e 1 24	0	—	— —
Branner	E. 3.4	152	i 0 51	- 4	e 1 34	- 3	—	— —
Santa Clara	E. 3.5	150	i 2 32	?	i 3 43	?	—	— —
Lick	E. 3.6	146	e 0 56	- 2	i 1 43	+ 1	—	— —
Fresno	N. 5.0	135	i 1 19	+ 1	i 2 17	- 1	—	— —
Tinemaha	5.7	124	e 1 32	+ 4	—	—	—	— —
Haiwee	6.5	129	e 1 42	+ 3	—	—	—	— —
Santa Barbara	6.9	148	—	—	e 3 6	+ 1	—	— —
Pasadena	7.9	140	i 1 56	- 3	i 3 31	+ 1	—	— e 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.
Riverside	8.4	137	e 2 3	- 3	i 3 43	0	—	—
Palomar	9.2	138	e 2 16	0	e 4 6	+ 3	—	—
Salt Lake City	9.4	84	e 2 20	+ 2	—	—	—	e 5.6
Butte	10.2	53	—	—	e 3 20	-67	—	e 5.6
Tucson	13.5	123	i 3 17	+ 2	—	—	e 6 30	SS e 8.7
St. Louis	26.2	84	i 5 30	- 8	e 10 22	+13	—	14.5
Ottawa	35.4	66	e 7 2?	+ 2	—	—	—	18.9

Additional readings:—

Branner eE = 1m.24s., eSN = 1m.37s.

Lick eSN = 1m.46s.

Tucson i = 4m.37s.

Long waves were also recorded at Chicago, Columbia, and Bozeman.

May 28d. 1h. 1m. 56s. Epicentre 0° 1S. 123° 8E. Depth of focus 0.015.

A = -0.5563, B = +0.8310, C = -0.0017; $\delta = +3$; $h = +7$;
D = +0.831, E = +0.556; G = +0.001, H = -0.001, K = -1.000.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Naha	26.4	7	6 26	+60	—	—	—	—
Nake	28.8	10	e 4 47	-61	—	—	—	—
Perth	32.6	193	6 29	+ 8	11 17	- 9	7 19	PP
Miyazaki	32.7	14	6 21	- 1	11 24	- 4	—	—
Kumamoto	33.4	11	i 7 27	+59	—	—	—	—
Hukuoka	34.1	11	i 6 33	- 1	12 29	sS	—	18.2
Koti	34.7	15	i 6 41	+ 2	e 13 58	SS	e 7 12	pP
Matuyama	34.8	14	7 40	+60	13 12	+72	—	—
Hamada	35.7	12	6 45	- 3	—	—	—	e 17.0
Kobe	36.2	17	6 52	0	16 40	?	—	—
Kameyama	36.7	20	6 57	+ 1	—	—	—	—
Gihu	37.3	19	i 7 1	0	12 32	- 7	—	—
Zinsen	37.5	3	7 3	0	—	—	7 29	pP e 14.9
Yokohama	38.3	21	7 8	- 2	—	—	e 9 4	PPP
Tokyo Cen. Met. Ob.	38.6	21	7 8	- 4	8 38	PP	—	—
Nagano	39.0	18	i 7 15	0	13 2	- 2	—	—
Brisbane	39.1	136	i 7 16	0	i 12 53	-13	—	—
	39.1	136	i 7 17	+ 1	i 12 44	-22	—	—
Sendai	41.3	22	i 7 34	0	13 37	- 2	—	—
Mizusawa	42.2	21	e 7 40	- 2	13 45	- 7	—	—
Riverview	42.2	146	i 7 40	- 2	i 13 59	+ 7	i 8 4	pP
Sydney	42.3	146	i 7 43	+ 1	e 13 43	-10	e 9 49	PPP
Mori	44.7	18	8 4	+ 2	14 32	+ 4	i 9 19	PP
Sapporo	45.8	18	8 12	+ 1	14 46	+ 2	8 52	pP
Hyderabad	47.9	294	8 26	- 1	15 50	sS	9 28	P _c P 23.8
Agra	51.6	306	8 55	0	16 5	0	9 18	pP
Dehra Dun	53.0	309	e 9 22	pP	e 17 10	pS	—	—
Bombay	53.5	294	i 9 8	- 1	i 16 34	+ 4	i 9 38	pP
Irkutsk	54.7	346	i 9 17	- 1	e 16 37	-10	—	—
Auckland	59.7	134	9 59	+ 6	18 4	+12	i 19 34	?
Almata	60.2	323	9 57	0	—	—	—	—
Arapuni	60.8	135	—	—	18 4	- 2	—	—
Christchurch	61.3	142	10 3	- 1	18 18	+ 6	20 12	S _c S 28.4
Wellington	61.6	138	10 6?	0	18 19	+ 3	10 30	pP 30.1
Sempalatinsk	62.5	331	e 10 12	0	—	—	—	—
Tashkent	64.1	318	10 22	- 1	18 49	+ 2	—	—
Apia	65.2	106	i 10 29	- 1	i 19 7	+ 6	i 10 56	pP
Sverdlovsk	75.8	330	i 11 32	- 1	i 20 57	- 6	—	—
Tananarive	76.9	250	i 11 40	0	i 21 24	+ 9	i 11 53	pP e 36.8
Honolulu	79.3	69	i 11 54	+ 1	i 21 47	+ 6	i 14 55	PP e 32.9
Ksara	88.2	303	e 12 41	+ 3	e 23 18	+ 9	16 14	PP
College	89.4	26	e 12 43	0	e 23 20	0	i 24 11	PS e 39.9
Helwan	92.2	300	i 12 55 ^k	- 1	23 19	[+ 4]	16 40	PP
Bucharest	95.5	315	e 13 13	+ 2	i 23 40	[+ 7]	i 16 32	PP 39.1
Sitka	96.0	33	e 13 13	- 1	e 23 41	[+ 4]	i 17 15	PP e 42.6

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	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
			m.	s.				m.	s.	
Sofia	97.7	313	e 13	24	+ 3	i 23 51	[+ 6]	e 17 26	PP	40.1
Warsaw	97.9	323	13	22	0	24 41	+ 7	e 17 19	PP	e 48.1
Upsala	98.2	330	i 17	26	PP	e 23 47	[- 1]	17 54	pPP	e 46.1
Copenhagen	102.0	328	i 13	41 _a	0	25 4	- 4	17 54	PP	—
Prague	102.5	322	e 14	34	+51	e 25 43	sS	e 17 44	PP	—
Potsdam	102.7	324	i 13	42 _a	- 2	i 25 77	- 7	i 14 10	pP	e 48.1
Cheb	103.7	322	e 13	49	+ 1	e 24 19	[+ 5]	e 18 7	PP	e 50.1
Triest	103.9	317	e 14	29	pP	i 25 10	-14	e 18 6	PP	e 51.1
Jena	104.0	323	e 13	46 _?	- 4	e 25 4 _?	-21	e 18 4	PP	e 48.1
Victoria	105.1	40	14	2	+ 8	25 18	-16	18 16	PP	42.1
Stuttgart	106.1	322	i 13	59 _a	P	e 24 20	[- 5]	i 14 45	pP	e 54.1
Scoresby Sund	106.2	349	e 13	35	P	i 27 24	PS	e 18 8	PP	e 41.3
Chur	106.5	320	e 18	6	PP	e 24 29	[+ 2]	—	—	—
Strasbourg	107.0	322	e 18	28 _?	PP	e 28 50	PPS	e 20 58	PPP	—
De Bilt	107.3	326	i 14	5 _a	P	i 25 24	S	i 18 36	PP	e 53.1
Basle	107.5	320	e 14	5	P	—	—	e 18 38	PP	—
Ukiah	107.7	49	e 14	20	P	e 24 46	[+14]	e 19 7	pPP	e 49.6
Neuchatel	108.1	320	e 18	15	[+ 3]	—	—	—	—	—
Uccle	108.3	326	i 14	8 _a	P	i 28 9	PS	i 18 43	PP	e 54.1
Aberdeen	108.7	332	i 18	43	PP	i 25 33	S	i 28 43	PS	e 53.6
Berkeley	108.8	50	i 14	12	P	e 25 16	sSKS	i 18 42	PP	e 52.4
Santa Clara	109.1	50	i 18	45	PP	—	—	(e 28 0)	PS	e 28.0
Paris	110.2	323	e 18	54	PP	29 33	PPS	e 28 12	PS	39.1
Stonyhurst	110.6	330	i 18	59	PP	i 28 27	PS	i 30 4	PPS	54.6
Kew	110.7	326	e 14	20 _a	P	e 24 34	[-11]	e 18 58	PP	e 54.6
Clermont Ferrand	111.0	320	e 19	0	PP	—	—	e 28 0	PS	—
Fresno N.	111.0	50	e 18	34	[+16]	e 27 34	?	—	—	—
Santa Barbara	111.7	53	i 18	25	[+ 6]	—	—	e 19 3	PP	—
Tinemaha N.	112.0	50	e 18	26	[+ 6]	—	—	e 19 9	PP	—
Haiwee	112.6	51	e 18	27	[+ 6]	—	—	e 19 8	PP	—
Butte	113.0	39	e 14	32	P	e 24 58	[+ 4]	e 19 12	PP	e 54.2
Mount Wilson	113.0	53	i 14	31	P	e 28 40	PS	i 19 10	PP	—
Pasadena	113.0	53	i 14	31	P	i 25 2	[+ 8]	i 19 14	PP	e 51.5
Saskatoon	113.2	31	e 18	50	PP	e 28 46 _?	PS	—	—	—
Riverside z.	113.7	53	e 14	36	P	i 22 16	PKS	i 19 10	PP	—
Bozeman	113.9	39	e 19	2	PP	e 25 52	PKKP	e 35 39	SSP	e 53.3
La Jolla N.	114.1	54	e 19	25	PP	—	—	—	—	—
Algiers	114.3	310	i 18	30	[+ 6]	29 4	PS	e 19 24	PP	e 39.1
Palomar z.	114.3	53	e 14	36	P	29 9	PS	i 19 21	PP	—
Salt Lake City	115.4	44	e 18	26	[0]	e 25 51	sSKS	e 19 28	PP	e 53.2
Almeria	118.4	313	e 18	22	[-10]	25 14	[- 1]	19 56	PP	64.2
Ivigtut	118.8	356	e 19	23	[-10]	e 25 50	sSKS	e 29 26	PS	e 62.2
Granada	119.0	313	e 15	30 _a	P	e 27 37	?	20 6	PP	58.1
Tucson	119.4	52	e 15	2	P	e 25 5	[-13]	i 19 52	PP	e 47.7
San Fernando	121.2	314	e 18	40	[+ 3]	—	—	e 22 32	PPP	70.1
Lisbon	122.3	317	18	43	[+ 4]	—	—	20 20	PP	63.4
Chicago U.S.C.G.S.	129.8	31	e 18	57	[+ 3]	e 28 38	?	e 21 5	PP	e 60.2
Florissant	130.4	35	i 18	57	[+ 2]	i 28 52	?	i 19 51	pPKP	—
St. Louis	130.6	35	i 18	54	[- 2]	e 28 36	?	i 19 37	pPKP	—
Seven Falls	131.5	13	e 19	2	[+ 5]	e 38 4	SS	e 21 13	PP	55.1
Shawinigan Falls	131.5	15	e 19	1	[+ 4]	e 23 4 _?	PKS	e 21 10	PP	—
Ottawa	131.7	18	19	0	[+ 3]	e 26 52 _?	sSKS	21 21	PP	64.1
Toronto	131.9	22	e 21	22 _?	PP	e 31 34 _?	PS	i 22 26	PKS	64.1
Cape Girardeau N.	131.9	35	e 19	0	[+ 3]	—	—	i 22 28	PKS	—
Halifax	135.2	7	e 19	4 _?	[0]	e 22 36	PKS	e 21 39	PP	65.1
Harvard	135.6	16	i 18	49	[-16]	e 39 4	SS	i 19 37	pPKP	e 69.1
Fordham	136.4	19	e 18	58	[- 8]	i 29 23	?	i 22 32	PKS	—
Philadelphia	136.7	22	e 19	1	[- 6]	e 26 58	sSKS	e 21 30	PP	—
Mobile	137.0	42	i 19	16	[+ 8]	—	—	i 21 54	PP	—
Columbia	139.1	32	e 19	12	[0]	e 40 14	SS	e 22 43	PKS	e 60.6
La Plata	145.3	178	19	24	[+ 11]	41 34 _?	SS	22 52 _?	PP	69.1
Bermuda	147.0	13	i 19	29	[+ 3]	e 41 57	SS	e 20 37	pPKP	e 69.8
Huancayo	157.5	124	e 19	46	[+ 5]	e 43 0	SS	e 24 26	PP	e 75.2
San Juan	159.4	27	i 19	39	[- 4]	e 44 42	SS	i 24 1	PP	e 74.7
La Paz	159.7	147	i 19	49 _k	[+ 5]	i 26 32	[- 2]	i 20 19	pPKP	76.6
Fort de France	165.7	17	e 19	52	[+ 2]	—	—	e 24 36	PP	—

For Notes see next page.

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NOTES TO MAY 28d. 1h. 1m. 56s.

Additional readings:—

Perth PPP = 7m.39s., SS = 13m.22s.
 Koti ePPP = 7m.57s.
 Riverview iP = 7m.44s.k, iZ = 8m.7s., iEN = 8m.26s., iN = 9m.0s., iPPE = 9m.28s., iPPPE = 10m.0s., iN = 10m.3s., iE = 10m.32s., isSEN = 14m.45s., isSE = 17m.11s., iN = 17m.19s.
 Mori i = 11m.0s.
 Sapporo iPPP? = 10m.44s.
 Hyderabad PPE = 10m.23s., SS = 19m.0s.
 Agra P_cPE = 10m.18s., iPPE = 10m.56s., iPPPE = 11m.38s., iS_cP?E = 14m.3s., SPE = 16m.13s., PSE = 16m.38s., sSE = 16m.48s., S_cSE = 18m.29s., sS_cSE = 19m.18s., SSE = 19m.58s., iE = 20m.24s., SSS?E = 21m.40s.
 Bombay eEN = 10m.10s., eE = 10m.42s., iE = 10m.59s., iN = 17m.14s., iEN = 18m.9s.
 Christchurch Q = 24m.31s.
 Wellington sPZ = 10m.48s., sPP?Z = 13m.4s.?, sS = 19m.15s.
 Apia isPZ = 11m.10s., epPP = 14m.31s.
 Tananarive isP = 12m.14s., PP = 14m.49s., SS = 22m.7s., PS = 22m.31s., SSS = 26m.44s.
 Honolulu e = 16m.20s., isS = 22m.32s., eSS = 26m.54s., e = 30m.7s.
 Ksara PS = 24m.9s., SS = 29m.8s.
 College i = 15m.47s., e = 23m.7s., esSS = 29m.58s., eSSS = 33m.14s.
 Helwan eZ = 13m.37s., iZ = 17m.4s., sPPZ = 18m.10s., PPPZ = 18m.42s., SKSE = 22m.49s., PSE = 25m.4s., sSE = 25m.19s., SSE = 29m.15s., iE = 38m.25s., and 38m.40s.
 Bucharest iPSN = 24m.26s., iPSE = 24m.31s.
 Sitka eS = 24m.20s., ePS = 25m.59s., e = 30m.7s.
 Sofia ePPE = 16m.38s., eN = 16m.52s.?, iPSE = 24m.42s., eN = 26m.10s.
 Warsaw eZ = 13m.59s. and 16m.25s., ePP?N = 17m.30s., eZ = 18m.6s., eE = 18m.10s., ePPP?Z = 19m.29s., ePPP?E = 19m.47s., eE = 21m.21s., eZ = 22m.10s., eN = 22m.40s., eSKSZ? = 23m.10s., eE = 23m.29s., eN = 25m.21s., ePS?Z = 25m.56s., ePPS?N = 26m.14s., ePPS?Z = 26m.36s., eN = 30m.20s.
 Upsala eE = 19m.31s., ePPE = 21m.11s., eE = 23m.47s., e = 24m.36s., eN = 25m.22s., eE = 31m.46s.?, eSSS = 39m.4s.?.
 Copenhagen 27m.7s. and 32m.46s.
 Prague e = 16m.31s. and 28m.4s.?.
 Potsdam esP?N = 14m.28s.?, eZ = 16m.42s., eE = 16m.46s.?, iPP = 18m.1s., ipPPEN = 18m.25s., ipPPZ = 18m.29s., iPPPZ = 20m.13s., iPPPE = 20m.17s., iEZ = 20m.54s., eE = 21m.52s.?, iZ = 21m.58s. and 22m.40s., iSN = 25m.21s., iZ = 25m.38s., ipSN = 25m.50s., iSPE = 27m.0s., iPS = 27m.20s., iSPPE = 27m.48s., iE = 29m.22s., eE = 37m.16s.? and 40m.40s.?, eZ = 41m.4s.?, eE = 42m.58s.?.
 Jena ePN = 13m.51s., eZ = 18m.11s., eN = 18m.16s., eZ = 20m.20s., eE = 20m.51s., e = 28m.4s.?.
 Victoria PS = 27m.21s., PPS = 28m.9s., SS = 33m.16s.
 Stuttgart ePKP? = 17m.15s., iPPE = 18m.24s., iPP = 18m.27s., ipPPE = 19m.4s., isPP? = 19m.30s., iPPP = 20m.43s., ipPPPE = 21m.28s., eSE = 25m.14s., eSN = 25m.21s., esS = 27m.44s., esSN = 27m.48s., iE = 28m.20s., ePKKP? = 29m.16s., eSSE = 34m.24s.
 Scoresby Sund ePPP = 20m.26s., e = 27m.44s., eSSS = 35m.54s.
 De Bilt iPKP = 17m.27s., iPPP = 21m.34s., iPS? = 28m.2s., eSS = 33m.34s., eSSS = 37m.34s., eSSSS = 42m.4s.?.
 Ukiha ePKP = 18m.21s., eS = 26m.13s., esS = 27m.35s., eSS? = 33m.51s., e = 44m.1s.
 Uccle eZ = 17m.32s., ipPPZ = 19m.6s., iPPPZ = 21m.42s., iSKSE = 25m.3s., isPSE = 28m.37s., iPPSEZ = 29m.8s., iE = 29m.43s.
 Aberdeen isEN = 28m.8s.
 Berkeley eZ = 17m.12s., iPPPZ = 21m.28s., iE = 25m.32s., eN = 25m.41s., eZ = 27m.24s., eN = 27m.51s., iE = 27m.55s., eZ = 33m.22s., eE = 33m.39s., iN = 33m.57s., eN = 37m.43s., eZ = 43m.28s., eN = 44m.0s., eZ = 49m.9s., eE = 49m.39s., iE = 50m.55s., eZ = 51m.45s.
 Paris eSKKS = 25m.41s.?, eS = 26m.28s.
 Stonyhurst i = 24m.17s., 25m.34s., and 29m.7s.
 Kew e = 17m.42s., ePKP?Z = 18m.18s., e = 19m.41s., and 20m.59s., ePPPZ = 21m.16s., ePKS?EZ = 21m.54s., eEZ = 23m.46s., eSKKSE = 25m.42s., ePSEZ = 28m.24s., ePKKPEZ = 29m.22s., ePPSEZ = 30m.16s., eSSE = 34m.4s.?, eSSSE = 39m.4s.?, eQE = 39m.4s.?.
 Clermont-Ferrand i = 23m.21s.
 Butte e = 19m.46s., 35m.36s., and 46m.12s.
 Mount Wilson iZ = 14m.42s., iPKP = 18m.25s., iPKKPZ = 29m.14s., eZ = 31m.20s.
 Pasadena iZ = 14m.43s., PKP = 18m.26s., iZ = 19m.44s., 21m.51s., and 22m.24s., iEN = 25m.53s., iS = 26m.46s., iSPEZ = 28m.29s., ePKKPZ = 29m.13s., iZ = 33m.43s., and 36m.58s.
 Riverside iZ = 14m.45s., PKP = 18m.26s., PKKPZ = 29m.11s.
 Bozeman e = 28m.39s., 30m.38s., 38m.49s., and 46m.32s.
 Palomar iPKPZ = 18m.28s.
 Salt Lake City e = 29m.1s. and 36m.51s.
 Almeria PPP = 22m.20s., PS = 29m.48s., PPS = 30m.31s., SS = 36m.10s., SSS = 40m.54s.
 Ivigtut e = 29m.55s., eSS = 36m.2s., e = 50m.46s.
 Granada iPKP = 18m.50s., SKP = 21m.27s., PPP = 22m.37s., PS = 29m.31s., PPS = 31m.22s., SS = 36m.51s., SSS = 40m.26s.

Continued on next page.

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Tucson iPKP = 18m.37s., ePP = 20m.8s., eSKKS = 26m.18s., e = 27m.9s., iSP = 29m.37s., eSS = 36m.40s., esSS = 37m.10s., isSS = 41m.24s.
 San Fernando PPPE = 26m.27s.
 Lisbon N = 23m.37s., E = 30m.59s.
 Chicago U.S.C.G.S. e = 20m.54s., i = 22m.16s., ePS = 31m.4s., i = 39m.18s., e = 46m.4s.
 Florissant iPKPZ = 21m.54s., ipPKPZ = 22m.37s., iSE = 32m.36s., isSE = 33m.50s., iSSE = 41m.55s.
 St. Louis iPKPN = 21m.54s., epPKPN = 22m.38s., iPPN = 24m.0s., eSKPN = 24m.55s., eSN = 32m.25s., esSN = 33m.34s., cSSN = 40m.45s.
 Seven Falls i = 22m.26s.
 Shawinigan Falls i = 22m.26s.
 Ottawa eZ = 19m.32s., SKP = 22m.17s., e = 23m.4s.?, PS = 31m.4s.?, PPS = 33m.10s.?, SS = 39m.4s.?.
 Cape Girardeau eN = 23m.6s. and 24m.26s.
 Halifax e = 51m.4s.?.
 Harvard ipPKP = 19m.7s., e = 21m.31s., eSKP = 22m.19s., ePPP? = 23m.20s.
 Fordham i = 19m.10s., 21m.49s., 22m.44s., 23m.22s., and 23m.33s.
 Philadelphia iPKP = 19m.12s., i = 22m.43s., e = 29m.10s., eSPP = 33m.55s., e = 37m.25s., iSS = 38m.37s., e = 52m.21s.
 Columbia e = 23m 31s., 32m 11s., and 45m 40s
 La Plata iZ = 19m.50s., Z = 19m.57s., E = 21m.28s.?, PPN = 22m.58s.?, PPZ = 23m.10s.?, PKSN = 23m.22s.?, N = 24m.4s.?, SKKS = 29m.22s.?, N = 30m.16s.?, SKSPN = 33m.16s.?, PPSN = 37m.10s.?, PSSE = 42m.34s.?, E = 44m.28s.?, SSSE = 49m.16s.?, SSN = 50m.46s.?.
 Bermuda epPKP = 20m.57s., ePP = 22m.47s., e = 33m.14s., cSSS = 47m.37s., e = 54m.27s. and 61m.17s.
 Huancayo e = 21m.20s. and 36m.1s., eSPP = 37m.11s., cSSS = 49m.51s.
 San Juan e = 34m.11s., eSPP = 38m.10s., e = 48m.33s.
 La Paz iPKP = 20m.31s., ipPKP = 20m.49s., isPKPZ = 21m.25s., iPPZ = 24m.8s., iN = 25m 36s., iSKKS = 30m.52s., SSN = 44m.50s., SSSN = 50m.40s.

May 28d. 15h. 20m. 1s. Epicentre 38°·2N. 71°·0E. (as on 1941 Oct. 23d.).

Stations of U.S.S.R. suggest 38°·3N. 71°·0E.

A = +·2565, B = +·7449 C = +·6159; $\delta = 0$; $h = -1$;
 D = +·946, E = -·326; G = +·201, H = +·582, K = -·788.

		Δ		Az.		P.		O - C.		S.		O - C.		Supp.		L. m.
		m.	s.	m.	s.	m.	s.	m.	s.	m.	s.	m.	s.			
Stalinabad		1·8	281	i 0	36	+ 4	i 1	0	+ 4	—	—	—	—	—	—	—
Tashkent		3·3	342	0	52	- 1	1	28	- 7	—	—	—	—	—	—	—
Tchimkent		4·2	346	i 1	2	- 5	1	53	- 4	—	—	—	—	—	—	—
Frunse		5·4	30	1	18	- 6	—	—	—	—	—	—	—	—	—	—
Dehra Dun	N	9·8	141	—	—	—	c 3	47?	-30	—	—	—	—	—	—	—
Bombay		19·3	186	e 4	36	+ 7	i 8	27	+25	—	—	—	—	—	—	—
Sverdlovsk		19·9	344	i 4	27	- 9	i 8	0	-15	—	—	—	—	—	—	—
Calcutta	N	21·6	133	e 4	56	+ 2	i 9	11	+22	c 5	24	PP	—	—	—	—
Hyderabad	E	21·7	162	e 6	12	?	9	10	+19	—	—	—	—	—	—	—
Irkutsk		27·1	48	e 5	43	- 3	—	—	—	—	—	—	—	—	—	—
Kodaikanal	E	28·4	168	e 7	44	?	c 12	41	?	—	—	—	—	—	—	14·0
Ksara		28·6	273	e 6	11?	+11	c 11	15	+27	—	—	—	—	—	—	—
Colombo	E	32·2	165	—	—	—	e 12	29	+44	—	—	—	—	—	—	—
Helwan		33·7	269	e 6	48	+ 3	c 12	14	+ 6	—	—	—	—	—	—	—
Bucharest		34·0	296	e 10	17	?	e 20	39	?	—	—	—	—	—	—	26·0
Sofia		36·2	293	e 7	29?	+23	c 12	47?	0	e 15	17?	SS	—	—	—	—
Warsaw		37·1	310	e 7	9	- 5	c 14	33	?	e 8	27	PP	e 20·0	—	—	—
Upsala		39·7	321	e 15	39	?	—	—	—	—	—	—	—	—	—	i 20·7
Prague		41·4	307	16	24	?	e 22	56?	L	—	—	—	—	—	—	(e 22·9)
Potsdam		42·0	310	i 9	30a?	PP	—	—	—	c 16	41?	SS	23·0	—	—	—
Copenhagen		42·2	315	7	54	- 2	14	14	- 3	9	33	PP	—	—	—	—
Stuttgart		44·9	305	i 8	17	- 1	—	—	—	c 10	2	PP	—	—	—	—
Uccle	Z	47·6	308	e 8	49	+10	—	—	—	—	—	—	—	—	—	—

Additional readings:—

Bombay eEN = 4m.58s., eN = 5m.7s., iEN = 8m.34s., and 9m.11s.
 Calcutta N iPPPN = 5m.36s., eSS = 9m.57s., iScS = 16m.8s.
 Helwan eZ = 10m.59s.
 Warsaw eS?Z = 14m.41s., eZ = 15m.55s., eSS?Z = 17m.42s., cSS?N = 17m.47s.
 Upsala iN = 16m.17s., iS?N = 19m.14s.
 Potsdam eE = 16m.53s.?, cN = 18m.59s.?, iE = 19m.13s.
 Copenhagen 17m.35s.
 Stuttgart e = 10m.57s.

Long waves were also recorded at Cheb, De Bilt, Kew, and Granada.

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May 28d. Readings also at 0h. (Berkeley), 3h. (Haiwee, Mount Wilson, Palomar, Riverside, Tucson, Columbia, Ivigtut, Scoresby Sund, Aberdeen, Stonyhurst, Copenhagen, Potsdam, Stuttgart and Warsaw), 8h. (Granada), 9h. (Arapuni and Auckland (2)), 11h. (Balboa Heights and near Stalinabad), 12h. (Tashkent), 14h. (Aberdeen), 18h. (Kodaikanal), 23h. (near Berkeley).

May 29d. 5h. 32m. 3s. Epicentre 37°·4N. 19°·0W. (as on 1941 November 26d.).

A = +·7530, B = -·2593, C = +·6048; δ = +3; h = -1;
D = -·326, E = -·946; G = +·572, H = -·197, K = -·796.

		Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Lisbon	N.	7·9	78	1	55	- 4	3	17	-13	—	—	—
San Fernando		10·3	92	2	31	- 1	4	28	- 2	5	3	SSS
Granada		12·2	86	i 2	52	- 6	i 5	7	- 9	3	11	pP
Almeria		13·2	88	i 3	15	+ 4	i 5	32	- 8	3	20	PP
Algiers		17·6	87	i 4	11	+ 3	i 7	16	- 7	4	20	PP
Clermont-Ferrand		18·5	57	i 4	17	- 2	i 8	3	+19	—	—	e 9·3
Kew		19·3	38	i 4	27	- 2	i 8	5	+ 3	i 4	40	PP
Paris		19·3	47	i 4	26	- 3	i 8	7	+ 5	e 8	27	SS
Stonyhurst		20·0	29	i 4	41	+ 4	i 8	22	+ 5	i 4	49	PP
Uccle		21·3	43	i 4	48	- 2	i 8	44	+ 1	i 9	48	SSS
Neuchatel		21·4	55	i 4	50	- 1	—	—	—	—	—	—
Basle		22·0	54	e 4	56	- 2	e 8	47	- 9	—	—	—
De Bilt		22·4	41	i 5	0 _a	- 2	i 9	8	+ 4	—	—	e 10·9
Strasbourg		22·4	52	e 5	2	0	i 9	11	+ 7	—	—	—
Zurich		22·6	55	e 5	2 _a	- 1	—	—	—	—	—	—
Aberdeen		22·7	24	i 5	9	+ 5	i 9	8	- 1	—	—	10·4
Chur		23·1	55	e 5	7	- 1	e 9	18	+ 2	—	—	—
Stuttgart		23·4	52	i 5	11 _k	0	e 9	26	+ 5	—	—	e 12·9
Jena		25·6	49	i 5	24 _?	- 8	e 9	57	- 2	—	—	e 12·9
Triest		25·7	60	i 5	39	+ 6	i 9	59	- 2	—	—	e 12·9
Cheb		25·8	51	e 5	42	+ 8	e 9	58	- 4	—	—	e 12·9
Potsdam		26·9	46	e 5	47	+ 2	i 10	17	- 3	i 6	11	pP
Prague		27·0	51	e 5	9 _?	-36	—	—	—	—	—	—
Copenhagen		28·0	38	5	59	+ 4	—	—	—	—	—	—
Warsaw		31·6	49	e 6	28	+ 2	e 11	32	- 3	—	—	e 13·9
Upsala		32·4	34	e 7	35	PP	e 11	38	-10	—	—	e 16·6
Sofia		32·6	68	e 6	41	+ 6	e 11	45 _?	- 6	—	—	e 18·9
Scoresby Sund		33·2	357	—	—	—	e 11	44	-16	—	—	e 13·9
Bucharest		34·4	64	e 6	58	+ 7	e 12	14	- 5	e 8	5	PP
Bermuda		37·5	276	e 8	39	PP	e 13	4	- 3	—	—	e 15·6
Seven Falls		38·9	301	—	—	—	e 12	57 _?	-31	—	—	17·9
Vermont		40·9	297	e 9	24	PP	e 13	42	-16	e 16	47	SS
Helwan		42·2	86	i 7	54 _a	- 2	14	14	- 3	i 9	27	PP
Ottawa		42·5	300	7	53	- 6	14	15	- 7	17	15 _?	SS
Philadelphia		43·3	291	—	—	—	e 14	24	- 9	—	—	17·7
Ksara		44·2	79	e 8	14 _?	+ 2	e 15	3	+17	—	—	—
San Juan		45·2	259	e 8	15	- 5	e 14	48	-13	e 10	15	PP
Columbia		49·7	286	—	—	—	e 16	4	0	e 19	53	SS
Sverdlovsk		54·3	42	i 9	25	- 5	17	3	- 4	—	—	—
Florissant	z.	54·8	295	e 9	31	- 3	e 17	11	- 3	—	—	26·7
St. Louis	N.	54·8	295	e 9	32	- 2	e 17	18	+ 4	—	—	52·9
Tashkent		65·4	56	e 10	45	- 2	19	24	- 6	—	—	—
La Paz		70·8	230	i 20	27 _k	S	(i 20	27)	- 8	—	—	35·9
Huancayo		72·2	239	—	—	—	e 20	31	-20	e 28	13	SSS
Tucson		72·6	298	i 11	59	+28	—	—	—	—	—	e 39·0
Tinemaha		74·9	305	e 11	46	+ 2	—	—	—	—	—	—
Riverside	z.	76·1	303	i 11	47	- 4	—	—	—	—	—	—
Mount Wilson	z.	76·3	303	i 11	57	+ 5	—	—	—	—	—	—
Pasadena		76·5	303	i 11	57	+ 3	—	—	—	—	—	e 35·9
Agra		79·2	64	e 15	6	PP	—	—	—	—	—	—

For Notes see next page.

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NOTES TO MAY 29d. 5h. 32m. 3s.

Additional readings :—

Lisbon S = 3m.23s., Z = 3m.32s.?, N = 3m.37s.
 Granada sS = 5m.31s.
 Almeria PPP = 3m.24s., SS = 5m.42s., SSS = 5m.52s., P_cP = 9m.32s., P_cS = 13m.2s., S_cS = 16m.38s.
 Algiers PPP = 4m.28s., i = 4m.54s., iSS? = 7m.37s.
 Kew iSSZ = 8m.23s., eSSS = 8m.32s., eP_cP? = 8m.44s.
 Stonyhurst iPPP = 5m.8s., iSS = 8m.33s.
 Uccle iEN = 4m.52s., iNZ = 9m.0s.
 De Bilt iZ = 5m.12s.
 Stuttgart i = 5m.21s., eN = 9m.38s.
 Jena iPN = 5m.34s., eS = 10m.8s.
 Potsdam ePE = 5m.52s., iPZ = 5m.55s., cZ = 9m.21s.?, eEN = 9m.51s.?, cSE = 10m.27s.?.
 Warsaw eZ = 6m.37s., cS?N = 11m.37s.
 Upsala eN = 11m.49s.
 Scoresby Sund e = 12m.5s.
 Bucharest eE = 8m.10s.
 Bermuda e = 12m.42s.
 Vermont e = 13m.59s.
 Helwan PPPZ = 9m.54s., iN = 17m.32s.
 St. Louis eN = 17m.4s.
 Tucson e = 35m.5s.
 Long waves were also recorded at Ukiah, Salt Lake City, Chicago U.S.C.G.S., Butte, Bozeman, Harvard, and Berkeley.

May 29d. Readings also at 2h. (Copenhagen, Potsdam, Basle, and Stuttgart), 3h. (Stuttgart, Jena, Kodaikanal, and La Paz), 4h. (Oaxaca, Tacubaya, Vera Cruz), 7h. (Harvard), 14h. (Sverdlovsk, Colombo, Calcutta, Agra, near Lick, and near Ottawa), 15h. (Calcutta), 16h. (La Paz), 18h. (Calcutta), 20h. (near Florissant and St. Louis).

May 30d. 7h. 19m. 57s. Epicentre 24°·5N. 109°·0W. (as on 1941 July 16d.).

A = -·2966, B = -·8614, C = +·4124; δ = +6; h = +3;
 D = -·946, E = +·326; G = -·133, H = -·390, K = -·911.

		Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tucson		7·8	350	i 1 57	- 1	i 3 21	- 7	i 2 33	i 4·1
Tacubaya	N.	10·4	117	e 2 36	PP	—	—	—	—
La Jolla	N.	11·0	320	e 2 40	- 2	—	—	—	—
Palomar	Z.	11·2	324	e 2 43	- 1	—	—	—	—
Riverside		11·9	325	e 2 54	0	—	—	—	—
Mount Wilson	Z.	12·5	324	e 3 0	- 2	—	—	—	—
Pasadena		12·5	324	e 3 1	- 1	—	—	—	e 5·6
Santa Barbara		13·6	319	e 3 28	+11	—	—	—	—
Haiwee		13·9	328	e 3 23	+ 2	—	—	—	—
Tinemaha		14·8	330	e 3 34	+ 2	—	—	—	—
Fresno	N.	15·3	325	e 3 44	+ 5	—	—	—	—
Salt Lake City		16·4	353	e 3 54	+ 1	e 7 17	SS	—	e 9·1
Santa Clara		16·9	322	—	—	e 7 32	SS	—	e 8·1
Logan		17·4	353	i 4 8	+ 2	e 7 21	+ 2	e 4 24	PP e 9·3
Berkeley		17·5	323	e 3 45	-22	e 7 35	SS	—	e 8·8
Ukiah		18·9	325	e 4 26	+ 2	e 8 6	SS	—	e 8·4
Cape Girardeau		21·0	48	e 4 49	+ 2	—	—	—	e 11·1
Bozeman		21·2	356	e 4 49	0	e 8 55	+14	e 5 50	PPP e 11·8
Florissant		21·3	44	i 4 58	+ 8	i 8 54	+11	—	—
St. Louis		21·3	44	e 4 54	+ 4	e 8 50	+ 7	—	10·0
Butte		21·7	355	e 4 55	0	e 9 5	+14	—	e 12·2
Chicago U.S.C.G.S.		24·8	40	—	—	e 9 51	+ 5	—	e 13·3
Columbia		26·1	61	—	—	e 10 10	+ 3	—	e 14·8
Victoria		26·5	339	—	—	e 10 33?	+19	—	13·1
Philadelphia		32·3	54	e 7 32	PP	—	—	—	e 13·9

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Fordham	33.5	52	e 6 40	- 3	—	—	e 8 2 PP	—
Ottawa	34.0	44	6 45	- 3	—	—	—	17.0
Vermont	35.2	47	e 8 15	PP	—	—	—	e 16.4
San Juan	40.2	90	e 7 36	- 4	e 13 51	+ 3	e 9 11 PP	e 19.6
La Paz	57.0	131	e 9 48	- 2	—	—	—	—
Granada	86.8	51	—	—	i 31 16	?	—	42.6

Additional readings :—

Tucson i = 3m.45s.

Logan e = 7m.44s.

Berkeley ePPZ = 4m.5s.

Philadelphia e = 9m.18s.

Granada 35m.39s., S? = 39m.3s.

Long waves were also recorded at Saskatoon, Scoresby Sund, Potsdam, De Bilt, College, Huancayo, and Vera Cruz.

May 30d. Readings also at 3h. (Ukiah and Harvard), 4h. (Harvard, Warsaw, Stuttgart, Potsdam, Helwan, and Sofia), 7h. (St. Louis, Florissant, and Tucson), 8h. (Tucson, Palomar, Mount Wilson, Pasadena, near Balboa Heights, La Paz, San Juan, and Columbia), 10h. (College, Scoresby Sund, Palomar, Mount Wilson, Riverside, Pasadena, Haiwee, Tinemaha, Tucson, and Agra), 11h. (Granada), 13h. (Bozeman, Tinemaha, Haiwee, Riverside, Mount Wilson, Palomar, Tucson, and Pasadena, Oaxaca, Vera Cruz (2), Tacubaya, Guadalajara), 14h. (Sofia (2)), 18h. (Pasadena, Tucson (2), Palomar, Mount Wilson (2), Riverside, Haiwee, and Tinemaha (2)), 21h. (near Berkeley), 23h. (Ksara, Tashkent, Sverdlovsk, Andijan, Agra, and Helwan).

May 31d. 2h. 42m. 33s. Epicentre 81°0N. 0°0.

$$A = +.1575, B = .0000, C = +.9875; \quad \delta = -.4; \quad h = -14;$$

$$D = .000, E = -1.000; \quad G = +.988, H = .000, K = -.158.$$

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Upsala	21.8	156	e 4 59	+ 3	e 8 54	+ 2	—	e 11.0
Ivigtut	23.8	245	—	—	9 35	+ 7	—	e 11.0
Aberdeen	24.0	182	—	—	i 9 17	-15	i 9 47 SS	—
Copenhagen	25.7	165	e 5 33	0	9 53	- 8	—	—
Potsdam	29.0	165	e 5 57?	- 7	(e 10 27)	-27	—	e 10.5
De Bilt	29.1	173	—	—	e 10 47	- 9	—	—
Warsaw	29.6	154	e 6 5	- 4	11 10	+ 6	e 6 57 PP	e 15.5
Uccle	30.4	177	e 6 16	0	11 3	-13	—	e 14.4
Cheb	31.3	165	—	—	e 11 27?	- 4	—	—
Stuttgart	32.5	169	6 29	- 5	—	—	e 8 0 PPP	—
Triest	35.8	164	—	—	e 12 27	-14	—	—
Bucharest	37.8	150	e 7 27	+ 7	e 15 33?	SS	—	27.5
Ottawa	43.3	266	8 6	+ 1	14 27?	- 6	—	21.5
Granada	44.0	185	5 42	?	14 19	-24	—	24.9
Victoria	47.2	312	—	—	e 18 27?	SS	—	22.5
St. Louis	52.2	278	e 11 10	PP	e 20 34	SS	—	e 21.5
Salt Lake City	53.3	300	—	—	e 20 53	SS	e 22 0 SSS	e 27.2
Tinemaha	z. 57.8	305	i 9 56	+ 1	—	—	—	—
Haiwee	N. 58.7	304	e 10 4	+ 2	—	—	—	—
Mount Wilson	z. 60.6	304	i 10 13	- 2	—	—	e 12 33 PP	—
Pasadena	60.7	304	i 10 15	0	—	—	—	e 31.5
Riverside	z. 60.7	304	i 10 14	- 1	—	—	e 12 33 PP	—
Palomar	z. 61.3	302	e 10 18	- 2	—	—	—	—
Agra	61.5	98	e 13 54	PPP	—	—	—	—
Tucson	61.5	296	i 10 19	- 2	—	—	i 12 37 PP	e 32.4

Additional readings :—

Upsala eE = 8m.27s.

Potsdam eN = 6m.3s.

Warsaw eS?EN = 11m.13s., eE = 12m.11s., eSS?E = 12m.28s.

Stuttgart i = 6m.38s.

Mount Wilson iZ = 10m.24s.

Palomar iZ = 10m.28s.

Tucson e = 10m.50s.

Long waves were also recorded at Sitka, San Juan, Bermuda, La Paz, Clermont-Ferrand, San Fernando, and other American stations.

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May 31d. 5h. 20m. 37s. Epicentre 52°·5N. 171°·3W.

A = -·6043, B = -·0925, C = +·7914; $\delta = +5$; $h = -7$;
D = -·151, E = +·988; G = -·782, H = -·120, K = -·611.

	Δ °	Az. °	P.		O-C. s.	S.		O-C. s.	Supp.		L. m.	
			m.	s.		m.	s.		m.	s.		
College	17·2	35	e 4	8	+ 5	e 7	34	+20	—	—	e 9·2	
Sitka	21·1	63	e 4	45	- 3	e 8	47	+ 8	—	—	e 11·3	
Victoria	30·3	78	e 7	23?	PP	e 11	25	+10	—	—	14·4	
Ukiah	35·4	92	e 7	17?	+17	e 12	35	+ 1	—	—	e 16·6	
Berkeley	36·8	94	i 7	42	+31	e 12	53	- 3	e 15	37	SS	e 17·2
Butte	38·0	75	e 8	48	PP	e 13	4	-10	—	—	e 19·0	
Bozeman	39·0	75	e 7	7	-23	e 13	26	- 3	—	—	e 16·5	
Tinemaha	39·7	91	i 7	36	0	—	—	—	—	—	—	
Haiwee	40·5	92	e 7	44	+ 2	—	—	—	—	—	—	
Mount Wilson	z. 41·7	94	i 7	52 _a	0	—	—	—	—	—	—	
Pasadena	41·7	94	i 7	52	0	i 14	9	- 1	—	—	e 17·9	
Riverside	z. 42·3	94	i 7	55	- 2	—	—	—	—	—	—	
Palomar	z. 43·1	94	i 8	3	- 1	—	—	—	—	—	—	
Tucson	47·5	90	i 8	37	- 1	—	—	—	e 10	21	PP	e 24·6
Chicago	54·9	66	—	—	—	e 17	10	- 6	—	—	e 22·1	
Florissant	55·3	70	e 9	36	- 2	i 17	20	- 1	—	—	—	
St. Louis	55·5	70	e 9	37	- 2	e 17	20	- 4	e 21	9	SS	24·4
Ottawa	58·7	55	10	1	- 1	18	3	- 3	—	—	31·4	
Seven Falls	59·9	51	—	—	—	e 18	22	+ 1	—	—	30·4	
Sverdlovsk	63·0	331	i 10	27	- 4	18	59	- 2	—	—	—	
Columbia	64·0	67	—	—	—	e 19	10	- 3	—	—	e 31·6	
Tashkent	72·9	317	e 11	35	+ 2	e 20	57	- 2	—	—	—	
Bermuda	74·1	57	—	—	—	e 21	14	+ 2	e 25	58	SS	e 38·6
Warsaw	z. 75·1	352	e 11	46	0	e 22	14	PS	—	—	e 39·4	
Potsdam	75·4	358	e 11	41?	- 6	e 21	29?	+ 2	—	—	e 37·4	
Stuttgart	79·1	0	i 12	7	- 1	—	—	—	—	—	—	
Agra	E. 80·4	302	e 12	11	- 4	i 22	9	-12	—	—	—	
San Juan	84·5	67	—	—	—	e 22	58	- 4	e 29	15	SS	e 41·6

Additional readings :—

Berkeley iSE = 12m.57s., eSSN = 15m.49s.

Riverside iZ = 8m.5s.

Tucson e = 10m.44s.

St. Louis eSSN = 23m.9s.

Potsdam iZ = 11m.44s.

Stuttgart e = 12m.46s.

San Juan iS = 23m.4s.

Long waves were also recorded at De Bilt, Ksara, San Fernando, and Honolulu.

May 31d. 12h. Undetermined shock.

Brisbane ePN = 50m.46s., iSN = 54m.52s.

Tinemaha iZ = 52m.6s., eZ = 55m.13s., 57m.46s., and 59m.7s.

Mount Wilson eZ = 52m.21s., eZ? = 55m.20s., iZ = 57m.38s., eZ = 59m.7s.

Riverside eZ = 52m.21s., iZ = 55m.25s., eZ = 57m.39s., and 59m.10s.

Palomar iZ = 52m.32s., 55m.7s., and 55m.39s., eZ = 59m.12s., iZ = 59m.23s.

Riverview eZ = 52m.46s., eN = 56m.47s., eZ = 56m.54s., eLE = 60·7m.

Sydney e = 55m.0s.

Pasadena iEN = 55m.20s., i = 59m.8s., eLN = 84·7m.

Irkutsk eP = 56m.58s., S = 66m.7s.

Agra eE = 57m.45s. and 64m.24s., SgE = 65m.4s.

Tucson iP = 57m.58s., eL = 93m.16s.

Andijan eP = 59m.12s.

Sverdlovsk eP = 59m.14s., PP = 62m.58s., SKS = 69m.40s., PS = 71m.37s.

Perth i = 60m.10s., 63m.3s., and 68m.0s.

Wellington S? = 62m., Q? = 65m.?, L = 67m.30s.?

Warsaw eZ = 63m.35s., and 65m.51s., eE = 81m.49s., eN = 81m.58s., eLEZ = 113m.

Arapuni e? = 64m.?, L = 66m.?

Victoria e = 64m., e = 70m.6s.?, L = 84m.

Stuttgart e = 64m.50s.

Calcutta iN = 65m.36s., eN = 68m.13s.

Potsdam eZ = 65m.54s.?, eEZ = 66m.18s., eN = 78m., eLN = 104m.

Helwan iZ = 66m.0s., eZ = 66m.36s.

De Bilt iZ? = 66m.45s., e = 83m.30s., eL = 109m.0s.

Kew iZ = 67m.1s., and 67m.13s., e = 79m.19s.?, eL = 100m.0s.

Granada PKP = 68m.38s., SKSP = 82m.56s., i = 86m.37s., SS = 92m.21s., L = 122·3m.

Berkeley eEN = 69m.45s., eLEN = 82m.45s., eEN = 87m.25s.

Bermuda e = 86m.16s., e = 95m.14s., eL = 112m.43s.

Long waves were also recorded at Honolulu, Huancayo, Ukiah, Cheb, and Upsala.

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May 31d. 21h. Undetermined shock.

Istanbul P = 46m.28s., PS = 47m.40s., S_g = 47m.56s.
 Ksara e = 47m.23s. and 51m.7s.
 Sofia eEN = 47m.26s., iSEN = 49m.12s.
 Helwan PZ = 47m.56s., iNZ = 49m.0s., eZ = 49m.30s., iZ = 50m.5s., eN = 51m.18s., and 52m.12s.
 Bucharest e?P = 47m.44s., eS?EN = 49m.18s.
 Warsaw eZ = 49m.16s., eLZ = 53m.0s.
 Stuttgart e = 49m.50s.
 Potsdam eZ = 49m.52s., eN = 53m.30s., eE = 55m.0s., LEN = 56m.
 Basle eP = 49m.56s., e = 56m.42s.
 Kew eP?Z = 51m.4s., eS?Z = 55m.37s., eLNZ = 59m.0s.
 Trieste e = 52m.27s., i = 53m.43s.
 Uccle eEN = 54m.35s., eL = 57.3m.
 Upsala e = 55m.
 Long waves were also recorded at De Bilt, and Cheb.

May 31d. Readings also at 0h. (Granada), 2h. (Colombo), 10h. (Mount Wilson, Palomar, Tucson, Riverside, and Tinemaha), 11h. (Palomar and Tucson), 14h. (Mount Wilson, Riverside, Tinemaha, Tucson, and Huancayo), 16h. (Stuttgart, near Branner, Lick, and Fresno), 17h. (near Mizusawa (2)), 23h. (near Sofia, near Branner, and Lick).

June 1d. 9h. 1m. 18s. Epicentre 39°·3N. 22°·4E. (as on 1941 May 16d.).

A = +·7174, B = +·2957, C = +·6308; δ = +1; h = -1;
 D = +·381, E = -·925; G = +·583, H = +·240, K = -·776.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Sofia	3·5	12	e 0 59	+ 2	—	—	e 1 3	P*
Belgrade	5·7	346	e 1 56	P _g	e 2 42	+ 7	—	e 3·4
Bucharest	5·8	27	e 1 32	+ 3	3 2	S _g	e 1 54	P _g
Triest	9·0	318	e 2 24	+11	e 3 51	- 7	—	—
Helwan	11·9	139	e 2 42	-12	i 4 42	-27	—	i 6·0
Chur	12·0	313	e 2 54	- 1	e 5 4	- 7	—	—
Ksara	12·1	112	e 3 1	+ 4	—	—	—	e 6·2
Prague	12·2	335	e 2 56	- 2	e 5 20	+ 4	—	e 6·7
Cheb	12·9	330	e 4 42?	?	e 6 42?	?	—	e 7·7
Zurich	12·9	313	e 2 59	- 8	—	—	—	—
Warsaw	13·0	356	3 12	+ 3	e 5 40	+ 5	e 3 23	PP
Stuttgart	13·4	319	e 3 9	- 5	e 5 35	-10	i 3 15	PP
Basle	13·6	313	e 3 14	- 3	—	—	—	e 8·0
Neuchatel	13·6	309	e 3 15	- 2	—	—	—	—
Jena	13·9	330	e 3 30	+ 9	e 6 18	+21	e 3 33	PP
Strasbourg	14·0	316	—	—	e 6 5	+ 6	—	i 8·6
Potsdam	14·6	337	e 3 33	+ 3	e 6 18	+ 5	3 54	PP
Algiers	15·5	267	e 2 42	?	5 27	?	—	—
Clermont-Ferrand	15·6	301	e 3 40	- 3	e 6 53	+16	e 3 53	PP
Uccle	17·1	318	i 4 2 _a	0	e 7 19	+ 7	—	9·7
Paris	17·1	310	e 4 4	+ 2	e 7 7	- 5	—	8·7
De Bilt	17·5	323	e 4 8 _a	+ 1	e 7 37	+16	—	e 9·5
Almeria	19·7	272	4 32	- 2	7 58	-12	8 58	SSS
Kew	20·0	316	e 4 36	- 1	e 8 27	+10	—	e 11·4
Granada	20·5	274	4 40	- 2	i 8 28	+ 1	5 2	PP
Oxford	20·6	315	e 4 43	0	8 32	+ 3	—	—
Aberdeen	24·0	337	—	—	i 9 51	+19	—	17·2
Lisbon	N. 24·5	279	—	—	9 40	0	—	—
Scoresby Sund	38·7	339	e 7 30	+ 3	e 14 29	+64	e 9 10	PP

Additional readings:—

Belgrade e = 2m.14s.
 Bucharest ePEN = 1m.36s.
 Warsaw eS?EZ = 5m.43s.
 Stuttgart eP = 3m.12s.
 Potsdam ePPZ = 3m.59s., eS?Z = 6m.24s., eS?E = 6m.30s., eSSEZ = 7m.18s.
 Lisbon E = 9m.44s.
 Long waves were also recorded at Istanbul and Upsala.

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June 1d. 9h. 17m. 40s. Epicentre 39°·3N. 22°·4E. (as at 9h. 1m.).

Heavy damage in Doride and at Amfissa, Galaxabi, Valo, Larissa, and Livalia.
Epicentre 39°·1N. 22°·5E. (Strasbourg).

$$A = +.7174, B = +.2957, C = +.6308; \quad \delta = +1; \quad h = -1.$$

	Δ °	Az. °	P.		O - C.	S.		O - C.	Supp.		L.	
			m.	s.	s.	m.	s.	s.	m.	s.	m.	
Sofia	3·5	12	e 1	0	+ 3	—	—	—	e 1	10	P _g	—
Istanbul	5·4	69	1	36	P*	e 3	2	S _g	—	—	—	4·6
Belgrade	5·7	346	1	31	+ 3	i 3	9	S _g	e 1	41	P*	i 3·3
Bucharest	5·8	27	e 1	30	+ 1	i 3	0	S _g	e 1	53	P _g	i 3·5
Triest	9·0	318	e 2	20	+ 7	e 3	45	-13	—	—	—	—
Helwan	11·9	139	i 2	39 _a	-15	5	38	SSS	3	53	PPP	5·8
Chur	12·0	313	e 2	58	+ 3	e 5	6	- 5	—	—	—	—
Ksara	12·1	112	e 2	52	- 5	—	—	—	—	—	—	e 6·0
Prague	12·2	335	2	56	- 2	e 5	16?	0	—	—	—	—
Cheb	12·9	330	e 3	20?	+13	e 5	33	0	—	—	—	e 7·3
Zurich	12·9	313	e 3	8	+ 1	e 5	36	+ 3	—	—	—	—
Warsaw	13·0	356	3	12	+ 3	e 5	42	+ 7	e 3	45	PPP	e 6·3
Stuttgart	13·4	319	e 3	9	- 5	e 5	36	- 9	e 6	4	SS	e 8·1
Basle	13·6	313	e 3	15	- 2	e 6	3	+13	—	—	—	e 8·0
Neuchatel	13·6	309	e 3	16	- 1	—	—	—	—	—	—	—
Jena	13·9	330	e 3	20	- 1	e 6	15	+18	e 6	20	SS	e 6·8
Strasbourg	14·0	316	—	—	—	e 5	45	-14	—	—	—	—
Besançon	14·3	309	—	—	—	e 6	0	- 6	—	—	—	8·8
Potsdam	14·6	337	i 3	31 _k	+ 1	e 6	20	+ 7	e 7	14	SSS	7·3
Clermont-Ferrand	15·6	301	i 3	50	+ 7	i 6	50	+13	e 3	53	PP	8·2
Algiers	16·8	266	e 3	30	-28	e 6	20	-45	—	—	—	e 10·8
Uccle	17·1	318	i 4	2 _a	0	e 7	15	+ 3	—	—	—	9·3
Paris	17·1	310	e 4	2	0	e 7	22	+10	—	—	—	10·1
De Bilt	17·5	323	i 4	8 _a	+ 1	e 7	28	+ 7	—	—	—	e 9·3
Copenhagen	17·7	341	i 4	9	- 1	7	37	+11	8	1	SS	—
Almeria	19·7	272	e 4	25	- 9	8	9	- 1	4	41	PP	9·8
Granada	20·5	274	i 4	39	- 3	i 8	25	- 2	5	4	PP	10·5
Oxford	20·6	315	4	38	- 5	e 8	21	- 8	—	—	—	—
Upsala	20·8	353	e 4	43	- 2	8	37	+ 4	e 9	20?	SSS	e 11·3
San Fernando	22·7	273	—	—	—	e 9	34	+25	—	—	—	—
Aberdeen	24·0	337	—	—	—	1	9	43	+11	—	—	15·4
Lisbon	24·5	279	5	17	- 5	9	33	- 7	—	—	—	15·0
Sverdlovsk	30·5	43	6	11	- 6	—	—	—	—	—	—	—
Scoresby Sund	38·7	339	e 7	25	- 2	—	—	—	e 8	31	PP	e 13·6
Agra	E. 47·4	88	e 12	37	?	e 18	12	SS	—	—	—	—
Irkutsk	55·6	48	e 9	7	-33	e 16	48	-43	—	—	—	—
Tucson	96·6	322	e 13	28	- 5	—	—	—	—	—	—	—

Additional readings :—

Belgrade i = 1m.58s., iS_g = 2m.7s.

Bucharest eP_g = 2m.12s.

Helwan PPZ = 4m.41s. Phases wrongly identified.

Warsaw eS_gN = 5m.52s.

Stuttgart iP = 3m.15s.

Potsdam ePN = 3m.38s.

Clermont-Ferrand iPP = 3m.59s., e = 6m.53s.

Almeria PPP = 4m.56s., SS = 8m.20s., SSS = 8m.46s., P_cS = 12m.26s.

Granada P_cP = 9m.9s.

Upsala SN = 8m.41s.

Lisbon SN = 9m.41s., SZ = 9m.52s.

Long waves were also recorded at Pasadena.

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June 1d. 12h. 13m. 25s. Epicentre 71°·5N. 8°·0W.

$$A = +\cdot3161, B = -\cdot0444, C = +\cdot9477; \quad \delta = +3; \quad h = -13;$$

$$D = -\cdot139, E = -\cdot990; \quad G = +\cdot938, H = -\cdot132, K = -\cdot319.$$

	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
			m.	s.	s.	m.	s.	m.	s.	m.
Scoresby Sund	4·7	265	e 1	13	- 1	—	—	e 1	40	P _r e 3·0
Aberdeen	14·6	167	i 3	52	PPP	—	—	—	—	—
Copenhagen	18·1	140	e 4	10	- 4	—	—	—	—	—
De Bilt	20·3	156	i 4	43k	+ 3	e 8	19 - 4	—	—	e 9·6
Kew	20·4	166	e 4	47	+ 6	e 8	36 +11	—	—	e 10·6
Potsdam	21·4	144	e 4	47	- 4	e 8	41 - 4	—	—	e 10·6
Uccle	21·5	161	e 4	53	+ 1	e 8	55 + 8	—	—	e 10·6
Jena	22·5	146	e 5	4	+ 2	—	—	—	—	—
Warsaw	23·2	132	e 5	0	- 9	—	—	—	—	e 11·6
Stuttgart	24·2	152	e 5	16	- 3	—	—	—	—	—
Basle	25·1	154	e 5	31	+ 3	—	—	—	—	e 12·3
Zurich	25·4	154	e 5	30	- 1	—	—	—	—	—
Neuchatel	25·6	156	e 5	31	- 1	—	—	—	—	—
Clermont-Ferrand	25·9	163	e 5	45	+10	e 8	46 ?	(e 9	56)	SS e 9·9
Granada	34·4	174	e 11	39	S	(e 11	39) -40	14	52	SSS 18·2

Additional readings:—

Potsdam eE = 8m.35s.

Warsaw eZ = 5m.3s.

Stuttgart e = 5m.19s., i = 5m.25s.

Granada phases wrongly identified.

June 1d. 22h. 10m. 21s. Epicentre 39°·3N. 22°·4E. (as on 9h.).

$$A = +\cdot7174, B = +\cdot2957, C = +\cdot6308; \quad \delta = +1; \quad h = -1.$$

	Δ	Az.	P.		O-C.	S.	O-C.	Supp.		L.
			m.	s.	s.	m.	s.	m.	s.	m.
Bucharest	5·8	27	e 1	26	- 3	e 3	1 S _r	—	—	—
Triest	9·0	318	e 3	41	?	e 4	49 S _r	—	—	—
Cheb	12·9	330	e 5	43	S	(e 5	43) +10	—	—	e 7·2
Zurich	12·9	313	e 3	22	+15	—	—	—	—	—
Warsaw	13·0	356	e 3	9	0	e 5	47 +12	e 5	56	SS e 6·2
Stuttgart	13·4	319	e 3	11	- 3	—	—	—	—	—
Basle	13·6	313	e 3	19	+ 2	—	—	—	—	—
Uccle	17·1	318	—	—	—	e 7	9 - 3	—	—	e 9·7
De Bilt	17·5	323	i 4	4 _a	- 3	e 7	37 +16	—	—	10·2
Copenhagen	17·7	341	e 4	9	- 1	—	—	—	—	—
Kew	20·0	316	e 4	43	+ 6	e 8	34 +17	—	—	e 12·3
Granada	20·5	274	—	—	—	8	22 - 5	—	—	10·0

Additional readings:—

Bucharest ePN = 1m. 29s.

Warsaw eS?Z = 6m.3s.

Stuttgart e = 3m.16s.

Long waves were also recorded at other European stations.

June 1d. Readings also at 0h. (Pasadena, Riverside, Mount Wilson, Palomar, Tucson, and Granada), 2h. (Philadelphia), 3h. (Potsdam, Helwan, Triest, Sofia, near Bucharest, and near La Paz), 5h. (Philadelphia), 8h. (Pasadena, Mount Wilson, Riverside, Palomar, Tinemaha, Haiwee, Tucson, and Sofia (2)), 9h. (Triest and Sofia (2)), 10h. (Tucson and Berkeley), 11h. (Sofia, Triest, Helwan, Potsdam, De Bilt, and near Bucharest), 17h. (Pasadena, Mount Wilson, Riverside, Palomar, Tucson, and Tinemaha), 20h. (Prague), 21h. (Bermuda), 22h. (Sofia).

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June 2d. 0h. 30m. 26s. Epicentre 56°·0S. 5°·0W. (approximate).

A = +·5597, B = -·0490, C = -·8273; δ = +9; h = -8;
D = -·087, E = -·996; G = -·824, H = +·072, K = -·562.

		Δ		Az.		P.		O-C.	S.		O-C.	Supp.		L.						
		m.	s.	m.	s.	m.	s.	s.	m.	s.	s.	m.	s.	m.						
La Plata	E.	41·4	278	7	46	-	4		14	4	-	1	9	22	PP	17·3				
	N.	41·4	278	7	52	+	2		14	10	+	5	9	52	PPP	12·2				
Rio de Janeiro	N.	43·4	304	i	8	3	-	3	i	14	24	-	11			i	19·9			
Tananarive		53·8	68		9	25	-	1	e	16	54	-	7	20	34	SS	23·8			
La Paz		61·5	283	i	10	24 _a	+	3	i	18	54	+	12	i	12	36	PP	25·7		
Huancayo		69·1	280	e	11	16	+	6	e	20	24	+	9	e	14	9	PP	e	28·2	
Wellington		83·1	179		29	14	?			37	4	?		43	4	Q			45·3	
Auckland		87·5	179							36	50	?							i	45·9
Riverview		88·2	160						e	39	9	?							e	43·6
San Juan		90·1	304	e	13	20	+	17	e	23	41	[+ 8]		e	16	39	PP		e	41·3
Helwan		91·0	31	i	13	7 _k	0		24	10	+	7	25	11	PS					
Almeria		92·5	2		13	22	+	8	25	41	PS		13	37	pP					38·1
Algiers		92·7	6						i	24	28	+10							e	42·6
Colombo	E.	92·8	82	e	9	34 _?	?													
Granada		92·8	1	i	13	17 _a	+	1	23	47	[- 2]		19	5	PP					44·8
Kodaikanal	E.	94·1	77						e	24	34	+	3							34·4
Lisbon		94·4	357							27	25	?								41·5
Ksara		96·0	33		14	34 _?	+	64	e	25	8	+21								
Bombay		98·9	69	e	18	25	PP		e	25	9	-	2	e	26	53	PS		e	41·6
Hyderabad		100·7	75		24	26	S		(24	26)	[- 4]		(32	18)	SS					42·3
Sofia		101·2	20	e	17	58	PP													
Clermont-Ferrand		101·6	5						e	24	58	[+23]	e	32	39	SS			e	41·6
Triest		102·5	13						e	25	48	+ 7	i	32	44	SS			e	42·1
Bucharest		103·4	22	e	24	52	S		(e	24	52)	[+ 9]	(e	33	4)	SS				42·6
Stuttgart		105·1	9	e	18	4	PP												e	52·6
Cheb		106·7	10						e	25	34 _?	[+36]	e	33	54	SS			e	49·6
Uccle		106·7	5	e	21	3	PPP		e	25	8	[+10]	i	33	31	SS			e	45·6
Prague		106·9	12						e	30	34	?	e	45	34	?				
Kew		107·0	2	e	18	54	PP		e	33	48	SS							e	41·6
De Bilt		108·1	6	e	18	54	PP		e	26	44	{+52}	i	20	48	PPP			e	44·6
Agra	E.	108·3	69	e	18	43	PKP		34	14	SS									
Potsdam		109·0	10	e	19	4	PP		e	28	28	PS	e	34	34	PPS			e	49·6
Stonyhurst		109·5	1						e	37	34 _?	SSS							e	44·6
Warsaw		110·0	16	e	18	2	[-31]		e	25	2	[-10]							e	55·6
Calcutta	N.	110·2	80	e	20	9	?		e	29	39	PPS								
Columbia		110·4	301						e	28	43	PS	e	34	16	SS			e	44·4
Copenhagen		112·2	10	e	19	27	PP		34	58	PPS									
Aberdeen	E.	112·8	2						e	35	4	PPS	e	39	4	SSS			e	47·7
Seven Falls		116·6	316	e	29	10	PS		e	36	10	SS								50·6
Upsala	N.	116·9	12						e	26	34 _?	[-19]	e	35	34 _?	SS				
Ottawa		117·1	311						e	29	46	PS	e	36	40	SSP			e	54·6
St. Louis		118·5	297						e	26	59	[- 4]	e	29	50	PS				46·6
Chicago U.S.C.G.S.		119·7	301						e	35	54	SS							e	59·1
Sverdlovsk		124·3	37	e	19	3	[+ 21]		27	40	[- 3]		20	44	PP					
Tucson		124·7	278	e	19	3	[+ 2]		e	31	2	PS	e	20	57	PP			e	59·9
Scoresby Sund		126·8	352	e	21	8	PP		e	27	11	[+60]	e	31	31	PS			e	54·1
Riverside	z.	129·6	274	e	19	23	[+12]													
Mount Wilson	z.	130·2	274	e	19	19	[+ 7]													
Pasadena	z.	130·2	274	i	19	14	[+ 2]						e	24	12	PPP			e	59·6
Berkeley		135·2	273	e	20	48	?		e	39	48	SS	e	45	18	SSS			e	59·6
Irkutsk		140·1	64		22	14	PP		26	24	[-15]		32	12	PS					
Victoria		142·7	285	e	20	52	?						e	24	4	PPP				71·6

Additional readings:—

La Plata N = 15m.22s., R = 15m.52s.

Huancayo iS_eS = 21m.17s., eSS = 24m.48s.

Auckland e = 39m.34s.?

San Juan e = 24m.0s., ePS = 24m.45s., i = 25m.9s., eSS = 29m.27s.

Almeria sP = 13m.51s., PP = 17m.3s., PPP = 19m.4s., PPS = 26m.9s., SS = 30m.36s.

Helwan eZ = 14m.10s., eN = 23m.49s., PPSN = 25m.48s., SSN = 30m.16s.

Granada iS = 24m.24s., PS = 25m.35s., SS = 30m.32s., SSS = 33m.53s., i = 38m.12s.,

Q = 39m.4s.

Continued on next page.

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Lisbon N = 28m.22s., E = 40m.4s.
 Hyderabad P_cP = 25m.33s., SS given as S.
 Clermont-Ferrand eS = 25m.46s.
 Bucharest SS given as S.
 Stuttgart e = 18m.36s.
 Uccle eE = 26m.28s.
 De Bilt e = 34m.9s.
 Warsaw eZ = 26m.0s., eS?E = 26m.59s., eS?Z = 27m.3s.
 Columbia e = 34m.51s.
 Copenhagen 27m.21s., 38m.52s.
 St. Louis eEN = 28m.19s., 31m.14s., 35m.36s., and 36m.33s.
 Sverdlovsk PS = 30m.44s., SS = 37m.46s.
 Tucson e = 20m.11s., and 23m.19s.
 Scoresby Sund e = 34m.22s., eSS = 38m.22s., ePKP, PKP = 40m.31s.
 Long waves were also recorded at Paris, San Fernando, Bozeman, and College.

June 2d. Readings also at 5h. (Uccle and Clermont-Ferrand), 10h. (Granada), 16h. (Ksara), 21h. (La Paz).

June 3d. 16h. 31m. 4s. Epicentre 14°·7S. 167°·3E. (as on 1940 January 26d.).

Pasadena suggests depth = 120km.

A = -·9440, B = +·2127, C = -·2522; $\delta = -2$; $h = +6$;
 D = +·220, E = +·976, G = +·246, H = -·055, K = -·968.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane	E.	18·4	224	i 4 20	+ 2	17 44	+ 3	i 4 57	PPP	—
	N.	18·4	224	i 4 18	0	17 43	+ 2	i 4 55	PPP	—
Auckland		23·1	164	5 4	- 4	9 8	- 8	5 43	PP	—
Riverview		24·0	215	i 5 16 _a	- 1	i 9 23	- 9	i 5 54	PP	—
Sydney		24·0	215	e 5 8	- 9	e 9 29	- 3	—	—	e 11·9
Wellington		27·3	168	6 11	+ 23	10 11	- 16	6 28	PP	—
Christchurch		29·1	173	5 59	- 5	9 58	- 58	10 36	Q	12·1
Tokyo Cen. Met. Ob.		56·5	333	10 3	+ 17	—	—	—	—	—
Nagoya		57·3	332	e 9 58	+ 6	—	—	—	—	—
Kobe		57·8	329	10 0	+ 5	17 56	+ 2	—	—	—
Nagano		58·0	333	e 10 1	+ 4	—	—	—	—	—
Calcutta	N.	85·7	294	—	—	i 23 7	[+ 1]	—	—	—
Pasadena		85·8	53	i 12 42	0	—	—	i 13 12	pP	—
Mount Wilson		85·9	53	i 12 42	- 1	—	—	i 13 12	pP	—
Riverside	Z.	86·4	53	e 12 44	- 1	—	—	i 13 14	pP	—
Palomar	Z.	86·5	55	i 12 46	0	—	—	i 13 17	pP	—
Haiwee	E.	86·7	51	e 12 47	0	—	—	e 13 17	pP	—
Tinemaha		86·8	51	i 12 48	+ 1	—	—	i 13 25	pP	—
Tucson		91·0	57	i 13 8	+ 1	e 23 15	[- 24]	—	—	—
Agra	E.	95·9	296	e 22 23	?	i 23 54	[- 12]	—	—	—
Sverdlovsk		111·3	325	e 18 33	[- 2]	e 26 45	{+ 31}	—	—	—
San Juan		128·8	77	e 21 11	PP	—	—	e 22 20	PKS	—
Ksara		132·3	302	e 19 17	[+ 1]	—	—	e 22 51	PKS	—
Warsaw		133·9	332	19 21	[+ 2]	—	—	e 22 32	PKS	—
Helwan	Z.	136·8	298	i 19 26 _k	[+ 1]	—	—	i 22 13	PP	—
Potsdam		137·2	337	i 19 26 _k	[+ 1]	—	—	e 22 44	PKS	e 70·9
Sofia		138·4	319	e 21 56?	PP	—	—	—	—	—
De Bilt		140·0	343	e 21 59	PP	—	—	—	—	67·9
Uccle	Z.	141·4	344	e 19 33	[0]	—	—	—	—	—
Stuttgart		141·6	337	e 19 28	[- 5]	—	—	e 23 0	PKS	—
Zurich		142·9	336	e 19 33 _a	[- 3]	—	—	—	—	—
Chur		143·0	335	e 19 33	[- 3]	—	—	—	—	—
Basle		143·2	337	e 19 34	[- 2]	—	—	—	—	—
Neuchatel		143·9	337	e 19 36	[0]	—	—	—	—	—
Almeria		155·9	340	19 51	[- 5]	26 52	[- 9]	24 2	PP	78·9
Granada		156·2	342	i 19 41 _k	[- 15]	27 8	[+ 7]	23 58	PP	82·4

Additional readings:—

Brisbane iE = 6m.48s.

Auckland i = 9m.44s.

Riverview iE = 6m.3s., iN = 6m.7s., iEN = 9m.32s., isS?N = 10m.16s.

Continued on next page.

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Wellington i = 10m.41s.
 Calcutta iN = 24m.5s.
 Pasadena eZ = 15m.56s. and 17m.3s.
 Mount Wilson iZ = 13m.41s. and 16m.4s.
 Palomar iZ = 13m.23s.
 Tinemaha iZ = 13m.46s. and 14m.4s.
 Tucson i = 13m.32s. and 13m.38s.
 Agra eSSE = 24m.35s.
 Warsaw eZ = 19m.58s., 20m.56s.?, eN = 24m.51s., eZ = 24m.55s.
 Helwan iZ = 19m.56s.
 Potsdam iPPN = 23m.1s.
 Stuttgart ipPKP = 19m.34s.
 Almeria PKP₁ = 20m.26s., PPP = 27m.42s., SKKS = 30m.48s., PPS = 37m.5s., SS = 43m.46s., SSS = 49m.46s.
 Granada PKP₂ = 20m.16s., SKKS = 31m.22s., PPP ($\Delta > 180^\circ$) = 32m.53s., i = 39m.57s., SS = 43m.56s., eSSS = 52m.6s.

June 3d. Readings also at 0h. (Copenhagen, Stuttgart, and Mizusawa), 1h. (Granada, Tucson, Potsdam, and Warsaw), 2h. (Mount Wilson and Riverside), 3h. (Scoresby Sund), 4h. (Almeria, Granada, Tucson, Helwan, Calcutta, and Kodaikanal), 5h. (De Bilt, Kew, Trieste, Potsdam, San Fernando, Warsaw, and Huancayo), 6h. (Pasadena and near Granada), 7h. (Tucson), 11h. (Sofia), 17h. and 21h. (Tacubaya), 23h. (near Branner).

June 4d. 7h. 6m. 35s. Epicentre $7^\circ 5S$. $129^\circ 0E$. Depth of focus 0.020 (as on 1941 July 8d.).

A = -0.6240, B = +0.7706, C = -0.1297; $\delta = +2$; $h = +7$;
 D = +0.777, E = +0.629; G = +0.082, H = -0.101, K = -0.992.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Brisbane	E.	30.2	134	e 6 2	+ 4	i 12 10	SS	—	—
	N.	30.2	134	e 5 56	- 2	i 12 5	SS	—	—
Riverview		33.3	146	i 6 27	+ 3	e 13 50	SS	—	—
Sydney		33.3	146	—	—	e 11 1	-31	—	—
Koti		41.1	7	(7 33)	+ 3	—	—	—	—
Tokyo		44.1	13	(7 32)	-22	(14 19)	+ 5	—	—
Zinsen		44.8	357	e 8 28	+29	15 19	sS	—	—
Sendai		46.9	15	8 7	- 9	14 36	-18	—	—
Calcutta	N.	49.8	309	i 16 48	PPS	e 15 6	-28	i 18 36	?
Hyderabad	E.	55.7	297	9 23	+ 1	—	—	i 13 2	PPP
Agra	E.	60.2	307	e 11 54	PP	i 18 49	+57	—	—
Bombay		61.3	297	i 10 5	+ 4	i 18 8	+ 2	i 10 44	pP
Almata		69.1	323	e 10 42	- 9	—	—	—	—
Andijan		70.7	317	e 11 1	+ 1	—	—	—	—
Tashkent		73.1	317	11 13	- 1	20 25	- 2	11 55	pP
Sverdlovsk		84.7	329	i 12 13	- 4	22 16	-13	i 12 57	pP
Helwan		100.3	298	e 16 58	?	e 23 55	[+ 3]	e 17 40	PP
Warsaw	E.	106.9	321	e 20 25	PPP	—	—	—	—
Potsdam		111.6	324	e 18 49	[+34]	e 29 25	PPS	—	—
Tinemaha	Z.	112.6	53	i 18 19	[+ 2]	—	—	—	—
Triest		112.9	316	e 19 48	pPKP	e 29 25?	PPS	—	—
Haiwee	Z.	113.0	54	e 18 18	[0]	—	—	—	—
Pasadena	Z.	113.0	57	i 18 19	[+ 1]	—	—	—	—
Mount Wilson	Z.	113.1	57	i 18 17	[- 1]	—	—	—	—
Riverside	Z.	113.7	57	e 18 19	[0]	—	—	—	—
Scoresby Sund		114.4	349	e 18 7	[-14]	e 34 23	SS	e 20 13	pPP e 43.4
Stuttgart		115.0	320	e 18 23	[+ 1]	—	—	e 19 7	pPKP
Tucson		119.4	57	i 18 31	[0]	—	—	e 20 46	pPP
Kew		119.6	326	e 20 1	PP	(e 25 25)	[+14]	e 20 57	pPP e 25.4
La Paz		150.7	145	19 34	[+ 7]	20 44	?	—	— 21.1?

Additional readings :—

Riverview iZ = 13m.56s.
 Koti and Tokyo readings diminished by 2m.
 Bombay iE = 11m.0s., 12m.21s., and 13m.21s., eEN = 18m.36s.
 Tashkent sS = 21m.37s.
 Sverdlovsk isP = 13m.16s., sS = 23m.36s.
 Scoresby Sund e = 25m.59s., 27m.54s., and 29m.29s., eL? = 35m. 0s.
 Stuttgart e = 19m.26s.
 Tucson e = 22m.41s.
 Long waves were also recorded at Granada.

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June 4d. Readings also at 4h. (Tananarive), 15h. (Bucharest, Sofia, Warsaw, Potsdam, Triest, Stuttgart, Neuchatel, Kew, De Bilt, and Granada), 17h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tucson, and Tinemaha), 18h. (Tacubaya), 19h. (near Mizusawa), 21h. and 22h. (Berkeley), 23h. (College, Haiwee, Mount Wilson, Pasadena, Tinemaha, Logan, and near Tucson).

June 5d. 2h. 57m. 13s. Epicentre $23^{\circ}7'S$. $65^{\circ}7'W$. Depth of focus 0.030.
(as on 1941 Nov. 18d.).

A = +.3772, B = -.8355, C = -.3996; $\delta = +2$; $h = +4$;
D = -.911, E = -.412; G = -.164, H = +.364, K = -.917.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Paz	N.	7.5	341	1 48	+ 1	i 3 13	+ 1	—	3.8
La Plata		13.0	151	2 57	- 1	5 11	- 7	3 21	6.3
Huancayo		14.8	320	e 3 12	- 8	i 4 45	?	—	i 6.0
San Juan		41.8	0	—	—	e 13 29	0	—	e 16.9
Tucson		70.4	321	i 10 51	- 1	—	—	—	—
La Jolla	N.	74.7	317	e 11 17	0	—	—	—	—
Palomar	Z.	74.8	318	e 11 16	- 1	—	—	—	—
Riverside	Z.	75.5	318	i 11 21k	0	—	—	e 12 20	pP
Mount Wilson		76.1	318	i 11 25k	0	—	—	—	—
Pasadena		76.1	318	i 11 25k	0	—	—	—	—
Haiwee		77.3	320	i 11 32	+ 1	—	—	—	—
Santa Barbara	Z.	77.3	317	e 11 31	0	—	—	—	—
Tinemaha		78.1	320	i 11 36k	0	—	—	—	—
Lick	N.	80.3	318	e 11 48	+ 1	—	—	—	—
Granada		84.1	46	—	—	(22 39)	+28	—	22.6
Stuttgart		98.1	39	e 13 17	+ 5	—	—	—	—

Additional readings:—

La Plata SN = 5m.17s., SE = 5m.23s.
Tucson i = 11m.18s., e = 12m.57s.

June 5d. Readings also at 0h. (Mizusawa), 3h. (near Branner, Fresno, and Lick), 9h. (Agra and near Fresno), 11h. (Bozeman), 12h. (Haiwee, Mount Wilson, Pasadena, Riverside, Santa Barbara, Tinemaha, Tucson, near Berkeley, Lick, Santa Clara, Branner, and Fresno), 13h. (Stuttgart, Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 14h. (Upsala), 15h. (De Bilt, Mount Wilson, and Tinemaha), 17h. (La Paz, La Plata, Rio de Janeiro, Huancayo, Tucson, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Calcutta, Dehra Dun, and Tashkent), 18h. (Kew), 19h. (La Paz, Granada, and near Tananarive), 20h., 21h., and 22h. (near Berkeley), 23h. (near Branner).

June 6d. 11h. Undetermined shock.

Rio de Janeiro ePN = 32m.0s., eLN = 37m.30s.
La Paz iPZ = 34m.0s., iSN = 41m.7s., LN = 48m.9s.
Huancayo e = 35m.31s., 38m.15s., and 42m.48s., eL = 49m.44s.
San Juan e = 41m.15s. and 44m.43s., eS = 47m.16s., eL = 49m.12s.
Helwan eZ = 43m.9s., i = 49m.9s. and 50m.22s.
Kew ePZ = 43m.27s., e = 50m.54s., eS = 53m.19s., eSS = 59m., eL = 75m.
Stuttgart e = 43m.30s.
Tucson eP = 43m.34s., e = 44m.31s.
Riverside iPZ = 43m.44s., iZ = 44m.11s.
Mount Wilson ePZ = 43m.45s., eZ = 45m.17s.
Pasadena iPZ = 43m.46s., eZ = 45m.16s.
Palomar ePZ = 43m.49s., eZ = 44m.19s.
Tinemaha ePZ = 43m.51s.
Florissant eZ = 44m.22s., eN = 49m.21s. and 50m.16s., eLZ = 79m.33s.
De Bilt eZ = 44m.40s. and 53m.40s., eL = 79m.
Warsaw eZ = 44m.56s. and 54m.27s., eEN = 54m.33s., eLZ = 85m.
Potsdam eNZ = 45m.0s., e = 54m.0s., eL = 79m.0s.
Scoresby Sund eS = 47m.50s., eL = 56m.25s.
Agra eE = 53m.5s.

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June 6d. 14h. 53m. 20s. Epicentre 5°·0S. 146°·0E. Depth of focus 0·005.
(as on 1938 July 23d.).

A = -·8259, B = +·5571, C = -·0866; $\delta = -3$; $h = +7$;
D = +·559, E = +·829; G = +·072, H = -·048, K = -·996.

		Δ .	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Brisbane	E.	23·3	163	e 4 53	-10	i 9 0	-7	i 5 24	PP	—
Riverview		29·1	171	i 6 9k	+12	i 10 56	+14	i 12 37	SS	e 15·7
Sydney		29·1	171	—	—	e 11 40	+58	—	—	—
Nake		36·8	336	6 10	-53	—	—	—	—	—
Perth		38·9	223	—	—	i 12 25	-49	i 15 20	SS	—
Miyazaki		39·2	340	7 33	pP	13 21	+ 1	—	—	—
Koti		40·1	344	e 7 37	+ 6	13 38	+ 6	—	—	—
Matuyama		40·6	343	e 9 38	PPP	15 44	SS	—	—	—
Yokohama		40·7	352	e 8 14	pP	i 13 44	+ 3	—	—	—
Kobe		40·8	347	9 3	PP	13 47	+ 4	—	—	—
Nagoya		40·9	350	e 7 38	+ 1	—	—	—	—	—
Tokyo Cen. Met. Ob.		40·9	353	e 8 13	pP	13 45	+ 1	—	—	—
Auckland		41·2	144	7 50	+10	13 38	-10	14 25	sS	21·1
Nagano		42·1	350	e 7 43	- 4	14 6	+ 4	—	—	—
Arapuni		42·6	145	—	—	15 10	sS	—	—	—
Sendai		43·3	355	7 58	+ 1	14 3	-16	—	—	—
Mizusawa		44·1	356	e 8 10	+ 6	14 37	+ 6	—	—	—
Wellington		44·4	149	7 58k	- 8	14 15	-20	8 25	pP	—
Christchurch		45·0	153	8 1	-10	14 33	-11	17 46	Q	21·0
Zinsen		46·0	338	e 8 22	+ 3	15 1	+ 3	—	—	—
Sapporo		48·0	356	e 8 46	+12	15 31	+ 5	—	—	—
Calcutta	N.	62·6	299	e 14 10	PPP	i 18 38	- 3	i 19 28	sS	—
Colombo	E.	67·0	279	10 47	- 1	19 38	+ 3	—	—	—
Irkutsk		67·1	334	e 10 51	+ 2	19 39	+ 3	—	—	—
Kodaikanal	E.	69·9	283	i 10 55	-11	i 19 57	-13	—	—	—
Hyderabad	N.	70·3	291	—	—	20 14	0	—	—	—
Agra	E.	72·9	301	i 11 25k	+ 1	i 20 43	- 1	i 21 22	sS	—
Bombay		75·8	291	i 11 39	- 2	i 21 12	- 4	e 12 5	pP	—
Tashkent		83·4	313	12 21	- 1	e 22 26	-10	—	—	—
College		84·6	23	e 13 0	pP	e 22 43	- 5	e 23 42	sS	e 34·9
Sverdlovsk		91·6	327	12 56	- 5	i 23 18	[- 8]	i 18 54	PPP	—
Ukiah		93·7	51	—	—	e 24 4	- 7	e 25 30	PS	e 40·0
Victoria		94·1	42	e 18 40?	PP	—	—	—	—	—
Berkeley		94·4	52	e 13 38	pP	e 23 38	[- 3]	e 25 20	PS	e 54·0
Pasadena		97·6	56	i 13 28	0	—	—	e 17 22	PP	—
Tinemaha		97·6	53	i 13 29	+ 1	—	—	—	—	—
Mount Wilson	z.	97·7	56	i 13 29k	0	—	—	—	—	—
Haiwee		97·8	54	e 13 29	0	—	—	—	—	—
Riverside	z.	98·3	56	i 13 31	- 1	—	—	—	—	—
Palomar	z.	98·7	57	i 13 33	0	—	—	—	—	—
Bozeman		102·6	44	e 17 13	?	e 24 17	[- 7]	e 18 3	PP	e 42·0
Tucson		103·8	58	e 13 59	+ 3	e 27 8	PS	e 18 14	PP	—
Upsala		112·8	334	—	—	e 34 40?	SS	—	—	e 55·7
Helwan		113·8	300	19 10	PP	e 29 1	PS	i 19 30	PP	—
Scoresby Sund		114·1	355	e 19 39	PP	e 25 17	[+ 4]	e 29 36	PS	e 55·0
Bucharest		114·6	317	e 20 10	pPP	e 29 10	PS	—	—	40·7
Warsaw		114·8	326	e 19 6	[+32]	e 35 10	SS	e 19 35	PP	e 57·7
Potsdam		119·0	330	e 19 40	PP	—	—	e 20 6	pPP	e 53·7
Florissant		119·0	48	—	—	e 37 3	SSP	—	—	e 62·0
St. Louis		119·2	48	e 19 50	PP	e 25 16	[-16]	e 20 32	pPP	—
Cheb		120·6	328	—	—	e 29 40?	PS	—	—	e 59·7
De Bilt		123·0	333	e 20 35	PP	e 37 10	SS	—	—	e 59·7
Stuttgart		123·1	327	i 18 48a	[- 1]	e 32 20	PPS	e 20 35	PP	—
Uccle		124·2	332	e 20 34	PP	e 33 16	?	—	—	e 51·7
Ottawa		125·8	35	e 18 53	[- 2]	e 30 28	PS	e 37 40?	SS	e 56·7

Continued on next page.

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	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Kew	125.9	334	e 21 3k	PP	e 31 42	PPS	i 21 38	e 61.7
Seven Falls	127.4	31	e 22 52	PKS	e 31 4	PS	—	48.7
Clermont-Ferrand	128.2	327	e 21 8	PP	e 28 6	SKKS	e 44 34	? e 58.3
Philadelphia	129.2	40	e 22 22	?	e 31 16	PS	e 32 43	PPS e 57.6
Granada	137.6	323	22 41a	PP	30 16	?	—	— 67.4
La Paz	140.0	123	e 18 47	[-34]	—	—	—	—
San Juan	145.9	63	e 20 1	[+29]	e 40 23	SS	—	—

Additional readings:—

Riverview iS?N = 11m.38s., iE = 13m.43s.
 Auckland SS? = 17m.0s., e = 17m.35s.
 Wellington iZ = 8m.55s. and 9m.13s., pP_cP = 10m.11s., sS = 15m.5s., SS = 17m.39s., sSS? = 18m.39s.
 Christchurch S_cS = 17m.53s.
 Bombay iE = 12m.23s. and 12m.47s., eE = 14m.9s.
 College e = 24m.42s. and 28m.1s.
 Sverdlovsk S = 23m.46s., PS = 24m.43s.
 Ukiah eSS = 30m.52s.
 Berkeley eSSE = 30m.50s., eSSN = 31m.20s., eEN = 38m.20s.
 Bozeman ePS = 27m.2s., e = 32m.10s.
 Potsdam e = 20m.40s., eN = 27m.40s.
 Helwan eN = 35m.10s.
 Scoresby Sund eSKKS = 26m.16s., eSS = 35m.23s.
 Warsaw eZ = 20m.9s., 21m.23s., 22m.31s., and 24m.16s., eEN = 27m.5s., eN = 27m.19s., eN = 35m.24s.
 St. Louis eE = 25m.28s., 29m.56s., and 37m.4s.
 Stuttgart e = 19m.2s., 20m.54s., and 36m.29s.
 Kew isPZ = 21m.53s., ePPE = 28m.37s., ePS = 36m.13s., ePPS = 37m.37s., eSS = 42m.35s.
 Philadelphia e = 22m.40s., and 22m.51s., eSS = 38m.21s., e = 44m.1s.
 Granada SS = 40m.16s.

June 6d. Readings also at 3h. (Granada), 5h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, La Paz, San Juan, and Huancayo), 10h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Palomar, Tucson, Huancayo, La Paz, Rio de Janeiro, San Juan, Chicago, Ottawa, and Kew), 11h. (Pasadena, Mount Wilson, Tinemaha, Tucson, Potsdam, and Granada), 12h. (Kodaikanal and Scoresby Sund), 13h. (Uccle), 14h. (Agra), 15h. (Tucson), 16h. (La Paz (3)), 19h. (near Florissant and St. Louis), 20h. (Cape Girardeau).

June 7d. 10h. 47m. 43s. Epicentre 27° 0N. 54° 5E. (as on 1940 June 1d.).

Doubtful. Scale VI at Bandar Abbas.

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

	Δ °	Az. °	P. m. s.	O-C. s.	S. m. s.	O-C. s.	Supp. m. s.	L. m.
Ksara	17.4	297	e 4 34	+28	e 8 6	+47	—	e 11.1
Tashkent	18.8	36	4 16	-7	7 27	-23	—	—
Andijan	20.1	42	e 4 40	+2	—	—	—	—
Agra	E. 20.9	88	4 34	-12	8 31	-4	—	—
Kodaikanal	E. 27.3	125	—	—	e 9 17?	?	—	—
Bucharest	28.7	315	—	—	e 11 41	SS	—	17.3
Sverdlovsk	30.1	7	e 6 14	+1	e 11 7	-5	—	—
Colombo	E. 31.3	127	—	—	e 11 17?	-14	—	—
Warsaw	35.5	325	—	—	e 12 17?	?	—	e 23.3
Potsdam	39.9	322	—	—	e 13 53	+10	—	e 23.3
Stuttgart	41.1	315	e 7 58	+11	—	—	—	—
Copenhagen	41.6	326	e 8 3	+12	14 25	+17	—	—

Additional readings:—

Bucharest eS?EN = 12m.58s.
 Warsaw eEN = 15m.17s.?
 Stuttgart e = 12m.37s.
 Long waves were also recorded at Sofia, De Bilt, and Kew.

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June 7d. 10h. 48m. 8s. Epicentre $0^{\circ}.4N. 80^{\circ}.4W.$ (as on 1942 May 17d.).

$$A = +.1668, B = -.9860, C = +.0070; \quad \delta = +7; \quad h = +7; \\ D = -.986, E = -.167; \quad G = +.001, H = -.007, K = -1.000.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8.5	5	e 1 52?	-15	—	—	—	—
Huancayo	13.3	158	e 3 19	+ 6	e 5 34	- 8	—	i 6.3
La Paz	20.7	146	i 4 52	+ 8	i 8 53	+22	—	13.0
San Juan	22.7	37	e 5 9	+ 5	i 9 19	+10	—	e 11.1
Fort de France	23.8	55	e 5 17	+ 2	e 9 37	+ 9	—	—
Columbia	33.4	358	e 7 8	+26	—	—	—	e 12.4
Bermuda	35.0	23	e 7 9	+13	e 11 52	-36	e 15 50	SSS e 21.0
La Plata	40.9	152	7 40	- 6	15 16	?	—	26.1
Tucson	42.7	322	i 7 58	- 2	—	—	e 9 42	PP e 22.6
Ottawa	45.0	5	8 18	- 1	15 2	+ 4	18 16	SS —
La Jolla	N. 47.4	317	e 8 42	+ 4	—	—	—	—
Palomar	Z. 47.4	318	e 8 39	+ 1	—	—	—	—
Riverside	Z. 48.1	318	i 8 44	+ 1	—	—	—	—
Mount Wilson	48.7	318	i 8 49	+ 1	—	—	—	—
Pasadena	48.7	318	i 8 49	+ 1	e 15 53	+ 3	—	e 24.2
Salt Lake City	49.3	330	e 8 45	- 8	e 15 49	-10	—	e 27.0
Santa Barbara	Z. 50.0	317	e 9 0	+ 2	—	—	—	—
Tinemaha	50.5	321	i 9 1	- 1	—	—	—	—
Victoria	60.6	329	e 10 16	+ 1	e 18 34	+ 4	—	33.9
Granada	79.2	52	12 32	P _c P	(22 26)	+18	14 20	PP 29.7
Scoresby Sund	79.5	17	—	—	e 25 44	PS	—	e 42.1
Stuttgart	89.4	41	e 13 2	+ 2	—	—	—	—

Additional readings and notes:—

Huancayo i=4m.14s. and 6m.3s.

La Paz iPN=4m.57s.

La Plata PZ=7m.46s., SSS?N=18m.52s.?

Tucson e=9m.55s.

Pasadena iZ=8m.54s.

Salt Lake City e=16m.6s.

Granada eS=20m.48s., the reading entered as S is given as S_cS.

Long waves were also recorded at Chicago and Butte.

June 7d. Readings also at 0h. (La Paz), 2h. (near Mizusawa), 3h. (Bucharest and Sofia (2)), 4h. (Kodaikanal), 6h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson), 7h. (Mount Wilson, Riverside, Tucson, and Tinemaha), 9h. (La Paz, Huancayo, San Juan, and Tucson), 10h. (La Paz), 12h. (La Paz, Huancayo, Rio de Janeiro, Tucson, Mount Wilson, Pasadena, Riverside, and Tinemaha), 14h. (Rio de Janeiro), 17h. (Granada), 22h. (Mount Wilson, Pasadena, Tucson (2), and near La Paz), 23h. (La Paz and San Juan).

June 8d. Readings at 3h. (Huancayo and La Paz), 5h. (Bucharest), 7h. (La Paz and Huancayo), 8h. (Jena and near Stuttgart), 9h. (Huancayo), 10h. (La Paz and San Juan), 12h. (Kew), 14h. (Kew and near La Paz), 17h. and 18h. (near Harvard), 19h. (Helwan and Ksara), 23h. (Mount Wilson, Pasadena, Riverside, Tinemaha, and Tucson).

June 9d. 11h. 6m. 45s. Epicentre $49^{\circ}.2N. 129^{\circ}.9W.$ (as on 1939 July 18d.).

$$A = -.4199, B = -.5040, C = +.7548; \quad \delta = +6; \quad h = -5; \\ D = -.768, E = +.640; \quad G = -.483, H = -.580, K = -.656.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Ukiah	11.1	153	—	—	e 5 2	+13	—	e 6.0
Berkeley	12.6	152	e 3 3	0	e 5 40	+14	—	e 7.6
Santa Clara	E. 13.1	151	—	—	(e 5 51)	+13	—	e 5.8
Bozeman	13.2	100	e 3 59	PP	—	—	—	e 6.4
Logan	14.6	114	e 3 34	+ 4	e 6 28	+15	e 3 43	PP e 8.7
Tinemaha	14.7	141	e 3 31	0	—	—	—	—
Saskatoon	15.0	70	—	—	e 6 45	+22	—	9.2
Salt Lake City	15.2	117	e 3 37	- 1	e 6 42	+14	—	e 8.3
Haiwee	15.7	142	e 3 51	+ 7	—	—	—	—
Mount Wilson	17.3	146	e 4 7	+ 3	—	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Pasadena		17.3	146	e 4 9	+ 5	—	—	—	e 8.4
Riverside	z.	17.8	144	e 4 12	+ 1	—	—	—	—
College		18.4	336	e 4 17	- 1	e 7 37	- 4	—	e 9.1
Palomar	z.	18.5	143	e 4 22	+ 3	—	—	—	—
La Jolla	N.	18.8	145	e 4 27	+ 4	—	—	—	—
Tucson		22.1	133	e 4 58	- 1	e 9 0	+ 2	i 5 44	PP e 12.1
Lincoln		24.7	95	e 5 15	- 9	e 10 40	SS	—	e 14.0
Florissant		29.9	96	e 6 5	- 7	—	—	—	e 15.8
Chicago		30.1	89	—	—	e 11 41	+29	—	e 15.9
St. Louis	E.	30.1	96	e 6 15	+ 2	e 11 18	+ 6	—	14.8
Ottawa		36.2	75	e 7 3	- 3	e 12 51	+ 4	—	19.2
Shawinigan Falls		37.6	72	e 7 51	+33	—	—	—	20.2
Fordham		39.6	81	e 9 5	PP	—	—	e 16 26	SS
Scoresby Sund		50.0	25	—	—	e 15 58	-11	e 19 37	SS e 24.7

Additional readings:—

Logan e=4m.13s.

Tucson e=6m.41s.

Florissant i=6m.51s.

St. Louis eE=6m.47s.

Long waves were also recorded at Honolulu and other American and European stations.

June 9d. Readings also at 0h. (near Ksara), 1h. (Granada), 5h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, Tinemaha, Fresno, and Tucson), 6h. (Mount Wilson, Tucson, Pasadena, Palomar, Riverside, and Tinemaha), 7h. (Agra), 9h. (Agra, Bozeman, Butte, Chicago, Florissant, Philadelphia, Pittsburgh, Ottawa, Shawinigan Falls, Seven Falls, and La Paz), 10h. (Agra), 14h. (near Tchinkent), 22h. (San Juan, Florissant, and near St. Louis).

June 10d. 1h. 8m. 5s. Epicentre 57°·0N. 164°·2E.

A = -·5265, B = +·1490, C = +·8370; δ = -3; h = -8;

D = +·272, E = +·962; G = -·805, H = +·228, K = -·547.

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa		23.4	230	e 5 11	0	9 35	+14	—	—
College		24.0	51	e 5 18	+ 1	e 9 35	+ 3	—	e 14.1
Irkutsk		34.0	288	e 6 50	+ 2	e 11 24	-49	—	—
Bozeman		50.8	64	e 9 13	+ 9	e 16 15	- 5	e 11 6	PP e 23.3
Sverdlovsk		51.1	317	i 9 4	- 2	i 16 23	- 1	—	—
Scoresby Sund		52.7	3	e 9 8	-10	e 16 57	+11	e 11 30	PP e 27.0
Tinemaha		53.3	77	i 9 24 _a	+ 1	—	—	—	—
Haiwee		54.2	77	i 9 30 _a	+ 1	—	—	—	—
Santa Barbara		54.6	80	i 9 32 _a	0	—	—	—	—
Mount Wilson		55.6	79	i 9 39 _a	- 1	—	—	—	—
Pasadena		55.6	79	i 9 39 _a	- 1	—	—	—	—
Riverside		56.2	79	i 9 43 _a	- 1	—	—	—	—
Palomar	z.	56.9	79	e 9 49	0	—	—	—	—
Upsala		60.5	342	10 12	- 2	e 18 55?	PPS	—	e 35.9
Tucson		61.0	75	i 10 17	- 1	—	—	e 13 52	PPP e 45.6
Copenhagen		65.4	344	i 10 47 _a	0	19 42	+12	—	—
Agra	E.	65.7	282	e 10 47	- 1	i 19 30	- 4	—	—
Florissant	z.	65.9	56	i 10 49	- 1	—	—	e 11 20	P _c P e 34.2
Ottawa		66.4	42	e 10 50	- 3	e 19 47	+ 4	e 28 55?	? e 34.9
Seven Falls		66.6	38	—	—	e 19 49	+ 4	—	33.9
Warsaw		67.0	337	10 59	+ 2	e 19 55	+ 5	e 12 25	? e 39.9
Potsdam	N.	68.4	342	e 11 7	+ 1	e 20 18	+11	e12 41	? e 37.9
De Bilt		69.9	347	i 11 16	+ 1	e 20 35	+11	—	e 33.9
Jena		70.1	342	e 10 55	-21	—	—	—	—
Philadelphia		71.3	45	—	—	e 25 16	SS	—	e 29.2
Uccle		71.3	348	e 11 23	0	e 20 53	+12	e 14 1	PP e 40.9
Bucharest		73.0	330	e 11 37	+ 4	e 21 7	+ 7	—	38.9
Granada		85.6	350	13 35 _a	+54	e 23 48	+35	29 23	SS 41.8
San Juan		94.0	47	e 15 26	?	e 23 45	[-11]	e 30 47	SS e 51.4

For Notes see next page.

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NOTES TO JUNE 10d. 1h. 8m. 5s.

Additional readings:—

Bozeman ePPP = 12m.5s., eSS = 19m.59s.

Scoresby Sund eSS = 20m.43s.

Tinemaha i = 9m.33s.

Warsaw eZ = 11m.14s.

Jena eN = 11m.20s.

San Juan ePS = 25m.40s.

Long waves were also recorded at Triest, Kew, and Harvard.

June 10d. 10h. 21m. 3s. Epicentre 6°·7N. 124°·1E.

A = -·5568, B = +·8225, C = +·1159; δ = -3; h = +7;
D = +·828, E = +·561; G = -·065, H = +·096, K = -·993.

	Δ °	Az. °	P. m. s.	O - C. s.	S. m. s.	O - C. s.	Supp. m. s.	L. m.
Palau	10·3	86	2 27	- 5	4 36	+ 6	—	—
Takao	16·2	347	e 3 1	-49	6 7	-44	—	—
Karenko	17·3	352	e 4 12	+ 8	—	—	—	—
Taihoku	18·4	352	e 4 23	+ 5	—	—	—	—
Nake	22·2	12	5 0	0	—	—	—	—
Miyazaki	26·0	15	e 5 35	- 1	—	—	—	10·0
Hukuoka	27·4	12	e 5 48	- 1	e 10 42	+14	—	13·7
Koti	28·1	16	e 5 57	+ 2	10 48	+ 8	—	—
Matuyama	28·2	15	e 5 15	-41	10 37	- 4	—	—
Hanada	29·0	13	e 5 13	-51	—	—	—	—
Kobe	29·7	19	e 6 11	+ 1	11 11	+ 5	—	—
Nagoya	30·7	22	e 6 9	-10	—	—	—	—
Zinsen	30·7	3	—	—	e 11 33	+12	—	—
Tokyo Cen. Met. Ob.	32·2	24	e 7 44	+72	13 55	SSS	—	—
Nagano	32·5	20	e 6 33	- 1	—	—	—	—
Sendai	34·9	24	e 6 50	- 5	11 41	?	—	—
Mizusawa	35·8	23	e 7 2	- 1	14 49	SS	—	—
Calcutta	37·9	298	e 7 1	-19	e 13 0	-13	e 15 32	SS
Mori	38·2	20	e 7 26	+ 3	—	—	—	20·4
Perth	39·2	191	i 9 22	PPP	—	—	—	—
Sapporo	39·3	20	7 30	- 2	13 42	+ 8	—	—
Colombo	43·9	273	6 57?	-73	13 57?	-45	—	—
Brisbane	44·0	142	i 8 10	- 1	—	—	i 9 43	PP
Hyderabad	45·8	288	8 16	- 9	15 24	+15	18 46	SSS
Kodaikanal	46·2	279	e 8 29	+ 1	i 15 37	+22	—	23·1
Riverview	47·8	150	i 8 42 _a	+ 1	—	—	—	e 15·9
Sydney	47·8	150	e 9 27	+46	e 15 51	+13	—	e 18·7
Agra	48·2	301	8 52	+ 8	i 16 8	+25	19 36	SS
Irkutsk	48·3	344	e 8 48	+ 3	i 15 54	+ 9	—	—
Bombay	51·3	290	e 9 11	+ 3	i 16 38	+12	i 12 32	PPP e 28·9
Stalinabad	59·0	311	i 10 14	+10	i 18 16	+ 6	—	—
Auckland	64·2	136	—	—	e 19 17?	+ 1	20 14	PPS 27·1
Wellington	66·5	140	—	—	e 20 59	PPS	i 27 27	SSS 36·9
Sverdlovsk	70·1	329	e 11 14	- 2	20 21	- 6	—	—
Honolulu	76·5	70	—	—	e 21 52	+13	e 23 27	? e 36·9
Tananarive	79·5	250	e 12 29	+19	e 23 2	PS	e 28 18	? e 41·4
College	83·2	26	—	—	(e 22 49)	0	—	e 22·8
Ksara	84·8	303	e 12 50	+13	e 23 17	+12	24 7	PS
Helwan	89·1	300	e 13 0	+ 2	23 42	- 4	16 48	PP
Sitka	90·0	32	e 17 8	PP	e 23 52	- 2	—	—
Bucharest	91·0	315	e 13 15	+ 8	23 49	[+10]	16 36	PP 42·0
Upsala	92·4	331	—	—	i 24 22	+ 6	—	e 43·9
Warsaw	92·7	323	13 24	+ 9	23 31	[-17]	e 17 6	PP e 47·9
Sofia	93·3	314	e 13 33	+15	e 23 51	[0]	e 17 3	PP
Copenhagen	96·4	328	18 11	?	24 16	[+ 7]	—	—
Potsdam	97·3	325	e 18 15	?	e 24 21	[+ 8]	—	45·9
Prague	97·3	323	—	—	e 24 57?	- 1	—	e 46·9
Cheb	98·5	323	e 18 26	?	e 23 57?	[-21]	—	e 53·9
Triest	99·2	318	i 17 55	PP	i 24 32	[+ 9]	—	e 48·9
Victoria	99·6	40	—	—	e 25 33	+16	—	40·9

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
Scoresby Sund	99.7	350	e 18 1	PP	e 25 23	+ 5	e 32 4	SS e 45.3
Stuttgart	100.9	323	e 13 51	- 1	—	—	e 18 2	PP e 54.0
De Bilt	101.8	327	i 18 37	PP	—	—	—	e 48.9
Strasbourg	101.9	322	—	—	e 24 57?	{ -12}	—	49.0
Aberdeen	102.9	333	—	—	i 25 1	[+20]	—	e 49.0
Uccle	102.9	326	e 18 37	PP	e 24 57	[+16]	—	e 47.9
Ukiah	103.0	48	e 28 11	PS	e 28 40	PPS	—	e 44.0
Berkeley	104.1	49	i 15 51	?	e 24 36	[-10]	—	e 43.1
Stonyhurst	104.9	331	—	—	e 40 8	?	—	e 53.9
Paris	104.9	325	e 18 40	PP	—	—	—	e 52.0
Kew	105.1	328	e 18 23	PP	e 24 19	[-32]	e 19 7	? e 49.4
Clermont-Ferrand	106.0	321	—	—	25 14	[+19]	28 42	PPS e 57.7
Tinemaha z.	107.4	49	e 18 41	PP	—	—	—	—
Bozeman	108.4	37	e 19 8	PP	e 26 23	S	e 34 20	SS e 45.3
Mount Wilson z.	108.6	51	e 18 45	PKP	—	—	e 18 56	PP —
Pasadena	108.6	51	e 18 57	PP	e 29 55	PPS	—	e 44.4
Riverside z.	109.2	51	e 19 0	PP	—	—	—	—
Salt Lake City	110.3	42	—	—	e 26 59	{ +52}	e 28 35	PS e 46.6
Almeria	113.9	315	8 19	?	18 22	?	—	55.9
Granada	114.5	316	i 7 48	?	14 54	?	—	e 54.4
Tucson	115.0	50	e 18 46	[+ 3]	e 29 30	PS	e 23 5	? e 49.6
Chicago U.S.C.G.S.	123.7	29	e 22 24	?	e 36 50	SS	—	e 51.0
Florissant	124.6	33	i 20 49	PP	e 28 17	{ +32}	e 23 50	PPP e 75.2
Seven Falls	124.8	12	—	—	e 27 51	{ + 5}	—	54.9
Ottawa	125.2	17	e 19 8	[+ 5]	e 26 57?	{ -51}	e 20 57	PP 42.9
Harvard	129.0	14	e 21 20	PP	e 38 48	SS	—	e 58.9
Philadelphia	130.3	18	e 21 35	PP	e 26 6	[-14]	e 31 36	PS e 56.7
Columbia	133.0	29	e 22 49	PKS	e 26 32	[+ 5]	40 57	SSP e 54.3
Bermuda	140.2	12	e 23 0	PKS	e 36 43	?	—	e 57.9
La Plata	151.9	176	—	—	(36 3)	PPS	—	36.1
San Juan	153.1	22	e 20 9	[+17]	e 43 42	SS	e 44 53	SSP e 65.5
Huancayo	160.1	108	e 20 59	[+57]	e 44 30	SS	e 24 33	PP e 66.4
La Paz	164.6	130	20 17	[+12]	—	—	24 44	PP 79.9

Additional readings:—

Perth i=14m.50s. and 17m.57s.
 Brisbane eN=11m.43s. and 12m.43s.
 Riverview iZ=9m.10s.
 Agra SSS?E=21m.39s.
 Bombay iE=10m.21s., iEN=26m.53s.
 Wellington Q=28m.57s.?
 Helwan eZ=14m.15s., SE=24m.22s., PSN=25m.30s., PPSN=26m.17s.
 Sitka e=24m.19s.
 Bucharest PS=24m.39s., SS=29m.25s.
 Upsala eE=24m.27s., eN=37m.57s.?
 Warsaw SKSE=23m.37s., SKSN=23m.42s., SKKSN=24m.3s., SE=24m.37s., SN=24m.39s., ePSZ=25m.50s., ePPS?Z=26m.26s.
 Copenhagen 26m.38s.
 Potsdam eN=25m.39s.
 Victoria eE=28m.8s.
 Scoresby Sund e=18m.35s., 22m.34s., and 24m.34s., eSS=37m.40s.
 Stuttgart e=14m.21s.
 De Bilt ePPP=21m.17s.
 Berkeley iSE=25m.6s.
 Kew eQ=46m.
 Clermont-Ferrand e=28m.27s.? and 35m.4s.?
 Bozeman e=26m.46s.
 Almeria PKP=11m.26s., PP=13m.17s., PPP=16m.24s., PPS=24m.48s., SS=30m.5s.
 Granada PP=9m.40s., PS=20m.5s., ePPS=21m.57s., SS=26m.46s., SSS=31m.30s.
 Tucson e=19m.17s., e=29m.43s., eS=31m.33s., e=34m.44s.
 Chicago U.S.C.G.S. e=28m.53s., eSS=38m.32s.
 Florissant iZ=22m.13s.
 Ottawa eE=37m.57s.?
 Philadelphia ePKP=23m.4s., e=24m.30s., and 38m.0s.
 Bermuda e=33m.57s.
 San Juan e=25m.2s., 28m.39s., 42m.45s., and 49m.4s.
 Huancayo e=25m.28s., 31m.32s., 41m.38s., and 51m. 21s.
 La Paz iZ=20m.29s., iPKP₁=21m.7s., PPPZ=28m.9s.
 Long waves were also recorded at San Fernando, Jena, and Arapuni.

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June 10d. 13h. Undetermined shock.

Riverview ePNZ = 54m.30s., iPNZ = 54m.35s., iPPPN = 55m.5s., iS = 58m.36s., eLZ = 59m.36s.
Wellington P = 54m.54s., s, pP?Z = 55m.15s., sP?Z = 55m.38s., iZ = 56m.56s., S = 59m.20s., sS? = 60m.10s., Q = 61m.40s., R = 62m.20s.
Brisbane iPN = 55m.29s., eSN = 60m.2s., eLN = 62m.51s.
Auckland P = 55m.35s., S = 60m.10s., Q = 62m.0s.
Christchurch P_cP = 55m.37s., Q = 58m.35s., SS = 58m.54s., P_cS = 59m.40s., R = 60m.33s., S_cS = 63m.2s.
Sydney e = 58m.30s.
Arapuni S = 59m., L = 65m.24s.
Stuttgart e = 69m.33s.
Ottawa eZ = 69m.36s., L = = 125m.
Granada i = 69m.58s., 80m.10s., eL = 130m.6s.
Long waves were also recorded at Agra, Huancayo, La Paz, La Plata, Scoresby Sund, and other American and European stations.

June 10d. Readings also at 0h. (near Fresno), 2h. (near Almeria and Granada), 3h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Tucson, and Kodaikanal), 4h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Tucson, Columbia, and Auckland), 9h. (Agra, Zurich, and Neuchatel), 15h. (Warsaw), 21h. (near Berkeley), 22h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, Tucson, Santa Clara, Ukiah, near Lick, Berkeley, Branner, Fresno, and Santa Barbara).

June 11d. Readings at 1h. (Sverdlovsk), 2h. (Kew and Florissant), 6h. (Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and near Andijan), 7h. (Calcutta), 10h. (Agra and Tananarive), 11h. (Kew and San Fernando), 13h. (Sofia), 15h. (Sofia, Riverview, and La Paz), 16h. (Haiwee, Mount Wilson, Pasadena, Palomar, San Fernando, Riverside, Tinemaha, Tucson, La Paz, Stuttgart, Zurich, Helwan, Arapuni, Auckland, Wellington, Riverview, and near Apia), 17h. (Bombay, Calcutta, Colombo, Kodaikanal, Tananarive, Helwan, Kew (2), and Riverview), 18h. (De Bilt, Warsaw, Granada, San Fernando, Potsdam, and La Paz), 21h. (near Mizusawa).

June 12d. 2h. Undetermined shock.

Sitka eP = 2m.46s., iS = 3m.41s., eL = 4.0m.
Victoria e = 5m.6s., L = 8m.
Butte eP = 6m.19s., eS = 10m.24s., eL = 12.7m.
Bozeman ePP = 7m.8s., eS = 10m.46s., eL = 13.4m.
Tinemaha ePNZ = 7m.20s.
Mount Wilson iPZ = 7m.43s.
Pasadena iPZ = 7m.44s.
Riverside ePZ = 7m.45s.
Tucson iP = 8m.20s., ePP = 9m.24s., eL = 21.0m.
St. Louis ePZ = 8m.46s., eE = 21m.30s.
Ottawa eZ = 9m.2s., e = 19m.12s., 21m.42s., and 25m.0s.
Berkeley eE = 15m.15s., 16m.50s., eZ = 17m.20s., eN = 17m.40s.
Shawinigan Falls e = 18m.24s., L = 22m.
Seven Falls e = 19m.48s., eL = 23m.
Cape Girardeau eE = 21m.23s.
Harvard e = 23m.4s., 23m.30s., and 24m.1s.
Long waves were also recorded at Kew, Granada, Columbia, Chicago U.S.C.G.S., Lincoln, Salt Lake City and Ukiah.

June 12d. 2h. Undetermined shock. Pasadena suggests Gulf of California.

La Jolla ePZ = 37m.9s., iSN = 37m.37s.
Palomar ePZ = 32m.9s., iSZ = 37m.42s.
Riverside iPNZ = 37m.25s., s, iS = 38m.7s.
Tucson eP = 37m.28s., e = 37m.44s., iL = 38m.20s.
Pasadena iPZ = 37m.33s., iS = 38m.20s.
Mount Wilson ePZ = 37m.55s., iSNZ = 38m.21s.
Santa Barbara ePEZ = 38m.3s.
Tinemaha eP = 38m.23s., iS = 39m.44s.

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June 12d. 10h. 21m. 33s. Epicentre 2° 18. 76° 8W.

Mapa Sismico y tectonico de Columbia (Banco de la Republica, Bol. grafico 7, Febrero de 1947). Epicentre 0° 0, 77° 0W. Strong.

A = +.2282, B = -.9729, C = -.0364; $\delta = -7$; $h = +7$;
D = -.974, E = -.228; G = -.008, H = +.035, K = -.999.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	o	o	m. s.	s.	m. s.	s.	m. s.	m.
Huancayo	10.0	172	i 2 27	0	i 4 15	- 7	—	i 5.1
Balboa Heights	11.3	347	e 2 40	- 6	—	—	—	—
La Paz	z. 16.8	150	i 3 59 _a	+ 1	i 7 41	SSS	—	9.6
San Juan	22.9	27	e 5 4	- 2	i 9 12	- 1	e 5 34	PP e 11.2
Bermuda	36.1	17	e 8 5	+60	e 12 47	+ 2	—	e 15.7
Columbia	36.1	354	e 7 11	+ 6	e 12 43	- 2	—	e 16.6
La Plata	37.1	154	7 9	- 5	12 59	- 2	10 3	P _c P 19.6
Rio de Janeiro	N. 38.6	125	—	—	e 13 24	+ 1	—	e 18.4
Cape Girardeau	41.0	345	e 7 42	- 4	e 13 50	- 9	—	—
Pittsburgh	42.4	357	i 8 2	+ 4	i 14 31	+11	—	—
St. Louis	42.4	344	i 7 56	- 2	i 14 13	- 7	—	i 17.5
Florissant	z. 42.6	344	e 7 58	- 1	e 14 16	- 7	—	—
Fordham	42.8	4	e 8 3	+ 2	i 14 27	+ 1	—	—
Harvard	44.7	6	e 8 16	0	e 14 50	- 4	—	e 18.4
Chicago U.S.C.G.S.	44.8	348	e 8 14	- 3	e 14 43	-12	e 10 5	PP e 18.7
Tucson	47.0	320	e 8 30	- 5	e 15 29	+ 3	e 10 33	PP e 19.7
Ottawa	47.3	2	8 36	- 1	15 31	0	19 27	SS e 23.4
Shawinigan Falls	48.6	4	e 8 47	0	e 16 3	+14	—	—
Seven Falls	49.3	6	—	—	e 15 57	- 2	—	21.4
La Jolla	E. 51.7	316	e 9 16	+ 5	—	—	—	—
Palomar	z. 51.7	317	e 9 16	+ 5	—	—	—	—
Riverside	z. 52.4	317	e 9 16	0	—	—	—	—
Mount Wilson	z. 53.0	317	e 9 16	- 5	—	—	—	—
Pasadena	53.0	317	e 9 20	- 1	e 17 3	+13	—	e 25.4
Salt Lake City	53.3	327	e 9 33	+10	e 16 48	- 6	—	e 21.9
Logan	54.0	329	e 9 32	+ 4	e 17 2	- 1	—	e 25.0
Santa Barbara	z. 54.2	316	e 9 29	0	—	—	—	—
Tinemaha	54.8	319	e 9 26	- 8	—	—	—	—
Bozeman	56.4	332	e 10 39	P _c P	e 17 34	- 2	—	e 27.2
Butte	57.4	332	e 10 40	P _c P	e 17 44	- 5	e 21 15	SS e 32.1
Berkeley	57.8	318	e 14 32	?	(i 18 5)	+11	(e 22 7)	SS e 29.1
Ukiah	59.1	319	—	—	e 18 12	+ 1	—	e 24.6
Victoria	64.6	328	10 33	- 8	19 18	- 3	—	30.4
Ivigut	66.9	14	—	—	e 19 31	-18	e 22 38	? e 31.7
Scoresby Sund	80.9	16	—	—	e 22 30	+ 4	e 28 4	SS e 35.0
Stonyhurst	82.5	35	—	—	i 22 43	+ 1	—	e 41.4
Kew	83.2	38	e 14 27	?	—	—	—	—
College	83.9	336	—	—	e 22 52	- 4	e 24 52	? e 34.9
Clermont-Ferrand	84.5	44	—	—	23 10	+ 8	32 14	SSS 38.6
Uccle	86.0	38	—	—	e 23 27	+10	—	e 37.4
De Bilt	86.7	37	—	—	e 23 37	+13	—	e 38.4
Stuttgart	88.9	41	e 12 57	- 1	—	—	—	—
Cheb	91.1	40	e 23 54	S	(e 23 54)	-10	—	e 45.4
Potsdam	91.6	38	e 13 15	+ 5	e 24 0	- 9	e 25 27	PS e 39.4
Triest	91.9	44	—	—	i 23 55	[+11]	—	—
Upsala	94.0	30	—	—	e 24 27?	- 3	—	—
Warsaw	96.5	38	e 20 27?	?	e 24 12	[+ 3]	—	e 46.4

Additional readings:—

Huancayo i = 3m.34s. and 3m.57s.

San Juan e = 6m.33s., iS = 9m.15s.

La Plata PN = 7m.16s., PZ = 7m.21s., ScSN = 16m.51s., ScSE = 17m.21s., ScSZ = 18m.3s.

Fordham e = 14m.5s.

Harvard e = 14m.30s.

Chicago U.S.C.G.S. e = 10m.54s., eSS = 18m.5s.

Tucson iP = 8m.34s., e = 9m.33s., and 12m.1s.

Mount Wilson iZ = 9m.20s.

Butte e = 12m.32s.

Berkeley S given as PP, SS given as S, eZ = 28m.57s.

Continued on next page.

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Scoresby Sund $e = 24m.46s.$

Potsdam $eN = 24m.3s., eE = 25m.37s.$

Warsaw $eE = 24m.19s.$

Long waves were also recorded at Kodaikanal, Colombo, Bombay, Agra, Arapuni, Wellington, Prague, Almeria, Auckland, San Fernando, Tananarive, Riverview, and Honolulu.

June 12d. Readings also at 2h. (near Andijan), 3h. (Tashkent), 4h. (Stuttgart and Cape Girardeau), 8h. (near Trieste and Sofia), 9h. (near Spokane), 10h. (Cape Girardeau and St. Louis), 11h. (Paris and La Paz), 14h. (near Lick), 23h. (near La Paz).

June 13d. 16h. South Pacific.

Apia $eP = 16m.45s., iPg? = 17m.33s., SE = 18m.15s., eS^*N = 18m.42s.$

Auckland $S? = 23m.13s., i = 25m.10s.,$ and $26m.30s.$

Arapuni $i? = 24m.36s.$

Pasadena $ePZ = 26m.29s., eLZ = 52m.$

Mount Wilson $ePZ = 26m.32s.$

Santa Barbara $ePZ = 26m.32s.$

Palomar $ePZ = 26m.33s.$

Riverside $ePZ = 26m.34s.$

Tucson $eP = 26m.54s., i = 27m.18s.$ and $27m.56s., eS = 37m.13s., eSS = 43m.54s., eL = 54m.23s.$

Tinemaha $ePNZ = 27m.3s.$

Riverview $eZ = 31m.30s.$

La Paz $ePZ = 32m.30s., LZ = 64m.30s.$

Warsaw $eZ = 34m.12s.$ and $34m.37s.$

Potsdam $eZ = 34m.30s., eLZ = 104m.$

Stuttgart $e = 34m.31s.$

Berkeley $eN = 47m.39s., eZ = 52m.39s.$

Long waves were also recorded at Huancayo, Harvard, Philadelphia, and Kew.

June 13d. 19h. South Pacific.

Christchurch $S = 21m.3s., Q = 24m.44s., R = 28m.33s.$

Auckland $P = 22m.42s., S = 25m.18s., L = 26m.9s.$

Arapuni $S? = 24m.6s.$

Santa Barbara $ePEZ = 26m.19s.$

Berkeley $iPZ = 26m.24s., eSN = 36m.4s., eLEN = 47m.9s.$

Pasadena $iPZ = 26m.24s., eLEN = 47m.42s.$

Mount Wilson $ePZ = 26m.24s.$

Palomar $ePZ = 26m.26s.$

Riverside $ePZ = 26m.26s.$

Haiwee $ePEN = 26m.30s.$

Tinemaha $eP = 26m.35s.$

Tucson $iP = 26m.47s., i = 27m.19s.$ and $29m.29s., eS = 39m.7s., eL = 53m.40s.$

Vladivostok $eP = 26m.50s., eS = 37m.6s.$

Wellington $S? = 27m.8s., i = 27m.43s., R = 28m.17s.$

Logan $eP = 27m.13s., eS = 37m.38s., eL = 53m.16s.$

La Paz $ePZ = 30m.55s., LZ = 63m.0s.$

Copenhagen $iP = 34m.12s.k.$

Warsaw $eZ = 34m.12s.a, eN = 34m.20s., eZ = 34m.48s., eN = 35m.16s., eZ = 35m.41s., 37m.57s.,$ and $90m., L = 111m.$

Potsdam $eZ = 34m.19s., eN = 34m.22s., eE = 34m.36s., eLNZ = 100m.$

Stuttgart $eP = 34m.22s., i = 34m.34s.$ and $34m.43s.$

Uccle $eZ = 34m.24s.$

Kew $iZ = 34m.26s., eL = 96m.$

De Bilt $iZ = 34m.27s.k, eL = 100m.$

Ksara $e = 34m.30s.$ and $36m.19s.$

Ukiah $eS = 36m.16s., eL = 48m.13s.$

Victoria $e = 37m.12s., L = 55m.$

Huancayo $eSKS = 38m.36s., e = 45m.35s., eL = 59m.43s.$

Philadelphia $ePS = 43m.13s., eL = 66m.12s.$

St. Louis $eSN = 44m.44s.$

Santa Clara $eE = 47m.18s.$

Long waves were also recorded at Riverview, Sydney, Honolulu, Bozeman, Ottawa, Vermont, Harvard, Scoresby Sund, and San Fernando.

June 13d. Readings also at 3h. (Berkeley), 4h. (Tucson), 5h. (Riverview), 6h. (Auckland), 9h. (Stuttgart), 14h. (Haiwee, Tucson, Mount Wilson, Pasadena, Riverside, Palomar, Santa Barbara, Tinemaha, Vladivostok, and Stuttgart), 17h. (near Branner), 18h. (near La Paz), 19h. (La Paz).

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June 14d. 3h. 9m. 56s. Epicentre 14°·5N. 148°·0E. Depth of focus 0·005.

$\Delta = -\cdot 8214$, $B = +\cdot 5133$, $C = +\cdot 2488$; $\delta = +8$; $h = +6$;
 $D = +\cdot 530$, $E = +\cdot 848$; $G = -\cdot 211$, $H = +\cdot 131$, $K = -\cdot 969$.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.		
			m.	s.		m.	s.		m.	s.			
Yokohama	22·2	342	4	56	+ 4	8	33	-14	—	—	—		
Naha	22·3	304	4	54	+ 1	8	4?	-45	—	—	—		
Tokyo Cen. Met. Ob.	22·4	343	4	58	+ 4	8	53	+ 2	6	20	? e 10·3		
Nagoya	22·9	338	e 5	4	+ 5	9	7	+ 7	—	—	—		
Miyazaki	23·0	322	3	36	?	—	—	—	—	—	—		
Matuyama	23·7	328	e 4	59	- 8	9	19	+ 5	—	—	—		
Nagano	23·7	341	5	6	- 1	9	21	+ 7	—	—	—		
Sendai	24·5	348	5	14	0	9	38	+11	—	—	—		
Hukuoka	24·8	324	5	18	+ 1	9	44	+12	—	—	—		
Mizusawa	25·3	348	e 5	26	+ 4	9	44	+ 3	—	—	—		
Taihoku	27·0	297	e 4	29	-69	—	—	—	—	—	—		
Mori	28·3	349	5	54	+ 4	10	51	sS	1	6	42	PP	—
Sapporo	29·0	351	5	58	+ 2	6	49	PP	—	—	—	—	
Brisbane	N. 42·0	174	i 7	49	+ 3	i 14	4	+ 4	—	—	—	—	
Riverview	48·1	177	i 8	39 _a	+ 4	i 15	41	+13	—	—	—	e 22·2	
Sydney	48·1	177	—	—	—	e 15	43	+15	—	—	—	e 22·1	
Irkutsk	51·2	327	e 8	58	- 1	i 16	11	0	—	—	—	—	
Honolulu	51·8	74	e 9	24	+21	e 16	42	+23	—	—	—	e 23·3	
Perth	55·5	213	—	—	—	i 17	19	+10	1	21	39	SSS	i 24·2
Calcutta	N. 56·8	287	i 10	12	pP	i 17	27	+ 1	—	—	—	—	
Auckland	57·0	154	9	46	+ 2	16	35?	-59	1	19	22	?	29·1
Arapuni	58·4	154	—	—	—	16	4	?	1	20	34	SS	28·1
Wellington	60·8	157	10	9 _a	+ 1	18	39	PS	18	49	—	sS	31·1
Christchurch	62·0	160	10	18 _a	+ 2	20	37	?	10	34	—	P _c P	30·9
Agra	E. 65·9	293	i 10	43 _k	+ 2	i 19	23	+ 1	i 10	54	—	pP	—
College	66·1	25	e 10	38	- 4	e 19	25	+ 1	e 13	28	—	PP	e 27·1
Colombo	E. 67·2	271	11	10	pP	19	42	+ 4	—	—	—	—	—
Kodaikanal	E. 68·8	275	i 11	4 _a	+ 5	i 20	4	+ 7	—	—	—	—	33·6
Bombay	71·7	285	i 11	25	+ 8	i 20	31	+ 1	1	11	56	sP	—
Tchinkent	71·9	310	i 11	20	+ 2	—	—	—	—	—	—	—	—
Stalinabad	72·8	307	i 11	24	+ 1	—	—	—	—	—	—	—	—
Sverdlovsk	76·6	325	i 11	45	0	i 21	19	- 6	—	—	—	—	—
Victoria	78·4	43	11	55	0	21	44	0	—	—	—	—	32·1
Ukiah	80·1	52	e 12	8	+ 4	e 22	28	+26	e 15	24	—	PP	e 33·3
Berkeley	81·0	53	i 12	11	+ 2	e 22	18	+ 6	e 32	43	—	Q	e 33·7
Branner	81·2	53	e 12	13	+ 3	—	—	—	—	—	—	—	—
Santa Clara	81·4	53	i 12	15	+ 4	e 22	23	+ 7	—	—	—	—	e 38·2
Lick	81·6	53	e 12	16	+ 4	e 22	26	+ 8	—	—	—	—	—
Fresno	N. 83·2	54	i 12	25	+ 4	—	—	—	—	—	—	—	—
Santa Barbara	83·8	56	i 12	28 _a	+ 4	—	—	—	—	—	—	—	—
Tinemaha	84·3	53	i 12	29 _a	+ 3	—	—	—	1	12	50	pP	—
Haiwee	84·8	54	e 12	34	+ 5	—	—	—	—	—	—	—	—
Pasadena	85·1	56	i 12	33 _a	+ 3	e 22	50	[+ 5]	1	12	53	pP	e 34·4
Mount Wilson	85·2	56	i 12	34 _a	+ 3	—	—	—	1	12	54	pP	—
Riverside	85·8	56	i 12	35 _a	+ 1	e 23	32	PS	1	12	56	pP	—
Butte	86·1	43	e 12	39	+ 4	e 22	51	[- 1]	e 15	14	—	?	e 35·9
La Jolla	86·2	57	i 12	39 _a	+ 4	—	—	—	—	—	—	—	—
Palomar	z. 86·4	56	e 12	39	+ 3	—	—	—	e 12	59	—	pP	—
Bozeman	87·2	44	e 12	37	- 3	e 22	57	[- 2]	e 29	13	—	SS	e 35·6
Logan	87·9	46	i 12	48	+ 4	e 23	8	[+ 4]	e 16	7	—	PP	e 36·8
Salt Lake City	88·2	49	e 12	48	+ 3	e 23	10	[+ 4]	e 16	13	—	PP	e 36·3
Tucson	91·5	56	i 13	4	+ 3	e 24	55	PS	1	16	40	PP	e 37·5
Scoresby Sund	94·9	356	e 13	20	+ 4	i 23	50	[+ 7]	e 17	8	—	PP	e 40·0
Upsala	95·8	337	e 13	29	+ 9	e 23	47	[- 1]	e 17	21	—	PP	e 48·1
Warsaw	99·3	330	e 13	36	0	e 24	9	[+ 1]	e 17	17	—	PP	e 48·1
Ksara	99·5	307	e 14	0?	pP	—	—	—	e 17	15	—	PP	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
	°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Copenhagen	100.7	336	e 13 43	+ 1	i 24 19	[+ 5]	18 9	pPP	—
Bucharest	101.1	321	e 13 44	0	i 24 20	[+ 4]	—	—	42.1
Potsdam	102.9	333	e 13 53	+ 1	i 24 29	[+ 4]	e 14 12	pP	e 48.1
Sofia	103.8	320	e 13 57	+ 1	e 24 33	[+ 4]	25 15	PS	—
Prague	103.9	330	e 25 45	S	(25 45)	+ 8	—	—	e 41.1
Florissant	104.0	42	e 18 4	PP	e 24 31	[+ 1]	i 27 50	PS	e 59.5
Chicago U.S.C.G.S.	104.1	39	—	—	e 25 0	[+30]	e 27 36	PS	e 40.7
St. Louis	104.2	42	i 14 1	P	e 24 40	[+ 9]	i 18 27	PP	50.1
Aberdeen	104.4	343	e 18 18	PKP	e 27 28	PS	i 32 47	SS	50.6
Jena	104.6	332	e 14 4	P	—	—	e 18 4	PKP	—
Helwan	104.7	306	i 18 36	PP	i 24 37	[+ 4]	—	—	—
Cheb	104.8	331	e 18 19	PKP	e 24 40	[+ 7]	e 27 24	PS	e 50.1
Cape Girardeau F.	105.3	43	—	—	e 24 39	[+ 4]	e 25 4	sSKS	—
De Bilt	106.3	336	e 18 29	PKP	e 24 45	[+ 5]	i 27 42	PS	e 50.1
Stuttgart	107.3	332	i 14 12	P	e 27 44	PS	e 14 24	pP	—
Triest	107.3	327	e 18 27	PKP	i 24 46	[+ 2]	i 27 52	PS	i 52.1
Stonyhurst	107.4	341	—	—	24 20	[-25]	33 35	SS	e 51.1
Uccle	107.6	336	e 14 16	P	e 33 50	SS	e 18 43	PP	e 49.1
Ottawa	108.5	30	e 18 25	PKP	e 24 54	[+ 4]	e 28 22	PS	48.1
Zurich	108.5	332	e 18 24	PKP	—	—	—	—	—
Kew	108.7	339	e 14 21	P	e 24 55	[+ 4]	e 18 49	PP	e 53.1
Basle	108.8	332	e 15 35	?	—	—	—	—	—
Neuchatel	109.5	332	e 18 26	PKP	—	—	—	—	—
Seven Falls	109.5	26	—	—	e 25 4	[+10]	e 28 28	PS	49.1
Vermont	110.4	30	—	—	e 25 28	[+30]	e 28 25	PS	e 48.7
Clermont-Ferrand	112.2	333	i 19 22	PP	i 26 48	SKKS	i 30 24	PPS	51.1
Fordham	112.6	32	e 19 9	PP	e 28 47	PS	i 29 7	PPS	—
Harvard	112.6	29	e 19 19	PP	e 28 53	PS	e 29 19	PPS	e 57.1
Philadelphia	112.6	33	—	—	e 25 20	[+14]	e 28 38	PS	e 45.9
Columbia	112.9	42	e 19 16	PP	e 25 18	[+10]	e 28 57	PS	e 51.1
Almeria	121.8	331	18 58	[+11]	25 51	[+11]	20 22	PP	66.1
San Fernando	123.8	334	e 20 51	PP	e 37 27	SS	—	—	61.1
Bermuda	123.9	33	e 23 19	PPP	e 30 24	PS	e 36 46	SS	e 50.1
San Juan	133.1	46	e 18 57	[-11]	e 26 12	[+ 1]	e 38 54	SS	e 54.8
Huancayo	137.8	91	e 19 24	[+ 7]	e 40 51	SS	e 22 33	PP	e 63.5
Fort de France	139.1	45	e 19 14	[- 5]	—	—	—	—	—
La Paz	145.2	97	i 19 37 ^a	[+ 7]	i 41 52	SS	i 20 24	pPKP	67.6
La Plata	149.1	136	19 44	[+ 7]	—	—	—	—	79.1

Additional readings:—

Honolulu e=11m.41s. and 19m. 21s.
 Riverview iNZ=16m.0s.
 Arapuni i=22m.40s.
 Wellington i=10m.23s., 17m.10s., 20m.1s., ScSZ? =20m.36s., Q =25.1m.
 Christchurch Q =26.8m.
 Agra eE=12m.46s., ePSE =19m.35s., iE =20m.30s.
 College e =11m.41s.
 Bombay iE =12m.17s., iPPE =14m.2s., iE =15m.49s., 20m.52s., isSEN =21m.19s., iEN =21m.43s., isSE =24m.55s.
 Ukiah e =22m.10s. and 26m.51s.
 Tinemaha i =12m.56s.
 Pasadena eZ =15m.41s., iPSZ =24m.54s.
 Riverside i =16m.13s.
 Butte eSS =29m.1s.
 Palomar eZ =16m.18s.
 Bozeman e =15m.14s., eS =23m.21s., e =27m.22s.
 Salt Lake City e =23m.30s., 28m.16s., eSS =29m.25s.
 Tucson i =13m.23s., e =18m.4s., ePS =25m.9s., eSS? =31m.12s.
 Scoresby Sund ePPP =19m.10s., eS =24m.33s., ePS =25m.39s., eSS =30m.56s., i =31m.9s., eSSS =34m.58s.
 Upsala eSN =23m.51s., ePSE =24m.27s.
 Warsaw PZ =13m.39s., eZ =13m.50s., eE =16m.4s.?, eZ =16m.29s., 23m.1s., and 24m.59s., ePS?E =25m.2s., eE =25m.25s., eEZ =26m.29s., eE =28m.9s.
 Copenhagen 24m.52s., 25m.16s., 26m.44s., and 31m.54s.
 Bucharest eSN =24m.24s., ePS =25m.20s., eSS =30m.11s.
 Potsdam eZ =17m.14s., eN =17m.16s., ePKPE =18m.10s., iPPZ =18m.21s., epPPZ =18m.40s., iSPEZ =27m.7s., eSPN =27m.10s., ePKKPZ =30m.4s., eEN =31m.4s., eSSPZ =32m.58s.
 Prague e =34m.34s. and 37m.46s.

Continued on next page.

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Florissant iSKSE = 24m.36s.
 Chicago U.S.C.G.S. eS = 26m.4s., eSS = 33m.8s.
 St. Louis i = 18m.42s., iNZ = 19m.31s., iEN = 25m.0s., cPSE = 27m.39s., eSSN = 33m.11s.
 Jena eN = 18m.31s., e = 18m.58s.
 Helwan i = 25m.19s.
 De Bilt eSS = 33m.39s.
 Stuttgart ePKP = 17m.21s., cpPKP = 17m.35s., cPP = 18m.35s., iPP = 18m.40s., ipPP = 18m.50s., cN = 27m.48s., iPKKP = 29m.54s.
 Stonyhurst 26m.15s.
 Uccle eZ = 17m.43s., eEN = 24m.52s., ePPS = 27m.54s.
 Kew iPP = 19m.6s., eSKKSE = 25m.26s., cPSNZ = 28m.5s., cPPSNZ = 29m.14s., eSSNZ = 33m.39s., eSSE = 33m.59s.
 Vermont eSS = 34m.25s.
 Clermont-Ferrand e = 27m.35s.
 Philadelphia e = 29m.4s., 30m.22s., eSS = 34m.58s.
 Almeria PPP = 22m.51s., SKKS = 27m.8s., PS = 29m.51s., SS = 36m.8s.
 Bermuda e = 28m.24s.
 San Juan e = 22m.39s., 31m.54s., and 39m.25s., eSSS = 43m.21s.
 Huancayo e = 20m.46s. and 29m.34s.
 La Paz iSKPZ = 22m.58s., iPPPN = 23m.46s.
 La Plata E = 20m.2s. and 21m.22s.
 Long waves were also recorded at Granada and Ivigtut.

June 14d. 14h. 29m. 35s. Epicentre 11°·8N. 126°·2E.

A = -·5783, B = +·7901, C = +·2031; $\delta = -6$; $h = +6$;
 D = +·807, E = +·591; G = -·120, H = +·164, K = -·979.

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Karenko	12·9	341	2 39	-28	—	—	—	—
Taihoku	13·9	342	3 22	+ 1	6 56	+59	—	—
Naha	14·4	5	e 3 15	-12	—	—	—	—
Hukuoka	22·0	10	e 5 4	+ 6	8 58	+ 2	—	—
Koti	22·7	16	e 5 4	0	9 5	- 4	—	—
Matuyama	22·8	14	e 5 8	+ 3	9 15	+ 4	—	—
Kobe	24·2	19	5 21	+ 2	9 37	+ 2	—	—
Gihu	25·4	22	e 5 25	- 6	9 26	-30	—	—
Zinsen	25·6	359	8 1	?	14 46	?	—	—
Tokyo	26·8	25	—	—	e 8 51	?	—	—
Nagano	27·0	20	e 5 48	+ 3	—	—	—	—
Calcutta	N. 37·6	292	e 7 23	+ 5	i 12 59	- 9	—	e 17·8
Irkutsk	44·1	341	e 8 9	- 3	i 14 39	- 6	—	—
Colombo	E. 45·9	268	e 8 25?	- 1	—	—	—	—
Agra	E. 47·6	296	i 8 33	- 6	15 29	- 6	8 58	pP
Kodaikanal	E. 47·8	274	e 8 25?	-16	—	—	—	—
Riverview	51·2	154	e 9 8	+ 1	—	—	i 11 31	PP
Bombay	51·8	285	i 9 11	- 1	i 16 30	- 3	e 20 25	SS
Sverdlovsk	66·9	328	i 10 51	- 5	i 19 40	- 9	—	—
Ksara	83·8	303	e 12 21?	-11	e 22 46?	- 9	—	—
Helwan	88·4	300	12 52	- 3	23 39	- 1	16 18	PP
Bucharest	88·9	316	e 12 57	- 1	i 23 41	- 3	e 16 25	PP
Upsala	89·0	332	—	—	e 23 18	[- 9]	—	e 39·4
Warsaw	89·9	324	13 0 _a	- 2	e 23 48	- 6	e 24 53	PS
Copenhagen	93·2	329	—	—	24 28	+ 5	17 0	PP
Potsdam	94·3	326	e 13 21	- 2	i 24 38	+ 6	e 17 1	PP
Scoresby Sund	95·1	351	e 19 14	PPP	e 24 4	[+ 2]	—	e 50·4
Stuttgart	98·2	324	i 13 37 _a	- 3	—	—	e 17 35	PP
De Bilt	98·7	328	e 13 40	- 2	e 24 25	[+ 4]	e 17 39	PP
Uccle	99·8	328	e 17 51	PP	26 39	PS	—	e 52·4
Kew	101·9	329	—	—	—	—	e 18 9?	PP
Tinemaha	z. 102·5	48	e 18 9	PP	—	—	—	e 39·4
Mount Wilson	z. 103·8	51	e 18 17	PP	—	—	—	—
Tucson	110·1	49	e 19 2	PP	e 23 4	?	e 28 28	PS
St. Louis	E. 119·4	32	—	—	e 36 51	SS	—	e 51·1
Ottawa	119·7	17	e 20 12	PP	—	—	—	70·4
San Juan	147·6	22	e 19 42	[- 2]	e 23 49	PKS	e 36 14	PPS
La Paz	z. 165·3	110	e 20 10 _a	[+ 4]	i 25 19	PP	—	e 52·1

For Notes see next page.

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NOTES TO JUNE 14d. 14h. 29m. 35s.

Additional readings:—

Agra iPPE = 10m.31s., iP_oSE = 13m.58s., iSSSE = 19m.28s.
 Riverview iNZ = 9m.33s., eEN = 20m.10s., eZ = 20m.23s.
 Bombay iE = 9m.32s., 11m.14s., and 17m.10s.
 Helwan eZ = 13m.10s., PSN = 24m.32s.
 Bucharest PSE = 24m.40s., SSE = 29m.40s.
 Upsala eN = 23m.34s., eE = 23m.41s.
 Warsaw eE = 12m.25s.?, eN = 14m.25s., eS?N = 23m.51s., eS?Z = 23m.57s.
 Potsdam epPPZ = 17m.13s., eE = 24m.7s.
 Scoresby Sund e = 28m.44s., 30m.29s., 38m.21s., and 39m.35s.
 Tucson eSKS = 29m.17s., ePS = 31m.7s.
 Long waves were also recorded at Cheb, San Fernando, Pasadena, and Huancayo.

June 14d. Readings also at 1h. and 6h. (near La Paz), 10h. (Haiwee, Mount Wilson, Pasadena, Tinemaha, Tucson, and near Apia), 11h. (Stuttgart and near Harvard (2)), 15h. (near Istanbul), 16h. (Stuttgart and near Harvard), 20h. (near Apia), 21h. (Stuttgart and Tucson), 22h. (Stuttgart (2) and Tucson).

June 15d. 5h. 56m. 22s. Epicentre 38°·0N. 29°·5W.

A = +·6876, B = -·3890, C = +·6131; $\delta = +1$; $h = -1$;
 D = -·492, E = -·870; G = +·534, H = -·302, K = -·790.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Angra do Heroismo	1·9	70	1 11?	S	(1 11?)	+12	—	(2·0)
San Fernando	18·6	90	e 4 31	+10	8 13	SS	4 41	PP 9·1
Granada	20·5	85	i 4 32k	-10	i 7 34	-53	5 9	pP 9·6
Almeria	21·5	86	4 16	-36	7 40	-67	8 40	P _c P 11·1
Kew	24·5	47	e 5 18	-4	e 9 38?	-3	8 5	? e 11·6
Uccle	27·1	50	e 5 48	+2	e 10 15	-9	—	— e 12·9
De Bilt	28·0	48	—	—	e 10 38?	0	—	— e 13·6
Stuttgart	29·8	57	e 6 10	-1	—	—	e 8 55	? —
Potsdam	32·7	50	e 9 20	?	e 11 38	-14	—	— 15·6
San Juan	37·4	249	e 8 51	PP	13 26	+21	e 9 14	PPP 16·2
Warsaw	37·6	51	e 7 17	-1	—	—	e 10 3	? e 18·6
Sverdlovsk	59·5	40	e 10 0	-7	18 6	-10	—	—
Tucson	64·8	293	e 10 44	+1	—	—	e 13 31	PP e 36·4
Tinemaha	67·6	300	e 11 1	0	—	—	e 13 48	PP —
Mount Wilson z.	68·9	297	e 11 8	-1	—	—	i 13 56	PP —

Additional readings:—

Almeria P_cS = 12m.16s.
 Granada sS = 8m.31s.
 Long waves were also recorded at Bermuda, Scoresby Sund, Pasadena, and Cheb.

June 15d. 13h. 46m. 55s. Epicentre 30°·5S. 180°. Depth of focus 0·040.

A = -·8631, B = ·0000, C = -·5050; $\delta = -3$; $h = +1$;
 D = ·000, E = +1·000; G = -·505, H = ·000, K = -·863.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Auckland	7·7	213	1 56	+6	—	—	—	—
Arapuni	8·4	204	—	—	3 11	-22	—	—
Wellington	11·6	200	2 32	-7	4 18	-26	i 6 0	sS —
Christchurch	14·3	202	5 9	?	i 7 23	sS	—	—
Apia	18·3	29	e 4 10	+15	e 7 30	+25	—	—
Brisbane N.	23·8	272	e 5 16	+27	—	—	i 6 56	? —
Riverview	24·6	254	i 4 52k	-4	i 8 34	-20	i 7 4	pP —
Sydney	24·6	254	—	—	e 8 2	-52	—	—
Santa Barbara	86·0	47	e 12 12	+3	—	—	—	—
La Jolla	86·6	50	e 12 14	+2	—	—	—	—
Pasadena	86·8	48	i 12 14	+1	i 22 25	+1	i 14 46	pP —
Mount Wilson	86·9	48	i 12 15	+1	e 22 25	0	—	—
Palomar z.	87·1	49	e 12 17	+2	—	—	—	—
Haiwee	88·2	46	e 12 22	+2	e 22 40	+3	—	—
Tinemaha	88·7	45	e 12 23	+1	i 22 45	+3	—	—

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tucson	90.5	52	i 12 32	+ 2	e 22 57	- 1	e 13 21	pP
Huancayo	96.3	107	e 16 33	PP	22 49	[-15]	e 17 58	pPP e 39.9
La Paz	99.6	115	e 22 5	?	—	—	—	—
Sverdlovsk	130.9	320	i 18 31	[- 7]	e 37 47	SS	20 51	PP
Ksara	149.5	284	e 19 14	[+ 3]	—	—	e 22 23	PP
Helwan	z. 152.9	275	19 5	[-10]	—	—	e 23 17	PP
Copenhagen	153.3	344	e 19 13	[- 3]	—	—	—	—
Warsaw	z. 153.3	331	e 19 12	[- 4]	—	—	23 12	PP
Potsdam	156.1	341	e 19 14	[- 6]	—	—	23 29	PP e 78.1
Jena	157.8	339	e 19 57	[+35]	—	—	—	—
De Bilt	158.1	351	i 19 18k	[- 4]	e 26 10	[+12]	i 23 40	PP
Kew	z. 159.0	0	e 19 17	[- 7]	e 26 9?	[+10]	i 23 45	PP
Uccle	159.5	354	e 19 18	[- 7]	e 27 34	PPP	e 23 43	PP
Stuttgart	160.5	341	i 19 20a	[- 6]	—	—	23 51	PP
Ebingen	161.1	340	—	—	e 30 29	SKKS	—	—
Granada	172.7	23	i 19 44k	[+10]	31 15	SKKS	20 57	pPKP 82.5
Almeria	173.4	17	e 21 1	pPKP	31 48	SKKS	24 50	PP 46.1

Additional readings:—

Wellington i = 4m.24s., 6m.55s., and 9m.5s., S_cS = 14m.17s.
 Christchurch iN = 7m.26s., iZ = 8m.0s., iE = 8m.15s.
 Riverview iN = 11m.6s.
 Tinemaha e = 22m.12s.
 Tucson eSP = 24m.3s.
 Huancayo e = 19m.36s.
 Sverdlovsk iPKS = 22m.0s.
 Helwan iZ = 19m.29s., eZ = 21m.11s.
 Copenhagen i = 19m.21s., 19m.36s.
 Warsaw PKP₂Z = 19m.37s.
 Potsdam eZ = 19m.26s., eE = 28m.53s., iN = 29m.33s., eN = 33m.5s.
 De Bilt iPKP₂ = 19m.58s.
 Kew iPKP₂Z = 20m.0s., eSKKSZ = 30m.19s.?
 Uccle iZ = 20m.5s., iNZ = 29m.51s.
 Stuttgart iPKP₂ = 20m.9s., e = 21m.23s.
 Granada PP = 24m.45s., SKSP = 36m.5s., SS = 45m.5s.
 Almeria pP = 21m.29s., PPP = 26m.44s., PS = 33m.4s., SS = 38m.30s.

June 15d. 16h. 41m. 19s. Epicentre 18°·0N. 106°·5W. (as on 1939 Jan. 19d.).

A = -·2703, B = -·9125, C = +·3071; $\delta = +3$; $h = +5$;
 D = -·959, E = +·284; G = -·087, H = -·294, K = -·952.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Tacubaya	N. 7.0	78	2 3	P*	—	—	—	—
Tucson	14.7	346	i 3 31	0	e 6 6	-10	3 48	PP i 7.2
La Jolla	17.7	329	e 4 9	- 1	—	—	—	—
Palomar	z. 17.9	331	e 4 10	- 2	—	—	—	—
Riverside	18.7	331	i 4 21	- 1	—	—	—	—
Mount Wilson	19.2	331	i 4 26	- 2	—	—	i 4 43	PP
Pasadena	19.2	331	i 4 28k	0	e 8 4	+ 5	i 5 6	PPP e 9.4
Santa Barbara	20.2	328	e 4 37	- 2	—	—	—	—
Haiwee	20.7	334	e 4 45	+ 1	—	—	—	—
Tinemaha	21.7	335	i 4 54k	- 1	—	—	—	—
Salt Lake City	23.2	350	e 5 9	0	e 9 24	+ 6	—	— e 11.6
Santa Clara	23.6	330	e 5 7	- 6	e 9 29	+ 4	—	—
Berkeley	24.1	330	i 5 20	+ 2	i 9 40	+ 6	—	— e 13.1
Logan	24.1	352	e 5 22	+ 4	e 9 12	-22	6 11	PPP e 11.9
Cape Girardeau	E. 24.3	35	e 5 27	+ 7	e 9 55	+18	—	—
St. Louis	25.0	32	i 5 34	+ 7	i 9 57	+ 8	—	— e 11.9
Florissant	25.1	32	i 5 35	+ 7	e 9 59	+ 8	i 10 18	SS i 14.0
Bozeman	27.9	354	—	—	e 10 42	+ 5	—	— e 13.8
Butte	28.4	353	—	—	e 10 52	+ 7	—	— e 15.7
Scoresby Sund	71.4	21	—	—	e 20 39	- 3	—	— e 37.0

Tucson also gives i = 4m.40s.

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

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June 15d. Readings also at 0h. (near Mizusawa), 1h. (Stuttgart, Warsaw, and Copenhagen), 11h. (Basle), 22h. (Mount Wilson, Riverside, Tucson, Cape Girardeau, Seven Falls, La Paz (2), Huancayo, San Juan, and near Berkeley).

June 16d. 4h. 47m. 30s. Epicentre 33°·8N. 26°·5E. (as on 1942 February 2d.).

A = +·7452, B = +·3716, C = +·5537; $\delta = -1$; $h = +1$;
D = +·446, E = -·895; G = +·495, H = +·247, K = -·833.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Helwan	5·7	132	1 36	P*	4 0	?	e 1 51	—
Istanbul	7·5	15	4 58	?	6 40	?	—	—
Ksara	7·8	87	e 2 3	+ 5	5 4	?	—	—
Sofia	9·2	346	i 2 16	0	—	—	—	—
Bucharest	10·6	358	e 2 34	- 2	e 4 37	0	e 2 45	PP 5·2
Belgrade	12·0	339	e 1 38	?	—	—	e 3 7	PP e 7·3
Triest	15·3	324	—	—	e 6 37	+ 7	—	e 8·7
Chur	18·3	321	e 4 15	- 2	e 7 35	- 4	—	—
Prague	18·5	335	4 15	- 4	e 7 39	- 5	—	—
Warsaw	18·8	349	e 4 18 _a	- 5	7 41	- 9	e 4 34	PP e 9·5
Zurich	19·1	321	e 4 24 _a	- 3	e 7 53	- 4	—	—
Cheb	19·3	333	e 4 29	0	e 7 59	- 3	—	e 10·1
Algiers	19·6	285	4 29	- 3	i 8 13	+ 5	i 4 44	pP 10·5
Stuttgart	19·7	324	i 4 30 _a	- 4	e 8 19	+ 9	—	e 10·5
Basle	19·8	320	e 4 30	- 5	e 8 18	+ 5	—	—
Neuchatel	19·8	319	e 4 31	- 4	e 8 9	- 4	—	—
Jena	20·3	333	e 4 36	- 4	e 8 12	- 11	i 4 49	PP e 9·5
Strasbourg	20·4	324	e 4 37	- 4	i 8 30	+ 5	—	—
Potsdam	20·9	336	i 4 43	- 3	i 8 32	- 3	—	10·8
Clermont-Ferrand	21·5	311	i 4 54	+ 2	i 8 47	0	i 5 10	PP e 10·6
Paris	23·3	318	e 5 8	- 2	i 9 20	0	—	12·8
Uccle	23·4	323	i 5 10	- 1	i 9 18	- 3	—	11·8
Almeria	23·8	286	i 5 19	+ 4	i 9 37	+ 9	5 49	PP 11·6
De Bilt	23·9	327	i 5 16	0	i 9 27	- 3	—	e 11·5
Copenhagen	24·0	341	e 5 13	- 4	9 22	- 10	—	12·5
Granada	24·7	287	i 5 25 _a	+ 1	i 10 1	+ 17	6 3	PP 15·1
Kew	26·2	321	i 5 38 _k	0	i 10 14	+ 5	e 6 42	PPP e 14·5
Upsala	26·7	350	e 5 33	- 10	e 10 3	- 14	11 21	SS e 13·5
San Fernando	26·8	285	e 5 54	+ 10	i 10 48	+ 29	i 6 43	PPP —
Oxford	26·9	320	e 5 41	- 4	10 22	+ 2	—	—
Stonyhurst	28·6	324	e 6 1	+ 1	i 10 54	+ 6	i 11 11	? 17·6
Aberdeen	30·4	331	—	—	i 11 5	- 11	—	e 17·1
Sverdlovsk	32·7	35	i 6 34	- 2	i 11 48	- 4	—	—
Tashkent	34·5	65	6 54	+ 2	12 21	+ 1	—	—
Andijan	36·8	66	e 7 12	+ 1	—	—	—	—
Almata	40·0	60	e 7 48	+ 10	—	—	—	—
Scoresby Sund	45·0	339	e 8 17	- 2	e 14 46	- 12	e 18 14	SS 24·8
Calcutta	54·9	85	e 11 43	PP	—	—	—	—
Colombo	56·0	107	—	—	e 20 30?	SS	—	—
Ottawa	74·4	315	e 11 43	+ 1	—	—	—	e 36·5
Florissant	87·0	315	i 12 51	+ 3	—	—	—	e 52·5
St. Louis	87·1	315	i 12 50	+ 1	—	—	—	—
Tucson	103·0	324	e 14 0	- 2	—	—	e 18 13	PP e 58·7
Riverside	104·5	330	e 18 26	PP	—	—	—	—

Additional readings:—

Helwan eZ = 2m.15s., S*E = 5m.0s., SS = 5m.36s.

Warsaw iPZ = 4m.20s.

Algiers PP = 4m.55s., PPP = 5m.10s., SS = 8m.41s.

Jena ePN = 4m.42s., eSN = 8m.23s., iSN = 8m.28s.

Clermont-Ferrand eP = 4m.57s., iPPP = 5m.26s., iSS = 9m.18s.

Almeria PPP = 6m.1s., P_cP = 8m.57s., SS = 10m.30s., SSS = 10m.48s.

Granada PPP = 6m.20s., SS = 11m.13s.

Kew eSS = 11m.21s.

Upsala PN = 5m.38s., iE = 10m.48s., eN = 10m.51s.

San Fernando iSSE = 12m.5s.

Aberdeen i = 11m.10s.

Florissant iZ = 13m.17s.

Long waves were also recorded at Pasadena and La Paz.

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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June 16d. 5h. 42m. 27s. Epicentre 40°·4N. 28°·0E.

Intensity VII at Marmora. Records of the Observatory at Kandilli.
Epicentre given by Strasbourg.

A = +·6743, B = +·3585, C = +·6456; $\delta = 0$; $h = -2$.
D = +·469, E = -·883; G = +·570, H = +·303, K = -·764.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
			m.	s.	s.	m.	s.	m.	s.	m.	
Istanbul	1·1	50	0	25	+ 3	0	39	0	—	—	—
Bucharest	4·2	341	e 1	4	- 3	2	0	+ 3	—	—	—
Sofia	4·2	305	i 1	4	- 3	i 1	51	- 6	i 1	20	P _g
Belgrade	7·1	311	e 1	30	-18	i 3	24	+14	i 3	35	S*
Ksara	9·1	134	e 2	22	+ 8	5	24	S _g	—	—	—
Triest	11·7	302	e 3	52	+61	—	—	—	—	—	e 6·2
Warsaw	12·8	340	e 3	3 _a	- 3	e 5	27	- 3	—	—	e 5·5
Prague	13·6	320	e 3	7	-10	e 6	16	SSS	—	—	e 6·8
Cheb	14·6	317	e 3	19	-11	e 7	10	+57	—	—	e 7·6
Chur	14·8	302	e 3	29	- 3	e 8	4	L	—	—	(e 8·1)
Jena	15·5	318	e 3	51	PP	e 6	25	-10	e 6	51	SS
Zurich	15·6	303	e 3	45 _a	+ 2	e 8	6	L	—	—	(e 8·1)
Potsdam	15·8	325	i 3	42	- 3	e 6	45	+ 3	—	—	e 7·6
Stuttgart	15·8	308	e 3	40 _a	- 5	e 6	48	+ 6	i 4	13	PPP
Basle	16·3	303	e 3	53	+ 1	e 8	20	L	—	—	(e 8·3)
Strasbourg	16·6	307	e 3	58	+ 2	e 7	23	+23	—	—	i 9·1
Neuchatel	16·6	301	e 3	52	- 4	e 9	1	L	—	—	(e 9·0)
Copenhagen	18·4	332	e 4	15	- 3	7	35	- 6	—	—	—
Clermont-Ferrand	19·0	294	i 4	24	- 2	e 8	19	+24	i 5	3	PP
Uccle	19·5	311	i 4	29 _k	- 2	e 8	1	- 5	—	—	e 9·5
De Bilt	19·6	310	i 4	30 _k	- 2	e 8	3	- 5	—	—	e 9·5
Algiers	19·8	266	4	32	- 3	e 8	15	+ 2	4	47	pP
Paris	20·0	303	i 4	35	- 2	i 8	20	+ 3	—	—	10·4
Upsala	20·5	344	e 4	36	- 6	e 8	13	-14	i 8	41	SS
Kew	22·4	310	i 4	59 _a	- 3	e 9	4	0	e 9	48	SS
Oxford	23·1	310	5	8	0	i 9	14	- 2	—	—	—
Almeria	24·0	271	5	17	0	9	42	+10	5	46	PP
Stonyhurst	24·5	313	i 5	21	- 1	i 9	41	+ 1	10	9	SS
Granada	24·8	273	i 5	26 _a	+ 1	i 11	4	SSS	5	56	pP
Aberdeen	25·7	323	i 5	28	- 5	i 10	8	+ 7	—	—	14·7
Sverdlovsk	26·8	41	i 5	45	+ 1	i 10	18	- 1	—	—	—
San Fernando	27·0	272	e 5	46	+ 1	e 10	27	+ 5	e 11	42	SS
Lisbon	28·6	280	6	3	+ 3	10	44	- 4	11	56	SS
Tashkent	31·0	75	e 6	25	+ 4	e 11	29	+ 3	—	—	—
Andijan	33·4	75	e 6	48	+ 6	—	—	—	—	—	—
Almata	36·2	68	e 7	11	+ 5	—	—	—	—	—	—
Scoresby Sund	39·4	336	e 7	33	0	e 13	33	- 2	—	—	e 16·4
Agra	43·1	61	e 8	5	+ 1	—	—	—	—	—	—
Calcutta	53·5	60	—	—	—	e 16	45	PS	—	—	—
Ottawa	70·7	313	e 11	21	+ 1	e 20	33?	- 1	—	—	32·6
St. Louis	83·2	316	i 12	32	+ 3	—	—	—	—	—	—
Victoria	87·7	342	—	—	—	e 23	39	+ 6	—	—	43·6
Tucson	98·3	325	e 13	41	0	—	—	—	—	—	—

Additional readings:—

Sofia iS_g = 2m.5s.

Belgrade e = 1m.39s., i = 2m.16s., and 3m.46s.

Warsaw ePN = 3m.7s.

Jena eZ = 4m.33s., eN = 4m.37s., eZ = 5m.57s., eN = 6m.7s.

Potsdam iPN = 3m.45s.

Stuttgart iP = 3m.49s.

Clermont-Ferrand e = 4m.29s., iPPP = 5m.17s., e = 8m.25s.

Uccle eSE = 8m.5s.

De Bilt iZ = 5m.16s. and 5m.59s.

Algiers PP = 5m.1s., PPP = 5m.12s., SS = 9m.11s.

Upsala eSSSN = 9m.6s.

Almeria PPP = 5m.57s., SS = 10m.23s., SSS = 10m.49s.

Granada PP = 6m.50s., P_cP = 7m.45s.

San Fernando ePPPE = 7m.13s.

Lisbon N = 8m.8s., SE = 10m.47s.

Scoresby Sund eS = 13m.49s.

Long waves were also recorded at Ivigtut, La Paz, and other American stations.

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June 16d. 7h. 42m. 54s. Epicentre 0°·8N. 80°·5W.

A = +·1650, B = -·9862, C = +·0138; $\delta = +1$; $h = +7$;
D = -·986, E = -·165; G = +·002, H = -·014, K = -1·000.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Balboa Heights	8·2	6	e 2 2	- 1	e 3 34	- 4	—	—
Huancayo	13·7	158	e 3 18	0	e 6 1	+ 9	—	i 6·8
La Paz	21·1	146	i 4 50 ^a	+ 2	i 8 45	+ 6	9 16	SS 12·1
San Juan	22·5	39	i 5 5	+ 3	i 9 16	+ 11	i 5 38	PP e 10·8
Fort de France	23·6	56	e 5 13	0	e 9 35	+ 12	—	—
Columbia	33·0	359	e 6 38	- 1	e 11 56	- 1	—	e 15·2
Bermuda	34·8	24	e 6 53	- 1	e 12 20	- 5	e 9 39	PPP —
St. Louis	38·7	348	i 7 26	- 1	e 13 31	+ 6	e 9 1	PP —
Florissant	38·9	348	i 7 30	+ 1	i 13 13	- 15	i 9 2	PP —
Philadelphia	39·3	9	e 7 32	0	e 13 26	- 8	e 9 24	PP e 16·5
Chicago	41·3	352	—	—	e 14 2	- 2	e 9 23	PP e 17·3
Tucson	42·4	322	i 7 58	0	e 14 27	+ 7	e 9 38	PP e 25·2
Rio de Janeiro	N. 43·3	126	e 14 36	S	(e 14 36)	+ 3	—	e 22·3
Ottawa	44·6	6	e 8 15	- 1	e 15 0	+ 8	e 10 6	PP 22·1
La Jolla	47·0	317	e 8 31	- 4	—	—	—	—
Riverside	z. 47·8	318	i 8 41	0	—	—	—	—
Mount Wilson	48·4	318	i 8 45	- 1	—	—	—	—
Pasadena	48·4	318	i 8 46	0	e 15 49	+ 3	i 10 45	PP e 24·1
Salt Lake City	48·9	330	e 8 50	0	e 15 58	+ 5	e 10 38	PP e 19·8
Logan	49·6	331	e 9 4	+ 9	—	—	e 18 38	SS e 26·3
Tinemaha	50·2	321	e 9 0	0	—	—	—	—
Bozeman	52·2	335	—	—	—	—	e 19 18	SS e 25·9
Santa Clara	52·7	319	e 9 22	+ 4	—	—	—	e 26·5
Butte	53·1	334	e 9 31	+ 10	e 17 12	+ 21	—	e 31·9
Ukiah	54·5	321	—	—	e 17 19	+ 9	—	e 28·4
Victoria	60·2	329	e 10 12	0	—	—	—	34·1
Granada	79·1	53	i 11 56 ^k	- 12	i 22 13	+ 6	12 28	pP 43·0
Scoresby Sund	79·1	18	e 11 52	- 16	e 22 11	+ 4	e 15 47	PP e 31·4
Almeria	80·0	54	12 35	+ 22	—	—	—	—
Kew	83·3	40	e 12 30	0	e 23 50 ^l	+ 60	—	e 42·1
Uccle	N. 86·1	40	—	—	e 23 22	+ 4	—	—
De Bilt	86·7	38	i 12 49	+ 2	e 23 31	+ 7	—	e 42·1
Stuttgart	89·2	42	e 11 58	- 61	—	—	—	—
Potsdam	91·6	38	e 13 12	+ 2	(e 23 6 ^m)	[- 36]	—	e 23·1
Warsaw	96·4	38	e 10 6 ⁿ	?	(e 24 6)	[- 3]	—	e 24·1

Additional readings :—

Huancayo e = 4m.6s., i = 4m.19s., iS = 6m.16s.

La Paz iS?Z = 8m.52s., iZ = 10m.26s.

Columbia e = 7m.6s.

Bermuda e = 12m.36s. and 15m.45s.

St. Louis eEN = 13m.23s., eSSE = 16m.6s.?

Florissant iN = 9m.31s. and 14m.4s.

Chicago e = 9m.50s.

Tucson i = 8m.15s.

Ottawa e = 18m.6s.?

Pasadena eZ = 9m.2s., eSSZ = 19m.33s.

Salt Lake City e = 11m.42s.

Tinemaha i = 9m.17s.

Granada PP = 15m.10s., pPP = 16m.1s., sS = 23m.0s., PS = 23m.35s., SS = 27m.53s.,

SSS = 30m.55s.

Scoresby Sund eSS = 26m.30s.

Almeria P? = 12m.41s., e = 12m.44s., and 12m.54s.

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June 16d. 9h. 13m. 47s. Epicentre 35°·7N. 23°·2E. (as on 1941 July 19d.).

A = +·7481, B = +·3207, C = +·5810; δ = +6; h = 0;
D = +·394, E = -·919; G = +·534, H = +·229, K = -·814.

	Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.		L. m.
			m.	s.		m.	s.		m.	s.	
Sofia	7·0	1	e 1	59	+13	—	—	—	—	—	i 4·5
Bucharest	9·0	14	e 2	21	+ 8	e 4	14	+16	—	—	4·7
Helwan	9·0	128	e 2	22	+ 9	e 3	58	0	2	35	P*
Ksara	10·6	96	e 2	57	PP	e 4	39	+ 2	—	—	—
Chur	15·1	322	e 3	38	+ 2	e 6	13	-12	—	—	—
Zurich	16·0	321	e 3	49	+ 1	e 6	53	+ 7	—	—	—
Algiers	16·3	280	e 3	56	+ 4	e 7	43	+50	—	—	—
Basle	16·6	318	e 3	56	0	—	—	—	—	—	—
Stuttgart	16·6	326	e 3	57 ^k	+ 1	e 7	3	+ 3	—	—	—
Warsaw	N. 16·6	355	e 4	3	+ 7	e 7	9	+ 9	—	—	e 9·2
	Z. 16·6	355	e 3	53	- 3	e 7	5	+ 5	—	—	—
Potsdam	18·2	337	e 4	18	+ 2	i 7	42	+ 5	—	—	e 9·2
Uccle	20·1	324	e 4	40	+ 2	e 8	17	- 2	—	—	e 11·5
Almeria	20·7	282	4	44	0	e 8	37	+ 6	5	0	pP
De Bilt	20·8	330	—	—	—	e 8	38	+ 5	—	—	e 11·7
Copenhagen	21·3	345	i 4	52	+ 2	i 8	42	- 1	—	—	—
Granada	21·6	284	i 4	52 ^k	- 2	8	49	0	5	18	PP
San Fernando	23·7	281	e 5	11	- 3	—	—	—	—	—	—
Upsala	24·4	354	e 6	13	PPP	i 9	39	0	—	—	—

Additional readings :—

Stuttgart iP = 4m.2s.

Potsdam eSZ = 7m.46s.

Almeria sP = 5m.12s., pP_cP = 8m.1s., sP_cP = 9m.17s., S_cP = 11m.57s.

Long waves were also recorded at Prague.

June 16d. 21h. 5m. 15s. Epicentre 0°·8N. 80°·5W. (as at 7h.).

A = +·1650, B = -·9862, C = +·0138; δ = +1; h = +7;

	Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.		L. m.
			m.	s.		m.	s.		m.	s.	
Balboa Heights	8·2	6	e 2	5	+ 2	e 3	34	- 4	—	—	—
Huancayo	13·7	158	i 3	17	- 1	i 5	45	- 7	e 3	52	PPP
La Paz	21·1	148	i 4	47 ^k	- 1	i 8	51	+12	—	—	11·8
San Juan	22·5	39	i 5	5	+ 3	i 9	10	+ 5	i 5	39	PP
Fort de France	23·6	56	i 5	15	+ 2	i 9	37	+12	5	46	PP
Vera Cruz	N. 23·9	324	e 5	26	+10	—	—	—	—	—	—
Tacubaya	N. 26·0	318	e 5	42	+ 6	—	—	—	—	—	—
Columbia	33·0	359	e 6	38	- 1	e 11	57	0	e 7	32	PP
Bermuda	34·8	24	e 6	53	- 1	e 12	36	+11	e 8	3	PP
Cape Girardeau	37·3	349	e 7	14	- 2	e 13	2	- 2	e 8	46	PP
Georgetown	38·1	7	e 7	24	+ 2	i 13	19	+ 3	i 9	0	pP
St. Louis	38·7	348	i 7	26	- 1	i 13	4	-21	e 9	0	pP
Florissant	38·9	348	i 7	28	- 1	i 13	5	-23	i 9	3	pP
Philadelphia	39·3	9	i 7	34	+ 2	e 13	37	+ 3	e 9	7	PP
Pittsburgh	39·5	1	i 7	34	0	i 13	48	+11	i 9	13	PP
Fordham	40·3	10	i 7	43	+ 3	e 13	37	-12	i 9	38	pP
Chicago	41·3	352	e 7	48	- 1	e 13	55	- 9	e 9	36	PP
La Plata	41·3	152	7	49	0	13	45	-19	—	—	20·9
Harvard	42·3	12	e 7	58	+ 1	e 14	22	+ 3	e 17	52	SSS
Tucson	42·4	322	i 7	57	- 1	e 14	14	- 6	i 9	39	PP
Vermont	44·0	9	i 8	17	+ 6	i 14	51	+ 8	—	—	i 18·3
Ottawa	44·6	6	8	15	- 1	14	53	+ 1	10	5	PP
Seven Falls	46·9	11	e 11	51	PPP	e 15	39	+14	—	—	18·8
La Jolla	47·0	317	e 8	34	- 1	—	—	—	—	—	—
Riverside	47·8	318	i 8	40 ^a	- 1	—	—	—	—	—	—

Continued on next page.

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	Δ °	Az. °	P.		O-C. s.	S.		O-C.		Supp.		L. m.
			m.	s.		m.	s.	s.	m.	s.	m.	
Mount Wilson	48.4	318	i 8	45 _a	- 1	—	—	—	—	—	—	—
Pasadena	48.4	318	i 8	45 _a	- 1	15	51	+ 5	i 10	45	PP	e 23.6
Salt Lake City	48.9	330	e 8	49	- 1	e 15	53	0	e 10	45	PP	e 19.9
Haiwee	49.4	321	e 8	57	+ 4	—	—	—	—	—	—	—
Logan	49.6	331	i 8	55	0	e 15	37	-26	e 19	19	SS	25.9
Tinemaha	50.2	321	e 9	0	0	—	—	—	—	—	—	—
Santa Clara	52.7	319	e 9	21	+ 3	e 17	32	PPS	—	—	—	e 26.2
Butte	53.1	334	e 9	23	+ 2	e 17	4	+13	e 11	21	PP	e 31.8
Berkeley	53.2	319	i 9	23	+ 1	i 16	58	+ 6	—	—	—	e 26.4
Ukiah	54.5	321	e 9	30	- 2	e 17	12	+ 2	e 21	0	SS	26.1
Victoria	60.2	329	10	8	- 4	18	28	+ 3	—	—	—	30.8
San Fernando	76.9	54	c 11	57	+ 1	21	50	+ 7	22	39	PS	—
Honolulu	77.9	291	—	—	—	e 23	20	PPS	—	—	—	36.9
Granada	79.1	53	i 12	10 _k	+ 2	i 22	13	+ 6	i 14	58	PP	40.0
Scoresby Sund	79.1	18	e 12	6	- 2	e 22	7	0	e 18	47	?	e 34.2
College	79.8	337	e 12	11	- 1	e 22	10	- 4	15	12	PP	38.7
Almeria	80.0	54	i 12	15	+ 2	e 22	23	+ 6	12	53	pP	40.8
Kew	83.3	40	i 12	29	- 1	e 22	49?	- 1	12	45	pP	e 40.3
Clermont-Ferrand	85.0	46	i 12	39	+ 1	e 23	7	0	e 24	18	PS	e 36.8
Uccle	86.1	40	i 12	44 _k	0	e 23	10	[+ 2]	—	—	—	e 40.8
De Bilt	86.7	38	i 12	48 _k	+ 1	e 23	17	[+ 4]	i 13	4	pP	e 41.8
Neuchatel	87.7	44	e 12	53	+ 1	—	—	—	—	—	—	—
Basle	88.1	44	e 12	53	- 1	—	—	—	—	—	—	—
Zurich	88.8	44	e 13	9	+12	—	—	—	—	—	—	—
Stuttgart	89.2	42	i 13	1 _a	+ 2	—	—	—	e 16	27	PP	—
Chur	89.5	44	e 13	2	+ 2	e 23	32	[+ 2]	—	—	—	—
Copenhagen	91.0	35	13	8	+ 1	—	—	—	—	—	—	—
Cheb	91.3	40	e 13	23	+14	e 23	47	[+ 6]	e 17	3	PP	—
Potsdam	91.6	38	i 13	11 _a	+ 1	e 23	45	[+ 2]	e 25	33	PS	e 43.8
Triest	92.4	44	i 13	16	+ 2	i 23	46	[0]	i 24	18	?	—
Warsaw	96.4	38	e 13	35 _a	+ 3	e 24	13	[+ 4]	e 17	18	PP	49.8
Helwan	z. 108.4	60	e 18	55	PP	—	—	—	e 22	10	?	—
Agra	E. 147.7	35	e 19	41	[- 3]	—	—	—	—	—	—	—
Bombay	148.3	53	i 19	49	[+ 4]	—	—	—	—	—	—	e 83.8
Calcutta	N. 154.4	24	e 19	22	[- 32]	—	—	—	—	—	—	—

Additional readings :—

Huancayo i=4m.20s.
 La Paz iS?N=8m.59s.
 Fort de France PPP=5m.59s., SS=10m.17s., SSS=10m.23s.
 St. Louis isS?EN=16m.6s.
 Florissant isS?N=16m.5s.
 Philadelphia e=9m.28s. and 14m.15s.
 Fordham iS=13m.55s.
 Chicago e=10m.10s. and 16m.43s.
 Tucson i=8m.19s. and 10m.14s., iS=14m.22s., iSS=17m.52s.
 Ottawa iZ=11m.59s., SSS=18m.33s.
 Pasadena iZ=9m.6s., eSS=19m.15s.
 Logan i=9m.2s.
 Butte e=16m.11s., eSS=20m.17s.
 Granada P_cP=12m.21s., PS=23m.29s., SS=27m.31s., SSS=30m.34s.
 Scoresby Sund e=28m.0s.
 College eSS=27m.15s.
 Almeria P_cP=12m.25s., pP_cP=12m.47s., pPP=15m.55s., sPP=16m.11s., PPP=17m.35s., pS=22m.57s., PS=23m.25s.
 Clermont Ferrand iSKKS=23m.15s.
 De Bilt ePS=24m.58s.
 Potsdam eNZ=24m.15s., ePPSE=26m.33s.
 Warsaw eE=14m.17s., eN=14m.27s., eZ=17m.27s., and 19m.41s., eEN=26m.22s.
 Bombay eE=20m.53s., iE=31m.8s.
 Long waves were also recorded at Riverview, Tananarive, Kodaikanal, and Colombo.

June 16d. Readings also at 0h. (near Tananarive (2)), 2h. (Pasadena, Mount Wilson, Riverside, La Jolla and Tucson), 3h. (Warsaw), 5h. (Istanbul (2)), 6h. (Potsdam, Copenhagen, Stuttgart, Sverdlovsk, Calcutta, Agra, near Tashkent, Andijan, and Almata), 8h. (La Paz), 9h. (La Paz), 11h. (Huancayo, La Paz, Tucson, Riverside, Upsala, and near Sofia), 14h. (Kew), 15h. (Copenhagen), 21h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Calcutta), 22h. (Mount Wilson, Riverside, Tucson, Stuttgart, Bombay, Agra, and near Mizusawa), 23h. (Warsaw).

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June 17d. Undetermined shock.

Apia iP = 47m.30s., eS = 48m.11s.?
 Auckland S? = 52m.45s., e = 54m.20s., R = 56m.30s.
 La Jolla ePEN = 56m.25s.
 Pasadena iPZ = 56m.29s., eLZ = 32m.
 Mount Wilson ePZ = 56m.30s.
 Riverside ePZ = 56m.31s.
 Haiwee ePEN = 56m.39s.
 Tinemaha ePZ = 56m.41s.
 Tucson iP = 56m.51s., eL = 84m.30s.
 Wellington i = 57m.7s., L = 59m.
 Long waves were also recorded at Riverview, Sydney, and Huancayo.

June 17d. Readings also at 3h. (Tacubaya), 7h. (Tacubaya and Vera Cruz), 8h. (near Lick), 9h. (Granada), 11h. (Tacubaya and Vera Cruz), 13h. (near Uccle), 15h. (Wellington, Auckland, Mount Wilson, Riverside, Tucson, and near Apia (2)), 16h. (Brisbane, Kew, De Bilt, Potsdam, Warsaw, near Basle and Zurich), 17h. (St. Louis and Granada) 18h. (near Mizusawa), 20h. (near Berkeley), 23h. (Wellington, Auckland, Riverview, Tucson, and Pasadena).

June 18d. 5h. 15m. 45s. Epicentre 18°·8S. 70°·5W. Pasadena suggest deep focus.
 (As on 1941 July 10d.).

A = +·3162, B = -·8929, C = -·3203; $\delta = -16$; $h = +5$;
 D = -·943, E = -·334; G = -·107, H = +·302, K = -·947.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
La Paz	3·2	44	i 0	50k	- 2	—	—	—	—	—	1·3
Huancayo	8·2	325	e 2	8	+ 5	e 4	1	+23	—	—	e 4·8
La Plata	19·5	148	4	40	+ 9	8	15	+ 9	5	31	?
Tucson	63·8	323	i 10	30k	- 6	—	—	—	—	—	—
La Jolla	z. 68·1	319	e 10	59	- 5	—	—	—	—	—	—
Riverside	z. 68·9	319	i 11	5a	- 4	—	—	—	e 11	43	pP
Mount Wilson	69·5	319	i 11	10	- 2	—	—	—	e 11	49	pP
Pasadena	69·5	319	i 11	9	- 3	—	—	—	e 11	48	pP
Tinemaha	z. 71·5	321	i 11	22	- 2	—	—	—	—	—	—

June 18d. 9h. 30m. 53s. Epicentre 9°·0N. 140°·0E.

A = -·7568, B = +·6350, C = +·1554; $\delta = +12$; $h = +7$;
 D = +·643, E = +·766; G = -·119, H = +·100, K = -·988.

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.
Palau	5·7	254	1	31	+ 3	2	37	+ 2	—	—	—
Naha	20·7	326	4	47	+ 3	—	—	—	—	—	—
Taihoku	23·8	316	e 5	17	+ 2	9	49	SS	—	—	—
Miyazaki	24·1	344	5	21	+ 3	9	36	+ 2	—	—	—
Koti	25·2	348	e 5	25	- 4	8	37	?	—	—	—
Matuyama	25·6	347	5	20	-12	10	5	+ 6	—	—	—
Osaka	25·8	353	5	38	+ 4	9	44	-18	—	—	—
Hukuoka	26·0	342	e 5	41	+ 5	e 10	6	0	—	—	12·4
Nagoya	26·2	357	e 5	34	- 4	10	38	+29	—	—	—
Yokohama	26·3	359	5	42	+ 3	11	48	SS	7	18	?
Tokyo Cen. Met. Ob.	26·6	359	e 5	43	+ 1	11	27	+71	—	—	16·4
Hamada	26·8	346	e 5	40	- 4	—	—	—	—	—	—
Nagano	27·6	357	e 5	45	- 6	10	31	- 1	—	—	—
Sendai	29·1	3	e 6	3	- 1	9	58	-58	—	—	—
Mizusawa	30·0	3	e 6	10	- 2	11	3	- 7	—	—	14·4
Zinsen	30·8	339	6	21	+ 1	11	25	+ 2	—	—	—
Mori	33·0	1	e 6	32	- 7	13	59	SS	—	—	15·3
Sapporo	34·0	3	e 6	45	- 3	e 12	12	- 1	—	—	e 15·7
Brisbane	N. 38·4	162	i 7	25	0	i 12	11	-69	i 8	50	PP
Riverview	43·9	167	i 8	16a	+ 6	i 14	50	+ 8	i 9	59	PP

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Sydney	43.9	167	—	—	—	e 14	37	- 5	e 18	4	SS	—
Perth	46.8	208	8	47	+14	15	43	+19	10	37	PP	24.0
Calcutta	51.3	292	i 9	35	+27	i 16	45	+19	i 20	33	SSS	—
Irkutsk	52.0	333	9	12	- 1	—	—	—	—	—	—	—
Apia	52.9	115	e 9	52	+32	i 16	59	+11	e 20	3	SS	e 21.6
Auckland	56.1	146	9	47	+ 4	17	36	+ 4	21	35	SS	25.1
Arapuni	57.0	147	e 14	31	?	18	19	PPS	—	—	—	24.7
Wellington	59.4	150	10	7 _a	+ 1	18	15	0	10	43	sP	27.1
Colombo	59.5	272	10	12	+ 5	18	34	+18	—	—	—	—
Christchurch	60.1	153	10	14 _a	+ 3	18	28	+ 4	12	28	PP	29.8
Hyderabad	60.3	286	10	15	+ 2	18	39	+13	10	49	PcP	29.8
Honolulu	60.9	71	e 10	24	+ 7	e 18	28	- 6	e 12	47	PP	e 24.7
Agra	61.1	296	10	17	- 1	e 18	22	-15	10	30	pP	—
Dehra Dun	61.3	300	e 10	48	+28	(e 18	56)	+17	e 15	1	PPP	e 18.9
Kodaikanal	61.6	277	i 10	32 _k	+10	i 18	57	+14	—	—	—	30.2
Bombay	65.6	287	e 10	54	+ 6	e 19	29	- 4	i 19	45	PS	e 32.4
Stalinabad	69.8	309	e 11	26	+12	e 20	47	+24	—	—	—	—
College	74.4	25	e 11	38	- 4	e 21	3	-13	e 14	15	PP	e 30.5
Sverdlovsk	76.7	327	i 11	51	- 4	21	37	- 4	—	—	—	—
Sitka	79.6	34	e 12	17	+ 7	e 22	14	+ 2	—	—	—	e 34.1
Victoria	87.7	42	12	49	- 3	23	27	- 6	16	33	PP	41.1
Ferndale	88.5	49	e 13	33	+37	i 23	43	+ 2	—	—	—	e 37.6
Seattle	88.6	43	e 21	52	?	e 29	38	SS	—	—	—	e 37.1
Ukiah	89.6	51	e 13	7	+ 6	e 23	48	- 3	e 16	21	PP	e 37.6
Berkeley	90.6	52	e 13	0	- 5	e 23	43	[+ 6]	15	53	PP	e 44.7
	90.6	52	e 13	14	+ 9	e 23	31	[- 6]	i 18	23	PPP	—
	90.6	52	i 13	6	+ 1	e 24	41	+41	i 16	37	PP	e 44.7
Santa Clara	90.9	52	e 13	7	0	e 24	24	+21	—	—	—	e 37.8
Tinemaha	93.9	52	e 13	22	+ 1	—	—	—	—	—	—	—
Haiwee	94.3	52	e 13	23	0	—	—	—	—	—	—	—
Mount Wilson	94.7	55	e 13	24	0	—	—	—	—	—	—	—
Pasadena	94.7	55	i 13	24	0	e 24	2	[+ 2]	e 17	40	PP	e 38.0
Tananarive	95.2	252	—	—	—	e 24	12	[+10]	35	0	SSS	52.4
Riverside	95.3	55	e 13	28	+ 1	—	—	—	—	—	—	—
Butte	95.4	42	e 13	29	+ 1	e 24	11	[+ 8]	e 17	23	PP	e 42.0
La Jolla	95.7	54	e 13	32	+ 3	—	—	—	—	—	—	—
Bozeman	96.6	42	e 13	33	0	e 24	1	[- 9]	e 17	27	PP	e 39.6
Ksara	96.6	305	e 13	43	+10	e 24	27	[+17]	—	—	—	—
Saskatoon	96.8	35	e 17	24	PP	e 25	31	+37	—	—	—	42.1
Logan	97.3	46	e 13	36	0	e 24	2	[- 11]	i 19	55	PPP	43.0
Salt Lake City	97.6	47	e 13	36	- 2	e 24	17	[+ 2]	e 17	29	PP	—
Upsala	97.6	334	e 19	7?	PPP	e 24	10	[- 5]	e 30	36	SS	e 40.1
	97.6	334	e 15	43	?	e 24	17	[+ 2]	e 30	10	SS	e 41.1
Scoresby Sund	99.7	354	e 13	53	+ 6	i 24	17	[- 8]	i 17	49	PP	e 39.7
Bucharest	100.3	318	e 14	25	+35	e 24	9	[- 19]	e 18	57	?	39.1
Tucson	101.1	54	e 13	51	- 2	e 24	25	[- 7]	e 17	58	PP	e 41.3
Helwan	101.4	302	e 14	7	+12	24	45	[+11]	18	25	PP	—
Copenhagen	102.3	333	14	39	+40	24	38	[0]	18	23	PP	—
Sofia	102.8	317	e 14	15	+14	—	—	—	e 17	15	PKP	—
Potsdam	104.0	330	i 14	18 _k	+12	i 24	49	[+ 3]	i 18	25	PP	e 42.1
Prague	104.6	327	e 18	25?	PP	e 29	43	?	e 33	29	SS	e 44.1
Cheb	105.6	328	e 18	41	PP	e 29	23	?	—	—	—	e 54.1
Jena	105.9	328	e 18	23	PP	e 26	7	- 3	e 22	7	PKS	e 44.1
Aberdeen	107.1	340	i 18	53	PP	i 33	53	SS	—	—	—	e 47.1
Triest	107.4	324	e 18	41	PP	—	—	—	—	—	—	—
De Bilt	107.9	333	e 14	27	P	e 25	14	[+ 11]	e 14	37	pP	e 51.1
Lincoln	108.1	41	e 17	51	PKP	e 25	9	[+ 5]	e 28	2	PS	e 51.9
Stuttgart	108.1	328	e 14	25 _a	P	e 26	7	[+ 16]	e 17	37	PKP	e 47.1
Strasbourg	108.9	329	e 18	7?	PP	—	—	—	—	—	—	56.1
Chur	109.1	327	e 18	20	PP	—	—	—	—	—	—	—
Uccle	109.2	333	e 14	36	P	e 28	25	PS	e 18	59	PP	e 46.1
Zurich	109.3	328	e 18	58	PP	e 29	9	PPS	—	—	—	—
Ivigut	109.7	4	—	—	—	e 24	35	[- 36]	e 39	46	?	e 47.0
Basle	109.7	328	e 18	32	[0]	e 28	19	PPS	—	—	—	—

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Stonyhurst		109.8	338	i 19 13	PP	i 30 3	PPS	i 34 41	SSP	50.7
Neuchatel		110.4	328	e 18 37	[+ 3]	—	—	—	—	—
Kew		110.8	334	i 14 10 _a	P	e 25 15	{ 0}	i 19 12	PP	e 53.1
Paris		111.4	331	e 19 58	PP	e 28 11	PS	—	—	e 45.5
Chicago U.S.C.G.S.		113.3	37	e 19 24	PP	e 28 58	PS	e 21 54	PPP	e 47.0
Florissant	N.	113.3	41	e 18 16	[- 24]	e 26 3	{ -25}	—	—	e 50.1
St. Louis		113.5	41	e 19 31	PP	e 25 29	{ + 4}	e 29 17	PS	—
Clermont-Ferrand		113.7	329	i 19 39	PP	e 29 1	PS	—	—	e 44.3
Cape Girardeau	E.	114.7	42	e 19 28	PP	e 29 8	PS	—	—	—
Tacubaya	E.	115.2	63	25 39	SKS	(25 39)	{ + 6}	—	—	—
Ottawa		117.1	27	18 53	[+ 6]	25 45	{ + 5}	19 57	PP	55.1
Shawinigan Falls		117.4	23	e 19 57	PP	e 29 43	PS	—	—	55.1
Seven Falls		117.8	22	e 20 19	PP	e 27 19	{ + 20}	e 35 47	SS	47.1
Vermont		118.9	26	e 20 13	PP	e 25 55	{ + 9}	e 36 20	SS	e 49.3
Harvard		121.2	26	e 18 57	[+ 2]	e 25 47	{ - 7}	e 20 25	PP	e 51.1
Fordham		121.4	29	e 20 32	PP	e 30 10	PS	e 23 12	PPP	e 55.1
Philadelphia		121.4	31	e 20 22	PP	e 25 43	{ - 11}	e 30 7	PS	e 51.0
Columbia		122.2	40	e 23 20	PPP	e 26 2	{ + 5}	e 30 16	PS	e 54.5
Almeria		122.4	325	20 29	PP	30 43	PS	20 49	PP	51.1
Halifax		122.5	19	e 20 55	PP	—	—	—	—	54.1
Granada		122.8	326	i 20 55	PP	29 59	PS	22 50	PPP	i 62.0
Lisbon	N.	124.5	331	20 22	PP	28 10	{ + 26}	23 16	PPP	64.4
San Fernando		124.7	327	e 21 1	PP	25 47	{ - 18}	38 23	SSP	—
Bermuda		132.6	28	e 21 42	PP	e 28 53	{ + 17}	e 39 2	SS	57.9
San Juan		142.5	42	e 19 37	[+ 2]	e 41 47	SS	e 22 58	PP	e 58.4
Huancayo		145.1	98	e 19 47	[+ 8]	e 26 13	{ - 34}	e 42 19	SS	e 60.4
Fort de France		148.5	42	e 19 47	[+ 2]	—	—	—	—	—
La Plata		149.4	150	19 56	[+ 10]	29 13	{ - 62}	26 1	PPP	61.1
La Paz		151.6	109	i 19 55 _a	[+ 6]	i 26 37	{ - 19}	i 20 46	pPKP	71.1
Rio de Janeiro	E.	165.9	168	e 21 27	?	e 31 27	{ - 16}	—	—	e 45.7
	N.	165.9	168	e 22 7	?	e 31 49	{ + 6}	—	—	e 46.6

Additional readings :—

Mori i = 9m.25s.
 Brisbane ePE = 7m.31s., iSSN = 13m.22s.
 Riverview eE = 8m.30s., iP_cP?N = 10m.7s., iP_cSNZ = 13m.58s., iE = 14m.56s., iE = 18m.11s., eQE = 19.4m.
 Perth PS = 16m.28s., SS = 19m.7s., SSS = 20m.57s.
 Calcutta iN = 9m.53s. and 17m.25s.
 Auckland i = 14m.29s. and 19m.12s., Q = 23.1m.
 Wellington iZ = 10m.17s., PPZ = 12m.27s., iZ = 13m.37s., 15m.7s., 16m.12s., and 17m.37s., sS? = 18m.25s., SS = 22m.27s., Q = 25.1m.
 Christchurch S_cS? = 19m.12s., SS = 22m.46s., Q = 25m.22s.
 Hyderabad SE = 18m.44s., SSN = 22m.37s.
 Honolulu ePPP = 14m.4s.
 Agra E P_cP = 10m.52s., PP = 12m.38s., ePPP = 14m.9s., i = 15m.17s., 18m.4s., isS = 18m.41s., is_cS = 19m.17s., is_cS = 20m.4s., iSS = 22m.2s., isSS = 22m.44s.
 Kodaikanal SKSE = 20m.47s., SSE = 22m.49s.
 Bombay eN = 11m.7s., iN = 11m.25s., eN = 12m.18s.
 College e = 15m.36s. and 22m.15s., eSS = 25m.49s.
 Sitka e = 13m.37s. and 26m.55s.
 Victoria eN = 36m.1s.
 Ferndale eSE = 23m.52s.
 Ukiah e = 18m.14s. and 24m.31s., eSS = 30m.2s.
 Berkeley ePPPZ = 18m.3s., iZ = 20m.40s., eZ = 22m.54s., iSN = 23m.58s., iSE = 24m.13s., ePSE = 25m.10s., iSSN = 28m.46s., iE = 32m.26s., iN = 32m.32s., iZ = 33m.9s., iE = 33m.38s., eSSSE = 36m.0s., eSSSN = 36m.28s., iZ = 38m.27s., eQN = 38m.43s.
 Pasadena eSN = 24m.25s.
 Butte e = 19m.50s., eS = 24m.45s., eSS = 30m.53s., e = 36m.35s.
 Bozeman ePPP = 19m.37s., eS = 24m.48s., e = 25m.50s., eSS = 31m.40s.
 Logan e = 16m.38s., eS = 24m.52s., eSS = 31m.43s., e = 36m.45s.
 Salt Lake City eS = 24m.59s., e = 27m.14s. and 30m.28s.
 Upsala eE = 24m.47s., eSSS = 35m.7s.
 Scoresby Sund i = 18m.18s., e = 19m.38s. and 20m.27s., ePS = 26m.15s., e = 31m.4s., esS = 32m.5s., esSS = 35m.51s.
 Bucharest eSSN = 29m.9s.
 Tucson e = 17m.6s., i = 19m.0s., e = 24m.36s., eS = 25m.30s., ePS = 31m.46s., eSS = 32m.18s.
 Helwan eZ = 14m.58s., eN = 25m.26s., PSZ = 27m.42s., PPSN = 28m.39s.
 Copenhagen 17m.19s., 19m.16s., 25m.37s., and 27m.25s.
 Sofia e = 20m.35s.

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Potsdam e = 17m.19s., iZ = 17m.31s., ePPN = 18m.33s., iPPEZ = 18m.37s., iSKSE = 24m.52s., iN = 26m.1s., eE = 26m.1s., iE = 27m.37s., IPSN = 27m.51s., iPPS?NZ = 28m.30s., iE = 30m.25s., iN = 30m.31s., iE = 32m.18s., iSSN = 33m.33s., iSSPEZ = 33m.46s.
 Jena eEN = 18m.37s., eN = 19m.7s., 21m.19s., 26m.47s., and 26m.53s.
 De Bilt iPP = 18m.59s., ipPP = 19m.7s., iPS = 28m.21s., ipPS? = 28m.37s., eSS = 34m.7s., eSSS = 38m.27s., e = 44m.7s.?
 Lincoln e = 33m.2s.
 Stuttgart ePP = 18m.59s., ePS = 28m.27s., ePKKP = 30m.2s., eSS = 33m.49s., 34m.27s., eSSS = 38m.25s.
 Uccle ePKPZ = 17m.46s., eSSE = 34m.30s.
 Ivigtut eS = 26m.14s.
 Stonyhurst i = 38m.40s.
 Kew ePPP = 21m.5s., ePSZ = 28m.20s., PPSZ = 29m.26s., eSS = 34m.40s.?, eQ = 45.1m.
 Chicago U.S.C.G.S. e = 29m.4s., 30m.30s., and 31m.49s., eSS? = 35m.8s., e = 35m.11s.
 Florissant eN = 20m.31s., 24m.32s., 27m.16s., ePPS?N = 28m.1s.
 St. Louis eEN = 24m.17s. and 25m.7s., eN = 25m.19s., eSE = 27m.14s., ePPSE = 30m.16s.
 Clermont-Ferrand e = 19m.48s., ePS = 29m.16s.
 Ottawa PS = 29m.39s., SS = 35m.13s., SSS = 40m.31s., e = 49m.7s.?
 Vermont eSSS = 41m.14s.
 Harvard ePPP = 23m.38s.
 Fordham ePPP = 25m.46s., eSS = 36m.54s.
 Philadelphia e = 22m.55s., 27m.22s., and 28m.46s., eSS = 36m.4s., e = 37m.7s., eSSS = 41m.7s.
 Columbia eSS = 36m.26s.
 Almeria PP = 24m.58s., SS = 37m.21s., SSS = 41m.38s.
 Granada SKP = 24m.0s., PPP = 25m.34s., PS = 33m.36s., PPS = 34m.43s., SS = 39m.33s., SSS = 44m.25s., Q = 54m.37s.
 Lisbon N = 20m.49s.
 San Fernando eSE = 32m.58s.
 Bermuda e = 35m.23s. and 48m.7s.
 San Juan eS = 24m.9s., e = 25m.18s. and 36m.20s.
 Huancayo e = 20m.24s., i = 21m.7s., e = 34m.19s., and 47m.3s.
 La Plata PKPN = 19m.59s., N = 21m.1s., N = 24m.36s., SSSN = 48m.7s.?
 La Paz iPPZ = 23m.30s., SKKS = 30m.34s., iSSN = 43m.24s., SSS = 48m.48s.
 Long waves were also recorded at Belgrade.

June 18d. Readings also at 6h. (La Paz), 7h. (De Bilt, Stuttgart, Kew, and Ksara (2)), 8h. (La Paz, Huancayo, Tucson, Mount Wilson, Pasadena, and Riverside), 10h. (Tucson, near Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Santa Barbara, and Tinemaha), 11h. (La Paz), 12h. (Tananarive, and near Granada), 19h. (Mount Wilson, Tucson, and Riverside), 20h. (Huancayo), 22h. (near Berkeley), 23h. (near Berkeley, Branner, Lick, Fresno, and Santa Clara).

June 19d. 19h. 37m. 1s. Epicentre 42°·2N. 146°·1E.

Pasadena suggests deep.

$$A = -0.6167, B = +0.4144, C = +0.6692; \quad \delta = -13; \quad h = -3; \\ D = +0.558, E = +0.830; \quad G = -0.555, H = +0.373, K = -0.743.$$

	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Mizusawa	4.9	232	e 1 34	P _g	2 36	S _g	—	—
Irkutsk	29.7	304	e 6 9	- 1	c 12 17	SS	12 59	SSS
College	42.8	35	e 7 53	- 8	e 14 8	-18	e 17 29	SS
Andijan	53.6	294	e 9 28	+ 3	e 17 2	+ 4	—	—
Sverdlovsk	53.8	318	i 9 23	- 3	16 49	-12	—	—
Tashkent	55.4	297	e 9 40	+ 2	e 17 21	- 1	—	—
Victoria	60.3	50	—	—	c 18 5	-21	—	36.0
Bombay	E. 65.3	273	—	—	e 19 24	- 5	e 20 59	?
Scoresby Sund	67.3	356	i 10 54	- 5	e 19 41	-13	e 13 6	PP
Tinemaha	z. 69.9	58	e 11 14	- 1	—	—	i 11 31	P _c P
Santa Barbara	70.6	61	e 11 21	+ 2	—	—	i 11 33	P _c P
Haiwee	70.7	58	e 11 22	+ 2	—	—	e 11 41	P _c P
Pasadena	71.8	60	i 11 27	+ 1	—	—	i 11 40	P _c P
Riverside	z. 72.4	60	e 11 28	- 2	—	—	i 11 44	P _c P
Copenhagen	74.5	335	i 11 41	- 1	21 12	- 5	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Warsaw		74.6	328	e 11 41 _a	- 2	e 21 17	- 1	e 11 54	P _c P	e 41.0
Potsdam		77.4	333	i 11 57 _k	- 1	21 38	-11	i 12 7	P _c P	e 39.0
Tucson		77.7	57	c 11 59	- 1	—	—	e 15 24	PP	e 41.2
Bucharest	N.	78.4	320	—	—	e 21 53	- 7	—	—	42.0
Prague		78.8	331	e 12 18	+12	e 22 2	- 2	—	—	—
Jena		79.1	332	e 12 8	0	—	—	e 12 29	P _c P	—
De Bilt		80.2	337	e 12 12	- 2	e 22 11	- 8	—	—	e 37.0
Ksara		81.0	307	c 12 35	+17	e 22 35	+ 8	—	—	—
Uccle		81.6	338	e 12 18	- 3	e 22 24	- 9	i 12 31	P _c P	e 39.0
Stuttgart		81.8	333	e 12 20	- 2	e 22 19	-16	i 12 33	P _c P	—
Kew		82.2	339	i 12 24 _a	0	e 22 33	- 6	e 32 43?	SSS	e 44.0
Triest		82.8	328	—	—	e 22 20	-25	e 31 23	SSS	—
Basle		83.4	333	e 12 29	- 1	—	—	—	—	—
Florissant	E.	84.4	40	—	—	e 22 51	-10	e 23 14	PS	—
St. Louis		84.6	40	i 13 46	?	e 22 59	PS	e 24 3	PPS	—
Ottawa		85.1	27	e 12 47	+ 8	e 22 53	[- 9]	—	—	e 36.0
Seven Falls		85.2	24	—	—	e 23 17	+ 8	—	—	41.0
Helwan		86.5	307	i 12 47 _k	+ 1	23 25	+ 3	—	—	—
Philadelphia		90.1	31	—	—	e 23 29	[- 4]	—	—	—
Almeria		96.3	335	—	—	e 25 19	+30	—	—	49.0
Granada		96.3	336	e 14 39 _a	?	24 13	+24	e 19 16	PPP	50.2

Additional readings:—

Scoresby Sund e = 21m.8s., 23m.34s., and 24m.1s.

Warsaw eS/Z = 21m.23s.

Potsdam eSKSE = 21m.59s.?

Tucson e = 13m.34s.

Jena eN = 12m.39s.

Florissant iE = 23m.20s.

St. Louis eE = 24m.14s.

Helwan eZ = 13m.14s.

Granada SKKS = 26m.20s., PS = 28m.51s., PPS = 29m.47s., SS = 34m.15s., SSS = 39m.30s.

Long waves were also recorded at Cheb, San Fernando, Upsala, Riverview, and Wellington.

June 19d. Readings also at 0h. (near Lick), 1h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, and Stuttgart), 2h. (Sofia), 3h. (Kew and near La Paz), 9h. (La Paz, Huancayo, Tucson, Mount Wilson, and near Lick), 11h. (Huancayo), 16h. (Triest), 19h. (St. Louis), 21h. (near Mizusawa).

June 20d. 10h. 2m. 3s. Epicentre 19°·1N. 100°·7W.

Pasadena suggests depth = 100km.

Strong at Turicato and Ario de Rosales (Mich.). Epicentre 18° 55'N. 101° 43'W.

Instituto de Geologico, Catalogo Compendiado de Temblores, años, 41-44, Mexico 1945, p.29.

$$A = -.1756, B = -.9292, C = +.3252; \quad \delta = 0; \quad h = +5;$$

$$D = -.983, E = +.186, \quad G = -.060, H = -.320, K = -.946.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.	
Tacubaya	N.	1.5	78	i 0 41	+13	—	—	—	—	
Puebla	N.	2.4	92	0 57	P _r	—	—	—	—	
Guadalajara	Z.	2.9	303	i 0 40	- 8	—	—	—	—	
Manzanillo	N.	3.4	270	c 0 41	-14	—	—	—	—	
Oaxaca	E.	4.3	118	c 1 17	P*	—	—	—	—	
Merida	N.	10.6	78	i 2 48	PP	—	—	—	—	
Chihuahua	Z.	10.7	334	e 2 29	- 9	—	—	—	—	
Tucson		15.9	327	i 3 50	+ 3	e 6 49	+ 5	i 4 5	PP	e 7.9
La Jolla		20.2	316	e 4 37	- 2	—	—	i 4 54	pP	—
Palomar	Z.	20.2	318	e 4 42	+ 3	—	—	—	—	—
Cape Girardeau		20.6	26	i 4 46	+ 3	i 8 37	+ 8	i 5 14	PPP	—
Riverside		21.0	318	i 4 45 _a	- 2	—	—	i 5 2	pP	i 12.5
St. Louis		21.5	23	e 4 54	+ 2	i 8 51	+ 4	e 5 2	pP	e 10.4
Florissant		21.6	23	i 4 55	+ 1	i 8 52	+ 3	i 5 3	pP	—
Pasadena		21.6	318	i 4 52 _a	- 2	—	—	i 5 6	pP	e 10.3

Continued on next page.

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	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Lincoln	22.0	7	e 4	2	-56	—	—	—	e 6	41	?	e 8.6
Haiwee	22.8	323	e 5	5	0	—	—	—	i 5	24	pP	—
Santa Barbara	22.8	316	e 5	4	-1	—	—	—	i 5	19	pP	—
Columbia	23.0	45	e 5	8	+1	e 9	19	+5	e 5	29	PP	e 12.2
Salt Lake City	23.6	341	e 5	13	0	e 9	36	+11	i 5	31	PP	e 12.1
Tinemaha	23.6	323	e 5	13 _a	0	—	—	—	i 5	30	pP	—
Fresno	24.3	321	i 5	24	+4	—	—	—	—	—	—	e 13.7
Logan	24.5	342	e 5	25	+3	e 9	47	+7	—	—	—	13.2
Chicago U.S.C.G.S.	25.6	22	e 5	30	-2	e 9	53	-6	e 6	24	PPP	i 10.6
Lick	25.8	320	e 5	34	0	—	—	—	—	—	—	—
Santa Clara	26.0	320	e 6	13	PP	e 10	21	+15	—	—	—	—
Berkeley	26.5	320	i 4	30	-71	i 10	20	+6	—	—	—	e 12.5
Pittsburgh	27.7	36	i 5	41	-11	i 10	57	+24	i 6	12	pP	—
Bozeman	27.9	345	e 5	51	-3	e 10	32	-5	e 6	30	PP	11.6
New Kensington	27.9	36	e 5	57	+3	e 10	39	+2	i 6	33	PP	—
Ukiah	27.9	321	e 6	8	+14	e 11	4	+27	—	—	—	e 13.4
Georgetown	28.4	41	5	59	+1	e 11	29	+44	7	4	PPP	e 14.5
Butte	28.6	344	e 6	0	0	e 11	50	SS	—	—	—	e 14.9
Philadelphia	30.2	43	6	13	-1	e 10	50	-23	i 7	3	PP	i 13.3
Fordham	31.6	42	i 6	25	-1	e 11	33	-2	i 7	25	PP	—
San Juan	32.7	85	e 6	35	-1	e 11	51	-1	e 7	41	PP	e 14.0
Saskatoon	33.3	353	e 7	39	PP	e 15	9	?	—	—	—	18.0
Ottawa	33.4	33	6	42	0	12	0	-3	7	59	PP	e 18.0
Harvard	33.9	41	e 6	47	0	e 12	11	0	e 7	8	pP	e 23.6
Vermont	34.2	36	e 7	10	+21	e 12	15	-1	e 8	12	PP	e 15.2
Victoria	34.6	334	6	52	-1	12	9	-13	e 15	21	SSS	18.9
Bermuda	34.9	61	e 6	58	+3	e 12	37	+10	e 8	12	PP	e 14.1
Shawinigan Falls	35.7	34	e 7	4	+2	e 15	57	?	e 8	21	PP	19.9
Seven Falls	37.1	34	7	18	+4	12	57	-4	8	33	PP	e 14.9
Fort de France	38.0	91	e 8	16	?	—	—	—	—	—	—	—
Huancayo	39.8	139	e 7	35	-1	e 13	37	-5	e 9	9	PP	e 16.9
La Paz	47.7	135	i 8	40 _k	0	i 15	36	0	i 9	4	pP	22.7
Honolulu	53.4	283	e 9	12	-12	e 16	50	-5	—	—	—	e 22.3
College	55.3	338	e 9	52	+14	e 17	10	-11	e 19	15	?	e 22.8
Ivigtut	55.7	28	e 9	47	+7	e 17	12	-14	e 12	48	PPP	e 23.3
Scoresby Sund	68.4	21	e 11	3	-3	e 20	0	-7	e 15	32	PPP	e 30.0
Kew	81.5	38	i 12	21 _a	0	e 22	33	+1	e 32	57	?	e 35.0
San Fernando	82.4	54	e 12	24	-1	—	—	—	—	—	—	—
Granada	84.1	53	i 12	35 _k	+1	i 22	52	-6	13	5	pP	40.9
De Bilt	84.5	36	i 12	36 _a	0	i 22	55	-7	e 28	54	SS	e 40.9
Uccle	84.5	38	e 12	35	-1	i 22	53	-9	—	—	—	e 41.0
Almeria	85.1	53	i 12	22	-17	22	39	[-22]	15	44	PP	42.9
Clermont-Ferrand	85.7	43	e 12	48	+6	e 23	13	-1	—	—	—	e 41.0
Copenhagen	86.7	31	—	—	—	i 23	3	[-9]	—	—	—	—
Stuttgart	88.2	38	e 12	52	-2	—	—	—	—	—	—	—
Potsdam	88.7	34	e 12	56	-1	i 23	40	-3	i 23	45	S _e S	e 40.0
Cheb	89.4	36	—	—	—	e 23	30	[+1]	—	—	—	e 44.0
Triest	92.5	39	—	—	—	i 23	44	[-3]	—	—	—	—
Warsaw	92.8	32	e 13	39 _a	+23	e 23	42	[-7]	i 17	17	PP	e 45.0
Bucharest	100.3	36	—	—	—	i 24	23	[-5]	—	—	—	e 49.0

Additional readings :—

Tucson i=4m.46s. and 5m.22s.
 Cape Girardeau iN=4m.52s., isSE=9m.9s.
 Riverside iZ=5m.12s. iP_cP=8m.49s.
 St. Louis isSE=9m.25s.
 Florissant isSN=9m.4s.
 Pasadena isPZ=5m.18s., iP_cPZ=8m.51s., eZ=9m.1s.
 Columbia e=6m.1s. and 6m.9s.
 Salt Lake City e=10m.17s.
 Logan i=5m.43s., e=7m.28s.
 Chicago U.S.C.G.S. i=5m.51s.
 Berkeley iZ=5m.30s.
 Pittsburgh isS=11m.34s.
 Bozeman e=7m.4s.
 Georgetown e=8m.16s.
 Butte e=8m.11s.

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Philadelphia $i = 11\text{m.}39\text{s.}$
 Fordham $i = 7\text{m.}49\text{s.}$
 San Juan $iP = 6\text{m.}38\text{s.}$
 Ottawa $i = 7\text{m.}2\text{s.}, e = 12\text{m.}29\text{s.}, SS = 13\text{m.}47\text{s.}$
 Harvard $ePP = 8\text{m.}0\text{s.}, eS = 13\text{m.}2\text{s.}, eSS = 14\text{m.}42\text{s.}, eS_eS = 17\text{m.}0\text{s.}$
 Vermont $e = 12\text{m.}32\text{s.}$
 Bermuda $e = 9\text{m.}59\text{s.}$
 Seven Falls $e = 7\text{m.}36\text{s.}$
 Huancayo $i = 8\text{m.}2\text{s.}, e = 9\text{m.}15\text{s.}$
 La Paz $iPPZ = 10\text{m.}26\text{s.}, iPPPZ = 11\text{m.}18\text{s.}, iSSN = 18\text{m.}30\text{s.}, SSSN = 20\text{m.}14\text{s.}$
 Scoresby Sund $eS = 20\text{m.}39\text{s.}, eSS = 24\text{m.}38\text{s.}$
 Granada $PP = 16\text{m.}28\text{s.}, sS = 23\text{m.}42\text{s.}, eSS = 28\text{m.}58\text{s.}, sSS = 30\text{m.}58\text{s.}, eSSS = 32\text{m.}45\text{s.}$
 De Bilt $iZ = 12\text{m.}56\text{s.}, iE = 23\text{m.}9\text{s.}, eSSS = 32\text{m.}57\text{s.}?$
 Almeria $PPP = 17\text{m.}36\text{s.}, SS = 28\text{m.}16\text{s.}, SSS = 31\text{m.}52\text{s.}$
 Warsaw $eZ = 23\text{m.}45\text{s.}, eE = 26\text{m.}5\text{s.}, eN = 26\text{m.}9\text{s.}, eZ = 26\text{m.}19\text{s.}$
 Long waves were also recorded at Wellington, Riverview, Arapuni, and Agra.

June 20d. 14h. Local European shock.

Chur $ePg = 42\text{m.}2\text{s.}, eSg = 42\text{m.}17\text{s.}$
 Zurich $eP = 42\text{m.}16\text{s.}, ePg = 42\text{m.}19\text{s.}, eSg = 42\text{m.}46\text{s.}$
 Ravensburg $eN = 42\text{m.}18\text{s.}, iSg = 42\text{m.}46\text{s.}$
 Triest $iP = 42\text{m.}21\text{s.}, eS = 42\text{m.}32\text{s.}$
 Stuttgart $eP = 42\text{m.}25\text{s.}, iPg = 42\text{m.}37\text{s.}, e = 43\text{m.}0\text{s. and } 43\text{m.}15\text{s.}, iSg = 43\text{m.}22\text{s.}$
 Basle $eP = 42\text{m.}26\text{s.}, eSg = 43\text{m.}5\text{s.}$
 Neuchatel $eP = 42\text{m.}30\text{s.}, eSg = 43\text{m.}11\text{s.}$
 Jena $e = 43\text{m.}0\text{s.}, eE = 43\text{m.}54\text{s.}$
 Ebingen $eSgN = 43\text{m.}3\text{s.}, eSgZ = 43\text{m.}6\text{s.}$
 Potsdam $eN = 45\text{m.}0\text{s.}$

June 20d: Readings also at 0h. (near Mizusawa), 1h. (Pasadena, Riverside, Tucson, Tine-maha, and near Mizusawa), 3h. (Riverview and Sverdlovsk), 4h. (De Bilt, Kew, Granada), 7h. (near Mizusawa), 11h. (Ferndale), 13h. (near Almeria, Granada, and near Lick), 17h. (near Tashkent), 20h. (Florissant and St. Louis), 21h. (Scoresby Sund).

June 21d. 4h. 38m. 34s. Epicentre $36^\circ 4\text{N. } 27^\circ 4\text{E.}$

$A = +.7163, B = +.3713, C = +.5908; \delta = -1; h = 0;$
 $D = +.460, E = -.888; G = +.525, H = +.272, K = -.807.$

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.				
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.				
Istanbul	4.8	15	1	31	P_g	2	13	+ 1	2	28	S^*	—			
Sofia	7.0	335	1	55	+ 9	—	—	—	i	2	21	P_g	i 3.3		
Helwan	7.3	152	1	48	- 2	3	2	-13	2	3	P_g^*	—	—		
Ksara	7.4	108	e	1	55	+ 3	e	2	56	-22	—	—	—		
Bucharest	8.1	353	i	2	8	+ 6	i	4	6	S^*	i	5	19	S_g	—
Belgrade	9.9	330	e	2	31	+ 6	e	5	22	S_g	—	—	—	—	
Triest	13.8	316	i	3	22	+ 3	e	5	48	- 6	—	—	—	e 6.4	
Warsaw	16.5	346	3	58 _a	+ 4	e	6	52	- 6	e	4	9	PP	e 7.9	
Prague	16.6	330	i	3	55 _a	- 1	7	1	+ 1	—	—	—	—	e 8.4	
Chur	16.9	314	e	4	2	+ 3	e	6	57	-10	—	—	—	—	
Ravensburg	N.	17.4	i	4	7	+ 1	i	7	17	- 2	—	—	—	—	
Cheb	17.5	326	e	4	8	+ 1	e	7	25	+ 4	—	—	—	—	
Zurich	17.8	313	e	4	10 _a	- 1	e	7	24	- 4	—	—	—	—	
Ebingen	18.0	317	i	4	13	0	i	7	29	- 3	—	—	—	—	
Stuttgart	18.2	319	i	4	15 _a	- 1	i	7	36	- 1	—	—	—	—	
Basle	18.4	313	e	4	15	- 3	e	7	36	- 5	—	—	—	—	
Jena	18.4	327	i	4	16	- 2	e	7	42	+ 1	—	—	—	e 8.9	
Neuchatel	18.5	312	e	4	18	- 1	e	7	41	- 3	—	—	—	—	
Strasbourg	18.8	317	i	4	26 _a	+ 3	i	7	51	+ 1	i	4	51	pP	—
Potsdam	18.9	331	i	4	24 _a	0	i	7	53	0	i	8	23	SS	9.4
Algiers	19.6	277	4	26	- 6	i	8	0	- 8	4	38	pP	—	—	
Clermont-Ferrand	20.5	304	i	4	39	- 3	i	8	19	- 8	—	—	—	19.4	
Copenhagen	21.8	337	i	4	54	- 2	8	50	- 2	—	—	—	—	—	
Uccle	21.9	319	i	5	6 _a	+ 9	i	8	51	- 3	—	—	—	e 10.4	
Paris	22.0	312	e	4	57	- 1	i	8	51	- 5	—	—	—	11.6	

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	$^{\circ}$	$^{\circ}$	m. s.	s.	m. s.	s.	m. s.	m.
De Bilt	22.2	322	i 4 58 _a	- 2	i 8 57	- 3	—	—
Almeria	23.9	280	i 5 1	-15	i 9 9	-21	5 21	pP
Upsala	24.3	348	i 5 17	- 3	9 29 [?]	- 8	5 41	PP
Granada	24.8	282	i 5 29 _k	+ 4	i 9 33	-13	5 54	pP
Kew	24.8	317	i 5 22	- 3	i 9 39	- 7	i 6 5	PP
Oxford	25.5	316	5 23	- 9	i 9 39	-18	—	—
San Fernando	E. 27.0	280	—	—	e 10 41	+19	—	—
Aberdeen	28.6	327	—	—	i 10 57	+ 9	—	—
Lisbon	29.0	287	5 59	- 5	i 10 46	- 8	—	—
Sverdlovsk	30.2	37	i 6 13	- 1	i 11 6	- 7	—	—
Scoresby Sund	43.1	337	i 7 59	- 5	e 14 25	- 5	i 9 41	PP
Bombay	E. 43.4	102	—	—	e 14 28	- 7	e 17 41	SS
Agra	E. 43.6	88	e 8 20	+12	14 29	- 9	17 49	SS
Pittsburgh	78.6	312	i 12 2	- 3	i 21 51	-11	—	—
San Juan	82.1	287	—	—	e 22 25	-13	—	—
Florissant	85.7	316	i 12 40	- 2	i 23 4	[- 1]	—	—
St. Louis	85.7	316	i 12 38	- 4	i 23 2	[- 3]	e 12 58	pP
Cape Girardeau	E. 86.3	314	—	—	e 23 6	[- 3]	—	—
Tinemaha	100.2	332	i 13 48	- 1	—	—	—	—
Haiwee	101.0	332	i 13 51	- 2	—	—	—	—
Tucson	101.3	325	i 13 51	- 3	—	—	—	—
Riverside	z. 102.6	331	e 13 57	- 3	—	—	—	—

Additional readings :—

Helwan S* = 3m.16s.
 Belgrade i = 2m.58s., 3m.35s., 5m.30s., and 5m.52s.
 Warsaw ePPP?N = 4m.13s., ePPP?Z = 4m.17s., eSE = 6m.56s., eSZ = 7m.5s., iSN = 7m.10s., SSE = 7m.27s., SSN = 7m.32s.
 Stuttgart iEN = 7m.49s.
 Jena iN = 4m.19s., i = 5m.26s., iSN = 7m.46s., iSZ = 7m.51s.
 Strasbourg isP? = 5m.16s., i = 5m.27s., isS = 8m.43s., i = 9m.26s.
 Potsdam iEZ = 7m.59s.
 Algiers isP? = 4m.47s., iPP = 4m.56s., iPPP? = 5m.18s., SS = 8m.11s.
 De Bilt i = 9m.38s.
 Almeria sP = 5m.35s., PP = 5m.43s., P_cP = 8m.36s., S_cP = 12m.4s., S_cS = 15m.59s.
 Upsala PPPE = 5m.56s., eN = 10m.3s., eE = 10m.14s., iSSSE = 10m.43s.
 Granada sP = 6m.7s., sS = 10m.12s., SS = 11m.7s.
 Kew iSS = 10m.39s.
 Aberdeen iE = 12m.12s.
 Lisbon SE = 10m.36s., SN = 10m.42s.
 Scoresby Sund e = 16m.29s. and 18m.51s.
 Florissant iN = 24m.0s.
 St. Louis eSN = 22m.52s., esSN = 23m.38s.
 Cape Girardeau eE = 22m.55s.

June 21d. Readings also at 2h. (Triest, Stuttgart, Potsdam, Warsaw, Kew, Bucharest, and near Istanbul), 3h. (near Andijan), 8h. (near Mizusawa), 9h. (Granada, Pasadena, Riverside, Tinemaha, Tucson, and Sverdlovsk), 12h. (Stuttgart), 17h. (near Andijan), 19h. (Tacubaya), 21h. (Tashkent, Ksara, Copenhagen, Potsdam, De Bilt, Uccle, Kew, Stuttgart, Granada, Bermuda, and La Paz), 22h. (Granada, Helwan (2), and Ksara).

June 22d. 19h. Undetermined shock.

Tacubaya PN = 57m.27s.
 St. Louis iZ = 60m.16s., eZ = 60m.44s., eN = 62m.50s., 64m.59s., 65m.22s., and 67m.0s., LN = 71m.
 Florissant eZ = 60m.18s., and 60m.46s., iS?N = 65m.19s., iN = 65m.40s., eN = 66m.23s., eLN = 72m.10s.
 Tucson eP = 60m.31s., i = 60m.40s., e = 61m.45s., eS = 66m.21s., eL = 71m.9s.
 Philadelphia eP = 61m.7s., eS = 66m.22s., eL = 70m.0s.
 La Jolla e = 61m.14s.
 Riverside ePZ = 61m.19s., eP_cPZ = 64m.4s.
 Pasadena iP = 61m.25s. a, eLN = 70m.36s.
 Ottawa eZ = 61m.34s., eN = 67m., eE = 70m.30s., L = 74m.
 Haiwee ePZ = 61m.39s.
 Tinemaha ePNZ = 61m.41s., eP_cPZ = 64m.15s.
 Bermuda e = 62m.33s., eL = 68m.19s.
 Scoresby Sund ePPP = 70m.35s., e = 83m.40s., eL = 92m.17s.
 Long waves were also recorded at San Juan, other American, and European stations.

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June 22d. Readings also at 9h. (Tucson, and Tacubaya), 10h. (near Zurich and Stuttgart), 12h. (near Port-au-Prince), 14h. (Florissant), 15h. (Florissant and St. Louis), 16h. (Helwan), 20h. (Pasadena, Riverside, Tinemaha, Santa Barbara, Tucson, Florissant, and near St. Louis), 22h. (Tucson, and near Fresno), 23h. (Tucson (2), near Lick, and Fresno (2)).

June 23d. Readings at 0h. (near Basle, Zurich, and Stuttgart), 3h. (Agra, Bombay, Dehra Dun, Potsdam, Granada, and De Bilt), 7h. (Tucson and Philadelphia), 8h. (Tacubaya, Merida, and near Fresno), 9h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Haiwee, La Jolla, Tucson, St. Louis, Florissant, Cape Girardeau, Harvard, La Paz, Ottawa, and Granada), 10h. (near Fresno), 16h. (De Bilt, Stuttgart, Kew, Triest, Potsdam, Florissant, St. Louis, Bucharest, near Sofia, and Istanbul), 19h. (Stuttgart), 20h. (Granada).

June 24d. 11h. 16m. 26s. Epicentre 40° ·9S. 175° ·8E.

Scale IX in Epicentral region.

M. Ongley "Wairapapa Earthquake of 24 June 1942, together with map showing surface traces of faults recently active." *New Zealand Journal of Science and Technology*, Sec. B., Vol. 25, No. 2, pp. 67-78. 17 figures, 2 maps: Wellington Sept. 1943.

R. C. Hayes, "Earthquakes in New Zealand during the year 1942," *New Zealand Journal of Science and Technology*, Vol. 24, No. 4 B., p. 192. Isoseismic Chart, p. 191: Wellington 1944.

$$A = -0.7560, B = +0.0555, C = -0.6522; \quad \delta = -2; \quad h = -2;$$

$$D = +0.073, E = +0.997; \quad G = +0.650, H = -0.048, K = -0.758.$$

	Δ	Az.	P.		O-C.	S.		O-C.	Supp.		L.	
	°	°	m.	s.	s.	m.	s.	s.	m.	s.	m.	
Riverview	20.8	282	i 4	41 _a	- 4	i 8	34	+ 1	i 5	1	PP	e 10.2
Sydney	20.8	282	i 4	37	- 8	i 8	34	+ 1	—	—	—	—
Brisbane	23.0	299	i 5	9	+ 2	i 9	21	+ 7	i 5	43	PP	—
Apia	29.1	28	e 6	14	+10	e 11	4	+ 8	i 7	4	PP	—
Honolulu	66.6	27	e 10	56	+ 2	i 19	45	0	e 23	43	SS	e 29.7
Tokyo	83.1	331	e 12	26	- 3	—	—	—	—	—	—	—
Koti	83.7	325	13	32	+60	23	42	+48	—	—	—	—
Nagoya	83.7	330	e 12	31	- 1	—	—	—	—	—	—	—
Kobe	84.0	329	12	32	- 1	22	49	- 8	—	—	—	—
Nagano	84.5	331	e 12	37	+ 1	—	—	—	—	—	—	—
Sendai	85.0	334	e 12	48	+10	—	—	—	—	—	—	—
Hukuoka	85.1	324	12	40	+ 1	22	58	[- 3]	—	—	—	—
Hamada	85.5	323	23	0	SKS	(23	0)	[- 4]	—	—	—	—
Mizusawa	85.7	335	11	33	-69	23	3	[- 2]	—	—	—	—
Sapporo	89.2	336	12	59	0	23	45	- 2	—	—	—	—
La Plata	89.8	139	12	59	- 3	23	29	[- 3]	16	10	PP	40.5
Zinsen	90.1	323	23	30	S	(23	30)	[- 3]	—	—	—	—
La Jolla	N. 95.9	52	e 13	33	+ 3	—	—	—	—	—	—	—
Huancayo	96.0	113	e 13	37	+ 7	e 24	9	[+ 2]	e 17	35	PP	e 39.9
Pasadena	96.3	50	i 13	32 _k	0	i 24	47	- 2	i 17	28	PP	e 43.6
Mount Wilson	96.4	50	i 13	33	+ 1	e 24	7	[- 2]	e 30	22	PKKP	—
Riverside	Z. 96.6	50	e 13	32	- 1	—	—	—	e 17	28	PP	—
Berkeley	96.7	46	i 13	28	- 5	i 24	5	[- 5]	i 17	35	PP	e 43.1
Ukiah	97.1	43	e 13	52	+17	e 24	4	[- 8]	e 17	25	PP	e 41.8
Haiwee	97.8	49	e 13	48	+10	—	—	—	—	—	—	—
La Paz	97.8	120	i 13	44 _a	+ 6	i 24	17	[+ 1]	i 17	50	PP	46.0
Tinemaha	98.3	48	e 13	46	+ 5	—	—	—	—	—	—	—
Colombo	E. 99.0	271	—	—	—	e 24	13	[- 9]	e 32	0	SS	48.9
Tucson	99.3	56	e 13	47	+ 2	e 24	22	[- 2]	e 17	46	PP	e 41.8
Kodaikanal	E. 102.9	273	—	—	—	i 24	34	[- 7]	27	14	PS	—
Tananarive	103.5	230	—	—	—	24	48	[+ 4]	27	35	PS	43.7
Victoria	104.0	37	18	29	PP	24	47	[+ 1]	33	21	SS	47.6
Salt Lake City	104.5	48	e 17	38	PKP	e 24	46	[- 2]	e 18	22	PP	e 43.3
Logan	105.1	47	e 18	38	PP	e 24	49	[- 2]	e 32	56	SS	—
Hyderabad	E. 106.7	279	—	—	—	24	52	[- 6]	33	37	SS	45.3

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.	
		°	°	m. s.	s.	m. s.	s.	m. s.	m.	
Rio de Janeiro	N.	106.9	143	e 18 49	PP	c 24 50	[- 9]	(c 34 34)	SS	e 34.6
Butte		107.5	44	e 18 52	PP	e 24 42	[- 20]	28 15	PS	e 44.7
Bozeman		108.1	46	e 18 54	PP	c 25 4	[0]	e 28 19	PS	e 44.9
College		109.2	15	—	—	c 24 56	[- 13]	e 34 20	SS	e 45.2
Irkutsk		111.5	321	e 18 42	[+ 6]	25 11	[- 7]	22 15	PKS	—
Bombay		111.8	277	—	—	25 10	[- 9]	28 38	PS	e 52.6
Agra	E.	112.8	287	e 16 57	?	34 57	SS	19 39	PP	51.7
Lincoln		113.6	57	e 19 27	PP	c 25 22	[- 5]	e 29 7	PS	e 55.2
Dehra Dun	N.	114.6	290	e 14 9	P	e 23 36	PKS	—	—	e 59.7
Florissant		116.5	61	e 19 46	PP	c 26 53	{+ 3}	e 29 38	PS	—
St. Louis		116.5	61	—	—	e 25 31	[- 7]	e 30 35	PS	—
Chicago		119.9	59	20 19	PP	e 30 8	PS	e 36 38	SS	e 48.9
Columbia		120.4	70	e 20 21	PP	e 25 46	[- 6]	e 30 7	PS	e 53.4
San Juan		122.9	94	e 15 24	P	e 25 56	[- 3]	e 20 48	PP	e 52.6
Andijan		123.9	297	e 19 6	[+ 6]	e 26 1	[- 2]	29 39	PS	—
Pittsburgh		124.3	64	i 18 59	[- 2]	e 26 0	PP	i 20 47	PP	—
Tashkent		126.3	296	19 12	[+ 7]	26 6	[- 3]	—	—	—
Philadelphia		127.4	67	e 21 5	PP	e 26 14	{+ 1}	e 30 59	PS	e 52.9
Fordham		128.7	66	i 19 7	[- 2]	e 38 48	SS	e 21 16	PP	e 63.0
Ottawa		129.2	60	19 9	[- 1]	29 34?	{+ 20}	21 19	PP	55.6
Harvard		130.9	65	e 19 11	[- 3]	c 21 31	PP	(e 33 4)	PS	e 33.1
Shawinigan Falls		131.5	59	e 19 34?	{+ 19}	e 22 40	PKS	—	—	66.6
Bermuda		131.6	81	e 21 27	PP	e 39 39	SS	e 31 44	PS	e 61.4
Seven Falls		133.0	59	e 19 22	{+ 4}	e 21 46	PP	e 40 4	SS	e 56.6
Sverdlovsk		136.2	314	19 19	[- 5]	i 26 37	{+ 4}	i 22 15	PP	—
Halifax		137.1	65	e 22 58	PKS	e 40 40	SS	—	—	63.6
Ivigut		146.6	38	e 21 23	?	—	—	e 41 46	SS	e 70.1
Ksara		147.6	269	e 19 38	[- 5]	—	—	22 44	PP	—
Scoresby Sund		149.0	12	e 19 48	{+ 2}	e 34 1	PS	e 23 35	PP	e 60.2
Helwan	z.	149.2	260	e 19 46	[0]	26 50	[- 3]	23 36	PP	—
Upsala	E.	156.7	332	e 20 11	{+ 14}	e 30 37?	[- 18]	e 34 19	SKSP	—
	N.	156.7	332	e 20 3	{+ 6}	e 30 42	[- 13]	e 23 30	PP	—
Bucharest		157.5	288	e 20 17	{+ 19}	e 30 48	[- 11]	e 31 40	?	47.6
Sofia		159.4	283	e 20 2	{+ 2}	e 30 59	[- 10]	e 25 9	?	44.6
Warsaw	z.	159.4	311	e 19 59	[- 1]	e 30 37	[- 32]	e 24 38	PP	—
Copenhagen		161.6	329	e 20 1	[- 1]	31 13	(- 8)	24 34	PP	—
Potsdam		163.5	320	i 20 3 _a	[- 1]	e 45 16	SS	i 24 47	PP	e 69.6
Aberdeen		163.7	356	—	—	e 31 23	[- 9]	e 32 3	?	e 79.4
Prague		164.1	312	e 21 9	PKP ₂	—	—	e 45 34?	SS	e 70.6
Jena		165.1	318	e 20 6	[0]	e 21 6	PKP ₂	e 39 34	PPS	e 58.6
Cheb		165.2	314	e 23 34?	PP	e 31 34?	[- 6]	—	—	—
Triest		166.1	296	e 20 12	{+ 5}	i 31 35	[- 8]	i 24 58	PP	—
De Bilt		167.1	333	i 20 7	[- 1]	e 31 39	[- 9]	e 25 14	PP	e 79.6
Stuttgart		167.7	314	e 20 2	[- 6]	e 31 44	[- 8]	e 25 14	PP	e 75.1
Uccle		168.4	332	e 20 6	[- 2]	e 27 3	[- 8]	i 32 0	SKKS	—
Chur		168.5	306	e 20 6	[- 2]	e 31 47	(- 9)	e 25 17	PP	—
Strasbourg		168.5	316	e 20 34	{+ 26}	e 47 52	SS	e 38 46	PPS	e 83.6
Zurich		168.8	309	e 20 7	[- 1]	e 31 50	(- 7)	e 21 23	PKP ₂	—
Kew		169.1	347	e 20 6	[- 3]	i 31 49	(- 9)	e 23 57	PKS	e 75.6
Basle		169.2	312	e 20 7	[- 2]	e 29 41	PPP	—	—	—
Neuchatel		169.9	311	e 20 8	[- 1]	—	—	—	—	—
Paris		170.8	331	e 20 13	{+ 3}	e 29 39	PPP	e 25 29	PP	45.0
Algiers		173.1	237	e 20 18	{+ 7}	i 32 17	(- 1)	i 25 33	PP	e 78.6
San Fernando		175.3	160	i 20 14	{+ 2}	e 47 6	SS	i 25 38	PP	82.6
Lisbon		175.6	118	20 14	{+ 2}	46 46	SS	25 42	PP	79.8
Almeria		175.7	199	20 10	[- 2]	i 32 46	{+ 16}	25 57	PP	85.1
Granada		176.3	188	i 20 13k	{+ 1}	27 10	[- 3]	32 41	SKKS	84.9

Additional readings and notes:—

Riverview iEN = 4m.53s., iP_cPE = 8m.39s., iZ = 8m.43s., iSSEN = 9m.2s.

Brisbane iPE = 5m.12s., iPPN = 5m.49s., iE = 6m.47s., iSSE = 9m.51s.

Apia iPPP = 7m.17s.

Honolulu e = 20m.52s., e = 26m.7s.

Mizusawa SE = 23m.11s.

La Plata E = 13m.52s., SE = 23m.34s., PPS?N = 25m.4s., N = 26m.52s., SSS?N = 30m.4s.,

SSSE = 30m.34s., SSSN = 36m.58s.

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Huancayo $i = 25m.21s.$, $iPS = 26m.29s.$, $iSS = 31m.40s.$, $eSSS = 35m.39s.$
 Pasadena $eEN = 24m.4s.$, $iSEN = 24m.58s.$, $iZ = 25m.43s.$, $iPSN = 26m.33s.$, $eSSEN = 31m.4s.$
 Berkeley $iPPPZ = 21m.2s.$, $iPSN = 25m.0s.$, $iSSN = 31m.35s.$, $iSSEZ = 31m.53s.$, $eEN = 40m.5s.$
 Ukiah $epPP = 17m.57s.$, $e = 25m.3s.$, $ePS = 26m.28s.$, $e = 30m.27s.$
 La Paz $iN = 24m.49s.$, $iSN = 25m.22s.$, $PSN = 26m.41s.$
 Tucson $e = 24m.57s.$, $eS = 25m.24s.$, $ePS = 26m.48s.$, $e = 30m.8s.$, $eSS = 32m.25s.$, $e = 32m.45s.$ and $36m.55s.$
 Kodaikanal $SSE = 33m.4s.$
 Tananarive $S = 25m.53s.$, $SS = 33m.11s.$
 Victoria $PS = 26m.3s.$, $SSS = 37m.58s.$
 Salt Lake City $eS = 26m.4s.$, $eSS = 33m.3s.$
 Butte $eS = 26m.31s.$, $ePS = 28m.15s.$, $e = 33m.6s.$
 Bozeman $eS = 26m.29s.$, $e = 32m.41s.$, $eSS = 34m.15s.$, $eSSS = 37m.47s.$
 College $e = 26m.46s.$, $eSSS = 38m.34s.$
 Irkutsk $SS = 34m.55s.$
 Bombay $SKKSEN = 26m.11s.$, $eSN = 26m.56s.$, $eE = 28m.11s.$, $iE = 29m.56s.$, $iSSE = 34m.34s.$, $eE = 38m.49s.$
 Agra $PPP?E = 22m.0s.$, $iE = 25m.11s.$, $PSE = 29m.6s.$, $SSSE = 39m.26s.$
 Lincoln $eSS = 36m.1s.$
 Florissant $ePPPZ = 22m.24s.$, $eSN = 27m.47s.$
 St. Louis $eSKKSEN = 26m.51s.$, $eSEN = 27m.50s.$
 Chicago $e = 28m.17s.$, $eSSS = 40m.56s.$
 Columbia $eS = 27m.49s.$, $eSS = 36m.30s.$
 San Juan $e = 22m.4s.$, $eS = 28m.28s.$, $ePS = 30m.18s.$, $e = 37m.37s.$ and $37m.52s.$
 Philadelphia $e = 22m.23s.$ and $32m.51s.$, $eSS = 38m.16s.$, $eSSS = 42m.51s.$
 Fordham $i = 22m.26s.$, $e = 23m.26s.$ and $43m.22s.$
 Ottawa $SKP = 22m.34s.$, $SS = 38m.44s.$
 Harvard $e = 22m.33s.$
 Bermuda $e = 54m.44s.$
 Seven Falls $e = 22m.45s.$
 Sverdlovsk $iPS = 31m.51s.$
 Ivigtut $e = 21m.42s.$, $eSSS = 47m.30s.$
 Scoresby Sund $e = 21m.55s.$, $ePPP = 27m.22s.$, $e = 30m.18s.$, $epPS = 34m.42s.$, $ePKPPK = 39m.51s.$, $eSS = 42m.31s.$, $e = 42m.58s.$, $eSSS = 47m.26s.$, $e = 51m.37s.$ and $52m.5s.$
 Helwan $PKPZ = 19m.52s.$, $PKKPZ = 20m.6s.$, $SKPZ = 23m.23s.$, $iZ = 24m.1s.$, $PPPZ = 27m.7s.$, $SKKSNZ = 30m.16s.$, $iZ = 33m.40s.$, $PSKSE = 33m.52s.$, $SSN = 42m.59s.$
 Upsala $eSSN = 42m.34s.?$, $eSSS = 48m.34s.?$
 Copenhagen $20m.52s.$ and $31m.59s.$, $SKSP = 34m.46s.$, $SS = 44m.34s.$, $SSS = 52m.16s.$
 Potsdam $iPKPN = 20m.7s.$, $ePPE = 24m.51s.$, $eN = 31m.22s.$, $iE = 31m.25s.$, $eZ = 31m.58s.$, $e = 35m.4s.$, $eSSNZ = 46m.4s.$, $eSSSE = 51m.34s.$, $eSSSN = 52m.10s.$
 Prague $e = 35m.34s.?$ and $39m.34s.?$
 Jena $eN = 20m.59s.$, $eEN = 24m.34s.$, $eN = 24m.54s.$, $eE = 31m.34s.$, $eN = 31m.46s.$ and $31m.54s.$, $eE = 45m.34s.$
 Trieste $i = 35m.48s.$, $e = 45m.34s.?$, $i = 51m.50s.$
 De Bilt $eZ = 29m.54s.$, $e = 35m.34s.$, $37m.34s.$, and $41m.54s.$
 Stuttgart $iPKP = 20m.5s.$, $iPKP_2 = 21m.32s.$, $iPP = 25m.17s.$, $iPPP = 29m.46s.$, $ePSKS = 35m.49s.$, $eSS = 46m.4s.$, $eSSS = 52m.4s.$
 Uccle $ePKP_2 = 21m.10s.$, $eSKSPEN = 35m.42s.$, $eSSSE = 51m.12s.$, $iN = 52m.2s.$
 Chur $e = 20m.22s.$
 Strasbourg $ePKP_2 = 21m.36s.$
 Kew $i = 20m.13s.$, $iPKP_2Z = 21m.28s.$, $iZ = 23m.5s.$, $ePP = 25m.9s.$, $e = 25m.41s.$, $iSKS = 26m.57s.$, $eZ = 28m.9s.$, $iPPP = 28m.41s.$, $i = 29m.45s.$, $eSKSP = 36m.4s.?$, $ePPSZ = 39m.4s.?$, $eSSZ = 44m.4s.$, $eSSEN = 46m.4s.?$, $eSSS = 48m.34s.?$
 Algiers $iPKP_2 = 21m.47s.$, $ePSKS = 36m.16s.$, $SS = 46m.30s.$
 San Fernando $iPKP_2EZ = 21m.58s.$
 Lisbon $E = 20m.27s.$ and $24m.56s.$, $PP = 25m.50s.$, $PPPE = 29m.52s.$, $E = 32m.34s.$, $36m.34s.$, and $39m.52s.$, $SSE = 47m.34s.?$, $N = 53m.48s.$, $E = 54m.34s.$ and $54m.44s.$
 Almeria $iPKP = 20m.19s.$, $i = 25m.47s.$, $SS = 46m.57s.$, $Q = 75.1m.$
 Granada $PKP_2 = 21m.58s.$, $SKP = 23m.32s.$, $iPP = 25m.46s.$, $PPP = 29m.58s.$, $SKSP = 36m.29s.$, $SS = 47m.17s.$, $SSS = 54m.42s.$, $Q = 71m.16s.$
 Long waves were also recorded at Stonyhurst, Marseilles, and Ferndale.

June 24d. Readings also at 0h. (Cape Girardeau and near La Paz), 3h. (Tacubaya, Tucson, and Stonyhurst), 5h. (Mizusawa), 6h. (Mount Wilson, Pasadena, Tucson, and Riverside), 8h. (Brisbane, Sydney, Riverview, and Helwan), 9h. (Tucson, Philadelphia, Huancayo, San Juan, Scoresby Sund, Granada, De Bilt, Kew, near Chur, and Zurich (2)), 10h. (San Fernando), 16h. (near La Paz), 17h. (Ksara), 18h. (Ferndale, Pasadena, Tucson, Berkeley, Ukiah, and Florissant), 20h. (near Lick), 21h. (Berkeley), 22h. (near La Paz), 23h. (Balboa Heights, San Juan, Ottawa, Philadelphia, and Stuttgart).

June 25d. Readings at 0h. (Kew and near Basle), 6h. and 10h. (Balboa Heights), 16h. (Sverdlovsk and near Mizusawa), 20h. (near La Paz), 21h. (Granada and near Angra-do-Herolsimo), 22h. (near Chur, Ravensburgh, Zurich, Basle, Stuttgart, and near La Paz).

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June 26d. Readings at 3h. (Sofia), 4h. (Tacubaya), 5h. (Philadelphia, Bozeman, and Butte), 6h. (Kew), 10h. (Pasadena, Mount Wilson, Riverside, Tinemaha, Tucson, Riverview, Wellington, and Brisbane), 11h. (Pasadena, Mount Wilson, Riverside, Tucson, Kew, and near La Paz), 15h. (Pasadena, Mount Wilson, Tucson, Stuttgart, and Tacubaya), 17h. (Mount Wilson, Riverside, Tucson, Huancayo, and La Paz), 19h. (Bozeman), 20h. (Riverview), 23h. (Stuttgart, Agra, and near Calcutta).

June 27d. 2h. 43m. 52s. Epicentre 29°·8N. 139°·0E. Depth of focus 0·060.

Intensity IV at Titizima, II-III at Onahama and Utunomiya. Epicentre 29°·8N. 139°·0E. Macroseismic radius greater than 300km. Depth about 420km.

Seismological Bulletin of the Central Meteorological Observatory, Japan 1942, Tokyo 1950.

$$A = -\cdot6560, B = +\cdot5702, C = +\cdot4945; \quad \delta = -1; \quad h = +2;$$

$$D = +\cdot656, E = +\cdot755; \quad G = -\cdot373, H = +\cdot324, K = -\cdot869.$$

	Δ °	Az. °	P.		O - C. s.	S.		O - C. s.	Supp.		L. m.
			m.	s.		m.	s.		m.	s.	
Hatidyozima	3·4	12	1	10	+ 2	1	58	- 4	—	—	—
Titizima	3·9	139	1	21	+ 9	2	23	+13	—	—	—
Siomisaki	4·6	324	1	16	- 3	2	18	- 4	—	—	—
Osima	4·9	4	1	23	+ 1	2	23	- 4	—	—	—
Hamanatu	5·0	348	1	24	+ 1	2	27	- 2	—	—	—
Shizuoka	5·2	354	1	26	+ 1	2	27	- 5	—	—	—
Misima	5·3	359	1	28 _a	+ 2	2	30	- 4	—	—	—
Kameyama	5·5	338	1	30	+ 2	2	37	- 1	—	—	—
Osaka	5·6	332	1	32	+ 2	2	39	- 1	—	—	—
Nagoya	5·6	343	1	30 _a	0	2	36	- 4	—	—	—
Yokohama	5·6	5	1	29	- 1	2	34	- 6	—	—	—
Hunatu	5·7	358	1	31	0	2	38	- 4	—	—	—
Sumoto	5·7	323	1	32 _a	+ 1	2	39	- 3	—	—	—
Kobe	5·8	327	1	23 _a	+ 1	2	42	- 2	—	—	—
Gihu	5·9	342	1	33 _a	0	2	43	- 3	—	—	—
Hikone	5·9	338	1	30 _a	- 3	2	40	- 6	—	—	—
Kyoto	5·9	333	1	34 _a	+ 1	2	43	- 3	—	—	—
Tokyo Cen. Met. Ob.	5·9	6	1	30	- 3	2	36	-10	—	—	—
Koti	6·0	310	1	34 _a	0	2	46	- 1	—	—	—
Tyosi	6·1	14	1	34	- 1	2	44	- 5	—	—	—
Kumagaya	6·3	3	1	23 _a	-14	2	26	-27	—	—	—
Tukubasan	6·4	8	1	36	- 2	2	48	- 7	—	—	—
Kakioka	6·5	8	1	37	- 2	2	48	- 9	—	—	—
Maebasi	6·5	0	1	37	- 2	2	52	- 5	—	—	—
Matuyama	6·6	308	1	40	0	2	53	- 6	—	—	—
Mito	6·7	10	1	39	- 2	2	52	- 9	—	—	—
Toyooka	6·7	329	1	41	0	2	56	- 5	—	—	—
Utunomiya	6·7	6	1	40	- 1	2	57	- 4	—	—	—
Nagano	6·9	355	1	42	- 2	2	56	-10	—	—	—
Toyama	7·0	348	1	46	+ 1	3	2	- 6	—	—	—
Hirosima	7·2	311	1	47	0	3	8	- 4	—	—	—
Onahama	7·2	12	1	46	- 1	3	6	- 6	—	—	—
Yakusima	7·4	277	1	52	+ 3	—	—	—	—	—	—
Kagosima	7·5	286	1	50	0	3	22	+ 4	—	—	—
Kumamoto	7·7	295	1	52 _k	- 1	3	20	- 2	—	—	—
Hamada	7·8	312	1	51	- 3	3	7	-17	—	—	—
Wazima	7·8	348	1	50	- 4	3	13	-11	—	—	—
Hokusima	8·0	8	1	58	+ 2	3	22	- 6	—	—	—
Izuka	8·0	301	1	50	- 6	3	29	+ 1	—	—	—
Aikawa	8·2	356	1	54 _k	- 4	3	22	-10	—	—	—
Hukuoka	8·3	299	1	59 _k	- 1	3	29	- 5	—	—	—
Nagasaki	8·3	293	1	58 _k	- 2	3	25	- 9	—	—	—
Nake	8·4	263	2	12	+11	3	14	-22	—	—	—
Sendai	8·6	10	2	0 _a	- 3	3	30	-10	—	—	—
Tomie	9·2	290	2	9	- 1	3	49	- 3	—	—	—
Mizusawa	9·5	10	2	12	- 1	3	50	- 9	—	—	—
Akita	9·9	5	2	14 _a	- 4	4	1	- 6	—	—	—
Miyako	10·1	13	2	20	0	4	6	- 5	—	—	—
Taiyu	10·6	306	2	22	- 4	4	16	- 6	—	—	—
Naha	10·7	253	2	30	+ 3	4	29	+ 5	—	—	—

Continued on next page.

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		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Hatinohe		10.9	10	2 21 _a	- 8	4 15	-13	—	—
Aomori		11.1	7	2 30 _a	- 2	4 26	- 6	—	—
Keizyo		12.6	311	2 41	- 7	—	—	—	—
Zinsen		12.8	310	4 8	pP	—	—	—	—
Miyakozima		13.2	251	2 55 _k	0	5 14	- 1	—	—
Sapporo		13.3	8	4 4	pP	6 25	sS	—	—
Nemuro		14.5	20	4 10	pP	—	—	—	—
Arisan		17.5	255	3 39	0	6 35	- 2	—	—
Taito		17.5	254	3 40	+ 1	6 39	+ 2	—	—
Irkutsk		34.0	322	6 5	- 3	10 51	-13	—	—
Agra	E	53.1	283	—	—	e 17 37	sS	—	—
Andijan		54.3	301	8 45	- 3	15 45	- 7	—	—
Sverdlovsk		59.4	322	—	—	i 16 47	-11	—	—
Scoresby Sund		79.1	354	i 20 30	S	(i 20 30)	-15	e 23 15	sS
Lick		79.3	53	e 11 24	+ 2	—	—	—	—
Tinemaha		81.7	53	e 11 37	+ 2	21 12	0	—	—
Santa Barbara		82.1	55	e 11 39	+ 2	—	—	—	—
Haiwee		82.4	53	e 11 41	+ 3	e 21 21	+ 2	—	—
Pasadena		83.3	55	i 11 44 _a	+ 1	i 21 26	- 2	e 13 24	pP
Copenhagen		83.4	333	e 11 42	- 1	i 21 19	-10	—	—
Mount Wilson		83.4	55	i 11 45	+ 2	e 21 28	- 1	e 13 21	pP
Ksara		83.7	305	e 11 46	+ 1	e 21 25	- 7	—	—
Riverside	z.	84.0	55	i 11 47	+ 1	—	—	i 13 23	pP
Bucharest		84.1	318	—	—	21 16	-19	—	—
La Jolla		84.6	56	e 11 52	+ 3	—	—	—	—
Potsdam		85.5	331	e 11 52	- 2	i 21 39	-10	e 13 33	pP
De Bilt	E.	89.0	334	—	—	i 22 14	- 7	e 28 18	SS
Helwan		89.1	304	e 12 8	- 3	e 22 14	- 8	i 25 8	sS
Tucson		89.5	53	i 12 14	+ 2	e 22 16	-10	i 16 3	PP
Stuttgart		89.8	330	e 12 11	- 3	—	—	e 13 54	pP
Triest		90.0	325	—	—	e 22 16	-14	—	—
Uccle		90.3	334	—	—	e 22 20	-13	28 32	SS
Florissant	N.	97.7	38	i 16 53	PP	i 23 26	-10	i 22 42	SKS
St. Louis		97.9	38	—	—	e 23 40	+ 2	e 22 45	SKS
La Paz	z.	151.8	68	19 13	[+14]	—	—	—	—

Additional readings:—

Kumagaya 2m.36s.
 Scoresby Sund e = 25m.47s., 31m.48s., and 32m.41s.
 Tinemaha iZ = 12m.7s.
 Pasadena esPZ = 14m.40s., ePPZ = 15m.5s.
 Mount Wilson iZ = 14m.28s., eZ = 15m.0s., iZ = 15m.25s.
 Riverside iZ = 12m.0s.
 Potsdam eZ = 25m.2s.
 Helwan iZ = 15m.46s., iN = 21m.52s.
 Stuttgart e = 15m.51s.
 Uccle eZ = 23m.33s.
 Florissant iN = 25m.53s.
 St. Louis eEN = 23m.17s.

Long waves were also recorded at Granada and Kew.

June 27d. Readings also at 0h. (near Berkeley), 1h. (Sverdlovsk, Granada, Stuttgart (2), and Helwan), 2h. and 3h. (Stuttgart), 7h. (Balboa Heights), 11h. (near Zurich, Ravensburgh, Ebingen, Stuttgart, and near Mizusawa), 12h. (near Mizusawa), 15h. and 16h. (Tacubaya), 18h. (Stuttgart), 19h. (near Triest), 23h. (La Paz).

June 28d. 0h. 7m. 1s. Epicentre 14°·7N. 88°·8W. Pasadena suggests deep.

$$A = +.0203, B = -.9675, C = +.2522; \quad \delta = +7; \quad h = +6;$$

$$D = -1.000, E = -.021; \quad G = +.005, H = -.252, K = -.968.$$

		Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Merida	N.	6.3	352	e 2 7	P _s	—	—	—	—
Tacubaya	E.	11.0	297	e 2 46	+ 4	—	—	—	—
San Juan		22.0	77	e 4 55	- 3	e 8 53	- 3	e 5 17	PP
Cape Girardeau	N.	22.5	359	e 5 7	+ 5	e 9 45	SS	e 5 22	pP
St. Louis		23.9	357	i 5 27	+11	e 9 44	+14	i 5 40	pP

Continued on next page.

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	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Florissant	24.0	357	e 5 24	+ 7	10 38	SSS	5 41	PP e 15.6
Tucson	26.6	315	i 5 40	- 2	9 0	?	6 58	PPP e 14.7
Philadelphia	27.9	24	e 6 14	+20	e 10 48	+11	—	e 14.9
La Jolla	31.5	310	i 6 24	- 2	—	—	i 6 38	pP —
Palomar	z. 31.5	312	e 6 40	pP	—	—	—	—
Riverside	32.2	312	i 6 31 _a	- 1	—	—	i 6 45	pP —
Mount Wilson	32.8	312	i 6 36 _a	- 1	—	—	i 6 51	pP —
Pasadena	32.8	312	i 6 37 _a	0	—	—	i 6 51	pP e 18.5
Haiwee	33.7	316	i 7 0	+15	—	—	—	—
Santa Barbara	34.1	311	i 6 47	- 1	—	—	i 7 2	pP —
Tinemaha	34.4	316	i 6 52	+ 1	i 7 20	sP	i 7 6	pP —
La Paz	z. 37.1	146	e 7 13	- 1	—	—	—	—
Stuttgart	85.0	41	e 12 29	- 9	—	—	e 15 55	PP —

Additional readings:—

St. Louis eEN = 10m.2s., esSEN = 10m.31s.

Florissant iE = 11m.10s.

Riverside eZ = 7m.3s., iP_cPZ = 9m.13s., ipP_cPZ = 9m.28s., iZ = 9m.47s.

Mount Wilson iZ = 7m.8s., eP_cPZ = 9m.15s., iZ = 9m.29s.

Pasadena iP_cPZ = 9m.16s., ipP_cPZ = 9m.31s.

Tinemaha iP_cPEZ = 9m.21s., ipP_cP = 9m.41s., eZ = 9m.53s., eZ = 13m.5s., eNZ = 13m.34s.

Long waves were also recorded at Granada, Kew, De Bilt, and Scoresby Sund.

June 28d. Readings also at 0h. (near Andijan and Tashkent), 1h. (Tucson and Cape Girardeau), 2h. (Pasadena, Mount Wilson, Riverside, Tinemaha, and Haiwee), 3h. (Stuttgart), 4h. (Riverview), 6h. (Pasadena, Mount Wilson, Tucson, and Riverside), 7h. (Kew and Granada), 10h. (Pasadena, Mount Wilson, Riverside, Tucson, Granada, Stuttgart, and Tacubaya), 15h. (Pasadena, Mount Wilson, Riverside, Tucson, Auckland, Wellington, Riverview, Brisbane and Stuttgart), 16h. (Potsdam (2), De Bilt, Granada, Kew, and Stuttgart), 17h. (Mizusawa), 18h. (near St. Louis and Florissant), 20h. (Sverdlovsk, near Andijan, and Tashkent (2)), 22h. (near Sofia).

June 29d. 6h. 26m. 35s. Epicentre 33°·0S. 70°·0W. Depth of focus 0·005.

Scale VIII (R.F.), near San Felipe and Los Andes. Macro seismic area lies between Potrerillos and Valdivia, radius about 900km. Epicentre (U.S.G.C.S.) 33°·5S. 70°·5W. (JSA), 31°·9S. 69°·8W.

Federico Greve: "Determinacion del Coeficiente de Seguridad Antisismico para las diferentes Zonas de Chile." p.15.

$$A = +.2874, B = -.7896, C = -.5421; \quad \delta = -6; \quad h = +1.$$

$$D = -.940, E = -.342; \quad G = -.185, H = +.509, K = -.840.$$

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
La Plata	E. 10.2	104	i 2 30 _a	+ 4	4 31	+11	—	5.4
	N. 10.2	104	i 2 32	+ 6	i 4 25	+ 5	3 7	PP i 5.2
	z. 10.2	104	2 32	+ 6	4 24	+ 4	4 37	SS 5.2
La Paz	16.5	6	i 3 52 _k	+ 3	i 6 59	+10	—	8.7
Huancayo	21.4	346	i 4 49	+ 5	i 8 31	- 2	—	i 8.9
Rio de Janeiro	25.6	75	i 5 25	0	i 9 54	+ 8	—	i 13.4
Balboa Heights	42.7	347	e 7 53	+ 1	e 14 7	- 4	—	—
Fort de France	48.2	13	e 8 36	0	e 15 25	- 4	—	—
San Juan	51.2	5	i 8 57	- 2	i 16 4	- 7	i 10 57	PP e 20.9
Bermuda	65.2	6	e 10 36	- 1	e 19 15	+ 2	e 12 37	PP e 26.6
Columbia	67.5	350	e 10 48	- 3	e 19 37	- 4	e 13 18	PP e 30.1
Georgetown	71.8	355	i 11 18	0	i 20 33	+ 1	14 2	PP 29.4
Cape Girardeau	N. 72.3	344	i 11 23	+ 3	e 20 35	- 2	i 11 42	pP —
Philadelphia	72.8	357	i 11 24	+ 1	e 20 37	- 6	e 13 49	PP e 30.2
Fordham	73.6	358	i 11 30	+ 2	i 20 54	+ 2	e 14 5	PP —
Pittsburgh	73.7	352	e 11 28	- 1	i 20 51	- 2	i 14 19	PP —
St. Louis	73.7	344	i 11 29	0	i 20 52	- 1	11 52	pP —
Florissant	z. 73.9	344	i 11 28	- 2	i 20 54	- 1	i 11 53	pP —
Harvard	75.2	359	i 11 38	+ 1	e 21 12	+ 2	i 12 8	pP e 30.4
Tucson	75.5	325	i 11 39	0	e 21 13	0	e 12 41	pP e 31.5

Continued on next page.

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	Δ	Az.	P.	O - C.	S.	O - C.	Supp.	L.
	°	°	m. s.	s.	m. s.	s.	m. s.	m.
Chicago	76.2	346	e 11 42	- 1	e 21 16	- 5	e 14 59	PP e 32.6
Vermont	77.2	358	e 11 50	+ 1	e 21 34	+ 2	e 14 49	PP e 32.0
Des Moines	77.4	343	e 11 52	+ 2	—	—	e 12 20	pP —
Lincoln	77.5	340	—	—	e 21 30	- 5	e 26 7	SS e 32.5
Ottawa	78.2	356	11 54	0	21 43	+ 1	14 37	PP e 35.4
La Jolla	79.2	322	e 11 59	- 1	e 21 52	- 1	i 12 22	pP —
Shawinigan Falls	79.2	358	12 0	0	21 50	- 3	—	—
Seven Falls	79.8	359	12 7	+ 4	21 59	0	27 7	SS —
Riverside	80.1	322	i 12 4k	0	—	—	i 12 38	sP —
Mount Wilson	80.7	322	i 12 7k	- 1	e 22 7	- 2	i 12 32	pP —
Pasadena	80.7	322	i 12 7k	- 1	i 22 10	+ 1	i 12 31	pP e 34.4
Santa Barbara	81.7	321	e 12 13	0	e 22 18	- 1	e 12 39	pP —
Haiwee	82.1	323	e 12 17	+ 2	e 22 23	0	e 12 33	pP —
Salt Lake City	82.9	330	e 12 16	- 3	e 22 27	- 4	e 26 31	SS e 35.6
Tinemaha	83.0	323	i 12 20k	0	e 22 31	- 1	i 12 46	pP —
Logan	83.7	331	e 12 24	+ 1	e 22 27	- 12	i 12 45	pP e 34.8
Christchurch	84.8	220	12 28k	- 1	(22 48)	- 2	—	— 24.1
Lick	84.9	321	e 12 34	+ 5	—	—	—	—
Wellington	85.0	223	—	—	i 22 40	- 12	i 23 32	PS —
Santa Clara	E. 85.1	321	e 12 38	+ 8	e 22 45	- 8	—	—
Branner	N. 85.3	321	e 12 25	- 6	—	—	—	—
Berkeley	85.7	321	i 12 33	0	i 17 52	PPP	—	e 35.4
Bozeman	86.7	333	e 12 36	- 2	e 22 51	[- 5]	e 23 33	pS e 35.6
Ukiah	87.1	321	e 12 31	- 9	e 22 57	[- 1]	e 23 48	pS e 36.7
Butte	87.6	333	e 12 42	0	e 22 58	[- 4]	e 16 11	PP e 36.5
Auckland	87.9	227	e 20 5?	?	i 23 20	0	(24 0)	PS 24.0
Granada	93.3	47	i 13 15k	+ 6	i 23 35	[0]	13 57	pP 44.4
Almeria	93.8	48	e 13 12	+ 1	23 41	[+ 2]	17 3	PP 43.4
Victoria	94.1	327	e 13 19	+ 7	e 23 42	[+ 2]	e 13 53	pP 42.4
Iviglut	95.5	10	e 19 12	PPP	e 25 45	PS	e 26 28	PPS e 41.0
Algiers	97.3	50	e 13 25	- 2	e 24 0	[+ 3]	e 16 10	? —
Riverview	z. 103.1	214	—	—	e 27 7	PS	—	—
Paris	103.9	40	e 16 24	?	e 24 32	[+ 3]	—	52.0
Kew	103.9	37	e 14 2a	+ 5	e 24 30	[+ 1]	e 18 17	PP e 57.4
Stonyhurst	104.3	34	e 18 19	PP	i 24 32	[+ 1]	i 27 38	PS 50.0
Uccle	106.0	39	e 14 4	P	i 24 41	[+ 2]	e 27 56	PS e 48.4
De Bilt	107.1	38	i 18 40	PP	i 33 40	SS	—	e 58.4
Stuttgart	107.6	43	e 14 17	P	e 24 42	[- 3]	e 18 41	PP —
Triest	108.8	47	e 18 56	PP	e 24 52	[+ 1]	—	—
Scoresby Sund	108.8	15	e 18 46	PP	e 24 53	[+ 2]	e 27 51	PS e 45.3
Cheb	110.0	42	e 19 25?	PP	—	—	—	—
Potsdam	111.5	40	i 19 11	PP	i 25 5	[+ 3]	e 28 37	PS 58.4
Copenhagen	112.6	36	19 18	PP	i 25 12	[+ 6]	28 47	PS —
Helwan	114.3	69	e 23 15	?	i 27 19	?	i 29 7	PS —
Upsala	116.8	34	e 19 46	PP	e 25 19	[- 3]	e 29 25?	PS e 50.4
Sverdlovsk	138.9	39	19 15	[- 4]	i 28 42	SKKS	i 22 11	PP —
Tashkent	146.8	63	19 35	[+ 1]	—	—	—	—
Agra	E. 151.8	94	—	—	i 30 13	SKKS	—	—

Additional readings:—

La Paz iN = 7m.11s.
 Huancayo i = 7m.7s.
 San Juan iPPP = 11m.56s., e = 15m.47s., eSS = 19m.34s.
 Bermuda e = 14m.33s.
 Columbia ePPP = 15m.7s., e = 20m.37s., eSS = 24m.10s., esSS = 25m.7s.
 Georgetown sS = 21m.2s., SS = 25m.2s.
 Cape Girardeau eN = 21m.3s.
 Philadelphia ePPP = 15m.51s., iS = 20m.44s., iSP = 21m.14s., e = 23m.6s. and 24m.58s.
 Fordham isS = 21m.27s.
 Pittsburgh iZ = 11m.52s. and 12m.2s., i = 21m.22s., isS = 21m.31s.
 St. Louis isPZ = 12m.7s., isSEN = 21m.29s.
 Florissant isSZ = 21m.32s.
 Harvard e = 14m.10s., ePP = 14m.31s., esS = 21m.48s.
 Tucson i = 12m.10s., e = 12m.24s., and 14m.22s., ePP = 14m.43s., esPP = 15m.51s., ePPP = 16m.24s., eS = 20m.52s., eScS = 21m.16s., e = 21m.43s., eSS = 25m.53s., eSSS = 29m.40s.
 Chicago e = 16m.20s., i = 21m.45s., esS = 22m.29s., e = 24m.43s., 25m.42s., and 30m.47s.
 Vermont i = 21m.49s., eZ = 26m.6s.
 Des Moines e = 13m.2s.

Continued on next page.

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Ottawa SSE = 26m.25s., SSSN = 30m.55s.
La Jolla isP = 12m.31s.
Mount Wilson isP = 12m.41s.
Pasadena isPZ = 12m.41s., ePPZ = 15m.26s.
Santa Barbara isP = 12m.46s., iZ = 13m.41s.
Haiwee eEN = 12m.39s., eN = 22m.53s.
Tinemaha isPZ = 12m.53s., i = 13m.34s.
Logan S = 22m.35s., e = 27m.17s.
Christchurch, the reading given as S is recorded as Q.
Branner eE = 12m.33s.
Berkeley eE = 13m.55s.
Bozeman esS = 24m.39s., eSS = 28m.52s.
Ukiah e = 24m.1s., esS = 24m.35s., eSS = 28m.34s.
Butte ePPP = 18m.17s., e = 23m.12s. and 28m.10s.
Granada PP = 16m.55s., pPP = 17m.21s., PPP = 19m.9s., iS = 24m.28s., sS = 25m.36s.,
SS = 30m.39s., SSS = 34m.36s.
Almeria S = 24m.18s., PS = 24m.55s.
Ivigtut e = 27m.48s. and 33m.31s.
Algiers S = 24m.25s.
Kew eZ = 16m.53s., eSP? = 27m.5s., eSSS? = 49m.5s.?
Stonyhurst i = 25m.11s., iS? = 25m.46s., e = 28m.46s., 31m.42s., and 36m.50s.
Uccle eSKKSEZ = 25m.25s., eSE = 25m.57s., ePPSE = 29m.9s., eSSE = 33m.13s.,
eSSSN = 37m.51s.
Stuttgart e = 18m.16s., eSN = 26m.13s., ePSEN = 28m.25s., ePKKP = 29m.48s.
Scoresby Sund ePPP = 21m.6s., e = 25m.35s., i = 28m.22s., eSS = 34m.9s., eSSS =
38m.48s.
Potsdam iSE = 26m.8s., iPSE = 28m.50s.
Copenhagen iSKKS = 26m.18s.
Helwan e = 29m.40s., eN = 31m.1s. and 34m.1s.
Upsala eN = 35m.25s.?
Sverdlovsk iPKS = 22m.45s., PS = 32m.19s.

June 29d. Readings also at, 9h. (Riverview), 11h. (Bermuda), 17h. (Merida, Tacubaya, Tucson, Mount Wilson, Pasadena, Riverside, and Philadelphia), 18h. (Scoresby Sund), 19h. (Mount Wilson, Riverside, Tinemaha, Tucson, Scoresby Sund, Copenhagen, Jena, Basle, Zurich, Uccle, Potsdam, Clermont-Ferrand, Stuttgart, and Mizusawa), 20h. (near Tashkent (2)), 21h. (near Fresno, Branner and Lick), 22h. (Auckland).

June 30d. 5h. Undetermined shock.

Riverview iP?E = 6m.8s., eS?EN = 10m.0s., eLN = 12m.2s.
Auckland S? = 9m.30s., L = 12.5m.
Wellington S? = 11m.4s., Q = 13m.30s.?, R = 14m.30s.?
Riverside ePZ = 13m.46s.
Tinemaha ePZ = 14m.0s.
Tucson e = 14m.9s., eL = 50m.20s.
Stuttgart iP = 20m.33s.a, e = 20m.42s.
Kew e = 20m.37s.?, eL = 90m.
Zurich eP = 20m.37s.
Basle eP = 20m.38s.
Chur eP = 20m.38s.
Clermont-Ferrand eP = 20m.46s., e = 22m.36s.
Long waves were also recorded at Pasadena.

June 30d. 7h. Undetermined shock.

Irkutsk eP = 33m.39s., S = 39m.50s.
Tashkent P = 35m.0s.
Sverdlovsk P = 36m.20s., S = 44m.45s.
Calcutta eN = 37m.49s.
Helwan PZ = 38m.29s., eZ = 38m.49s.
Potsdam eZ = 39m.0s., eEN = 49m.24s., and 49m.44s., eLN = 73m.
Stuttgart e = 39m.11s.
Agra eE = 40m.5s.
Tucson e = 45m.33s., eL = 82m.24s.
Triest i = 49m.34s.
Scoresby Sund e = 49m.38s., e = 59m.43s., eL = 73m.7s.
Upsala e = 66m.
Long waves were also recorded at De Bilt, Uccle, Clermont-Ferrand, Granada, Kew, and Pasadena.

June 30d. Readings also at 0h. (near Cape Girardeau), 2h. (Granada), 5h. (near La Paz), 7h. (Bermuda and De Bilt), 8h. (Stuttgart), 9h. (Christchurch, Wellington, Auckland, Riverview, Clermont-Ferrand, and Stuttgart), 10h. (near Stalinabad and Tashkent), 15h. (Pasadena, Mount Wilson, Riverside, Tucson, Huancayo, and La Paz), 21h. (Ksara and near Algiers), 22h. (Tacubaya, near Berkeley, and near Algiers).

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

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

These data are considered public domain and may be freely distributed or copied for non-profit purposes provided the previous references are quoted.

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

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