The International Seismological Summary.

1946 July, August, September.

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 third quarter for 1946 contains 167 epicentres, 119 of which are repetitions from previously adopted epicentres.

Cases of deep focus :—

July	1d. 22h.	5·1S.	153·1E.	0·005
	9d. 13h.	19·0S.	169·2E.	0·020
	11d. 4h.	16·9N.	94·2W.	0·010
	12d. 21h.	53·8N.	168·9W.	0·005
	16d. 20h.	25·5S.	67·0W.	0·020
	17d. 10h.	16·9N.	94·2W.	0·010
	24d. 11h.	5·1S.	153·1E.	0·005
	25d. 14h.	10·0N.	116·0E.	0·015
	26d. 6h.	20·5S.	70·5W.	Base of Superficial Layers.
	27d. 7h.	35·3N.	69·7E.	0·015
	27d. 21h.	10·0S.	161·1E.	Base of Superficial Layers.
	28d. 8h.	Undetermined shock.		Suggested Deep.
Aug.	2d. 19h.	26·0S.	70·2W.	Base of Superficial Layers
	3d. 13h.	35.5N.	141·0E.	0·005
	4d. 15h.	24·9S.	179·6E.	0·080
	7d. 22h.	41·0N.	143·3E.	0·010
	14d. 9h.	38·2N.	142·0E.	0·010
	14d. 17h.	35·3N.	70·2E.	0·030
	15d. 0h.	27·0S.	70·6W.	Suggested Deep
	18d. 6h.	33·3N.	140·5E.	0·015
	21d. 18h.	25·0S.	176·5W.	0·010
	28d, 22h,	26·3S,	63·2W.	0·090

Sept.	2d.	21h.	15·5N.	96·7W.
	23d.	23h.	6·5S.	145·8E.
	24d.	6h.	37·3S.	178·3E.
	26d.	10h.	25·5S.	178·5E.
	30d.	0h.	13·6S.	75·9W.

Suggested Deep.
0·010
0·030
0·090
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 the administration.

KEW OBSERVATORY,
Richmond,
SURREY.

May, 1955.

1946 JULY, AUGUST, SEPTEMBER.

July 1d. 2h. 52m. 28s. Epicentre 64°·2N. 148°·3W.

$A = -·3723$, $B = -·2299$, $C = +·8992$; $\delta = +2$; $h = -10$;
$D = -·525$, $E = +·851$; $G = -·765$, $H = -·472$, $K = -·438$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		0·7	17	i 0 17	0	i 0 32	+ 4	—	—	e 0·9
Sitka		9·2	129	e 2 20	+ 4	e 4 0	− 3	—	—	e 4·6
Victoria		20·7	128	4 47	+ 3	8 43	+12	—	—	10·5
Grand Coulee		22·8	121	e 5 5	0	—	—	—	—	e 11·8
Bozeman		27·7	114	—	—	e 10 47	+14	—	—	e 14·4
Shasta Dam		28·0	134	i 5 54	− 1	—	—	—	—	—
Berkeley		30·6	136	—	—	e 11 26	+ 6	—	—	e 15·3
Logan		30·7	118	e 6 10	− 9	—	—	—	—	e 16·5
Rapid City		32·2	106	e 6 34	+ 2	—	—	—	—	e 14·8
Tinemaha	z.	32·6	131	i 6 36	+ 1	—	—	—	—	—
Haiwee		33·5	131	i 6 43	0	—	—	—	—	—
Boulder City		34·7	127	i 6 54	0	—	—	—	—	e 18·8
Mount Wilson	z.	35·2	133	i 6 59	+ 1	—	—	—	—	—
Pasadena		35·3	133	i 6 58	− 1	—	—	—	—	e 18·2
Palomar	z.	36·4	132	e 7 9	+ 1	—	—	—	—	—
Chicago		40·8	93	e 7 44	− 1	e 13 43	−13	e 9 41	P_cP	18·2
Florissant	e.	42·0	99	e 7 53	− 1	—	—	—	—	—
St. Louis	e.	42·2	99	7 56	0	—	—	—	—	—
Ottawa		43·1	80	8 2	− 2	14 44	+14	9 40	PP	22·5
Shawinigan Falls		43·4	75	8 5	− 1	—	—	—	• —	22·5
Seven Falls		43·8	74	—	—	14 50	+10	—	—	21·5
Vermont		44·9	78	—	—	—	—	e 16 52	?	e 20·5
Weston		47·4	78	i 8 36	− 2	—	—	e 10 30	PP	—
Philadelphia		47·7	83	—	—	e 19 19	SS	—	—	e 21·9
Vladivostok		48·0	284	1 8 43	0	—	—	e 10 34	PP	—
Irkutsk		51·0	311	9 6	0	e 16 27	+ 5	—	—	—
Sverdlovsk		57·8	342	9 53	− 2	e 17 51	− 3	—	—	—
Copenhagen		59·5	13	12 51	PP	—	—	—	—	—
Moscow		60·3	357	e 10 12	− 1	e 18 30	+ 4	e 14 1	PPP	—
Collmberg	z.	63·9	14	e 10 36	− 1	—	—	e 11 39	P_cP	—
Paris		65·0	21	e 10 45	+ 1	—	—	—	—	e 34·5
Cheb		65·1	14	—	—	e 27 32	SSS	—	—	—
Toledo	z.	72·5	28	i 11 32	+ 2	—	—	e 11 44	P_cP	—
Malaga	z.	75·4	29	i 11 49a	+ 2	22 16	sS	—	—	e 36·5
Ksara		82·3	356	e 12 28	+ 3	e 23 33	PPS	—	—	—

Additional readings :—
Berkeley eN =11m.44s., eZ =11m.52s.
Ottawa SS =17m.40s.
Collmberg eZ =10m.41s. and 11m.8s.
Toledo eZ =12m.7s.
Long waves were also recorded at Salt Lake City, Harvard, Columbia, Bermuda, San Juan, Granada, Uccle, De Bilt, Clermont-Ferrand, Strasbourg, and Warsaw.

July 1d. 10h. Undetermined Shock.

La Paz PZ =2m.26s., SZ =9m.10s., LZ =15m.48s.
Tacubaya eN =2m.56s., iN =3m.11s. and 6m.4s., eN =10m.13s., 11m.20s., 14m.11s. and 18m.39s., eE =19m.40s., eN =19m.43s., eEN =20m.33s., eE =28m.16s.
La Jolla ePZ =4m.19s.
Palomar ePNZ =4m.19s.
Riverside ePZ =4m.25s.
Mount Wilson ePZ =4m.26s.
Pasadena ePZ =4m.26s., eLZ =23m.25s.
Boulder City eP =4m.37s.
Haiwee ePZ =4m.41s.
Tinemaha ePZ =4m.46s.
Shasta Dam eP =5m.8s.
Florissant iPZ =5m.20s.
Weston eP =6m.21s., eS =16m.24s., eSS =21m.44s.
Ksara e =14m.5s., e =21m.41s.
Philadelphia eS? =15m.54s., e =20m.44s., eL =30m.33s.
Long waves also at Riverview, Auckland, Alicante, Malaga, Granada, and De Bilt.

July 1d. 22h. 35m. 34s. Epicentre 5°·1S. 153°·1E. Depth of focus 0·005.
(as on 1944, May 15d.).

$A = -\cdot8883$, $B = +\cdot4507$, $C = -\cdot0883$; $\delta = 0$; $h = +7$;
$D = +\cdot452$, $E = +\cdot892$; $G = +\cdot079$, $H = -\cdot040$, $K = -\cdot996$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	22·3	182	i 4 55	+ 2	i 9 3	+14	—	—	i 11·3
Suva		27·9	120	8 1	?	11 46	SS	8 56	PcP	13·4
Riverview		28·6	184	i 6 1a	+ 9	i 10 35	+ 1	i 6 17	pP	e 14·2
Auckland		37·3	152	(7 11?)	+ 3	(13 11?)	+21	(13 41)	PcS	(18·4)
Arapuni		38·7	152	9 8?	PPP	i 13 26	+15	—	—	17·4
Wellington	Z.	40·9	155	e 7 55	+18	i 18 6	ScS	9 49	PPP	21·4
Christchurch		42·0	159	7 49	+ 3	14 2	+ 2	17 5	SS	19·9
Mizusawa	E.	45·4	348	8 11	− 3	—	—	—	—	—
Vladivostok		51·7	340	i 9 1	− 2	16 19	+ 1	e 10 56	PP	—
Honolulu		54·8	60	e 11 16	PP	e 17 2	+ 2	—	—	e 22·7
Calcutta	N.	69·0	297	e 19 7	?	i 20 2	+ 3	—	—	—
Irkutsk		70·5	332	i 11 7	− 3	20 14	− 3	—	—	—
Kodaikanal		76·8	282	e 11 16	−30	21 16	−11	—	—	—
New Delhi	N.	80·1	299	e 12 2	− 2	i 21 59	− 3	27 14	SS	38·7
College		82·0	22	14 16	PP	e 22 16	− 6	e 27 52	SS	33·1
Bombay		82·5	290	i 11 44	−33	e 21 55?	−32	—	—	—
Almata		83·5	315	12 24	+ 2	22 37	0	—	—	—
Sitka		84·4	32	i 12 26	− 1	e 22 42	− 4	e 15 37	PP	e 34·9
Andijan		86·3	311	e 12 37	+ 1	e 23 8	+ 4	—	—	—
Ukiah		88·3	51	—	—	e 23 38	+15	e 25 54	SS	e 36·2
Stalinabad		88·7	308	i 12 48	+ 1	i 23 11	[+ 2]	—	—	—
Tashkent		88·7	312	e 12 46	− 1	e 23 32	+ 5	e 16 2	PP	—
Berkeley		88·9	53	e 12 48	0	e 23 8	[− 2]	e 16 20	PP	e 39·6
Santa Clara		89·6	53	—	—	e 24 41	PS	—	—	40·8
Shasta Dam		89·1	49	e 12 52	+ 3	—	—	e 16 4	PP	—
Samarkand		89·2	310	12 52	+ 2	23 46	+14	—	—	—
Victoria		89·5	42	12 59	+ 8	23 42	+ 8	29 20	SS	36·4
Pasadena		91·8	57	e 13 0	− 2	23 56	+ 1	i 25 4	PS	e 36·5
Mount Wilson	Z.	91·9	57	e 13 0	− 2	—	—	i 13 25	pP	—
Tinemaha	Z.	92·0	54	e 13 1	− 2	—	—	e 13 27	pP	—
La Jolla	Z.	92·4	58	e 13 2	− 3	—	—	—	—	—
Riverside	Z.	92·4	57	e 13 3	− 2	—	—	—	—	—
Palomar		92·8	58	e 13 10	+ 3	—	—	—	—	—
Boulder City		94·6	55	i 13 13	− 2	—	—	i 13 35	pP	—
Pierce Ferry		95·3	55	e 13 16	− 2	i 23 51	[+ 5]	—	—	—
Sverdlovsk		95·6	327	i 13 18	− 1	i 24 20	− 8	i 17 11	PP	—
Butte		96·7	45	e 17 33	PP	e 24 42	+ 5	e 23 51	SKS	e 40·1
Salt Lake City		97·1	49	e 19 59	PPP	e 24 58	+18	—	—	e 41·0
Logan		97·2	48	e 15 58	?	e 30 42?	SS	e 26 9	PS	e 43·6
Bozeman		97·7	45	e 25 59	PS	e 23 55	[− 5]	e 30 19	?	e 38·6
Tucson		97·8	58	e 13 26	− 3	e 26 8	PS	e 17 23	PP	e 41·1
Rapid City		103·4	46	e 18 16	PP	e 24 30	[+ 3]	e 27 18	PS	e 43·5
Leninakan		107·9	311	e 14 8	P	—	—	e 18 5	PP	—
Moscow		108·4	328	e 18 42	PP	24 52	[+ 2]	27 55	PS	—
Florissant	Z.	113·8	50	e 19 21	PP	e 25 46	[+35]	(e 30 26)	PPS	e 30·4
St. Louis	E.	113·9	50	e 19 25	PP	e 26 22	SKKS	e 40 2	SSS	e 56·4
Chicago		115·0	46	e 19 14	[+40]	e 29 2	PS	34 41	SS	e 46·8
Ksara		115·4	304	e 19 35	PP	26 24	[+66]	29 11	PS	—
Upsala		115·8	337	15 16	?	25 26	[+ 7]	e 35 53	SS	e 51·4
Warsaw	N.	118·7	328	e 22 8	PPP	e 25 36	[+ 6]	e 30 13	PS	e 57·4
Bucharest		119·4	319	—	—	e 25 34	[+ 2]	—	—	—
Helwan		119·9	301	—	—	e 25 38	[+ 4]	—	—	—
Copenhagen		120·6	335	e 20 7	PP	i 25 40	[+ 4]	36 50	SS	54·4
Ottawa		121·6	38	20 16	PP	27 8	SKKS	29 56	PS	51·4
Budapest		122·3	324	e 18 56	[+ 8]	e 25 47	[+ 5]	e 20 35	PP	e 58·4

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade		122·8	321	e 18 56	[+ 7]	—	—	e 20 36	PP	e 54·4
Collmberg		123·3	332	e 18 50	[0]	e 27 14	SKKS	e 31 55	PPS	e 62·4
Prague		123·3	329	e 20 22	PP	e 30 21	PS	e 30 49	?	e 56·4
Seven Falls		123·7	35	20 38	PP	26 21	[+35]	30 24	PS	49·4
Jena	N.	124·2	331	e 18 51	[0]	—	—	e 18 54	?	—
Cheb		124·4	331	e 20 48	PP	e 25 54	[+ 6]	e 30 36	PS	e 59·4
Aberdeen		124·5	344	i 29 19	?	i 30 28	PS	—	—	54·9
Philadelphia		124·5	44	e 30 46	PS	e 25 14	[−35]	e 37 32	SS	e 49·0
Fordham		125·0	43	e 18 53	[0]	e 37 35	SS	e 20 37	PP	e 55·4
Zagreb		125·0	324	e 18 54	[+ 1]	e 25 53	[+ 3]	e 20 43	PP	e 64·4
Harvard		125·7	40	e 20 35	PP	e 22 26	PKS	—	—	e 58·4
Weston		125·9	40	e 20 48	PP	e 30 46	PS	e 50 45	Q	—
De Bilt		126·2	336	i 18 57	[+ 2]	e 30 46	PS	i 20 50	PP	e 54·4
Triest		126·4	326	e 19 0	[+ 4]	i 25 58	[+ 4]	e 20 49	PP	—
Uccle		127·5	336	e 19 1	[+ 3]	e 26 3	[+ 5]	i 21 0	PP	e 56·4
Strasbourg		127·6	332	e 18 48	[−10]	e 30 46	PS	e 20 56	PP	—
Chur		127·9	330	e 18 59a	[0]	—	—	—	—	—
Zürich		128·0	330	e 18 59	[0]	—	—	—	—	—
Basle		128·4	331	e 19 0	[0]	—	—	—	—	—
Huancayo		128·9	110	e 19 5	[+ 4]	e 38 33	SS	e 21 50	PP	e 54·0
Florence		128·9	325	i 21 15	PP	i 31 21	PS	i 33 51	PPS	i 66·1
Rome		129·3	323	e 19 1	[− 1]	e 31 12	PS	e 21 10	PP	e 54·4
Paris		129·8	335	i 19 3	[0]	e 28 4	SKKS	i 21 13	pP	e 56·4
Clermond-Ferrand		131·8	332	i 19 6	[0]	i 22 29	SKP	i 21 28	PP	e 63·0
Bogota		133·0	88	e 19 14	[+ 6]	i 22 47	SKP	—	—	—
La Paz		133·9	120	19 10	[0]	i 22 38	SKP	—	—	64·1
Bermuda		135·5	48	e 21 43	PP	e 26 5	[−11]	e 39 40	SS	e 54·9
Tortosa		136·8	329	i 22 46	PKS	—	—	25 42?	PPP	e 69·4
Algiers		138·2	322	e 17 26	PPS	e 22 47	SKP	34 26	PPS	—
Alicante		139·1	328	19 12	[− 7]	26 38	[+16]	23 8	PKS	68·1
Toledo		139·7	333	19 13	[− 7]	40 59	SS	19 37	pPKP	—
Malaga	Z.	142·4	330	i 19 20a	[− 6]	32 54	PS	i 20 17	pPKP	67·7
Granada		142·5	330	i 19 24a	[− 2]	40 57	SS	20 0	pPKP	63·5
Lisbon		142·9	337	19 21a	[− 6]	23 1	PP	43 26?	SS	69·2

Additional readings :—
Riverview PPN =6m.54s., iN =7m.1s., iZ =7m.5s., iN =10m.48s., isSEZ =11m.11s.
Auckland SS =(15m.56s.), all readings increased by 3 minutes.
Christchurch S_cS =17m.55s.
Misusawa SE =8m.35s.
New Delhi iN =23m.22s.
College e =23m.30s.
Sitka ePPP =17m.29s., e =23m.38s., eSS =27m.58s.
Berkeley eN =29m.4s., iQN =36m.36s.
Victoria PPP =17m.26s.
Pasadena iZ =13m.26s. and 13m.41s., eN =30m.5s.
Boulder City iPP =17m.10s.
Sverdlovsk SKS =23m.48s., iPPS =26m.12s., SS =31m.26s.
Butte e =27m.51s.
Tucson e =21m.4s., eSS =31m.40s., eSSS =35m.28s.
Moscow SKKS =25m.41s.
Florissant eZ =19m.34s. and 19m.58s., eSKKSZ =26m.22s.
St. Louis eE =19m.35s. and 20m.2s.
Ksara PPS =30m.15s.
Upsala eE =34m.1s. and 37m.4s., eN =37m.7s.
Warsaw eN =26m.13s.
Copenhagen PS =29m.44s.
Ottawa SS =36m.44s., SSS =40m.38s.
Belgrade e =21m.38s.
Collmberg iZ =18m.55s., eZ =18m.59s., 19m.7s., 19m.11s., 19m.22s., 20m.30s., 21m.13s., 21m.57s., and 22m.22s., eN =22m.34s.
Seven Falls e =37m.26s.?, SSS =41m.14s.
Cheb e =27m.37s., ePPS =33m.2s.
Zagreb e =18m.57s.
De Bilt eSS =37m.26s.?
Uccle eSKPE =22m.19s., eSKKSEN =27m.50s., ePPSN =32m.49s., eSSEN =38m.52s.
Strasbourg eSKP =21m.58s.

Continued on next page.

Huancayo e =22m.34s., 33m.38s., 41m.1s., and 46m.40s.
Rome iSKPZ =22m.19s., ePS?Z =32m.54s., ePPSE =33m.26s., eSSSN =43m.26s.
Paris isP? =22m.1s., iSKP =22m.22s., e =23m.19s., 24m.19s., and 25m.15s., ePS = 31m.19s., e =34m.13s., eSS =38m.37s., e =39m.3s., 40m.35s., and 40m.57s., eSSS =43m.39s.
Clermont-Ferrand eS? =30m.8s.
Bermuda e =31m.29s., eSSS? =44m.40s.
Algiers eS? =28m.26s.
Alicante PKP_3 =19m.28s., PP =23m.0s., PPP =26m.24s., SS =41m.34s., SSP =42m.8s., SSS =46m.52s., Q =60m.6s.
Toledo iZ =19m.24s., sPZ =19m.48s., PKPZ =22m.25s., ipPKPZ =22m.53s., isPKPZ = 23m.5s., PPE =24m.20s., SKP =25m.28s., iPPPE =26m.55s., SKSN =29m.45s.
Malaga iPPZ =22m.30s., iPKSZ =23m.0s., iPPPZ =25m.37s., iSKSZ =26m.5s., P_cPPZ = 27m.17s., PKKPZ =28m.44s., SKKSZ =29m.3s., P_cP,PKPZ =30m.55s., PPSZ = 34m.48s., PKP,PKSZ =40m.1s., eSSZ =40m.57s., PKP,SKSZ =43m.44s.
Granada PP =23m.4s., pPP =23m.50s., PPP =25m.57s., pPPP =27m.18s., SKKS = 29m.42s., SKSP =33m.6s., SSP =41m.48s., SSS =45m.53s.
Lisbon PPNZ =22m.34s., QE =62m.20s.
Long waves recorded at Tananarive and Potsdam.

July 1d. Readings also at 0h. (Tananarive), 2h. (Granada, Toledo, Malaga, Alicante, De Bilt, Uccle, Kew, Florence, and Strasbourg), 4h. (Boulder City), 6h. (Sofia and Bucharest), 8h. (Suva and Riverview), 11h. (Bucharest, Triest, Rome, and Zagreb), 13h. (Collmberg, College, and La Plata), 14h. (Riverview), 15h. (Riverview and near Tortosa), 16h. (Tacubaya), 21h. (Bucharest and Sofia), 23h. (Wellington, near Grozny, and Leninakan).

July 2d. 11h. 12m. 46s. Epicentre 30°·0N. 92°·0E.

$A = -·0303$, $B = +·8670$, $C = +·4975$; $\delta = +11$; $h = +2$;
$D = +·999$, $E = +·035$; $G = -·017$, $H = +·497$. $K = -·868$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Calcutta	N.	8·1	205	e 2 50	P_g	i 3 51	+16	i 4 36	S_g	—
Dehra Dun	N.	12·1	275	e 3 39	+42	e 5 27	+13	—	—	—
New Delhi	N.	13·0	268	—	—	i 5 21	−14	—	—	—
Almata		17·9	323	4 10	− 2	e 7 17	−13	—	—	—
Andijan		19·2	309	e 4 28	0	—	—	—	—	—
Bombay		20·6	242	—	—	e 8 49	+20	—	—	e 11·4
Stalinabad		21·0	302	i 4 49	+ 2	—	—	—	—	—
Tchimkent		21·8	311	4 55	− 1	—	—	—	—	—
Irkutsk		24·0	18	i 5 17	0	e 9 32	0	—	—	—
Sverdlovsk		34·6	330	6 52	− 1	12 15	− 7	—	—	—
Grozny		38·9	303	e 7 27	− 2	—	—	—	—	—
Leninakan		40·3	299	e 7 54	+14	—	—	—	—	—
Ksara		47·3	289	e 8 37	0	e 15 43	+12	—	—	—
Warsaw	N.	55·5	315	—	—	e 16 15	−69	—	—	e 18·2

Additional readings :—
Calcutta iP_gN =3m.18s., iS^*N =4m.21s.
Long waves were also recorded at Hyderabad and European stations.

July 2d. Readings also at 0h. (Bergen and near Mizusawa), 4h. (Brisbane, Tucson, and near Almata), 6h. (Triest, Zagreb, near Florence and Rome), 7h. (Boulder City and Pierce Ferry), 8h. (near Tacubaya), 9h. (near Grozny), 12h. (near Tananarive), 13h. (Bogota), 14h. (near Fort de France and near Almata), 18h. (Bucharest and Ksara), 22h. (Tucson).

July 3d. 4h. 4m. 41s. Epicentre 38°·4N. 0°·3W.

Intensity V at Alicante and Villajoyosa; IV at Orcheta.

A. Rey Pastor.
Sismicidad de la Comarca Costera Alicantina: La sagudida sismica del 3 de Julio, 1946. Dir. Gen. del Instituto Geografico y Catastral, Dec., 1946, pp. 8-12. Isoseismal Chart.

Resumen de las Observaciones solares, meteorologicas y sismologicas efectuadas durante el año, 1946, Vol. 34, Series A., Tortosa, 1948, p.207. Epicentre 38°·27′N. 0°·16′W.

$A = +\cdot7857$, $B = -\cdot0041$, $C = +\cdot6186$; $\delta = +1$; $h = -1$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Alicante		0·2	—	i 0 4	P*	—	—	—	—
Almeria		2·3	228	0 46	P_g	—	—	—	—
Granada		2·9	245	1 2k	P_g	1 50	S_g	—	—
Toledo	Z·	3·2	297	0 59	P*	1 47	S_g	i 1 5	P_g
Malaga	N.	3·7	245	i 1 12	P_g	1 47	+ 2	2 3	S_g

Additional readings :—
Granada 1m.15s., P_g = 1m.25s., Sg = 2m.6s.
Malaga PPN = 1m.19s., SN = 1m.40s. and 1m.53s.

July 3d. Readings also at 0h. (near Boulder City, Pierce Ferry, and near Branner), 1h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, Granada, and Ksara), 3h. (Tucson), 4h. (Haiwee, Pasadena, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, and near Alicante (3)), 5h. (Arapuni, Wellington, and Weston), 6h. (Bouldnor City and Pierce Ferry), 9h. (Alicante), 10h. (Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Fort de France, Guadalajara, near Tacubaya, Almata, near Andijan, Samarkand, Stalinabad, Tashkent, Tchimkent, and near Triest), 12h. (Pierce Ferry), 13h. (Mount Wilson, Riverside, Tinemaha, Tucson, Pierce Ferry, and near Alicante), 16h. (Tucson, Andijan, near Samarkand, and Stalinabad), 17h. (near Malaga), 18h. (Alicante), 23h. (Kew).

July 4d. 7h. 0m. 32s. Epicentre 14°·0S. 167°·0E. (as on 1938, September 25d.).

$A = -\cdot9458$, $B = +\cdot2184$, $C = -\cdot2404$; $\delta = +3$; $h = +6$;
$D = +\cdot229$, $E = +\cdot974$; $G = +\cdot234$, $H = -\cdot054$, $K = -\cdot971$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Suva		11·7	110	2 51	0	i 4 56	− 8	—	—
Brisbane	N.	18·7	222	i 4 23	+ 1	i 7 49	+ 1	—	—
Riverview		24·4	214	e 5 16	− 5	i 9 28	−11	i 5 54	pP
Shasta Dam		84·9	46	i 12 38	0	—	—	—	—
Pasadena	Z.	85·6	53	i 12 41	0	—	—	—	—
Mount Wilson	Z.	85·7	53	i 12 42	0	—	—	i 13 22	?
La Jolla	Z.	85·9	55	e 12 38	− 5	—	—	—	—
Riverside	Z.	86·2	54	i 12 44	0	—	—	—	—
Palomar		86·4	55	i 12 46	+ 1	—	—	e 13 19	?
Haiwee	Z.	86·5	51	e 12 56	+10	—	—	e 13 32	?
Tinemaha	Z.	86·6	51	e 12 46	0	—	—	—	—
Boulder City		88·8	53	i 12 57	0	—	—	—	—
Pierce Ferry		89·5	53	i 13 0	0	—	—	i 13 39	?
Tucson		90·9	57	i 13 7	0	—	—	—	—

Additional readings :—
Riverview iPPN = 6m.5s., isPZ = 6m.9s., iEN = 10m.11s., isSN = 10m.33s., iN = 10m.56s.
Riverside eZ = 13m.25s., iZ = 13m.44s.
Long waves were recorded at Wellington.

July 4d. 9h. Undetermined shock.

Suva iP = 38m.52s., iS? = 40m.8s., L = 40m.30s.?
Wellington P?Z = 40m.8s., iZ = 41m.32s., S = 45m.0s., RZ = 47m.0s.
Auckland P? = 40m.30s.?, S = 44m.42s.
Brisbane iPN = 41m.1s., eSN = 44m.10s., eLN = 45m.35s.
Christchurch P = 41m.21s., S = 45m.50s., R = 48m.22s.
Riverview P?Z = 42m.11s., iSEN = 45m.46s., iP_cPN = 46m.27s., eRN = 46·8m.
Arapuni S? = 44m.0s., L? = 46m.
Mount Wilson eZ = 49m.47s.
Riverside eZ = 49m.50s.
Weston e = 71m.31s.
Long waves were also recorded at Tucson, De Bilt, Kew, and Malaga.

July 4d. Readings also at 0h. (Ksara and La Paz), 1h. (Tashkent), 2h. (Ksara, Huancayo, Tucson, Pierce Ferry, Mount Wilson, Tinemaha, and Riverside), 3h. (near La Paz), 4h. (Tinemaha, Mount Wilson, Riverside (2), Pierce Ferry (2), Boulder City, Tucson (2), St. Louis, Bogota, and near Huancayo), 5h. (Santa Lucia), 7h. (near Rome), 9h. (Shasta Dam, Boulder City, Pierce Ferry, and near Tucson), 10h. (Mount Wilson, Palomar, Riverside, Haiwee, Tinemaha, Boulder City, Pierce Ferry, and Tucson), 12h. (Suva, Tchimkent, Andijan, and near Almata), 13h. (Andijan, near Tchimkent, and Stalinabad), 14h. (Pasadena, Mount Wilson, Arapuni, Wellington, Riverview, Brisbane, and near Tortosa), 15h. (near Samarkand and Andijan), 16h. (near Rome), 17h. (Ksara, Basle, and Zürich), 20h. (La Paz), 23h. (Ksara and Leninakan).

July 5d. 2h. 41m. 18s. Epicentre 49°·9N. 125°·3W. (as on 1946, June 23d.).

A = −·3737, B = −·5278, C = +·7628; δ = +9; h = −5;
D = −·816, E = +·578; G = −·441, H = −·623, K = −·647.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.
		°	°	m. s.	s.	m. s.	s.	m. s.
Victoria		1·8	138	0 31	− 1	0 57	+ 1	—
Grand Coulee		4·6	113	e 1 14	+ 2	i 2 18	S*	i 1 26 P*
Shasta Dam		9·4	166	i 2 16	− 2	—	—	— —
Tinemaha	z.	13·8	156	e 3 19	0	—	—	— —
Boulder City		15·9	147	e 3 51	+ 4	—	—	— —
Pierce Ferry		16·0	145	e 3 46	− 2	—	—	— —
Mount Wilson	z.	16·5	158	e 3 55	+ 1	—	—	— —
Pasadena	z.	16·6	159	e 3 55	− 1	—	—	— —
Riverside	z.	16·9	157	e 4 0	+ 1	—	—	— —
Tucson		20·7	144	e 4 40	− 4	—	—	— —

July 5d. Readings also at 3h. (Jena, La Plata, and near Boulder City), 6h. (Riverview and Brisbane), 10h. (Pierce Ferry, Boulder City, Tucson, near Lick and Fresno), 11h. (near Pierce Ferry, Boulder City, near Fort de France and near Almata), 13h. (near Pierce Ferry, Boulder City, and near Granada), 16h. (Calcutta), 18h. (near Boulder City), 19h. (Shasta Dam, Tinemaha, Haiwee, Pasadena, Mount Wilson, Boulder City, Palomar, Pierce Ferry, Tucson, and near Santa Lucia), 20h. (Tucson, Palomar, Mount Wilson, Tinemaha, and La Plata), 21h. (near Santa Lucia).

July 6d. Readings at 1h. (near Pierce Ferry and Boulder City), 3h. (Tucson and near Mizusawa), 5h. (Samarkand and near Andijan), 8h. (near Triest, near Pierce Ferry and Boulder City), 9h. and 10h. (near Samarkand and Stalinabad), 13h. (San Juan (2)), 15h. (near Alicante), 17h. (near Pierce Ferry and Boulder City), 18h. (near Tashkent, Tchimkent, Andijan, Samarkand, and Stalinabad), 21h. (near Malaga).

July 7d. 6h. 55m. 13s. Epicentre 40°·5N. 122°·0W. (as on 1946, June 21d.).

Intensity VI at Mill Creek, Mineral; V at Caribou and Grass Valley.
Epicentre near 40°·5N. 121°·5W. Macroseismic area 7000 sq. miles.

R. R. Bodle and L. M. Murphy.
United States Earthquakes, 1946, Serial No. 714, Washington, 1948, p. 14-15.

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		1·6	215	e 0 34	+ 4	—	—	—	—	e 1·6
Berkeley		2·6	185	e 0 44	0	e 1 15	− 2	e 1 5	?	—
San Francisco		2·7	187	e 0 47	+ 2	i 1 18	− 1	e 0 51	P*	—
Branner		3·1	183	e 0 51	0	i 1 27	− 2	i 0 54	P*	i 2·2
Santa Clara		3·1	180	i 0 52	+ 1	i 1 28	− 1	—	—	—
Lick		3·2	175	e 0 52	0	i 1 31	− 1	e 1 12	P_g	—
Fresno	N.	4·1	154	i 1 4	− 1	i 1 59	+ 4	i 1 15	P*	—
Tinemaha		4·4	138	i 1 12	+ 2	i 2 15	S*	—	—	—
Haiwee		5·4	143	e 1 15	− 9	i 2 40	S*	—	—	—
Santa Barbara		6·3	162	i 1 37	+ 1	i 2 57	+ 7	—	—	—
Mount Wilson	z.	7·0	152	i 1 44	− 2	—	—	—	—	—
Pasadena		7·0	153	e 1 44	− 2	i 3 34	S*	—	—	—
Overton		7·1	121	e 1 45	− 3	e 3 32	S*	i 2 14	P_g	—
Boulder City		7·2	126	i 1 49	0	i 3 39	S*	i 2 11	P*	—
Riverside		7·5	148	i 1 50	− 3	i 3 45	S*	—	—	—
Grand Coulee		7·7	14	i 2 20	P*	e 3 56	S*	i 4 15	S_g	—
Pierce Ferry		7·7	122	i 1 51	− 5	e 3 41	+16	i 2 17	P*	—
Salt Lake City		7·7	87	e 2 21	P*	—	—	—	—	e 3·0
Butte		8·8	48	e 2 51	P_g	e 4 31	S*	—	—	e 5·0
Bozeman		9·6	53	e 2 48	P*	—	—	—	—	e 4·5
Tucson		12·2	129	e 2 56	− 2	e 5 14	− 2	i 3 20	PPP	e 6·3
Philadelphia		35·4	75	—	—	e 17 38?	S_cS	—	—	e 19·3

Additional readings:—
Branner iN = 1m.21s.
Fresno iN = 1m.10s., iSN = 1m.41s., eN = 1m.49s.
Overton i = 1m.52s.
Boulder City i = 1m.55s., eS? = 3m.29s.
Pierce Ferry i = 3m.51s.
Long waves were also recorded at Weston.

July 7d. 6h. 58m. 30s. Epicentre 40°·5N. 122°·0W. (as at 55m.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley		2·6	185	e 0 44	0	e 1 16	− 1	—	—	—
San Francisco	N.	2·7	187	e 0 47	+ 2	e 1 20	+ 1	—	—	—
Branner		3·1	183	i 0 51	0	i 1 27	− 2	—	—	2·0
Lick		3·2	175	e 0 52	0	e 1 30	− 2	e 1 12	P_g	—
Fresno	N.	4·1	154	e 1 28	P_g	i 1 59	+ 4	i 2 3	S*	—

Fresno gives also iN = 1m.44s.
Long waves were also recorded at Tucson.

July 7d. 7h. Undetermined shock.

Berkeley ePZ = 31m.51s.
Branner ePEN = 31m.58s., eSEN = 32m.35s.
Lick ePN = 32m.0s., eSEN = 32m.40s.
Boulder City eP = 32m.38s., iP = 32m.42s., eS = 33m.18s.
Fresno ePN = 32m.45s., iSN = 33m.18s.
Overton iP? = 32m.46s.
Pierce Ferry eP? = 32m.50s., eS = 33m.34s.

July 7d. 7h. Undetermined shock.

Christchurch P =36m.25s.k, S =39m.13s., Q =39m.27s., L =40m.21s.
Arapuni P =36m.54s., i =41m.12s., L =43m.0s.
Wellington PZ =37m.0s., pPZ =37m.15s., sPZ =37m.25s., iZ =39m.1s., SZ =40m.15s.?, P_cP?Z =41m.0s., LZ =42m.
Auckland e =37m.47s., S =41m.37s., L =44m.0s.
Riverview iPNZ =37m.51s.s, iZ =38m.9s., iE =42m.12s., eQE =42·4m., eRZ =43·3m.
Suva eS? =42m., eL =53m.
Ksara e =52m.29s. and 67m.43s.
Long waves were also recorded at Tucson.

July 7h. 21h. Undetermined shock.

Reykjavik iPEN =22m.19s., iEN =22m.32s., iSEN =22m.35s., LN =22m.48s.
Strasbourg eP? =24m.49s., eS? =30m.48s., eL =32m.
Paris e =26m.23s., 29m.51s., and 30m.7s., eS? =31m.22s., eL =32m.
Edinburgh e =28m.0s.
Durham eE =28m.7s.
Granada eP =29m.18s.k, PP =29m.40s., S =32m.57s., L =34·5m.
Alicante eP =29m.27s., eL =34m.11s.
Copenhagen e =29m.42s., L =30·5m.
Belgrade e =36m.18s.
Long waves were also recorded at other European stations.

July 7d. Readings also at 2h. (Suva and Auckland), 4h. (near Tchimkent and Andijan), 5h. (Tinemaha, Mount Wilson, Boulder City, Pierce Ferry, Tucson, Bogota, Samarkand, near Tchimkent, and Andijan), 7h. and 10h. (near Lick), 12h. (Logan), 16h. (Riverview, Auckland, Arapuni, Christchurch, and Wellington), 19h. (near Suva), 20h. (Ksara, Basle, Toledo, Santa Barbara, Mount Wilson, Pasadena, Haiwee, Palomar, Riverside, Tinemaha, Shasta Dam, Boulder City, Pierce Ferry, Tucson, and near Tacubaya), 21h. (Copenhagen and Ksara), 22h. (Cheb).

July 8d. 17h. Undetermined shock.

Christchurch P =47m.34s., S =53m.0s., Q =54m.48s., R =56m.22s.
Suva iP =50m.3s., iS =53m.45s., L =54·2m.
Auckland S? =50m.55s., L =52m.45s.
Wellington S? =52m.50s.?, L =54·5m.
Brisbane iPN =53m.56s., eLEN =60m.40s.
Riverview PEZ =54m.4s., iZ =54m.40s. and 54m.53s., iN =56m.22s., eSS? =59m.9s., eSSS?N =59m.29s., eN =60m.9s., eLEZ =61·2m.
Mount Wilson ePZ =60m.53s.
Pasadena ePZ =60m.54s., eLZ =86·5m.
Riverside ePZ =60m.54s.
Palomar eP =60m.56s., iNZ =61m.13s.
Berkeley eP?Z =61m.0s., eS?EZ =71m.20s., eE =76m.56s., eLE =86·4m.
Tinemaha ePZ =61m.2s., iZ =61m.27s.
Boulder City eP =61m.8s.
Pierce Ferry eP =61m.11s.
Tucson eP =61m.11s., i =61m.28s., e =73m.3s., eL =85m.21s.
Overton eP =61m.12s.
Shasta Dam iP? =61m.52s., e =62m.0s.
Ksara ePKP =68m.7s., PP =71m.55s., SKKS =78m.39s.
Helwan e =68m.10s.
De Bilt ePKP =68m.15s., eZ =72m.23s., eL =134m.
Paris ePKP =68m.16s., e =69m.16s., ePP =72m.40s., e =74m.48s., 78m.50s., and 81m.16s.?, eSS =92m., eL =130m.
Strasbourg ePKP =68m.16s., e =68m.34s., ePP =72m.37s., eSS =93m.0s., e =93m.9s., and 96m.15s., eSSS =102m.21s., eL =130m.
Clermont-Ferrand e =68m.19s., eL =130m.11s.
Rome ePKPZ =68m.22s., $ePKP_2$ =69m.17s., ePPZ =73m.3s., eSSSE =99m.58s.
Basle ePKP =69m.5s.
Zürich e =69m.24s.
Huancayo e =72m.11s., eSKS =74m.7s., e =79m.14s., eSS =92m.13s., e =99m.29s., eL =111m.27s.
Victoria e =72m.33s., L =92m.
St. Louis eSKSN =73m.7s., iSKKSN =73m.57s., iSN =74m.36s., eLN =81m.20s.
La Paz PPZ =74m.40s., LZ =104m.0s.
Uccle ePPP? =74m.47s., eEN =80m.42s., eL =137m.
Triest ePPP? =84m.51s.
Long waves were also recorded at Arapuni, Salt Lake City, Weston, Harvard, and Cheb.

July 8d. Readings also at 0h. (near Samarkand), 1h. (Tucson and Bogota), 3h. (near Leninakan), 6h. (Tucson, Wellington, Arapuni, Auckland, Apia, and Suva), 10h. (Tucson, Tinemaha, Haiwee, Riverside, Palomar, Pasadena, Mount Wilson, Shasta Dam, Pierce Ferry, Riverview, Suva, Arapuni, Christchurch, Wellington, and Auckland), 11h. (Weston, New Delhi, Helwan, Ksara, near Leninakan, and near Alicante), 12h. (near Fresno, Lick, and Branner), 13h. (Aberdeen), 14h. (Bogota and near Huancayo), 15h. (Bogota, La Paz, Tinemaha, Riverside, and near Tucson (2)), 17h. (Kodaikanal), 18h. (near Branner), 22h. (De Bilt).

July 9d. 1h. 8m. 15s. Epicentre 22°·3S. 174°·2W. (as on 1943, October 24d.).

$A = -\cdot9214$, $B = -\cdot0936$, $C = -\cdot3773$; $\delta = +9$; $h = +4$;
$D = -\cdot101$, $E = +\cdot995$; $G = +\cdot375$, $H = +\cdot038$, $K = -\cdot926$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		8·0	300	i 1 40	−20	i 3 55	+22	—	—	—
Apia		8·7	15	(e 2 2)	− 8	e 2 2	P	—	—	e 4·6
Auckland		17·3	211	4 10	+ 6	7 30	+14	—	—	8·3
Arapuni		18·0	206	—	—	7 45	+13	—	—	8·8
New Plymouth		19·5	207	—	—	8 30	+24	—	—	10·0
Wellington		21·1	204	4 49?	+ 1	8 45	+ 6	i 5 50	PPP	9·8
Christchurch		23·8	204	4 45	−30	9 34	+ 6	i 5 28	PP	12·7
Riverview		32·5	242	i 6 32a	− 2	i 11 45	− 4	i 7 41	PP	e 15·8
Honolulu		46·2	22	e 8 26	− 2	e 15 14	− 1	—	—	e 19·0
Santa Barbara	Z.	76·6	45	e 11 59	+ 5	—	—	—	—	.—
Santa Clara		77·1	41	e 12 1	+ 4	e 23 2	?	—	—	e 32·3
Berkeley		77·2	41	i 11 59	+ 2	i 21 49	+ 2	e 26 39	SS	e 31·6
Lick		77·2	41	e 12 1	+ 4	e 21 53	+ 6	—	—	e 38·8
La Jolla	Z.	77·2	46	e 12 3	+ 6	—	—	—	—	—
Pasadena		77·4	45	e 11 58	0	i 21 52	+ 3	e 22 47	PS	e 35·8
Mount Wilson		77·5	45	e 12 0	+ 1	—	—	—	—	—
Ukiah		77·5	39	e 12 2	+ 3	e 21 53	+ 3	e 26 53	SS	e 31·9
Palomar		77·8	47	e 12 1	0	i 21 57	+ 4	—	—	—
Riverside		77·8	45	e 12 1	0	—	—	—	—	—
Fresno	N.	78·0	42	e 12 5	+ 3	e 22 0	+ 5	—	—	—
Haiwee		78·7	44	e 12 8	+ 2	e 22 8	+ 5	—	—	—
Shasta Dam		79·0	38	i 12 7	0	—	—	—	—	—
Tinemaha		79·2	44	e 12 9	+ 1	e 22 11	+ 3	—	—	—
Punta Arenas		80·0	144	—	—	31 45?	SSS	—	—	—
Boulder City		80·7	46	e 12 17	+ 1	—	—	—	—	—
Overton		81·3	45	e 12 22	+ 2	—	—	—	—	—
Pierce Ferry		81·3	46	e 12 20	0	—	—	—	—	—
Tucson		81·3	50	e 12 21	+ 1	e 22 39	+ 9	e 15 41	PP	e 36·7
Vladivostok		81·8	323	12 19	− 3	22 33	− 2	—	—	—
Victoria		83·8	32	12 30	− 2	22 56	+ 1	28 21	SS	41·8
Salt Lake City		85·4	43	e 12 41	+ 1	e 23 10	− 1	e 15 59	PP	e 35·4
Grand Coulee		85·6	34	e 12 42	+ 1	—	—	—	—	—
Logan		85·9	42	e 12 48	+ 5	e 23 12	− 4	e 16 36	PP	e 39·6
Sitka		85·9	20	e 12 41	− 2	e 23 8	− 8	e 17 24	PPP	e 35·8
Butte		87·9	38	e 13 1	+ 8	e 23 24	−11	e 17 6	PP	e 36·0
Bozeman		88·6	39	e 14 56	?	e 23 26	[+ 2]	e 16 24	PP	e 38·2
College		89·2	11	e 13 0	+ 1	e 23 46	− 1	e 16 21	PP	e 36·4
Rapid City		92·5	42	—	—	e 23 52	[+ 5]	e 30 57	SS	e 41·2
Huancayo		93·5	104	e 13 27	+ 8	e 24 2	[+ 9]	e 17 9	PP	e 38·1
Saskatoon		94·5	35	—	—	e 24 34	0	—	—	44·2
La Paz		98·0	111	i 13 47a	+ 8	25 3	− 1	17 39	PP	46·3
Florissant	Z.	99·1	52	e 13 45	+ 1	e 32 36	SS	e 17 46	PP	e 49·8
St. Louis		99·1	52	e 20 4	PPP	i 25 20	+ 7	i 24 26	SKS	i 50·1
Chicago		102·1	49	—	—	e 25 46	+ 8	e 24 33	SKS	e 43·1
Irkutsk		102·3	321	13 57	− 2	24 37	[− 1]	27 1	PS	—
Philadelphia		110·7	54	e 24 40	?	e 27 11	?	e 29 3	PS	e 49·2
Fordham		111·2	53	e 19 22	PP	e 25 24	[+ 7]	e 29 5	PS	e 48·8
Ottawa		111·3	48	e 19 35	PP	e 25 19	[+ 1]	e 28 45	PS	58·8
Harvard		113·8	52	e 19 38	PP	e 29 15	PS	—	—	e 58·8
Weston		114·0	52	e 19 35	PP	e 26 37	{+ 4}	e 27 32	S	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Seven Falls		115·0	47	—	—	e 25 36	[+ 4]	e 36 15	SS	57·0
New Delhi	N.	116·1	292	—	—	e 25 33	[− 3]	—	—	—
Bombay		117·6	280	i 13 59	P	—	—	—	—	e 61·8
Bermuda		117·6	64	—	—	e 25 47	[+ 5]	e 36 25	SS	e 56·9
Andijan		121·7	305	e 19 16	[+20]	—	—	e 22 51	PPP	—
Tashkent		123·8	305	e 20 16	PP	30 1	PS	36 6	SS	—
Stalinabad		124·3	303	i 19 3	[+ 2]	i 23 3	PPP	i 25 9	?	—
Sverdlovsk		127·5	326	i 19 11	[+ 4]	26 17	[+ 4]	e 20 47	PP	—
Baku		138·7	307	19 31	[+ 3]	22 58	PKS	—	—	—
Moscow		139·1	333	i 19 23	[− 6]	—	—	i 22 13	PP	—
Grozny		140·9	312	22 56	PKS	—	—	—	—	—
Upsala		141·6	351	22 30	PP	29 25	{− 6}	e 23 16	PKS	68·8
Bergen	N.	141·9	1	—	—	e 29 45?	{+12}	—	—	—
Leninakan		143·1	309	e 19 26	[−10]	—	—	23 33	PKS	—
Aberdeen		144·7	7	—	—	i 41 32	SSP	—	—	e 79·0
Sotchi		144·9	316	i 19 31	[− 8]	—	—	—	—	—
Edinburgh		145·8	9	—	—	e 41 45	SSP	—	—	—
Copenhagen		146·3	353	i 19 41	[0]	23 45	PKS	33 9	PS	—
Durham	E.	147·1	8	—	—	i 42 8	SS	—	—	—
Warsaw		147·9	341	e 19 46k	[+ 2]	33 40	PS	i 23 12	PP	e 75·8
Yalta		147·9	320	19 49	[+ 5]	—	—	—	—	—
De Bilt		150·3	0	i 19 49a?	[+ 1]	e 42 45	SS	—	—	e 73·8
Jena	N.	151·1	350	e 19 54	[+ 5]	—	—	—	—	—
Ksara		151·2	299	i 19 50	[+ 1]	36 52	PPS	23 36	PP	—
Prague		151·5	348	e 19 58	[+ 8]	e 42 56	SS	—	—	e 81·2
Uccle		151·5	3	e 19 51	[+ 1]	e 42 54	SS	e 23 33	PP	e 74·8
Cheb		151·8	352	e 20 2	[+12]	e 30 14	{−14}	e 23 56	PP	e 79·8
Bucharest		152·3	328	18 45?	?	—	—	42 45	SS	88·8
Budapest		152·7	340	e 19 45?	[− 6]	—	—	e 23 45?	PP	e 84·8
Paris		153·4	5	i 19 54a	[+ 2]	e 27 1	[+ 3]	i 23 46	PP	e 80·8
Strasbourg		153·7	357	e 19 58	[+ 5]	e 30 53	{+15}	e 24 19	PP	e 82·8
Belgrade		154·5	335	e 20 3	[+ 9]	e 27 59	[+60]	e 34 2	PS	e 81·8
Basle		154·8	357	—	—	e 24 56	PP	—	—	—
Zürich		154·9	356	e 20 18a	[+24]	—	—	—	—	—
Sofia		155·0	328	e 19 45?	[− 9]	—	—	e 38 45?	PPS	—
Zagreb		155·1	343	e 19 45?	[−10]	—	—	—	—	—
Triest		155·8	346	e 20 6	[+10]	—	—	e 43 45	SS	—
Helwan		155·9	293	i 19 56k	[0]	e 30 51	{ 0}	20 23	pPKP	—
Clermont-Ferrand		156·5	5	i 19 58	[+ 1]	—	—	i 24 2	PP	e 81·8
Florence	E.	158·1	348	e 20 32	PKP_3	i 27 24	[+21]	i 44 10	SS	—
Lisbon		159·2	34	20 3	[+ 3]	—	—	20 43	PKP_3	83·4
Rome		159·7	348	e 19 57	[− 3]	e 44 24	SS	e 20 38	PKP_3	—
Toledo		160·6	23	20 5	[+ 4]	23 42	PKS	20 47	PKP_3	—
Alicante		163·1	17	20 43	PKP_3	32 1	{+33}	29 4	PPP	e 74·8
Granada		163·1	27	20 17a	[+13]	26 49	[−18]	24 43	PP	89·0
Malaga	N.W.	163·1	30	i 21 0a	[+56]	44 15	SS	i 24 59	PP	93·4
Algiers		165·4	9	e 20 12	[+ 6]	e 33 45	?	e 24 32	PP	—

Additional readings :—
Auckland i =8m.0s.
Wellington iZ =5m.5s. and 6m.41s., i =7m.27s.
Christchurch Q =10m.39s.
Riverview iE =8m.22s. and 13m.11s., eQE =13m.45s., iSSSE =14m.6s., S_cSN =17m.8s.
Berkeley eZ =23m.13s.
Lick eN =12m.25s.
Pasadena iZ =12m.3s. and 12m.17s.
Palomar i =12m.10s.
Boulder City i =12m.21s.
Tucson e =13m.16s. and 23m.58s., eSS =28m.16s., eSSS =31m.49s.
Victoria SKP =19m.3s., SKKS =24m.23s., PS =27m.23s., SS =34m.45s.?
Salt Lake City e =23m.30s., eSS =28m.46s.
Sitka e =13m.17s., eSS =28m.54s.
Butte e =23m.38s., 28m.32s., and 32m.28s.
Bozeman e =24m.52s. and 35m.23s.
College eSS =29m.28s.
Rapid City e =24m.29s.
Huancayo eSS =31m.5s.
La Paz SKS =24m.21s., S =25m.45s., PPSZ =27m.29s., SSZ =32m.21s., SSSZ =36m.17s.

Continued on next page.

Florissant iZ =20m.36s., eZ =38m.32s.
St. Louis ePSE =26m.37s., iPPSN =28m.5s., eSSN =32m.3s.
Chicago ePS =27m.6s., eSS =32m.46s.
Irkutsk PKP =17m.21s.
Philadelphia eSS =34m.35s., e =38m.53s.
Fordham eS =27m.9s.
Ottawa eN =27m.3s., e =34m.53s., eN =38m.57s.
Bermuda e =31m.45s., and 41m.36s.
Tashkent SKSP =31m.10s., PPS =32m.0s.
Sverdlovsk PKS =22m.25s., SKKS =28m.6s., PS =31m.5s.
Upsala ePKPN =22m.37s., ePPS?N =38m.12s.
Warsaw eN =19m.50s.
De Bilt eE =60m.45s.?
Jena eE =19m.58s., eN =20m.6s.
Prague e =20m.59s.
Uccle epPKP =21m.1s., epPPN =25m.22s., ePPPN =27m.25s.
Cheb e =21m.55s., 33m.32s., 38m.52s., 41m.45s.?, 47m.45s.?, 58m.45s.?, and 60m.45s.?
Paris e =20m.5s., iPKP$_2$? =20m.13s., i =20m.55s., e =22m.33s., 22m.47s., 24m.1s., and 24m.31s., eSKKS =30m.17s., e =38m.45s.?, eSSS =48m.51s., eQ =79m.45s.?
Strasbourg iPKP$_2$ =20m.15s., SKP? =23m.43s., ePPP =27m.18s., e =28m.16s. and 34m.5s., eSS =43m.3s., eSSS =49m.15s.
Belgrade e =20m.57s.
Helwan i =20m.8s., PKP =20m.48s., pPKP =21m.18s., PP =24m.24s., pPP =24m.53s.
Clermont-Ferrand iPKP$_2$ =20m.26s., eQ =79·8m.
Rome eN =23m.8s., eSSSE =50m.28s.
Toledo PPZ =24m.28s., PKKS =31m.18s., iSSE =44m.40s., iSSPN =44m.47s.
Alicante PKP$_2$ =21m.6s., PP =26m.4s., PPP =30m.10s., SS =40m.8s.
Granada pPKP =21m.16s., SKP =23m.21s., pPP =25m.13s., PPP =29m.13s., SKKS = 30m.58s., SKSP =34m.11s., PPS =38m.39s., SS =44m.6s., SSS =51m.21s.
Malaga PPP?NW =28m.47s., PPS?NW =38m.3s.
Long waves were also recorded at La Plata, Lincoln, Columbia, Besançon, Tortosa, and Tananarive.

June 9d. 3h. 19m. 1s. Epicentre 35°·7N. 118°·0W. (as on 1946, March 18d.).

Epicentre 35°40′N. 118°4′W. (Pasadena).

$A = -·3821$, $B = -·7187$, $C = +·5810$; $\delta = +9$; $h = 0$;
$D = -·883$, $E = +·469$; $G = -·273$, $H = -·513$, $K = -·814$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Fresno	N.	1·8	305	e 0 31	− 1	i 0 53	− 3	e 0 35	P*
Boulder City		2·6	84	i 0 42	− 2	i 1 25	+ 8	—	—
Overton		3·0	74	i 0 50	0	e 1 28	+ 1	—	—
Pierce Ferry		3·3	83	i 0 52	− 1	i 1 39	+ 4	i 1 1	P*
Lick		3·4	300	e 0 57	+ 2	e 1 37	0	e 1 2	P*
Branner		3·8	298	e 1 3	+ 2	e 1 52	+ 5	e 1 9	P*

Additional readings :—
Pierce Ferry eS? =1m.46s.
Branner eN =1m.21s., eE =1m.26s., eN =1m.59s.

July 9d. 13h. 13m. 52s. Epicentre 19°·0S. 169°·2E. Depth of focus 0·020 (as on 1945, November 28d.).

$A = -·9294$, $B = +·1773$, $C = -·3236$; $\delta = -6$; $h = +5$;
$D = +·187$, $E = +·982$; $G = +·318$, $H = -·061$, $K = -·946$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		8·8	86	i 1 55	−10	i 3 36	− 7	—	—	—
Auckland		18·5	166	4 3	− 3	7 26	+ 2	i 4 49	PPP	i 9·1
Arapuni		19·8	165	4 38	+18	7 44	− 5	—	—	—
New Plymouth		20·4	168	4 24	− 2	8 5	+ 5	—	—	—
Tuai		20·9	164	4 28	− 3	8 10	+ 1	15 33	S_eS	—
Riverview		21·8	223	i 4 38$_a$	− 2	i 8 28	+ 2	i 5 9	pP	e 9·0
Wellington	z.	22·7	169	4 46	− 2	8 38	− 3	5 14	pP	—
Kaimata		23·5	176	4 57	+ 1	8 56	+ 1	15 44	S_eS	—
Christchurch		24·6	174	5 6$_a$	− 1	9 11	− 2	i 5 45	pP	—
Honolulu		51·4	40	e 8 51	+ 1	e 15 52	− 4	i 17 13	sS	e 21·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	63·5	336	e 10 17	+ 2	18 38	+ 4	—	—	—
Vladivostok		70·7	332	i 11 1	+ 1	i 20 6	+ 6	11 41	pP	—
Branner		85·5	48	i 12 22	+ 1	e 22 29	− 8	i 12 47	pP	—
Berkeley		85·6	48	i 12 22	+ 1	i 22 30	− 8	i 13 7	pP	—
Santa Clara		85·6	48	i 11 24	−57	e 22 31	− 7	—	—	—
Ukiah		85·6	46	e 12 22	+ 1	e 22 31	− 7	e 15 28	PP	e 34·5
Lick		85·8	48	i 12 24	+ 2	e 22 27	[− 2]	e 15 45	PP	—
Santa Barbara		85·9	52	i 12 23a	0	—	—	—	—	—
Fresno	N.	86·9	49	i 12 29	+ 1	e 22 51	+ 1	i 13 10	pP	—
Pasadena		86·9	53	i 12 28a	0	e 22 55	+ 5	e 15 33	PP	e 35·2
Mount Wilson		87·1	53	i 12 29a	0	—	—	e 15 43	PP	—
Riverside		87·5	53	i 12 30a	− 1	e 22 44	[+ 4]	e 15 57	PP	—
Palomar		87·6	54	i 12 32a	+ 1	i 22 44	[+ 3]	i 15 58	PP	—
Haiwee		87·9	51	i 12 34a	+ 1	e 22 43	[0]	e 38 28	P'P'	—
Tinemaha		88·1	50	i 12 35a	+ 1	e 23 8	+ 6	i 12 53	?	—
Calcutta	N.	89·1	294	i 13 24	pP	i 22 51	[0]	i 17 45	?	—
Sitka		89·1	27	i 12 35	− 3	i 23 9	− 2	e 13 23	pP	—
College		89·8	17	e 12 42	0	e 23 17	0	e 15 34	PP	e 35·9
Victoria		90·0	39	12 38	− 4	23 21	+ 2	29 8	SS	36·1
Boulder City		90·2	52	i 12 44	+ 1	i 23 30	+ 9	—	—	—
Irkutsk		90·5	326	i 12 44	− 1	i 22 59	[0]	i 23 25	S	—
Overton		90·7	52	i 12 46	0	i 23 33	+ 8	i 23 3	SKS	—
Pierce Ferry		90·9	52	i 12 47	0	i 23 4	[+ 3]	—	—	—
Colombo	E.	91·6	277	13 28	pP	23 4	[− 1]	—	—	—
Tucson		91·8	57	i 12 52	+ 1	e 23 8	[+ 1]	i 13 38	pP	e 37·2
Grand Coulee		92·4	40	i 12 53	− 1	e 23 7	[− 3]	i 16 35	PP	—
Salt Lake City		94·2	49	e 13 1	− 1	e 23 23	[+ 3]	e 16 49	PP	e 37·8
Logan		94·6	47	e 13 6	+ 2	i 24 4	+ 5	i 16 54	PP	e 40·3
Kodaikanal	E.	94·9	280	e 11 53	−72	i 21 23	?	—	—	—
Butte		95·6	43	e 13 17	+ 9	i 24 11	+ 3	e 17 6	PP	e 39·3
Hyderabad	N.	96·2	287	e 18 28	pPP	23 30	[− 1]	24 15	S	—
Bozeman		96·5	44	e 13 11	− 1	e 24 21	+ 6	e 14 14	pP	e 39·8
New Delhi	N.	100·6	297	—	—	i 23 51	[− 2]	i 24 48	S	—
Rapid City		101·3	47	e 14 37	pP	i 23 57	[0]	i 17 44	PP	e 43·1
Saskatoon		101·3	39	e 16 38	?	e 25 2	+ 6	—	—	—
Bombay		101·8	286	e 13 54	+18	i 23 28	[−31]	—	—	40·6
Lincoln		105·2	51	e 18 12	PP	27 32	PS	e 33 13	SS	e 51·9
Andijan		107·2	307	e 17 33	PKP	—	—	—	—	—
Huancayo		109·3	111	e 16 48	?	e 24 34	[+ 2]	i 18 45	PP	e 45·9
Florissant	z.	109·6	55	e 14 10	P	e 28 16	PS	e 14 45	pP	—
Stalinabad		109·6	306	i 18 38	PP	24 9	[−24]	25 36	SKKS	—
Tashkent		109·6	309	e 18 8	[− 3]	e 26 6	S	18 54	PP	—
St. Louis		109·7	55	i 14 10	P	i 26 27	S	i 14 44	pP	—
Samarkand		111·1	307	18 8	[− 6]	—	—	—	—	—
Tananarive		111·4	240	—	—	e 25 45	[+64]	28 11	PS	57·1
Chicago		112·1	52	e 18 59	PP	e 24 40	[− 3]	e 28 33	PS	e 48·3
La Paz		113·5	119	i 14 27	P	27 32	S	i 19 12	PP	53·8
Sverdlovsk		115·8	325	e 14 41	P	i 27 5	S	e 15 25	pP	—
Columbia		116·5	60	e 19 30	PP	e 24 58	[− 2]	e 29 17	PS	e 36·6
Ottawa		120·8	48	18 32	[− 2]	25 14	[0]	20 1	PP	53·1
Philadelphia		121·4	55	e 18 47	[+13]	e 25 26	[+ 9]	i 20 20	PP	e 48·0
Fordham		122·4	53	e 18 38	[+ 2]	i 25 22	[+ 2]	i 20 11	PP	—
Harvard		124·0	51	i 18 38	[− 1]	e 25 26	[+ 1]	e 19 23	pPKP	—
Seven Falls		124·0	46	18 38	[− 1]	25 31	[+ 6]	20 27	PP	51·1
Baku		124·2	307	e 18 39	[0]	—	—	—	—	—
Weston		124·2	51	i 18 39	[0]	e 25 12	[−14]	i 20 24	PP	—
Moscow		128·5	328	18 47	[− 1]	25 41	[+ 3]	i 19 31	pPKP	—
Leninakan		128·8	308	e 18 50	[+ 1]	—	—	—	—	—
Bermuda		130·1	64	e 21 4	PP	e 39 26	SS	i 22 15	pPP	e 58·4
Sotchi		131·3	312	e 18 54	[0]	—	—	—	—	—
Fort de France		131·8	88	e 18 52	[− 3]	i 22 2	pPP	—	—	—
Upsala		134·4	341	e 18 8?	[−51]	27 37	SKKS	e 19 19	pPKP	—
Ksara		136·0	299	i 19 4	[+ 2]	—	—	i 19 49	pPKP	—
Bergen		137·1	349	19 2	[− 2]	39 53	SS	19 45	pPKP	69·1
Warsaw		138·6	330	e 18 57	[−10]	i 32 9	PS	i 22 26	PP	e 61·1

Continued on next page.

		Δ	Az.	P.		O−C.	S.		O−C.	Supp.			L.
		°	°	m.	s.	s.	m.	s.	s.	m.	s.		m.
Copenhagen		139·4	341	i 19	7	[− 2]	40	14	SS	i 22	38	pPP	—
Bucharest		140·2	318	e 19	14	[+ 4]	i 40	23	SS	e 22	21	PP	44·1
Helwan		140·3	294	i 19	3a	[− 7]	e 40	20	SS	19	53	pPKP	—
Potsdam	N.	141·8	337	e 19	20	[+ 7]	—		—	i 22	47	PP	—
Budapest		142·6	327	19	10	[− 4]	e 40	8?	SS	e 22	38	PP	e 42·1
Edinburgh		142·7	353	e 19	8	[− 6]	—		—	—		—	—
Prague		143·0	334	e 19	14	[− 1]	e 40	56?	SS	e 22	56	PP	e 58·1
Kalossa		143·2	326	19	15	[0]	—		—	—		—	—
Belgrade		143·4	322	e 19	16	[+ 1]	—		—	22	58	PP	56·1
Jena		143·5	335	i 19	14	[− 1]	—		—	—		—	—
Cheb		143·9	336	e 19	15	[− 1]	—		—	—		—	—
De Bilt		144·7	343	i 19	17a	[0]	e 41	8	SS	i 20	1	pPKP	e 61·1
Zagreb		145·3	326	i 19	19a	[0]	—		—	i 20	1	pPKP	—
Uccle		146·1	344	i 19	19a	[− 1]	e 26	35?	[+24]	i 20	5	pPKP	e 63·1
Triest		146·5	328	i 19	20	[− 1]	e 41	34	SS	i 20	6	pPKP	—
Strasbourg		146·9	337	i 19	21a	[− 1]	e 29	25	SKKS	i 20	9	pPKP	65·6
Zürich		147·6	335	e 19	20	[− 3]	—		—	—		—	—
Basle		147·8	336	e 19	23	[0]	—		—	e 21	7	?	—
Paris		148·4	343	i 19	24a	[0]	e 26	14	[0]	i 20	9	pPKP	e 63·1
Neuchatel		148·5	336	e 19	24	[0]	—		—	—		—	—
Besançon		148·6	337	e 19	33	[+ 9]	—		—	—		—	—
Florence	E.	149·1	328	i 19	27	[+ 2]	i 32	49	PS	i 42	14	SS	—
Jersey		149·1	349	e 19	25	[0]	—		—	—		—	—
Rome		149·8	325	19	24a	[− 2]	e 29	42	SKKS	i 20	6	pPKP	62·7
Clermont-Ferrand		150·9	340	i 19	28	[0]	—		—	i 23	15	PP	e 50·5
Barcelona		155·1	337	e 20	59	?	—		—	e 22	40	?	—
Tortosa		156·2	338	i 18	36	[−59]	28	58	SKKS	19	51	pPKP	—
Toledo		158·4	346	i 19	37	[0]	i 43	52	SS	i 20	14	pPKP	—
Algiers		158·5	328	19	33	[− 5]	—		—	i 20	18	pPKP	—
Alicante		158·7	338	19	28	[−10]	30	23	SKKS	26	55	PPP	e 72·9
Granada		160·8	343	19	40k	[− 1]	27	5	[+37]	20	46	pPKP	66·4
Malaga	Z.	161·5	344	i 19	40k	[− 1]	i 26	39	[+10]	i 20	26	PKP_2	76·4

Additional readings :—
Riverview iPPNZ = 5m.15s., iZ = 5m.41s., iN = 5m.56s., iP_cPNZ = 8m.33s., iE = 8m.47s., iSSZ = 9m.22s., iSSN = 9m.26s., iS_cSE = 15m.43s.
Wellington PP?Z = 5m.28s., sPZ = 5m.43s., iZ = 6m.8s., 6m.28s., and 6m.53s., pP_cP?Z = 9m.4s., sP_cP = 9m.31s., iZ = 9m.50s., pP_cS = 12m.58s., S_cS = 15m.34s.
Christchurch i = 5m.56s., 9m.50s., 10m.1s., and 11m.5s., S_cS = 15m.45s., sS_cS = 16m.51s.
Honolulu iS_cS = 18m.29s.
Vladivostok P_cP = 11m.17s.
Berkeley iPPZ = 15m.44s., iE = 16m.52s., ePPS?E = 24m.38s., ePKP,PKP?N = 39m.26s.
Ukiah eSS = 28m.18s.
Fresno iN = 15m.7s., eN = 21m.17s.
Pasadena iZ = 12m.33s., 12m.43s., and 15m.52s., iSKS = 22m.38s., eEN = 23m.34s. and 23m.51s., ePKP,PKPZ = 38m.27s.
Mount Wilson ePKP,PKPZ = 38m.31s., eZ = 44m.0s.
Riverside ePKP,PKPZ = 38m.27s.
Palomar iZ = 12m.39s., iN = 23m.4s., ePKP,PKPZ = 38m.29s.
Sitka ePP = 16m.8s., eS = 22m.51s., e = 24m.18s. and 25m.19s., eSS = 29m.10s., e = 35m.58s.
College eS = 22m.57s., e = 24m.9s., eSS = 29m.1s.
Victoria SKS = 22m.59s.
Boulder City i = 12m.58s., iS = 23m.1s.
Overton i = 12m.49s.
Tucson iPP = 16m.33s., e = 17m.25s., ePPP = 18m.40s., e = 19m.42s. and 24m.25s., ePS = 25m.6s., ePPS = 26m.5s., eSS = 30m.8s., ePKP,PKP = 38m.18s.
Salt Lake City e = 13m.26s. and 24m.19s., eSS = 30m.12s.
Logan iSKS = 23m.25s.
Kodaikanal PPE = 14m.58s., SSE = 28m.18s.
Butte e = 15m.38s., eS = 23m.27s., ePS = 25m.31s., eSS = 30m.27s.
Bozeman ePP = 16m.58s., eSKS = 23m.31s., e = 24m.54s., ePS = 25m.39s., e = 30m.4s.
New Delhi iN = 26m.12s.
Rapid City e = 17m.2s. and 24m.34s., ePS = 27m.29s., eSS? = 33m.27s.
Huancayo e = 20m.57s., 25m.28s., 27m.58s. and 30m.7s., eSS = 33m.54s., eSSS = 37m.55s.
Florissant eZ = 17m.10s., iPPZ = 18m.42s., eZ = 19m.41s., iZ = 30m.19s.
Tashkent SKS = 24m.36s., SP = 28m.4s.
St. Louis iPPZ = 18m.43s., iE = 19m.42s., iSKSE = 24m.31s., iSKKSE = 25m.32s., iE = 25m.54s., iPSE = 28m.4s., iE = 31m.36s., iSSN = 33m.59s.
Tananarive SS = 34m.19s.
Chicago e = 25m.44s. and 26m.32s., eSS = 34m.26s.

Continued on next page.

La Paz PS =28m.36s., PPS =30m.8s., iSS =37m.24s.
Sverdlovsk PP =19m.27s., SS =35m.18s.
Ottawa PS =29m.56s., SS =36m.38s.
Philadelphia e =26m.51s., ePS =30m.3s., eSS =36m.54s., e =39m.52s.
Harvard ePP =20m.23s., epPP =21m.17s., ePS =30m.24s.
Seven Falls SKKS =27m.14s., PS =30m.56s., SS =38m.8s.?
Weston eSS =28m.22s.
Moscow iPP =20m.51s., ipPP =21m.33s., SP =30m.39s.
Bermuda e =29m.10s.
Upsala ePKS?N =21m.25s., ePKS?E =21m.47s., PPP?E =22m.33s., eE =23m.18s., eSSN =37m.8s.?, eSSE =38m.8s.?
Ksara PP =22m.22s., ipPP =23m.0s.
Bergen PPZ =21m.45s., PKSN =22m.39s., eE =44m.45s.
Warsaw iPKP?Z =19m.7s.a, ePKPN =19m.10s., PPN =22m.44s., iN =23m.28s., 28m.35s., and 41m.58s.
Copenhagen 23m.29s. and 27m.19s.
Bucharest eEN =23m.28s.
Helwan PP =21m.20s., pPP =22m.11s., e =28m.48s. and 42m.13s.
Prague e =31m.52s., 38m.50s.
Belgrade e =28m.18s. and 32m.11s.
Jena eN =29m.29s. and 29m.38s.
De Bilt ePP =22m.43s., epPP =23m.22s., csSS =42m.38s., eSSS =46m.8s.?.
Zagreb i =19m.26s., iNE =19m.33s., i =19m.46s., i =19m.52s., ePPZ =23m.21s.
Uccle iEN =19m.22s., eN =20m.50s., e =21m.23s., ePPN =22m.47s., epPPN =23m.26s., eSKKSE =29m.9s.?, eSKKPE =30m.54s., eE =31m.18s., eSSN =41m.27s., eSSSE =46m.45s.
Triest iPPE =23m.4s.
Strasbourg isPKP =20m.28s., e =21m.25s. and 22m.13s., iPP =22m.51s., epPP =23m.38s., ePPP =25m.48s., eSKKP =30m.49s., ePPP? =33m.21s., e =36m.11s., and 36m.18s., iSS =41m.41s., esSS =42m.48s., eSSS =47m.15s.
Zürich i =19m.25s.a
Paris isPKP =20m.34s., i =21m.2s.? and 21m.33s., iPP =22m.58s., ipPP =23m.38s., e =24m.8s., eSKPP =30m.57s., e =31m.42s., eSS? =41m.8s.?
Rome iPP =23m.42s., ePSKS =33m.39s., eSSE =42m.16s.
Clermont-Ferrand e =23m.53s.
Toledo iPPZ =23m.56s., SSE =45m.9s.
Tortosa pPKPEN =20m.17s., PPN =22m.42s., SKSPN =34m.2s., SSEN =42m.26s.
Algiers PP? =24m.26s., SS? =36m.8s.?
Alicante PKP_2 =21m.15s., PKS =26m.23s., SS =43m.48s., SPS =44m.43s.
Granada PKP_2 =20m.25s., SKP =22m.58s., PP =24m.10s., pPP =24m.45s., PPP =27m.25s., SKKS =29m.35s., sSKKS =31m.57s., SKSP =33m.48s., PS =35m.48s., PPS =37m.49s., SS =44m.13s., sSS =45m.2s., SSS =50m.8s.
Malaga iPPZ =24m.10s., iPPPZ =27m.44s., P_cP,PKPZ =29m.39s., SKKSZ =30m.45s., SKSPZ =34m.14s., PPSZ =37m.26s., SSZ =49m.56s., QZ =68m.36s.

July 9d. 13h. 15m. 56s. Epicentre 41°·0N. 143°·3E. (as on 1944, March 21d.).

Scale V at Hatinohe ; IV at Miyako ; II-II at Mori and Morioka. Shallow.
Radius of macroseismic area between 200 and 300km.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p. 16. Isoseismic chart p. 16.

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

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Hatinohe	1·4	251	0 17a	−10	0 33	−13
Miyako	1·7	216	0 34	+ 3	0 53	− 1
Morioka	2·1	232	0 28k	− 9	0 54	−10
Mori	2·3	298	1 4	+24	1 22	+13
Mizusawa	2·5	222	0 44	+ 1	1 2	−12
Sapporo	2·5	325	0 30	−13	0 49	−25
Hukusima	3·9	214	1 1	− 1	1 47	− 3
Onahama	4·5	205	1 21	+10	2 10	+ 5
Utunomiya	5·2	212	1 9	−12	—	—
Kakioka	5·3	208	1 22	0	—	—
Tukubasan	5·4	208	1 33	+ 9	—	—
Kumagaya	5·7	213	1 35	+ 7	2 45	+10
Maebasi	5·7	217	1 28	0	1 47	−48
Nagano	5·9	224	1 30	− 1	2 33	− 7
Tokyo	6·0	209	1 37	+ 5	2 44	+ 1
Wazima	6·1	236	1 33	− 1	—	—
Toyama	6·4	229	1 36	− 2	3 1	+ 8
Misima	6·8	211	0 52	−52	2 26	−37
Shizuoka	7·2	214	1 57	+ 8	3 19	+ 6

July 9d. Readings also at 0h. (near Sofia, Bucharest, and Campulung), 2h. (near Bogota), 5h. (Warsaw), 6h. (near Leninakan), 7h. (Samarkand), 8h. (Suva, Auckland, and Wellington), 9h. (Tucson, Palomar, and Tinemaha), 10h. (Ksara, St. Louis, Tucson (2), Pierce Ferry, Overton, Boulder City, Palomar, Riverside, Pasadena, Mount Wilson, Haiwee, Tinemaha, and near Mizusawa), 11h. (near Tananarive), 12h. (Tucson, Pierce Ferry, Overton, Palomar, Riverside, Mount Wilson, Pasadena, Haiwee, Tinemaha, and near Lick (3)), 15h. (Bogota, La Paz, and Huancayo), 16h. (La Paz and near Alicante), 23h. (Sverdlovsk, Tucson, Pasadena, Mount Wilson, and Pierce Ferry).

July 10d. 17h. Undetermined shock.

Warsaw eZ =8m.53s. and 12m.27s., eLN =22m.43s.
Collmberg eZ =9m.5s., 9m.13s., 9m.30s., 9m.36s., and 9m.41s.
Paris e =9m.25s., eL =29m.
Rome ePZ =10m.21s., eE =12m.58s., eN =33m.
Granada iP =11m.8s.k, L =29m.0s.
Malaga iPZ =11m.9s., P_cPZ =11m.57s., iPPZ =13m.23s., PPPZ =15m.17s., S_cPZ = 15m.39s., eSZ =19m.15s., SSZ =23m.9s.
Ksara e =11m.11s. and 20m.51s.
Pierce Ferry eP =11m.38s., iP =11m.47s.
Boulder City eP =11m.39s., e =11m.47s.
Mount Wilson iPZ =11m.51s., iZ =11m.59s.
Pasadena ePZ =11m.51s.
Riverside ePZ =11m.53s., eZ =12m.0s.
Tucson iP =12m.14s., e =14m.36s. and 27m.20s., eL =37m.38s.
Triest e =30m.44s.
Weston e =32m.1s.
Long waves were also recorded at De Bilt and Prague.

July 10d. Readings also at 0h. (Malaga, Granada, De Bilt, Rome, Triest, and Ksara), 3h. (Tucson, Pierce Ferry, Boulder City, and Mount Wilson), 6h. (Andijan), 7h. (Wellington), 8h. (Andijan, near Stalinabad, and Samarkand), 10h. (Tucson, Pierce Ferry, and near Mizusawa), 12h. (near Leninakan), 13h. (near Tananarive), 14h. (Ksara, Calcutta, New Delhi, and La Paz), 17h. (La Paz), 19h. (Huancayo and La Paz), 20h. and 22h. (Tucson).

July 11d. 4h. 46m. 40s. Epicentre 16°·9N. 94°·2W. Depth of focus 0·010.
(as on 1946, June 30d.).
Intensity scale IV in Federal district of Mexico. Strong in the states of Vera Cruz, Oaxaca, and Chiapas.
Epicentre 17°14′N. 94°37′W. Depth 60km. (Tacubaya); 17°N. 94·5W. (Pasadena).
"Catalogue de Tremblores," Institut de Geofisica de la Universidad Nacional de México, 1946, Mexico, 1949, p. 33.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		2·5	273	0 38	− 2	1 4	− 6	—	—	—
Vera Cruz		2·9	321	0 44	− 1	(1 18)	− 1	—	—	1·3
Puebla		4·4	299	1 1	− 5	1 47	− 9	—	—	—
Tacubaya	Z.	5·3	298	i 1 20	+ 2	i 2 20	+ 2	—	—	—
Merida	E.	5·9	46	1 22	− 4	i 2 32	− 1	—	—	—
Guadalajara		9·4	296	2 19	+ 5	4 9	+10	—	—	4·6
Manzanillo	N.	9·9	285	i 2 19	− 2	i 4 5	− 6	—	—	—
Mobile		14·8	21	3 22	− 3	5 58	− 9	—	—	—
Chihuahua	Z.	16·0	319	i 3 45	+ 5	i 6 45	+10	—	—	—
Balboa Heights		16·3	117	e 4 1	+17	—	—	—	—	—
Columbia		20·7	32	e 4 31	− 3	e 7 59	−16	e 5 3	pP	e 9·3
Tucson		21·5	320	i 4 43	+ 1	i 8 34	+ 4	i 5 39	pP	i 10·8
St. Louis		21·9	8	e 4 44	− 2	i 8 38	+ 1	i 5 5	pP	i 9·6
Florissant	N.	22·1	8	e 4 45	− 3	e 8 40	0	i 5 9	pP	—
Bogota		23·2	118	i 5 6	+ 7	e 9 10	+10	e 16 12	S_eS	—
Cincinnati		23·7	19	i 5 2	− 2	i 9 6	− 2	i 5 25	pP	—
Lincoln		24·0	356	e 5 6	0	e 9 11	− 3	—	—	i 9·8
Chicago		25·5	11	i 5 18	− 3	e 9 32	− 7	i 5 47	pP	i 10·4
Pierce Ferry		26·0	323	e 5 25	− 1	e 10 2	+15	i 5 53	pP	e 13·6
Palomar		26·2	315	i 5 27	0	—	—	i 5 56	pP	—

Continued on next page.

		Δ	Az.	P	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Boulder City		26·4	321	i 5 28	− 1	e 10 8	+14	i 5 57	pP	e 13·8
Overton		26·5	322	i 5 30	0	—	—	i 5 55	pP	—
New Kensington		26·7	25	e 5 38	+ 6	e 10 17	+19	i 6 9	pP	e 13·8
Riverside		26·9	314	e 5 33	− 1	—	—	i 6 2	pP	—
Mount Wilson		27·5	314	i 5 38	− 1	—	—	i 6 8	pP	—
Pasadena		27·5	314	i 5 39k	0	(e 10 20)	+ 9	i 6 3	pP	e 10·3
Pennsylvania		27·7	27	i 5 38	− 3	i 10 14	0	i 6 8	pP	—
Philadelphia		28·3	33	i 5 55	+ 9	i 10 30	+ 6	e 6 11	pP	i 11·4
Rapid City		28·3	347	e 5 46	0	i 10 18	− 6	i 6 19	pP	i 11·2
Salt Lake City		28·3	332	e 5 46	0	i 10 21	− 3	i 6 14	pP	e 11·5
Haiwee		28·5	318	e 5 49	+ 1	—	—	i 6 16	pP	—
Santa Barbara	z.	28·7	314	i 5 53	+ 3	—	—	i 6 18	pP	—
Logan		29·0	333	i 5 54	+ 1	i 10 29	− 6	i 6 21	pP	i 11·6
Tinemaha		29·3	319	e 5 57	+ 2	—	—	e 6 24	pP	—
Fordham		29·6	32	i 5 53	− 5	i 10 39	− 6	i 6 27	pP	—
Fresno	N.	30·0	318	i 6 6	+ 4	e 11 57	+66	i 6 34	pP	e 15·5
Bermuda		30·8	55	e 6 10	+ 1	e 12 4	+60	i 7 1	pP	e 13·9
Lick		31·6	316	e 6 17	+ 1	e 11 3	−13	e 6 44	pP	e 16·7
Fort de France		31·8	89	e 6 11	− 6	—	—	—	—	—
Santa Clara		31·8	316	e 6 19	+ 2	e 12 6	+47	—	—	—
Bozeman		32·0	338	i 6 19	0	i 11 20	− 2	i 6 46	pP	e 14·0
Branner		32·0	316	e 6 21	+ 2	e 11 23	+ 1	e 6 45	pP	e 17·6
Harvard		32·0	33	e 6 17	− 2	e 11 11	−11	i 6 48	pP	—
Weston		32·0	33	i 6 16	− 3	i 11 20	− 2	i 7 22	PP	—
Berkeley		32·3	316	i 6 23	+ 1	i 11 26	− 1	i 6 50	pP	—
San Francisco	N.	32·4	25	e 7 1	+39	—	—	—	—	e 16·6
Ottawa		32·4	25	6 19	− 3	11 24	− 5	6 50	pP	14·3
Butte		32·8	337	i 6 27	+ 1	e 11 33	− 2	i 7 44	PP	e 15·8
Ukiah		33·6	318	e 6 34	+ 1	e 11 44	− 3	e 6 56	pP	e 13·3
Shasta Dam		34·0	321	e 6 44	+ 8	e 11 58	+ 4	i 8 10	PP	e 14·2
Huancayo		34·3	146	i 6 43	+ 4	e 12 2	+ 4	i 7 24	pP	e 12·9
Shawinigan Falls		34·5	27	6 39	− 2	11 57	− 4	e 7 9	pP	16·3
Seven Falls		35·8	28	6 50	− 2	12 14	− 7	7 19	pP	15·3
Saskatoon		36·5	348	6 55	− 3	12 28	− 4	8 26	PP	16·3
Grand Coulee		37·0	333	i 7 1	− 1	i 12 36	− 4	i 7 29	pP	—
Halifax		37·8	37	7 8	0	12 42	−10	8 30	PP	16·3
Victoria		39·5	330	7 29	+ 7	13 18	+ 1	e 7 57	pP	16·3
La Paz	z.	42·0	140	i 7 44	+ 1	i 14 0	+ 6	i 8 10	pP	18·9
Sitka		50·8	333	i 8 51	− 1	i 16 0	+ 1	i 9 12	pP	e 21·2
Santa Lucia		54·8	156	9 25	+ 3	17 43	+49	—	—	27·3
College		59·7	337	e 10 23	+26	e 17 50	− 8	e 12 32	PP	e 22·8
Honolulu		59·9	286	—	—	e 18 3	+ 3	e 22 39	SS	e 25·4
La Plata	E.	62·0	147	10 14	+ 2	18 20?	− 7	12 14	PP	25·4
	N.	62·0	147	10 9	− 3	18 30	+ 3	—	—	—
Lisbon		75·8	53	11 34k	− 3	21 10	0	24 39	SS	35·7
Edinburgh		76·7	36	—	—	i 21 20	0	—	—	—
Aberdeen		77·1	34	i 11 44	0	i 21 18	− 6	i 21 52	PS	36·4
Durham	E.	77·9	37	i 11 50	+ 1	i 21 28	− 5	—	—	—
Jersey		78·8	41	—	—	e 21 38	− 4	—	—	—
Toledo		79·5	52	i 11 57	− 1	i 21 47	− 3	12 42	pP	—
Malaga	z.	79·9	54	i 12 2a	+ 2	i 21 58	+ 4	e 15 13	PP	36·9
Bergen		80·1	30	12 0	− 1	21 49	− 7	e 14 49	PP	32·3
Granada		80·5	54	i 12 8a	+ 5	i 21 59	− 1	12 39	pP	33·8
Paris		81·4	42	i 12 9a	+ 1	i 22 7	− 2	i 12 39?	pP	e 38·3
Uccle		82·4	39	e 12 11a	− 2	i 22 16	− 3	e 12 42	pP	e 34·3
Alicante		82·5	53	12 9	− 4	22 17	− 3	12 19	pP	e 39·3
De Bilt		82·5	37	i 12 13a	0	i 22 20	0	i 12 45	pP	e 33·8
Tortosa		82·6	50	i 12 16	+ 2	i 22 19	− 2	15 33	PP	e 38·3
Clermont-Ferrand		83·0	45	i 12 16	0	i 22 24	− 1	i 12 47	pP	e 38·3
Barcelona		83·6	49	—	—	i 22 32	+ 1	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Besançon		84·5	43	e 12 23	0	e 22 34	− 6	—	—	e 33·3
Neuchatel		85·2	42	e 12 28	+ 1	—	—	—	—	—
Strasbourg		85·2	40	e 12 25	− 2	i 22 40	− 7	e 12 56	pP	e 34·9
Copenhagen		85·3	33	i 12 27	0	22 55	+ 7	27 52	SS	43·3
Basle		85·4	42	e 12 27	− 1	e 22 42	− 7	—	—	—
Algiers		85·7	53	e 12 31	+ 2	e 22 51	− 1	—	—	—
Zürich		86·1	42	e 12 31a	0	e 22 37	[− 8]	—	—	—
Jena		86·6	38	e 12 34	0	e 22 49	[+ 1]	—	—	—
Chur		86·9	42	e 12 35a	0	e 22 51	[+ 1]	—	—	—
Collmberg		87·3	37	e 12 36	− 1	e 23 8	+ 1	e 15 34	PP	—
Cheb		87·6	38	e 12 39	+ 1	e 22 56	[+ 1]	e 16 28	PP	e 48·3
Prague		88·6	37	e 12 41	− 2	23 2	[+ 1]	e 23 21	PS	e 38·3
Florence	E.	89·2	44	i 12 49	+ 3	23 37	+12	23 10	SKS	—
Triest		90·1	42	i 12 48	− 2	i 23 35	+ 2	i 23 10	SKS	—
Rome		90·7	46	e 12 52	− 1	i 23 42	+ 4	i 13 24	pP	—
Warsaw		91·3	34	e 12 58	+ 2	i 23 15	[− 2]	e 29 55	SS	e 37·3
Zagreb		91·4	41	e 12 54	− 2	e 23 19	[+ 1]	i 23 47	SKKS	—
Budapest	E.	92·5	39	13 2	+ 1	i 23 25	[+ 1]	—	—	—
Suva		92·7	252	—	—	(23 20?)	[− 5]	—	—	23·3
Kalossa		92·9	39	e 13 6	+ 3	e 24 2	+ 4	—	—	—
Belgrade		95·2	40	e 12 45	−29	23 23	[−16]	—	—	e 37·3
Moscow		97·1	25	13 18	− 4	23 45	[− 4]	13 51	pP	—
Bucharest		98·3	38	—	—	e 23 54	[− 2]	—	—	43·3
Arapuni		100·4	233	—	—	e 25 20?	+19	e 32 20?	SS	—
Wellington		101·7	230	—	—	i 24 20?	[+ 8]	e 29 20?	?	e 66·3
Christchurch		102·7	228	14 31	?	26 37	PS	33 49	SS	50·2
Sverdlovsk		103·6	14	e 13 53	+ 2	24 24	[+ 3]	e 14 26	pP	—
Irkutsk		109·3	348	18 13	[− 6]	24 35	[−11]	33 50	SS	—
Leninakan		110·6	33	e 19 1	PP	—	—	—	—	—
Ksara		110·7	43	18 54	PP	25 56	SKKS	19 27	pPP	—
Baku		114·0	29	e 19 28	PP	—	—	—	—	—
Riverview		119·5	240	—	—	i 27 58	?	36 20	SS	e 54·9
Almata		119·6	7	i 19 54	PP	—	—	—	—	—
Tashkent		120·1	14	e 19 58	PP	e 25 25	[− 2]	20 34	pPP	—
Andijan		121·3	11	e 18 50	[+ 7]	—	—	—	—	—
New Delhi		134·0	10	e 14 13	?	26 8	[+ 2]	33 36	PS	—

Additional readings :—
Tacubaya iE =2m.4s., iZ =2m.11s., iN =2m.17s.
Guadalajara iE =3m.27s., iN =3m.34s.
Manzanillo SZ =4m.8s.
Tucson i =6m.36s., isS =9m.57s.
Florissant iN =6m.9s., eN =7m.34s.
Bogota i =6m.14s., e =7m.28s.
Cincinnati i =6m.16s., 9m.30s., and 9m.46s.
Chicago i =6m.2s., eS? =9m.27s.
Palomar iNZ =6m.5s.
New Kensington e =7m.52s., i =10m.51s.
Pasadena iZ =6m.32s., iNZ =6m.40s., iZ =9m.0s.
Pennsylvania iEN =6m.18s.
Philadelphia iPP =6m.36s., e =7m.25s.
Rapid City i =9m.11s.
Salt Lake City i =7m.3s.
Logan i =7m.10s. and 11m.5s.
Fordham iPPP? =6m.44s., iSS? =11m.31s., iSSS? =11m.47s.
Fresno eN =6m.12s. and 6m.38s., esPN =6m.54s., ePPN =7m.22s.
Bermuda i =6m.35s.
Lick eEN =7m.25s.
Bozeman ePP =7m.30s., e =8m.11s., i =12m.10s.
Branner eN =6m.25s. and 6m.49s., eE =12m.10s.
Harvard iPP =7m.15s., iPPP =7m.33s., i =8m.25s., e =11m.52s. and 12m.41s.
Weston iPPP =7m.36s., eS_eS =17m.28s.
Berkeley isS?N =12m.2s., eSS?Z =16m.20s.?
Ottawa PPP =7m.18s., SSZ =12m.50s.
Butte i =6m.56s., eS =11m.27s.
Ukiah e =12m.39s.
Huancayo e =11m.11s.
Shawinigan Falls PPP =8m.0s.
Seven Falls PPP =8m.9s., SS =14m.20s.?
Saskatoon SS =14m.20s.?
Grand Coulee esS =13m.24s.

Continued on next page.

Halifax SS =13m.48s.
Victoria SSN =15m.26s.
La Paz isPZ =8m.31s., iPPZ =9m.28s., iSSZ =16m.40s., iS_cS =17m.52s.
Sitka ePPP =11m.47s., i =16m.50s., iS_cS =18m.28s., e =19m.50s.
College e =21m.56s.
La Plata EN =10m.56s., N =19m.20s., E =20m.20s.
Lisbon iPZ =11m.38s. a, QN =30m.50s.
Aberdeen eN =30m.37s.
Toledo SKSN =22m.4s., PSE =22m.36s., PPSEN =22m.56s.
Malaga PPPZ =17m.1s.
Bergen eN =19m.16s., SN =21m.56s., SSE =27m.28s.?.
Granada P_cP =12m.14s., sP =13m.12s., PP =15m.35s., pPP =15m.43s., PPP =16m.35s., PS =22m.30s., sS =23m.8s., iSS =27m.12s.
Paris i =13m.43s., iPP =15m.17s., i =22m.13s., ePS =22m.51s., eSS? =26m.13s.
Uccle iE =12m.14s., epSE =22m.33s., esS =23m.6s.
Alicante P_cP =12m.15s., PP =15m.1s., PS =23m.1s., S_cS =23m.29s., SS =28m.29s., SSS =31m.41s., Q =34m.17s.
De Bilt iPP =15m.23s., ipPP =15m.55s., esS =23m.8s.
Tortosa P_cPN =12m.32s., PPPEN =17m.30s., PSE =23m.34s., PPSE =23m.50., SSE =27m.43s., SSSE =31m.26s.
Clermont-Ferrand i =13m.19s.
Strasbourg ePP? =15m.20s., epPP =16m.15s., ePS =23m.46s., eSS =28m.18s., e =31m.17s., eSSS? =33m.4s.
Copenhagen i =22m.38s., and 23m.47s., Q =35m.14s.
Collmberg iZ =12m.43s., ePKP,PKP =38m.28s.
Cheb eSS =28m.53s., e =41m.20s.?
Rome iSKS =23m.14s., iPSN =24m.38s., eSSN =29m.42s.
Warsaw PSN =23m.49s.
Zagreb eP_cP =12m.58s.
Belgrade S =23m.3s.
Moscow S =24m.13s., PS =25m.39s.
Sverdlovsk PP =18m.5s., PPS =27m.45s., SSS =37m.37s.
Irkutsk SP =28m.1s.
Ksara PS =28m.18s.
Riverview eSKPE =29m.53s., iPPSEZ =30m.51s., eQN =48m.56s.
New Delhi iSKKSN =23m.12s., PPSN =28m.19s.
Christchurch eZ =14m.39s.,PP =18m.43s., SKS =25m.4s., PS =27m.55s., Q =48·3m.

July 11d. 13h. 18m. 47s. Epicentre 43°·4N. 17°·2E. (as on 1942, December 29d.).

Felt Intensity VI at Makarsa, Brist, and Zivogesce; V at Hvar and Metkovic. Epicentre 43°·2N. 17°·0E. (Strasbourg).

R. L. Nedeljkovic .
Annuaire macroséismic pour l'année, 1946. Institut séismologique de Beograd. Nouvelle série No. 6., Belgrade, 1950, p. 48.

$A = +·6963$, $B = +·2155$, $C = +·6846$; $\delta = -5$; $h = -3$;
$D = +·296$, $E = -·955$; $G = +·654$, $H = +·202$, $K = -·729$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zagreb		2·6	340	e 0 42	− 2	i 1 17	0	i 1 27	S_g	—
Belgrade		2·7	59	i 0 44	− 1	i 1 33	S_g	—	—	—
Triest		3·3	312	e 0 56	+ 3	e 1 24	−11	i 1 5	P_g	—
Kalossa		3·4	21	e 0 59	+ 4	e 1 59	S_g	e 1 11	P_g	—
Rome		3·8	249	e 0 49	−12	e 1 45	− 2	e 1 3	P	—
Florence	E.	4·3	353	e 1 22	P_g	—	—	—	—	—
Budapest		4·3	17	e 1 20	P*	2 23	S_g	e 1 33	P_g	3·0
Sofia		4·6	99	e 1 22	P*	i 2 30	S_g	—	—	—
Bucharest		6·4	79	2 13?	P_g	—	—	—	—	—
Prague		7·0	344	—	—	e 3 42	S_g	—	—	—
Zürich		7·2	305	e 1 47	− 2	e 3 9	− 4	—	—	—
Basle		7·9	305	e 2 1	+ 2	e 3 42	+12	—	—	e 4·2
Neuchatel		8·0	300	e 1 53	− 7	—	—	—	—	—
Strasbourg		8·3	312	—	—	e 3 42	+ 2	i 4 37	S_g	e 6·1
Collmberg	z.	8·4	341	e 2 2	− 4	e 3 44	+ 1	e 2 42	P_g	e 5·1
Jena		8·5	335	e 3 18	?	e 4 21	S*	—	—	—

Additional readings :—
Zagreb iE =1m.13s., iZ =1m.36s.
Belgrade i =59s., iS_g =1m.49s., i =1m.55s.
Triest iS_g =1m.36s.
Budapest SN =2m.27s.
Collmberg eZ =3m.49s.
Long waves were also recorded at De Bilt.

July 11d. Readings also at 1h. (Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tucson (2), Boulder City, Pierce Ferry (2), Shasta Dam, and near Malaga), 2h., 3h. (3), and 4h. (near Malaga), 7h. (near Mizusawa), 11h. (Mount Wilson, Pasadena, and Riverside), 12h. (Weston (2)), 13h. (Arapuni, Wellington, near Boulder City and Pierce Ferry), 16h. (Tucson), 19h. (De Bilt), 22h. (near Fresno).

July 12d. 2h. Undetermined shock.

La Plata E =36m.42s. and 38m.6s., LN =39·2m.
La Paz ePZ =38m.0s., SZ =40m.29s., LZ =41m.16s.
Huancayo eP =38m.56s.
Tucson iP =46m.10s.
Palomar eP =46m.35s.
Pierce Ferry iP =46m.36s.
Boulder City iP =46m.38s.
Riverside iPZ =46m.38s., iZ =47m.23s.
Mount Wilson iPZ =46m.42s.
Pasadena iPZ =46m.42s.

July 12d. 5h. 12m. 10s. Epicentre 16°·8N. 100°·7W. (as on 1944, January 10d.).

Epicentre 16°44′N. 100°41′W. (Tacubaya).

A = −·1778, B = −·9412, C = +·2872; δ = −5; h = +5;
D = −·983, E = +·186; G = −·053, H = −·282, K = −·958.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya		3·0	29	0 50	0	—	—	—	—	1·5
Puebla		3·3	47	0 53	0	1 34	− 1	—	—	1·7
Oaxaca	z.	3·8	85	0 48	−13	—	—	—	—	—
Manzanillo		4·1	304	1 41	S	e 1 44	−11	—	—	—
Vera Cruz		5·0	61	1 21	+ 3	2 24	+ 6	1 57	PPP	2·6
Tucson		17·9	331	e 4 12	0	e 7 16	−14	e 4 41	PPP	e 8·9
Palomar	z.	22·0	323	e 4 52	− 6	—	—	—	—	—
Pierce Ferry		22·6	332	e 5 2	− 1	—	—	—	—	e 11·8
Boulder City		22·9	330	e 5 5	− 1	—	—	—	—	e 12·0
Mount Wilson	z.	23·3	323	e 5 12	+ 2	—	—	—	—	—
St. Louis	E.	23·6	20	e 5 21	+ 8	e 9 36	+11	—	—	e 14·7
Florissant	z.	23·7	20	e 5 14	0	—	—	—	—	e 15·3

Long waves were also recorded at Weston, Salt Lake City, and Rapid City.

July 12d. 18h. 48m. 35s. Epicentre 15°·5S. 167°·1E. (as on 1946, Jan. 5d.).

A = −·9398, B = +·2152, C = −·2656; δ = +8; h = +6;
D = +·223, E = +·975; G = +·259, H = −·059, K = −·964.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		11·2	106	2 49?	+ 5	6 4	SSS	i 3 25	?	—
Brisbane		17·7	225	i 4 11	+ 1	i 7 35	+ 9	i 4 36	PPP	—
Auckland		22·3	164	4 7	−54	—	—	9 1	Q	13·6
Riverview		23·2	216	e 5 13	+ 4	i 9 23	+ 5	i 5 26	pP	e 11·0
Christchurch		28·3	172	6 52	+55	11 35	+54	12 25	Q	16·1
Vladivostok		66·7	333	i 10 54	− 1	—	—	—	—	—
Shasta Dam		85·9	46	e 12 38	− 4	—	—	—	—	—
Pasadena	z.	86·4	54	e 12 56	+11	—	—	—	—	e 39·8
Irkutsk		86·5	327	e 12 44	− 2	e 22 56	[−15]	—	—	—
Mount Wilson	z.	86·5	54	e 12 45	− 1	—	—	i 16 11	PP	—
Riverside	z.	87·0	54	e 12 48	0	—	—	—	—	—
Palomar	z.	87·2	55	i 12 47	− 2	e 15 32	PP	i 13 2	pP	—
Boulder City		89·6	53	e 13 2	+ 1	—	—	e 13 14	pP	—
Pierce Ferry		90·3	53	e 13 1	− 3	—	—	i 13 17	pP	—
Tucson		91·6	57	e 13 8	− 2	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		132·5	302	e 20 37	[+80]	—	—	—	—	—
Kew		142·7	348	e 19 25	[−10]	—	—	—	—	e 76·4
Zürich		143·6	336	e 19 37	[0]	—	—	—	—	—
Basle		143·8	337	e 19 36	[− 1]	—	—	e 20 31	?	—
Paris		144·5	343	e 19 32?	[− 6]	—	—	—	—	e 83·4
Rome		145·8	326	e 19 38	[− 2]	—	—	e 19 56	?	—
Granada		156·6	353	—	—	e 29 32	?	—	—	83·6

Additional readings and notes :—
Riverview iPPPZ = 5m.43s., iE = 9m.29s., iZ = 9m.32s.
Mount Wilson iZ = 12m.58s.
Long waves were also recorded at Guadalajara, Arapuni, Wellington, Weston, Harvard, Malaga, De Bilt, Triest, Uccle, and Strasbourg.

July 12d. 21h. 56m. 26s. Epicentre 53°·8N. 168°·9W. Depth of focus 0·005.

A = −·5821, B = −·1142, C = +·8051 ; δ = +7 ; h = −6 :
D = −·193, E = +·981 : G = −·790, H = −·155, K = −·593.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		15·2	35	e 3 27	− 5	e 6 36	+17	—	—	—
Sitka		19·2	67	i 4 25	+ 4	i 8 5	+16	i 4 53	PPP	e 10·8
Grand Coulee		31·5	80	e 6 15	− 3	e 11 22	+ 2	—	—	i 16·7
Shasta Dam		33·6	94	i 6 36	0	i 11 54	+ 1	i 7 51	PP	i 16·8
Berkeley		35·5	98	e 6 51	− 1	e 12 23	+ 1	e 7 14	pP	—
Butte		36·2	79	—	—	e 12 38	+ 5	—	—	e 17·0
Lick		36·2	98	e 6 58	0	e 12 33	0	e 7 28	pP	—
Bozeman		37·2	79	e 8 18	PP	e 12 50	+ 2	(e 15 45)	SSS	15·8
Haiwee	N.	39·2	95	i 7 23	0	e 13 9	−10	—	—	—
Santa Barbara		39·3	99	i 7 24	0	e 13 22	+ 2	—	—	—
Salt Lake City		39·8	85	—	—	e 13 26	− 2	e 16 43	SSS	e 19·6
Mount Wilson		40·4	98	i 7 33k	0	i 13 37	0	e 17 27	S_cS	—
Pasadena		40·4	98	i 7 33k	0	i 13 37	0	e 9 7	PP	—
Riverside		41·0	98	i 7 37k	− 1	e 13 46	0	i 13 15	S_cP	—
Boulder City		41·1	93	i 7 39	0	i 13 49	+ 2	i 17 31	S_cS	—
Pierce Ferry		41·5	92	i 7 43	+ 1	i 13 56	+ 3	i 16 37	SS	—
Palomar		41·8	98	i 7 44k	− 1	i 13 58	+ 1	e 18 24	S_cS	—
Tucson		46·1	93	i 8 18	− 1	e 15 1	+ 1	i 8 48	pP	—
Irkutsk		49·0	307	8 41	− 1	e 15 33	− 7	9 4	pP	—
Chicago		53·0	68	e 9 12	0	e 16 34	− 2	e 20 20	SS	e 21·8
Florissant	N.	53·5	73	e 9 15	− 1	i 16 42	0	e 17 20	sS	—
St. Louis		53·7	73	i 9 16	− 2	i 16 44	− 1	i 9 38	pP	e 25·9
Ottawa		56·8	57	9 39	− 1	17 28	+ 2	11 45	PP	25·6
Seven Falls		57·9	53	9 46	− 2	17 38	− 3	24 34?	SSS	28·6
Fordham		60·6	60	i 10 9	+ 3	i 18 24	+ 8	10 34	pP	—
Harvard		60·9	57	i 10 8	0	—	—	i 12 26	PP	—
Philadelphia		61·0	62	e 10 16	+ 7	e 18 22	+ 1	e 22 34	SS	e 25·6
Weston		61·1	57	i 10 8	− 2	i 18 24	+ 2	i 19 47	sS	—
Sverdlovsk		62·6	332	i 10 24	+ 4	18 48	+ 7	i 10 49	pP	—
Tacubaya		62·6	95	i 10 23	+ 3	i 18 39	− 2	—	—	—
Moscow		68·7	345	10 56	− 3	e 19 56	+ 1	e 11 22	pP	—
Copenhagen		70·9	0	i 11 13	+ 1	20 29	+ 8	20 59	PS	—
Andijan		72·1	316	e 11 17	− 2	—	—	—	—	—
Tashkent		72·9	319	e 11 21	− 3	e 20 28	−16	—	—	—
Collmberg	Z.	75·3	0	e 11 38	0	—	—	e 11 57	P_cP	—
Stalinabad		75·5	317	11 37	− 2	—	—	—	—	—
Jena	N.	75·6	0	e 11 42	+ 2	—	—	—	—	—
Paris		77·5	7	i 11 51	+ 1	—	—	—	—	e 49·6
Strasbourg		77·9	3	e 11 55	+ 3	e 21 47	+ 8	e 22 44	PS	e 33·6
Basle		79·0	4	e 12 10a	P_cP	—	—	—	—	—

Continued on next page.

		△	Az.	P.	P−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Zürich		79·2	3	i 12 1a	+ 1	—	—	—	—	—
Chur		79·7	2	e 12 4a	+ 2	—	—	—	—	—
Sotchi		79·9	340	i 12 0	− 3	—	—	—	—	—
Yalta		80·1	344	e 11 27	−37	—	—	—	—	—
Baku		80·4	332	e 11 33?	−33	—	—	—	—	—
Clermont-Ferrand		80·6	7	e 12 8	+ 1	—	—	—	—	—
Zagreb		80·7	357	e 12 8a	0	—	—	—	—	—
Triest		80·9	359	i 12 37	PcP	e 22 15	+ 4	—	—	—
Belgrade		81·4	353	12 6	− 5	22 5	−11	12 50	PcP	45·6
Leninakan		81·7	337	e 12 19	+ 6	—	—	—	—	—
Florence	E.	82·8	1	e 12 19	+ 1	—	—	—	—	—
Rome		84·7	0	i 12 29	+ 1	e 22 12	−37	—	—	—
Tortosa	N.	85·3	9	12 34	+ 3	22 53	− 2	29 2	SS	—
Toledo		85·8	13	i 12 33	− 1	i 22 7	−53	e 21 52	?	—
Alicante		87·6	11	13 3	+21	23 16	− 1	13 13	pP	e 40·4
Granada		88·5	13	i 12 47k	0	23 30	+ 5	16 16	PP	40·8
Malaga	Z.	88·8	13	i 12 48a	0	e 23 20	− 8	i 12 54	pP	43·1
Ksara		90·2	340	i 12 54	− 1	e 24 33	PS	—	—	—

Additional readings :—
Shasta Dam i = 7m.9s.
Berkeley esP?Z = 7m.35s., eZ = 8m.2s.
Mount Wilson iZ = 8m.20s., iS_cPZ = 13m.12s.
Pasadena i = 7m.50s., iS_cPZ = 13m.13s., iS_cSEN = 17m.29s., esS_cS = 18m.11s.
Boulder City i = 7m.56s. and 13m.16s.
Palomar iZ = 8m.48s., eZ = 9m.28s., iS_cSEN = 17m.38s.
Tucson i = 8m.30s. and 9m.5s., ePP = 10m.3s., eSS = 18m.5s.
Irkutsk ePP = 10m.31s., pPP = 10m.55s., S_cS = 18m.23s.
Chicago eS_cS = 18m.52s.
Florissant eN = 18m.0s. and 18m.54s.
St. Louis isSN = 17m.21s., iN = 17m.49s. and 18m.55s., eSSN = 20m.32s., eSSSN = 21m.55s.
Fordham isS = 19m.6s.
Philadelphia e = 11m.9s., 12m.41s., and 19m.10s.
Weston iPP = 12m.23s., eSSS = 25m.30s.
Sverdlovsk P_cP = 10m.59s., ePPP = 14m.18s.
Moscow sS = 20m.40s.
Collmberg eZ = 11m.46s.
Strasbourg e = 13m.14s.
Florence eS_c?E = 12m.33s ; given as local shock.
Alicante PP = 16m.13s., S_cS = 23m.31s., SS = 27m.51s.
Granada SS = 29m.58s.
Malaga ePPZ = 16m.20s., ePPPZ = 18m.31s., sSZ = 23m.37s., PSZ = 24m.49s., SSZ = 28m.54s.
Long waves were also at Honolulu and Columbia.

July 12d. 23h. 29m. 7s. Epicentre 5°·8N. 82°·7W.

A = +·1264, B = −·9869, C = +·1004 ; δ = +3 ; h = +7 ;
D = −·992, E = −·127 ; G = +·013, H = −·100, K = −·995.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights		4·4	45	i 1 11	+ 1	i 2 0	− 2	—	—	—
Bogota		8·7	96	i 2 11	+ 1	i 3 58	+ 8	i 2 22	PP	—
Huancayo		19·2	158	i 4 25	− 3	e 8 3	+ 4	e 5 20	PPP	e 9·2
Tacubaya		21·0	311	e 4 47	0	e 8 56	+19	—	—	—
Fort de France		23·0	66	e 5 8	+ 1	—	—	—	—	—
La Paz	Z.	26·5	147	5 39	− 2	10 47	+33	—	—	15·0
St. Louis		33·4	349	i 6 40	− 2	e 12 5	+ 2	i 7 2	pP	—
Florissant	N.	33·6	349	e 6 42	− 2	e 12 6	0	e 7 55	PP	—
Philadelphia		34·6	10	e 7 3	+10	e 13 39	+77	e 8 12	PP	e 15·9
Chicago		36·2	354	e 8 2	PP	—	—	—	—	e 11·6
Tucson		37·1	319	i 7 15	+ 1	e 13 10	+ 9	e 8 42	PP	e 18·7
Harvard		37·8	14	e 7 20	0	—	—	e 8 53	PP	e 16·3
Weston		37·8	14	e 7 20	0	e 13 17	+ 6	e 8 50	PP	e 16·1
Ottawa		39·9	8	7 37	0	13 45	+ 2	16 53?	SSS	20·9
Pierce Ferry		41·6	321	i 7 53	+ 2	e 14 31	PPS	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		41·9	316	i 7 56a	+ 2	—	—	—	—	—
Boulder City		42·1	320	i 7 57	+ 2	—	—	—	—	—
Seven Falls		42·4	12	7 59	+ 1	14 25	+ 5	17 53?	SSS	20·9
Riverside	Z.	42·6	316	i 8 2a	+ 3	—	—	—	—	—
Mount Wilson		43·2	316	i 8 6a	+ 2	—	—	—	—	—
Pasadena		43·3	316	i 8 7	+ 2	—	—	e 9 53	PP	e 22·0
Salt Lake City		43·5	328	—	—	e 14 44	+ 8	e 18 26	SSS	e 23·1
Shasta Dam		49·6	320	i 8 53	− 2	—	—	—	—	—
Victoria		54·8	328	e 17 35	PPS	—	—	—	—	28·9
Malaga	Z.	77·2	53	i 11 58k	+ 1	e 21 44	S_cS	14 47	PP	36·0
Toledo	Z.	77·6	50	e 11 59	− 1	—	—	—	—	—
Granada		77·8	53	i 12 5a	+ 4	i 21 55	+ 2	22 55	PPS	32·2
Alicante		80·3	52	—	—	e 21 47	−33	—	—	e 36·0
Paris		82·5	42	e 11 53	−33	—	—	—	—	e 38·9
Strasbourg		86·0	41	—	—	e 23 21	+ 4	—	—	e 40·9
Rome	E.	90·0	48	—	—	e 23 36	[+ 3]	—	—	—

Additional readings :—
Huancayo e =7m.39s.
Tacubaya ePE =4m.50s., eSE =8m.59s.
La Paz iPZ =5m.44s.
St. Louis iPPZ =8m.0s., eN =10m.53s., iSSN =13m.51s.
Florissant eN =8m.39s.
Weston eSS =16m.1s.
Ottawa PPP =9m.13s.
Malaga P_cPZ =12m.11s., PPPZ =16m.15s.
Long waves were also recorded at Sitka, Bermuda, Uccle, and Kew.

July 12d. Readings also at 4h. (Tucson, Pierce Ferry, and Yalta (2)), 7h. (Santa Lucia (2), La Paz, Huancayo, and near Triest), 8h. (near Triest, Bucharest, and Zagreb), 12h. (Ksara), 15h. (Mizusawa, near Tucson, and Pierce Ferry), 16h. (near Fresno), 18h. (Bogota and Fort de France), 19h. (La Paz), 20h. (Malaga and near Balboa Heights), 22h. (Rome, Zagreb, and near Tricst), 23h. (Mizusawa).

July 13d. 1h. 39m. 52s. Epicentre 34°·8N. 137°·0E. (as on 1945, Jan. 16d.).

Intensity VI at Yokkaichi and Matsusaka (Mie Prefecture); V at Tu, Hikone, Owase, and Kashiwara; IV at Nagoya and Shizuoka; II-III at Kobe and Sumoto.

Seismo. Bull. Cent. Met. Obs., Japan, for 1946, Tokyo, 1951, p. 17, with isoseismic chart.
Shallow.

$A = -·6019$, $B = +·5612$, $C = +·5681$; $\delta = -3$; $h = 0$;
$D = +·682$, $E = +·731$; $G = -·415$, $H = +·387$, $K = -·823$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Kameyama	0·4	277	0 13	0	0 21	0	—	—	—
Nagoya	0·4	356	0 13a	0	0 20	− 1	—	—	—
Hikone	0·8	307	0 16k	− 2	0 30	− 1	—	—	—
Omaesaki	1·0	101	0 20k	− 1	0 36	0	—	—	—
Owase	1·0	222	0 17	− 4	0 31	− 5	—	—	—
Kyoto	1·1	282	0 21	− 1	0 36	− 3	—	—	—
Osaka	1·2	263	0 24k	0	0 39	− 2	—	—	—
Shizuoka	1·2	82	0 20k	− 4	0 39	− 2	—	—	—
Kobe	1·5	266	0 28k	0	0 51	+ 2	—	—	—
Hunatu	1·6	64	0 29k	− 1	0 50	− 1	—	—	—
Misima	1·6	79	0 26k	− 4	—	—	—	—	—
Sumoto	1·8	256	0 31k	− 1	0 57	+ 1	—	—	—
Toyama	1·9	5	0 30	− 4	1 2	+ 3	—	—	—
Toyooka	2·0	298	0 36k	+ 1	1 3	+ 1	—	—	—
Kumagaya	2·3	55	0 44k	+ 4	1 18	S_g	—	—	—
Maebasi	2·3	46	0 41k	+ 1	1 16	S_g	—	—	—
Yokohama	2·3	74	0 42	+ 2	1 16	S_g	—	—	—
Tokyo	2·4	66	0 43k	+ 2	1 17	S_g	—	—	—
Wazima	2·6	358	0 47	+ 3	1 30	S_g	—	—	—
Takubasan	2·9	61	0 49k	+ 1	1 30	S*	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m.	s.	m.
Utunomiya		2·9	53	0 50k	+ 2	1 31	S*	—	—	—
Kakioka		3·0	61	0 50	0	—	—	—	—	—
Kôti		3·1	246	0 54k	+ 3	1 36	S*	—	—	—
Hukusima		4·1	43	1 7k	+ 2	2 6	S*	—	—	—
Sendai		4·7	41	1 18	+ 4	2 35	S_g	—	—	—
Izuka		5·4	259	2 1a	+37	3 35	+67	—	—	—
Mizusawa	E.	5·4	36	1 29	+ 5	2 32	+ 4	—	—	—
Miyazaki		5·5	240	1 17	− 8	2 14	−16	—	—	—
Hukuoka		5·6	260	1 24	− 3	—	—	—	—	—
Kumamoto		5·6	251	1 34	+ 7	3 4	S_g	—	—	—
Morioka		5·9	33	1 35k	+ 4	2 50	+10	—	—	—
Miyako		6·2	38	1 38	+ 3	3 6	S*	—	—	—
Mori		7·8	20	2 53	P_g	4 50	S_g	—	—	—
Sapporo		8·9	21	2 19	+ 7	—	—	—	—	—
Vladivostok		9·2	336	i 2 19	+ 3	—	—	—	—	—
Irkutsk		29·1	317	6 3	− 1	e 10 53	− 3	—	—	—
Andijan		50·4	297	e 9 4	+ 3	e 16 18	+ 4	—	—	—
Tashkent		52·5	299	—	—	e 16 43	0	—	—	—
Stalinabad		53·7	296	9 23	− 3	—	—	—	—	—
Sverdlovsk		54·5	319	i 9 34	+ 2	17 12	+ 2	—	—	—
Samarkand		54·7	297	e 9 48?	+15	—	—	—	—	—
Moscow		66·9	323	e 10 56	0	e 19 47	− 2	—	—	—
Leninakan		70·4	306	e 11 19	+ 1	—	—	—	—	—
Shasta Dam		75·3	51	e 11 43	− 4	—	—	—	—	—
Ksara		79·5	304	e 12 12	+ 2	e 22 28?	+17	—	—	—
Collmberg	Z.	81·2	328	e 12 17	− 2	—	—	e 15 24	PP	—
Mount Wilson	Z.	81·8	54	e 12 22	0	—	—	—	—	—
Pasadena	Z.	81·8	54	e 12 19	− 3	—	—	—	—	—
Riverside	Z.	82·4	54	e 12 24	− 1	—	—	—	—	—
Boulder City		82·9	51	e 12 27	− 1	—	—	—	—	—
Palomar	Z.	83·1	54	e 12 27	− 2	—	—	—	—	—
Pierce Ferry		83·3	50	e 12 27	− 3	—	—	—	—	—
Uccle		85·1	333	e 12 40	+ 1	—	—	—	—	e 45·1
Strasbourg		85·5	329	—	—	e 23 8	− 4	—	—	e 45·5
Basle		86·3	329	e 12 39	− 6	—	—	—	—	—
Paris		87·4	332	e 12 40	−10	—	—	—	—	e 51·1
Tucson		87·8	52	e 12 49	− 3	—	—	e 16 15	PP	—
Rome	E.	88·3	322	—	—	e 23 17	[− 5]	—	—	—
St. Louis	Z.	94·8	35	i 13 22	− 3	—	—	—	—	—
Huancayo		142·9	60	e 19 34	[− 2]	—	—	—	—	—

Collmberg gives also eZ = 12m.25s.
Long waves were also recorded at New Delhi, and other European stations.

July 13d. Readings also at 1h. (Mizusawa), 5h. (Pierce Ferry, Ivigtut, Copenhagen, Kew, Uccle, De Bilt, Paris, Strasbourg, and Rome), 6h. (Ivigtut, Copenhagen, Kew, De Bilt, Paris, Strasbourg, Cheb, Granada, Malaga, and Ksara), 8h. (Andijan near Samarkand and Stalinabad), 9h. (Andijan, Tashkent, near Samarkand, and Stalinabad (2)), 10h. (Tucson and near Triest), 11h. (Strasbourg, De Bilt, Almata, Andijan, Stalinabad, Sverdlovsk, near Irkutsk, and near Mizusawa), 12h. (Bogota, Boulder City, Pierce Ferry, and near Fresno), 14h. (near Lick), 15h. (Mizusawa), 17h. (near Triest and Zagreb), 18h. (Mount Wilson, Pasadena, Riverside, and Riverview), 19h. (Brisbane), 22h. (near Malaga), 23h. (near Berkeley, Branner, Lick, and San Francisco).

July 14d. Readings at 0h. (Copenhagen), 3h. (near Granada), 4h. (Moscow), 5h. (Tucson, Copenhagen, Warsaw, Paris, Strasbourg, and near Alicante), 6h. (Paris), 8h. (near La Paz), 10h. (near Berkeley and Lick), 13h. (near Stalinabad), 17h. (Tucson), 19h. (Almata), 21h. (near Ottawa), 22h. (near Andijan), 23h. (near Pierce Ferry and Boulder City, near Samarkand and Stalinabad, and near Alicante).

July 15d. 18h. Undetermined shock.

Oaxaca iEN =35m.16s.
Merida iPN =35m.50s., iLN =38m.4s.
Tacubaya PE =35m.57s., LE =38m.21s.
St. Louis eP?N =38m.53s., eSN =43m.54s., eLN =46m.
Florissant eP?Z =39m.0s.
Tucson eP =39m.0s., e =39m.14s., eL =49m.2s.
Pierce Ferry iP =39m.39s.
Boulder City iP =39m.43s., i =39m.54s.
Riverside iPZ =39m.47s., iZ =42m.37s.
Pasadena iPZ =39m.52s., iP_cP?Z =42m.49s.
Mount Wilson iPZ =39m.53s.a
Ottawa eZ =40m.4s., e =48m.30s., L =52m.
Tinemaha iPEZ =40m.8s.a, iZ =42m.43s. and 42m.54s.
Shasta Dam iP =40m.45s., i =42m.55s.
Weston e =46m.0s. and 52m.57s.
Philadelphia e =46m.48s., eL =50m.27s.

July 15d. Readings also at 0h. (San Juan), 1h. (near Andijan, Tashkent, Samarkand, and Stalinabad), 2h. (Boulder City and Tucson), 3h. (Bucharest and near Sofia), 9h. (Tucson, Pierce Ferry, Boulder City, Tineemaha, Haiwee, Palomar, Pasadena, and Mount Wilson), 11h. (La Paz), 15h. (Riverview, Leninakan, Sverdlovsk, and Vladivostok), 16h. (Tucson, Pierce Ferry, Tinemaha, Haiwee, and Palomar), 17h. (Yalta), 18h. (near Triest), 19h. (La Paz, near Andijan, Samarkand, and Stalinabad), 20h. (Wellington and Arapuni), 22h. (Fort de France, Tucson, Riverview, Wellington, Christchurch, Auckland, Suva, and near Granada), 23h. (Strasbourg, Paris, and Rome).

July 16d. 4h. 8m. 30s. Epicentre 46°·3N. 7°·5E. (as on 1946, May 30d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Besançon		1·4	312	i 0 29	+ 2	i 0 46	0	—	—	—
Strasbourg		2·3	5	e 0 40	0	e 1 8	− 1	e 0 48	P_g	—
Clermont-Ferrand		3·1	260	e 1 8	P_g	i 1 42	P_g	—	—	i 1·9
Florence	E.	3·7	133	i 1 18	P_g	i 2 16	S_g	—	—	—
Paris		4·2	308	e 1 9	+ 2	e 1 59	+ 2	e 1 26	P_g	—
Triest		4·4	97	e 1 24	P_g	e 2 22	S_g	—	—	—
Cheb		5·0	39	e 1 39	P_g	e 2 44	S_g	—	—	e 3·3
Uccle		5·0	336	e 1 16	− 2	i 2 45	S_g	—	—	—
Jena		5·3	29	e 1 42	P_g	i 2 53	S_g	—	—	—
Rome	N.	5·7	139	—	—	e 2 59	S*	—	—	—
Zagreb		5·9	92	e 1 53	P_g	e 3 18	S_g	—	—	—
De Bilt		6·0	346	—	—	e 2 30?	−13	—	—	—
Prague		6·0	48	e 1 54	P_g	e 3 15	S_g	—	—	e 3·8
Collmberg		6·2	34	e 1 34	− 1	e 3 17	S_g	e 1 52	P*	e 4·4
Potsdam	N.	7·1	29	—	—	e 3 53	S_g	—	—	5·5

Additional readings :—
Strasbourg iS_g =1m.15s.
Paris eS_g? =20m.20s.
Collmberg eP_gZ =1m.55s., eP_gS?Z =2m.36s.?

July 16d. 5h. 26m. 26s. Epicentre 33°·8N. 25°·3E.

$A = +\cdot7528$, $B = +\cdot3559$, $C = +\cdot5537$; $\delta = -4$; $h = +1$;
$D = +\cdot427$, $E = -\cdot904$; $G = +\cdot501$, $H = +\cdot237$, $K = -\cdot833$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	6·5	126	i 1 40a	+ 1	2 46	− 9	1 52	P*	—
Ksara	8·8	87	e 2 8	− 3	3 52	− 1	—	—	—
Sofia	9·0	351	e 2 17	+ 4	i 3 56	− 2	i 2 30	PPP	i 4·4
Bucharest	10·6	3	e 2 35	− 1	i 4 41	+ 4	i 2 51	PPP	i 6·1
Campulung	11·5	359	e 2 36	−12	—	—	—	—	e 6·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade		11·6	343	e 2 52	+ 2	e 5 32	+31	—	—	e 7·0
Yalta		12·7	30	3 1	− 4	—	—	—	—	—
Rome		13·0	312	e 3 11k	+ 2	i 5 47	+12	e 5 51	SS	e 7·7
Kalocsa	E.	13·6	342	e 3 32	PP	—	—	—	—	—
Zagreb		14·0	332	e 3 17	− 5	e 6 18	+19	i 3 31	PP	e 9·6
Budapest	E.	14·5	343	3 40	PP	e 6 34?	SSS	—	—	8·1
	N.	14·5	343	3 43	PP	e 7 21	+70	i 3 49	PPP	9·1
Florence	E.	14·8	316	i 3 34	+ 2	i 6 37	+19	—	—	i 11·1
Triest		14·8	327	i 3 32	0	i 6 33	+15	i 3 45	PP	i 8·7
Leninakan		16·3	59	e 3 52	0	—	—	—	—	—
Chur		17·7	322	e 4 1	− 9	e 7 35	+ 9	—	—	—
Prague		18·1	337	e 4 15	+ 1	e 8 10?	SSS	—	—	e 10·6
Algiers		18·4	285	i 4 24	+ 6	e 7 46	+ 5	i 4 32	PP	i 10·0
Zürich		18·5	322	e 4 21a	+ 2	e 7 46	+ 2	—	—	—
Grozny		18·6	54	e 4 19	− 2	7 52?	+ 6	—	—	—
Warsaw	E.	18·7	353	e 4 23	+ 1	7 46	− 2	—	—	—
	Z.	18·7	353	e 4 20	− 2	7 53	+ 5	4 36	PP	e 9·6
Cheb		18·8	334	e 4 24	+ 1	i 7 52	+ 2	e 4 47	PPP	e 11·9
Neuchatel		19·1	321	e 4 28	+ 1	e 8 1	+ 4	—	—	—
Basle		19·2	322	e 4 28a	0	e 8 5	+ 6	—	—	—
Collmberg		19·7	336	i 4 32	− 2	e 8 27	+17	i 4 57	PP	e 11·1
Barcelona		19·8	301	i 4 35	0	i 8 18	+ 5	—	—	e 10·8
Besançon		19·8	319	e 4 37	+ 2	e 8 11	− 2	—	—	e 11·6
Jena	N.	19·8	334	i 4 34	− 1	i 8 14	+ 1	—	—	—
Strasbourg		19·8	325	i 4 36a	+ 1	e 8 13	0	—	—	e 10·6
Potsdam	N.	20·6	339	i 4 43	0	i 8 37	+ 8	—	—	—
Baku		20·7	64	e 4 32?	−12	—	—	—	—	—
Clermont-Ferrand		20·7	312	i 4 46	+ 2	i 8 21	−10	—	—	e 10·3
Tortosa		20·9	297	i 4 48	+ 2	8 50	+15	5 11	PP	e 10·6
Alicante		21·3	291	i 4 53	+ 3	i 8 53	+10	5 23	PP	—
Paris		22·7	319	i 5 5	+ 1	i 9 6	− 3	—	—	e 11·6
Uccle		22·9	325	e 5 8a	+ 2	i 9 14	+ 1	i 9 55	SS	e 11·6
De Bilt		23·4	329	i 5 14a	+ 3	e 9 24	+ 3	i 6 18k	?	e 11·6
Copenhagen		23·6	342	i 5 13	0	9 23	− 2	9 41	SS	11·9
Moscow		23·6	18	5 10	− 3	9 19	− 6	—	—	—
Granada		23·7	287	i 5 18k	+ 4	i 8 39	−48	—	—	—
Toledo		24·2	293	i 5 22	+ 3	10 27	SS	5 55	PP	—
Malaga	Z.	24·4	286	i 5 22k	+ 1	i 9 44	+ 5	i 9 59	sS	—
Upsala		26·6	351	5 42	0	10 16	0	e 6 54	?	e 12·6
Lisbon		28·1	291	5 59k	+ 4	10 45	+ 5	6 50?	PP	13·4
Durham	E.	28·2	327	—	—	e 10 35	− 6	i 11 52	SS	—
Bergen		29·6	341	6 9	0	11 3	− 1	13 3	SSS	13·6
Edinburgh		29·6	327	e 6 7	− 2	—	—	—	—	—
Aberdeen		29·9	331	i 6 16	+ 4	i 11 6	− 3	i 11 43	?	15·7
Sverdlovsk		33·3	35	i 6 41	0	i 12 2	0	—	—	—
Samarkand		33·7	67	6 50	+ 5	—	—	—	—	—
Stalinabad		35·2	69	i 6 58	0	—	—	—	—	—
Tashkent		35·4	65	e 6 54	− 6	e 12 36	+ 2	—	—	—
Andijan		37·7	66	e 7 24	+ 5	—	—	—	—	—
New Delhi	N.	44·3	82	e 10 11	PP	i 14 44	− 4	18 7	SS	—
Bombay	E.	44·7	97	i 8 33	+17	i 14 54	0	17 22	?	21·0
Hyderabad	N.	50·1	95	9 4	+ 5	16 3	− 7	—	—	30·0
Kodaikanal	E.	53·1	103	e 11 12	PP	e 18 42	ScS	—	—	28·5
Ivigtut		53·2	324	—	—	17 54	+62	—	—	31·6
Tananarive		56·6	154	—	—	e 18 32	+54	e 19 40	ScS	—
Irkutsk		57·7	46	9 53	− 2	17 46	− 7	—	—	—
Seven Falls		69·9	314	—	—	e 20 34?	+10	—	—	33·6
Weston		72·5	309	i 11 34	+ 4	e 20 58	+ 4	i 11 46	PcP	—
Harvard		72·6	309	e 11 34	+ 3	—	—	—	—	e 42·6
Bermuda		72·8	297	e 11 40	+ 8	e 21 0	+ 2	—	—	e 34·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ottawa		73·7	314	11 40	+ 2	21 12	+ 4	14 22	PP	35·6
Philadelphia		76·2	309	e 16 24	PPP	e 21 40	+ 4	e 26 2	SS	e 34·3
College		81·5	357	—	—	e 22 25	− 7	—	—	e 43·2
Chicago		82·8	316	—	—	e 22 48	+ 3	e 23 2	S_cS	e 37·9
Saskatoon		84·7	333	—	—	e 23 7	+ 3	—	—	40·6
Florissant	z.	86·3	315	e 12 48	+ 3	e 23 23	+ 3	e 24 20	PS	—
Sitka		87·5	350	e 12 56	+ 5	e 23 30	− 1	e 16 20	PP	e 37·3
Bozeman		91·6	331	—	—	e 23 44	[+ 2]	e 29 14	?	e 42·8
Butte		91·9	332	e 17 1	PP	e 23 51	[+ 7]	e 24 15	S	e 44·3
Grand Coulee		92·6	337	e 13 17	+ 2	e 25 7	PS	—	—	—
Victoria		93·4	340	—	—	e 23 46	[− 6]	—	—	51·6
Salt Lake City		95·9	329	—	—	e 24 9	[+ 3]	—	—	e 47·6
Pierce Ferry		100·7	326	e 13 53	+ 1	—	—	e 17 57	PP	—
La Paz	z.	101·8	258	e 18 52	?	—	—	—	—	58·6
Tucson		102·4	323	e 14 2	+ 3	e 24 42	[+ 3]	e 18 3	PP	e 49·1
Huancayo		105·4	266	—	—	e 37 17	SSS	—	—	e 53·0
Riverview		135·5	106	—	—	e 26 38	[+ 6]	e 40 19	SS	e 71·3

Additional readings :—
Helwan P_g =2m.7s.
Bucharest iN =4m.59s., iE =5m.9s.
Belgrade e =4m.0s.
Rome iQE =6m.35s.
Zagreb eNE =3m.36s., iNE =3m.44s., eZ =6m.21s., e =6m.32s., eNW =7m.1s., eZ = 7m.5s., eNW =7m.42s., eZ =8m.25s.
Budapest eSSSN =8m.7s.
Algiers i =4m.51s., 5m.59s., 8m.7s., and 8m.13s., SS =8m.20s.
Warsaw eZ =4m.44s., PPPZ =5m.5s.
Cheb e =6m.24s., 9m.9s., 10m.34s., and 11m.34s.
Collmberg iZ =4m.38s. and 4m.44s., iPPPZ =5m.9s., eZ =5m.37s., 7m.28s., 7m.42s., and 8m.30s., eSSN =9m.0s.
Strasbourg iP =4m.41s.
Tortosa PPPE =5m.19s., P_cPN =9m.14s., SSN =9m.34s., SSSN =9m.53s., P_cS?N = 12m.32s.
Alicante PPP =5m.29s., P_cP =8m.41s., SS =9m.33s., P_cS =12m.47s.
Uccle i =10m.40s.
Toledo P_cPZ =9m.4s., iP_cS =12m.44s., S_cSN =16m.31s.
Malaga S_cPZ =12m.15s., S_cS?Z =16m.25s.
Lisbon E =11m.0s. and 11m.25s., QN =11m.42s.
Durham iE =10m.50s., 11m.13s., and 11m.42s.
Weston eS_cS =21m.52s.
Sitka e =24m.25s. and 28m.5s.
Butte eSSS =34m.12s.
Tucson e =14m.15s., 18m.51s., and 27m.30s.
Riverview eE =28m.4s.
Long waves were also recorded at Auckland.

July 16d. 19h. 45m. 23s. Epicentre 38°·5N. 31°·0E.

A = +·6725, B = +·4041, C = +·6199 ; δ = −17 ; h = +2 ;
D = +·515, E = −·857 ; G = +·531, H = +·319, K = −·785.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		6·1	138	e 1 34	0	e 2 55	+10	—	—	—
Yalta		6·5	21	e 1 35	− 4	—	—	—	—	—
Bucharest		7·0	329	e 1 48	+ 2	i 3 16	+ 8	e 2 6	P*	—
Sofia		7·2	308	e 1 52	+ 3	i 3 31	S*	1 2 16	P_g	—
Sotchi		8·3	49	e 1 59	− 5	—	—	—	—	—
Helwan		8·7	178	2 10	0	3 46	− 4	2 22	PPP	—
Belgrade		10·1	312	e 2 27	− 1	e 4 35	+10	e 2 54	PPP	6·6
Leninakan		10·2	73	e 2 29	− 2	—	—	—	—	—
Kalossa		12·0	316	e 3 2	+ 7	e 4 52	−19	—	—	i 6·9
Grozny		12·2	62	e 3 1	+ 3	—	—	—	—	—
Budapest	N.	12·5	320	e 3 3	+ 1	e 6 37?	L	—	—	(e 6·6)
Zagreb		13·3	308	e 3 14	+ 1	e 7 21	L	—	—	(e 7·4)
Rome		14·6	289	i 3 32a	+ 2	i 6 28	+15	3 43	PP	i 8·7
Baku		14·7	76	e 3 40	+ 9	—	—	—	—	—
Triest		14·7	305	e 3 31	0	i 6 34	+18	—	—	i 8·4

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Warsaw		15·4	337	e 3 35	− 5	e 6 34	+ 2	6 47	SS	e 7·6
Florence	E.	15·8	296	i 3 50	+ 5	i 6 59	+17	—	—	—
Prague		16·5	320	i 3 57	+ 3	7 13	+15	—	—	e 8·1
Cheb		17·6	317	e 4 11	+ 3	e 7 38	+15	e 8 10	SSS	e 11·6
Moscow		17·8	12	i 4 5	− 6	7 23	− 5	—	—	—
Collmberg		18·0	320	e 4 12	− 1	e 7 44	+12	e 4 43	PPP	e 10·6
Jena		18·5	319	e 4 19	0	e 7 55	+11	e 6 23	?	—
Zürich		18·6	306	i 4 21k	0	e 8 15	+29	—	—	—
Potsdam		18·7	325	i 4 24	+ 2	i 7 58	+10	—	—	e 10·6
Basle		19·3	306	e 4 28	− 1	e 8 9	+ 7	—	—	—
Neuchatel		19·5	305	e 4 32	+ 1	e 8 14	+ 8	—	—	—
Strasbourg		19·6	310	i 4 33	+ 1	e 8 17	+ 9	—	—	e 11·1
Besançon		20·3	303	e 4 40	0	—	—	—	—	e 11·3
Copenhagen		21·2	331	i 4 48	− 1	i 8 44	+ 3	—	—	11·6
Clermont-Ferrand		21·9	298	i 4 57	0	i 9 3	+ 9	—	—	—
Uccle		22·5	313	5 3a	+ 1	e 9 6	+ 1	1 9 39	SS	e 12·6
De Bilt		22·6	317	i 5 6a	+ 3	i 9 15	+ 8	—	—	e 12·6
Paris		22·9	307	i 5 6	0	i 9 19	+ 6	e 11 43	Q	e 12·6
Upsala		23·0	343	5 7	0	9 16	+ 2	—	—	e 10·8
Tortosa	N.	23·6	286	e 5 29	+16	e 9 45	+20	6 9	PP	—
Alicante		24·6	281	5 24	+ 1	10 4	+22	6 8	PP	12·8
Sverdlovsk		26·8	37	i 5 42	− 2	i 10 16	− 3	—	—	—
Toledo		27·1	285	e 5 45	− 1	10 50	+26	11 51	SSS	15·4
Bergen	Z.	27·2	334	7 16	+89	11 25	+60	—	—	—
Durham	E.	27·3	313	—	—	i 10 46	+19	—	—	—
Granada		27·3	279	6 28k	PP	12 13	SSS	6 47	PPP	14·3
Samarkand		27·9	77	e 5 57	+ 3	—	—	—	—	—
Malaga	Z.	28·0	279	i 5 53a	− 2	e 10 53	+15	e 12 23	SSS	18·0
Aberdeen	E.	28·6	323	—	—	i 10 51	+ 3	—	—	—
Stalinabad		29·4	77	i 6 7	0	e 11 0	− 1	—	—	—
Tashkent		29·4	72	—	—	e 11 24	+23	—	—	—
Andijan		31·7	24	e 6 29	+ 2	e 11 38	+ 1	—	—	—
Irkutsk		51·1	49	e 9 2	− 4	—	—	—	—	—

Additional readings :—
Bucharest eE = 2m.14s., iN = 3m.38s., iS*?N = 3m.52s., iS_g?E = 4m.6s.
Sofia iN = 2m.50s., iEN = 2m.56s., iE = 3m.53s., iS_gN = 4m.5s.
Belgrade e = 3m.29s.
Rome P_g = 4m.48s.
Warsaw PZ = 3m.40s.a, SZ = 6m.54s., SSN = 7m.4s., SSE = 7m.17s.
Cheb i = 4m.14s., ePPP = 4m.45s. e = 5m.37s., 6m.54s., and 9m.32s.
Collmberg eN = 4m.54s., eZ = 5m.21s. and 8m.44s.
Basle e = 4m.33s.
Strasbourg e = 5m.41s., iS = 8m.20s.
Uccle iE = 9m.10s.
Paris e = 7m.34s. and 10m.52s.
Upsala PE = 5m.12s.
Tortosa PPPN = 6m.23s.
Alicante P_cP = 8m.28s., SS = 11m.16s., SSS = 11m.40s.
Toledo SS = 13m.4s., S_cSN = 16m.11s.
Granada P_cP = 6m.32s.
Malaga eP_cPZ = 7m.27s., PPPZ = 8m.39s.

July 16d. 20h. 14m. 32s. Epicentre 25°·5S. 67°·0W. Depth of focus 0·020.

A = +·3531, B = −·8319, C = −·4281; δ = +1; h = +3;
D = −·921, E = −·391; G = −·167, H = +·394, K = −·904.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma	3·3	331	i 0 52	0	i 1 28	− 4	—	—	e 1·6
La Paz	9·0	353	i 1 59	− 9	i 3 3	−44	—	—	3·3
La Plata	12·2	142	2 34	−15	4 40	−22	3 4	PP	6·4
Huancayo	15·5	328	i 3 27	− 4	e 6 7	−11	—	—	e 6·6
Fort de France	40·4	10	e 7 4	−20	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
St. Louis		67·4	340	i 10 34	− 6	e 19 1	−20	i 11 33	pP	—
Tucson		71·0	322	i 11 2	0	—	—	i 11 21	PcP	—
La Jolla		75·2	318	e 11 26	0	—	—	—	—	—
Palomar		75·3	319	i 11 29k	+ 2	—	—	—	—	—
Pierce Ferry		75·7	322	i 11 29	0	e 20 49	− 7	e 12 20	pP	—
Boulder City		76·0	321	i 11 31	0	—	—	i 11 36	PcP	—
Riverside		76·1	318	i 11 32	0	—	—	i 12 27	pP	—
Overton		76·2	322	i 11 33	+ 1	e 20 56	− 6	—	—	—
Mount Wilson		76·6	318	i 11 35k	+ 1	—	—	i 12 29	pP	—
Pasadena		76·7	318	i 11 35k	0	—	—	i 12 30	pP	—
Santa Barbara	z.	77·8	317	i 11 43	+ 2	—	—	—	—	—
Haiwee		77·9	320	i 11 43	+ 1	—	—	—	—	—
Tinemaha		78·7	320	i 11 46k	0	—	—	i 12 41	pP	—
Shasta Dam		83·6	321	i 12 10	− 1	—	—	i 13 1	pP	—
Malaga	z.	85·4	46	e 12 19	− 1	i 22 26	−10	e 12 23	PcP	35·4
Granada		86·2	46	12 24s	0	21 54	−50	—	—	—
Grand Coulee		86·7	328	i 12 26	− 1	—	—	i 12 45	PcP	—
Toledo	z.	87·5	43	i 12 31	0	—	—	i 13 24	pP	—
Rome		99·3	48	—	—	e 23 43	[− 4]	—	—	—

Additional readings :—
St. Louis iZ = 11m.4s., esSE = 20m.8s., iE = 20m.36s.
Mount Wilson iP = 12m.32s., iZ = 13m.27s.
Malaga ePPPZ = 17m.38s.
Rome eN = 23m.47s.

July 16d. Readings also at 0h. (Balboa Heights), 3h. (Tucson, Harvard, Fort de France- and Bogota), 4h. (Tortosa, Toledo, Warsaw, Collmberg, Prague, Rome, Uccle, Cheb, Strasbourg, near Besançon, and near San Juan), 6h. (Wellington, Christ, church, and near Tortosa), 7h. (near Triest, and near Fort de France), 8h. (Tacubaya, De Bilt, and near Triest), 9h. (near Triest), 10h. (Helwan), 14h. (Ivigtut), 17h. (Strasbourg, Cheb, Warsaw, Triest, Bucharest, Ksara, and Helwan), 18h. (La Paz), 19h. (near Irkutsk), 22h. (Ksara).

July 17d. 1h. 21m. 24s. Epicentre 1°·3S. 15°·3W. (as on 1942, April 13d.).

Identification tentative.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Malaga	z.	39·2	14	i 7 32k	+ 1	i 13 27	− 5	i 9 6	PP	19·9
Granada		39·8	13	e 7 39k	+ 3	13 37	− 5	i 16 17	SS	18·9
Alicante		41·8	17	—	—	13 25	−46	—	—	e 20·1
Toledo		42·3	13	9 44	PP	—	—	—	—	—
Tortosa	n.	44·3	18	i 10 4	PcP	e 15 20	+32	—	—	—
Clermont-Ferrand		49·6	17	—	—	e 16 2	− 1	—	—	e 26·2
Rome		49·8	27	e 8 55	− 1	i 16 1	− 5	e 10 51	PP	—
Florence	e.	50·8	25	—	—	i 20 12	SS	—	—	—
Besançon		51·8	19	—	—	e 20 14	SS	—	—	e 35·6
Paris		52·2	14	e 9 17	+ 2	e 16 33?	− 6	—	—	e 27·6
Triest		53·3	25	e 9 27	+ 4	e 16 48	− 6	e 20 42	SS	—
Strasbourg		53·6	18	e 9 20	− 5	e 16 49	− 9	e 20 31	SS	e 28·0
Helwan		54·2	51	e 9 24	− 5	e 17 6	0	—	—	—
La Paz	z.	54·2	250	—	—	e 16 46	−20	—	—	30·6
Uccle		54·5	14	e 9 36	+ 4	e 17 7	− 3	—	—	e 28·6
De Bilt		55·9	15	—	—	e 17 36	+ 7	—	—	e 27·6
Cheb		56·4	21	—	—	e 18 56	ScS	—	—	e 30·6
Ksara		59·4	49	e 10 9	+ 3	e 18 14	− 1	—	—	—
Copenhagen		61·1	17	—	—	e 18 36	− 1	—	—	25·6
Sverdlovsk		83·4	33	i 12 28	− 2	e 22 48	− 3	—	—	—

Additional readings :—
Malaga SSZ = 16m.2s.
Rome eSS? = 19m.29s.
Long waves were also recorded at Prague, Belgrade, Huancayo, Philadelphia, and Weston,

July 17d. 10h. 34m. 15s. Epicentre 16°·9N. 94°·2W. Depth of focus 0·010. (as on July 11d.).

$A = -·0701$, $B = -·9548$, $C = +·2889$; $\delta = +2$; $h = +6$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca	E.	2·5	273	0 27	−13	—	—	—	—	0·8
Tacubaya	E.	5·3	298	1 19	+ 1	2 23	+ 5	1 28	PP	—
	N.	5·3	298	1 16	− 2	2 20	+ 2	1 28	PP	—
Merida		5·9	46	1 25	− 1	—	—	—	—	2·8
Tucson		21·5	320	e 4 41	− 1	e 9 0	+30	e 5 14	PP	e 10·3
St. Louis		21·9	8	e 4 52	+ 6	e 8 59	+22	e 9 57	SS	—
Florissant	N.	22·1	8	e 5 8	PP	—	—	—	—	—
Pierce Ferry		26·0	323	e 5 24	− 2	e 13 44	L	—	—	(e 13·7)
Palomar	Z.	26·2	315	e 5 24	− 3	—	—	—	—	—
Boulder City		26·4	321	e 5 29	0	e 14 1	L	i 5 41	pP	(e 14·0)
Overton		26·5	322	e 5 32	+ 2	i 14 34	L	—	—	(i 14·6)
Riverside	Z.	26·9	314	e 5 37	+ 3	—	—	—	—	—
Mount Wilson	Z.	27·5	314	e 5 31	− 8	—	—	—	—	—
Philadelphia		28·3	33	—	—	e 11 54	SS	—	—	e 16·3
Tinemaha	Z.	29·3	319	e 5 55	0	—	—	—	—	—

Tucson i = 5m.22s., e = 9m.25s.
Long waves were also recorded at Butte, Salt Lake City, Ukiah, Weston, and Suva.

July 17d. Readings also recorded at 0h. (Ksara, Bucharest, Rome, Triest, and near Malaga), 5h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, and St. Louis), 7h. (Bucharest, Ksara, and near Triest), 8h. (Ksara), 10h. (near Malaga), 13h. (Tacubaya, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, and Pierce Ferry), 14h. (Weston), 16h. (Collmberg, Jena, Zagreb, Zürich, near Fresno, and Pierce Ferry), 17h. (Shasta Dam), 18h. (Ksara), 19h. (Shasta Dam, Vladivostok, and near Zagreb), 20h. (Alicante, Cheb, near Mizusawa, and near Samarkand), 21h. (near Stalinabad), 23h. (Sverdlovsk, Moscow, Helwan, Ksara, Copenhagen, Cheb, Florence, Strasbourg, De Bilt, Paris, Uccle, Rome, Basle, Zürich, Algiers, Toledo, Alicante, Granada, and Malaga; several separate shocks.)

July 18d. 6h. 6m. 55s. Epicentre 49°·2N. 130°·5W. (as on 1945, October 20d.).

$A = -·4251$, $B = -·4978$, $C = +·7559$; $\delta = -10$; $h = -6$;
$D = -·760$, $E = +·649$; $G = -·491$, $H = -·575$, $K = -·655$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		4·7	96	1 12	− 2	2 10	0	—	—	3·1
Grand Coulee		7·8	96	e 1 50	− 8	e 3 14	−14	—	—	—
Sitka		8·8	342	i 2 0	−11	i 3 41	−12	i 2 31	PP	i 3·9
Shasta Dam		10·3	143	i 2 35	+ 3	—	—	—	—	—
Mineral	E.	11·0	141	e 2 39	− 3	—	—	—	—	e 6·1
Ukiah		11·4	150	i 2 49	+ 2	(i 5 5)	+ 9	—	—	i 5·1
Butte		12·5	98	e 3 0	− 2	e 5 27	+ 4	e 3 34	PP	e 6·2
Berkeley		12·9	150	i 3 9	+ 2	e 5 42	+ 9	—	—	e 6·9
San Francisco		12·9	150	e 3 12	+ 5	e 6 46	?	—	—	e 6·9
Branner		13·3	150	e 3 15	+ 2	e 5 48	+ 6	—	—	e 6·3
Santa Clara		13·5	149	e 3 17	+ 2	i 5 59	+12	—	—	—
Bozeman		13·7	99	e 3 10	− 8	e 5 41	−11	—	—	e 6·6
Fresno	N.	14·8	144	i 3 35	+ 3	—	—	—	—	—
Logan		15·1	113	i 3 37	+ 1	e 6 33	+ 8	—	—	e 7·9
Tinemaha		15·1	140	i 3 39	+ 3	—	—	—	—	—
Saskatoon		15·4	70	3 36	− 4	6 36	+ 4	—	—	7·1
Salt Lake City		15·7	116	e 3 43	− 1	i 6 49	+10	e 4 13	PP	e 7·5
Haiwee		16·0	140	i 3 53	+ 5	—	—	—	—	—
Santa Barbara	Z.	16·8	148	e 4 3	+ 5	—	—	—	—	—
Overton		17·3	133	i 4 7	+ 3	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Boulder City		17·6	134	i 4 9	+ 1	e 7 10	−13	—	—	—
Mount Wilson		17·7	144	i 4 11k	+ 1	—	—	—	—	—
Pasadena		17·7	144	i 4 10k	0	(e 7 5)	−21	—	—	e 7·1
Pierce Ferry		17·8	132	i 4 13	+ 2	e 7 30	+ 2	—	—	—
College		18·1	337	e 4 19	+ 5	e 7 52	+17	—	—	e 9·2
Riverside		18·1	144	i 4 16k	+ 2	—	—	—	—	—
Palomar		18·9	142	i 4 26	+ 2	—	—	—	—	—
La Jolla	z.	19·2	144	e 4 28	0	—	—	—	—	—
Rapid City		19·4	95	i 4 30	0	i 8 12	+ 8	—	—	e 9·8
Tucson		22·5	131	i 5 5	+ 3	i 9 19	+14	i 5 54	PP	e 10·8
Lincoln		25·2	95	e 5 28	− 1	e 9 51	− 1	e 6 4	PP	e 11·6
St. Louis		30·5	95	i 6 16	− 1	e 11 20	+ 2	i 7 2	PP	e 16·0
Chicago		30·6	89	e 6 14	− 4	(e 11 8)	−12	e 7 4	PP	e 11·1
Honolulu		35·4	227	—	—	e 12 49	+15	—	—	e 14·6
New Kensington		36·4	84	e 7 11	+ 3	e 12 55	+ 5	e 8 21	PP	e 16·6
Ottawa		36·6	74	7 7	− 3	12 53	0	8 27	PP	18·1
Mobile		36·8	104	7 23	pP	13 5	+ 9	—	—	—
Pennsylvania		37·5	83	e 7 15	− 2	e 13 10	+ 3	i 8 45	PP	—
Shawinigan Falls		38·0	71	e 7 19	− 2	—	—	—	—	15·1
Seven Falls		38·9	70	7 25	− 4	13 31	+ 3	9 49	PPP	19·1
Georgetown		39·0	84	e 7 24	− 6	13 7	−22	8 46	PP	18·1
Tacubaya	N.	39·0	128	e 7 39	+ 9	e 13 20	− 9	i 9 20	PPP	e 19·3
Columbia		39·3	93	e 7 34	+ 2	e 13 32	− 2	e 8 47	PP	e 16·7
Philadelphia		39·7	82	e 7 33	− 3	e 13 42	+ 2	i 9 5	PP	e 17·5
Fordham		40·0	80	e 7 36	− 2	i 13 46	+ 2	e 9 1	PP	20·6
Harvard		40·7	76	e 7 43	− 1	e 13 57	+ 2	e 9 9	PP	e 21·3
Weston		40·9	76	e 7 44	− 2	e 13 55	− 3	e 9 23	PP	—
Halifax		44·5	69	—	—	e 14 53	+ 2	e 18 6	SS	22·1
Bermuda		51·0	84	e 11 7	PP	e 20 24	SS	e 16 14	PS	e 24·4
Vladivostok		63·2	306	i 10 35	+ 3	i 19 9	+ 6	—	—	—
Bergen		65·0	23	—	—	e 26 43	SSS	—	—	e 29·8
Fort de France		65·5	96	e 10 51	+ 4	—	—	—	—	—
Aberdeen		65·6	29	i 19 28	S	(i 19 28)	− 5	i 27 10	SSS	31·2
Durham		67·8	30	i 20 6	S	(i 20 6)	+ 6	i 27 28	SSS	—
Irkutsk		68·6	328	—	—	20 13	+ 4	—	—	—
Copenhagen		70·9	22	i 11 39	+18	i 20 43	+ 7	28 55	SSS	36·1
De Bilt		72·2	27	e 11 25	− 4	i 20 55	+ 4	e 28 35	SSS	e 34·1
Uccle		73·1	29	e 11 45	+11	e 21 1	0	—	—	—
Sverdlovsk		73·8	354	11 37	− 1	21 11	+ 2	—	—	—
Paris		74·2	31	e 11 45	+ 5	e 21 13	− 1	e 21 51?	PS	e 33·1
Moscow		74·9	8	11 44	0	21 21	− 1	—	—	—
Collmberg		75·0	23	e 11 42	− 3	e 21 30	+ 7	—	—	e 30·1
Cheb		76·0	25	—	—	e 28 5?	?	—	—	e 40·1
Warsaw		76·0	18	11 52	+ 1	21 42	+ 8	14 29	PP	e 40·1
Strasbourg		76·1	28	e 11 50	− 1	e 21 37	+ 2	e 26 30	SS	e 31·1
Prague		76·5	23	e 11 35	−19	e 21 36	− 3	—	—	e 36·1
Clermont-Ferrand		77·1	32	e 12 0	+ 3	e 21 48	+ 2	—	—	e 31·1
Huancayo		77·9	125	e 12 7	+ 6	e 22 1	+ 7	—	—	e 33·4
Toledo		79·4	40	e 12 8	− 1	e 22 18	+ 8	23 4	PPS	38·0
Florence	E.	81·4	28	—	—	—	—	e 34 23	Q	i 38·3
Granada		81·9	41	12 38k	+15	22 43	+ 7	15 30	PP	39·2
Malaga	z.	81·9	42	i 12 22a	− 1	i 22 53	+17	i 12 30	pP	40·2
Alicante		82·2	38	e 12 53	+29	e 22 42	+ 3	15 56	PP	e 38·0
Belgrade		82·9	21	12 37?	+ 9	e 22 17	−29	—	—	34·1
Rome		83·5	28	e 12 35	+ 4	e 22 57	+ 5	23 47	PS	37·5
Algiers		84·9	36	e 12 5?	−33	e 23 5	− 1	—	—	e 42·1
La Paz		85·5	121	12 53	+12	23 21	+ 9	—	—	43·1
Sofia		85·5	19	—	—	e 24 5?	PS	—	—	e 45·1
Andijan		88·1	343	e 13 11	+17	e 23 50	+13	—	—	—
Tashkent		88·1	346	e 12 57	+ 3	e 23 36	− 1	29 30	SS	—
Stalinabad		90·9	345	—	—	e 23 45	[+ 7]	—	—	—
Ksara		96·4	12	e 13 54	+22	e 24 57	+ 7	e 25 58	PS	—
Helwan		99·5	17	18 20	PKP	26 5	PS	e 20 47	?	—
Riverview		108·0	239	—	—	—	—	e 34 20	SS	e 50·6

For Notes see next page.

NOTES TO JULY 18d. 6h. 6m. 55s.

Additional readings :—
Grand Coulee iP =1m.53s.
Shasta Dam e =3m.34s.
Mineral iE =2m.45s.
Branner eE =3m.29s., eEN =3m.36s.
Bozeman e =3m.57s., 4m.57s., and 6m.8s.
Fresno eN =5m.57s. and 6m.48s.
Logan i =5m.3s., iS =6m.37s.
Salt Lake City e =3m.48s.
Boulder City i =4m.39s.
Pierce Ferry i =6m.21s.
College e =4m.55s., iS =7m.57s.
Rapid City i =5m.50s.
St. Louis iPPPZ =7m.24s.
Chicago eS =10m.18s. and 10m.38s.
Ottawa SS =15m.20s.
Seven Falls SS =15m.35s.
Georgetown eP =7m.27s., e =16m.17s.
Tacubaya eS?E =16m.43s.
Philadelphia e =7m.47s., eS =13m.30s.
Fordham e =8m.11s., eS =13m.37s., iSS =16m.37s.
Weston esS =14m.27s., eSS =17m.5s.
Bermuda e =14m.13s.
Uccle eSN =21m.5s.
Paris eSS? =26m.57s., e =30m.51s.
Collmberg eZ =12m.10s. and 12m.24s.
Warsaw eP?N =11m.56s., eP?E =12m.2s., ePSE =22m.16s., SSE =26m.37s.
Toledo PPSE =23m.11s.
Granada P_gP =12m.52s., PS =23m.37s.
Malaga iPPZ =15m.58s., iPPPZ =17m.59s., PSZ =24m.0s., SSZ =29m.2s.
Alicante PPP =17m.44s., PS =23m.32s., Q =33m.52s.
Rome SS =28m.29s.
Algiers e =21m.5s.?
Tashkent PPS =25m.9s.
Riverview iE =34m.39s.
Long waves were also recorded at Suva, Reykjavik, and other European stations.

July 18d. 7h. 16m. 25s. Epicentre 49°·2N. 130°·5W. (as at 6h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		4·7	96	1 12	− 2	2 14	+ 4	—	—	2·6
Grand Coulee		7·8	96	e 1 50	− 8	e 3 19	− 9	—	—	e 4·1
Sitka		8·8	342	e 2 0	−11	i 3 40	−13	—	—	i 4·2
Shasta Dam		10·3	143	e 2 32	0	e 4 42	+12	—	—	—
Mineral	E.	11·0	141	e 2 38	− 4	—	—	—	—	e 6·0
Ukiah		11·4	150	e 2 46	− 1	(i 5 1)	+ 5	—	—	i 5·0
Butte		12·5	98	e 3 6	+ 4	—	—	—	—	e 6·2
Berkeley		12·9	150	i 2 59	− 8	i 5 41	+ 8	—	—	e 6·8
San Francisco	N.	12·9	150	e 3 20	+13	—	—	—	—	—
Branner		13·3	150	e 3 13	0	e 5 55	+13	—	—	e 7·3
Santa Clara		13·5	149	e 2 40	−35	i 5 50	+ 3	—	—	—
Bozeman		13·7	99	e 3 15	− 3	e 6 17	+25	—	—	e 6·9
Fresno	N.	14·8	144	i 3 35	+ 3	e 6 5	−13	—	—	e 7·3
Logan		15·1	113	i 3 40	+ 4	i 6 37	+12	—	—	e 7·4
Tinemaha		15·1	140	i 3 40	+ 4	—	—	—	—	—
Saskatoon		15·4	70	3 38	− 2	6 35	+ 3	—	—	7·6
Salt Lake City		15·7	116	e 3 47	+ 3	i 6 50	+11	e 4 14	PP	e 7·7
Haiwee		16·0	140	e 3 52	+ 4	—	—	—	—	—
Santa Barbara		16·8	148	e 4 3	+ 5	—	—	—	—	—
Boulder City		17·6	134	e 4 9	+ 1	e 7 32	+ 9	—	—	—
Mount Wilson		17·7	144	e 4 10	0	—	—	—	—	—
Pasadena		17·7	144	e 4 8	− 2	7 23	− 3	—	—	—
Pierce Ferry		17·8	132	i 4 11	0	i 7 53	+25	i 18 19	S_gS	—
College		18·1	337	e 4 18	+ 4	e 7 47	+12	e 4 53	PPP	i 9·3
Riverside		18·1	144	e 4 14	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		18·9	142	e 4 23	− 1	—	—	—	—	—
La Jolla	z.	19·2	144	e 4 27	− 1	—	—	—	—	—
Rapid City		19·4	95	e 4 28	− 2	i 8 9	+ 5	—	—	e 9·8
Tucson		22·5	131	e 5 2	0	i 9 22	+17	i 5 42	PP	e 10·6
Lincoln		25·2	95	e 5 37	+ 8	e 10 1	+ 9	—	—	e 12·4
St. Louis		30·5	95	i 6 15	− 2	i 11 12	− 6	i 7 10	PP	e 15·2
Chicago		30·6	89	e 6 24	+ 6	—	—	—	—	e 10·6
New Kensington		36·4	84	e 7 9	+ 1	e 12 44	− 6	e 8 22	PP	e 16·0
Ottawa		36·6	74	7 7	− 3	12 53	0	—	—	18·1
Pennsylvania		37·5	83	e 7 20	+ 3	e 13 14	+ 7	e 8 41	PP	—
Shawinigan Falls		38·0	71	e 7 19	− 2	—	—	—	—	17·6
Seven Falls		38·9	70	7 27	− 2	13 29	+ 1	8 53	PP	18·6
Georgetown		39·0	84	e 7 28	− 2	—	—	—	—	—
Tacubaya		39·0	128	e 7 44	+14	e 16 36	SSS	e 9 26	PPP	e 20·0
Columbia		39·3	93	—	—	e 13 28	− 6	—	—	e 16·8
Philadelphia		39·7	82	e 7 40	+ 4	e 13 14	−26	e 8 59	PP	e 16·6
Fordham		40·0	80	e 7 35	− 3	i 13 48	+ 4	e 9 11	PP	20·6
Harvard		40·7	76	e 7 46	+ 2	e 13 57	+ 2	—	—	e 20·6
Weston		40·9	76	e 7 44	− 2	e 13 55	− 3	e 9 21	PP	—
Halifax		44·5	69	e 6 35?	?	e 18 11	SS	—	—	22·6
Bermuda		51·0	84	—	—	e 16 25	+ 3	e 20 12	SS	e 24·0
Vladivostok		63·2	306	10 36	+ 4	i 19 14	+11	—	—	—
Bergen		65·0	23	—	—	e 21 35?	?	—	—	—
Aberdeen		65·6	29	i 19 38	S	(i 19 38)	+ 5	i 27 7	SSS	31·4
Durham		67·8	30	i 20 7	S	(i 20 7).	+ 7	i 23 48	SS	—
Upsala		68·2	18	e 19 39?	?	e 19 59	− 5	e 27 47	SSS	e 33·9
Irkutsk		68·6	328	11 9	+ 2	20 15	+ 6	—	—	—
Copenhagen		70·9	22	—	—	i 20 45	+ 9	28 52	SSS	33·6
Sverdlovsk		73·8	354	i 11 41	+ 3	21 12	+ 3	—	—	—
Paris		74·2	31	e 11 43	+ 3	e 21 15	+ 1	e 14 33	PP	e 33·6
Moscow		74·9	8	e 11 45	+ 1	e 21 20	− 2	—	—	—
Collmberg	z.	75·0	23	e 11 40	− 5	e 20 52?	−31	—	—	e 32·6
Cheb		76·0	25	—	—	e 21 35?	+ 1	—	—	e 41·6
Warsaw		76·0	18	11 44	− 7	21 43	+ 9	14 49	PP	e 39·6
Strasbourg		76·1	28	e 11 53	+ 2	e 21 41	+ 6	e 26 29	SS	e 31·6
Prague		76·5	23	e 12 1?	+ 7	e 21 41	+ 2	—	—	e 36·6
Clermont-Ferrand		77·1	32	e 11 56	− 1	e 21 49	+ 3	—	—	e 31·6
Huancayo		77·9	125	e 12 3	+ 2	(e 30 35)	SSS	e 15 43	PP	e 30·6
Toledo		79·4	40	e 12 9	0	e 22 19	+ 9	—	—	37·0
Budapest		80·0	21	—	—	e 22 35?	+18	—	—	e 43·6
Granada		81·9	41	e 12 27k	+ 4	i 22 43	+ 7	16 11	PP	38·7
Malaga	z.	81·9	42	i 12 22s	− 1	i 22 51	+15	i 12 34	pP	40·3
Alicante		82·2	38	11 51	−33	e 22 26	−13	27 42	SS	e 38·7
Belgrade		82·9	21	e 12 45	+17	e 22 51	+ 5	—	—	34·6
Rome		83·5	28	e 12 32	+ 1	i 23 1	+ 9	28 29	SS	41·3
Bucharest		84·5	36	e 13 5	+29	—	—	—	—	44·6
La Paz	z.	85·5	121	e 16 15	PP	—	—	—	—	46·1
Yalta		85·6	12	e 12 44	+ 3	—	—	—	—	—
Tashkent		88·1	346	e 12 51	− 3	e 23 30	− 7	—	—	—
Andijan		88·1	343	—	—	e 23 47	+10	—	—	—
Leninakan		90·2	5	e 13 23	+19	—	—	—	—	—
Baku		90·7	0	—	—	e 23 56	− 5	—	—	—
Stalinabad		90·9	345	—	—	e 24 40	PS	—	—	—
Ksara		96·4	12	14 35?	+63	e 26 21	PS	—	—	—
Riverview		108·0	239	—	—	—	—	e 34 31	SS	e 50·1

Additional readings :—
Grand Coulee i = 1m.53s., e = 2m.59s.
Mineral iE = 2m.44s.
Branner eE = 3m.21s.
Fresno eN = 3m.59s.
Logan i = 4m.40s.
Boulder City e = 4m.32s.
Mount Wilson i = 4m.14s.
Pasadena i = 4m.13s., eLN = 6m.35s. ; L wrongly identified.

Continued on next page.

Pierce Ferry eS? =11m.26s.
College iP =4m.23s., iS =7m.57s.
Rapid City i =4m.32s. and 5m.15s.
Lincoln e =5m.56s.
St. Louis iZ =8m.11s. and 12m.5s.
Chicago e =6m.57s. and 9m.37s.
Pennsylvania esPE =7m.38s., eSEN =12m.22s.
Tacubaya eE =11m.47s. and 12m.49s.
Harvard e =15m.17s.
Durham iSE =27m.10s.
Upsala eN =30m.9s.
Copenhagen 24m.24s.
Collmberg eZ =11m.47s., 12m.3s., 12m.38s., and 15m.33s.
Warsaw ePZ =11m.49s., PS?E =22m.30s., SSE =26m.38s.
Granada ePPP =18m.8s., PS =23m.31s.
Malaga PPZ =15m.39s., PPPZ =17m.58s., sSZ =23m.34s., iPKP,PKPZ =38m.18s.
Alicante Q =33m.2s.
Rome SSS =31m.55s.
Riverview eN =34m.35s.
Long waves were also recorded at Suva, Honolulu, Reykjavik, Bombay, and other European stations.

July 18d. 14h. 27m. 57s. Epicentre 34°·5N. 116°·0W.

Intensity VI in Yucca Valley; V at Amboy, Baker, Twenty-nine Palms; IV at Needles, Palm Springs, and San Bernardine. Macroseismic area 27,000 square miles.

R. R. Bodle and L. M. Murphy.
United States Earthquakes, 1946, Serial 714, Washington, 1948, p. 15.

$A = -\cdot3621$, $B = -\cdot7423$, $C = +\cdot5638$; $\delta = 0$; $h = 0$;
$D = -\cdot899$, $E = +\cdot438$; $G = -\cdot247$, $H = -\cdot507$, $K = -\cdot826$.

		Δ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Riverside		1·2	246	i 0 25a	+ 1	i 0 41	0	—	—	—
Palomar		1·3	212	i 0 26	+ 1	—	—	—	—	—
Mount Wilson		1·7	260	i 0 32a	+ 1	—	—	—	—	—
Pasadena		1·8	259	i 0 33a	+ 1	i 0 59	+ 3	—	—	—
La Jolla		1·9	212	i 0 35	+ 1	i 1 3	+ 4	—	—	—
Haiwee		2·3	316	i 0 39a	− 1	—	—	—	—	—
Santa Barbara		3·1	269	i 0 50a	− 1	i 1 41	S_e	—	—	—
Tinemaha		3·2	325	i 0 51a	− 1	i 1 50	S_e	—	—	—
Fresno	N.	3·8	307	i 1 1	0	—	—	e 1 13	P_e	—
Santa Clara		5·6	302	e 1 49	P_e	i 3 7	S_e	—	—	—
Branner		5·8	302	e 1 27	− 2	e 2 6	−32	—	—	—
Berkeley		6·1	305	i 1 31	− 3	i 3 8	S*	i 3 26	S_e	—
San Francisco		6·1	304	e 1 32	− 2	—	—	e 1 57	P_e	—
Salt Lake City		7·1	26	e 1 46	− 2	e 2 31	?	e 2 23	P_e	e 2·7
Mineral	E.	7·3	324	e 1 53	+ 3	i 3 48	S_e	i 2 20	P_e	—
Ukiah		7·4	311	—	—	e 3 43	S*	—	—	e 4·7
Logan		7·9	23	i 2 2	+ 3	—	—	i 2 33	P_e	i 4·2
Shasta Dam		8·0	323	i 1 56	− 4	—	—	i 2 44	P_e	e 3·8
Butte		11·8	12	e 3 41	?	e 5 42	?	—	—	e 6·2
Bozeman		11·8	17	—	—	e 5 24	+18	—	—	e 6·2
Grand Coulee		13·6	351	e 3 48	+31	—	—	—	—	e 6·9
Rapid City		13·8	42	e 3 20	+ 1	e 7 11	L	—	—	e 7·9
St. Louis		21·1	72	i 4 47	− 1	—	—	—	—	e 11·0
Tacubaya	N.	21·2	132	e 5 8	+19	—	—	—	—	e 11·2
Chicago		23·4	62	—	—	e 9 31	+10	—	—	e 11·6
Philadelphia		32·8	68	—	—	e 13 55	?	—	—	e 16·4
Fort de France		52·9	98	—	—	e 16 40	− 8	—	—	—

Additional readings :—
Berkeley iN =4m.8s.
Salt Lake City e =2m.0s.
Logan i =2m.56s.
Shasta Dam i =2m.21s.
St. Louis iZ =6m.3s.
Long waves were also recorded at Riverview, Suva, Paris, and other American stations.

July 18d. 18h. 32m. 27s. Epicentre 25°·9N. 96°·8E. (as on 1937, August 31d.).

Rough.

$A = -·1066$, $B = +·8944$, $C = +·4344$; $\delta = +2$; $h = +3$;
$D = +·993$, $E = +·118$; $G = -·051$, $H = +·431$, $K = -·901$.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Bombay	23·2	256	e 10 27	SSS	—	—
Almata	23·7	322	e 5 19	+ 5	—	—
Andijan	25·1	310	e 5 34	+ 6	—	—
Irkutsk	26·9	10	e 5 33	−12	e 9 53	−27
Tashkent	27·4	310	e 5 41	− 8	e 10 21	− 7
Vladivostok	33·3	50	i 6 49	+ 8	—	—
Sverdlovsk	40·3	330	7 39	− 1	e 17 19	SSS
Ksara	52·8	293	e 9 15	− 4	—	—

Long waves were also recorded at Warsaw, Prague, Copenhagen, Strasbourg, and Paris.

July 18d. Readings also at 0h. (near Branner), 4h. (Granada and Malaga), 5h. (Tucson, Shasta Dam, Berkeley, near Fresno, Overton, and Pierce Ferry), 6h. (Haiwee, Mount Wilson, Riverside, Palomar, Tinemaha, Pierce Ferry, Tucson, Christchurch, and Wellington), 7h. (Berkeley, Branner, Mineral, La Jolla, Haiwee (2), Mount Wilson (2), Pasadena (2), Palomar (2), Riverside (2), Tinemaha (2), Tucson (2), Pierce Ferry (2), Shasta Dam, St. Louis, and Toledo), 8h. (Arapuni, Auckland, Christchurch, and Wellington), 9h. (Kew and Rome), 11h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Huancayo, and near La Paz), 13h. (near Tashkent), 15h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, Vladivostok, Sverdlovsk, and near Granada (2)), 16h. (Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Grand Coulee, Shasta Dam, Ukiah, Butte, Sitka, Philadelphia, and Weston), 17h. (near Fort de France), 18h. (near Samarkand and near Suva), 19h. (Tucson), 23h. (Haiwee, Mount Wilson, Pasadena, Riverside, Tinemaha (2), Pierce Ferry, and Shasta Dam).

July 19d. 21h. 16m. 1s. Epicentre 36°·5N. 141°·6E. (as on 1943, March 14d.).

Intensity V at Mito; IV at Hukushima, Onahama, and Kakioka; II-III at Tokyo, Morioka, and Sendai. Very shallow. Macroseismic radius 300km.
Epicentre 36°·8N. 141°·6E.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946; Tokyo, 1951, p. 18. Isoseismic Chart, p. 18.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Onahama		0·7	308	0 16a	− 1	0 32	+ 4	—	—	—
Mito		0·9	263	0 20a	0	0 47	+13	—	—	—
Kakioka		1·2	257	0 23	− 1	0 37	− 4	—	—	—
Tukubasan		1·2	257	0 25	+ 1	0 41	0	—	—	—
Tokyo		1·7	242	0 28	− 3	0 53	− 1	—	—	—
Sendai		1·8	343	0 34	+ 2	0 52	− 4	—	—	—
Yokohama		1·9	236	0 35a	+ 1	1 18	S_g	—	—	—
Maebasi		2·0	267	0 38a	+ 3	1 18	S_g	—	—	—
Mera		2·1	222	0 37	0	1 3	− 1	—	—	—
Hunatu		2·5	246	0 42a	− 1	1 16	+ 2	—	—	—
Misima		2·6	237	0 42a	− 2	1 28	S_g	—	—	—
Mizusawa	E.	2·6	352	0 46	+ 2	1 41	S_g	—	—	—
Nagano		2·7	273	0 47a	+ 2	—	—	—	—	—
Miyako		3·1	6	0 27	−24	1 4	−25	—	—	—
Morioka		3·2	353	0 53	+ 1	1 39	+ 7	—	—	—
Omaesaki		3·3	236	0 58	+ 5	—	—	—	—	—
Toyama		3·6	275	1 1	+ 3	1 46	+ 4	—	—	—
Wazima		3·9	286	1 5	+ 3	2 2	S*	—	—	—
Hatinohe		4·0	359	1 12	+ 8	1 57	+ 5	—	—	—
Nagoya		4·0	252	1 6k	+ 2	2 7	S*	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Hikone		4·5	256	1 12	+ 1	2 19	S*	—	—	—
Kameyama		4·5	250	1 10	− 1	—	—	—	—	—
Kyoto		5·0	254	1 16	− 2	2 9	− 9	—	—	—
Owase		5·0	244	1 20	+ 2	—	—	—	—	—
Osaka		5·3	252	1 26	+ 4	—	—	—	—	—
Kobe		5·5	253	1 28k	+ 3	2 29	− 1	—	—	—
Toyooka		5·6	262	1 24	− 3	—	—	—	—	—
Mori		5·7	352	1 31	+ 3	2 57	S*	—	—	—
Sapporo		6·6	358	1 43	+ 2	3 14	S*	—	—	—
Hukuoka		9·6	256	1 37	−44	—	—	—	—	—
Irkutsk		30·6	313	i 6 15	− 3	i 11 31	+11	—	—	—
College		49·5	32	—	—	e 15 57	− 5	—	—	e 23·9
Andijan		53·0	297	9 20	− 1	—	—	—	—	—
New Delhi	N.	54·0	281	e 9 35	+ 7	i 16 59	− 4	i 17 19	PS	—
Tashkent		55·0	300	e 9 33	− 2	e 16 58	−19	—	—	—
Sverdlovsk		55·6	319	i 9 37	− 3	i 17 24	− 1	—	—	—
Stalinabad		56·4	296	i 9 41	− 4	—	—	—	—	—
Sitka		56·7	40	e 10 12	+24	e 17 41	+ 1	e 21 42	SS	e 27·3
Samarkand		57·2	298	9 38	−13	—	—	—	—	—
Bombay		62·2	273	e 8 18	?	—	—	—	—	—
Suva		64·4	141	—	—	i 18 56	−22	—	—	31·0
Victoria		66·7	48	e 19 29	PS	—	—	—	—	27·0
Moscow		67·8	324	10 59	− 3	19 59	− 1	—	—	—
Baku		68·7	305	i 11 12	+ 5	—	—	—	—	—
Grand Coulee		69·7	45	e 11 19	+ 5	e 20 15	− 7	—	—	—
Grozny		69·9	310	e 11 11	− 4	—	—	—	—	—
Riverview		70·5	171	e 20 27	PS	e 20 19	−13	—	—	e 33·0
Shasta Dam		71·5	53	i 11 19	− 5	—	—	i 11 27	pP	—
Ukiah		71·6	55	—	—	e 20 44	0	—	—	30·0
Leninakan		72·4	308	e 11 28	− 2	e 21 3	+10	—	—	—
Berkeley		73·1	56	i 11 37	+ 3	e 20 39	−22	e 30 47	Q	e 34·0
Sotchi		73·4	313	e 11 36	0	—	—	—	—	—
Upsala		73·5	334	—	—	21 2	− 4	21 19	sS	39·0
Tinemaha		76·0	54	e 11 48	− 3	—	—	i 11 58	pP	—
Yalta		76·2	315	e 11 53	+ 1	—	—	—	—	—
Santa Barbara	Z.	76·5	57	e 12 1	+ 7	—	—	—	—	—
Haiwee	Z.	76·7	54	e 11 51	− 4	—	—	—	—	—
Bergen	N.	77·2	340	e 16 59	PPP	—	—	—	—	42·0
Pasadena		77·7	57	e 11 56	− 4	i 21 48	− 4	i 12 6	pP	e 32·3
Warsaw		77·7	327	e 11 58	− 2	e 21 54	+ 2	14 54	PP	e 42·0
Mount Wilson	Z.	77·8	57	e 11 56	− 5	—	—	—	—	—
Riverside	Z.	78·4	57	e 11 58	− 6	—	—	—	—	—
Copenhagen		78·5	334	—	—	i 21 56	− 5	26 59	SS	40·0
Boulder City		79·1	54	e 12 0	− 8	—	—	—	—	—
Palomar		79·1	57	e 12 5	− 3	i 22 2	− 5	—	—	—
Bucharest		80·6	319	e 12 15	− 1	—	—	—	—	—
Ksara		81·6	305	i 12 19	− 2	22 49	+16	i 15 30	PP	—
Collmberg		81·8	330	i 12 19	− 3	e 22 31	− 4	e 15 25	PP	e 45·0
Budapest	N.	81·9	325	12 19	− 4	e 22 19	−17	—	—	e 45·0
	E.	81·9	325	12 19	− 4	e 22 32	− 4	—	—	e 41·0
Aberdeen		82·0	341	—	—	i 22 39	+ 2	e 46 20	Q	e 50·2
Prague		82·0	329	e 12 18	− 5	e 22 31	− 6	e 23 13	PS	e 42·0
Cheb		83·0	330	e 23 2	S	(e 23 2)	+15	e 24 0	PPS	e 44·0
Belgrade		83·1	322	12 13	−16	22 17	−31	13 41	?	36·0
Sofia		83·2	319	e 12 29	0	e 22 50	+ 1	—	—	—
Tucson		83·8	54	e 12 29	− 3	e 22 52	− 3	e 15 45	PP	e 41·0
De Bilt		83·9	335	i 12 31a	− 2	e 22 56	0	i 15 44	PP	e 44·0
Zagreb		84·7	326	e 12 35	− 2	e 22 55	− 9	—	—	—
Uccle		85·3	335	12 36a	− 4	e 23 1	− 9	e 24 0	PS	e 44·0
Triest		85·7	327	e 12 40	− 2	e 23 37	+23	e 23 1	SKS	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Strasbourg		85·9	332	e 12 41	− 2	e 23 7	[0]	e 16 2	PP	e 44·2
Zürich		86·3	331	e 12 29	−16	—	—	—	—	—
Basle		86·8	331	e 12 45	− 2	e 23 13	[0]	—	—	—
Helwan		87·1	305	i 12 31k	−18	23 11	[− 4]	13 6	pP	—
Paris		87·6	334	i 12 49	− 2	e 23 15	[− 3]	e 16 15	PP	50·0
Florence		88·3	326	e 13 28	+33	i 23 37	− 2	i 24 14	PS	—
Rome		89·3	325	12 55a	− 4	23 40	− 8	16 28	PP	—
Clermont-Ferrand		90·0	333	e 12 51	−12	e 23 46	− 8	—	—	e 44·0
Ottawa		91·8	25	—	—	e 23 35	[− 8]	—	—	45·0
Seven Falls		91·8	21	—	—	e 23 59?	−12	—	—	37·0
Barcelona		94·2	331	e 14 15	+53	—	—	—	—	e 55·1
Tortosa	N.	95·3	331	—	—	e 23 32	[−31]	—	—	47·0
Weston		95·9	23	—	—	23 45	[−21]	—	—	—
Philadelphia		96·7	27	31 39	SSP	e 24 5	[− 5]	—	—	e 37·1
Toledo		97·7	334	e 13 36	− 2	—	—	—	—	56·4
Alicante		97·8	331	—	—	e 23 6	[−70]	47 26	Q	e 51·4
Granada		99·9	332	16 52k	?	28 33	?	17 55	PP	50·2
Malaga	z.	100·6	332	i 17 58a	PKP	e 24 47	[+17]	i 20 5	PPP	60·2
La Paz	z.	147·0	61	19 45	[+ 2]	—	—	—	—	70·0

Additional readings and notes :—
Mizusawa eSN =1m.45s.
Sitka e =19m.31s.
Warsaw PPPZ =16m.24s., eSN =22m.7s., PSN =22m.35s., SSN =27m.28s.
Copenhagen 30m.35s.
Collmberg eZ =12m.23s., 12m.34s., 12m.49s., and 15m.38s., ePPS?Z =23m.29s.
Cheb ePPP =28m.15s., eS =32m.4s., phases wrongly identified.
Tucson i =12m.37s., 13m.28s., and 13m.43s.
Strasbourg ePPP =18m.0s., eSS =29m.2s.
Helwan sP =13m.27s., PP =16m.9s., sPP =16m.59s., sS =24m.11s.
Paris eQ =44m.59s.
Rome PPP =18m.27s.
Philadephia eS? =24m.23s., e =29m.45s.
Alicante eS =39m.34s.
Granada PP =21m.12s. ; readings wrongly identified.
Malaga PKSZ =21m.31s., PPPZ =22m.35s., SKKSZ =26m.37s., PKKPZ =27m.45s., PPSZ =31m.35s., ePKP,PKPZ =36m.13s., QZ =52m.31s.
Long waves also at Potsdam, Neuchatel, Besançon, Jersey, Lisbon, Algiers, Harvard, and Huancayo.

July 19d. Readings also at 0h. (Palomar and Tucson), 2h. (near Mizusawa), 7h. (near Triest and near Fort de France), 8h. and 11h. (Tucson), 14h. (St. Louis and near Mizusawa), 17h. (Calcutta), 18h. (Sverdlovsk, Tashkent, Leninakan, and Ksara), 19h. (De Bilt and Tortosa), 22h. (St. Louis), 23h. (near Mizusawa).

July 20d. Readings at 1h. (near Mizusawa), 2h. (Malaga, Granada, Alicante, Ksara, and Helwan), 3h. (Tortosa and near Almata), 4h. (near Mizusawa (2)), 6h. (Tucson), 8h. (Triest), 10h. (Tucson and near Rome), 12h. (Bucharest and near Sofia), 13h. (Santa Lucia), 14h. (Tucson, New Delhi, and Sverdlovsk), 15h. (near Stalinabad), 17h. (near San Juan), 19h. (Cheb, Andijan, and near Mizusawa), 20h. (near Fort de France), 22h. (Jena).

July 21d. Readings at 0h. (Andijan and near Stalinabad), 4h. (Tucson), 5h. (Bucharest and Ksara), 7h. (Tucson and Tacubaya), 8h. (La Paz), 9h. (Huancayo, Kew, Malaga, Alicante, near Andijan, Samarkand, and Stalinabad), 11h. (Boulder City and near Tucson), 12h. (near Malaga and near Mizusawa), 13h. (Andijan, near Stalinabad, and Samarkand), 14h. (near Fresno), 15h. (Copenhagen), 17h. (Kew), 19h. (Tucson, Pierce Ferry, Boulder City, Tinemaha, Palomar, Riverside, Pasadena, and Mount Wilson), 20h. (Tucson and Tacubaya), 22h. (near Pierce Ferry and Fresno).

July 22d. Readings at 5h. (near Pierce Ferry and near Bogota), 7h. (near Tacubaya), 10h. (Collmberg, Pierce Ferry, Tucson, Boulder City, Tinemaha, Riverside, Palomar, and Mount Wilson), 11h. (Berkeley and San Francisco), 13h. (Rome, Strasbourg, and near Algiers), 15h. (Tucson, near Fresno, Lick, Berkeley, and Overton), 18h. (near Mizusawa), 19h. (Collmberg, Riverview, Wellington, Christchurch, Arapuni, Auckland, and near Stalinabad), 20h. (Tucson), 21h. (Mizusawa, Kew, and near Branner), 22h. (Tashkent, Andijan, and Tucson).

July 23d. 11h. 25m. 57s. Epicentre 35°·7N. 118°·0W. (as on 9d.).

Epicentre 35°50′N. 118°0′W. (Pasadena).

A = −·3821, B = −·7187, C = +·5810; δ = +9; h = 0.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	1·8	305	i 0 33	+ 1	e 0 55	− 1	e 0 40	P_g	—
Overton		3·0	74	e 0 51	+ 1	e 1 37	S*	i 0 57	P*	—
Pierce Ferry		3·3	83	e 0 52	− 1	e 1 42	S*	i 1 2	P*	—
Lick		3·4	300	e 1 1	P*	e 1 40	+ 3	e 1 43	S*	—
Berkeley	Z.	4·1	303	e 1 3	− 2	—	—	—	—	3·0

Pierce Ferry gives also iP = 0m.56s.

July 23d. 17h. 14m. 10s. Epicentre 11°·0S. 160°·5E.

A = −·9256, B = +·3278, C = −·1896; δ = +14; h = +6;
D = +·334, E = +·943; G = +·179, H = −·063, K = −·982.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		17·8	203	i 4 26	+15	i 8 2	+34	i 4 47	PP	e 9·5
Suva		18·7	115	i 4 20	− 2	i 7 52	+ 4	—	—	—
Riverview	N.	24·3	199	e 5 20	0	e 9 55	+18	i 10 21	SS	e 13·0
Irkutsk		79·3	329	e 12 7	− 2	22 1	− 8	—	—	—
Sitka		85·9	30	—	—	e 23 5	−11	—	—	e 33·3
Berkeley		86·8	51	i 12 48	+ 1	e 23 32	+ 7	—	—	e 39·1
Shasta Dam		87·5	48	i 12 50	− 1	—	—	e 15 52	PP	—
Santa Barbara	Z.	87·9	55	e 12 53	0	—	—	—	—	—
Pasadena		89·0	56	i 12 58a	0	—	—	—	—	e 40·2
Mount Wilson	Z.	89·1	56	i 12 59a	+ 1	—	—	—	—	—
Victoria		89·1	41	—	—	e 23 20	[− 7]	—	—	39·8
La Jolla	Z.	89·5	57	e 13 1	+ 1	—	—	—	—	—
Riverside	Z.	89·6	56	i 13 0a	− 1	—	—	—	—	—
Tinemaha		89·7	52	i 13 2a	+ 1	—	—	—	—	—
Palomar		89·9	57	i 13 2a	0	—	—	—	—	—
Grand Coulee		91·8	42	e 13 9	− 2	—	—	e 29 34	?	—
Boulder City		92·1	54	i 13 12	0	—	—	i 16 48	PP	—
Pierce Ferry		92·8	54	i 13 16	0	—	—	i 15 52	?	—
Tucson		94·7	58	e 13 25	+ 1	e 26 4	PS	e 17 9	PP	e 42·7
Ottawa		121·3	43	—	—	e 33 2	?	—	—	49·8
Philadelphia		123·2	49	—	—	e 30 43	PS	e 41 40	SSS	e 49·2
Ksara		124·7	303	e 19 5	[+ 3]	e 29 4	?	e 35 50?	?	—
Collmberg		131·9	332	e 19 27	[+11]	—	—	e 23 9	PKS	—
Triest		135·3	327	e 20 17	[+55]	—	—	—	—	—
Uccle		135·8	339	—	—	e 34 50?	PPS	—	—	e 64·8
Rome		138·4	324	e 20 7	[+39]	—	—	e 36 26	?	—
Toledo	Z.	148·1	337	e 36 16	PPS	—	—	—	—	—
Granada		150·3	334	e 20 15	[+27]	—	—	e 25 17	?	—
Malaga	Z.	151·0	335	e 19 55	[+ 6]	i 26 41	[−14]	23 19	PKS	84·2

Additional readings:—
Riverview iN = 10m.6s. and 10m.15s., iN = 10m.38s.
Sitka i = 27m.27s., e = 30m.56s.
Berkeley iN = 13m.51s.
Tucson i = 13m.33s., e = 14m.2s.
Philadelphia e = 35m.4s.
Collmberg eZ = 23m.14s., 23m.20s., 35m.22s., and 35m.28s., eN = 42m.30s.?
Malaga iPKP$_2$Z = 21m.13s., iPPZ = 25m.15s., P$_c$PPZ = 28m.25s., PPPZ = 29m.41s., SKKSZ = 32m.2s., SSZ = 46m.36s., Q = 72m.25s.
Long waves were also recorded at Auckland, Arapuni, Christchurch, Wellington, Honolulu, Chicago, Harvard, La Paz, and at other European stations.

July 23d. Readings also at 1h. (near Lick), 3h. (Collmberg, Riverview, Auckland, Arapuni, Christchurch, Wellington, and near Suva), 4h. (near Fort de France), 5h. (St. Louis and Florissant), 6h. and 7h. (Tucson), 10h. (Cheb, De Bilt, Uccle, Strasbourg, Clermont-Ferrand, Paris, Alicante (2), and Malaga), 12h. (near Stalinabad), 14h. (La Paz and Huancayo), 16h. (near Toledo), 17h. (Christchurch, St. Louis, Florissant, Tucson, La Jolla, Palomar, Pierce Ferry, Boulder City, Riverside, Mount Wilson, Pasadena, Tinemaha, Shasta Dam, and College), 20h. (Weston), 23h. (Ksara, near Andijan, and near Leninakan).

July 24d. 0h. 19m. 8s. Epicentre 34°·8N. 119°·0W. (as on 1941, September 21d.).

Felt at Taft.

Epicentre 35°6′N. 119°5′W. (Pasadena).

$A = -·3990$, $B = -·7198$, $C = +·5681$; $\delta = +5$; $h = 0$;
$D = -·875$, $E = +·485$; $G = -·275$, $H = -·497$, $K = -·823$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fresno	N.	2·0	342	i 0 32	− 3	e 0 55	− 7	e 0 36	P*	e 1·3
Lick		3·3	322	e 0 54	+ 1	e 1 23	−12	e 1 4	P_g	—
Boulder City		3·6	70	i 1 14	P_g	i 2 9	L	—	—	(i 2·2)
Branner		3·6	317	e 0 56	− 2	e 1 32	−10	—	—	—
Berkeley		4·0	321	e 1 6	+ 2	e 1 44	− 8	e 1 10	P*	—
Pierce Ferry		4·3	72	i 1 8	0	e 2 17	S*	i 1 20	P*	—

Long waves were also recorded at Tucson.

July 24d. 11h. 0m. 7s. Epicentre 5°·1S. 153°·1E. (as on 1d.). Depth of focus 0·005

$A = -·8883$, $B = +·4507$, $C = -·0883$; $\delta = 0$; $h = +7$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·3	182	i 4 53	0	i 8 56	+ 7	i 5 11	PP	—
Suva		27·9	120	9 0	P_cP	—	—	—	—	—
Riverview		28·6	184	e 6 59	PPP	e 10 30	− 4	i 11 10	sS	e 14·4
Arapuni		38·7	152	—	—	13 59	+48	—	—	18·1
Wellington	Z.	40·9	155	7 53	pP	13 44	0	9 22	PP	19·9
Christchurch		42·0	159	7 51	+ 5	14 4	+ 4	17 34	S_cS	20·4
Vladivostok		51·7	340	i 9 0	− 3	16 14	− 4	—	—	—
Irkutsk		70·5	332	i 11 7	− 3	e 20 7	−10	—	—	—
Almata		83·5	315	11 55	−27	—	—	—	—	—
Andijan		86·3	311	e 12 38	+ 2	e 23 8	+ 4	—	—	—
Stalinabad		88·7	308	i 12 52	+ 5	—	—	—	—	—
Tashkent		88·7	312	e 12 50	+ 3	e 23 30	+ 3	e 16 24	PP	—
Berkeley		88·9	53	—	—	e 23 9	[− 1]	e 29 15	SS	—
Shasta Dam		89·1	49	e 12 49	0	—	—	e 16 13	PP	—
Samarkand		89·2	310	e 12 45	− 5	—	—	—	—	—
Pasadena		91·8	57	i 13 1	− 1	—	—	i 13 23	pP	e 37·7
Mount Wilson		91·9	57	i 13 2	0	—	—	i 13 26	pP	—
Tinemaha		92·0	54	e 13 2	− 1	—	—	—	—	—
La Jolla	Z.	92·4	58	e 13 7	+ 2	—	—	—	—	—
Riverside	Z.	92·4	57	i 13 3	− 2	—	—	e 13 27	pP	—
Palomar	Z.	92·8	58	e 13 5	− 2	—	—	i 13 30	pP	—
Boulder City		94·6	55	i 13 12	− 3	—	—	i 13 34	pP	—
Pierce Ferry		95·3	55	i 13 17	− 1	—	—	i 13 44	pP	—
Sverdlovsk		95·6	327	i 13 18	− 1	i 24 14	−14	i 17 11	PP	—
Tucson		97·8	58	e 13 30	+ 1	—	—	e 14 11	pP	e 43·6
Leninakan		107·9	311	e 14 36	pP	—	—	e 18 42	PP	—
Moscow		108·4	328	e 14 16	P	—	—	—	—	—
Florissant	E.	113·8	50	e 19 19	PP	e 26 22	SKKS	e 29 1	PS	—
Ksara		115·4	304	e 19 40	PP	e 30 36	PPS	—	—	—
Upsala		115·8	337	—	—	e 28 53?	PS	—	—	e 57·9
Warsaw		118·7	328	e 24 53?	?	e 25 33	[+ 3]	—	—	e 61·9
Copenhagen		120·6	335	—	—	27 36	?	30 27	PS	58·9
Ottawa		121·6	38	e 18 48	[+ 2]	e 29 53?	PS	e 36 53?	SS	50·9
Collmberg	Z.	123·3	332	i 18 51	[+ 1]	—	—	e 19 8	pPKP	—
Philadelphia		124·5	44	—	—	e 30 36	PS	e 37 53	SSP	e 50·3
Zagreb		125·0	324	(e 18 54)	[+ 1]	—	—	—	—	—
De Bilt		126·2	336	i 18 57a	[+ 2]	—	—	e 20 50	PP	e 59·9
Triest		126·4	326	21 37	PP	—	—	—	—	—
Uccle		127·5	336	e 18 59	[+ 1]	—	—	—	—	e 59·9
Strasbourg		127·6	332	e 19 0	[+ 2]	e 30 47	PS	e 21 2	PP	e 64·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		127·9	330	e 19 0a	[+ 1]	—	—	—	—	—
Zürich		128·0	330	i 19 5	[+ 6]	—	—	i 19 9	PKP	—
Basle		128·4	331	e 19 1	[+ 1]	—	—	—	—	—
Huancayo		128·9	110	e 19 7	[+ 6]	—	—	—	—	—
Rome		129·3	323	18 57	[− 5]	e 31 17	PS	e 21 13	PP	—
Clermont-Ferrand		131·8	332	e 19 51	[+45]	e 22 37	SKP	—	—	e 60·9
La Paz		133·9	120	i 22 48	SKP	—	—	—	—	—
Alicante		139·1	328	19 20	[+ 1]	26 40	[+18]	22 48	SKP	e 73·2
Malaga	z.	142·4	330	i 19 19a	[− 7]	i 26 26	[− 1]	i 22 32	PP	74·5
Granada		142·5	330	i 19 23a	[− 3]	30 2	SKKS	23 0	SKP	72·0

Additional readings :—
Brisbane ePN =4m.57s., ePE =5m.1s.
Riverview eE =10m.44s., iN =10m.48s., isSN =11m.13s.
Wellington S_cS? =17m.20s.
Tashkent S_cS =23m.52s., PPS =24m.40s.
Boulder City i =13m.50s., iPP =17m.9s.
Sverdlovsk iSKS =23m.50s., iPPS =26m.11s.
Tucson ePP =17m.37s.
Collmberg eZ =19m.13s., 20m.29s., and 21m.6s.
Zagreb reading increased by 10 minutes.
Strasbourg eSKP =22m.11s., e =34m.53s.
Rome iSKPZ =22m.21s., SS =38m.47s.
Alicante SKKS =29m.36s., SS =42m.10s.
Malaga PPPZ =25m.37s., P_cP,PKPZ =27m.45s., SKKS =29m.2s., PSZ =32m.45s., PPSZ =34m.43s., SSZ =40m.32s., PKP,SKSZ =44m.2s., QZ =60m.29s.
Granada PPS =36m.18s., SS =42m.56s.
Long waves were also recorded at Auckland, Honolulu, Harvard, and Paris.

July 24d. 19h. Undetermined shock.

Suva 29m.16s.
Christchurch P =32m.12s., S =38m.40s., Q =41m.58s., R =45m.15s.
Palomar ePZ =38m.45s.
Riverside ePZ =38m.49s.
Tinemaha ePZ =38m.54s.
Pierce Ferry iP =39m.5s.
Boulder City eP =39m.6s.
Tucson iP =39m.7s.
Vladivostok eP =39m.12s., eS =47m.19s.?
Ksara ePKP =47m.8s., PP =50m.37s.
Long waves were also recorded at Auckland, Arapuni, Wellington, Riverview, Pasadena, Malaga, and Granada.

July 24d. Readings also at 1h. (near Mizusawa), 4h. (near Andijan), 7h. (near Mizusawa), 10h. (Zagreb, Ksara, Riverview, Weston, Tucson, Pierce Ferry, Boulder City, Tinemaha, Pasadena, Mount Wilson, Riverside, and Palomar), 11h. (near Mizusawa), 14h. (Huancayo, La Paz, and near Apia), 17h. (Upsala, Tucson, and near Branner), 22h. (near Stalinabad and near Fresno), 23h. (De Bilt).

July 25d. 14h. 9m. 51s. Epicentre 10°·0N. 116°·0E. Depth of focus 0·015.

Epicentre as adopted (U.S.S.R.).

A = −·4318, B = +·8853, C = +·1725 ; δ = −4 ; h = +7 ;
D = +·899, E = +·438 ; G = −·076, H = +·155, K = −·985.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		35·8	20	i 6 47	− 2	i 12 17	+ 1	—	—	—
Irkutsk		43·2	349	i 7 52	+ 2	i 14 7	+ 1	8 15	pP	—
Andijan		49·2	316	8 53	+16	—	—	—	—	—
Stalinabad		50·8	313	i 9 5	+16	—	—	—	—	—
Samarkand		52·5	312	i 9 21	pP	e 16 36	+19	—	—	—
Riverview	z.	54·9	144	i 7 50a	−90	—	—	—	—	—
Sverdlovsk		63·1	329	i 10 16	0	i 18 34	− 1	i 19 11	sS	—
Baku		65·4	310	e 10 39	+ 8	e 19 12	+ 9	—	—	—
Grozny		68·8	312	10 55	+ 3	—	—	—	—	—
Leninakan		70·0	309	e 11 5	+ 5	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Moscow		75·2	325	i 11 22	− 8	20 40	−17	—	—	—
Ksara		76·3	302	i 11 35	− 1	e 21 9	0	—	—	—
Helwan		80·5	299	i 11 54a	− 5	21 49	− 5	i 15 32	PP	—
Collmberg	z.	90·3	322	e 12 53	+ 5	e 25 40	PPS	e 16 46	PP	—
Triest		91·4	317	—	—	i 22 15?	−83	—	—	—
Rome		93·3	313	e 17 11	PP	22 25	?	—	—	—
Zürich		94·2	320	e 16 27	?	—	—	—	—	—
Tucson		118·6	45	e 18 58	[+25]	—	—	—	—	—
La Paz		172·4	149	e 20 9	[+16]	—	—	—	—	—

Additional readings :—
Helwan e = 14m.6s., i = 14m.18s.
Collmberg eZ = 12m.34s. and 29m.49s.

July 25d. 16h. 42m. 7s. Epicentre 51°·4N. 179°·2W. (as on 1944, December 12d.).

A = −·6264, B = −·0087, C = +·7795 ; δ = +7 ; h = −6 ;
D = −·014, E = +1·000 ; G = −·779, H = −·011, K = −·626.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		21·1	38	e 4 52	+ 4	e 8 45	+ 6	—	—	e 9·1
Sitka		25·9	60	i 5 40	+ 5	e 10 22	+18	—	—	e 12·9
Sapporo		27·8	270	i 5 55	+ 2	—	—	—	—	—
Mizusawa	E.	30·1	262	6 15	+ 2	11 14	+ 2	—	—	—
Kakioka		32·5	258	e 6 9	−25	—	—	—	—	—
Kumagaya		33·1	260	e 6 39	− 1	—	—	—	—	—
Nagano		33·5	262	e 6 46	+ 3	—	—	—	—	—
Vladivostok		33·7	276	e 8 7	PPP	—	—	—	—	—
Hunatu		33·9	260	e 6 37	−10	—	—	—	—	—
Misima		34·0	259	e 6 50	+ 2	12 15	+ 2	—	—	—
Honolulu		34·4	142	—	—	e 12 21	+ 2	—	—	14·4
Victoria		35·3	73	6 58	− 1	12 30	− 3	—	—	14·9
Kobe		36·6	261	i 7 6	− 4	12 52	− 1	—	—	—
Grand Coulee		38·2	71	i 7 23	0	e 13 17	0	e 13 44	sS	e 14·5
Kôti		38·4	262	e 7 27	− 2	—	—	—	—	—
Shasta Dam		39·9	82	i 7 37	0	e 13 27	−16	e 17 40	S_cS	—
Ukiah		40·3	86	e 7 45	+ 5	e 13 49	0	—	—	e 16·6
Berkeley		41·7	87	i 7 57	+ 5	e 13 38	−32	i 9 48	PPP	e 19·6
Branner		42·0	87	e 7 55	+ 1	e 14 7	− 7	e 8 1	pP	e 19·5
Santa Clara		42·2	87	e 8 2	+ 6	e 14 23	+ 6	—	—	e 17·5
Butte		42·9	70	e 8 5	+ 3	e 14 28	+ 1	e 10 25	PPP	e 19·3
Saskatoon		43·3	60	8 17	+12	14 42	+ 9	18 1	SSS	21·9
Fresno	N.	43·9	86	e 8 17	+ 7	e 13 53	−49	—	—	—
Bozeman		44·0	70	e 8 8	− 3	e 14 35	− 8	e 9 23	PP	e 18·1
Tinemaha		44·7	85	e 8 17	+ 1	—	—	—	—	—
Irkutsk		45·2	303	i 9 21	+61	—	—	—	—	—
Santa Barbara		45·4	89	e 8 25	+ 3	—	—	—	—	—
Logan		45·8	75	e 8 28	+ 3	e 15 11	+ 2	e 10 26	PP	e 20·6
Salt Lake City		46·3	76	e 8 30	+ 1	e 15 17	+ 1	e 10 15	PP	e 18·4
Mount Wilson		46·6	88	i 8 31	− 1	—	—	—	—	—
Pasadena		46·6	88	i 8 30	− 2	e 15 22	+ 1	i 8 40	pP	e 18·3
Riverside	Z.	47·2	88	e 8 35	− 1	—	—	—	—	—
Overton		47·4	81	e 8 38	0	e 15 30	− 2	—	—	—
Boulder City		47·5	83	i 8 38	0	e 15 28	− 6	i 8 45	pP	—
Palomar		47·9	88	i 8 42a	0	e 15 37	− 2	9 0	pP	—
La Jolla	Z.	48·0	89	e 8 43	0	—	—	—	—	—
Rapid City		49·5	68	e 8 55	+ 1	e 16 0	− 2	e 18 49	S_cS	e 22·6
Tucson		52·4	84	i 9 15	− 1	e 16 38	− 4	i 12 13	PPP	e 22·1
Lincoln		55·3	66	—	—	e 17 15	− 6	—	—	e 26·5
Chicago		59·7	61	e 10 6	− 3	e 18 9	−10	e 19 57	S_cS	e 24·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Florissant	N.	60·2	65	e 10 9	− 3	e 18 20	− 5	—	—	—
St. Louis	Z.	60·4	65	i 10 11	− 2	e 18 39	+11	e 22 48	SS	—
Sverdlovsk		61·4	328	i 10 20	0	i 18 52	+12	—	—	—
Ottawa		63·2	50	10 30	− 2	18 59	− 4	25 29	SSS	28·9
Cincinnati		63·3	60	i 10 31	− 2	e 18 59	− 5	—	—	e 33·2
Shawinigan Falls		63·8	47	i 10 34	− 2	—	—	—	—	33·9
Seven Falls		64·2	47	10 35	− 4	19 13	− 3	23 59	SS	28·9
Almata		65·0	309	10 47	+ 3	—	—	—	—	—
Pennsylvania		65·6	56	i 10 50	+ 2	e 19 28	− 5	e 23 48	SS	—
Georgetown		67·4	56	e 10 58	− 1	e 19 51	− 4	e 20 16	PS	29·9
Harvard		67·4	50	i 10 58a	− 1	e 19 53	− 2	—	—	e 27·9
Fordham		67·5	53	e 10 55	− 5	e 19 47	− 9	—	—	e 33·9
Philadelphia		67·6	55	e 10 59	− 2	e 19 51	− 6	e 24 26	SS	e 27·7
Weston		67·7	50	i 10 59	− 3	e 19 58	0	—	—	e 30·6
Upsala		68·3	352	11 6	+ 1	20 2	− 4	e 13 34	PP	e 31·9
Columbia		68·9	62	—	—	e 20 8	− 5	e 24 38	SS	e 30·5
Tacubaya		68·9	85	e 11 16	+ 7	e 20 6	− 7	e 11 21	pP	—
Moscow		69·0	339	i 11 7	− 2	20 11	− 3	—	—	—
Andijan		69·1	310	11 13	+ 3	e 20 35	PS	—	—	—
Tashkent		70·1	312	e 11 13	− 3	e 20 43	PS	—	—	—
Aberdeen		71·8	2	e 10 53	−33	i 20 40	− 6	—	—	—
Samarkand		72·5	313	e 11 31	+ 1	—	—	—	—	—
Stalinabad		72·6	311	i 11 31	0	—	—	—	—	—
Copenhagen		72·8	354	i 11 28	− 4	20 59	+ 1	—	—	—
Calcutta	N.	74·2	285	—	—	20 47	−27	—	—	—
Durham		74·2	2	—	—	i 21 32	PS	—	—	—
Warsaw		75·3	347	11 46a	− 1	21 26	0	14 42	PP	e 40·9
New Delhi	N.	76·0	298	e 11 52	+ 1	i 21 32	− 2	26 27	SS	—
Potsdam		76·1	353	e 11 53	+ 2	—	—	—	—	e 39·9
De Bilt		76·8	358	i 11 55a	0	e 21 43	− 1	e 22 40	PPS	e 35·9
Collmberg	Z.	77·2	352	i 11 56	− 1	—	—	e 15 3	PP	—
Jena	N.	77·6	353	e 11 59	− 1	e 22 2	+11	e 22 5	sS	—
Grozny		77·9	328	12 3	+ 2	—	—	—	—	—
Uccle		78·1	358	e 12 3a	+ 1	e 21 57	+ 1	e 15 2	PP	e 36·9
Prague		78·2	351	—	—	e 22 8	+11	e 33 11	Q	e 37·9
Bermuda		78·7	52	e 12 5	− 1	e 22 2	− 1	e 15 25	PP	e 32·1
Baku		79·1	325	12 13	+ 5	—	—	—	—	—
Jersey		79·8	3	—	—	—	—	20 23	?	43·9
Budapest		80·2	347	12 16	+ 2	22 33	+14	e 18 8	?	e 37·9
Paris		80·2	359	i 12 14	0	e 22 16	− 3	e 12 31	pP	e 31·9
Strasbourg		80·2	355	e 12 14	0	e 22 18	− 1	e 15 35	PP	e 40·6
Leninakan		80·8	328	e 12 20	+ 3	—	—	—	—	—
Kalossa		81·2	347	e 12 31	+12	—	—	e 12 37	PcP	—
Basle		81·3	356	e 12 19	− 1	e 22 31	+ 1	—	—	—
Zürich		81·4	356	i 12 20a	0	e 22 28	− 3	—	—	—
Chur		81·8	355	i 12 22a	0	—	—	—	—	—
Neuchatel		81·8	356	i 12 23	+ 1	—	—	—	—	—
Bucharest	E.	82·1	342	e 9 33?	?	e 22 37	− 1	—	—	35·9
Brisbane	N.	82·3	205	—	—	e 22 43	+ 3	—	—	e 38·4
Zagreb		82·3	349	e 12 25a	0	e 22 36	− 4	e 12 28	PcP	e 44·9
Belgrade		82·7	346	e 12 9	−18	e 22 35	− 9	e 14 5	?	37·9
Triest		82·7	351	e 12 13	−14	e 22 41	− 3	—	—	—
Clermont-Ferrand		83·2	358	e 12 28	− 1	22 51	+ 2	—	—	e 40·9
Sofia	N.	84·3	343	e 12 39	+ 4	e 23 1	+ 1	—	—	—
Florence		84·8	352	i 12 37	0	i 22 22	−43	—	—	—
Bombay		86·1	294	i 12 48	+ 4	i 23 21	+ 3	e 23 6	SKS	—
Rome		86·5	352	12 49	+ 3	23 13	− 9	24 3	PS	39·9
Tortosa	N.	88·2	0	13 45	+51	—	—	—	—	(e 51·9)
Riverview		88·8	204	12 54	− 3	i 23 28	−16	i 24 48	PS	e 41·6
Toledo		89·0	4	i 12 57	− 1	23 44	− 1	23 30	PS	46·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Arapuni		89·2	184	—	—	e 24 59	PS	e 30 35	SS	38·9
Ksara		89·7	332	e 13 1	0	25 16	PS	—	—	—
Lisbon		89·8	8	16 53?	PP	30 0	SS	38 17	Q	43·5
Granada		91·7	4	13 13k	+ 3	24 9	− 1	17 6	PP	52·0
Malaga	z.	92·1	5	i 13 15a	+ 3	e 24 22	+ 9	i 16 56	PP	45·2
Algiers		92·5	358	—	PS	(24 15)	− 2	(e 25 53)	PPS	—
Wellington		92·5	185	—	—	i 23 47	[0]	39 29	Q	45·4
Helwan		94·7	333	e 13 28	+ 4	23 59	[0]	17 14	PP	—
Christchurch		94·8	186	e 13 36	+11	23 59	[− 1]	25 51	PS	44·2
Huancayo		108·0	86	e 28 13	PS	e 24 58	[− 6]	38 25	SSS	44·6
La Paz	z.	115·9	83	i 19 53	PP	i 29 35	PS	—	—	i 55·9

Additional readings and notes :—
Mizusawa PN =6m.18s.
Berkeley iPPZ =9m.1s., eQZ =17m.4s.
Bozeman e =15m.22s.
Logan e =18m.8s.
Salt Lake City e =10m.49s.
Rapid City e =10m.14s.
Tucson i =10m.45s., iPP =10m.57s., e =14m.33s., eS_cS =19m.3s.
Chicago e =18m.16s. and 22m.13s.
Ottawa SS =23m.53s.
Georgetown eP =11m.1s., e =20m.1s.
Fordham iP =11m.0s.
Philadelphia e =11m.36s., 13m.49s., and 20m.29s.
Upsala ePE =11m.9s., ePP?E =13m.18s., ePPPN =15m.15s., SN =19m.49s.?, eSSN =24m.8s., eE =28m.1s.
Warsaw PE =11m.50s., PSE =21m.59s., PSN =22m.2s., eSS?N =27m.0s.
De Bilt iP =11m.59s., eSS =27m.23s.
Collmberg iZ =12m.0s., eZ =12m.17s., 13m.1s., and 14m.32s.
Uccle iPSN =22m.57s., eSSN =26m.59s., iN =27m.41s., eE =32m.35s.
Bermuda eSS =26m.49s.
Paris i =12m.17s.
Strasbourg e =19m.13s., ePS =23m.25s., eSS =27m.59s.
Zagreb ePS =23m.44s.
Rome SS =28m.48s., SSS =32m.9s.?
Riverview eEZ =23m.31s., iE =23m.45s., iEN =23m.50s., iE =24m.9s., eSSE =29m.30s., eQN =35m.53s.
Arapuni e =37m.23s.
Granada SSS =37m.34s.
Malaga PSZ =25m.42s., SSZ =30m.18s.
Algiers readings increased by 2m.
Helwan PS =26m.5s., SSS =31m.23s.
Christchurch S =24m.46s., SS =31m.3s., SSS =34m.48s.
Huancayo eSS =33m.39s.
Long waves also at Alicante, Besançon, and Cheb.

July 25d. Readings at 0h. (Helwan, Uccle, Ksara, Moscow, Sverdlovsk, near Leninakan, and Baku), 1h. (Huancayo), 4h. (near Stalinabad), 5h. (Palomar, Boulder City, Overton, Tinemaha, Tucson, and near Zürich), 8h. (near Stalinabad), 11h. (Tacubaya and near Stalinabad), 14h. (Sverdlovsk and Moscow), 16h. (Sofia), 17h. (La Paz), 22h. (Branner), 23h. (Branner and Fresno).

July 26d. 4h. Undetermined shock.

College e =17m.52s. and 21m.34s., eS =22m.1s., eL =23m.34s.
Grand Coulee eP =20m.15s., e =26m.6s.
Shasta Dam iP =20m.30s., eS? =26m.42s.
Tinemaha ePZ =21m.9s.
Pasadena ePZ =21m.22s.
Mount Wilson ePZ =21m.25s.
Boulder City eP =21m.30s., iP =21m.34s.
Overton eP =21m.32s.
Riverside ePZ =21m.32s.
Palomar iPNZ =21m.33s.
Tucson iP =22m.7s., i =22m.12s., e =23m.10s., 24m.5s., and 25m.26s., eL? =25m.37s.
Florissant ePN =23m.2s.
St. Louis iPZ =23m.4s.
Sverdlovsk eP =23m.12s., eS =31m.54s.
Ksara e =30m.35s.
Long waves were also recorded at Weston and Granada.

July 26d. 6h. 44m. 44s. Epicentre 20°·5S. 70°·5W. Focus at base of superficial layers.
(as on 1944, August 18d.).

Intensity VIII in Iquique and district (20°-21° S.Lat.).
Macroseismic area between Peru and lat. 25°S.

Epicentre 19°·8S. 70°·9W.; h = 80km. (J.S.A.).
Epicentre 18°·5S. 70°·5W.; h = 70km. (Pasadena).

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

$A = +\cdot3129$, $B = -\cdot8836$, $C = -\cdot3481$; $\delta = -17$; $h = +5$;
$D = -\cdot943$, $E = -\cdot334$; $G = -\cdot116$, $H = +\cdot328$, $K = -\cdot937$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		2·6	144	i 0 42	+ 1	i 1 10	− 1	i 0 52	pP	i 1·7
La Paz	N.	4·6	30	i 1 15	+ 6	i 2 24	SSS	—	—	2·6
Huancayo		9·6	330	e 2 20	+ 1	i 3 35	−32	—	—	i 4·2
Santa Lucia	N.	12·9	181	3 4	0	5 28	+ 1	6 6	SSS	7·3
La Plata	E.	18·1	144	i 4 8	− 2	7 22	− 6	7 52	SS	9·6
	N.	18·1	144	i 4 6	− 4	7 28	0	—	—	9·2
	Z.	18·1	144	4 12	+ 2	—	—	—	—	10·1
Bogota		25·2	353	i 5 23?	− 1	e 9 53	+ 8	5 28?	pP	e 12·6
Fort de France		36·2	17	e 8 1	+59	—	—	—	—	—
Tacubaya		48·6	324	e 8 42	0	e 15 48	+ 7	—	—	—
Bermuda		52·8	7	e 9 17	+ 3	e 16 34	− 5	e 19 2	SeS	e 26·4
Columbia		55·1	350	e 9 32	+ 1	e 17 8	− 2	e 11 44	PP	e 27·5
Georgetown		59·4	355	i 10 1	− 1	i 18 8	+ 1	10 32	pP	i 19·8
Philadelphia		60·3	357	e 10 9	+ 1	i 18 15	− 3	e 10 37	pP	e 25·2
Cincinnati		60·8	348	i 10 9	− 2	e 18 19	− 5	12 21	PP	—
Fordham		61·1	358	i 10 11	− 2	i 18 23	− 5	i 18 49	PS	—
Pennsylvania		61·3	354	i 10 16	+ 2	i 18 32	+ 1	e 12 25	PP	i 25·5
St. Louis	Z.	61·7	344	i 10 13	− 4	—	—	i 10 33	pP	—
Florissant		61·9	344	e 10 13	− 5	i 18 30	− 8	i 10 30	pP	—
Weston		62·6	0	i 10 21	− 2	e 18 46	− 1	e 19 13	PS	—
Harvard		62·7	0	i 10 21a	− 3	e 18 47	− 2	e 12 43	PP	—
Chicago		64·0	346	e 10 36	+ 4	i 19 5	0	e 10 49	pP	e 29·3
Tucson		65·1	324	e 10 37	− 3	e 19 28	+10	i 10 55	pP	e 27·0
Lincoln		65·7	339	e 10 42	− 1	e 19 21	− 5	e 13 17	PP	e 33·0
Ottawa		65·7	356	10 41	− 2	19 24	− 2	23 16	SS	30·3
Shawinigan Falls		66·8	359	10 47	− 3	19 37	− 2	—	—	—
Seven Falls		67·3	0	10 53	0	19 41	− 4	—	—	27·3
La Jolla		69·4	320	e 11 6	0	e 20 14	+ 4	—	—	—
Palomar		69·5	321	e 11 5	− 2	e 20 17	+ 6	11 25	pP	—
Boulder City		70·1	323	e 11 8	− 3	e 20 20	+ 2	i 11 28	pP	—
Riverside		70·2	321	i 11 12	+ 1	e 20 25	+ 6	i 11 31	pP	—
Overton		70·3	325	e 11 11	− 1	e 20 25	+ 5	—	—	—
Mount Wilson		70·8	321	i 11 15	0	e 20 35	+ 9	i 11 30	pP	—
Pasadena		70·8	321	i 11 14k	− 1	i 20 33	+ 7	i 11 30	pP	e 34·5
Rapid City		70·9	336	e 11 19	+ 3	e 20 30	+ 2	e 13 50	PP	e 31·1
Santa Barbara		71·9	320	e 11 20	− 2	—	—	—	—	—
Haiwee		72·0	322	e 11 23	+ 1	—	—	—	—	—
Salt Lake City		72·1	329	e 11 24	+ 1	e 20 44	+ 3	e 25 37	SS	e 31·3
Logan		72·8	330	e 11 29	+ 2	e 20 50	+ 1	e 13 59	PP	e 34·8
Tinemaha		72·9	322	i 11 27	− 1	e 20 50	0	i 11 46	pP	—
Fresno	N.	73·5	322	e 11 30	− 1	e 21 1	+ 4	e 14 12	PP	—
Lick	E.	75·0	320	11 38	− 2	e 21 16	+ 2	—	—	—
Santa Clara		75·2	320	e 11 45	+ 4	e 21 25	+ 9	e 12 1	pP	—
Branner		75·4	320	e 11 44	+ 2	e 21 24	+ 6	e 15 56	PPP	—
Bozeman		75·5	333	e 11 43	0	e 21 20	0	e 26 7	SS	e 31·0
Berkeley		75·7	320	i 11 47	+ 3	i 21 29	+ 7	e 12 2	pP	e 37·1
Butte		76·4	333	e 11 44	− 4	e 21 27	− 2	i 12 0	pP	e 31·4
Ukiah		77·1	322	e 11 54	+ 2	e 21 40	+ 3	e 22 31	sS	e 35·4
Shasta Dam		77·7	323	i 11 52	− 3	e 21 39	− 5	e 13 50	?	—
Saskatoon		78·9	339	12 5	+ 3	21 54	− 2	15 16?	PP	37·3
Grand Coulee		80·8	330	e 12 10	− 2	i 22 18	+ 2	i 22 45	sS	—
Victoria		83·3	328	12 25	0	22 47	+ 5	—	—	44·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Malaga	Z.	84·4	48	i 12 31k	+ 1	i 22 51	− 2	i 12 47 pP	39·9
Granada		85·2	48	i 12 33a	− 1	22 58	− 2	12 52 pP	42·2
Toledo		86·2	46	i 12 40	+ 1	i 23 7	− 3	28 26 SS	39·9
Alicante		87·9	48	i 13 0	+13	22 48	−39	16 20 PP	e 39·7
Tortosa	N.	89·7	47	e 13 19	+23	23 46	+ 3	25 2 PS	—
Clermont-Ferrand		93·6	43	e 17 42	SPP	23 47	[+ 3]	— —	50·3
Wellington		93·8	222	—	—	i 24 31	S_cS	— —	43·5
Christchurch		94·0	220	13 22	+ 6	23 47	[0]	38 28 Q	43·5
Sitka		94·5	330	e 13 44	P_cP	e 23 48	[− 1]	e 17 10 PP	e 37·4
Paris		94·6	40	13 33	pP	e 23 47	[− 3]	e 17 4 PP	e 45·3
Durham	E.	95·1	33	—	—	i 23 55	[+ 2]	— —	—
Aberdeen		96·0	30	—	—	23 58	[0]	— —	—
Uccle		96·5	37	—	—	e 23 57	[− 3]	— —	e 44·3
Strasbourg		97·7	41	e 17 29	PP	e 24 11	[+ 4]	e 31 3 SS	50·3
Florence		98·2	47	(i 13 38)	+ 3	(e 23 56)	[−13]	(e 24 26) SKKS	(i 43·6)
De Bilt		98·5	36	e 13 38	+ 2	e 24 10	[0]	e 17 28 PP	e 45·3
Triest		100·5	45	e 17 52	PP	i 24 21	[0]	i 32 6 SS	48·4
Bergen	N.	100·8	28	—	—	23 59	[−23]	— —	—
Cheb		101·0	39	—	—	e 24 33	[+10]	e 32 30 SS	—
Collmberg	Z.	101·8	40	e 13 53	+ 2	e 17 59	PP	e 14 9 pP	—
Prague		102·3	40	—	—	e 24 33	[+ 4]	e 16 34 ?	—
Copenhagen		102·8	34	e 17 57	PP	—	—	— —	—
Belgrade		104·8	48	e 17 33	?	—	—	— —	—
Upsala		106·6	31	e 18 48	PP	e 24 46	[− 2]	e 33 32 SS	e 56·3
Warsaw		106·8	39	e 18 39	PP	e 24 51	[+ 2]	e 33 21 SS	e 55·3
Bucharest		108·7	48	18 16?	[− 9]	—	—	40 15 Q	—
Helwan		109·9	65	e 18 55	PP	25 6	[+ 3]	21 18 PPP	—
Riverview		113·0	217	i 14 35a	P	—	—	i 18 31 PKP	e 53·1
Ksara		114·4	62	19 33	PP	29 11	PS	— —	—
Moscow		116·8	37	19 36	?	—	—	20 1 PP	—
Leninakan		121·3	54	e 20 28	PP	—	—	— —	—
Baku		126·0	54	e 21 14	PP	—	—	— —	—
Sverdlovsk		129·0	32	e 19 9	[+ 4]	26 10	[+ 2]	21 18 PP	—
Tashkent		140·2	49	e 19 23	[− 2]	26 26	[− 4]	e 22 29 PP	—
Stalinabad		140·6	53	e 19 51	[+25]	—	—	i 22 29 PP	—
Andijan		142·6	49	e 19 37	[+ 7]	—	—	— —	—
Irkutsk		148·0	6	19 47	[+ 8]	29 47	SKKS	e 41 39 SS	—
New Delhi	N.	149·6	68	—	—	e 30 2	SKKS	i 42 25 SS	e 82·9

Additional readings and notes :—
La Plata N =5m.58s.
Bogota i =5m.47s.?, e.11m.3s. and 12m.4s.
Bermuda ePP =11m.42s.
Columbia e =17m.32s., 20m.8s., and 22m.9s.
Georgetown eP =10m.4s., iS =18m.5s.
Philadelphia e =11m.56s., ePP =12m.42s., i =18m.42s. and 19m.51s., eSS =22m.6s.
Fordham i =10m.34s.
Pennsylvania iEN =18m.53s., iSEN =20m.2s., eE =20m.25s. and 24m.1s.
Florissant iZ =10m.40s., iPPZ =12m.35s., ipPPZ =13m.0s., eSE =18m.26s., isSE = 19m.1s., iS_cSE =20m.0s., isS_cSE =20m.31s.
Harvard e =11m.0s. and 13m.5s., ePS =19m.11s., eS_cS =20m.11s., e =20m.39s.
Chicago ePP =14m.31s., eS =18m.57s., iS_cS =20m.24s., i =20m.52s., e =23m.19s.
Tucson i =11m.42s., ePP =13m.4s., e =13m.45s., eS_cS =20m.52s., e =21m.37s., ePKP, PKP =39m.24s.
Lincoln e =10m.57s., 19m.41s., and 20m.33s., eSS =23m.58s.
Palomar i =11m.7s., iZ =13m.42s., eSN =20m.43s.
Riverside eZ =13m.50s., eN =20m.53s.
Mount Wilson eZ =21m.0s.
Pasadena esPZ =11m.42s., eZ =12m.37s., iZ =13m.10s., iN =21m.1s., iE =21m.43s.
Rapid City e =20m.57s. and 24m.31s.
Salt Lake City e =21m.11s.
Logan i =12m.1s., e =21m.23s. and 25m.6s.
Fresno eN =11m.34s., 11m.37s., and 11m.56s.
Lick eE =11m.41s.
Branner eN =21m.52s.
Bozeman e =12m.33s.
Berkeley eSSN =26m.29s.
Butte e =14m.55s.
Ukiah e =26m.30s.

Continued on next page.

Saskatoon PS =22m.15s., SS =29m.58s.
Grand Coulee e =12m.28s.
Malaga iPPZ =15m.47s., PPPZ =17m.46s., sSZ =23m.43s., PSZ =24m.1s., SSZ = 28m.42s.
Granada PP =16m.0s., PS =23m.45s., SS =28m.42s., SSS =32m.9s.
Toledo iZ =13m.41s., sS?N =23m.41s.
Alicante P_cP =13m.12s., PPP =17m.28s., S_cS =23m.20s., PS =23m.52s., SS =28m.36s.
Tortosa S_cSN =23m.25s.
Christchurch S =24m.28s.
Sitka eS =24m.19s., e =30m.51s.
Paris iPP? =17m.35s., eSKKS =24m.17s., e =25m.39s.
Uccle i =24m.3s.
Strasbourg e =27m.54s.
Florence readings reduced by 4m.
De Bilt eS =24m.38s.
Collmberg eZ =18m.20s.
Upsala ePPP?E =25m.33s., eN =25m.56s., eSKS?E =28m.56s., ePSN =32m.36s.; readings wrongly identified.
Warsaw eN =18m.53s. and 26m.13s.
Helwan SKKS =26m.1s., S =26m.40s.
Riverview iZ =17m.42s.
Sverdlovsk PKS =22m.26s., SKKS =28m.6s., iSS =38m.30s.
Tashkent eSKKS =29m.12s.
Long waves were also recorded at Arapuni and Bombay.

July 26d. 22h. 31m. 38s. Epicentre 22°·0S. 171°·7E. (as on 1946, March 24d.).

$A = -\cdot9184$, $B = +\cdot1340$, $C = -\cdot3724$; $\delta = +10$; $h = +4$;
$D = +\cdot144$, $E = +\cdot990$; $G = +\cdot368$, $H = -\cdot054$, $K = -\cdot928$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		7·4	60	i 1 52	0	i 3 29	+11	—	—	—
Auckland		15·1	170	3 38	+ 2	6 23	− 2	i 4 4	PP	—
Brisbane		17·8	248	i 4 11	0	i 7 26	− 2	i 4 34	PP	—
Wellington		19·4	174	4 22	− 8	7 58	− 6	4 54	PP	9·4
Christchurch		21·5	179	4 49	− 3	8 46	− 1	5 22	PP	—
Riverview		21·6	232	e 4 55	+ 1	i 8 46	− 3	i 5 17	PP	e 11·4
Vladivostok		74·4	331	i 11 1	−41	—	—	—	—	—
Berkeley		86·0	47	e 12 50	+ 7	e 23 0	−17	e 13 11	pP	e 37·3
Santa Barbara	z.	86·0	50	e 12 42	− 1	—	—	—	—	—
Pasadena		86·9	51	i 12 47	− 1	—	—	13 18	pP	—
La Jolla		87·0	53	e 12 47	− 1	—	—	—	—	—
Mount Wilson		87·1	51	e 12 48	− 1	—	—	i 13 17	pP	—
Riverside		87·4	51	i 12 49	− 1	—	—	i 13 18	pP	—
Shasta Dam		87·4	44	i 12 48	− 2	e 23 22	− 8	—	—	—
Palomar		87·5	53	i 12 49	− 2	—	—	i 13 18	pP	—
Haiwee		88·0	50	i 12 54	+ 1	—	—	—	—	—
Tinemaha		88·3	49	i 12 54	− 1	—	—	i 13 26	pP	—
Boulder City		90·2	51	i 13 3	− 1	—	—	—	—	—
Overton		90·7	51	e 13 6	0	e 23 57	− 4	—	—	—
Tucson		91·6	56	e 13 8	− 2	—	—	—	—	—
Sverdlovsk		119·6	323	18 50	[− 2]	25 34	[−14]	e 29 52	PS	—
Ksara		139·5	296	e 19 29	[− 1]	—	—	22 17?	PP	—
Copenhagen		143·0	340	i 19 27	[− 9]	—	—	i 22 44	PP	—
Helwan		143·7	291	19 28	[− 9]	—	—	23 27	PP	—
Bucharest		144·0	316	18 32?	[−65]	—	—	30 22	?	—
Collmberg	z.	146·4	335	e 19 40	[− 1]	—	—	e 19 51	pPKP	—
Kalossa	E.	147·0	325	e 20 0	[+17]	—	—	—	—	—
De Bilt		148·2	344	i 19 43	[− 2]	—	—	e 23 12	PP	—
Uccle		149·6	345	e 19 43	[− 4]	—	—	—	—	—
Triest		150·3	328	e 19 51	[+ 3]	—	—	—	—	—
Chur		151·3	335	e 19 52a	[+ 3]	—	—	—	—	—
Zürich		151·3	336	e 19 53a	[+ 4]	—	—	—	—	—
Basle		151·5	337	e 19 47	[− 3]	—	—	e 27 18	PPP	—
Paris		151·9	344	e 19 47	[− 3]	e 26 59	[+ 3]	e 23 41	PP	e 74·4
Rome		153·4	323	19 50	[− 2]	—	—	e 23 46	PP	—
Granada		164·3	346	i 20 59a	[+54]	e 44 56	SS	—	—	e 87·6
Malaga	z.	164·9	347	i 24 50a	PP	e 31 43	{+ 5}	28 28	PPP	82·3

For Notes see next page.

NOTES TO JULY 26d. 22h. 31m. 38s.

Additional readings and notes :—
Auckland i =4m.32s.
Wellington i =4m.32s.
Christchurch P_cP =9m.1s., sS =9m.48s., S_cS? =15m.40s.
Riverview iE =4m.59s., iEN =5m.11s., iPP =5m.25s., iP_cPN =8m.50s., iZ =8m.54s., iSSEN =9m.25s., iSSZ =9m.30s.
Berkeley eE =23m.44s., eQE =32m.2s.
Shasta Dam e =13m.16s.
Tucson e =13m.40s. and 15m.4s.
Sverdlovsk PP =20m.10s., PPP =22m.46s.
Helwan PKKP =19m.58s., e =22m.40s.
Collmberg iZ =19m.45s., eZ =20m.8s., 20m.22s., and 22m.40s.
Paris e =24m.15s.
Rome PP =21m.22s.
Granada SKP =24m.48s., eSKKS =32m.47s.
Malaga $iPKP_2Z$ =25m.24s., iPPZ =29m.9s., PPPZ =32m.52s., PPSZ =42m.25s., QZ = 74m.16s. ; readings wrongly identified.
Long waves were also recorded at Arapuni.

July 26d. Readings also at 2h. (Tucson, Palomar, Mount Wilson, Tinemaha, Jersey, and near Suva), 3h. (near Stalinabad), 4h. (Tucson), 5h. (Malaga and near Stalinabad), 6h. (near Andijan and Stalinabad), 7h. (Tucson), 8h. (near Granada (2) and Tucson), 10h. (Sverdlovsk and near Mizusawa), 17h. (Prague, Triest, and near Balboa Heights), 19h. (Uccle), 20h. (De Bilt), 21h. (Tucson), 22h. (Tucson and Granada), 23h. (Tananarive and Uccle).

July 27d. 7h. 25m. 16s. Epicentre 35°·3N. 69°·7E. Depth of focus 0·015.

Epicentre 35°15′N. 69°40′N. (U.S.S.R.).

A = +·2838, B = +·7671, C = +·5752 ; δ = −16 ; h = 0 ;
D = +·938, E = −·347 ; G = +·200, H = +·539, K = −·818.

	△	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Stalinabad	3·3	348	i 0 53	+ 1	i 1 31	0
Samarkand	4·9	334	1 15	+ 2	i 2 13	+ 4
Andijan	5·9	21	e 1 20	− 6	2 27	− 6
Tashkent	6·1	357	e 1 41	+12	e 3 10	+32
Almata	9·8	33	2 10	− 9	4 30	+23
Sverdlovsk	22·4	347	—	—	e 8 48	+ 7

July 27d. 16h. 25m. 42s. Epicentre 35°·6N. 45°·8E.

A = +·5682, B = +·5843, C = +·5795 ; δ = +8 ; h = 0 ;
D = +·717, E = −·697 ; G = +404, H = +·415, K = −·815.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Leninakan		5·4	345	e 1 20	− 4	i 2 28	0	—	—	—
Baku		5·8	33	1 34	+ 5	—	—	—	—	—
Grozny		7·7	0	e 2 1	+ 5	—	—	—	—	—
Ksara		8·3	261	i 2 8	+ 4	4 5	S*	—	—	—
Helwan		13·4	249	3 18	+ 4	5 50	+ 5	6 26	SSS	—
Samarkand		17·3	70	i 4 3	− 1	—	—	—	—	—
Bucharest		17·4	306	e 4 12	+ 6	e 7 30	+11	e 7 35	SS	10·3
Stalinabad		18·6	73	i 4 19	− 2	—	—	—	—	—
Sofia		18·8	299	i 4 26	+ 3	e 8 12	SS	—	—	10·3
Tashkent		19·2	65	e 4 26	− 2	e 7 59	0	—	—	—
Moscow		20·9	347	1 4 44	− 2	i 8 34	− 1	—	—	—
Belgrade		21·4	303	e 4 50	− 1	e 8 58	+13	e 5 36	PPP	e 15·3
Andijan		21·5	68	e 4 53	+ 1	—	—	—	—	—
Kalocsa		22·9	309	e 5 10	+ 4	—	—	—	—	—
Budapest	E.	23·1	310	i 5 13	+ 5	e 9 23	+ 7	—	—	e 14·8
	N.	23·1	310	5 11	+ 3	9 22	+ 6	—	—	e 14·3

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sverdlovsk		23·5	21	i 5 13	+ 1	i 9 26	+ 3	—	—	—
Warsaw		24·2	322	5 19a	0	e 9 38	+ 3	5 49	PP	—
Zagreb		24·7	304	e 5 25a	+ 1	e 9 50	+ 6	e 5 51	PP	—
Triest		26·2	303	e 5 37	− 1	i 10 18	+ 9	e 6 15	PP	—
Rome		26·6	295	5 43a	+ 1	e 10 14	− 2	6 14	PP	—
Prague		26·9	313	e 5 45	0	e 10 43	+23	—	—	e 15·3
New Delhi	N.	27·4	95	—	—	i 10 21	− 7	—	—	—
Florence		27·7	298	i 6 20	+28	i 10 38	+ 5	—	—	—
Cheb		28·2	312	e 5 36	−20	e 10 50	+ 9	e 12 39	SSS	e 18·3
Collmberg		28·2	314	e 5 58	+ 2	e 10 42	+ 1	e 6 41	PP	e 13·3
Bombay	E.	29·1	117	e 8 16	?	—	—	—	—	—
Chur		29·2	304	e 6 15a	+10	—	—	—	—	—
Zürich		30·0	305	i 6 12a	0	e 11 3	− 7	—	—	—
Copenhagen		30·3	323	—	—	i 11 15	0	13 12	SSS	16·3
Upsala		30·4	332	i 6 42	+26	e 12 15?	+59	e 7 48	PPP	—
Basle		30·7	305	e 6 17	− 2	—	—	—	—	—
Strasbourg		30·7	308	e 9 23	PcP	(e 11 6)	−15	—	—	e 11·1
Neuchatel		31·0	304	e 6 21	0	—	—	—	—	—
Uccle		33·3	311	e 6 41a	0	e 12 2	0	—	—	e 16·3
Clermont-Ferrand		33·6	301	i 6 43	− 1	(e 12 2)	− 4	—	—	e 12·0
Paris		34·2	307	i 6 50	+ 1	e 12 56	+40	e 8 13	PP	e 17·3
Alicante		36·8	289	7 27	+16	i 12 59	+ 3	9 47	PcP	e 17·7
Aberdeen		38·4	320	—	—	i 13 19	− 1	—	—	—
Calcutta	N.	39·1	97	e 12 20	?	i 13 57	+26	—	—	—
Toledo		39·2	292	i 7 31	0	e 13 33	+ 1	16 27	SS	—
Granada		39·4	287	i 7 32	− 1	i 13 33	− 2	16 2	SS	19·3
Malaga	Z.	40·2	287	i 7 39k	− 1	13 46	− 2	9 12	PP	20·7
Irkutsk		44·0	48	8 11	0	e 14 43	0	—	—	—
Vladivostok		64·2	54	—	—	e 18 31?	−45	—	—	—

Additional readings :—
Warsaw ePE =5m.22s., SE =9m.46s., SSEN =10m.28s.
Zagreb eNE =6m.31s., e =9m.56s., eNE =10m.31s.
Triest eSS =11m.30s.
Rome ePPPZ =6m.35s., iSS =11m.33s.
Cheb e =8m.24s. and 11m.6s.
Collmberg eZ =6m.5s., ePPPZ =6m.54s., eZ =8m.15s.
Upsala eN =9m.53s., eS?N =12m.25s., eE =13m.36s.
Paris e =10m.7s.
Alicante PcS =13m.47s., Q =15m.31s.
Toledo iZ =8m.9s.
Malaga PPPZ =10m.0s., ScS =16m.28s.
Long waves were also recorded at De Bilt, Bergen, Durham, Weston, and La Paz.

July 27d. 21h. 42m. 31s. Epicentre 10°·0S. 161°·1E. (as on 1946, May 16d.).

Focus at the base of the superficial layers.

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		18·7	117	i 4 24	+ 6	—	—	—	—	—
Brisbane		19·0	202	i 4 22	0	i 8 7	+19	i 4 34	pP	—
Riverview		25·4	199	e 5 34	+ 8	i 10 17	+29	e 5 44	pP	e 12·7
Auckland		29·5	159	—	—	e 11 29	+35	—	—	14·0
Irkutsk		78·7	329	11 59	− 1	21 53	− 1	—	—	—
Berkeley		85·7	50	e 12 37	0	e 22 59	[+ 2]	e 12 49	pP	e 37·8
Shasta Dam		86·4	47	i 12 39	− 1	e 22 58	[− 3]	—	—	—
Santa Barbara	Z.	86·8	54	e 12 48	+ 6	—	—	—	—	—
Mount Wilson		88·0	54	i 12 48a	0	—	—	i 13 0	pP	—
Pasadena		88·0	54	i 12 46a	− 2	—	—	i 12 58	pP	—

Continued on next page,

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Victoria		88·0	40	—	—	e 23 11	[0]	—	—	40·5
La Jolla		88·4	56	e 12 50	0	—	—	e 13 2	pP	—
Haiwee		88·6	52	e 12 52	+ 1	—	—	—	—	—
Riverside		88·6	54	i 12 50a	− 1	—	—	i 13 1	pP	—
Tinemaha		88·6	51	i 12 50a	− 1	—	—	i 13 3	pP	—
Palomar		88·9	56	i 12 52a	0	—	—	i 13 3	pP	—
Grand Coulee		90·7	40	i 12 59	− 2	—	—	—	—	—
Boulder City		91·1	53	i 13 2	− 1	—	—	i 13 14	pP	—
Overton		91·5	53	e 13 4	0	—	—	—	—	—
Tucson		93·6	57	i 13 13	− 1	—	—	i 13 25	pP	e 42·6
Ottawa		120·5	42	e 18 47	[− 2]	—	—	—	—	64·5
Weston		124·1	45	i 18 56	[0]	—	—	i 19 48	?	e 64·5
Ksara		124·6	304	e 19 18	[+21]	e 32 27	PPS	e 20 48	PP	—
Copenhagen		128·2	338	(19 4)	[+ 1]	—	—	(e 19 16)	pPKP	(67·5)
Collmberg	Z.	131·3	335	e 19 11	[+ 1]	—	—	i 19 23	pPKP	—
Triest		134·8	327	e 22 0	PP	—	—	—	—	—
Strasbourg		135·5	335	e 19 17	[0]	—	—	e 22 55	PKS	e 67·5
Zürich		136·1	333	e 19 19	[+ 1]	—	—	—	—	—
Paris		137·4	339	e 19 22	[+ 1]	e 22 56	PKS	i 19 35	pPKP	e 69·5
Rome		137·9	326	19 18	[− 4]	—	—	22 8	PP	—
Tortosa	N.	144·8	333	i 19 33	[− 1]	23 11	PKS	19 53	pPKP	—
Alicante		147·3	333	19 36	[− 2]	—	—	22 38	PP	e 64·9
Toledo	Z.	147·4	339	i 19 42	[+ 4]	—	—	i 19 54	pPKP	—
Granada		149·6	340	i 19 43k	[+ 1]	—	—	23 19	PP	78·0
Malaga	Z.	150·3	335	i 19 48k	[+ 5]	26 59	[+14]	19 55	pPKP	78·4

Additional readings :—
Riverview iZ = 5m.58s., iN = 6m.22s., isSEN = 10m.31s., iEN = 11m.18s.
Tinemaha iZ = 13m.43s.
Palomar iN = 13m.7s.
Tucson i = 14m.5s., e = 14m.40s.
Copenhagen readings increased by 2 minutes.
Collmberg eZ = 20m.14s. and 20m.17s., iZ = 22m.35s., eZ = 22m.50s. and 23m.26s.
Paris ePP? = 22m.17s., e = 24m.18s.
Tortosa pPKPN = 20m.53s., sPKPN = 21m.16s., SKPN = 22m.39s.
Alicante Q = 57m.34s.
Malaga $iPKP_2$ = 20m.54s., PKSZ = 23m.25s., iPPZ = 24m.45s., SKKSZ = 31m.37s., QZ = 75m.31s.
Long waves were also recorded at Arapuni, Wellington, Philadelphia, De Bilt, Uccle, Kew, and Clermont-Ferrand.

July 27d. 22h. Undetermined shock.

Suva iP = 41m.23s., iS = 42m.18s.
Pasadena iP = 51m.9s.a, epPZ = 53m.9s.
La Jolla iPZ = 51m.10s.
Mount Wilson iP = 51m.10s.a, ipPZ = 53m.10s., esPZ = 54m.13s.
Riverside iPEZ = 51m.11s.a, epPZ = 53m.11s.
Palomar iP = 51m.14s.a, ipPZ = 53m.12s.
Shasta Dam iP = 51m.14s., i = 53m.14s., eS = 60m.21s.
Haiwee iPZ = 51m.18s.
Tinemaha iPEZ = 51m.18s.a, epPZ = 53m.19s.
Kew eZ = 51m.23s. and 55m.27s.?, eL = 65m.
Boulder City iP = 51m.28s., i = 53m.29s., eS = 60m.57s.
Overton eP = 51m.31s., eS = 60m.59s.
Tucson iP = 51m.34s., i = 51m.41s., ipP = 53m.36s., e = 61m.7s.
Collmberg ePZ = 58m.50s., eZ = 58m.54s., 59m.8s., 61m.5s., and 61m.37s.

July 27d. Readings also at 0h. (Helwan, Alicante, Malaga, Granada, Rome, Triest, Strasbourg, Clermont-Ferrand, Paris, De Bilt, Copenhagen, Cheb, and Tucson), 2h. (Honolulu, Huancayo, Rapid City, Overton, Boulder City, Pasadena, Palomar, Tucson, near Tacubaya (2), and near Andijan), 3h. (Bozeman), 5h. (Florissant, Tinemaha, Overton, Boulder City, Mount Wilson, Riverside, Palomar, Tucson, Tacubaya, near Stalinabad, Andijan, Almata, and near Mizusawa), 6h. (Rome, Honolulu, La Paz, Huancayo, Bermuda, Weston, Lincoln, Salt Lake City, Rapid City, Berkeley, and Pasadena), 9h. (near Bogota), 11h. (near Stalinabad), 12h. (near Malaga and Granada), 13h. (Overton, Boulder City, Tucson, La Paz, La Plata, and near Santa Lucia), 15h. (Kew, near Ottawa), 18h. (Riverview, Christchurch, Arapuni, Wellington, and Auckland), 19h. and 20h. (Ksara).

July 28d. 8h. Undetermined shock. Pasadena suggests depth 550km.

College e =2m.10s. and 2m.28s., eS =3m.4s., eL =3m.20s.
Grand Coulee eP =6m.5s., eS =14m.0s., e =14m.58s.
Sitka eP =6m.16s., eS =7m.26s., iL =7m.35s.
Shasta Dam e =7m.3s.
Tinemaha ePZ =7m.44s.
Overton eP =7m.45s., e =8m.40s. and 20m.55s.
Boulder City eP? =7m.58s.
Pasadena ePZ =8m.8s., eLZ =21·6m.
Mount Wilson ePNZ =8m.9s.
Riverside ePZ =8m.10s.
Palomar ePZ =8m.15s.
Ottawa eZ =8m.24s., L =21m.
St. Louis iPZ =8m.35s.
Tucson iP =8m.36s., e =8m.53s. and 10m.35s., eL =22m.46s.
Harvard e =8m.58s., 24m.11s., and 27m.12s.
Weston iP =9m.1s., e =13m.46s. and 14m.18s.
Saskatoon e =10m.6s., L =13·6m.
Collmberg eZ =10m.42s., 10m.47s., and 11m.35s.
Butte e =11m.38s., eL =15m.40s.
Rapid City e =13m.50s., eL =17m.28s.
Florissant eE =14m.49s., eLE =22m.12s.
Philadelphia e =15m.48s. and 18m.58s., eL? =23m.10s.
Seven Falls e =17m., L =22m.
Long waves were also recorded at Salt Lake City and Granada.

July 28d. 22h. Undetermined shock.

Grand Coulee eP =27m.43s.
Shasta Dam eP =27m.53s.
Tinemaha iPZ =28m.34s.
Mount Wilson ePZ =28m.45s.
Riverside ePZ =28m.50s.
Boulder City eP =28m.53s.
Overton eP =28m.55s.
Palomar ePZ =28m.55s.
Tucson eP =29m.30s., e =30m.32s., eL =51m.36s.
Florissant ePE =30m.23s., eSN =38m.35s.
St. Louis iPZ =30m.26s.
Weston iP =31m.14s., e =52m.32s.
Collmberg eZ =32m.10s., 32m.20s., and 33m.5s.
Ksara e =43m.20s.
Long waves were also recorded at Granada.

July 28d. Readings also at 0h. (Kew), 1h. (Bogota, near Andijan, and Stalinabad), 2h. (Tucson and near Granada), 5h. (Tucson, Palomar, and Riverside), 6h. (Kew and near Tacubaya), 7h. (Tucson and Bozeman), 11h. (near Algiers), 16h. (Arapuni, Wellington, Ksara, St. Louis, Florissant, Shasta Dam, Tinemaha, Pasadena, Mount Wilson, Palomar, Tucson, and Huancayo), 17h. (Weston).

July 29d. Readings at 3h. (Collmberg, Tucson, Tinemaha, Palomar, and Mount Wilson), 4h. (near Mizusawa), 9h. (near Samarkand, Stalinabad, and Andijan), 10h. (Tucson), 22h. (near Baku, Piatigorsk, Leninakan, and Grozny), 23h. (near Andijan and Stalinabad).

July 30d. 3h. 33m. 5s. Epicentre 39°·0N. 144°·0E.

Intensity II-III at Morioka and Sendai. Shallow. Macroseismic radius between 200 and 300km. Epicentre as adopted.

The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946. Tokyo, 1951, p. 19, with Isoseismic chart.

$A = -·6304$, $B = +·4580$, $C = +·6268$; $\delta = +5$; $h = -1$;
$D = +·588$, $E = +·809$; $G = -·507$, $H = +·368$, $K = -·779$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.	
	°	°	m. s.	s.	m. s.	s.	m. s.	
Miyako	1·7	291	0 25	− 6	0 44	−10	—	—
Mizusawa	2·2	276	i 0 35	− 3	1 1	− 5	—	—
Hatinohe	2·4	309	0 47	+ 6	1 16	+ 4	—	—
Sendai	2·5	254	0 41	− 2	1 15	+ 1	—	—
Hukusima	3·0	248	0 31	−19	1 20	− 7	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Mito		3·8	228	0 57	− 4	1 43	− 4	—	—
Kakioka		4·1	229	1 3	− 2	—	—	—	—
Mori		4·1	320	1 2	− 3	1 57	+ 2	—	—
Utunomiya		4·1	236	1 6	+ 1	—	—	—	—
Tukubasan		4·2	229	0 35	−32	1 21	−36	—	—
Nemuro		4·5	15	1 7	− 4	1 54	−11	—	—
Sapporo		4·5	334	1 13	+ 2	2 10	+ 5	—	—
Kumagaya		4·6	234	1 11	− 1	2 40	SSS	—	—
Yokohama		5·0	314	1 23	+ 5	—	—	—	—
Nagano		5·1	245	1 19	− 1	—	—	—	—
Mera		5·2	220	1 24	+ 3	2 54	SSS	—	—
Hunatu		5·5	231	1 24	− 1	2 42	SS	—	—
Misima		5·6	228	1 27	0	2 46	SS	—	—
Wazima		5·8	255	1 28	− 1	2 52	SS	—	—
Toyama		5·9	248	1 23	− 8	—	—	—	—
Shizuoka		6·0	230	1 42	PP	3 0	SSS	—	—
Kameyama		7·3	238	1 51	+ 1	—	—	—	—
Kyoto		7·7	241	1 54	− 2	—	—	—	—
Vladivostok		10·0	298	i 1 40	−47	i 3 44	−38	—	—
Irkutsk		30·4	310	e 6 7	− 9	e 11 3?	−13	—	—
Sverdlovsk		55·0	319	9 31	− 4	17 11	− 6	—	—
Moscow		66·9	325	10 49	− 7	e 19 43	− 6	—	—
Shasta Dam		68·3	55	e 11 4	− 1	—	—	—	—
Mount Wilson	z.	74·8	59	(e 12 46)	+62	—	—	—	—
Boulder City		75·9	56	e 11 53	+ 3	—	—	—	—
Collmberg	z.	80·4	332	e 12 10	− 5	—	—	e 15 22	PP
Tucson		80·8	56	e 12 25	+ 8	—	—	e 12 41	pP
Ksara		81·6	307	e 12 20	− 1	e 23 24	PPS	—	—
St. Louis	z.	88·1	40	e 12 57	+ 3	—	—	—	—

Additional readings :—
Collmberg eZ =12m.13s., 12m.30s., and 13m.18s.
Long waves also at other European stations.

July 30d. 7h. Undetermined shock.

Boulder City eP =34m.11s.
Overton eP =34m.11s.
Tucson eP =34m.52s., e =35m.31s. and 36m.47s.
St. Louis iPZ =35m.51s., eN =43m.2s.
Ksara e =40m.36s. and 51m.38s.
Florissant eE =42m.57s.
Philadelphia e =55m.59s., eL =60m.1s.
Weston e =58m.2s.
Long waves were also recorded at College, Honolulu, Chicago, and Malaga.

July 30d. 18h. 36m. 4s. Epicentre 53°·4N. 163°·1W. (as on 1946, May 2d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 17	− 4	—	—	—	—	e 5·9
Bozeman		34·0	81	—	—	e 12 8	− 5	—	—	e 16·9
Tinemaha	z.	34·9	99	e 7 12	+17	—	—	—	—	—
Mount Wilson	z.	37·0	102	e 7 24	+11	—	—	—	—	—
Overton		37·5	96	e 7 16	− 1	—	—	e 7 28	pP	—
Riverside	z.	37·5	102	e 7 32	pP	—	—	—	—	—
Boulder City		37·7	97	e 7 18	− 1	—	—	i 7 28	pP	—
Tucson		42·6	98	e 8 3	+ 4	e 14 28	+ 5	—	—	e 20·6
Florissant	E.	50·3	76	e 9 12	+12	i 16 5	− 8	—	—	—
St. Louis		50·5	76	e 8 59	− 3	e 16 11	− 5	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Irkutsk		52·0	309	e 9 9	− 4	e 16 34	− 2	—	—	—
Ottawa		54·0	60	e 9 37	+ 9	16 56?	− 7	—	—	24·9
Seven Falls		55·3	56	—	—	e 17 20	− 1	—	—	20·9
Philadelphia		58·1	64	—	—	e 17 47	−11	e 21 47	SS	e 28·4
Weston		58·4	59	c 9 46	−14	e 17 59	− 3	—	—	—
Sverdlovsk		64·5	335	10 37	− 4	19 22	+ 3	—	—	—
Moscow		69·9	347	e 11 28?	+13	e 20 47?	+23	—	—	—
Warsaw		74·7	357	e 12 43	+60	e 21 20	+ 1	—	—	e 43·9
Collmberg	z.	75·6	3	e 11 44	− 4	—	—	e 11 54	pP	—
Paris		77·4	11	e 11 57	− 1	—	—	e 31 38	SSS	e 42·9
Strasbourg		78·1	7	—	—	—	—	e 32 30	Q	e 54·3
Clermont-Ferrand		80·5	11	—	—	e 33 1	SSS	—	—	53·9
Baku		82·3	335	e 12 22	− 3	e 22 42	+ 2	—	—	—
Rome		85·0	4	12 36	− 2	23 6	− 1	—	—	—
Granada		88·0	17	—	—	—	—	37 46	Q	46·1
Malaga	z.	88·4	17	i 12 44k	−11	i 23 59	+19	13 1	pP	46·5
Ksara		91·6	344	e 13 13	+ 3	e 24 21	+12	—	—	—

Additional readings and notes :—
Collmberg eZ = 12m.0s. and 12m.15s.
Malaga PPZ = 16m.21s., PPPZ = 18m.43s., iSKSZ = 22m.59s., sSZ = 24m.54s., SSZ = 30m.26s., iPKP,PKPZ = 37m.33s.
Long waves were also recorded at Cheb, Kew, Alicante, Ukiah, Honolulu, Berkeley, Butte, and Pasadena.

July 30d. Readings also at 0h. (Grand Coulee), 4h. (near Bogota), 7h. (near Stalinabad), 8h. (Kew), 9h. (Huancayo), 12h. (near Grozny, Leninakan, and Piatigorsk), 13h. (near Grozny and near Leninakan), 16h. (near Fresno), 17h. (Riverview and Zagreb), 22h. (near San Juan), and 23h. (near Mineral).

July 31d. 0h. 28m. 54s. Epicentre 12°·2N. 59°·8W.

Intensity III-IV in La Martinique.

Annales de l'Institut de Physique du Globe de Strasbourg, pour l'Année, 1946, 2è partie, Séismologie, Nouvelle série, Tome XI, p. 61 .

A = +·4918, B = −·8450, C = +·2100 ; δ = −1 ; h = +6 ;
D = −·864, E = −·503 ; G = +·106, H = −·181, K = −·978.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		2·9	333	i 0 54	+ 6	i 1 27	+ 3	0 57	P_g	—
San Juan		8·7	316	i 2 10	0	—	—	—	—	e 4·2
Port au Prince		13·6	299	i 2 18	−59	i 4 54	−56	—	—	—
Bogota		16·0	243	i 3 49	+ 1	i 6 36	−10	i 4 6	PP	i 7·7
Balboa Heights		19·7	263	e 4 29	− 5	e 8 5	− 5	—	—	—
Bermuda		20·6	348	e 4 52	+ 9	e 8 33	+ 4	i 5 11	PP	e 9·7
Huancayo		28·6	213	i 6 1	+ 1	e 10 47	− 1	—	—	e 12·6
La Paz	z.	29·7	196	i 6 11k	+ 1	i 12 58	SS	—	—	17·8
Philadelphia		30·8	337	e 6 23	+ 3	e 11 18	− 5	—	—	e 14·8
Weston		31·7	344	e 6 28	+ 1	e 11 36	− 1	—	—	—
Ottawa		35·8	341	7 2	− 1	12 36	− 5	15 6?	SSS	18·1
St. Louis		37·7	319	i 7 17	− 2	i 13 4	− 6	i 8 27	PP	—
Tacubaya	E.	38·5	286	i 7 27	+ 1	e 13 16	− 6	—	—	—
Tucson		50·8	302	e 9 3	− 1	e 16 27	+ 7	i 10 40	PP	e 26·4
Overton		54·5	307	i 9 33	+ 1	—	—	—	—	—
Boulder City		54·7	306	i 9 32	− 1	—	—	—	—	—
Malaga		55·2	54	i 9 37a	0	e 17 22	+ 2	10 11	pP	25·6
Granada		55·9	54	i 9 38k	− 4	17 24	− 5	13 15	PPP	25·5
Palomar	z.	56·0	302	e 9 40	− 3	—	—	—	—	—
Toledo	z.	56·1	51	i 9 43	0	—	—	—	—	—

Continued on next page.

		△ °	Az. °	P. m. s.	P−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Riverside	Z.	56·5	303	e 9 46	0	—	—	—	—	—
Mount Wilson	Z.	57·1	303	i 9 48	− 2	—	—	—	—	—
Pasadena	Z.	57·1	303	e 9 53	+ 3	—	—	—	—	e 29·1
Haiwee	Z.	57·3	305	e 9 58	+ 6	—	—	—	—	—
Alicante		58·5	52	10 24	+24	—	—	—	—	e 30·9
Tortosa	N.	59·7	50	e 10 13	+ 4	18 25	+ 6	12 48	PP	—
Shasta Dam		61·4	310	i 10 16	− 4	—	—	—	—	—
Paris		62·7	41	i 10 29	0	—	—	—	—	e 29·1
Basle		65·8	43	e 10 49k	0	—	—	—	—	—
Zürich		66·5	44	e 10 54k	0	—	—	—	—	—
Chur		67·1	44	e 11 4	+ 7	—	—	—	—	—
Rome		68·8	50	11 9	+ 1	20 13	+ 2	e 24 43	SS	32·7
Helwan		85·0	61	12 39	+ 1	e 23 0	− 7	—	—	—
Ksara		88·0	57	e 12 56	+ 3	e 23 25	[+ 4]	—	—	—

Additional readings :—
Fort de France P_eS_e =1m.3s.
San Juan i =2m.18s., 2m.34s., 2m.56s., and 3m.31s.
Port au Prince i =2m.27s., 2m.36s., eS =4m.32s.
Weston i =9m.18s.
St. Louis iZ =9m.35s.
Tacubaya iN =7m.47s.
Tucson i =10m.22s., 11m.28s., and 12m.18s., e =17m.50s.
Boulder City i =9m.48s.
Malaga P_cPZ =10m.17s., PPZ =11m.47s., PPPZ =12m.53s., S_cPZ =14m.37s., sSZ = 18m.7s., SSZ =21m.12s.
Palomar iZ =9m.57s., eZ =10m.25s., iZ =10m.50s.
Toledo iZ =9m.59s.
Riverside iZ =10m.41s.
Mount Wilson eZ =10m.3s.
Pasadena iZ =10m.4s.
Haiwee iZ =10m.13s.
Tortosa iN =10m.35s., P_cPN =11m.13s.
Paris i =10m.46s.
Rome eN =20m.56s.
Long waves were also recorded at La Plata.

July 31d. 12h. 58m. 59s. Epicentre 3°·7N. 128°·5E. (as on 1943, April 13d.).

A = −·6212, B = +·7810, C = +·0641 ; δ = −4 ; h = +7 ;
D = +·783, E = +·623 ; G = −·040, H = +·050, K = −·998.

	△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Irkutsk	52·4	342	9 16	0	e 16 40	− 2	c 11 19	PP	—
Christchurch	61·5	145	28 40	Q	33 32	R	—	—	(33·5)
Tashkent	64·7	315	e 13 7	PP	c 19 20	− 2	e 19 47	PS	—
Sverdlovsk	74·9	329	i 11 46	+ 2	e 21 16	− 6	i 12 0	P_cP	—
Baku	78·9	311	e 11 47	−20·	—	—	—	—	—
Leninakan	83·6	311	e 12 41	+10	—	—	—	—	—
Moscow	87·5	325	e 12 46	− 5	23 27	− 4	—	—	—
Ksara	90·1	303	e 13 7	+ 4	c 24 13	+18	—	—	—
Rome	106·5	315	18 41	PP	—	—	—	—	—
Tucson	113·4	52	c 19 36	PP	e 29 36	PS	—	—	—
Malaga	120·5	317	i 20 27a	PP	i 27 16	{− 1}	23 9	PPP	65·9

Additional readings :—
Irkutsk eSS =19m.37s.
Sverdlovsk PS =22m.0s.
Malaga PPPZ =25m.36s., PSZ =33m.30s., PPSZ =34m.58s., iPKP,PKPZ =38m.17s.
Long waves were also recorded at Riverview, Berkeley, Pasadena, De Bilt, and Kew.

July 31d. Readings also at 0h. (near Stalinabad), 1h. (Andijan, near Samarkand, and Stalinabad), 3h. (near Stalinabad), 6h. and 7h. (near Tucson), 11h. (near Tacubaya and near Mizusawa), 18h. (Chicago, Sitka, Overton, Tucson, near Oaxaca, and Tacubaya), 19h. (near Branner and near Tacubaya (2)), 22h. (near Fort de France).

Aug. 1d. 20h. 55m. 40s. Epicentre 19°·5N. 68°·0W. (as on 1943, September 8d.).

$A = +·3534$, $B = -·8746$, $C = +·3318$; $\delta = -9$; $h = +5$;
$D = -·927$, $E = -·375$; $G = +·124$, $H = -·308$, $K = -·943$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·1	122	i 0 36	− 1	i 1 0	− 3	—	—	i 1·1
Fort de France		8·1	125	e 1 59	− 3	e 3 49	+14	—	—	—
Bermuda		13·2	13	e 3 40	PPP	e 5 40	0	—	—	—
Bogota		15·9	203	i 3 46	− 1	e 6 35	− 9	i 3 58	PP	—
Weston		23·0	355	i 5 28	PP	e 9 19	+ 5	—	—	—
Harvard		23·1	355	i 5 30	PP	i 9 20	+ 4	—	—	—
St. Louis		27·1	320	e 5 48	+ 2	e 10 29	+ 5	—	—	—
Chicago		27·8	327	—	—	e 10 30	− 5	—	—	e 16·8
Huancayo		32·2	194	e 6 31	− 1	—	—	—	—	e 17·0
Tucson		40·3	298	e 7 43	+ 3	—	—	—	—	—
Overton		43·9	303	i 8 13	+ 3	—	—	—	—	—
Palomar	z.	45·5	299	e 8 24	+ 1	—	—	—	—	—
Riverside	z.	46·0	300	e 8 29	+ 2	—	—	—	—	—
Mount Wilson	z.	46·6	300	e 8 33	+ 1	—	—	—	—	—
Tinemaha	z.	47·0	303	e 8 37	+ 2	—	—	—	—	—

Long waves were also recorded at Sitka, Bozeman, Salt Lake City, Philadelphia, Rome, Kew, and Paris.

Aug. 1d. Readings also at 1h. (Andijan, Moscow, Sverdlovsk, Samarkand, Ksara, Zürich, St. Louis, Mount Wilson, Pasadena, Riverside, Tinemaha, Tucson, and near Harvard), 4h. (Toledo), 5h. (near Mizusawa), 6h. (Toledo), 10h. (near Triest), 11h. (Rome and New Delhi), 12h. (Alicante), 14h. (near Andijan), 15h. (Cheb, De Bilt, Uccle, Kew, Paris, Collmberg, and Istanbul), 16h. (Clermont-Ferrand, Strasbourg, Malaga, and Sitka), 23h. (Berkeley).

Aug. 2d. 1h. 37m. 56s. Epicentre 53°·4N. 163°·1W. (as on July 30d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		13·9	28	e 3 15	− 6	e 5 48	− 9	—	—	e 7·3
Sitka		16·2	64	e 3 48	− 2	e 7 0	+ 9	i 7 4	SS	e 8·7
Grand Coulee		28·1	82	e 6 1	+ 6	—	—	—	—	—
Shasta Dam		30·1	98	e 6 15	+ 2	—	—	—	—	—
Berkeley		32·0	102	—	—	e 11 52	+10	e 13 58	SSS	e 15·1
Tinemaha	z.	34·9	99	e 6 58	+ 3	—	—	—	—	—
Mount Wilson	z.	37·0	102	e 7 17	+ 4	—	—	—	—	—
Pasadena	z.	37·0	102	e 7 18	+ 5	—	—	e 7 27	pP	e 17·5
Riverside	z.	37·5	102	e 7 25	+ 8	—	—	—	—	—
Boulder City		37·7	97	e 7 18	− 1	e 13 8	− 2	—	—	—
Palomar	z.	38·3	102	e 7 28	+ 4	—	—	—	—	—
Tucson		42·6	98	e 8 1	+ 2	—	—	e 8 12	pP	e 20·0
St. Louis		50·5	76	i 8 59	− 3	e 16 10	− 6	i 9 7	pP	—
Irkutsk		52·0	309	e 9 8	− 5	—	—	—	—	—
Sverdlovsk		64·5	335	—	—	19 25	+ 6	—	—	—
Moscow		69·9	348	11 10	− 5	e 20 31	+ 7	—	—	—
Kew	z.	74·5	12	e 11 39	− 3	—	—	—	—	e 42·1
Collmberg	z.	75·6	3	e 11 44	− 4	—	—	e 11 54	pP	—
Uccle		75·6	10	e 11 45	− 3	—	—	—	—	e 43·1
Cheb		76·8	4	—	—	e 22 4?	S_cS	—	—	e 47·1
Paris		77·4	11	i 11 56	− 2	—	—	e 14 16	PP	e 43·1
Samarkand		77·7	323	e 11 54	− 6	—	—	—	—	—
Strasbourg		78·1	7	e 12 23	P_cP	e 22 8	S_cS	—	—	42·6
Clermont-Ferrand		80·5	11	e 12 13	− 2	e 22 28	+ 6	—	—	42·1
Triest		81·3	3	e 12 19	− 1	e 22 21	− 9	—	—	—

Continued on next page.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Belgrade	82·1	357	e 12 4	−20	e 22 11	−27	e 28 4?	SS	—
Baku	82·3	335	e 12 26	+ 1	—	—	—	—	—
Rome	85·0	4	e 12 36	− 2	e 23 2	− 5	e 36 16	Q	—
Granada	88·0	17	—	—	e 23 23	[+ 2]	i 23 48	S_eS	47·6
Ksara	91·6	344	e 13 34?	+24	e 24 16?	+ 7	—	—	—

Additional readings :—
Tucson i = 8m.28s.
St. Louis eN = 20m.21s.
Collmberg eZ = 12m.12s.
Belgrade e = 14m.20s.
Long waves were also recorded at Honolulu, Butte, Salt Lake City, Bozeman, Chicago, Columbia, De Bilt, Philadelphia, Warsaw, New Delhi, and Alicante.

Aug. 2d. 19h. 18m. 51s. Epicentre 26°·0S. 70°·2W. Focus at Base of Superficial layers. (as on 1944, December 22d.).

Intensity VIII in the epicentral region ; damage at Copiapo. Felt between 18° and 33°S.

Epicentre 25°·5S., 71°·1W. ; depth = 80km. (J.S.A.).
Epicentre 26°·5S., 70°·5W. ; depth = 50km. (Pasadena).

Federico Greve. Determinacion del Coeficienta de Seguridad Antisismico para las Diferentes Zonas de Chile, p. 16.

$A = +·3049$, $B = -·8468$, $C = -·4360$; $\delta = +13$; $h = +3$;
$D = -·941$, $E = -·339$; $G = -·148$, $H = +·410$, $K = -·900$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		3·6	21	e 1 6	+11	i 1 35	− 2	i 2 0	SS	i 2·3
Santa Lucia		7·4	183	1 37	−11	3 3	− 9	1 59	pP	4·3
La Paz	z.	9·6	12	i 2 28_a	+ 9	i 4 42	SSS	—	—	5·9
Panimavida		9·8	186	4 28	SSS	(4 28)	SSS	—	—	—
La Plata		13·8	133	3 13	− 3	6 8	sS	—	—	7·1
Huancayo		14·7	340	i 3 34	+ 7	i 6 23	sS	—	—	i 7·1
Bogota		30·5	353	i 6 17	+ 5	e 11 23	sS	i 9 6	PcP	—
Balboa Heights		35·9	346	i 7 1	+ 2	—	—	—	—	—
Fort de France		41·4	15	i 7 47	+ 2	e 13 43	−14	e 9 25	PP	e 18·7
San Juan		44·3	7	e 8 9	+ 1	i 14 37	− 3	e 9 53	PP	e 18·0
Merida		50·3	337	i 8 45	−10	e 15 52	−12	i 16 22	sS	—
Tacubaya		53·2	326	e 9 16	− 1	e 16 55	+11	—	—	—
Bermuda		58·3	6	i 9 58	+ 4	e 17 59	+ 7	i 10 29	pP	e 24·2
Mobile		58·9	342	10 6	+ 8	18 9	+ 9	—	—	—
Columbia		60·5	350	e 10 9	0	i 18 23	+ 2	i 18 49	sS	e 25·3
Georgetown		64·9	355	i 10 38	0	e 19 17	+ 1	e 23 17	SS	32·8
Philadelphia		65·8	357	i 10 43	− 1	i 19 28	+ 1	i 10 53	pP	e 26·9
Cincinnati		66·2	349	i 10 45	− 1	i 19 29	− 3	i 10 55	pP	—
Fordham		66·6	358	i 10 49	0	i 19 40	+ 4	—	—	e 33·6
New Kensington		66·8	353	e 10 53	+ 3	e 19 41	+ 2	e 24 29	SS	e 27·4
Pennsylvania	N.	66·8	354	i 10 50	0	i 19 47	+ 8	—	—	—
St. Louis		67·0	343	e 10 50	− 2	e 19 40	− 1	i 20 0	sS	—
Florissant		67·2	343	i 10 50	− 3	i 19 41	− 3	i 20 5	sS	—
Weston		68·0	359	i 10 59	+ 1	i 19 58	+ 5	i 20 33	PS	e 28·2
Harvard		68·2	359	i 11 0_k	+ 1	e 19 57	+ 1	e 20 36	PS	e 34·2
Chicago		69·3	346	i 11 5	− 1	i 20 7	− 2	e 13 40	PP	i 28·3
Tucson		69·7	324	i 11 8	0	i 20 17	+ 3	i 13 47	PP	e 28·2
Halifax		70·5	6	—	—	e 20 27	+ 4	—	—	29·2
Ottawa		71·2	356	11 18	0	20 33	+ 2	28 27	SSS	35·2
Shawinigan Falls		72·2	358	11 26	+ 3	20 45	+ 3	13 57	PP	38·2
Seven Falls		72·8	0	11 32	+ 5	20 48	− 1	21 28	PS	35·2
La Jolla		73·7	320	i 11 32_k	0	e 21 30	PS	—	—	—
Palomar		73·8	321	i 11 34_k	+ 1	e 21 1	0	i 11 50	pP	—
Pierce Ferry		74·3	324	i 11 35	− 1	e 21 4	− 2	21 36	PS	i 32·1
Riverside		74·6	321	i 11 36_k	− 2	e 21 13	+ 3	i 11 48	pP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Boulder City		74·7	323	i 11 38	0	e 21 3	− 8	—	—	—
Overton		74·9	324	i 11 39	0	e 21 13	0	e 21 44	ScS	—
Mount Wilson		75·2	321	i 11 40k	− 1	e 21 44	ScS	i 12 7	sP	—
Pasadena		75·2	321	i 11 39k	− 2	i 21 17	+ 1	i 11 50	pP	e 31·2
Santa Barbara		76·3	320	i 11 47k	0	—	—	i 12 8	pP	—
Haiwee		76·5	322	i 11 47k	− 1	e 21 36	+ 5	—	—	—
Salt Lake City		76·9	329	e 11 50	− 1	e 26 46	SS	e 14 54	PP	—
Tinemaha		77·3	322	i 11 52k	− 1	e 22 11	ScS	—	—	—
Logan		77·6	330	i 11 56	+ 2	e 21 49	+ 7	e 14 52	PP	e 35·3
Lick		79·4	321	e 12 5	+ 1	e 21 59	− 3	e 12 16	pP	e 37·5
Santa Clara		79·6	321	e 12 7	+ 2	e 22 7	+ 3	—	—	e 38·0
Branner		79·8	321	e 12 7	+ 1	e 22 39	ScS	e 12 29	pP	—
Berkeley		80·1	321	e 12 8	0	i 22 11	+ 2	15 9	PP	e 34·0
Bozeman		80·4	332	e 12 10	0	i 22 16	+ 4	e 27 31	SS	e 33·9
Butte		81·3	332	i 12 16	+ 2	e 22 23	+ 2	i 12 29	pP	e 33·3
Ukiah		81·5	321	e 12 16	0	e 22 19	− 4	e 27 57	SS	e 34·3
Shasta Dam		82·2	323	i 12 16	− 3	e 22 44	ScS	e 17 2	PPP	—
Saskatoon		84·1	338	12 27	− 2	22 47	− 3	27 51	SS	35·2
Grand Coulee		85·6	329	i 12 35	− 1	e 22 45	[−11]	—	—	—
Lisbon		87·0	44	i 12 39a	− 4	23 2	[− 3]	12 56k	pP	38·8
Seattle		87·0	328	e 13 39	+56	e 24 3	[+58]	e 29 2	SS	e 42·2
Malaga	Z.	87·9	48	i 12 51a	+ 4	i 23 35	+ 8	i 13 13	pP	42·4
Victoria		88·1	328	12 45	− 3	23 15	[+ 3]	29 27	SS	39·2
Granada		88·7	48	i 12 55a	+ 4	i 23 21	[+ 5]	13 10	pP	i 44·4
Toledo		89·9	45	i 13 0	+ 3	i 23 29	[+ 6]	i 13 11	pP	i 36·6
Tuai		89·9	226	13 4	+ 7	—	—	—	—	—
Christchurch		90·0	220	12 54	− 3	23 45	− 1	16 31	PP	41·0
Wellington	Z.	90·0	224	12 54	− 3	23 39	− 7	13 33	sP	40·4
Arapuni		91·3	226	e 16 39	PP	—	—	e 37 21	Q	42·2
Alicante		91·4	48	13 7	+ 3	23 31	[− 1]	13 19	pP	e 39·5
Algiers		93·0	51	e 13 17	+ 6	23 46	[+ 5]	i 13 35	pP	41·2
Tortosa		93·3	47	e 13 17	+ 4	i 24 24	+ 9	13 48	pP	e 42·2
Barcelona		94·7	47	e 17 38	PP	23 51	[0]	e 19 5	PPP	38·3
Jersey		96·2	37	e 16 54	?	24 0	[+ 1]	—	—	44·2
Honolulu		97·0	290	e 14 5	+35	e 24 4	[+ 1]	e 17 20	PP	44·3
Clermont-Ferrand		97·5	43	e 13 32	0	i 24 9	[+ 4]	i 13 49	pP	44·5
Paris		98·6	40	e 13 39	+ 2	i 24 11	[0]	e 13 54	pP	e 46·2
Edinburgh		99·4	32	e 17 55	PP	24 16	[+ 1]	26 46	PS	—
Sitka		99·4	330	e 13 36	− 4	e 24 1	[−14]	i 17 49	PP	e 42·7
Durham		99·5	33	e 14 15	+34	24 20	[+ 4]	i 26 50	PS	—
Besançon		100·0	43	e 17 46	PP	—	—	—	—	e 43·2
Neuchatel		100·4	43	e 13 47	+ 2	e 24 23	[+ 3]	—	—	—
Aberdeen		100·5	31	e 18 9	PP	i 24 20	[− 1]	i 32 21	SSP	i 42·7
Uccle		100·6	38	e 13 48	+ 2	i 24 23	[+ 2]	e 18 3	PP	e 45·2
Basle		101·0	42	e 13 50	+ 2	—	—	e 18 11	PP	—
Strasbourg		101·6	41	e 13 54	+ 4	i 24 29	[+ 3]	i 14 6	pP	e 44·3
Zürich		101·6	43	e 13 54	+ 4	e 24 20	[− 6]	e 18 7	PP	—
De Bilt		101·7	37	e 13 54	+ 3	e 24 29	[+ 2]	e 27 9	PS	45·2
Florence		101·8	47	i 14 11	pP	i 24 33	[+ 6]	e 26 28	S	—
Rome		101·8	49	i 13 53	+ 2	i 24 28	[+ 1]	e 18 2	PP	49·0
Chur		101·9	44	e 13 54k	+ 2	—	—	e 17 29	PP	—
Triest	E.	104·1	46	e 14 4	+ 3	i 24 38	[+ 1]	e 33 4	SS	—
Jena		104·8	40	e 17 22	PP	e 24 43	[+ 3]	—	—	—
Tananarive		104·8	120	e 18 39	PP	24 42	[+ 2]	27 33	PS	e 49·3
Bergen	N.	105·4	30	—	—	26 7	+11	33 28	SS	50·2
Zagreb		105·6	46	14 4	− 1	e 24 46	[+ 2]	e 33 27	SS	44·9
Collmberg		105·8	40	e 14 10	P	e 24 48	[+ 3]	e 18 25	PP	e 41·2
Prague		106·2	42	e 18 43	PP	e 24 45	[− 2]	e 33 33	SS	e 41·7
Copenhagen		107·1	36	e 14 17	P	i 26 16	+ 6	i 26 56	pS	—
Budapest	N.	108·2	45	e 18 13a	[−11]	e 26 31	+11	27 6	?	e 45·2
College		108·2	334	e 18 49	PP	e 25 25	[+29]	e 28 24	PS	e 45·1
Belgrade		108·3	48	e 14 38	P	e 24 44	[−12]	—	—	41·2
Riverview		108·7	216	e 14 22	P	i 24 54	[− 4]	i 27 3	sS	e 49·6
Sofia		109·6	51	e 18 9	[−18]	e 26 51	S	e 20 9	?	34·2
Warsaw	N.	110·8	41	e 18 53	PP	i 26 51	S	e 34 31	SS	e 52·2

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		111·0	33	e 18 25	[− 5]	26 29	S	e 33 46	SS	—
Helwan		111·9	67	e 14 56	P	28 57	PS	35 9	SS	—
Bucharest		112·0	50	e 17 45	[−47]	e 25 12	[+ 1]	e 29 18	PS	e 36·2
Istanbul		113·3	54	e 18 45	[+11]	e 28 37	PS	—	—	—
Ksara		116·7	64	19 59?	PP	29 35?	PS	—	—	—
Moscow		121·0	38	18 49	[0]	25 41	[− 3]	20 25	PP	—
Piatigorsk		123·9	52	18 46	[− 9]	—	—	—	—	—
Leninakan		124·2	57	e 18 58	[+ 3]	—	—	e 21 0	PP	—
Baku		128·8	57	i 19 11	[+ 7]	—	—	e 23 56	PPP	—
Sverdlovsk		133·4	34	i 19 14	[+ 1]	28 38	SKKS	21 50	PP	—
Samarkand		141·9	57	19 29	[0]	—	—	—	—	—
Tashkent		143·3	54	i 19 28	[− 3]	26 34	[− 1]	e 22 32	PP	—
Tchimkent		143·4	52	e 19 26	[− 5]	23 1	PKS	—	—	—
Bombay	E.	145·2	93	i 19 34	[0]	e 29 45	SKKS	i 23 23	SKP	—
Kodaikanal	E.	145·6	110	19 20	[−15]	29 41	SKKS	23 16	SKP	53·4
Andijan		145·7	54	e 19 40	[+ 5]	36 17	PPS	—	—	—
Colombo	E.	145·7	118	19 37	[+ 2]	—	—	—	—	67·2
Almata		148·2	47	19 48	[+ 9]	—	—	—	—	—
Sapporo		149·2	312	i 19 43	[+ 2]	—	—	—	—	—
Hyderabad	N.	149·7	99	20 6	[+24]	—	—	—	—	—
Mori		150·1	311	e 19 24	[−18]	—	—	i 20 23	?	—
Mizusawa		150·7	304	19 47	[+ 4]	—	—	19 51	pPKP	—
New Delhi	N.	151·0	77	e 19 58	[+14]	42 28	SS	30 14	SKKS	—
Tokyo		152·6	298	19 56	[+10]	—	—	—	—	—
Yokohama		152·8	297	19 57	[+10]	—	—	—	—	e 70·4
Irkutsk		153·4	7	i 19 49	[+ 2]	23 40	PKS	43 3	SS	—
Hukuoka		160·6	297	e 19 55	[− 2]	20 39	?	—	—	—
Calcutta	N.	160·7	96	20 29	[+32]	34 32	SKSP	i 24 52	PP	70·3

Additional readings and note :—
Montezuma i = 1m.21s. and 2m.10s.
Panimavida E = 6m.43s., S?N = 7m.24s.
Bogota i = 6m.20s., eS_cS = 17m.7s.
Fort de France ePP = 8m.57s.
San Juan i = 10m.3s., ePPP? = 10m.33s., i = 15m.8s.
Merida iP_cPN = 10m.15s., eS_cSE = 18m.33s.
Tacubaya eZ = 9m.21s., eSZ = 16m.58s.
Bermuda iPP = 12m.20s., isS? = 18m.31s., iS_cS = 19m.53s., i = 20m.24s., iSS = 21m.49s.
Columbia ePP = 14m.21s.
Philadelphia ePP = 13m.16s., ePPP = 14m.56s., i = 20m.0s., eSS? = 23m.31s.
Cincinnati i = 11m.48s., 13m.46s., 15m.18s., and 19m.54s.
St. Louis ePP?N = 13m.25s., iN = 13m.50s., ePPP?N = 15m.16s., ipPPP?N = 15m.33s., iPPPP?N = 15m.59s., iPSN = 20m.9s., ipPS?N = 20m.37s., iN = 20m.52s., iS_cS?N = 21m.7s., iN = 21m.23s., eN = 22m.8s., iSSN = 24m.19s.
Florissant iSSE = 24m.4s., isSSS?E = 27m.33s.
Chicago iPPP = 15m.43s., iS_cS = 21m.30s., eSS = 24m.41s.
Tucson i = 11m.31s., 12m.19s., and 20m.40s., eSS = 24m.56s., ePKP,PKP = 39m.17s., ePKP,PKP,PKP = 58m.31s.
Ottawa SS = 24m.57s.
Shawinigan Falls PS = 21m.11s.
Seven Falls SS = 25m.32s., SSS = 28m.9s.?
Palomar iE = 21m.27s.
Riverside iZ = 13m.3s., eEN = 21m.39s.
Mount Wilson eZ = 31m.12s., eP'P'Z = 38m.37s.
Pasadena eZ = 12m.3s., ePPZ = 14m.38s., iZ = 14m.52s., eZ = 19m.16s., i = 21m.46s., eZ = 22m.9s., eSS = 26m.3s., eZ = 28m.57s.
Santa Barbara iZ = 12m.18s.
Logan i = 22m.12s., eSS = 27m.18s.
Branner eN = 13m.22s., ePPN = 15m.43s.
Berkeley iZ = 15m.21s., eZ = 22m.15s., iSSE = 27m.31s., iSSN = 27m.36s.
Bozeman ePP = 15m.30s., ePPS = 23m.30s., e = 24m.59s., e = 30m.31s., eSSS = 31m.13s.
Butte ePP = 15m.13s., iPS = 22m.55s., eSS = 28m.3s., eSSS = 31m.47s.
Ukiah ePP = 15m.44s., eSSS = 31m.19s.
Shasta Dam eSS? = 29m.39s.
Saskatoon SSS = 31m.57s.
Lisbon EN = 23m.45s., SSN = 28m.55s., Q?Z = 35m.27s.
Malaga iPPZ = 16m.29s., iPPPZ = 18m.34s., sSZ = 24m.13s., iPSZ = 24m.40s., SSZ = 29m.38s., QZ = 35m.51s., iPKP,PKPZ = 38m.42s.
Granada iPP = 16m.21s., pPP = 16m.40s., sPP = 16m.57s., PPP = 18m.17s., iS = 24m.4s., PS = 24m.18s., SS = 28m.28s., sSS = 29m.31s., Q = 38m.21s.

Continued on next page.

Toledo iSEN =23m.33s., eSN =24m.0s., iPSE =24m.29s., iPPSE =25m.3s.
Christchurch SKS =23m.14s., iNW =24m.18s., SS =29m.49s., SSS? =33m.15s., Q = 36m.37s.
Wellington iZ =13m.47s., PPZ =16m.44s., pPP?Z =17m.54s., PPP?Z =19m.19s., SKS =23m.13s., SS =29m.21s., Q =32m.33s.
Alicante pP =13m.10s., PP =16m.23s., PPP =18m.31s., iS =23m.39s., sS =24m.2s., PS =24m.37s., PPS =25m.14s., SS =29m.7s., SSS =32m.31s., Q =35m.3s.
Algiers PP =17m.7s., sPP? =17m.45s., iS =24m.21s., i =24m.31s., eSS? =24m.57s., SS =30m.43s.
Tortosa iP$_e$PEN =13m.29s., sPN =14m.7s., PPN =17m.8s., PPPE =19m.24s., S$_e$SE = 24m.12s., PSN =25m.37s., eSSSN =33m.9s.?
Honolulu ePS =26m.26s., eSS =31m.49s.
Clermont-Ferrand i =30m.44s.
Paris i =14m.2s., iPP =17m.50s., ipPP =18m.9s., ePS =26m.33s., i =27m.20s. and 28m.23s., eSS =31m.14s., e =32m.1s., eQ =43m.9s.
Edinburgh eS =23m.54s., SS =32m.22s., SSS =36m.14s.
Sitka e =22m.4s., iS =24m.50s., ePS =26m.47s., eSS =31m.53s., eSSS =36m.20s.
Durham iN =25m.11s. and 34m.11s.
Aberdeen iN =42m.33s.
Uccle e =18m.39s. and 21m.16s., eSKKS =25m.6s., eS? =25m.20s., eS?EN =25m.59s., ePSEN =26m.55s., eSSE =32m.57s., eSSSE =37m.9s.?
Strasbourg iPP =18m.13s., iS =25m.32s., ePS =27m.3s., eSS =32m.47s., e =33m.4s., eSSS =37m.9s.
Zürich eS =25m.36s.
De Bilt eS =25m.33s.
Rome iZ =14m.10s., iPPZ =18m.13s., iSKKSE =25m.9s., iPSE =27m.14s., iE = 27m.40s., iSS =32m.55s., iSSS =36m.36s.
Tricst iPPE =18m.32s., eSSSE =38m.4s.
Tananarive SS =33m.31s.
Bergen eE =28m.17s., eN =37m.9s.? and 44m,9s.?
Zagreb eP$_e$PZ =14m.10s., ePKP =18m.41s., ePPE =18m.57s., ePPSZ =29m.59s.
Collmberg eZ =14m.26s., 17m.30s., 19m.23s., 20m.16s., and 20m.33s., ePPPZ =20m.50s., ePKKPZ =29m.57s.
Copenhagen 18m.42s., 24m.56s., i =26m.26s., iSP =27m.56s., 32m.17s., SS =33m.21s., SSS =37m.39s.
College ePP =19m.18s., eSS =34m.25s., ePKP,PKP =37m.49s.
Belgrade e =17m.27s. and 19m.51s.
Riverview ePPZ =18m.47s., eE =25m.4s., iSKKSN =25m.22s., eSE =26m.24s., ePSE = 28m.12s., epPSE =28m.32s., ipPSZ =28m.35s., iSPPN =29m.0s., ePPSE =29m.4s., ePPSN =29m.10s., iSSE =34m.2s., isSSE =34m.39s., iSSSE =38m.14s., eEN = 38m.23s., eQEN =45m.3s.
Warsaw iN =27m.29s., eN =37m.30s.
Upsala eN =21m.0s., eE =26m.8s., S?N =26m.49s., ePSE =28m.37s., eSS?E =33m.51s., eSSS?N =38m.9s?, eSSS?E =39m.9s.?
Helwan e =16m.18s. and 18m.18s., PPP =22m.0s.
Bucharest eN =20m.18s.
Moscow PS =30m.7s.
Sverdlovsk PKS =22m.41s., PPP =24m.44s., PS =31m.46s., SS =39m.28s.
Tashkent SKKS =29m.31s., PS =33m.2s., PPS =35m.56s.
Bombay E =35m.30s., SSE =42m.9s.
Kodaikanal SKSPE =33m.15s., SSE =37m.31s.
New Delhi ePKP$_2$ =20m.7s.
Irkutsk SKKS =30m.53s., PS =33m.53s., PPS =37m.14s.
Calcutta iN =22m.37s., SSN =44m.19s., iSSPN =44m.57s.
Long waves were also recorded at Brisbane.

Aug. 2d. 19h. Undetermined shock.

St. Louis iPZ =54m.58s.
Tucson iP =55m.15s., i =55m.31s.
Palomar iPZ =55m.28s., iZ =55m.43s.
Pierce Ferry iP =55m.43s.
Riverside iPZ =55m.44s., iZ =56m.0s.
Boulder City iP =55m.45s.
Mount Wilson iPZ =55m.47s., iZ =56m.2s.
Overton iP =55m.47s.
Pasadena iPZ =55m.48s.
Santa Barbara iPZ =55m.52s.
Haiwee iPZ =55m.55s., eZ =56m.10s.
Tinemaha iPZ =56m.0s., iZ =56m.15s.
Shasta Dam iP =56m.24s.
Grand Coulee eP =57m.30s., e =78m.5s.

Aug. 2d. Readings also at 4h. (San Juan near Overton, near Fort de France and near Lick), 5h. (near Bogota, St. Louis, Tucson, Overton, Boulder City, and near Misusawa), 9h. (near Tananarive), 11h. (Sverdlovsk, Moscow, Riverview, Auckland, Christchurch, Overton, Pierce Ferry, and Collmberg), 12h. (Overton and St. Louis), 15h. (Istanbul), 18h. (Mineral, Almeria, near Granada, and Malaga), 19h. (Tortosa), 21h. (Granada), 23h. (St. Louis, La Paz, Palomar, Tucson, Pasadena, Riverside, Tinemaha, Shasta Dam, Ksara, Huancayo, and Paris).

Aug. 3d. 13h. 6m. 14s. Epicentre 35°·5N. 141°·0E. Depth of focus 0·005.
(as on 1945, June 2d.).

Intensity V at Mito, Kakioka, Yokohama; IV at Tokyo, Onahama, Tyosi; II-III at Tukubasan, Morioka, and Sendai.

Epicentre 35°·9N. 143°·1E. Depth 40kms.
Macroseismic radius greater than 300kms.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p. 20. Isoseismic chart p. 20.

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mito		1·0	334	0 13k	− 6	0 23	−10	—	—	—
Tokyo		1·0	281	0 8k	−11	0 24	− 9	—	—	—
Mera		1·1	289	0 24a	+ 4	0 43	+ 7	—	—	—
Yokahama		1·1	267	0 22k	+ 2	0 42	+ 6	—	—	—
Onahama		1·4	357	(0 21k)	− 3	(0 37)	− 6	—	—	—
Kumagaya		1·5	296	0 22k	− 4	0 52	+ 7	—	—	—
Misima		1·7	257	0 30a	+ 2	0 52	+ 2	—	—	—
Maebasi		1·8	300	0 28k	− 2	0 55	+ 3	—	—	—
Hunatu		1·9	270	0 30a	− 1	1 16	+22	—	—	—
Shizuoka		2·2	256	0 39	+ 4	1 8	+ 6	—	—	—
Omaesaki		2·4	248	0 40	+ 2	1 36	+29	—	—	—
Nagano		2·6	297	0 38a	− 3	1 38	+26	—	—	—
Sendai		2·8	358	0 38	− 6	1 7	−10	—	—	—
Nagoya		3·3	264	1 47	+56	2 44	+75	—	—	—
Toyama		3·3	291	0 54	+ 3	1 27	− 2	—	—	—
Mizusawa	E.	3·7	4	0 50	− 6	1 28	−11	—	—	—
Kameyama		3·8	263	0 59	+ 1	1 52	+10	—	—	—
Wazima		3·8	301	0 57a	− 1	1 29	−13	—	—	—
Hikone		3·9	269	1 3k	+ 4	2 7	+23	—	—	—
Miyako		4·2	10	0 57	− 6	1 41	−11	—	—	—
Owase		4·2	252	1 4	+ 1	2 20	+28	—	—	—
Kyoto		4·3	265	1 6	+ 1	2 14	+20	—	—	—
Kobe		4·8	262	1 13a	+ 1	2 15	+ 8	—	—	—
Hatinohe		5·0	4	1 8	− 6	2 24	+12	—	—	—
Toyooka		5·0	273	1 18	+ 4	2 40	+28	—	—	—
Mori		6·6	358	1 28	− 9	2 54	+ 3	—	—	—
Sapporo		7·5	2	1 43	− 6	3 12	− 2	—	—	—
Nemuro		8·6	23	1 53	−11	3 20	−21	—	—	—
Hukuoka		8·9	261	2 11	+ 3	4 16	+28	—	—	—
Kumamoto		8·9	255	2 13	+ 5	4 36	+48	—	—	—
Vladivostok		10·4	320	i 2 27	− 2	i 4 31	+ 6	—	—	—
Irkutsk		30·9	315	i 6 10	− 3	e 11 17	+ 6	—	—	—
Almata		49·0	301	e 8 43	+ 1	—	—	—	—	—
College		50·6	32	e 9 0	+ 6	e 16 6	+ 3	e 19 15	SS	e 20·4
Andijan		53·0	298	9 13	+ 1	e 16 51	+15	—	—	—
Tashkent		55·0	299	e 9 24	− 3	e 17 16?	+14	—	—	—
Sverdlovsk		56·1	320	i 9 35	0	i 17 19	+ 2	—	—	—
Samarkand		57·2	298	e 9 42	− 1	—	—	—	—	—
Moscow		68·3	324	10 55	− 1	19 51	0	—	—	—
Baku		68·8	305	11 2	+ 3	e 20 5	+ 8	—	—	—

Continued on next page.

		Δ	Az.	P.	P−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grand Coulee		70·6	44	e 11 9	− 1	—	—	—	—	—
Shasta Dam		72·3	52	e 11 20	0	—	—	i 11 31	pP	—
Leninakan		72·6	308	e 11 7	−15	—	—	—	—	—
Berkeley		73·9	55	i 11 42	pP	e 20 45	−10	—	—	e 33·5
Upsala		74·2	335	e 11 30	− 2	e 20 59	0	21 16	pS	e 37·8
Butte		75·3	43	—	—	e 21 3	− 8	—	—	—
Tinemaha		77·0	53	i 11 47	− 1	—	—	i 11 57	pP	—
Santa Barbara		77·5	57	i 11 51	+ 1	—	—	i 12 1	pP	—
Mount Wilson	z.	78·7	56	i 11 57	0	—	—	i 12 8	pP	—
Pasadena	z.	78·7	56	i 11 57	0	—	—	i 12 7	pP	e 34·9
Salt Lake City		78·9	47	—	—	e 21 51	+ 1	—	—	—
Copenhagen		79·1	333	i 11 58	− 1	e 21 56	+ 4	—	—	41·8
Riverside	z.	79·3	56	e 12 0	0	—	—	e 12 9	pP	—
Overton		79·8	52	e 12 6	+ 3	—	—	i 12 11	pP	—
Palomar		80·0	56	i 12 4	0	—	—	i 12 14	pP	—
La Jolla	z.	80·1	56	e 12 3	− 1	—	—	i 12 16	pP	—
Pierce Ferry		80·3	52	i 12 6	+ 1	—	—	i 12 17	pP	—
Bucharest		81·0	320	e 11 22	−47	e 22 22	+10	—	—	—
Ksara		81·8	305	i 12 10?	− 3	—	—	i 15 23?	PP	—
Collmberg		82·3	330	i 12 14	− 2	—	—	e 12 22	pP	e 43·8
Jena	N.	83·1	330	e 12 20	0	—	—	e 12 36	pP	—
Belgrade		83·6	322	e 12 6	−17	e 22 10	−28	e 15 46	PP	—
Sofia		83·6	319	e 12 23	0	22 46	+ 8	e 15 47	PP	—
De Bilt		84·6	334	i 12 27a	− 1	e 22 49	+ 1	e 15 44	PP	e 41·8
Tucson		84·8	53	e 12 29	0	—	—	i 12 40	pP	e 39·8
Zagreb		85·1	325	e 12 30	0	e 22 51	− 2	e 15 45	PP	—
Uccle		86·0	335	e 12 34a	− 1	—	—	e 15 54	PP	e 43·8
Triest		86·2	326	e 12 34	− 1	i 22 59	− 5	e 15 57	PP	—
Strasbourg		86·5	331	e 12 37a	0	e 23 3	− 3	e 15 56	PP	e 45·4
Zürich		87·1	330	e 12 42a	+ 2	—	—	—	—	—
Helwan		87·3	305	i 12 41k	0	23 4	[+ 4]	i 16 5	PP	—
Basle		87·4	330	e 12 42a	+ 1	—	—	—	—	—
Paris		88·3	334	i 12 46a	0	23 12	[+ 5]	i 12 57	pP	e 43·8
Florence	E.	88·8	326	e 12 35	−13	i 23 17	[+ 7]	—	—	—
Rome		89·7	325	i 12 52a	0	e 23 19	[+ 4]	e 16 28	PP	—
Clermont-Ferrand		90·6	332	e 12 58	+ 2	e 23 31	[+10]	—	—	44·8
St. Louis		92·3	38	i 13 4	0	e 24 5	+ 6	i 13 16	pP	e 40·8
Alicante		98·3	330	17 27	PP	—	—	42 9	Q	e 48·9
Toledo	z.	98·4	333	e 13 35	+ 3	—	—	17 31	PP	—
Granada		100·6	333	e 17 48k	PP	e 28 6	PPS	36 9	SSS	55·1
Malaga	z.	101·3	333	e 13 26	−19	24 44	S	i 17 51	PP	60·8
La Paz		147·9	60	19 41	[+ 6]	—	—	—	—	69·8

Additional readings :—
Onahama readings are increased by 30 seconds.
Upsala S =20m.14s., eN =20m.56s., eSSN =25m.34s.
Pasadena iZ =12m.25s.
Palomar iZ =12m.28s.
Collmberg eZ =12m.26s., 12m.30s. and 13m.1s., ePP?Z =15m.25s.
Tucson e =13m.17s., ePP =15m.52s.
Strasbourg eSS =28m.59s.
Helwan PP =16m.19s., S =23m.58s.
Paris PP =16m.13s.
Rome eSSE =29m.54s., eSSSE =33m.32s.
St. Louis iZ =13m.23s., eSKSN =23m.33s., ePSN =24m.27s.
Granada eS =29m.6s., ePS =31m.15s., Q =50m.52s.
Malaga iPP?Z =20m.11s., PPP?Z =23m.8s.
Long waves were also recorded at New Delhi, Riverview, Chicago, Prague, Warsaw, and Bergen.

Aug. 3d. Readings also at 0h. (Strasbourg, Clermont-Ferrand, Uccle, and near Mizusawa), 2h. (near Pierce Ferry (2) and Overton), 7h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Pierce Ferry, Overton, and Tucson), 9h. (De Bilt and Tucson), 10h. (San Juan), 15h. (Paris, near Samarkand, and Andijan), 19h. (near Fresno), 23h. (near La Paz).

Aug. 4d. 13h. 33m. 46s. Epicentre 36°·0N. 77°·0E. (as on 1945, Oct. 21d.).

Approximate.

A = +·1824, B = +·7901, C = +·5852 ; δ = −1 ; h = 0 ;
D = +·974, E = −·225 ; G = +·132, H = +·570, K = −·811.

		△	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Andijan		6·0	324	e 1 33	+ 1	2 43	0
Frunse		7·1	345	1 59	+11	3 14	+ 4
Almata		7·3	0	1 54	+ 4	3 11	− 4
New Delhi	N.	7·4	179	—	—	i 3 43	S*
Tashkent		8·0	313	e 1 54	− 6	3 26	− 7
Tchimkent		8·5	320	e 1 53?	−14	e 3 28?	−17
Samarkand		8·7	298	e 2 36	P*	e 4 16	S*

Aug. 4d. 15h. 25m. 35s. Epicentre 24°·9S. 179°·6E. Depth of focus 0·080.

A = −·9081, B = +·0063, C = −·4187 ; δ = −1 ; h = +3 ;
D = +·007, E = +1·000 ; G = +·419, H = −·003, K = −·908.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		12·6	198	2 37	− 8	4 56	− 2	7 34	PcP	—
Arapuni		13·6	193	—	—	5 49	+33	—	—	—
Tuai		14·0	188	3 0	+ 1	5 23	− 1	3 28	PP	—
Wellington	Z.	16·8	193	3 27	0	6 12	− 2	4 0	PP	—
Christchurch		19·4	196	3 49	− 3	6 59	+ 1	—	—	—
Brisbane	N.	24·0	258	—	—	i 8 7	− 6	i 8 52	SS	e 10·2
Riverview		26·3	244	e 4 54a	0	i 8 50	0	i 6 18	pP	—
Vladivostok		80·7	327	i 11 16	− 2	i 20 41	0	—	—	—
Santa Barbara	Z.	82·4	48	i 11 26	0	—	—	e 13 24	pP	—
Berkeley		82·9	44	i 11 29	0	e 21 11	+ 9	e 12 27	pP	—
La Jolla	Z.	83·2	50	e 11 30	0	—	—	e 13 27	pP	—
Pasadena		83·3	48	i 11 30	− 1	i 21 5	− 1	e 13 28	pP	—
Mount Wilson		83·4	48	i 11 31a	0	—	—	i 13 27	pP	—
Palomar		83·7	50	i 11 32a	− 1	i 21 5	− 5	e 13 30	pP	—
Riverside	Z.	83·7	48	i 11 32a	− 1	—	—	e 13 29	pP	—
Tinemaha		85·0	46	i 11 39	0	i 21 14	− 9	i 13 35	pP	—
Pierce Ferry		87·2	49	i 11 50	+ 1	—	—	e 13 45	pP	—
Tucson		87·3	53	i 11 51a	+ 1	e 21 52	+ 8	i 13 49	pP	—
Ksara		147·3	294	i 18 40	[0]	e 33 40	PS	—	—	—
Copenhagen		147·8	347	i 18 44	[+ 3]	—	—	—	—	—
Warsaw	Z.	148·2	334	e 18 44	[+ 3]	—	—	—	—	—
Jena	E.	152·4	343	e 18 45	[− 2]	—	—	—	—	—
Zagreb		155·3	332	e 18 51	[0]	—	—	e 22 56	PKS	—
Basle		156·5	346	e 18 53	[0]	—	—	—	—	—
Zürich		156·5	345	e 18 52k	[− 1]	—	—	—	—	—
Chur		156·7	342	e 18 52k	[− 1]	—	—	—	—	—
Neuchatel		157·2	346	e 18 54	[+ 1]	—	—	—	—	—
Granada		167·4	12	20 15k	[+72]	e 43 31	SS	24 3	PP	—
Malaga	Z.	167·7	15	i 18 59k	[− 5]	24 4	PP	—	—	e 26·5

Additional readings :—
Auckland S_cP = 9m.32s., S_cS? = 13m.59s., pS_cS = 15m.27s.
Tuai S_cS = 13m.59s.
Wellington pPZ = 3m.47s., i = 6m.40s., iZ = 7m.15s., S_cS = 14m.7s., pS_cS = 14m.18s.
Riverview iE = 9m.20s., iN = 10m.32s., 11m.31s., and 12m.3s., iS_cSN = 14m.45s.
La Jolla eZ = 11m.53s.
Pasadena i = 14m.51s., iZ = 14m.58s.
Mount Wilson iZ = 14m.52s. and 14m.59s.
Riverside iZ = 11m.56s. and 14m.53s.
Pierce Ferry e = 12m.12s.
Tucson esP = 14m.44s., iSKS = 21m.55s.
Warsaw eZ = 20m.25s.?
Jena eN = 18m.48s. and 18m.56s.
Basle e = 19m.24s.
Zürich e = 19m.24s.
Chur e = 19m.25s.
Neuchatel e = 19m.27s.
Malaga iPPZ = 20m.12s., P_cP?Z = 22m.20s.

Aug. 4d. 17h. 51m. 4s. Epicentre 18°·9N. 68°·9W.

Intensity X at Cabrera, Julia Molina, S. Francisco de Maconis; IX at Samana, Moca; VIII at Santiago, Sanchez; VI-VII at Haiti; VI at Ciudad Trujillo, Camerio Plants, Maricao, Mona Island, Mona Passage; V-VI at San Juan; V at Arecibo, Cabo Rojo, Guyama, Isabela, Ponce.

Epicentre: 19°·25N. 69°W. Magnitude 8·1 (Pasadena).
19°·3N. 69°·0W. (U.S.C.G.S. and San Juan).

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Bulletin of the Seismological Society of America, Vol. 38, No. 1, January, 1948, pp. 19-32, 11 figures, and geological chart of the Dominican Republic.

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The Dominican Earthquakes of August, 1946. Bulletin of the Seismological Society of America, Vol. 38, No. 1, January, 1948, pp. 1-17, 17 figures, isoseismic chart (Fig. 17), p. 15.

J. B. Bettembourg.
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$A = +\cdot3408$, $B = -\cdot8833$, $C = +\cdot3220$; $\delta = +5$; $h = +5$;
$D = -\cdot933$, $E = -\cdot360$; $G = +\cdot116$, $H = -\cdot300$, $K = -\cdot947$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	e 0 44	− 1	—	—	i 0 48	P*	—
Port au Prince		3·3	264	i 0 55	+ 2	—	—	—	—	—
Fort de France		8·5	118	i 2 6	− 1	i 4 0	+15	—	—	—
Bermuda		13·9	15	i 3 15	− 6	i 5 28	−29	—	—	i 6·4
Balboa Heights		14·3	228	i 3 27	+ 1	e 6 8	+ 2	—	—	e 7·2
Bogota		15·1	200	e 3 38	+ 2	i 5 54	−31	i 3 42	PP	—
Columbia		18·5	328	i 4 15	− 4	i 7 35	− 9	—	—	i 9·4
Merida		19·6	280	e 4 31	− 1	i 8 12	+ 4	i 4 51	PP	—
Georgetown		21·2	344	i 4 51	+ 2	8 45	+ 4	—	—	—
Philadelphia		21·7	348	e 4 52	− 3	i 8 42	− 9	i 4 56	P	—
Fordham		22·3	351	e 4 57	− 4	i 9 1	− 1	i 5 39	PPP	—
Pennsylvania		23·1	343	i 5 13	+ 5	i 9 17	+ 1	i 6 5	PPP	—
Weston		23·5	357	e 5 12	0	e 9 14	− 9	i 5 38	PP	i 9·5
Harvard		23·6	357	i 4 13k	−60	—	—	—	—	—
Cincinnati		24·3	330	i 5 18	− 2	i 9 57	+20	i 5 37	PP	—
Cleveland		25·0	338	i 5 41	+14	i 9 12	−37	—	—	—
Halifax		26·0	10	5 45	+ 9	e 10 25	+19	6 9	PP	14·9
Oaxaca	z.	26·6	273	i 6 21	PP	i 11 34	SS	—	—	—
Ottawa		27·0	350	e 5 44	− 1	10 16	− 6	6 21	PP	13·1
St. Louis		27·0	321	e 5 43	− 2	i 10 46	+24	i 5 46	P	—
Florissant		27·2	321	i 5 43	− 4	i 10 45	+20	—	—	—
Chicago		27·8	329	e 5 50	− 3	i 10 30	− 5	—	—	i 13·6
Shawinigan Falls		27·8	356	5 52	− 1	10 32	− 3	11 47	SS	13·2
Seven Falls		28·2	358	5 56	0	10 36	− 5	6 47	PP	13·4
Tacubaya	E.	28·6	277	i 6 0	0	i 11 6	+18	i 7 4	PPP	—
Huancayo		31·4	192	e 6 20	− 5	i 11 27	− 5	—	—	e 13·9
Lincoln		32·3	319	e 6 30	− 3	i 11 32	−14	—	—	i 13·8
Guadalajara		32·4	280	e 6 36	+ 2	e 11 52	+ 4	i 13 36	SS	—
Manzanillo		33·5	277	e 7 4	+21	e 12 9	+ 4	e 7 41	PP	i 16·2
La Paz		35·2	178	i 6 59a	+ 1	i 12 49	+18	i 8 41	PPP	18·8
Chihuahua	z.	35·3	294	i 7 4	+ 5	i 12 48	+15	i 8 32	PPP	17·9
Tucson		39·8	298	e 7 35a	− 1	i 13 36	− 6	i 8 53	PP	i 16·5
Montezuma		41·3	180	e 7 40	− 9	e 14 6	+ 2	e 9 33	PP	e 17·1
Salt Lake City		42·6	311	e 7 58	− 1	i 14 13	−10	i 9 57	PP	i 17·9
Pierce Ferry		43·1	303	i 8 52	+48	e 14 32	+ 2	—	—	i 19·0

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Overton		43·5	304	i 8 7	0	—	—	—	—	—
Boulder City		43·7	303	i 8 9	+ 1	—	—	—	—	—
Bozeman		43·8	318	e 8 9	0	i 14 38	− 2	i 9 57	PP	i 18·3
Saskatoon		44·4	327	8 11	− 3	14 42	− 7	17 56?	SS	21·9
Butte		44·9	319	e 8 17	− 1	i 14 53	− 3	e 9 41	PP	e 18·2
Palomar	Z.	45·0	299	e 8 18	− 1	—	—	—	—	—
La Jolla		45·3	298	e 8 21	0	—	—	—	—	—
Riverside		45·5	300	i 8 22	− 1	—	—	—	—	—
Mount Wilson		46·1	300	i 8 28a	0	—	—	—	—	—
Pasadena		46·2	300	i 8 29a	+ 1	i 15 26	+11	i 10 23	PP	e 18·4
Haiwee		46·3	303	e 8 32	+ 3	—	—	—	—	—
Tinemaha		46·7	304	i 8 30	− 2	—	—	—	—	—
Santa Barbara		47·5	300	i 8 38	0	—	—	—	—	—
Fresno	N.	47·8	304	e 8 1	−40	e 15 7	−31	—	—	e 19·6
Lick	E.	49·4	304	e 8 54	+ 1	e 16 23	+23	e 10 57	PP	—
Santa Clara		49·6	304	i 9 3	+ 8	e 16 14	+11	—	—	e 22·8
Grand Coulee		49·7	318	e 8 51	− 5	e 15 57	− 7	e 14 17	PcS	—
Mineral	E.	49·7	307	e 8 56	0	e 16 8	+ 4	e 20 6	SSS	e 25·8
Branner		49·8	304	e 8 57	+ 1	e 16 11	+ 5	e 10 12	PcP	e 21·6
Berkeley		49·9	304	i 8 58	+ 1	e 16 9	+ 2	e 11 31	PPP	e 24·6
San Francisco		50·0	304	e 9 3	+ 5	e 16 8	− 1	—	—	e 25·3
Shasta Dam		50·4	308	e 8 56	− 5	—	—	—	—	—
Ukiah		50·8	306	e 9 4	0	i 16 19	− 1	i 10 28	PcP	i 20·7
Ferndale		51·8	308	e 9 8	− 4	e 16 32	− 1	—	—	e 23·9
Seattle		51·8	316	e 10 19	PcP	e 17 9	+36	e 20 19	SS	e 23·2
Santa Lucia		52·1	182	9 16	+ 2	16 55	+17	—	—	23·9
Victoria		52·7	317	9 14	− 4	16 37	− 9	—	—	27·9
Panimavida		54·4	183	9 27	− 4	22 56	SSS	—	—	24·0
La Plata	E.	54·5	168	9 26	− 6	17 8	− 2	10 44	PcP	25·7
	N.	54·5	168	9 32	0	16 56	−14	10 26	PcP	26·2
	Z.	54·5	168	9 37	+ 5	—	—	10 32	PcP	—
Lisbon	Z.	55·0	56	9 36a	+ 1	i 17 32	+15	9 50	pP	—
		55·0	56	9 39	+ 4	i 17 21	+ 4	21 0	SS	25·2
Reykjavik		55·1	23	e 9 52	+16	e 17 30	+12	e 11 58	PP	e 23·7
Malaga		58·7	58	i 10 3	+ 1	i 18 9	+ 3	i 10 25	pP	29·4
Toledo		59·0	55	i 10 3	− 1	i 18 13	+ 3	i 18 28	PS	27·9
Granada		59·4	57	10 4a	− 2	i 18 34	+19	10 21	pP	i 27·1
Jersey		60·8	43	e 10 17	+ 1	i 18 48	+15	e 25 11	SSS	29·4
Edinburgh		61·0	36	10 14	− 4	18 26	− 9	11 0	PcP	—
Sitka		61·6	326	e 10 16	− 6	i 18 42	− 1	i 14 28	PPP	i 24·9
Durham		61·7	37	i 10 28	+ 6	i 18 44	0	i 13 55	PPP	—
Aberdeen		61·8	34	i 10 19	− 4	i 18 39	− 7	i 14 7	PPP	28·6
Alicante		61·8	56	i 10 27	+ 4	i 18 51	+ 5	10 35	pP	i 30·3
Tortosa	N.	62·4	53	i 10 31	+ 4	i 19 6	+13	11 11	PcP	27·1
Barcelona		63·7	52	10 44	+ 8	19 21	+11	19 40	PPS	26·9
Paris		63·8	44	i 10 34k	− 2	i 19 7	− 4	i 11 7?	pP	e 27·9
Clermont-Ferrand		64·2	48	i 10 38	− 1	i 19 17	+ 1	i 11 0	PcP	i 29·7
Algiers		64·7	58	e 10 44	+ 2	i 19 36	+14	i 11 0	pP	30·4
Uccle		65·0	42	e 10 43k	− 1	i 19 24	− 2	i 11 20	PcP	e 30·9
De Bilt		65·6	41	i 10 47	− 1	i 19 41	+ 8	—	—	e 31·9
Bergen		66·0	31	e 10 40	−10	19 38	0	i 11 7	PcP	30·1
Besançon		66·2	46	e 10 56	+ 4	e 20 5	PS	i 11 10	PcP	e 30·9
Neuchatel		66·9	46	e 10 55	− 1	e 19 52	+ 3	—	—	—
Basle		67·2	45	e 10 57	− 1	e 20 7	+15	—	—	—
Strasbourg		67·3	44	i 10 56	− 3	i 20 4	+10	i 11 14	PcP	e 31·9
Zürich		67·9	45	e 11 3k	+ 1	e 20 6	+ 5	—	—	—
College		68·3	334	e 11 8	+ 3	i 20 5	− 1	e 15 5	PPP	i 27·6
Chur		68·6	47	e 11 7k	0	e 19 36	−33	—	—	—
Jena		69·6	42	e 11 12	− 1	e 20 20	− 1	e 11 28	PcP	e 32·4
Copenhagen		69·8	37	i 11 15	+ 1	i 20 25	+ 2	21 10	PPS	31·9
Cheb	E.	70·2	43	e 11 16	− 1	e 20 9	−19	e 11 44	PcP	e 33·4
	N.	70·2	43	e 11 28	+11	e 20 41	+13	e 11 54	PcP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Florence	E.	70·2	49	i 11 30	+13	i 20 39	+11	—	—	—
Collmberg		70·5	41	e 11 19	+ 1	i 20 30	− 2	e 11 36	PcP	e 30·9
Rome		71·3	52	i 11 25k	+ 2	i 20 43	+ 2	i 14 10	PP	33·9
Prague		71·5	42	e 11 25a	+ 1	20 44	+ 1	e 11 33	PcP	e 29·9
Triest		71·7	47	i 11 27	+ 1	i 20 44	− 1	i 14 10	PP	—
Upsala	E.	72·1	32	e 11 33	+ 5	20 48	− 2	i 14 20	PP	e 32·9
	N.	72·1	32	e 11 42	+14	20 50	0	21 9	PS	e 30·9
Zagreb		73·2	47	e 11 33k	− 2	e 20 51	−11	i 11 51	PcP	e 33·9
Budapest	E.	75·0	44	11 45	0	21 34	+11	12 1	PcP	32·9
	N.	75·0	44	11 55	+10	21 45	+22	12 4	PcP	31·9
Kalossa		75·1	45	e 11 56?	+10	21 29	+ 5	e 12 5	PcP	e 35·9
Warsaw		75·2	40	e 11 40k	− 6	21 38	+13	i 12 5	PcP	e 32·9
Belgrade		76·5	47	i 11 52	− 2	e 21 54	+15	i 12 14	PcP	e 30·9
Sofia		79·0	49	e 12 9	+ 2	i 22 3	− 3	—	—	36·9
Campulung		79·5	46	e 12 17	+ 7	e 22 26	+15	12 31	PcP	35·9
Bucharest	E.	80·5	47	e 12 15	0	i 22 21	− 1	i 12 36	PcP	e 37·9
Honolulu		82·4	290	e 12 20	− 5	i 22 48	+ 7	i 12 32	PcP	i 34·7
Moscow		83·5	33	i 12 32	+ 1	i 22 35	−17	—	—	—
Istanbul		83·6	49	e 11 34	−57	e 22 54	+ 1	—	—	—
Helwan		89·2	59	13 2	+ 3	23 38	− 9	18 20	PPP	—
Ksara		91·3	54	e 13 11?	+ 2	23 56?	−10	—	—	—
Piatigorsk		91·9	42	13 17	+ 6	23 45	[+ 1]	—	—	—
Sverdlovsk		93·6	25	i 13 17	− 2	i 23 32	[−21]	e 17 8	PP	—
Leninakan		93·9	44	e 13 31	+10	e 24 1	[+ 6]	—	—	—
Baku		98·1	42	e 14 3	+23	—	—	—	—	—
Johannesburg		104·2	113	e 18 38	PP	e 24 56	[+ 9]	e 26 8	S	49·9
Tchimkent		108·1	30	e 18 8	[−21]	e 25 32	[+28]	—	—	—
Tashkent		108·6	32	e 14 45?	P	e 26 27?	{+32}	e 18 48	PP	—
Irkutsk		108·9	4	e 14 28	P	24 57	[−11]	19 0	PP	—
Frunse		109·9	28	e 15 4	P	25 46	[+34]	—	—	—
Andijan		110·6	30	14 58	P	—	—	18 49	PKP	—
Almata		110·6	25	e 15 20?	P	—	—	19 36	PP	—
Mizusawa	E.	115·8	334	e 18 47	[+ 2]	39 16	?	—	—	—
Sendai		116·6	333	e 20 17	PP	30 0	PS	—	—	—
Wazima		119·0	336	e 19 10	[+19]	29 28	PS	—	—	—
Tananarive		120·2	101	e 20 44	PP	25 56	[+ 5]	22 32	PKS	53·4
Arapuni		121·3	236	21 26	?	26 56	{−26}	31 32	PPS	57·9
Dehra Dun	N.	121·6	33	e 20 18	PP	e 37 1	SS	29 28	PS	e 63·4
Auckland		121·9	237	18 27	[−29]	29 31	?	23 23	PPP	59·1
Wellington		121·9	232	e 19 33	[+37]	26 18	[+22]	20 32	PP	58·9
Kobe		122·0	336	20 37	PP	31 35	PPS	—	—	—
Sumoto		122·4	336	e 18 59	[+ 2]	30 22	PS	—	—	—
New Delhi	N.	122·5	35	e 16 0	?	—	—	20 50	PP	—
Christchurch		123·3	229	17 9	?	25 56	[− 5]	20 28	PP	57·8
Bombay		126·9	47	19 47	[+41]	31 50	SKSP	21 24	PP	56·0
Hyderabad	N.	131·7	43	e 19 47	[+32]	i 23 0	PKS	21 55	PP	—
Calcutta	N.	133·2	29	e 19 59	[+41]	i 23 5	PKS	34 28	PPS	60·7
Kodaikanal	E.	136·0	51	19 3	[−20]	29 28	{+31}	23 48	PKS	—
Colombo	E.	139·9	54	20 19	[+49]	—	—	—	—	68·9
Brisbane	N.	140·7	249	e 20 6	[+34]	—	—	—	—	—
Riverview		141·4	238	i 19 31k	[− 2]	i 26 37	[− 4]	i 22 40	PP	e 65·4
Perth		166·3	196	i 20 54	[+47]	i 32 1	{+16}	i 25 46	PP	—

Additional readings :—
Bogota iPcP =8m.48s., iScP? =12m.12s., iScS? =15m.35s.
Columbia eS =7m.32s.
Fordham iP =5m.1s., i =5m.15s., 8m.45s., and 8m.54s.
Pennsylvania iN =7m.17s.
Weston iScS =16m.29s.
Cincinnati iS =10m.16s.
Halifax S =10m.31s., SS =12m.4s.
Ottawa i =5m.47s. and 10m.32s., iZ =10m.49s.
Chicago iP =5m.58s., i =10m.54s.
Seven Falls i =11m.28s.
Tacubaya iPE =6m.4s., iSN =11m.10s., iN =12m.25s., iNZ =12m.30s.
Huancayo iP =6m.27s., i =12m.5s.
Guadalajara eN =10m.57s., iN =14m.16s.
Manzanillo ePPPN =8m.1s., eN =12m.55s., iSSE =13m.43s., iN =15m.33s.

Continued on next page.

Tucson i =7m.43s., iP$_c$P =9m.31s., i =9m.48s.
Montezuma ePPP? =10m.25s.
Salt Lake City i =10m.51s.
Bozeman iP =8m.15s., iPPP? =10m.46s., iSS? =17m.22s.
Fresno eN =8m.11s., 8m.22s., and 8m.31s.
Grand Coulee e =14m.57s.
Mineral iE =9m.16s. and 9m.38s.
Branner ePPN =10m.59s., eSS?N =19m.0s.
Berkeley eQN =22m.8s.
San Francisco eE =15m.51s.
Ukiah iPP? =11m.24s., eS$_c$S =18m.58s.
Seattle i =13m.51s.
Santa Lucia N =9m.22s., PE =9m.27s., SN =17m.15s., E =17m.18s.
La Plata PPN =11m.32s., PPE =12m.14s., N =13m.8s., and 14m.14s., E =14m.20s., P$_c$SE =15m.8s., E =16m.2s., S$_c$SE =19m.14s., SSE =20m.44s., N =21m.20s., and 22m.14s., SSSE =22m.44s.
Lisbon iZ =10m.11s., iSN =17m.26s., QN =22m.56s.
Rekjavik eN =13m.25s., iN =17m.43s., ePS?N =18m.43s., eSSN =20m.48s.
Malaga iP$_c$PZ =10m.47s., iPPZ =12m.15s., iPPPZ =13m.59s., isSN =18m.47s., iSSN = 22m.23s.
Toledo S$_c$SN =20m.3s., SSN =21m.49s.
Granada P$_c$P =10m.46s., PP =12m.16s., PPP =13m.45s., PS =19m.7s., sS =19m.17s., S$_c$S =20m.16s., SS =22m.40s., SSS =25m.3s.
Jersey e =23m.4s.
Edinburgh PP =12m.28s., PPP =13m.54s., P$_c$S =15m.0s., SS =22m.26s.
Sitka iP =10m.27s., i =19m.8s., iS$_c$S =20m.16s., iSS =22m.36s.
Durham iE =10m.39s. and 22m.52s.
Aberdeen iEN =10m.38s., iSSE =22m.57s.
Alicante P$_c$P =11m.15s., PP =12m.37s., PPP =14m.11s., P$_c$S =15m.39s., PS =19m.2s., PPS =19m.23s., S$_c$S =20m.13s., SS =23m.27s., SSS =25m.39s.
Tortosa PPN =12m.54s., PPPN =14m.40s., P$_c$SN =15m.13s., PSN =19m.25s., PPSN = 19m.45s., S$_c$SN =20m.22s., SSN =22m.53s., SSSN =25m.15s.
Barcelona i =16m.56s.
Paris i =10m.52s. and 13m.52s., iPPP =14m.14s., i =20m.22s., iSS =23m.28s.
Clermont-Ferrand i =11m.12s. and 19m.44s., iQ =28m.26s.
Algiers iP$_c$P =11m.22s., i =11m.44s., ePP =13m.14s., iPPP =14m.20s., e =19m.18s., iS$_c$S =20m.32s.
Uccle iZ =11m.0s. and 12m.22s., ePPZ =13m.1s., iPPE =13m.17s., PPPZ =14m.38s., iSN =19m.28s., iPSN =9m.39s., iPSZ =9m.59s., iSSN =23m.32s. and 23m.42s., iN =24m.37s.
Bergen PPEZ =13m.26s., e =14m.15s., SSN =23m.59s., QN =28m.6s.
Strasbourg e =10m.59s., iPP =13m.8s., e =19m.44s., iSS =24m.26s.
College i =11m.49s., e =13m.6s., ePP? =14m.12s., i =16m.9s. and 22m.17s., eSS = 24m. 30s.
Jena ePN =11m.15s. and 11m.20s., ePPN =14m.22s., iPPE =14m.48s., eSZ =20m.26s., eSN =20m.35s., eSS?N =24m.42s., eSS?E =24m.54s.
Copenhagen 24m.32s.
Cheb ePPN =13m.44s., eN =15m.0s., ePPPN =15m.30s., eN =16m.30s., 18m.49s., 21m.45s., and 23m.5s., eSSN =25m.17s., eN =27m.10s. and 29m.14s.
Collmberg eN =11m.30s., eE =12m.56s., ePP?E =14m.10s., iN =20m.40s., iPSE = 20m.58s., iS$_c$SN =21m.19s., eSSE =24m.48s., iN =25m.15s.
Rome iZ =12m.3s., iN =21m.0s., iPSE =21m.12s., eSS =25m.1s., eSSS =28m.56s.?
Prague ePP =14m.33s., ePS =21m.14s., eSS =25m.20s.
Upsala eE =24m.53s., SSN =25m.39s., SSSN =28m.34s., eE =29m.7s.
Zagreb ePS =21m.24s., eSS =25m.43s., eSSS =29m.1s.
Budapest eN =12m.46s., iN =16m.5s., PPPN =6m.46s., eN =24m.36s., SSN =26m.45s., SSSN =30m.5s., SSSE =30m.30s.
Kalossa eS =21m.36s.
Warsaw ePZ =11m.45s., iPPN =14m.29s., iPPZ =14m.45s., ePPPN =16m.27s., iPPPZ = 16m.37s., iP$_c$SN =19m.19s., S$_c$S?N =21m.50s., iPSNZ =21m.59s., iPPSZ =22m.,22s. iSSN =25m.59s., iSSZ =26m.19s., iSSSN =29m.28s., iSSSZ =30m.2s., and numerous other readings given without phase.
Belgrade ePP =14m.54s., ePS =22m.34s., eSS =26m.1s.
Sofia iEN =12m.26s.
Bucharest iE =13m.51s., iPPE =15m.7s., iE =18m.8s., iPSE =22m.55s.
Honolulu i =13m.11s., iPP =15m.54s., ePPP? =17m.14s., iPPS =24m.0s., i =25m.44s., 27m.10s., and 32m.19s.
Helwan e =17m.0s.
Johannesburg iSSEN =33m.56s., QN =44m.56s.?
Tashkent ePPP =21m.45s.
Irkutsk PPP =21m.13s., S =26m.12s., PPS =28m.54s., SSS =37m.38s.
Mizusawa SN =39m.19s.
Tananarive SKKS =27m.39s., PKKP? =29m.2s., PS =30m.28s., PPS =31m.13s., SS =37m.5s., SSS =41m.12s.
Arapuni e =34m.26s., SS =42m.8s., SSS =49m.56s., e =51m.44s., Q =54m.44s., readings wrongly identified.
Dehra Dun eN =50m.12s. and 56m.44s.
Auckland PKP =21m.31s., S =30m.46s., i =32m.3s., e =36m.17s., SS =38m.41s., SSS = 42m.34s., Q =51m.2s.

Continued on next page.

Wellington PP?Z =23m.6s., SKKS =28m.1s., PSZ =30m.18s., sSSZ =37m.58s., SSS?Z = 40m.31s., iZ =50m.8s., Q =52m.8s.
Christchurch PS? =29m.6s., PPS =30m.58s., Q =51m.53s.
Bombay iSSE =38m.58s., iE =43m.31s.
Hyderabad SSN =39m.34s.
Calcutta N =20m.41s., iSSN =39m.57s.
Kodaikanal eE =24m.18s., PSKSE =32m.43s., SS?E =38m.25s.
Riverview iSKKSE=29m.23s., iSKKKS?E=29m.36s., iS?E =30m.39s., iPS?E=33m.5s., iPPS?E =34m.48s., iSSP?E =41m.26s., eSSS?E =45m.57s., eQN =57m.56s.
Long waves were also recorded at Logan.

Aug. 4d. 18h. 33m. 45s. Epicentre 18°·9N. 68°·9W. (as on 17h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Huancayo		31·4	192	i 6 27	+ 2	—	—	—	—
La Paz		35·2	178	i 7 3	+ 5	—	—	—	—
Tucson		39·8	298	i 7 35	− 1	—	—	—	—
Pierce Ferry		43·1	303	i 8 2	− 2	—	—	—	—
Overton		43·5	304	i 8 6	− 1	—	—	—	—
Boulder City		43·7	303	i 8 7	− 1	—	—	—	—
Palomar	Z.	45·0	299	i 8 17	− 2	—	—	—	—
La Jolla		45·3	298	e 8 19	− 2	—	—	—	—
Riverside	Z.	45·5	300	i 8 22	− 1	—	—	—	—
Mount Wilson	Z.	46·1	300	i 8 26a	− 2	—	—	—	—
Pasadena	Z.	46·2	300	i 8 27	− 1	—	—	—	—
Haiwee		46·3	303	e 8 30	+ 1	—	—	—	—
Tinemaha		46·7	304	i 8 30	− 2	—	—	—	—
Santa Barbara		47·5	300	i 8 37	− 1	—	—	—	—
Fresno	N.	47·8	304	e 8 1	−40	—	—	—	—
Grand Coulee		49·7	318	i 8 51	− 5	—	—	—	—
Branner	E.	49·8	304	e 8 54	− 2	—	—	—	—
Shasta Dam		50·4	308	i 8 56	− 5	—	—	—	—
Granada		59·4	57	10 12a	+ 6	18 32	+17	—	—
Tortosa	N.	62·4	53	i 10 33	+ 6	—	—	—	—
Paris		63·8	44	i 10 36	0	—	—	—	—
Strasbourg		67·3	44	e 10 59	0	—	—	—	—
Copenhagen		69·8	37	i 11 23	+ 9	—	—	—	—
Rome	Z.	71·3	52	e 11 21	− 2	—	—	—	—
Riverview		141·4	238	i 19 30	[− 3]	i 29 44	{+15}	22 34	PP

Additional readings :—
Paris i =10m.45s.
Riverview iE =30m.19s., iS?E =30m.45s., iPS?Z =34m.8s., iPS?E =34m.12s., iSSS?E = 47m.11s.

Aug. 4d. 20h. 53m. 31s. Epicentre 19°·4N. 70°·4W. (as on 1946, April 29d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	− i 0 8	−43	i 0 17	?	i 0 2	?	—
Balboa Heights		13·7	222	e 3 21	+ 3	e 5 48	− 4	—	—	—
Bermuda		13·9	21	e 3 21	0	—	—	—	—	—
Bogota		15·1	194	e 3 39	+ 3	i 6 37	+12	i 7 2	SSS	—
Columbia		17·4	330	—	—	e 7 24	+ 5	—	—	e 8·4
Merida	N.	18·1	278	e 4 16	+ 2	i 7 49	+14	—	—	—
Philadelphia		20·9	351	e 4 47	+ 1	i 8 38	+ 3	i 5 24	PPP	e 9·7
Weston		22·9	359	i 4 59	− 7	—	—	—	—	—
Halifax		25·8	12	5 48	+14	10 12	+10	—	—	12·5
St. Louis		25·8	322	e 5 33	− 1	e 10 32	+30	—	—	—
Chicago		26·7	331	e 5 41	− 2	i 10 13	− 4	—	—	e 11·6
Tacubaya		27·1	275	e 5 47	+ 1	e 10 53	+29	—	—	—
Shawinigan Falls		27·2	358	e 5 45	− 2	—	—	—	—	16·5
Seven Falls		27·7	0	e 5 53	+ 1	—	—	—	—	12·5
Lincoln		31·0	320	e 6 17	− 4	e 10 51	−35	e 7 42	PPP	e 16·2

Continued on next page,

		Δ	Az.	P.	P−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		31·6	189	e 6 24	− 2	e 11 43	+ 8	—	—	e 12·2
La Paz		35·8	175	7 6	+ 3	12 36	− 5	12 49	?	18·5
Tucson		38·4	298	e 7 25	0	e 13 41	+21	e 9 0	PP	e 15·9
Logan		41·5	312	e 7 57	+ 7	—	—	—	—	e 22·6
Pierce Ferry		41·6	303	i 7 53	+ 2	—	—	—	—	—
Overton		42·1	304	i 7 56	+ 1	—	—	—	—	—
Saskatoon		43·2	328	—	—	e 14 29	− 3	—	—	19·5
Palomar		43·5	299	i 8 6	− 1	—	—	—	—	—
La Jolla		43·8	298	e 8 11	+ 2	—	—	—	—	—
Riverside	z.	44·0	300	i 8 13	+ 2	—	—	e 9 59	PP	—
Mount Wilson		44·6	300	i 8 18	+ 2	—	—	—	—	—
Pasadena	z.	44·7	300	e 8 17	+ 1	—	—	—	—	—
Haiwee		44·8	302	e 8 19	+ 2	—	—	—	—	—
Tinemaha		45·2	303	i 8 22	+ 2	—	—	—	—	—
Santa Barbara		46·0	300	i 8 28	+ 1	—	—	—	—	—
Lick		47·9	304	e 8 43	+ 1	—	—	—	—	—
Grand Coulee		48·4	318	e 8 42	− 4	—	—	e 10 6	P_cP	—
Lisbon		55·9	56	9 38a	− 4	17 27	− 2	—	—	24·9
Malaga	z.	59·7	58	i 9 58a	−11	e 20 45	?	13 32	PPP	38·1
Toledo	z.	59·9	54	i 10 9	− 1	—	—	—	—	—
Granada		60·3	58	i 10 10a	− 3	i 18 49	+23	10 23	pP	26·5
Tortosa	N.	63·3	53	i 10 47	+14	19 46	+42	11 46	P_cP	e 32·5
Paris		64·5	45	i 10 37	− 4	—	—	—	—	30·5
Clermont-Ferrand		64·9	48	i 10 42	− 1	—	—	—	—	—
Uccle		65·6	42	e 10 48	0	—	—	—	—	e 30·5
Neuchatel		67·5	46	e 10 57	− 3	—	—	—	—	—
Basle		67·9	46	e 11 0	− 2	—	—	—	—	—
Strasbourg		67·9	44	e 11 1	− 1	—	—	—	—	—
Zürich		68·6	46	e 11 5	− 2	—	—	—	—	—
Copenhagen		70·2	37	i 11 17	0	—	—	—	—	—
Rome		72·1	52	e 11 17	−11	e 21 36	PPS	—	—	—
Prague		72·1	42	e 11 41?	+13	e 20 47?	− 3	—	—	e 32·5
Zagreb		73·9	46	e 11 38	− 1	e 21 4	− 6	—	—	e 32·5
Warsaw		75·8	40	e 11 29?	−21	—	—	—	—	e 36·5
Belgrade		77·2	47	e 12 29?	+32	e 21 17	−30	—	—	e 34·5
Ksara		92·1	54	e 13 32	+20	—	—	—	—	—

Additional readings :—
Columbia iS = 7m.29s.
Merida eSE = 7m.53s.
Philadelphia iP = 4m.50s., e = 6m.5s.
Huancayo i = 8m.4s., eP_cP = 8m.39s.
Tucson ePPP? = 9m.42s.
Lisbon PEZ = 9m.41s., iZ = 9m.44s. and 10m.1s.
Malaga PPPZ = 15m.43s., SSZ = 26m.18s.
Granada PP = 10m.53s.
Tortosa PPN = 13m.22s.
Zagreb eNE = 11m.43s., eNW = 21m.22s., e = 23m.34s.
Long waves were also recorded at Bozeman.

Aug. 4d. 21h. 49m. 40s. Epicentre 18°·9N. 68°·9W. (as at 18h.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince	3·3	264	e 0 40	−13	i 1 32	− 3	i 1 12	P_g	i 1·8
Fort de France	8·5	118	e 2 6	− 1	—	—	—	—	—
Bogota	15·1	200	e 3 42	+ 6	i 6 25	0	i 3 50	PP	e 8·8
Philadelphia	21·7	348	e 4 49	− 6	e 8 44	− 7	e 5 42	PPP	e 9·9
Weston	23·5	357	i 5 7	− 5	—	—	—	—	—
Halifax	26·0	10	5 50	+14	10 10	+ 4	—	—	14·3
Huancayo	31·4	192	e 6 33	+ 8	—	—	—	—	—
La Paz	35·2	178	7 15	+17	—	—	—	—	—
Tucson	39·8	298	e 7 35	− 1	—	—	—	—	—
Pierce Ferry	43·1	303	i 8 1	− 3	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Overton		43·5	304	i 8 5	− 2	—	—	—	—	—
Pasadena		46·2	300	8 26	− 2	—	—	—	—	—
Grand Coulee		49·7	318	e 8 50	− 6	—	—	—	—	—
Shasta Dam		50·4	308	e 8 56	− 5	—	—	—	—	—
Malaga	z.	58·7	58	i 10 1a	− 1	—	—	—	—	e 28·7
Granada		59·4	57	i 10 16k	+10	18 19	+ 4	11 6	PcP	—
Paris		63·8	44	e 10 38	+ 2	—	—	—	—	—
Rome	z.	71·3	52	e 11 24	+ 1	—	—	—	—	—
Zagreb		73·2	47	e 11 42	+ 7	e 22 2	+60	—	—	—

Additional readings :—
Bogota i = 3m.45s. and 5m.50s.
Granada PP = 13m.3s.
Long waves were also recorded at Lincoln.

Aug. 4d. Readings also at 2h. (Riverside, Mount Wilson, and Pasadena), 6h. (New Delhi and Ksara), 7h. (near Andijan), 8h. (Zürich), 11h. (Pierce Ferry, Ksara, near Malaga, and Granada), 13h. (Ksara (2), Sofia, Bucharest, Warsaw, and near Zürich), 16h. (Ksara), 18h. (La Paz, Tucson (2), Palomar, La Jolla, Riverside, Mount Wilson, Pasadena (4), Tinemaha, Santa Barbara, Fresno (2), Grand Coulee (3), Branner, Shasta Dam (4), Toledo, Granada, Tortosa (2), Paris (3), and Rome (2), 19h. (Granada and Pierce Ferry), 20h. (Huancayo, Port au Prince, and Shasta Dam), 21h. (Malaga (2), Pasadena, St. Louis (3), Pierce Ferry, Weston, near Port au Prince, near Panimavida and Santa Lucia), 22h. (La Paz), 23h. (Ottawa, Lincoln, Weston (2), and Fort de France).

Aug. 5d. I 2h. 41m. 56s. } Epicentre 18°·9N. 68°·9W.
II 3h. 37m. 38s. } (as on 4d.).

$A = +\cdot3408$, $B = -\cdot8833$, $C = +\cdot3220$; $\delta = +5$; $h = +5$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
II	San Juan	2·7	101	e 0 49	+ 4	e 1 39	+20	—	—	i 1·9
I	Port au Prince	3·3	264	(i 0 54)	+ 1	(i 1 29)	− 6	(i 1 44)	S*	(1·9)
II		3·3	264	(e 0 57)	+ 4	(i 1 37)	+ 2	(i 1 47)	Sg	(2·4)
I	Fort de France	8·5	118	e 2 20	+13	—	—	—	—	—
II		8·5	118	e 0 30	?	—	—	—	—	—
I	Columbia	18·5	328	—	—	e 7 44	0	—	—	e 8·2
II		18·5	328	—	—	e 7 38	− 6	—	—	e 8·9
I	Philadelphia	21·7	348	e 4 52	− 3	e 8 57	+ 6	e 5 17	PP	e 10·1
II		21·7	348	e 4 58	+ 3	i 8 51	0	e 5 16	PP	e 10·2
I	Weston	23·5	357	e 5 3	− 9	—	—	—	—	—
II		23·5	357	e 5 15	+ 3	—	—	—	—	—
I	Ottawa	27·0	350	e 5 44	− 1	—	—	—	—	11·1
II		27·0	350	e 5 46	+ 1	—	—	—	—	10·4
I	St. Louis	27·0	321	5 42	− 3	—	—	—	—	—
I	Chicago	27·8	329	e 5 47	− 6	e 10 44	+ 9	(e 11 40)	SS	e 11·7
II		27·8	329	e 7 37	?	e 10 23	−12	—	—	e 12·1
II	Huancayo	31·4	192	e 6 19	− 6	—	—	e 7 49	PPP	—
II	La Paz	35·2	178	8 42	PPP	—	—	—	—	21·4
I	Tucson	39·8	298	e 7 36	0	—	—	—	—	—
II		39·8	298	e 7 32	− 4	—	—	e 9 15	PP	e 24·0
II	Pierce Ferry	43·1	303	e 8 3	− 1	—	—	i 9 37	PP	—
I	Pasadena	46·2	300	8 27	− 1	—	—	—	—	—
II		46·2	300	8 27	− 1	—	—	—	—	—
II	Grand Coulee	49·7	318	e 8 56	0	—	—	—	—	—
I	Shasta Dam	50·4	308	i 8 57	− 4	—	—	—	—	—
II		50·4	308	i 8 58	− 3	—	—	i 10 47	PP	—
I	Malaga	z. 58·7	58	i 10 9k	+ 7	—	—	—	—	—
II		z. 58·7	58	i 10 12k	+10	—	—	11 41	PP	30·5
II	Granada	59·4	57	e 10 46a	+40	—	—	—	—	28·0
II	Alicante	61·8	56	e 10 27	+ 4	—	—	—	—	e 31·0
II	Cheb	70·2	43	e 17 22?	?	—	—	—	—	e 37·4
II	Ksara	91·3	54	e 13 32	+23	e 25 13	PS	—	—	—

Additional readings :—
Port au Prince I readings decreased by 4m.; II readings decreased by 1m.
Philadelphia II e = 6m.30s., eS = 8m.46s.
Huancayo eP_cP = 8m.54s.
Long waves were also recorded at Lincoln (II), Bozeman (II), Salt Lake City (II), and at other European stations.

Aug. 5d. 4h. 7m. 43s. Epicentre 36°·9N. 121°·7W. (as on 1946, May 29d.).

Intensity IV in Alma, Aloiso, Aptos, Los Gabos, San Gregorio, and Watsonville; III San Francisco. Epicentre 36°51′N. 121°47′W.

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Lick		0·4	6	i 0 12	− 1	e 0 17	− 4	—	—
Santa Clara		0·5	336	e 0 12	− 2	i 0 20	− 3	—	—
Branner		0·6	323	i 0 17	+ 2	i 0 28	+ 2	—	—
San Francisco		1·0	325	e 0 21	0	i 0 37	+ 1	—	—
Berkeley		1·1	335	i 0 22	0	i 0 39	0	—	—
Fresno	N.	1·5	96	e 0 27	− 1	e 0 47	− 2	—	—
Mineral	E.	3·4	1	e 1 4	P*	i 1 47	S*	i 1 57	S_g

Aug. 5d. 5h. 41m. 33s. Epicentre 18°·9N. 68°·9W. (as at 3h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L./
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	e 0 59	P_g	i 1 20	+ 1	i 1 35	S_g	i 1·8
Columbia		18·5	328	—	—	e 7 39	− 5	—	—	e 9·0
Philadelphia		21·7	348	e 4 53	− 2	e 8 45	− 6	e 5 12	PP	e 10·0
Weston		23·5	357	i 5 1	−11	—	—	—	—	—
Ottawa		27·0	350	e 5 42	− 3	—	—	—	—	9·5
St. Louis		27·0	321	5 43	− 2	—	—	—	—	—
Chicago		27·8	329	e 6 23	PP	e 10 23	−12	e 11 3	SS	e 14·0
La Paz	z.	35·2	178	8 32	PP	—	—	i 8 41	PPP	21·5
Tucson		39·8	298	e 7 37	+ 1	—	—	e 9 47	PPP	e 27·7
Pasadena		46·2	300	8 29	+ 1	—	—	—	—	—
Shasta Dam		50·4	308	i 8 58	− 3	—	—	—	—	—
Malaga	z.	58·7	58	i 10 4 a	+ 2	—	—	—	—	—
Alicante		61·8	56	e 9 26	−55	17 50	−56	—	—	e 28·3
Triest		71·7	47	(e 11 31)	+ 5	e 11 31	P	—	—	—
Warsaw		75·2	40	(e 14 27?)	PP	—	—	—	—	e 14·3

Long waves were also recorded at Fort de France, Salt Lake City, Granada, Strasbourg, and Paris.

Aug. 5d. 12h. 33m. 14s. Epicentre 18°·9N. 68°·9W. (as at 5h.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince	3·3	264	e 0 36	−17	—	—	—	—	—
Fort de France	8·5	118	e 1 28	−39	e 3 28	−17	—	—	—
Columbia	18·5	328	e 4 16	− 3	e 7 43	− 1	—	—	—
Philadelphia	21·7	348	e 4 59	+ 4	e 8 47	− 4	i 5 10	PP	e 10·0
Fordham	22·3	351	5 3	+ 2	—	—	—	—	—
New Kensington	23·5	339	e 4 12	−60	e 9 20	− 3	—	—	e 13·1
Weston	23·5	357	e 5 20	+ 8	—	—	—	—	—
Ottawa	27·0	350	5 46	+ 1	10 16	− 6	—	—	11·8
St. Louis	27·0	321	5 42	− 3	—	—	—	—	—
Chicago	27·8	329	e 6 24	PP	e 10 28	− 7	—	—	e 11·2
Shawinigan Falls	27·8	356	e 5 52	− 1	—	—	—	—	18·8
Seven Falls	28·2	358	—	—	e 10 34	− 7	—	—	12·8
Huancayo	31·4	192	e 6 26	+ 1	e 11 34	+ 2	—	—	e 13·1
La Paz	35·2	178	e 7 1	+ 3	15 14	SSS	—	—	21·8
Tucson	39·8	298	e 7 37	+ 1	e 13 46	+ 4	e 9 5	PP	e 16·7
Salt Lake City	42·6	311	—	—	e 14 22	− 1	—	—	e 21·9
Logan	42·9	313	—	—	e 14 52	+25	—	—	24·5
Pierce Ferry	43·1	303	i 8 3	− 1	—	—	—	—	—
Overton	43·5	304	i 8 7	0	—	—	—	—	—
Boulder City	43·7	303	e 8 9	+ 1	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bozeman		43·8	318	—	—	e 14 40	0	—	—	e 18·1
Pasadena		46·2	300	8 29	+ 1	—	—	—	—	—
Grand Coulee		49·7	318	e 9 1	+ 5	—	—	—	—	—
Shasta Dam		50·4	308	i 8 57	− 4	—	—	—	—	—
Malaga	z.	58·7	58	i 9 58k	− 4	i 18 2	− 4	i 10 11	pP	28·0
Granada		59·4	57	10 5k	− 1	18 5	−10	—	—	28·4
Alicante		61·8	56	e 10 0	−23	(19 13)	PPS	—	—	e 19·2
Paris		63·8	44	e 10 31	− 5	—	—	e 16 2	?	—
Clermont-Ferrand		64·2	48	—	—	e 19 11	− 5	—	—	e 30·8
Uccle		65·0	42	e 10 42	− 2	—	—	—	—	e 30·8
De Bilt		65·6	41	e 10 46	− 2	e 19 26	− 7	—	—	e 30·8
Strasbourg		67·3	44	—	—	e 19 46	− 8	e 20 35	PPS	e 31·6
College		68·3	334	—	—	e 19 55	−11	—	—	e 33·1
Copenhagen		69·8	37	e 19 16	?	e 20 10	−13	—	—	32·8
Cheb		70·2	43	e 14 46?	?	e 20 35	+ 7	—	—	e 34·8
Florence	E.	70·2	49	(e 11 33)	+16	(e 21 1)	+33	—	—	—
Triest		71·7	47	—	—	20 38	− 7	—	—	—
Warsaw		75·2	40	e 11 13	−33	—	—	e 15 9	PP	e 24·8
Ksara		91·3	54	—	—	e 23 17	[−23]	—	—	—

Additional readings :—
Philadelphia e =6m.1s.
Tucson ePPP =9m.50s.
Malaga PPZ =12m.18s., PPPZ =13m.22s., S_cPZ =14m.14s., S_cSZ =19m.9s., SSZ = 22m.12s.
Florence readings increased by 2m.
Warsaw eE =11m.17s.
Long waves were also recorded at Lincoln, Ukiah, Sitka, Kew, and Prague.

Aug. 5d. 14h. 2m. 59s. Epicentre 18°·9N. 68°·9W. (as at 12h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 55	P_g	i 1 19	0	i 1 31	S_g	i 1·7
Philadelphia		21·7	348	e 4 51	− 4	e 8 52	+ 1	—	—	e 9·9
Weston		23·5	357	e 5 21	+ 9	—	—	—	—	—
La Paz		35·2	178	e 7 47	+49	—	—	—	—	22·0
Tucson		39·8	298	e 7 41	+ 5	—	—	—	—	—
Pierce Ferry		43·1	303	e 8 0	− 4	—	—	—	—	—
Pasadena		46·2	300	8 29	+ 1	—	—	—	—	—
Malaga	z.	58·7	58	i 10 3a	+ 1	—	—	—	—	—

Long waves were also recorded at Alicante and Kew.

Aug. 5d. 15h. Undetermined shock.

U.S.S.R. gives epicentre 42°·0N. 95°·5E.

Irkutsk iP =30m.43s., S =32m.59s.
Almata eP =30m.53s.
Andijan eP =31m.46s.
Tashkent eP =32m.4s., S =35m.38s.
Samarkand eP =32m.25s.
Sverdlovsk iP =33m.16s., iS =37m.53s.

Aug. 5d. 20h. 8m. 48s. Epicentre 18°·9N. 68°·9W. (as at 14h.).

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	2·7	101	e 1 2	P_g	i 1 18	− 1	i 1 34	S_g	i 1·7
Port au Prince	3·3	264	(i 1 0)	P^g	(i 1 35)	0	(i 1 15)	P_g	—
Fort de France	8·5	118	e 2 26	+19	—	—	—	—	—
Bogota	15·1	200	e 3 46	+10	e 6 41	+15	e 7 2	SSS	—
Columbia	18·5	328	—	—	e 7 35	− 9	—	—	e 8·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Philadelphia		21·7	348	e 4 51	− 4	e 8 41	−10	e 5 11	PP	e 9·9
Fordham		22·3	351	5 0	− 1	—	—	—	—	—
New Kensington		23·5	339	e 5 12	0	(9 21)	− 2	—	—	e 9·4
Weston		23·5	357	e 5 9	− 3	—	—	—	—	—
Ottawa		27·0	350	5 42	− 3	10 12?	−10	—	—	14·2
Chicago		27·8	329	e 5 54	+ 1	e 10 20	−15	e 6 24	PP	e 12·5
Huancayo		31·4	192	e 6 33	+ 8	e 11 47	+15	—	—	e 12·5
La Paz		35·2	178	8 37	PPP	—	—	—	—	—
Tucson		39·8	298	e 7 35	− 1	—	—	e 9 32	PPP	e 22·7
Overton		43·5	304	e 8 8	+ 1	—	—	—	—	—
Boulder City		43·7	303	e 8 1	− 7	—	—	e 8 7	P	—
Pasadena		46·2	300	8 29	+ 1	—	—	—	—	—
Malaga	z.	58·7	58	i 10 8k	+ 6	—	—	—	—	—
Alicante		61·8	56	—	—	e 19 11	+25	—	—	e 30·4
Collmberg	z.	70·5	41	e 11 18	0	—	—	e 11 42	P_cP	—

Additional reading and note :—
Port au Prince readings decreased by 1m.
Philadelphia gives also 5m.26s.
Long waves were also recorded at Lincoln, Salt Lake City, Sitka, Kew, De Bilt, and Cheb.

Aug. 5d. Readings also at 0h. (Warsaw, Cheb, Uccle, Strasbourg, Alicante, Malaga (4), Granada, Shasta Dam, Pierce Ferry (2), Tucson (2), Chicago, Lincoln, Philadelphia, Weston (2), St. Louis (4), Columbia, La Paz, and Fort de France), 1h. (Warsaw, Cheb, Uccle, De Bilt, Strasbourg, Paris, Granada, Alicante, Malaga, Lincoln, Weston, Pasadena, and Shasta Dam), 2h. (Weston and St. Louis), 3h. (Malaga, Alicante, Uccle, Huancayo, St. Louis (2), Weston, Pasadena, near San Francisco, Berkeley, and near Samarkand), 4h. (Florence, Lincoln (3), Weston, Riverside, Palomar, Tinemaha, Pasadena, Mount Wilson, Shasta Dam, Wellington, Christchurch, Arapuni, Riverview, and Brisbane), 5h. (St. Louis, Weston, Strasbourg, Paris, De Bilt, Uccle, Warsaw, near Andijan, and Samarkand), 6h. (Palomar, Pasadena (2), Mount Wilson, Pierce Ferry, Tucson, La Paz, and Huancayo), 7h. (Neuchatel, Pasadena, Mount Wilson, Tinemaha, Tucson, Lincoln, St. Louis, Weston, near San Juan, near Berkeley, and near Samarkand), 8h. (Mizusawa, Riverside, Pasadena, Mount Wilson, Collmberg, Basle, Triest, near Zagreb, and Florence), 9h. (Ottawa, St. Louis, Weston, and near San Juan), 10h. (Warsaw, Uccle, Pierce Ferry, Pasadena, Tucson, Weston, Chicago, and Columbia), 12h. (Philadelphia, Chicago, Weston, St. Louis, Ottawa, Logan, Pasadena, Tucson, Pierce Ferry, and Shasta Dam), 13h. (St. Louis, Weston (3), Tucson, Pasadena, Pierce Ferry, Malaga, Alicante, and near Neuchatel), 14h. (near Malaga and Granada), 15h. (Warsaw, Copenhagen, Kew, Paris, Alicante, Malaga, Pierce Ferry, Pasadena (2) Tucson (2), Weston (2), near San Juan, and near Reykjavik), 16h. (Strasbourg, De Bilt, Mount Wilson, Pasadena, and Riverside), 17h. (Zagreb, Pierce Ferry, Pasadena, Tucson, and Weston (3)), 18h. (Copenhagen, Kew (2), Triest, and Bucharest), 19h. (Tucson, Riverside, Pasadena, Mount Wilson, Palomar, and Riverview), 20h. (Ksara), 22h. (Harvard and near San Francisco), 23h. (Weston and Harvard).

Aug. 6d. 2h. 47m. 4s. Epicentre 10°·0S. 161°·1E. (as on July 27d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	19·0	202	i 4 19	− 7	i 7 54	− 1	i 4 42	PP	e 9·8
Riverview		25·4	199	i 5 29a	− 2	i 9 55	− 1	i 5 38	pP	e 12·1
Arapuni		30·9	157	—	—	e 13 50	SSS	—	—	15·0
Christchurch		34·9	165	8 46	PPP	14 6	SS	15 29	Q	18·1
Perth		47·1	235	13 41	P_cS	18 41	SS	20 0	SSS	i 21·9
Honolulu		50·9	51	e 10 37	P_cP	e 16 33	+12	e 12 9	PPP	e 24·6
Vladivostok		59·2	336	e 10 26	+21	e 18 34	+22	—	—	—
Irkutsk		78·7	329	e 12 4	− 2	22 4	+ 1	—	—	—
College		83·8	19	—	—	e 22 59	+ 4	e 24 24	PPS	e 35·2
Sitka		84·5	29	—	—	e 23 4	+ 2	—	—	e 35·5
Berkeley		85·7	50	e 12 46	+ 4	e 23 16	+ 2	e 24 18	PS	e 41·6
Shasta Dam		86·4	47	e 12 46	+ 1	e 23 13	− 8	—	—	—
Mount Wilson	z.	88·0	54	i 12 55	+ 2	—	—	—	—	—
Pasadena	z.	88·0	54	i 12 50	− 3	—	—	i 12 59	P_cP	e 40·1
Victoria		88·0	40	—	—	e 23 26	−10	—	—	35·9

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Jolla	Z.	88·4	56	e 12 57	+ 2	—	—	—	—	—
Riverside	Z.	88·6	54	i 12 57	+ 1	—	—	—	—	—
Tinemaha	Z.	88·6	51	e 12 58	+ 2	—	—	—	—	—
Palomar		88·9	56	e 12 58	0	—	—	—	—	—
New Delhi	N.	89·4	299	—	—	i 23 43	− 6	i 24 28	PS	—
Grand Coulee		90·7	40	e 13 6	0	—	—	—	—	—
Boulder City		91·1	53	e 13 35	+27	—	—	—	—	—
Overton		91·5	53	e 13 16	+ 6	—	—	i 13 23	P_eP	—
Tucson		93·6	57	e 13 25	+ 6	e 24 40	+14	e 25 45	PS	e 42·5
Salt Lake City		94·2	50	—	—	e 24 3	[+ 6]	—	—	—
Bozeman		95·6	45	—	—	e 24 11	[+ 7]	e 26 8	PS	—
Tashkent		97·9	311	e 13 19	−20	e 25 55	+52	26 35	PS	—
Sverdlovsk		104·0	327	18 27	PP	25 52	− 2	33 16	SS	—
St. Louis	E.	110·7	52	—	—	e 26 15	{+ 5}	e 28 44	PS	e 53·2
Baku		112·5	310	e 18 29	[− 9]	—	—	—	—	—
Philadelphia		122·9	49	—	—	e 29 7	?	e 39 58	?	e 49·3
Ksara		124·6	304	e 20 51	PP	e 32 32	PPS	—	—	—
La Paz	Z.	124·6	118	—	—	e 30 56	PS	—	—	67·9
Warsaw		126·9	330	e 21 33	PP	e 28 9	{+10}	e 21 38	?	e 54·9
Copenhagen		128·2	338	e 21 48	PP	—	—	—	—	60·9
Helwan		129·3	301	e 21 36	PP	—	—	—	—	—
Collmberg	Z.	131·3	335	e 19 18	[+ 4]	22 47	PKS	e 21 30	PP	—
Cheb		132·4	333	—	—	e 22 56?	PKS	e 31 56?	PS	e 67·9
Triest		134·8	328	e 22 51	PKS	—	—	e 24 48	PPP	—
Strasbourg		135·5	335	—	—	e 22 57	PKS	—	—	e 65·9
Paris		137·4	339	e 19 29?	[+ 3]	—	—	e 22 7	PP	e 67·9
Florence	E.	137·4	328	(i 19 42)	[+16]	—	—	—	—	—
Rome		137·9	326	e 19 46	[+19]	e 34 18	PPS	e 39 56	SS	—
Fort de France		138·5	79	—	—	e 33 46	PPS	—	—	—
Clermont-Ferrand		139·7	336	—	—	e 22 51	PKS	—	—	e 62·9
Tortosa	N.	144·8	333	19 53	[+14]	—	—	—	—	—
Alicante		147·3	333	20 55	[+72]	—	—	22 39	PP	e 81·7
Granada		149·6	340	i 19 41 a	[− 6]	42 45	SS	23 36	PP	76·5
Malaga	NW	150·3	335	e 20 52	[+64]	—	—	21 56	?	e 77·5

Additional readings :—
Brisbane iSSN = 8m.23s.
Riverview iPPNZ = 6m.11s., iPPPE = 6m.22s., iSE = 10m.2s., iN = 10m.8s. and 10m.34s., iE = 10m.43s., iS_eSE = 16m.11s.
Perth PP = 14m.31s., PPP = 14m.56s. Readings wrongly identified.
Boulder City i = 13m.39s. and 13m.48s.
Bozeman e = 32m.34s., eSSS = 34m.53s.
St. Louis eE = 27m.26s., ePPS?E = 29m.59s.
Warsaw earlier readings eE = 10m.34s., eN = 10m.41s., eE = 12m.49s. and 17m.14s., eN = 17m.39s.
Helwan e = 21m.48s. and 22m.14s.
Collmberg eZ = 20m.9s., 21m.45s., and 23m.32s.
Cheb e = 50m.44s.
Paris e = 23m.41s. and 24m.35s.
Florence reading increased by 10mins.
Rome ePP?E = 24m.4s.
Long waves were also recorded at Wellington, Auckland, Ukiah, Chicago, and at other European stations.

Aug. 6d. 5h. 57m. 17s. Epicentre 18°·9N. 68°·9W. (as on 5d.).

$A = +·3408$, $B = -·8833$, $C = +·3220$; $\delta = +5$; $h = +5$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	2·7	101	i 0 47	+ 2	i 1 19	0	—	—	i 1·6
Fort de France	8·5	118	e 2 13	+ 6	e 4 13	S*	—	—	—
Bogota	15·1	200	e 3 40	+ 4	e 6 16	− 9	i 3 49	pP	—
Columbia	18·5	328	e 4 21	+ 2	e 7 39	− 5	—	—	e 8·6
Philadelphia	21·7	348	e 4 52	− 3	i 8 52	+ 1	i 5 2	PP	e 10·3

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fordham		22·3	351	4 58	− 3	8 59	− 3	—	—	—
Weston		23·5	357	e 5 10	− 2	—	—	—	—	—
Harvard		23·6	357	e 4 12	−61	e 8 22	−63	—	—	e 12·7
Ottawa		27·0	350	5 43	− 2	10 13	− 9	—	—	12·7
St. Louis		27·0	321	e 5 44	− 1	e 10 26	+ 4	e 11 35	SS	e 12·1
Chicago		27·8	329	e 5 51	− 2	e 10 22	−13	—	—	e 11·0
Huancayo		31·4	192	e 6 26	+ 1	e 11 37	+ 5	—	—	e 13·2
La Paz		35·2	178	i 7 1	+ 3	i 13 28	+57	8 38	PPP	20·2
Tucson		39·8	298	e 7 35	− 1	—	—	e 9 12	PP	e 21·9
Salt Lake City		42·6	311	—	—	e 14 16	− 7	—	—	e 17·9
Overton		43·5	304	i 8 5	− 2	—	—	—	—	—
Boulder City		43·7	303	i 8 6	− 2	—	—	—	—	—
Saskatoon		44·4	327	—	—	e 18 4	SS	—	—	21·7
Pasadena		46·2	300	8 26	− 2	—	—	—	—	—
Shasta Dam		50·4	308	i 8 55	− 6	—	—	—	—	—
Granada		59·4	57	10 10a	+ 4	18 12	− 3	—	—	28·3
Alicante		61·8	56	—	—	e 18 46	0	—	—	—
Kew		62·1	42	—	—	(18 43)	− 6	—	—	18·7
Paris		63·8	44	—	—	e 18 43	−28	—	—	e 28·7
Clermont-Ferrand		64·2	48	—	—	e 19 14	− 2	—	—	32·7
Uccle		65·0	42	e 10 4	−40	—	—	—	—	e 26·7
Strasbourg		67·3	44	—	—	e 19 50	− 4	e 20 6	PS	e 31·5
College		68·3	334	—	—	e 19 57	− 9	—	—	e 33·8
Copenhagen		69·8	37	—	—	e 20 29	+ 6	—	—	33·7
Cheb		70·2	43	e 16 43?	?	—	—	—	—	e 33·7
Collmberg	z.	70·5	41	e 11 16	− 2	—	—	e 11 58	P_cP	—
Rome		71·3	52	e 11 23	0	e 20 33	− 8	e 19 53	?	—
Triest		71·7	47	e 11 22	− 4	e 20 43	− 2	—	—	—
Istanbul		83·6	49	—	—	e 23 3	+10	—	—	—
Ksara		91·3	54	e 13 15	+ 6	e 24 7	+ 1	—	—	—

Additional readings :—
Bogota iSSS = 7m.11s.
Philadelphia eS = 8m.41s.
St. Louis eE = 10m.3s.
La Paz SSZ = 16m.25s.
Long waves were also recorded at Bozeman, Sitka, Kew, De Bilt, Warsaw, and Prague.

Aug. 6d. 16h. 15m. 39s. Epicentre 18°·9N. 68°·9W. (as at 5h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	e 1 2	P_g	i 1 29	S*	i 1 39	S_g	i 1·9
Fort de France		8·5	118	e 2 31	P*	—	—	—	—	—
Columbia		18·5	328	e 5 26	+67	—	—	—	—	—
Philadelphia		21·7	348	e 4 52	− 3	e 8 45	− 6	e 5 11	PP	e 10·0
Weston		23·5	357	i 5 17	+ 5	—	—	—	—	—
Harvard		23·6	357	e 4 16	−57	e 8 21	−64	—	—	—
Ottawa		27·0	350	5 46	+ 1	10 21	− 1	—	—	13·4
St. Louis		27·0	321	5 52	+ 7	—	—	—	—	—
Huancayo		31·4	192	e 6 36	+11	—	—	—	—	e 19·2
Tucson		39·8	298	e 7 38	+ 2	—	—	e 9 10	PP	e 24·8
Pierce Ferry		43·1	303	i 8 3	− 1	—	—	—	—	—
Boulder City		43·7	303	i 8 3	− 5	—	—	—	—	—
Pasadena		46·2	300	8 29	+ 1	—	—	—	—	—
Shasta Dam		50·4	308	e 8 59	− 2	—	—	—	—	—
Malaga	z.	58·7	58	i 9 54a	− 8	i 17 57	− 9	i 10 1	pP	28·8
Paris		63·8	44	i 12 27	?	—	—	—	—	e 29·4
Ksara		91·3	54	16 3	PP	e 26 53?	?	—	—	—

Additional readings :—
Pierce Ferry i = 8m.10s.
Boulder City i = 8m.10s. and 8m.46s.
Malaga P_cPZ = 11m.4s., PPZ = 13m.19s., PPPZ = 13m.43s., S_cPZ = 14m.50s., sSZ = 18m.48s., S_cSZ = 19m.36s., SSZ = 21m.51s.
Long waves were also recorded at Salt Lake City, Sitka, and at other European stations.

August 6d. Readings also at 0h. (near Mizusawa), 3h. (Weston, Harvard (2), Tucson, Tinemaha, Riverside, Mount Wilson, Pasadena, La Jolla, Palomar, and near Mizusawa), 4h. (Weston and Harvard), 6h. (Harvard (2)), 7h. (Fort de France, Weston, and Harvard), 8h. and 9h. (Harvard), 12h. (Copenhagen), 13h. (Seattle, Mount Wilson, Pasadena, Palomar, Riverside, Overton, Boulder City, Tucson, Huancayo, near La Paz and near Malaga), 14h. (Collmberg, Tucson, Overton, Boulder City, Shasta Dam, Tinemaha, Haiwee, Riverside, Palomar, Mount Wilson, Pasadena, La Jolla, Santa Barbara, Tuai, Wellington, near Tananarive and near Malaga), 15h. (Pasadena, Tucson, St. Louis, Weston, Harvard, and near San Juan), 17h. (La Paz, Sitka, Boulder City, Pierce Ferry, Chicago, Pasadena, Tucson, St. Louis, Weston, Harvard, near Port au Prince (2), and San Juan, and near Berkeley), 20h. (near Branner, Berkeley, and San Francisco), 21h. (Harvard), 23h. (Tucson, Salt Lake City, Tashkent).

Aug. 7d. 18h. 26m. 23s. Epicentre 18°·9N. 68°·9W. (as on 6d.).

$A = +\cdot3408$, $B = -\cdot8833$, $C = +\cdot3220$; $\delta = +5$; $h = +5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 53	+ 8	i 1 15	− 4	i 1 28	S_g	i 1·7
Fort de France		8·5	118	e 2 18	+11	—	—	—	—	—
Balboa Heights		14·3	228	e 3 27	+ 1	e 6 4	− 2	—	—	—
Columbia		18·5	328	—	—	e 7 31	−13	—	—	—
Philadelphia		21·7	348	i 4 51	− 4	e 8 43	− 8	i 5 19	PP	e 10·1
Fordham		22·3	351	4 56	− 5	—	—	—	—	—
Weston		23·5	357	i 5 9	− 3	—	—	—	—	—
Harvard		23·6	357	i 4 12	−61	e 8 17	−68	—	—	e 12·6
Halifax		26·0	10	—	—	e 9 55	−11	—	—	13·6
Ottawa		27·0	350	5 45	0	10 17	− 5	—	—	13·6
Florissant		27·2	321	5 43	− 4	—	—	—	—	—
Chicago		27·8	329	e 6 1	+ 8	e 10 19	−16	—	—	e 11·0
Shawinigan Falls		27·8	356	e 5 49	− 4	—	—	—	—	17·6
Seven Falls		28·2	358	e 6 25	+29	—	—	—	—	12·6
Huancayo		31·4	192	e 6 30	+ 5	e 11 37	+ 5	e 7 29	PP	e 12·8
La Paz		35·2	178	7 3	+ 5	13 49	+78	—	—	21·6
Tucson		39·8	298	i 7 35	− 1	e 13 37	− 5	e 8 59	PP	e 16·8
Salt Lake City		42·6	311	—	—	e 14 16	− 7	—	—	e 18·5
Pierce Ferry		43·1	303	i 8 1	− 3	—	—	—	—	—
Overton		43·5	304	i 8 5	− 2	—	—	—	—	—
Boulder City		43·7	303	i 8 7	− 1	—	—	—	—	—
Butte		44·9	319	—	—	e 14 51	− 5	—	—	e 18·1
Pasadena		46·2	300	8 26	− 2	—	—	—	—	—
Grand Coulee		49·7	318	e 8 49	− 7	—	—	—	—	—
Shasta Dam		50·4	308	i 8 55	− 6	—	—	—	—	—
Malaga	Z.	58·7	58	i 10 4a	+ 2	i 16 41	−85	i 10 9	pP	28·0
Toledo		59·0	55	i 10 5	+ 1	e 18 15	+ 5	—	—	28·3
Granada		59·4	57	10 13a	+ 7	18 22	+ 7	10 46	P_cP	28·3
Alicante		61·8	56	11 58	PP	e 18 18	−28	—	—	e 29·9
Kew		62·1	42	—	—	(24 37)	?	—	—	24·6
Paris		63·8	44	e 10 37	+ 1	—	—	e 26 2	SSS	e 29·6
Clermont-Ferrand		64·2	48	—	—	e 19 19	+ 3	—	—	36·6
Strasbourg		67·3	44	e 9 4	?	—	—	—	—	e 32·6
Cheb		70·2	43	—	—	e 20 37?	+ 9	—	—	e 35·6
Florence	E.	70·2	49	e 11 32	+15	e 21 6	+38	—	—	—
Rome		71·3	52	e 11 21a	− 2	e 20 41	0	—	—	e 35·6
Prague		71·5	42	e 9 37?	?	e 20 19	−24	—	—	—
Triest		71·7	47	e 11 27	+ 1	e 20 46	+ 1	—	—	—
Warsaw		75·2	40	—	—	e 21 25	0	—	—	e 40·6
Moscow		83·5	33	12 35	+ 4	22 52	0	—	—	—
Ksara		91·3	54	e 13 14	+ 5	—	—	—	—	—
Sverdlovsk		93·6	25	—	—	e 24 26	0	—	—	—

Additional readings :—
Philadelphia e = 5m.10s.
Huancayo e = 6m.52s.
Tucson i = 9m.11s.
Malaga P_cPZ = 11m.29s., PPZ = 12m.17s., PPPZ = 13m.1s., S_cPZ = 15m.19s., S_cSZ = 19m.33s., SSZ = 20m.31s.
Granada S_cS = 20m.1s., SSS = 24m.7s.
Warsaw eN = 21m.31s.
Long waves were also recorded at Logan, Bozeman, Sitka, Uccle, De Bilt, and Collmberg.

Aug. 7d. 19h. 21m. 30s. Epicentre 19°·4N. 70°·4W. (as on 4d.).

$A = +·3166$, $B = -·8892$, $C = +·3302$; $\delta = -6$; $h = +5$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		4·2	103	e 0 57	−10	i 1 45	−12	i 1 8	P	—
Fort de France		10·0	116	e 2 28	+ 1	e 4 28	+ 6	—	—	—
Balboa Heights		13·7	222	e 3 23	+ 5	e 5 54	+ 2	—	—	—
Bogota		15·1	194	i 3 39	+ 3	e 5 19	−66	i 3 52	PP	—
Columbia		17·4	330	—	—	e 7 15	− 4	—	—	—
Philadelphia		20·9	351	e 4 46	0	i 8 38	+ 3	i 4 52	PP	e 9·1
Fordham		21·6	353	4 55	+ 1	—	—	—	—	—
Weston		22·9	359	e 5 5	− 1	—	—	—	—	—
Harvard		23·1	359	e 4 8	−60	e 8 16	−60	i 4 16	?	e 12·0
Halifax		25·8	12	5 36	+ 2	9 54	− 8	—	—	12·5
Florissant		25·9	322	5 33	− 2	—	—	—	—	—
Ottawa		26·3	352	5 36	− 3	10 4	− 7	—	—	13·5
Chicago		26·7	331	e 5 43	0	e 10 19	+ 2	—	—	—
Seven Falls		27·7	0	—	—	e 11 13	+40	—	—	14·5
Huancayo		31·6	189	e 6 21	− 5	e 11 40	+ 5	e 7 36	PP	e 12·8
La Paz		35·8	175	7 25	+22	—	—	—	—	21·5
Tucson		38·4	298	e 7 24	− 1	e 13 25	+ 5	e 8 48	PP	—
Salt Lake City		41·2	311	—	—	e 14 4	+ 2	—	—	e 21·7
Logan		41·5	312	e 7 56	+ 6	—	—	—	—	e 18·0
Pierce Ferry		41·6	303	e 7 52	+ 1	—	—	—	—	—
Overton		42·1	304	e 7 57	+ 2	—	—	—	—	—
Boulder City		42·3	303	e 7 56	− 1	—	—	—	—	—
Butte		43·6	318	—		e 14 38	0	—	—	—
Pasadena		44·7	300	8 19	+ 3	—	—	—	—	—
Grand Coulee		48·4	318	e 8 43	− 3	—	—	—	—	—
Shasta Dam		49·0	308	i 8 47	− 3	—	—	—	—	—
Malaga	z.	59·7	58	i 10 2$_s$	− 7	—	—	i 10 6	pP	27·7
Toledo		59·9	54	e 10 5	− 5	e 18 25	+ 4	e 20 26	S_cS	27·9
Granada		60·3	58	i 10 8$_s$	− 5	18 24	− 2	10 47	P_cP	28·4
Alicante		62·7	56	e 9 42	−47	e 17 55	−62	—	—	e 29·6
Kew		62·7	41	e 17 19?	?	e 20 13?	S_cS	e 21 49?	?	e 30·0
Paris		64·5	45	—	—	e 19 15	− 4	e 22 9	?	e 29·5
Clermont-Ferrand		64·9	48	—	—	e 19 22	− 2	—	—	35·5
Uccle		65·6	42	—	—	e 19 42	+ 9	—	—	e 30·5
Strasbourg		67·9	44	e 13 33	PP	e 20 0	− 1	e 24 8	SS	e 31·9
Copenhagen		70·2	37	—	—	e 20 20	− 8	—	—	34·5
Cheb		70·8	42	e 12 30?	+70	e 20 30?	− 5	—	—	e 34·5
Florence	E.	70·9	49	e 11 47	+26	e 21 14	+38	—	—	—
Prague		72·1	42	e 9 58	−90	e 20 6	−44	—	—	e 29·0
Rome		72·1	52	e 11 28$_s$	0	e 20 42	− 8	e 14 10	PP	e 35·5
Triest		72·4	47	e 11 32	+ 2	e 20 47	− 6	e 21 32	PPS	—
Upsala		72·5	32	—	—	e 20 48	− 6	—	—	e 27·5
Warsaw		75·8	40	—	—	e 21 25	− 6	e 21 52	PS	e 38·5
Belgrade		77·2	47	11 6	−51	20 48	−59	e 12 47	?	29·7
Honolulu		80·9	289	—	—	e 22 11	−15	—	—	e 24·6
Moscow		83·9	33	e 12 34	+ 1	22 50	− 6	—	—	—
Ksara		92·1	54	e 13 16	+ 4	e 23 55	−18	—	—	—

Additional readings :—
San Juan iS = 1m.30s.
Bogota i = 4m.0s., e = 5m.40s.
Philadelphia 6m.14s.
Tucson eS_cS = 17m.38s.
Granada PP = 12m.33s., S_cS = 19m.57s., SSS = 25m.20s.
Strasbourg e = 27m.25s.
Warsaw eN = 23m.19s., eE = 28m.49s. and 31m.58s.
Long waves were also recorded at De Bilt and Collmberg.

Aug. 7d. 19h. 31m. 29s. Epicentre 51°·5N. 173°·5W. (as on 1944 June 25d.).

A = −·6211, B = −·0708, C = +·7806; δ = +11; h = −6;
D = −·113, E = +·994; G = −·776, H = −·088, K = −·625.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
College		18·8	35	e 4 25	+ 2	e 7 51	+ 1	e 4 59	PPP	e 9·6
Sitka		22·7	62	e 5 4	0	i 9 13	+ 4	e 5 21	PP	e 10·8
Victoria		31·8	75	—	—	e 11 43	+ 5	—	—	13·5
Grand Coulee		34·7	73	e 6 53	− 1	—	—	—	—	—
Shasta Dam		36·3	87	i 7 8	+ 1	—	—	i 7 20	?	—
Ukiah		36·7	90	—	—	e 12 55	+ 1	—	—	e 15·8
Vladivostok		37·2	280	i 7 37	+22	i 13 25	+23	—	—	—
Berkeley		38·1	91	i 7 22	0	i 13 11	− 5	—	—	e 17·7
Butte		39·5	73	e 8 4	+30	—	—	—	—	—
Saskatoon		40·0	62	e 7 53	+15	e 13 44	0	—	—	16·5
Bozeman		40·6	73	e 7 54	+11	—	—	—	—	—
Tinemaha		41·1	89	i 7 49	+ 2	—	—	i 8 7	?	—
Haiwee		41·9	89	e 7 54	0	—	—	—	—	—
Santa Barbara		41·9	93	i 8 6	+12	—	—	—	—	—
Pasadena	z.	43·0	92	i 8 4	+ 1	—	—	—	—	—
Riverside		43·6	92	i 8 8	0	—	—	i 8 20	?	—
Overton		43·8	86	i 8 11	+ 2	—	—	—	—	—
Boulder City		43·9	87	i 8 11	+ 1	e 14 36	− 6	i 8 24	?	—
La Jolla		44·4	93	e 8 15	+ 1	—	—	—	—	—
Palomar		44·4	92	i 8 14	0	i 14 50	+ 1	i 8 27	?	—
Pierce Ferry		44·4	86	i 8 15	+ 1	i 14 52	+ 3	i 8 28	?	—
Irkutsk		48·1	306	8 44	+ 1	18 28	S_cS	10 36	PP	—
Tucson		48·9	88	i 8 50	0	e 15 51	− 2	e 10 55	PP	—
Florissant	E.	56·9	68	i 9 47	− 2	i 17 36	− 6	e 17 53	pS	—
Sverdlovsk		63·2	331	i 10 30	− 2	—	—	—	—	—
Weston		64·8	53	e 10 41	− 2	—	—	—	—	—
Almata		67·7	313	e 11 3	+ 2	—	—	—	—	—
Frunse		69·0	314	e 11 9	0	—	—	—	—	—
Moscow		70·1	342	i 11 14	− 2	e 20 17	−10	—	—	—
Andijan		71·7	314	11 28	+ 2	—	—	—	—	—
Tashkent		72·7	316	e 11 19	−13	e 21 18	+21	—	—	—
Samarkand		75·0	317	11 45	0	—	—	—	—	—
Jena	N.	77·9	357	e 12 0	− 1	—	—	—	—	—
New Delhi	N.	79·1	303	—	—	e 22 0	− 7	—	—	e 49·1
Basle		81·3	359	e 12 19	− 1	—	—	e 15 25	PP	—
Zürich		81·5	359	e 12 21a	0	—	—	—	—	—
Leninakan		82·5	333	e 12 43	+17	—	—	—	—	—
Toledo	z.	88·5	9	i 12 57	+ 1	—	—	—	—	—
Ksara		91·2	336	e 13 8	0	—	—	e 15 12	?	—
Granada		91·2	9	13 10k	+ 2	e 24 28	+23	13 22	pP	—
Malaga	z.	91·6	10	i 13 6k	− 4	—	—	—	—	—

Additional readings:—
Berkeley eZ = 7m.29s., eN = 7m.39s.
Tucson e = 17m.34s.
Granada P_cP = 14m.40s.
Long waves were also recorded at Logan, Alicante, and Kew.

Aug. 7d. 21h. 27m. 13s. Epicentre 18°·9N. 68°·9W. (as at 18h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	e 0 47	+ 2	i 1 11	− 8	i 1 25	S*	i 1·6
Fort de France		8·5	118	e 2 14?	+ 7	—	—	—	—	—
Bogota		15·1	200	e 3 31	− 5	—	—	i 3 37	P	—
Philadelphia		21·7	348	e 4 59	+ 4	e 8 39	−12	—	—	e 9·9
Weston		23·5	357	e 5 14	+ 2	—	—	—	—	—
Tucson		39·8	298	e 7 27	− 9	—	—	—	—	e 21·8
Tinemaha		46·7	304	8 20	−12	—	—	—	—	—
Malaga	z.	58·7	58	i 9 57a	− 5	—	—	—	—	29·1
Paris		63·8	44	e 10 13	−23	—	—	—	—	e 29·8

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

Aug. 7d. 22h. 44m. 27s. Epicentre 41°·0N. 143°·3E. Depth of focus 0·010.
(as on 1946, July 9d.).

Intensity IV at Hatinohe ; II-III at Morioka. Epicentre 41°·2N. 143°·1E. Depth 60kms.
Macroseismic radius greater than 300kms.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the Year 1946, Tokyo, 1951, p. 21, with isoseismic chart p. 21.

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

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Hatinohe		1·4	251	(0 33)	+ 8	(0 50)	+ 6
Morioka		2·1	232	0 26	− 8	0 51	− 9
Mori		2·3	298	0 21	−16	0 43	−22
Mizusawa	E.	2·5	222	0 33	− 7	1 1	− 9
Sendai		3·3	214	0 55	+ 4	1 32	+ 3
Onahama		4·5	205	1 14	+ 7	2 2	+ 3
Mito		5·1	206	1 16	0	2 29	+15
Kumagaya		5·7	213	1 22	− 2	2 27	− 1
Tokyo		6·0	209	1 32	+ 4	2 55	+19
Misima		6·8	211	1 47	+ 8	2 54	− 1

Readings for Hatinohe increased by one minute.

Aug. 7d. 22h. 46m. 54s. Epicentre 25°·0N. 63°·0E. (as on 1943, February 6d.).
Rough.

$A = +·4120$, $B = +·8085$, $C = +·4203$; $\delta = +7$; $h = +3$;
$D = +·891$, $E = -·454$; $G = +·191$, $H = +·374$, $K = -·907$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay		10·9	122	e 2 10	−30	e 5 6	+22	e 5 12	SSS	6·6
New Delhi	N.	13·2	71	—	—	e 5 12	−28	5 29	?	6·5
Dehra Dun	N.	14·3	65	e 6 6	S	(e 6 6)	0	e 7 55	?	e 9·8
Samarkand		15·0	12	3 24	−11	—	—	—	—	—
Tashkent		17·1	16	e 3 20	−42	—	—	—	—	—
Andijan		17·5	24	e 4 6	− 1	e 7 24	+ 3	—	—	—
Baku		18·8	327	e 3 49	−34	e 6 45	−65	—	—	—
Frunse		20·2	25	e 4 32	− 7	—	—	—	—	—
Almata		21·5	28	4 50	− 2	8 42	− 5	—	—	—
Calcutta	N.	23·3	91	—	—	i 9 19	− 1	—	—	i 12·1
Colombo	E.	24·2	136	10 5	S	(10 5)	+30	—	—	—
Ksara		25·1	296	e 5 32	+ 4	e 10 8	+17	—	—	—
Helwan		28·5	287	e 6 12	+13	11 14	+28	7 24	PPP	—
Sverdlovsk		31·8	358	e 6 31	+ 3	e 11 29	− 9	—	—	—
Bucharest		35·6	313	8 6?	PP	—	—	—	—	—
Moscow		35·9	336	7 5	+ 1	12 32	−10	—	—	—
Irkutsk		41·4	38	e 8 13	+23	—	—	—	—	—
Warsaw		41·7	321	e 5 44	?	e 14 4	− 6	e 17 32	SS	e 25·1
Triest	E.	44·3	311	e 9 17	+64	e 15 2	+14	—	—	—
Rome		44·7	306	—	—	e 14 6?	−48	e 18 41	SSS	e 28·1
Florence	E.	45·8	308	e 10 20	PP	—	—	—	—	—
Cheb		46·2	318	—	—	e 15 20	+ 5	e 18 6?	SS	e 26·1
Upsala		46·8	331	—	—	15 45	PS	e 19 52	SSS	e 25·1
Copenhagen		47·7	325	i 8 4	−36	e 15 32	− 4	—	—	25·1
Zürich		48·2	312	e 8 44	0	—	—	—	—	—
Strasbourg		48·9	314	—	—	e 15 47	− 6	e 19 41	SS	e 28·1
Uccle		51·4	317	—	—	e 16 38	+10	—	—	e 29·1
Clermont-Ferrand		51·8	310	—	—	e 15 46	−47	—	—	31·1
Paris		52·4	314	e 9 20	+ 4	e 16 48	+ 6	—	—	e 27·1
Alicante		54·7	301	—	—	e 18 11	+58	—	—	e 32·7
Granada		57·3	300	(e 9 46s)	− 6	(e 17 58)	+11	—	—	(28·2)

Additional readings :—
Warsaw eEN =14m.29s., eE =17m.41s., eN =18m.29s., and 19m.4s.
Upsala eS?E =25m.51s., eN =17m.35s., eE =21m.10s., eN =21m.44s.
Granada readings decreased by seven minutes.
Long waves were also recorded at Istanbul, Collmberg, Prague, De Bilt, and Kew,

Aug. 7d. Readings also at 2h. (Samarkand), 5h. (Tucson, Weston, Harvard, Bogota, and Fort de France), 6h. (Tinemaha (2), Pierce Ferry, Tucson, Weston, Harvard, and Bogota), 7h. (Tucson (2), Pierce Ferry, Overton, Boulder City, Tinemaha, Palomar, Riverside, La Jolla, Pasadena, Shasta Dam, and near Malaga), 8h. (Tinemaha, Weston (2), and Harvard (2)), 9h. (Tucson and Bogota), 11h. (Tucson, Philadelphia, Weston (2), and Harvard (2)), 13h. (Rome), 14h. (near Bogota) 15h. (near Samarkand and Andijan), 16h.(Shasta Dam), 17h.(near Port au Prince), 18h.(Bogota), 19h.(Malaga, Tucson, Florissant, Harvard (2), Bogota, and Fort de France), 20h. (Tucson (2), Shasta Dam (3), Boulder City (2), Pierce Ferry, Overton, Tinemaha (3), Riverside (3), Pasadena (2), Palomar (2), and Ottawa), 21h. (Mizusawa and near Berkeley), 22h. (Tinemaha, Tucson, Weston, Bogota, and Fort de France).

Aug. 8d. 1h. 46m. 28s. Epicentre 19°·6N. 69°·4W. (fore shock of large earthquake at 13h.)

$A = +\cdot3317$, $B = -\cdot8825$, $C = +\cdot3334$; $\delta = -1$; $h = +5$;
$D = -\cdot936$, $E = -\cdot352$; $G = +\cdot117$, $H = -\cdot312$, $K = -\cdot943$.

	Δ	Az.	P.	O−C.	S.	O−C.	L.
	°	°	m. s.	s.	m. s.	s.	m.
San Juan	3·3	111	e 0 56	+ 3	i 1 26	− 9	i 1·8
Philadelphia	20·9	348	e 4 48	+ 2	e 8 46	+11	e 10·0
Weston	22·8	357	e 5 6	+ 1	—	—	—
Harvard	22·9	357	e 5 4	− 2	e 9 12	− 1	—
Ottawa	26·3	350	e 5 40	+ 1	(10 32?)	+21	10·5
Tucson	39·1	298	e 7 31	0	—	—	—
Overton	42·8	304	i 8 1	0	—	—	—
Boulder City	43·0	303	e 7 58	− 5	—	—	—
Tinemaha	45·9	304	8 26	0	—	—	—

San Juan gives also i = 1m.32s. and 1m.37s.
Long waves were also recorded at Columbia and Chicago.

Aug. 8d. 13h. 28m. 28s. Epicentre 19°·6N. 69°·4W. (as at 1h.).

Intensity III-IV at Cap Haitien, Petit Goave, Furcy, and Port au Prince.

J. Lynch and R. R. Bodle.
"The Dominican Earthquakes of August, 1946." Bull. Seismo. Soc. of Amer., Vol. 38, No. 1, pp. 1-17 with 17 figures.

$A = +\cdot3317$, $B = -\cdot8825$, $C = +\cdot3334$; $\delta = -1$; $h = +5$;
$D = -\cdot936$, $E = -\cdot352$; $G = +\cdot117$, $H = -\cdot312$, $K = -\cdot943$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince	3·0	249	i 0 54	+ 4	—	—	i 1 40	S_g	—
Fort de France	9·2	120	e 2 19	+ 3	i 4 21	+18	—	—	—
Bermuda	13·4	17	e 3 8	− 6	i 5 36	− 9	—	—	i 6·8
Balboa Heights	14·4	224	e 3 30	+ 3	e 6 11	+ 2	—	—	e 7·1
Bogota	15·6	198	i 3 42	− 1	e 6 27	−10	i 3 51	PP	—
Columbia	17·7	328	i 4 4	− 6	e 7 24	− 2	i 4 44	PP	i 8·6
Merida	19·0	280	e 4 19	− 7	e 7 55	0	e 4 44	PP	—
Georgetown	20·4	344	4 38	− 3	8 51	+26	—	—	—
Philadelphia	20·9	348	i 4 46	0	i 8 43	+ 8	—	—	i 9·2
Fordham	21·5	351	i 4 52	0	—	—	—	—	—
Pennsylvania	22·3	343	i 4 55	− 6	i 9 0	− 2	—	—	—
New Kensington	22·7	339	i 5 8	+ 4	—	—	—	—	—
Weston	22·8	357	i 5 5	0	e 9 14	+ 3	i 5 34	PP	i 9·5
Harvard	22·9	357	i 5 5	− 1	i 9 26	+13	i 5 22	PP	e 11·5
Halifax	25·4	10	5 35	+ 4	10 15	+19	11 57	SS	13·5
St. Louis	26·2	321	e 5 39	+ 1	e 10 22	+13	—	—	—
Ottawa	26·3	350	5 39	0	10 14	+ 3	6 20	PP	12·5
Florissant z.	26·4	321	e 5 39	− 1	i 10 32	+20	i 6 8	PP	—
Chicago	27·0	329	e 5 44	− 1	i 10 10	−12	i 6 15	PP	i 11·8
Shawinigan Falls	27·0	356	5 43	− 2	10 30	+ 8	6 21	PP	13·5
Seven Falls	27·5	358	5 51	+ 1	11 53	SS	6 25	PP	14·5
Tacubaya	28·1	277	e 6 2	+ 7	i 11 18	+38	—	—	—
Lincoln	31·5	319	e 6 26	0	e 11 32	− 2	e 7 42	PP	e 14·3
Guadalajara	31·9	280	e 10 5	?	—	—	e 13 50	SSS	e 14·7
Huancayo	32·0	192	e 6 24	− 6	e 11 42	0	—	—	i 13·1

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chihuahua	z.	34·6	294	e 6 52	− 1	e 12 36	+14	—	—	i 16·6
La Paz		35·9	178	i 7 2	− 2	i 12 46	+ 4	15 52	SSS	17·6
Tucson		39·1	298	e 7 31	0	i 13 32	+ 1	i 9 8	PP	i 16·0
Salt Lake City		41·8	311	e 7 55	+ 2	e 13 59	−12	—	—	e 17·4
Montezuma		42·0	180	e 8 17	+23	e 14 26	+12	e 9 19	PP	e 16·7
Logan		42·1	313	i 7 58	+ 3	i 14 31	+15	i 10 16	PPP	i 17·2
Overton		42·8	304	e 8 1	0	e 14 23	− 3	—	—	—
Boulder City		43·0	303	e 8 2	− 1	e 14 27	− 2	—	—	—
Bozeman		43·0	318	e 8 2	− 1	i 14 32	+ 3	i 9 38	PP	i 18·3
Saskatoon		43·5	327	8 7	0	14 34	− 2	10 34	PPP	19·5
Butte		44·1	319	e 8 12	0	e 14 37	− 8	i 10 44	PPP	e 18·1
Palomar		44·3	299	e 8 13	0	—	—	—	—	—
La Jolla	z.	44·6	298	e 8 16	0	—	—	—	—	—
Riverside	z.	44·8	300	e 8 17	0	—	—	—	—	—
Mount Wilson	z.	45·4	300	e 8 20	− 2	—	—	—	—	—
Pasadena		45·4	300	e 8 25	+ 3	e 14 43	−21	—	—	e 18·3
Tinemaha		45·9	304	e 8 26	0	—	—	—	—	—
Santa Barbara	z.	46·7	300	e 8 34	+ 2	—	—	—	—	—
Fresno	N.	47·0	304	e 8 40	+ 5	e 14 55	−31	11 5	PPP	e 20·3
Lick		48·6	304	e 8 48	+ 1	e 16 1	+12	e 10 38	PP	e 22·9
Santa Clara	N.	48·8	304	i 9 10	+21	i 15 59	+ 7	—	—	e 23·7
Grand Coulee		48·9	318	e 8 48	− 2	e 16 12	+19	—	—	e 25·0
Mineral	E.	49·0	307	e 7 54	−56	e 15 16	−39	—	—	e 26·7
Branner		49·0	304	e 8 56	+ 6	e 16 0	+ 5	e 10 3	P_cP	e 23·4
Berkeley		49·1	304	i 8 53	+ 2	i 16 2	+ 6	i 11 50	PPP	e 22·7
San Francisco		49·3	304	e 9 6	+13	e 15 58	− 1	—	—	e 22·8
Shasta Dam		49·6	308	e 8 51	− 4	e 15 12	−51	e 11 35	PPP	—
Ukiah		50·0	306	e 8 46	−12	e 16 12	+ 3	e 10 42	PP	e 22·2
Ferndale		51·0	308	e 9 8	+ 2	e 16 44	+22	—	—	—
Victoria		51·9	317	8 54	−18	16 22	−13	21 20	SSS	23·5
Santa Lucia	N.	52·8	182	9 20	+ 1	16 3	−44	—	—	22·3
Reykjavik	N.	54·6	23	e 8 32	−60	e 18 32	?	—	—	e 22·7
Lisbon		55·0	56	9 40	+ 5	17 27	+10	9 58	pP	25·4
Panimavida	E.	55·1	183	10 20	+44	18 14	+56	—	—	24·1
La Plata	E.	55·3	168	9 50	+12	17 33	+12	12 38	PPP	23·3
	N.	55·3	168	9 38	0	17 14	− 7	13 32†	PPP	25·7
Malaga		58·8	58	i 10 4a	+ 2	i 18 20	+13	12 14	PP	29·5
Toledo		59·0	55	i 10 4	0	i 18 18	+ 8	i 10 45	P_cP	28·6
Granada		59·4	57	i 10 11a	+ 5	i 18 17	+ 2	10 38	pP	i 28·4
Jersey		60·6	43	e 10 17	+ 2	e 18 47	+17	—	—	27·5
Edinburgh		60·7	36	10 17	+ 2	18 30	− 2	12 31	PP	—
Sitka		60·8	326	e 10 15	− 1	e 18 27	− 6	i 22 32	SS	i 24·9
Aberdeen		61·5	34	i 10 22	+ 1	i 18 48	+ 6	—	—	26·1
Durham		61·6	37	e 10 22	0	18 51	+ 8	—	—	—
Alicante		61·8	56	e 10 15	− 8	i 18 35	−11	10 26	pP	i 29·0
Tortosa		62·4	53	i 10 38	+11	i 18 59	+ 6	12 41	PP	26·0
Barcelona		63·6	52	e 10 34	− 1	i 19 34	+26	—	—	e 26·2
Paris		63·7	44	i 10 39	+ 3	i 19 11	+ 1	i 14 3	PPP	e 28·5
Clermont-Ferrand		64·1	48	e 10 39	+ 1	i 19 33	+19	i 11 4	pP	—
Algiers		64·7	58	e 10 40	− 2	i 19 27	+ 5	i 11 3	pP	e 28·0
Uccle		64·8	42	e 10 41k	− 2	i 19 32	+ 9	i 13 7	PP	i 31·8
De Bilt		65·4	41	e 10 47k	0	e 19 37	+ 7	—	—	e 27·5
Bergen	z.	65·6	31	e 10 55	+ 7	—	—	—	—	—
Besançon		66·0	46	e 10 54	+ 4	e 20 22	+44	—	—	e 27·5
Neuchatel		66·7	46	e 10 54	− 1	e 19 49	+ 3	—	—	—
Basle		67·1	45	e 11 0	+ 3	e 20 6	+15	—	—	—
Strasbourg		67·1	44	e 10 57	0	i 20 5	+14	i 11 17	pP	—
College		67·5	334	e 10 58	− 2	e 19 50	− 6	e 13 16	PP	e 27·6
Zürich		67·8	45	e 11 7	+ 5	e 20 4	+ 4	—	—	—
Chur		68·5	47	e 11 6	0	e 20 3	− 5	—	—	—
Jena	N.	69·4	42	e 11 13	+ 1	e 20 35	+17	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		69·5	37	i 11 14	+ 2	i 20 34	+14	25 10	SS	32·5
Cheb		70·0	43	e 11 9	− 6	e 21 6	+40	e 15 11	PPP	e 45·6
Florence		70·1	49	i 11 20	+ 4	i 20 49	+22	—	—	—
Collmberg	Z.	70·3	41	e 11 15	− 2	e 20 37	+ 8	e 13 52	PP	—
Prague		71·3	42	e 11 24	+ 1	c 20 41	0	e 25 20	SS	e 28·5
Rome		71·3	52	i 11 25k	+ 2	e 20 55	+14	e 14 11	PP	e 31·5
Triest		71·6	47	i 11 27	+ 2	i 20 51	+ 7	—	—	i 34·4
Upsala		71·8	32	e 11 27	+ 1	20 45	− 1	e 21 18	PS	e 32·5
Zagreb		73·1	47	e 11 34k	0	e 21 9	+ 8	i 11 55	P_cP	e 32·7
Budapest	E.	74·8	44	11 46	+ 2	21 43	+23	22 7	PS	33·5
	N.	74·8	44	11 56	+12	e 21 47	+27	e 15 6	PP	e 31·5
Kalossa	E.	75·0	45	e 12 12	+27	21 38	+15	—	—	—
Warsaw	N.	75·0	40	e 11 49	+ 4	21 36	+13	14 44	PP	e 33·5
Belgrade		76·4	47	e 11 54	+ 1	c 21 40	+ 2	e 14 53	PP	e 29·5
Sofia		78·9	49	e 12 13	+ 6	e 22 15	+10	i 22 31	PS	36·5
Campulung		79·4	46	12 19	+10	e 23 2	PPS	—	—	36·5
Bucharest		80·3	47	e 12 19	+ 5	i 22 53	PS	i 23 34	PS	37·5
Honolulu		81·7	290	e 12 22	0	e 22 17	−17	e 15 30	PP	e 33·7
Moscow		83·2	33	i 12 31	+ 2	i 22 58	+ 9	—	—	—
Istanbul	N.	83·5	49	e 11 34	−57	e 22 54	+ 2	—	—	—
Helwan		89·3	59	13 4	+ 5	23 44	− 4	16 26	PP	—
Ksara		91·3	54	e 13 13	+ 4	24 19	+13	—	—	—
Piatigorsk		91·7	42	13 15	+ 5	23 56	{+ 2}	—	—	—
Sverdlovsk		93·1	25	i 13 19	+ 2	23 50	[− 1]	—	—	—
Leninakan		93·7	44	e 13 34	+14	24 12	{+ 3}	—	—	—
Baku		97·9	42	e 13 46	+ 7	24 33	{− 6}	e 18 7	PP	—
Irkutsk		108·2	4	e 14 28	P	25 18	[+13]	18 55	PP	—
Tashkent		108·3	32	c 14 18	P	25 1	[− 4]	e 18 27	PKP	—
Samarkand		108·4	36	—	—	e 25 14	[+ 9]	—	—	—
Andijan		110·2	30	18 36	[+ 2]	—	—	—	—	—
Vladivostok		114·6	341	e 20 6	PP	27 58	?	36 19	SS	—
Tananarive		120·8	110	—	—	27 18	{− 1}	37 5	SS	e 49·2
Arapuni		121·2	236	—	—	e 28 20	{+59}	e 37 32	SSP	58·5
Auckland		121·9	237	—	—	e 37 32?	SS	—	—	—
Wellington		121·9	232	20 46	PP	28 8	{+42}	22 34	PPP	58·7
New Delhi		122·2	35	e 18 47	[−10]	25 57	[0]	i 20 34	PP	57·4
Christchurch		123·4	229	17 41	[−78]	26 31	[+30]	21 0	PP	59·5
Bombay		126·7	47	e 21 27	PP	—	—	38 49	SS	56·9
Hyderabad	N.	131·5	43	21 54	PP	22 46	PKS	39 9	SS	62·6
Calcutta	N.	132·8	29	e 21 37	PP	26 23	[− 4]	22 38	PKS	61·2
Kodaikanal	E.	135·9	51	22 5	PP	29 2	{+ 6}	23 15	PKS	—
Colombo	E.	139·9	54	22 1	PP	41 49	SS	—	—	67·2
Brisbane	E.	140·5	249	e 19 52	[+21]	—	—	i 23 39	PKS	—
Riverview		141·3	238	i 19 53k	[+20]	e 40 42	SS	i 32 54	PS	e 64·0
Perth		166·8	200	i 24 52	PP	i 26 48	[−22]	—	—	i 74·3

Additional readings :—
Port au Prince i = 1m.10s.
Bermuda iP = 3m.11s.
Bogota iP_cP? = 9m.10s., eS_cP? = 13m.16s., eS_cS? = 16m.38s.
Columbia iS = 7m.45s.
Merida eZ = 8m.8s., iSSN = 8m.37s.
Philadelphia i = 5m.5s., 5m.35s., and 8m.55s.
Weston iS = 9m.24s.
Ottawa iN = 10m.26s., i = 10m.40s., SS = 11m.24s.
Chicago i = 6m.42s. and 10m.32s.
Shawinigan Falls PPP = 6m.40s., SS = 11m.52s.
Tacubaya iSZ = 11m.23s.
Lincoln i = 6m.58s. and 12m.3s.
Huancayo i = 6m.52s. and 8m.6s., iS = 11m.33s.
Chihuahua i = 7m.20s.
La Paz iS?N = 13m.8s.
Tucson i = 8m.4s. and 8m.42s., iP_cP = 9m.30s., i = 12m.52s.
Salt Lake City i = 8m.25s. and 10m.46s.
Montezuma ePPP = 9m.56s.
Overton iP = 8m.4s., i = 8m.10s. and 8m.43s.
Boulder City e = 8m.7s., i = 8m.35s.
Bozeman i = 8m.56s., iPPP = 10m.39s.

Continued on next page.

Saskatoon SSS =17m.59s.
Butte i =8m.54s., i =14m.56s.
Palomar iEZ =8m.18s.
Mount Wilson iEZ =8m.26s.
Fresno eN =8m.50s., 9m.8s., and 12m.41s.
Lick eEN =9m.1s.
Branner eEN =9m.10s.
Berkeley eN =9m.6s.
San Francisco eN =9m.10s.
Ukiah e =9m.25s. and 16m.46s., eSS =19m.50s.
Lisbon Q =23m.9s.
Panimavida E =16m.32s.
La Plata PZ =9m.44s., E =11m.8s., N =18m.14s., E =18m.24s. and 19m.32s. N = 20m.32s., E =21m.14s., N =22m.32s.
Malaga PcPNE =10m.38s., ScPNE =14m.25s., sSNE =18m.38s., ScSNE =19m.37s., QNE =24·5m.
Toledo PcSE =14m.39s., PSE =18m.33s., iPPSN =18m.52s., ScSN =20m.6s., iSSE = 22m.34s., iQN =25m.28s.
Granada PcP =10m.57s., PcS =14m.50s., PS =18m.53s., sS =19m.22s., ScS =20m.12s., Q =24m.56s.
Jersey e =21m.32s. and 23m.32s.
Edinburgh PPP =13m.57s., PcS =15m.3s., ScS =20m.5s., SS =22m.26s.
Sitka e =14m.28s. and 20m.34s.
Durham iPEN =10m.52s., N =15m.51s., iE =19m.8s., and 19m.43s.
Alicante PcP =10m.47s., PP =12m.7s., PPP =14m.9s., PS =18m.51s., PPS =18m.55s., ScS =19m.52s., SS =21m.31s.
Tortosa PcPEN =11m.14s., PPPN =14m.19s., PcSE =15m.26s., PSE =19m.21s., PPS?N =19m.28s., ScSN =20m.28s., SSN =23m.57s.
Paris i =11m.47s., 14m.0s., 14m.12s. and 14m.53s., iPS =19m.22s., i =20m.0s., e = 21m.39s., eSS =23m.21s., eQ =27·5m.
Clermont-Ferrand iPP =14m.12s.
Algiers isP =11m.10s., ePP =12m.51s., iPS =18m.46s., ScS =19m.12s., eSS? =24m.39s., iSSS =27m.3s.
Uccle iPcP =11m.6s., iPSZ =19m.56s., iScSNZ =20m.50s., eSSE =23m.58s., iSSSN = 26m.55s., with many other unidentified onsets.
Strasbourg isP? =11m.26s., ePP =13m.45s., i =20m.27s., eSS =24m.45s.
College e =11m.26s., ePPP =15m.1s., i =21m.30s., eSS =24m.9s.
Jena eN =20m.38s.
Copenhagen i =11m.40s., 21m.22s., and 23m.14s.
Cheb e =11m.35s., 12m.21s., and 13m.34s., ePcP =17m.17s., e =18m.1s., eScS =21m.45s. ePPS =23m.8s., e =24m.44s., eSS =29m.9s.
Collmberg ePPPZ =15m.25s., ePKP,PKPZ =39m.22s., with many other unidentified eZ and iZ readings.
Prague e =12m.32s.?
Rome iSE =21m.6s., iPS =21m.30s., eSS =25m.21s.
Upsala SN =20m.58s., eE =24m.56s., SSN =25m.33s., eSSSE =28m.38s.?
Zagreb iPcP =12m.4s., eE =20m.13s., iSKSE =21m.29s., ePSN =22m.1s., ePPSE = 22m.11s.
Budapest PSN =22m.15s., SSN =26m.46s., SSSE =29m.56s., SSSN =30m.19s.
Warsaw PN =12m.12s., iN =12m.31s., PPPN =16m.12s., PSN =22m.17s., iN = 24m.3s., SSN =26m.37s., SSSN =29m.26s.
Belgrade e =12m.49s., eSS =25m.51s.
Bucharest iE =15m.22s. and 16m.8s., eSKSE =22m.38s., eSSE =28m.10s.
Honolulu e =12m.50s. and 22m.32s.
Helwan SKS =23m.17s., PS =24m.38s., PPS =25m.8s.
Irkutsk iPS =28m.18s., PPS =29m.17s., SS =34m.8s., SSS =39m.2s.
Vladivostok PP =20m.51s., SSS =40m.40s.
Tananarive PPS =31m.43s., SSS =41m.16s.
Arapuni S? =32m.14s., e =34m.2s., and 42m.38s., Q =49·0m.
Wellington iZ =23m.56s., SZ =30m.43s., Q =50m.50s.
New Delhi SKPN =21m.58s., SKKSN =27m.43s., PSN =30m.30s., PPSN =32m.6s., SSN =37m.38s., SSNS =42m.11s., SSSE =42m.14s., SSSSN =47m.11s.
Christchurch S =27m.42s., PS =29m.52s., PPS =31m.12s., i =38m.28s., SS =42m.16s., Q =52·0m.
Calcutta PPSN =30m.22s., N =36m.11s., iSSSN =41m.29s.
Kodaikanal PSE =32m.35s., SSE =38m.59s.
Riverview iZ =20m.8s., iE =23m.47s., iZ =23m.50s., iE =24m.0s., iZ =24m.16s., eE = 42m.20s., eQ?N =60m.8s.
Perth i =36m.40s. and 50m.9s.
Long waves were also recorded at Dehra Dun,

Aug. 8d. 14h. 28m. 42s. Epicentre 19°·6N. 69°·4W. (as at 13h.).

Intensity II at Cap Haitien, Furcy, and Port au Prince. See list of earthquakes felt in Haiti during year 1946.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	
		°	°	m. s.	s.	m. s.	s.	m. s.	
Port au Prince		3·0	249	0 26	?	—	—	i 0 56	P
Balboa Heights		14·4	224	e 3 27	0	e 6 7	− 2	—	—
Bogota		15·6	198	i 3 39	− 4	e 6 34	− 3	—	—
Weston		22·8	357	e 5 8	+ 3	—	—	—	—
Harvard		22·9	357	e 5 7	− 1	e 9 13	0	—	—
Huancayo		32·0	192	e 6 30	0	—	—	—	—
La Paz		35·9	178	i 7 6	+ 2	i 12 37	− 5	—	—
Tucson		39·1	298	i 7 34	+ 3	—	—	—	—
Overton		42·8	304	i 8 4	+ 3	—	—	—	—
Boulder City		43·0	303	i 8 5	+ 2	—	—	—	—
Pasadena		45·4	300	8 20	− 2	—	—	—	—
Grand Coulee		48·9	318	i 8 50	0	—	—	—	—
Shasta Dam		49·6	308	i 8 53	− 2	—	—	—	—
Toledo	z.	59·0	55	i 9 58	− 6	—	—	—	—
Tortosa		62·4	53	9 24	−63	—	—	11 27	PP
Paris		63·7	44	i 10 30	− 6	—	—	—	—
Collmberg	z.	70·3	41	e 11 11	− 6	—	—	—	—
Zagreb		73·1	47	e 10 39	−55	e 20 55	− 6	—	—
Perth		166·8	200	—	—	i 26 48	[−22]	—	—

Additional readings :—
Port au Prince i = 0m.46s.
Bogota i = 3m.42s., e = 6m.20s.
Harvard i = 5m.21s. and 9m.17s., e = 25m.48s.
Tucson i = 7m.47s.
Tortosa P_cP?N = 10m.39s., PPPN = 13m.12s.
Collmberg eZ = 11m.21s.

Aug. 8d. 17h. 24m. 6s. Epicentre 19°·6N. 69°·4W. (as at 14h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	i 0 49	− 1	i 1 11	−16	—	—	i 1·4
San Juan		3·3	111	e 0 52	− 1	i 1 22	−13	—	—	i 1·6
Fort de France		9·2	120	e 2 14	− 2	—	—	—	—	—
Balboa Heights		14·4	224	e 3 24	− 3	e 5 53	−16	—	—	—
Bogota		15·6	198	i 3 38	− 5	e 6 23	−14	i 3 44	PP	—
Columbia		17·7	328	e 4 10	0	e 7 28	+ 2	—	—	—
Philadelphia		20·9	348	e 4 47	+ 1	e 8 40	+ 5	—	—	e 9·0
Fordham		21·5	351	4 55	+ 3	—	—	—	—	—
New Kensington		22·7	339	e 5 8	+ 4	—	—	e 9 13	P_cP	—
Weston		22·8	357	e 5 5	0	—	—	—	—	—
Harvard		22·9	357	e 5 6	0	e 9 10	− 3	—	—	e 12·9
Halifax		25·4	10	5 29	− 2	10 9	+13	—	—	11·9
St. Louis	N.	26·2	321	e 5 41	+ 3	e 10 34	+25	—	—	—
Ottawa		26·3	350	5 38	− 1	10 12	+ 1	—	—	11·9
Florissant	E.	26·4	321	e 5 40	0	i 10 26	+14	—	—	—
Chicago		27·0	329	e 5 40	− 5	e 10 19	− 3	e 6 18	PP	e 10·9
Shawinigan Falls		27·0	356	e 5 45	0	—	—	—	—	16·9
Seven Falls		27·5	358	e 6 30	PP	—	—	—	—	11·9
Huancayo		32·0	192	e 6 25	− 5	e 11 34	− 8	i 7 23	PP	e 12·9
La Paz		35·9	178	7 7	+ 3	i 12 40	− 2	—	—	18·5
Tucson		39·1	298	e 7 31	0	e 13 28	− 3	e 9 2	PP	e 16·5
Salt Lake City		41·8	311	—	—	e 14 15	+ 4	—	—	e 17·6
Logan		42·1	313	e 7 56	+ 1	e 14 10	− 6	e 17 56	SS	e 22·3
Boulder City		43·0	303	i 8 3	0	—	—	—	—	—
Saskatoon		43·5	327	—	—	e 17 42	SS	—	—	21·9
Butte		44·1	319	e 8 8	− 4	e 14 45	0	—	—	e 18·2
Palomar		44·3	299	i 8 14	+ 1	—	—	—	—	—
La Jolla		44·6	298	e 8 15	− 1	—	—	—	—	—
Riverside		44·8	300	i 8 16	− 1	—	—	—	—	—
Mount Wilson		45·4	300	i 8 22	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		45·4	.300	i 8 23	+ 1	—	—	—	—	—
Tinemaha	Z.	45·9	304	e 8 33	+ 7	—	—	—	—	—
Santa Barbara		46·7	300	i 8 32	0	—	—	—	—	—
Santa Clara	N.	48·8	304	—	—	e 16 1	+ 9	—	—	—
Grand Coulee		48·9	318	e 8 46	− 4	—	—	—	—	—
Berkeley	Z.	49·1	304	i 8 51	0	—	—	—	—	—
Shasta Dam		49·6	308	i 8 52	− 3	—	—	—	—	—
Malaga	Z.	58·8	58	i 10 4a	+ 2	—	—	—	—	27·3
Toledo		59·0	55	i 10 2	− 2	—	—	—	—	28·9
Granada		59·4	57	i 10 9a	+ 3	18 17	+ 2	11 1	P_cP	28·8
Sitka		60·8	326	—	—	e 18 31	− 2	e 20 3	S_cS	e 24·6
Aberdeen	E.	61·5	34	—	—	i 18 36	− 6	—	—	—
Alicante		61·8	56	10 29	+ 6	—	—	—	—	e 33·6
Tortosa	N.	62·4	53	10 31	+ 4	—	—	—	—	—
Paris		63·7	44	i 10 33	− 3	e 19 4	− 6	—	—	e 28·9
Clermont-Ferrand		64·1	48	e 10 40	+ 2	i 19 18	+ 4	—	—	30·9
Uccle		64·8	42	e 10 40	− 3	e 19 23	0	—	—	e 29·9
De Bilt		65·4	41	e 10 44	− 3	e 19 34	+ 4	—	—	e 31·9
Strasbourg		67·1	44	e 10 55	− 2	e 19 52	+ 1	—	—	e 31·5
College		67·5	334	—	—	e 19 52	− 4	—	—	e 32·9
Copenhagen		69·5	37	i 11 11	− 1	i 20 20	0	24 42	SS	32·9
Cheb		70·0	43	e 11 13	− 2	e 20 24	− 2	—	—	e 33·9
Florence	E.	70·1	49	e 11 21	+ 5	i 20 34	+ 7	—	—	—
Collmberg	Z.	70·3	41	e 11 15	− 2	—	—	—	—	—
Prague		71·3	42	e 11 25	+ 2	e 20 40	− 1	—	—	—
Rome		71·3	52	e 11 20	− 3	e 20 36	− 5	—	—	—
Triest	E.	71·6	47	e 11 24	− 1	i 20 40	− 4	i 21 31	PPS	—
Zagreb		73·1	47	e 10 33	−61	e 20 59	− 2	—	—	—
Warsaw	N.	75·0	40	—	—	e 21 14	− 9	—	—	e 38·9
Belgrade		76·4	47	e 12 4	+11	e 21 6	−32	—	—	33·9
Moscow		83·2	33	12 32	+ 3	22 48	− 1	—	—	—
Ksara		91·3	54	e 13 11	+ 2	e 24 15	+ 9	16 47	PP	—
Sverdlovsk		93·1	27	13 19	+ 2	23 48	[− 3]	24 30	SS	—

Additional readings :—
Bogota e =6m.33s.
Philadelphia i =5m.3s., iS? =8m.44s.
La Paz S =13m.49s.
Tucson iPP =9m.9s., ePPP =9m.42s.
Granada PPP =13m.55s., P_cS =14m.40s., S_cS =20m.9s., SS =22m.39s.
Uccle iEZ =10m.45s., eE =20m.36s.
Copenhagen i =21m.12s.
Collmberg eZ =11m.25s., 11m.42s., 12m.34s., and 12m.45s.
Zagreb e =10m.40s.
Warsaw eN =21m.53s. and 22m.46s.
Long waves were also recorded at Arapuni, Christchurch, and Wellington.

Aug. 8d. Readings also at 0h. (Lincoln, Boulder City, Overton, and La Paz), 1h. (Apia, Bogota (2), Tinemaha (2), and Tucson), 2h. (Tinemaha and near Istanbul), 3h. (Harvard, Weston, Tucson, Tinemaha (2), and Bogota), 5h. (Harvard), 7h. (Ksara), 8h. (Fort de France, Bogota, San Juan, Tinemaha, Weston), 9h. (Harvard, and near Berkeley), 10h. (near Berkeley, Branner, Fresno, Lick, San Francisco, Mineral, Santa Clara, Shasta Dam, Boulder City, Overton, Bucharest, and Sofia), 11h. (near Tucson, Overton, Shasta Dam, Boulder City, near Lick, and near Almata), 13h. (Auckland), 14h. (Tinemaha (2), Mizusawa, Paris, and Tortosa), 15h. (Bogota, Port au Prince, Fort de France, Huancayo, La Paz, Harvard (3), Tucson (4), Pasadena (4), Weston (3), Boulder City (4), and Overton (3)), 16h. (Bogota, Weston, Pasadena, Boulder City, Overton, and Bucharest), 17h. (Zagreb), 18h. (Harvard, Weston, Tinemaha, Tucson, and Granada), 19h. (near Branner), 20h. (Calcutta, Harvard, Weston (2), Tinemaha (2), Tucson (2), and near Ferndale), 21h. (Riverside, Tinemaha, near Berkeley, and near Grozny), 22h. (Riverside, Tinemaha (2), Tucson, Overton, and Harvard), 23h. (Riverside, Tinemaha, and Tucson).

Aug. 9d. 0h. 42m. 36s. Epicentre 19°·6N. 69°·4W. (as on 8d.).

A = +·3317, B = −·8825, C = +·3334; $\delta = -1$; $h = +5$;

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	3·3	111	e 0 52	− 1	i 1 27	− 8	i 1 6	PP	i 1·7
Fort de France	9·2	120	e 2 15	− 1	—	—	—	—	—
Bogota	15·6	198	e 3 42	− 1	e 6 30	− 7	i 3 47	PP	—
Philadelphia	20·9	348	e 4 45	− 1	e 8 45	+10	—	—	e 10·0
Weston	22·8	357	e 5 21	PP	—	—	—	—	—
Harvard	22·9	357	e 5 8	+ 2	e 9 18	+ 5	—	—	—
Tucson	39·1	298	e 7 32	+ 1	—	—	—	—	—
Pasadena	45·4	300	8 27	+ 5	—	—	—	—	—

Bogota also gives e = 6m.19s.

Aug. 9d. 8h. 25m. 41s. Epicentre 19°·6N. 69°·4W. (as at 0h.).

Intensity II at Cape Haitian and Port au Prince.

Liste des séismes réssentes dans la République de Haïti au courant de l'année 1946.

A = +·3317, B = −·8825, C = +·3334; $\delta = -1$; $h = +5$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	(i 0 47)	− 3	(i 1 12)	−15	—	—	(i 2·2)
San Juan		3·3	111	i 0 51	− 2	i 1 23	−12	i 1 11	PP	i 1·7
Fort de France		9·2	120	e 2 10	− 6	—	—	—	—	—
Balboa Heights		14·4	224	e 3 30	+ 3	e 5 57	−12	—	—	—
Bogota		15·6	198	e 3 41	− 2	i 6 31	− 6	i 3 50	PP	—
Columbia		17·7	328	e 4 9	− 1	e 7 33	+ 7	—	—	e 8·5
Philadelphia		20·9	348	i 4 46	0	e 8 46	+11	i 5 13	PP	e 9·1
Fordham		21·5	351	4 54	+ 2	—	—	—	—	—
New Kensington		22·7	339	e 5 4	0	e 9 26	SS	—	—	—
Harvard		22·9	357	e 5 7	+ 1	e 9 19	+ 6	—	—	e 11·3
St. Louis	E.	26·2	321	e 5 37	− 1	e 10 5	− 4	—	—	—
Ottawa		26·3	350	5 38	− 1	10 19	+ 8	—	—	13·8
Chicago		27·0	329	e 5 45	0	e 10 27	+ 5	e 6 40	PP	e 13·0
Huancayo		32·0	192	e 6 30	0	e 11 37	− 5	e 8 39	PcP	e 13·1
La Paz		35·9	178	e 6 24	−40	11 58	−44	—	—	e 18·5
Tucson		39·1	298	i 7 31	0	—	—	e 8 59	PP	e 16·4
Salt Lake City		41·8	311	e 7 53	0	e 14 13	+ 2	—	—	e 19·0
Logan		42·1	313	e 7 59	+ 4	—	—	—	—	e 20·8
Overton		42·8	304	i 8 2	+ 1	—	—	—	—	—
Boulder City		43·0	303	i 8 3	0	—	—	—	—	—
Saskatoon		43·5	327	e 10 7	PcP	e 18 13	SSS	—	—	22·3
Butte		44·1	319	e 10 48	PPP	—	—	—	—	e 20·4
Pasadena		45·4	300	8 23	+ 1	—	—	—	—	—
Grand Coulee		48·9	318	i 8 48	− 2	—	—	—	—	—
Shasta Dam		49·6	308	i 8 52	− 3	—	—	—	—	—
Malaga	Z.	58·8	58	i 10 4a	+ 2	1 18 11	+ 4	—	—	30·6
Tortosa	N.	62·4	53	—	—	18 56	+ 3	—	—	e 28·3
Paris		63·7	44	e 10 32	− 4	e 19 17	+ 7	—	—	e 29·3
Copenhagen		69·5	37	e 11 12	0	i 20 25	+ 5	1 19 33	PS	32·3
Collmberg	Z.	70·3	41	e 11 33	+16	—	—	—	—	—
Rome		71·3	52	e 11 23	0	e 20 40	− 1	—	—	—
Warsaw	N.	75·0	40	e 22 23	PPS	—	—	—	—	e 34·3

Additional readings and notes :—
Port au Prince readings increased by 1m.
Bogota i = 3m.47s., e = 6m.9s.
Philadelphia i = 4m.53s.
Tucson i = 7m.43s. and 7m.57s., iPPP = 9m.30s.
Collmberg eZ = 11m.37s. and 11m.53s.
Long waves were also recorded at Alicante, Bozeman, Sitka, Uccle, De Bilt, Ukiah, College and Cheb.

Aug. 9d. 16h. 33m. 48s. Epicentre 18°·9N 68°·9W. (as on 7d.).

$A = +·3408$, $B = -·8833$, $C = +·3220$; $\delta = +5$; $h = +5$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	2·7	101	0 46	+ 1	i 1 18	− 1	i 1 5	PP	i 1·5
Port au Prince	3·3	264	e 1 2	PP	i 1 42	SS	—	—	1 2·1
Philadelphia	21·7	348	e 5 3	+ 8	e 8 48	− 3	—	—	e 10·1
Weston	23·5	357	e 5 27	+15	—	—	—	—	—
Harvard	23·6	357	e 5 12	− 1	e 9 12	−13	—	—	—
Ottawa	27·0	350	e 5 45	0	—	—	—	—	12·2
Tucson	39·8	298	e 7 36	0	—	—	e 7 56	i	e 17·0
Overton	43·5	304	i 8 7	0	—	—	—	—	—
Boulder City	43·7	303	i 8 7	− 1	—	—	—	—	—
Pasadena	46·2	300	8 27	− 1	—	—	—	—	—

Long waves were also recorded at Sitka.

Aug. 9d. 17h. Undetermined shock.

Berkeley iPZ = 40m.23s., iSNZ = 40m.29s.
Tinemaha iPNZ = 40m.59s.
Mount Wilson iPZ = 41m.16s.
Pasadena iPZ = 41m.16s.
Riverside iPZ = 41m.21s.
Palomar iPZ = 41m.28s.k.
Haiwee ePZ = 41m.36s.
Tucson iP = 42m.4s., e = 42m.24s.

Aug. 9d. 20h. 6m. 37s. Epicentre 18°·9N. 68°·9W. (as at 16h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 43	− 2	i 1 11	− 8	e 1 2	PP	i 1·4
Port au Prince		3·3	264	i 1 6	PPP	i 1 50	SS	i 1 53	SSS	2·3
Fort de France		8·5	118	e 2 3	− 4	e 4 5	S*	—	—	—
Balboa Heights		14·3	228	e 3 33	+ 7	e 6 11	+ 5	—	—	—
Bogota		15·1	200	i 3 47	+11	i 6 39	SS	i 3 56	PP	—
Columbia		18·5	328	e 4 17	− 2	e 7 36	− 8	—	—	e 8·9
Philadelphia		21·7	348	e 4 55	0	e 8 48	− 3	i 5 17	PP	e 10·0
Fordham		22·3	351	e 5 2	+ 1	—	—	—	—	—
Pennsylvania	E.	23·1	343	e 5 24	PP	—	—	—	—	—
New Kensington		23·5	339	e 5 19	+ 7	e 9 21	− 2	—	—	—
Weston		23·5	357	e 5 12	0	—	—	—	—	—
Harvard		23·6	357	e 5 12	− 1	e 9 17	− 8	—	—	e 12·4
Halifax		26·0	10	5 42	+ 6	10 14	+ 8	—	—	13·4
Ottawa		27·0	350	5 46	+ 1	10 19	− 3	—	—	12·4
St. Louis	E.	27·0	321	e 5 47	+ 2	10 22	0	—	—	—
Chicago		27·8	329	e 5 50	− 3	e 10 33	− 2	—	—	e 13·3
Shawinigan Falls		27·8	356	e 5 53	0	—	—	—	—	16·4
Seven Falls		28·2	358	e 6 42	PP	e 10 47	+ 6	—	—	13·4
Tacubaya	N.	28·6	277	e 5 55	− 5	e 11 1	+13	—	—	—
Huancayo		31·4	192	e 6 32	+ 7	e 11 38	+ 6	e 7 27	PP	e 12·7
La Paz		35·2	178	e 7 18	+20	12 38	+ 7	—	—	18·7
Tucson		39·8	298	i 7 39	+ 3	e 13 33	− 9	i 9 10	PP	e 16·7
Logan		42·9	313	e 8 16	+14	e 14 31	+ 4	—	—	22·6
Overton		43·5	304	i 8 5	− 2	—	—	—	—	—
Boulder City		43·7	303	i 8 11	+ 3	—	—	—	—	—
Bozeman		43·8	318	—	—	e 14 39	− 1	e 18 7	S_eS	e 19·1
Saskatoon		44·4	327	8 15	+ 1	14 45	− 4	—	—	17·4
Butte		44·9	319	e 8 17	− 1	e 14 57	+ 1	—	—	e 18·3
Palomar		45·0	299	i 8 22a	+ 3	—	—	—	—	—
La Jolla	z.	45·3	298	e 8 23	+ 2	—	—	—	—	—
Riverside	z.	45·5	300	i 8 25	+ 2	—	—	—	—	—
Mount Wilson		46·1	300	i 8 30	+ 2	—	—	—	—	—
Pasadena		46·2	300	i 8 31	+ 3	—	—	—	—	—
Haiwee		46·3	303	i 8 32	+ 3	—	—	—	—	—
Tinemaha		46·7	304	i 8 33	+ 1	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Santa Barbara		47·5	300	i 8 41	+ 3	—	—	—	—	—
Grand Coulee		49·7	318	e 8 54	− 2	—	—	—	—	—
Berkeley		49·9	304	e 8 55	− 2	i 15 13	−54	e 10 17	PcP	e 26·5
Shasta Dam		50·4	308	i 9 0	− 1	—	—	—	—	—
Ukiah		50·8	306	e 13 25	?	e 16 23	+ 3	—	—	—
Toledo		59·0	55	i 10 0	− 4	i 18 6	− 4	—	—	27·2
Granada		59·4	57	i 10 4a	− 2	i 18 15	0	10 22	pP	27·9
Sitka		61·6	326	—	—	e 18 41	− 2	e 20 11	ScS	—
Alicante		61·8	56	e 10 31	+ 8	18 50	+ 4	19 1	PS	e 30·6
Tortosa	N.	62·4	53	i 10 37	+10	18 57	+ 4	—	—	28·3
Paris		63·8	44	e 10 33	− 3	e 19 5	− 6	e 19 21	PPS	e 28·4
Clermont-Ferrand		64·2	48	e 10 36	− 3	e 19 16	0	—	—	e 30·9
Uccle		65·0	42	e 10 39k	− 5	e 19 19	− 7	e 13 21	PP	e 28·4
De Bilt		65·6	41	i 10 49a	+ 1	e 19 29	− 4	—	—	e 30·4
College		68·3	334	—	—	e 19 59	− 7	—	—	e 32·6
Copenhagen		69·8	37	i 11 12	− 2	e 20 20	− 3	21 17	ScS	32·4
Cheb		70·2	43	e 13 48	PP	e 20 24	− 4	e 21 19	ScS	e 34·9
Florence	E.	70·2	49	e 11 50	PcP	e 21 3	PPS	—	—	—
Collmberg	Z.	70·5	41	e 11 15	− 3	—	—	e 11 43	PcP	—
Rome		71·3	52	i 11 20	− 3	e 20 38	− 3	—	—	—
Triest	E.	71·7	47	e 11 23	− 3	i 20 39	− 6	e 14 3	PP	—
Upsala		72·1	32	—	—	(e 20 23?)	−27	—	—	e 20·4
Warsaw		75·2	40	—	—	e 21 21	− 4	e 21 53	PS	e 36·4
Moscow		83·5	33	12 30	− 1	22 47	− 5	—	—	—
Istanbul		83·6	49	12 25	− 6	e 22 48	− 5	—	—	—
Helwan		89·2	59	12 59	0	e 23 53	+ 6	e 13 17	PcP	—
Ksara		91·3	54	e 13 9	0	e 23 53	−13	—	—	—
Sverdlovsk		93·6	25	13 19	0	23 49	[− 4]	—	—	—
Baku		98·1	42	—	—	24 22	[+ 4]	—	—	—

Additional readings :—
Bogota e =6m.12s. and 6m.28s.
Philadelphia e =6m.12s.
Tacubaya eSE =10m.56s.
Tucson i =7m.57s., ePP =9m.6s., i =9m.55s.
Granada PcP =11m.1s., PP =12m.12s., PPP =13m.40s., PcS =14m.55s., PS =18m.34s., ScS =20m.6s., SS =22m.7s.
Alicante PP =13m.9s., ScS =20m.11s., SS =23m.1s.
Uccle ePS?N =20m.29s., eEN =23m.24s.?
Cheb e =30m.53s.
Triest iPSE =21m.29s.
Warsaw EN =23m.24s., 24m.54s., 25m.51s., and 28m.43s.
Long waves were also recorded at Prague.

Aug. 9d. 20h. 53m. 19s. Epicentre 19°·6N. 69°·4W. (as at 8h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	e 0 56	+ 6	i 1 39	+12	—	—	i 2·4
San Juan		3·3	111	e 0 52	− 1	i 1 21	−14	—	—	i 1·5
Fort de France		9·2	120	e 2 18	+ 2	—	—	—	—	—
Balboa Heights		14·4	224	e 3 25	− 2	e 6 3	− 6	—	—	—
Bogota		15·6	198	i 2 54	−49	e 6 36	− 1	i 3 53	PP	—
Weston		22·8	357	e 5 6	+ 1	—	—	—	—	—
Harvard		22·9	357	e 5 6	0	e 9 19	+ 6	—	—	—
Huancayo		32·0	192	e 6 32	+ 2	e 11 31	−11	e 7 37	PP	e 14·2
La Paz		35·9	178	7 13	+ 9	—	—	—	—	—
Tucson		39·1	298	e 7 33	+ 2	—	—	—	—	e 22·7
Overton		42·8	304	e 8 3	+ 2	—	—	—	—	—
Boulder City		43·0	303	i 8 5	+ 2	—	—	—	—	—
Pasadena		45·4	300	8 24	+ 2	—	—	—	—	—
Shasta Dam		49·6	308	e 8 53	− 2	—	—	—	—	—
Toledo	Z.	59·0	55	i 10 1	− 3	—	—	—	—	—
Granada		59·4	57	i 10 5a	− 1	—	—	—	—	—
Collmberg	Z.	70·3	41	e 11 15	− 2	—	—	e 11 31	PcP	—

Additional readings :—
Bogota i =3m.47s., e =6m.25s.
Granada i =10m.36s.
Collmberg eZ =11m.22s.

Aug. 9d. Readings also at 0h. (Tucson and Tinemaha), 1h. (Tinemaha), 2h. (near Istanbul and Bucharest), 3h. (Santa Lucia, La Plata, Pasadena (2), Tucson (2), and Bogota), 4h. (Riverside and Tinemaha (2)), 5h. (New Delhi), 6h. (Tucson and Tinemaha), 7h. (Tinemaha and Palomar), 8h. (near Grozny, Piatigorsk, near Leninakan, and Ksara), 9h. (Tucson), 10h. (Harvard, Weston, Pasadena, Tucson, Ottawa, Sitka, and San Juan), 11h. (Tashkent, Frunse, and near Andijan), 12h. (Sverdlovsk), 13h. (Harvard, Weston, Pasadena, Tucson, near Port au Prince, and San Juan), 14h. (La Paz), 18h. (Granada and near Port au Prince (2)), 19h. (Riverside, Tinemaha, and Weston), 21h. (Mizusawa, and near Tacubaya), 22h. (Philadelphia and Tucson), 23h. (Weston, Bogota, Fort de France, Tucson, and near Istanbul).

Aug. 10d. 2h. 10m. 27s. Epicentre 19°·6N. 69°·4W. (as on 9d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	e 0 49	− 1	i 1 24	− 3	i 1 4	P_g	i 2·2
San Juan		3·3	111	e 0 51	− 2	i 1 21	−14	—	—	i 1·6
Fort de France		9·2	120	e 2 15	− 1	e 4 17	+14	—	—	—
Bogota		15·6	198	e 3 39	− 4	e 6 33	− 4	i 3 47	PP	—
Columbia		17·7	328	e 4 9	− 1	e 7 37	+11	e 4 57	PP	e 8·9
Philadelphia		20·9	348	e 4 49	+ 3	e 8 43	+ 8	e 5 30	PP	e 9·7
Fordham		21·5	351	4 53	+ 1	—	—	—	—	—
Weston		22·8	357	e 5 5	0	—	—	—	—	—
Harvard		22·9	357	e 5 8	+ 2	e 9 17	+ 4	—	—	e 13·6
Halifax		25·4	10	e 5 33?	+ 2	—	—	—	—	10·6
St. Louis	E.	26·2	321	e 5 38	0	e 10 11	+ 2	—	—	—
Ottawa		26·3	350	5 39	0	10 13	+ 2	—	—	12·6
Chicago		27·0	329	e 5 45	0	e 10 26	+ 4	—	—	e 10·9
Seven Falls		27·5	358	e 5 51	+ 1	—	—	—	—	11·6
Huancayo		32·0	192	e 6 30	0	e 11 36	− 6	e 7 39	PP	e 13·0
La Paz		35·9	178	6 53	−11	—	—	—	—	—
Tucson		39·1	298	i 7 32	+ 1	e 13 54	+23	e 8 57	PP	e 16·3
Overton		42·8	304	i 8 3	+ 2	—	—	—	—	—
Boulder City		43·0	303	i 8 4	+ 1	—	—	—	—	—
Saskatoon		43·5	327	e 10 9	PP	—	—	—	—	21·6
Butte		44·1	319	e 8 10	− 2	e 14 52	+ 7	—	—	e 21·2
Pasadena		45·4	300	8 24	+ 2	—	—	—	—	—
Grand Coulee		48·9	318	e 8 48	− 2	—	—	—	—	—
Berkeley		49·1	304	i 8 53	+ 2	—	—	—	—	—
Shasta Dam		49·6	308	e 8 52	− 3	—	—	—	—	—
Toledo	Z.	59·0	55	i 10 3	− 1	—	—	—	—	—
Granada		59·4	57	i 10 9a	+ 3	18 30	+15	12 39	PP	29·0
Paris		63·7	44	i 10 33	− 3	—	—	—	—	e 29·6
Uccle		64·8	42	e 10 41	− 2	—	—	—	—	e 32·6
De Bilt		65·4	41	e 10 46	− 1	—	—	—	—	e 32·6
College		67·5	334	—	—	e 20 2	+ 6	—	—	e 28·0
Copenhagen		69·5	37	—	—	e 20 30	+10	21 22	PPS	33·6
Cheb		70·0	43	e 10 33?	−42	—	—	—	—	e 35·6
Collmberg	Z.	70·3	41	e 11 16	− 1	—	—	—	—	—
Rome	Z.	71·3	52	i 11 21k	− 2	—	—	—	—	—
Triest	E.	71·6	47	i 11 24	− 1	e 20 50	+ 6	e 14 0	PP	—
Ksara		91·3	54	e 13 11	+ 2	e 24 3	− 3	—	—	—

Additional readings :—
Port au Prince i = 1m.14s. and 1m.36s.
Bogota i = 4m.1s., eS? = 6m.19s., eSS = 6m.42s.
Philadelphia i = 4m.54s., iS = 8m.52s.
Tucson i = 7m.47s., eP_cP = 9m.21s.
Berkeley eE = 9m.3s. and 9m.9s.
Granada P_cP = 11m.10s., S_cS = 18m.57s.
Collmberg eZ = 11m.28s., 11m.53s., and 12m.20s.
Long waves were also recorded at Bozeman, Sitka, and Warsaw.

Aug. 10d. 6h. 58m. 40s. Epicentre 19°·6N. 69°·4W. (as at 2h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	i 0 52	− 1	i 1 29	− 6	—	—	i 1·7
Bogota		15·6	198	e 3 41	− 2	e 6 58	SS	i 3 48	PP	—
Philadelphia		20·9	348	e 4 49	+ 3	e 8 46	+11	e 5 12	PP	e 9·9
Weston		22·8	357	e 5 10	+ 5	—	—	—	—	—
Harvard		22·9	357	e 5 7	+ 1	e 9 17	+ 4	—	—	—
Ottawa		26·3	350	5 39	0	10 20	+ 9	—	—	13·3
Tucson		39·1	298	e 7 32	+ 1	—	—	—	—	—
Pasadena		45·4	300	8 24	+ 2	—	—	—	—	—
Shasta Dam		49·6	308	e 8 53	− 2	—	—	—	—	—

Additional readings :—
San Juan i = 1m.20s.
Bogota e = 6m.8s.

Aug. 10d. 9h. 0m. 18s. Epicentre 19°·6N. 69°·4W. (as at 6h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	i 0 51	+ 1	i 1 26	− 1	i 1 46	S_g	i 2·0
San Juan		3·3	111	i 0 53	0	i 1 27	− 8	—	—	i 1·7
Fort de France		9·2	120	e 2 16	0	e 4 18	+15	—	—	—
Bogota		15·6	198	e 3 38	− 5	e 6 32	− 5	i 3 47	PP	—
Columbia		17·7	328	e 4 11	+ 1	e 7 19	− 7	—	—	e 8·4
Philadelphia		20·9	348	e 4 48	+ 2	e 8 44	+ 9	e 5 29	PP	e 9·8
Pennsylvania	E.	22·3	343	5 3	+ 2	—	—	—	—	—
Weston		22·8	357	e 5 6	+ 1	—	—	—	—	—
Harvard		22·9	357	e 5 7	+ 1	e 9 15	+ 2	—	—	—
St. Louis	E.	26·2	321	e 5 38	0	e 10 10	+ 1	—	—	—
Ottawa		26·3	350	5 38	− 1	10 14	+ 3	—	—	12·7
Chicago		27·0	329	e 5 49	+ 4	e 10 25	+ 3	e 6 22	PP	e 13·5
Shawinigan Falls		27·0	356	e 5 46	+ 1	—	—	—	—	17·7
Seven Falls		27·5	358	e 6 4	+14	—	—	—	—	11·7
Huancayo		32·0	192	e 6 31	+ 1	e 11 40	− 2	e 7 34	PP	e 12·5
La Paz	Z.	35·9	178	i 7 2	− 2	—	—	—	—	17·9
Tucson		39·1	298	e 7 31	0	e 13 34	+ 3	e 9 5	PP	e 16·4
Overton		42·8	304	i 8 1	0	—	—	—	—	—
Boulder City		43·0	303	i 8 3	0	—	—	—	—	—
Saskatoon		43·5	327	e 8 18	+11	e 16 42?	SS	—	—	21·7
Butte		44·1	319	e 8 12	0	e 14 49	+ 4	—	—	e 19·1
Pasadena		45·4	300	8 23	+ 1	—	—	—	—	—
Grand Coulee		48·9	318	e 8 47	− 3	—	—	—	—	—
Shasta Dam		49·6	308	e 8 52	− 3	—	—	—	—	—
Toledo	Z.	59·0	55	i 10 3	− 1	—	—	—	—	—
Granada		59·4	57	i 10 0	− 6	e 18 33	+18	10 27	pP	28·0
Paris		63·7	44	e 10 32	− 4	—	—	—	—	e 29·7
De Bilt		65·4	41	e 10 42?	− 5	—	—	e 27 42?	SSS	e 32·7
Strasbourg		67·1	44	e 10 53	− 4	e 19 51	0	—	—	e 29·7
College		67·5	334	—	—	e 19 56	0	—	—	e 27·7
Copenhagen		69·5	37	i 11 12	0	e 20 18	− 2	21 6	PPS	33·7
Cheb		70·0	43	—	—	e 20 42?	+16	e 28 42?	SSS	e 39·7
Collmberg	Z.	70·3	41	e 11 16	− 1	—	—	—	—	—
Rome	N.	71·3	52	e 11 23	0	—	—	—	—	—
Ksara		91·3	54	i 13 10	+ 1	e 24 28	+22	—	—	—

Additional readings :—
Bogota e = 6m.23s., iSS = 6m.51s.
Philadelphia iP = 4m.53s., iS = 8m.49s.
Harvard e = 9m.22s.
St. Louis iSE = 10m.32s.
Tucson i = 8m.1s.
Granada sS = 19m.40s., SSS = 22m.59s.
Collmberg eZ = 11m.29s.
Long waves were also recorded at Sitka, Alicante, and Warsaw.

Aug. 10d. 11h. 45s. 48m. Epicentre 19°·6N. 69°·4W. (as at 9h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	(i 0 53)	+ 3	(i 1 28)	+ 1	(i 1 8)	P_g	—
San Juan		3·3	111	i 0 52	− 1	i 1 22	−13	—	—	i 1·7
Fort de France		9·2	120	e 1 12	−64	e 3 14	−49	—	—	—
Balboa Heights		14·4	224	e 3 28	+ 1	e 5 58	−11	—	—	—
Bogota		15·6	198	e 3 37	− 6	i 6 29	− 8	i 3 43	PP	—
Columbia		17·7	328	e 4 10	0	e 7 25	− 1	—	—	e 8·7
Philadelphia		20·9	348	e 4 47	+ 1	e 8 44	+ 9	i 5 31	PP	e 10·2
Pennsylvania	E.	22·3	343	5 2	+ 1	—	—	—	—	—
Weston		22·8	357	e 5 6	+ 1	—	—	—	—	—
Harvard		22·9	357	e 5 7	+ 1	e 9 13	0	—	—	—
Halifax		25·4	10	e 5 42	+11	(10 12?)	+16	—	—	10·2
St. Louis	E.	26·2	321	e 5 37	− 1	e 10 8	− 1	—	—	—
Ottawa		26·3	350	5 40	+ 1	10 12	+ 1	—	—	13·2
Chicago		27·0	329	e 5 46	+ 1	e 10 24	+ 2	—	—	e 15·2
Shawinigan Falls		27·0	356	e 5 46	+ 1	—	—	—	—	18·2
Seven Falls		27·5	358	e 5 48	− 2	(10 12?)	−18	—	—	10·2
Huancayo		32·0	192	e 6 28	− 2	e 11 22	−20	e 7 33	PP	e 13·1
La Paz	Z.	35·9	178	i 7 4k	0	e 12 32	−10	8 26	PP	18·9
Tucson		39·1	298	e 7 29	− 2	e 13 36	+ 5	e 8 58	PP	e 16·4
Overton		42·8	304	i 8 1	0	—	—	—	—	—
Boulder City		43·0	303	i 8 1	− 2	—	—	—	—	—
Saskatoon		43·5	327	—	—	e 18 0	SS	—	—	24·2
Butte		44·1	319	e 9 0	+48	e 14 49	+ 4	—	—	e 19·7
Pasadena		45·4	300	8 22	0	—	—	—	—	—
Grand Coulee		48·9	318	e 8 46	− 4	—	—	—	—	—
Berkeley		49·1	304	e 8 52	+ 1	e 15 49	− 7	e 19 36	SS	—
Shasta Dam		49·6	308	e 8 51	− 4	—	—	—	—	—
Toledo	Z.	59·0	55	i 10 5	+ 1	—	—	—	—	—
Granada		59·4	57	10 17k	+11	—	—	11 3	P_cP	—
Sitka		60·8	326	—	—	e 20 14	?	e 23 32	SS	e 29·1
Alicante		61·8	56	e 12 21	PP	—	—	—	—	—
Paris		63·7	44	e 10 36	0	—	—	—	—	e 31·2
Clermont-Ferrand		64·1	48	—	—	e 19 23	+ 9	—	—	27·2
De Bilt		65·4	41	e 10 47	0	—	—	e 28 12?	Q	e 34·2
Strasbourg		67·1	44	e 10 59	+ 2	e 20 54	+63	—	—	—
College		67·5	334	—	—	e 19 53	− 3	—	—	e 33·5
Copenhagen		69·5	37	—	—	i 20 23	+ 3	—	—	33·2
Cheb		70·0	43	—	—	e 25 12?	SS	—	—	e 33·2
Collmberg	Z.	70·3	41	e 11 17	0	—	—	—	—	—
Rome		71·3	52	e 11 27	+ 4	e 20 45	+ 4	e 14 9	PP	e 32·2
Triest	E.	71·6	47	e 11 24	− 1	e 20 48	+ 4	—	—	—
Warsaw	N.	75·0	40	—	—	e 21 24	+ 1	—	—	e 33·2

Additional readings :—
Port au Prince i = 1m.18s. Readings decreased by 10 minutes.
Bogota iPPPP = 3m.46s., e = 6m.25s.
Philadelphia iP = 4m.51s., i = 8m.49s.
Harvard i = 9m.23s.
St. Louis iSE = 10m.28s.
Huancayo eP_cP = 8m.28s.
La Paz iZ = 15m.32s.
Tucson ePPP = 9m.32s.
Berkeley eZ = 15m.53s.
Copenhagen i = 21m.18s.
Collmberg eZ = 11m.21s.
Rome eN = 13m.43s.
Long waves were also recorded at Bozeman.

Aug. 10d. Readings also at 0h. (Tucson and near Berkeley), 3h. (Weston and near Fort de France), 6h. (Bogota and Fort de France), 8h. (Tucson), 10h. (Brisbane and La Paz), 11h. (Istanbul and Fort de France), 12h. (Tucson), 13h. (Mount Wilson, Riverside, Palomar, Tinemaha, Tucson, and Shasta Dam), 14h. (Harvard (2), Ottawa, Weston (2), Philadelphia, Pasadena, Tinemaha, Tucson, La Paz, Bogota, and near San Juan), 18h. (near Andijan and near San Juan), 21h. (Bucharest, Cheb, and Zagreb), 22h. (near Triest), 23h. (Suva, Bucharest, Zagreb, Zürich, and near Triest).

Aug. 11d. 1h. 54m. 24s. Epicentre 8°·2S. 155°·8E.

$A = -\cdot9029$, $B = +\cdot4058$, $C = -\cdot1417$; $\delta = -2$; $h = +7$;
$D = +\cdot410$, $E = +\cdot912$; $G = +\cdot129$, $H = -\cdot058$, $K = -\cdot990$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	19·6	187	i 4 31	− 1	i 8 3	− 5	—	—	—
Suva		24·1	116	i 5 6	−12	i 9 21	−13	16 6	ScS	—
Riverview		25·9	189	i 5 37a	+ 2	i 9 59	− 5	i 6 14	PP	e 11·9
Auckland		33·4	152	6 26	−16	11 48	−15	7 45	PP	15·7
Arapuni		34·7	152	—	—	12 36	+12	—	—	15·1
Wellington		37·0	156	7 12	− 1	12 55	− 4	7 28	pP	18·5
Christchurch		38·1	160	7 22	0	13 14	− 2	8 54	PP	—
Perth		44·0	232	i 9 51	PP	14 50	+ 7	18 8	SS	—
Shizuoka		46·0	341	8 27	0	15 9	− 3	—	—	—
Yokohama		46·0	343	8 27k	0	—	—	—	—	e 20·3
Tokyo		46·2	343	8 32	+ 4	—	—	—	—	23·3
Hunatu		46·3	341	8 28	− 1	15 16	0	—	—	—
Hikone		47·0	339	8 26	− 9	15 21	− 5	—	—	—
Toyooka		47·8	348	e 8 36	− 5	15 28	−10	—	—	—
Hukuoka	E.	48·0	332	e 8 42	− 1	15 46	+ 5	—	—	e 29·6
Sendai		48·3	345	8 42	− 3	15 40	− 5	—	—	—
Wazima		48·7	340	e 8 49	+ 1	15 46	− 4	—	—	—
Mori		52·0	346	e 9 13	0	e 16 33	− 3	e 9 51	?	e 23·1
Sapporo		52·7	348	e 9 18	0	e 16 41	− 5	—	—	—
Honolulu		54·2	57	e 9 32	+ 3	i 17 7	+ 1	e 12 56	PPP	e 22·8
Vladivostok		55·5	340	i 9 37	− 2	i 17 20	− 4	—	—	—
Irkutsk		74·5	330	11 40	− 2	21 11	− 6	—	—	—
Colombo	E.	77·2	279	e 10 40	−77	e 21 39	− 8	—	—	36·2
Kodaikanal	E.	80·1	282	e 11 46	−27	—	—	—	—	—
College		83·9	22	e 12 24	− 9	e 22 48	− 8	e 28 16	SS	—
New Delhi		84·0	300	e 12 35	+ 2	i 22 54	− 3	28 15	SS	—
Sitka		85·8	31	e 12 42	0	i 23 8	− 7	e 16 8	PP	e 33·8
Bombay		86·1	290	e 13 4	+20	23 19	+ 1	—	—	35·2
Ukiah		88·2	51	—	—	e 23 21	[− 1]	—	—	e 36·3
Berkeley		88·7	52	e 12 58	+ 1	i 23 44	+ 1	i 24 35	PS	e 39·3
Santa Clara		88·8	52	e 12 58	+ 1	e 23 46	+ 2	—	—	e 41·5
Shasta Dam		89·1	49	e 12 57	− 1	—	—	—	—	—
Victoria		90·0	42	e 13 36?	+33	e 24 36?	PS	—	—	34·6
Santa Barbara	Z.	90·1	56	e 13 4	+ 1	—	—	—	—	—
Andijan		90·4	311	e 13 6	+ 2	—	—	—	—	—
Pasadena		91·3	56	e 13 8	− 1	23 39	[− 1]	e 24 4	S	e 40·6
Mount Wilson		91·4	56	e 13 8	− 1	—	—	—	—	—
Haiwee	Z.	91·7	54	e 13 12	+ 2	—	—	—	—	—
Tinemaha		91·7	53	e 13 10	0	—	—	—	—	—
La Jolla	Z.	91·8	58	e 13 16	+ 5	—	—	—	—	—
Riverside	Z.	91·9	56	i 13 11	0	—	—	—	—	—
Grand Coulee		92·1	42	e 12 54	−18	—	—	e 16 51	PP	—
Palomar		92·2	57	e 13 13	0	—	—	i 13 18	PcP	—
Tashkent		92·3	312	e 13 14	+ 1	24 13	− 2	e 16 46	PP	—
Boulder City		94·2	55	i 13 21	− 1	—	—	—	—	—
Samarkand		94·3	309	e 13 24	+ 1	—	—	—	—	—
Overton		94·6	54	i 13 27	+ 3	—	—	—	—	—
Butte		97·0	44	e 17 28	PP	e 24 14	[+ 2]	—	—	e 40·9
Salt Lake City		97·1	50	e 13 38	+ 3	e 24 13	[+ 1]	e 31 36	SS	e 38·6
Tucson		97·2	59	e 13 40	+ 4	e 24 11	[− 2]	e 31 36	SS	e 40·2
Bozeman		98·0	49	e 26 25	PS	e 24 17	[0]	e 25 14	S	e 40·6
Sverdlovsk		99·6	326	13 48	+ 2	24 24	[− 1]	25 14	S	—
Saskatoon		101·1	39	17 48	PP	24 32	[0]	32 48	SS	42·6
Lincoln		107·6	50	e 28 12	PS	e 38 2	SSS	—	—	e 50·0
Moscow		112·4	328	e 14 45	P	25 22	[0]	e 19 23	PP	—

Continued on next page.

		△	Az.	P.	P−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Florissant		113·6	51	e 19 34	PP	e 26 33	{+ 5}	e 29 3	PS		—
St. Louis	E.	113·8	51	e 18 38	[− 3]	e 25 25	[− 2]	e 19 38	PP		1 55·4
Ksara		119·3	304	e 18 48	[− 3]	31 16	PPS	21 18	PP		58·6
Upsala		119·6	338	20 36?	PP	e 25 42	[− 7]	e 36 18	SS		e 49·6
Ottawa		122·3	40	18 57	[0]	25 56	[− 1]	30 24	PS		50·6
Istanbul		122·3	314	e 11 33	?	—	—	—	—		—
Warsaw		122·7	328	e 20 51	PP	e 26 7	[+ 8]	e 31 16	PS		e 58·6
Bergen	N.	123·4	344	e 31 32	PPS	e 37 20	SS	—	—		—
Copenhagen		123·7	337	20 37	PP	i 26 10	[+ 8]	30 41	PS		55·6
Georgetown		123·7	48	e 16 51	?	—	—	e 20 40	PP		e 56·6
Helwan		123·8	301	18 58	[− 2]	37 36	SS	19 24	pPKP		—
Seven Falls		124·6	37	17 0	?	—	—	20 49	PP		48·6
Philadelphia		124·7	47	e 20 52	PP	e 26 5	[0]	e 37 50	SS		—
Fordham		125·3	45	e 19 8	[+ 5]	e 26 7	[0]	e 20 57	PP		54·6
Huancayo		125·3	111	e 19 9	[+ 6]	e 32 22	PPS	e 38 9	SS		e 52·6
Belgrade		126·0	321	e 21 55	PP	e 25 53	[−16]	e 29 37	?		51·6
Harvard		126·2	42	e 19 6	[+ 1]	e 22 21	PKS	e 20 56	PP		e 58·6
La Plata	E.	126·4	146	23 6	PPP	42 42	SSS	38 18	SS		58·6
	N.	126·4	146	21 48	PP	38 24	SS	31 30	PS		59·0
Weston		126·5	42	i 19 5	[0]	e 26 10	[0]	e 20 58	PP		—
Aberdeen		127·2	345	i 21 27	PP	i 22 42	PKS	—	—		54·8
Collmberg	Z.	127·2	331	e 19 8	[+ 1]	—	—	e 21 15	PP		—
Prague		127·3	330	e 21 32	PP	e 31 9	PS	—	—		e 52·6
Cheb		128·4	331	e 21 17	PP	e 32 53	PPS	e 23 55	PPP		e 59·6
Zagreb		129·1	325	e 19 4?	[− 6]	e 32 34	PPS	e 19 16	pPKP		e 66·6
De Bilt		130·1	337	e 21 42	PP	e 38 36	SS	—	—		e 52·6
Halifax		130·2	36	e 32 36	PPS	—	—	—	—		56·6
Triest		130·4	326	e 20 15	[+62]	e 27 26	[+65]	e 22 37	PKS		—
La Paz		130·8	120	e 19 26	[+12]	37 36	SS	24 0	PPP		60·6
Uccle		131·4	337	e 19 22	[+ 8]	e 26 33	[+10]	e 21 36	PP		e 57·6
Strasbourg		131·6	332	e 19 18	[+ 3]	e 26 14	[−10]	e 21 39	PP		e 61·6
Zürich		132·0	331	(e 19 19)	[+ 3]	—	—	(e 21 29)	PP		—
Basle		132·4	331	(e 19 20)	[+ 4]	—	—	—	—		—
Florence	E.	133·0	325	i 22 48	PKS	—	—	—	—		—
Paris		133·7	336	e 19 25	[+ 6]	e 26 26	[− 3]	i 21 48	PP		e 60·6
Jersey		135·1	341	e 17 59	?	(43 36?)	SSS	—	—		43·6
Bermuda		135·4	52	e 22 4	PP	e 26 36	[+ 5]	e 23 5	PKS		e 55·1
Clermont-Ferrand		135·8	333	e 19 27	[+ 4]	i 40 8	SS	i 22 20	PP		62·6
San Juan		137·1	72	e 19 27	[+ 2]	e 28 48	{−16}	e 22 11	PP		e 57·7
Tortosa	N.	140·8	330	e 23 20	PP	—	—	—	—		e 65·6
Alicante		143·1	329	19 31	[− 5]	26 21	[−23]	23 1	PKS		e 66·6
Toledo		143·7	334	i 19 37	[0]	23 29	PKS	20 0	pP		66·6
Granada		145·6	331	i 19 9k	[−31]	26 42	[− 6]	19 42	pPKP		66·3
Malaga	Z.	146·4	331	i 19 38s	[− 4]	i 26 33	[−16]	23 18	PKS		81·6
Lisbon		146·7	339	19 49	[+ 7]	—	—	62 0	Q		71·8

Additional readings :—
Suva i = 5m.26s., 6m.16s., 9m.47s., and 10m.21s.
Riverview iNZ = 5m.43s., iPPPN = 6m.34s., iNZ = 7m.17s., iPcPNZ = 9m.13s., iN = 10m.8s. and 10m.13s., iEZ = 10m.25s., iE = 10m.30s., eQE = 10m.42s., eQN = 10m.54s., iSSN = 11m.0s., iSSSE = 11m.23s.
Auckland PcP? = 9m.15s., i = 11m.2s., PcS = 12m.56s., SS = 14m.10s.
Wellington sP = 7m.46s., iZ = 8m.21s., i = 8m.29s., PPZ = 8m.42s., i = 8m.49s., pPP = 8m.55s., PcPZ = 9m.31s., sPcPZ = 10m.5s., iZ = 10m.42s., i = 12m.0s., iZ = 12m.31s., i = 14m.17s. and 14m.56s., SS = 15m.31s.
Christchurch PcP = 6m.10s., PP = 9m.37s., sS = 16m.6s.
Honolulu i = 9m.52s., e = 12m.20s.
College ePP? = 16m.12s., e = 23m.28s.
New Delhi PSN = 23m.33s., iN = 32m.51s.
Sitka eSS = 28m.13s.
Bombay S?E = 23m.16s.
Berkeley iPcP?E = 13m.24s., eZ = 15m.26s., iE = 23m.28s., eN = 24m.44s., eSSE = 29m.9s., eSSSZ = 32m.46s.
Pasadena eQN = 36·5m.
Grand Coulee i = 13m.5s.
Tashkent ePPP = 19m.11s., eSKS = 23m.55s., ePS = 25m.34s., eSS = 30m.58s.
Salt Lake City ePP = 17m.27s., ePS = 26m.13s., eSSS = 35m.29s.

Continued on next page.

Tucson ePP =17m.26s., i =17m.40s. and 18m.34s., eSKKS =24m.41s., eS? =25m.6s., ePS =26m.14s., ePPS? =27m.0s., eSSS =35m.12s., ePKPPKP =38m.42s.
Bozeman ePPS =27m.8s., eSS =32m.6s., eSSS =35m.27s., e =37m.51s.
Sverdlovsk PP =17m.38s., PS =26m.47s., SS =32m.12s.
Saskatoon S =26m.54s., PS =28m.6s., SSS =36m.24s.
Moscow eS =26m.32s., SS =34m.54s.
Florissant ePPS?E =30m.15s.
St. Louis iZ =17m.58s. and 19m.58s., iSKKSE =26m.35s., iPSE =29m.6s., iPPSE =30m.22s., iSSSE =39m.43s.
Upsala PPP?E =23m.33s., eSKSE =25m.47s.
Ottawa PP =20m.30s., SS =37m.36s.?, SSS =42m.12s.
Warsaw ePPP? =25m.5s., eSKKS?N =29m.5s., ePPS?N =33m.57s., eN =36m.23s. and 37m.27s., ePKPPKP?N =39m.27s., eSSS?N =42m.58s.
Copenhagen 23m.42s., SKKS =28m.25s., SKKS? =36m.3s., SS =37m.24s.
Helwan PP =20m.48s., pPP =21m.12s.
Philadelphia ePKS =22m.20s., ePS =30m.39s., eSSS =42m.14s.
Huancayo ePP =21m.39s., eSSS =42m.45s.
Collmberg eZ =19m.21s., 19m.56s., 21m.15s., and 21m.49s.
La Plata PSN =35m.30s., SSN =41m.30s.
Weston eSS =38m.8s., ePSPS =38m.46s.
Triest eSSS =43m.51s.
La Paz PPE =22m.41s.
Uccle eSKP =22m.42s., eSSE =38m.59s., ePSSN =40m.15s.
Strasbourg e =21m.53s., eSKP =22m.40s., ePPP =24m.11s., eSKKS =28m.34s., eSS =39m.12s.
Zürich readings reduced by 1m.
Basle readings reduced by 1m.
Paris eSKP =22m.51s., e =27m.40s., eSKKS =28m.16s., e =34m.16s. and 43m.36s.?, eQ =57m.36s.?
Bermuda eSKSP =32m.5s., eSSS =44m.6s.
Clermont-Ferrand i =23m.22s. and 25m.5s., iSS? =40m.8s.
San Juan iPKS =23m.5s., eSKS? =25m.47s., ePPS =35m.17s., eSS =40m.26s., eSSS =45m.40s.
Alicante PKP_2 =19m.53s., PP =23m.13s., PPP =26m.43s., SKKS =29m.57s., SS =41m.55s., Q =61m.53s.
Toledo PPZ =22m.55s., SKKSE =30m.7s., SKSPN =33m.6s., PPSE =35m.25s., SSEN =41m.37s., SSPE =42m.27s., SSSE =46m.58s., QE =60m.52s.
Granada SKP =23m.23s., PPP =26m.0s., SKKS =29m.27s., SKSP =32m.42s., PPS =35m.48s., SS =40m.18s., SSP =41m.48s., SSS =46m.35s., Q =64m.48s.
Malaga PKP_2Z =20m.53s., PPZ =25m.45s., SKKSZ =32m.5s., PPSZ =38m.47s. QZ =72·6m.
Lisbon N =20m.16s.
Long waves were also recorded at Tananarive, Chicago, Pennsylvania, Potsdam, and Columbia.

Aug. 11d. 3h. 41m. 3s. Epicentre 19°·6N. 69°·4W. (as on 10d.).

A = +·3317, B = −·8825, C = +·3334; δ = −1; h = +5.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	e 0 46	− 7	i 1 17	−18	—	—	i 1·5
Fort de France		9·2	120	e 2 9	− 7	—	—	—	—	—
Bogota		15·6	198	i 3 38	− 5	e 6 32	− 5	i 6 46	SS	—
Weston		22·8	357	e 5 22	PP	—	—	—	—	—
Harvard		22·9	357	e 5 6	0	e 9 12	− 1	i 5 25	PP	—
St. Louis	z.	26·2	321	i 5 40	+ 2	—	—	—	—	—
Tucson		39·1	298	e 7 31	0	—	—	e 7 52	?	—
Overton		42·8	304	i 8 1	0	—	—	—	—	—
Boulder City		43·0	303	i 8 3	0	—	—	—	—	—
Palomar		44·3	299	i 8 14	+ 1	—	—	—	—	—
Riverside	z.	44·8	300	i 8 17	0	—	—	—	—	—
Mount Wilson	z.	45·4	300	i 8 21a	− 1	—	—	—	—	—
Pasadena	z.	45·4	300	i 8 22	0	—	—	—	—	—
Tinemaha		45·9	304	i 8 26a	0	—	—	—	—	—
Grand Coulee		48·9	318	e 8 46	− 4	—	—	—	—	—
Shasta Dam		49·6	308	i 8 52	− 3	—	—	—	—	—

Bogota also gives i =3m.41s.

Aug. 11d. 13h. 12m. 44s. Epicentre 19°·6N. 69°·4W. (as at 3h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	e 0 50	0	i 1 30	+ 3	—	—	i 1·7
San Juan		3·3	111	i 0 33	−20	i 1 0	−35	i 0 52	PP	e 1·4
Bogota		15·6	198	e 3 36	− 7	e 6 29	− 8	—	—	—
Philadelphia		20·9	348	e 4 41	− 5	e 8 45	+10	5 13	PP	e 10·3
Weston		22·8	357	e 5 4	− 1	—	—	—	—	—
Harvard		22·9	357	e 5 4	− 2	e 9 16	+ 3	—	—	—
St. Louis		26·2	321	e 5 39	+ 1	e 10 16	+ 7	—	—	e 12·8
Tucson		39·1	298	e 7 28	− 3	—	—	e 7 50	pP	—
Overton		42·8	304	e 8 3	+ 2	—	—	—	—	—
Boulder City		43·0	303	i 8 5	+ 2	—	—	—	—	—
Pasadena	z.	45·4	300	e 8 24	+ 2	—	—	—	—	—
Tinemaha		45·9	304	e 8 33	+ 7	—	—	—	—	—

Long waves were also recorded at Kew.

Aug. 11d. 13h. 31m. 12s. Epicentre 19°·6N. 69°·4W. (as at 12m.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	0 58	+ 8	1 23	− 4	—	—	1·8
San Juan		3·3	111	e 0 56	+ 3	e 1 25	−10	—	—	i 1·7
Bogota		15·6	198	e 3 40	− 3	—	—	i 3 45	?	—
Palomar	z.	44·3	299	e 8 12	− 1	—	—	—	—	—
Riverside	z.	44·8	300	i 8 16	− 1	—	—	—	—	—
Mount Wilson	z.	45·4	300	e 8 45	+23	—	—	—	—	—
Tinemaha		45·9	304	e 8 26	0	—	—	—	—	—

Long waves were also recorded at Sitka.

Aug. 11d. Readings also at 5h. (near Andijan, Samarkand, and Tashkent), 7h. (near San Juan and Tinemaha (2)), 10h. (Weston, Harvard, Tucson, Palomar, Tinemaha, and St. Louis), 16h. (Port au Prince, Weston, Harvard, and St. Louis), 18h. (near Balboa Heights, near Misusawa, Port au Prince, Philadelphia, Weston, Harvard, and St. Louis), 19h. (Sitka), 21h. (near Merida).

Aug. 12d. 2h. 39m. 22s. Epicentre 19°·4N. 70°·4W. (as on 7d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	e 0 23	−12	i 0 58	− 4	—	—	1·3
San Juan		4·2	103	e 0 39	−28	i 1 11	−46	—	—	i 1·5
Bogota		15·1	194	e 3 36	0	e 6 28	+ 3	e 3 47	PP	e 7·2
Columbia		17·4	330	—	—	e 7 2	−17	—	—	—
Philadelphia		20·9	351	e 4 43	− 3	e 8 34	− 1	e 5 33	PP	e 9·9
Weston		22·9	359	e 5 11	+ 5	—	—	—	—	—
Harvard		23·1	359	e 5 16	+ 8	e 9 18	+ 2	—	—	—
St. Louis		25·8	322	e 5 34	0	e 10 18	+16	—	—	—
Ottawa		26·3	352	e 5 36	− 3	(9 38?)	−33	—	—	9·6
Riverside	z.	44·0	300	e 8 9	− 2	—	—	—	—	—
Tinemaha	z.	45·2	303	e 8 21	+ 1	—	—	—	—	—

Long waves were also recorded at Sitka, Kew, and Uccle.

Aug. 12d. 9h. 31m. 53s. Epicentre 19°·4N. 70°·4W. (as at 2h.).

Intensity II at Cap Haitien and Port au Prince.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

$A = +\cdot3166$, $B = -\cdot8892$, $C = +\cdot3302$; $\delta = -6$; $h = +5$;
$D = -\cdot942$, $E = -\cdot335$; $G = +\cdot111$, $H = -\cdot311$, $K = -\cdot944$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	i 0 41	+ 6	i 1 1	− 1	—	—	1·5
San Juan		4·2	103	e 0 58	− 9	e 1 29	P_g	—	—	i 1·8
Fort de France		10·0	116	2 25	− 2	—	—	—	—	—
Bogota		15·1	194	e 3 34	− 2	e 6 21	− 4	i 3 49	PP	—
Columbia		17·4	330	—	—	e 7 23	+ 4	—	—	e 8·6
Philadelphia		20·9	351	e 4 45	− 1	e 8 37	+ 2	e 5 36	PP	e 9·8
Weston		22·9	359	e 5 11	+ 5	—	—	—	—	—
Harvard		23·1	359	e 5 5	− 3	e 9 12	− 4	—	—	—
St. Louis		25·8	322	i 5 33	− 1	e 10 1	− 1	—	—	—
Ottawa		26·3	352	5 52	+13	10 7	− 4	—	—	13·1
Chicago		26·7	331	—	—	e 10 15	− 2	—	—	e 14·9
Huancayo		31·6	189	e 6 26	0	—	—	—	—	e 16·4
Tucson		38·4	298	e 7 25	0	—	—	—	—	e 22·1
Pasadena	z.	44·7	300	e 8 16	0	—	—	—	—	—
Tinemaha	z.	45·2	303	e 8 20	0	—	—	—	—	—
Grand Coulee		48·4	318	e 8 21	−25	—	—	—	—	—

Additional readings:
Port au Prince i = 1m.16s.
Bogota i = 3m.40s., e = 6m.30s.
Philadelphia e = 4m.58s.
Long waves were also recorded at Bozeman, Salt Lake City, Sitka, De Bilt, Paris, and Cheb.

Aug. 12d. Readings also at 1h. (Brisbane and Riverview), 3h. (Riverview), 5h. (St. Louis), 6h. (St. Louis, Suva, and near Apia), 7h. (Brisbane, Christchurch, Riverview, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Grand Coulee, Shasta Dam, St. Louis, Sitka, Ksara, Paris, Strasbourg, and near Triest), 9h. (Tucson), 10h. (Riverside and Tinemaha), 12h. (Tchimkent, Frunse, Andijan, near Samarkand, and Tashkent), 13h. (near Mizusawa), 14h. (near Istanbul), 15h. (Mount Wilson, Tinemaha, Tucson, Harvard, Weston, Port au Prince, La Paz, and Rome), 20h. (Port au Prince, Weston, and St. Louis), 21h. (Port au Prince and Harvard).

Aug. 13d. Readings at 0h. (Santa Lucia), 1h. (Tinemaha, and near La Paz), 5h. (Mount Wilson, Palomar, Tinemaha, Tucson, and St. Louis), 7h. (near Leninakan), 8h. (Port au Prince, Columbia, Harvard, Weston, Chicago, St. Louis, Tucson, Butte, and Tinemaha), 9h. (Sitka), 10h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and Tucson), 12h. (near Fort de France), 13h. (Palomar, Tinemaha, and Istanbul), 14h. (Riverside, Tinemaha, Tucson, St. Louis, and Weston), 15h. (near Granada), 20h. (Bucharest, Rome, Zagreb, and near Triest), 21h. (Shasta Dam, Tucson, and near San Francisco), 23h. (Tinemaha, Tucson, St. Louis, Sitka, College, and Honolulu).

Aug. 14d. 0h. 56m. 5s. Epicentre 19°·4N. 70°·4W. (as on 12d.).

$A = +\cdot3166$, $B = -\cdot8892$, $C = +\cdot3302$; $\delta = -6$; $h = +5$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		4·2	103	e 0 44	−23	e 1 23	−34	i 1 20	S	i 1·6
Fort de France		10·0	116	e 2 17	−10	—	—	—	—	—
Bogota		15·1	194	e 3 37	+ 1	e 6 22	− 3	e 6 40	SS	—
Columbia		17·4	330	—	—	e 7 28	+ 9	—	—	e 8·4
Philadelphia		20·9	351	e 4 43	− 3	e 8 16	−19	e 5 4	PP	e 9·8
Weston		22·9	359	e 4 59	− 7	—	—	—	—	—
Harvard		23·1	359	e 5 6	− 2	e 9 11	− 5	—	—	—
St. Louis		25·8	322	i 5 37	+ 3	e 10 15	+13	i 5 45	pP	—
Chicago		26·7	331	—	—	e 10 45	SS	—	—	e 15·0
Huancayo		31·6	189	e 6 24	− 2	—	—	—	—	e 13·5
Tucson		38·4	298	e 7 28	+ 3	—	—	e 7 49	?	—
Mount Wilson	z.	44·6	300	e 8 19	+ 3	—	—	—	—	—
Tinemaha		45·2	303	i 8 24	+ 4	—	—	—	—	—

Bogota gives also iPP = 3m.45s.
Long waves were also recorded at La Paz, Butte, Alicante, Kew, and Sitka,

Aug. 14d. 9h. 40m. 35s. Epicentre 38°·2N. 142°·0E. Depth of focus 0·010.
(as on 1944, Sept. 1d.).

Intensity V at Sendai, Miyako, Morioka, Hukusima; IV at Sakata, Onahama, Mito, and Kakioka; II-III at Tokyo.
Epicentre 38°·2N. 142°·2E. Depth of focus 60kms. Macroseismic radius greater than 300kms.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p.21, Isoseismic chart p. 21.

$A = -\cdot6208$, $B = +\cdot4850$, $C = +\cdot6159$; $\delta = -5$; $h = -1$;
$D = +\cdot616$, $E = +\cdot788$; $G = -\cdot485$; $H = +\cdot379$, $K = -\cdot788$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sendai		0·9	274	0 13	− 6	0 25	− 9	—	—	—
Mizusawa		1·3	324	0 18	− 6	e 0 28	−14	—	—	—
Miyako		1·4	0	0 16	− 9	0 29	−15	—	—	—
Onahama		1·5	215	0 25	− 2	0 42	− 5	—	—	—
Morioka		1·6	337	0 25a	− 3	0 45	− 4	—	—	—
Akita		2·1	315	0 40a	+ 6	0 54	− 6	—	—	—
Mito		2·2	214	0 32k	− 4	0 57	− 5	—	—	—
Hatinohe		2·3	351	0 30a	− 7	0 57	− 8	—	—	—
Kakioka		2·4	216	0 35	− 3	1 1	− 6	—	—	—
Utunomiya		2·4	226	0 36	− 2	1 1	− 6	—	—	—
Tukubasan		2·5	217	0 36	− 4	1 6	− 4	—	—	—
Kumagaya		2·9	225	0 46k	+ 1	1 19	0	—	—	—
Tokyo		3·1	216	0 47	− 1	1 21	− 3	—	—	—
Nagano		3·4	245	0 51a	− 1	1 30	− 2	—	—	—
Yokohama		3·4	215	0 53	+ 1	1 27	− 5	—	—	—
Mera		3·7	208	0 57	+ 1	1 46	+ 7	—	—	—
Hunatu		3·8	224	0 56a	− 2	1 42	0	—	—	—
Misima		3·9	220	0 58	− 1	1 45	+ 1	—	—	—
Mori		4·1	344	0 51	−11	1 34	−15	—	—	—
Shizuoka		4·4	223	1 4	− 2	1 57	+ 1	—	—	—
Omaesaki		4·7	222	1 13	+ 3	1 55	− 9	—	—	—
Sapporo		4·9	354	1 9	− 4	2 6	− 3	—	—	—
Hikone		5·4	239	1 18	− 2	2 27	+ 6	—	—	—
Nemuro		5·8	27	1 21	− 4	2 18	−13	—	—	—
Osaka		6·3	238	1 35	+ 3	3 4	SS	—	—	—
Toyooka		6·4	248	1 29	− 4	2 41	− 5	—	—	—
Kobe		6·5	239	1 33	− 2	2 48	0	—	—	—
Vladivostok		9·1	306	i 2 5	− 5	i 3 46	− 6	—	—	—
Hukuoka		10·5	247	2 21	− 8	4 40	SS	—	—	—
Kumamoto		10·7	243	2 33	+ 1	5 28	+58	—	—	—
Irkutsk		29·7	312	5 58	− 1	10 50	+ 4	—	—	—
College		47·9	33	e 15 53	PPS	e 15 28	+ 9	—	—	e 22·5
Andijan		52·5	297	e 9 7	+ 2	—	—	—	—	—
Tashkent		54·4	299	e 9 18	− 1	—	—	—	—	—
Sverdlovsk		54·6	320	9 22	+ 1	i 16 56	+ 5	—	—	—
Sitka		55·2	42	—	—	e 16 31	−28	—	—	—
Samarkand		56·7	298	e 9 33	− 3	—	—	—	—	—
Moscow		66·6	324	10 42	0	e 19 30	+ 6	—	—	—
Baku		67·9	306	e 10 51	+ 1	—	—	—	—	—
Grand Coulee		68·1	46	i 10 49	− 2	—	—	i 11 7	pP	—
Shasta Dam		70·0	54	e 11 6	+ 3	—	—	—	—	—
Berkeley		71·7	57	e 11 16	+ 3	e 20 36	+12	i 11 31	pP	e 34·7
Upsala	N.	72·1	336	e 15 25?	PPP	—	—	—	—	e 42·4
Sotchi		72·5	313	e 11 17	− 1	—	—	—	—	—
Bozeman		73·9	45	—	—	e 20 57	+ 8	—	—	—
Tinemaha		74·7	56	i 11 35	+ 4	—	—	i 11 48	pP	—
Santa Barbara		75·3	56	i 11 52	pP	—	—	—	—	—
Haiwee		75·5	56	e 11 41	+ 6	—	—	i 11 54	pP	—
Warsaw	N.	76·3	328	—	—	e 21 22	+ 7	—	—	e 41·4
Pasadena		76·5	58	e 11 44	+ 3	—	—	i 11 58	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mount Wilson		76·6	58	e 11 44	+ 2	—	—	i 11 58	pP	—
Copenhagen		77·2	335	11 46	+ 1	e 21 31	+ 6	—	—	—
Riverside	Z.	77·2	58	i 11 48	+ 3	—	—	i 12 2	pP	—
Overton		77·5	54	i 11 56	+ 9	—	—	e 12 3	pP	—
Boulder City		77·6	55	i 11 51	+ 4	—	—	i 12 5	pP	—
La Jolla	Z.	77·9	59	e 12 8	PcP	—	—	—	—	—
Palomar		77·9	58	e 11 53	+ 4	—	—	i 12 9	pP	—
Collmberg		80·3	332	i 12 3	+ 1	—	—	e 15 12	PP	e 44·4
Ksara		80·8	306	e 12 7	+ 3	23 0	PS	i 12 26	pP	—
De Bilt		82·5	336	e 12 15	+ 2	—	—	—	—	e 43·4
Tucson		82·5	56	e 12 18	+ 5	e 23 13	PS	i 12 31	pP	e 38·5
Zagreb		83·3	327	e 11 57?	−20	—	—	—	—	—
Triest	E.	84·4	328	—	—	e 22 51	+12	—	—	—
Paris		86·2	336	e 12 32	0	i 24 14	PS	—	—	e 43·4
Rome		88·0	326	e 12 41	+ 1	e 23 5	[+ 7]	e 16 3	PP	—
Florissant	E.	89·5	39	—	—	e 23 35	+ 7	e 24 0	sS	—
St. Louis		89·7	39	i 12 53	+ 5	i 23 38	+ 8	i 13 6	pP	—
La Paz	Z.	145·8	58	19 35	[+ 7]	—	—	—	—	—

Additional readings :
Grand Coulee ePPP =14m.50s.
Berkeley eE =32m.55s.
Collmberg eZ =12m.12s., 12m.18s., and 12m.49s.
Ksara PP =15m.32s.
Rome eSSS =30m.25s.?
St. Louis iZ =13m.24s., isSE =24m.4s.
Long waves were also recorded at Suva, Prague, Granada, Alicante, and Cheb.

Aug. 14d. 14h. Undetermined shock.

Copenhagen iP =59m.6s. and 59m.12s., eS =59m.35s.
Potsdam eEN =59m.11s.
Collmberg iPZ =59m.22s., iP_g? =59m.30s., eEN =59m.38s., iZ =59m.47s., iEZ = 59m.55s., eS_g?E =60m.30s., iZ =60m.38s. and 60m.42s., eN =60m.48s., eZ = 61m.3s. and 61m.13s., eLEN =61m.18s.
Jena i =59m.24s., iN =59m.33s., iE =60m.20s.
Zürich eP =60m.15s., eS? =61m.26s.
Neuchatel eP =60m.24s.
Strasbourg eP =60m.34s., e =61m.18s. and 62m.34s.
Upsala eS? =62m.0s., iS*E =62m.23s., i =62m.34s., iS_gE =62m.43s.
Zagreb e =62m.0s? and 63m.32s.
Warsaw eN =62m.24s., 63m.1s., 63m.49s., 64m.57s., and 66m.4s.
Triest eS? =63m.44s.
Rome e =67m.0s.

Aug. 14d. 17h. 17m. 21s. Epicentre 35°·3N. 70°·2E. Depth of focus 0·030.

Epicentre 35°20′N. 70°10′E., focal depth 180km. (U.S.S.R.).

A = +·2771, B = +·7696, C = +·5752 ; δ = −8 ; h = 0 ;
D = +·941, E = −·339 ; G = +·195, H = +·541, K = −·818.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Samarkand	5·1	330	e 1 22	+ 5	2 20	+ 3
Andijan	5·8	18	e 1 23	− 3	2 27	− 5
Tashkent	6·1	353	e 1 30	0	—	—
Tchimkent	7·0	357	i 1 46	+ 5	3 4	+ 4
Frunse	8·4	24	1 56	− 3	—	—
Almata	9·6	32	2 13	− 2	—	—
Baku	16·8	293	e 4 15	PP	e 7 21	SS

Aug. 14d. Readings also at 3h. (Misusawa), 4h. (near Granada, Tinemaha, Tucson, and near Tchimkent), 9h. (Uccle, near Istanbul, and near Fort de France), 10h. (Tucson, Mount Wilson, Riverside, and Tinemaha), 11h. (Suva), 13h. (near Samarkand, near Andijan, Tashkent, Tchimkent, and Huancayo), 16h. (Tucson (2) and near Tacubaya), 17h. (Ksara, Collmberg, and near Almata), 18h. (near Leninakan), 19h. (Auckland, Wellington, Arapuni, Christchurch, Fort de France, Weston, St. Louis, Palomar, Riverside, Tucson, Tinemaha, and Harvard (2)), 20h. (Santa Lucia), 21h. (near Samarkand, Andijan, and Tchimkent, near Triest, near San Francisco, Branner, Lick, Berkeley, and Santa Clara).

Aug. 15d. 0h. 57m. 58s. Epicentre 27°·0S. 70°·6W. Pasadena suggests Deep. (as on 1939, April 18d.).

A = +·2964, B = −·8415, C = −·4516; δ = −8; h = +3;
D = −·943, E = −·332; G = −·150, H = +·426, K = −·892.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Paz		10·7	13	3 8	+30	4 3	−36	—	—	5·1
La Plata	N.	13·4	129	i 3 20	+ 6	6 2	+17	—	—	6·9
Huancayo		15·5	341	e 3 45	+ 3	6 9	−26	—	—	e 7·8
St. Louis		67·8	343	i 10 59	− 3	e 20 20	+20	e 11 20	pP	—
Harvard		69·2	0	i 11 9	− 1	—	—	—	—	—
Tucson		70·3	326	i 11 16k	− 1	—	—	i 11 31	pP	—
Palomar		74·4	321	i 11 39	− 3	—	—	e 11 54	pP	—
Riverside	Z.	75·1	321	i 11 45k	− 1	—	—	i 12 0	pP	—
Overton		75·5	325	e 11 35	−13	—	—	e 11 47	pP	—
Mount Wilson		75·7	321	i 11 48k	− 1	—	—	i 12 3	pP	—
Pasadena	Z.	75·7	321	i 11 48	− 1	—	—	e 12 3	pP	—
Tinemaha		77·9	323	i 12 1	0	—	—	i 12 16	pP	—
Shasta Dam		82·8	323	i 12 24	− 3	—	—	—	—	—

Additional readings:
La Plata E = 3m.56s., S?E = 6m.38s,
Huancayo iP = 3m.48s., e = 4m.35s.
Riverside iZ = 12m.8s.

Aug. 15d. 15h. 23m. 56s. Epicentre 22°·0S. 171°·7E. (as on 1946, July 26d.).

A = −·9184, B = +·1340, C = −·3724; δ = +10; h = +4;
D = +·144, E = +·990; G = +·368, H = −·054, K = −·928.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		7·4	60	i 2 4	+12	i 3 44	+26	—	—	—
Auckland		15·1	170	3 34	− 2	6 30	+ 5	4 9	pP	—
Arapuni		16·4	169	2 22	?	5 28	?	—	—	—
Tuai		17·4	166	4 8	+ 2	7 29	+10	—	—	—
Brisbane		17·8	248	i 4 6	− 5	i 7 16	−12	i 7 45	SS	i 8·6
Wellington		19·4	174	4 29	− 1	8 0	− 4	4 57	pP	—
Kaimata		20·5	181	5 27	PPP	8 34	+ 7	—	—	—
Christchurch.		21·5	179	4 53	+ 1	8 58	+11	5 17	PP	—
Riverview		21·6	232	i 4 53k	− 1	i 8 47	− 2	i 5 16	pP	e 10·3
Perth		50·3	246	10 7	PP	16 6	− 7	18 36	SS	—
Honolulu		52·3	37	e 9 19	+ 4	e 17 11	+31	—	—	e 22·4
Vladivostok		74·4	331	i 11 43	+ 1	e 21 0	−16	e 14 38	PP	—
Berkeley		86·0	47	e 12 52	+ 9	i 23 47	+30	i 23 0	SKS	e 39·8
Santa Barbara	Z.	86·0	50	e 12 48	+ 5	—	—	—	—	—
Ukiah		86·0	45	e 12 57	+14	e 23 26	+ 9	e 15 39	PP	e 36·6
Pasadena		86·9	51	i 13 0	+12	e 23 28	+ 2	—	—	e 37·0
Mount Wilson	Z.	87·1	51	e 13 0	+11	—	—	—	—	—
Riverside	Z.	87·4	51	e 13 2	+12	—	—	—	—	—
Shasta Dam		87·4	44	e 13 2	+12	—	—	—	—	—
Palomar		87·5	53	i 13 4	+13	—	—	—	—	—
Haiwee	Z.	88·0	50	e 13 6	+13	—	—	—	—	—
Tinemaha		88·3	49	e 13 7	+12	—	—	—	—	—
Boulder City		90·2	51	e 13 14	+10	—	—	—	—	—
Overton		90·7	51	e 13 22	+16	—	—	—	—	—
Sitka		90·7	26	e 18 55	PPP	e 23 46	[+ 9]	e 25 35	PS	e 42·0
Tucson		91·6	56	e 13 23	+13	e 24 34	+25	e 25 29	PS	e 38·4
College		92·0	15	e 17 5	PP	e 25 43	PS	e 30 44	SS	e 37·8
Calcutta	N.	92·5	293	—	—	i 24 33	+16	—	—	—
Irkutsk		94·3	325	13 29	+ 6	24 5	[+ 8]	17 8	PP	—
Logan		94·9	47	e 13 36	+11	e 25 2	+25	e 24 14	SKS	e 43·7
Butte		96·2	42	e 18 14	PP	e 26 34	PS	—	—	e 45·4
Bozeman		97·0	43	e 13 46	+11	e 25 12	+17	e 17 45	PP	e 39·2
Kodaikanal	E.	97·6	278	e 20 47	?	—	—	—	—	—
Saskatoon		102·1	38	—	—	e 27 35	PS	—	—	48·1
New Delhi	N.	104·0	294	—	—	i 24 54	[+ 8]	i 26 8	S	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bombay	E.	104·8	284	i 18 35	PP	—	—	—	—	—
Huancayo		106·1	110	—	—	e 26 39	+28	e 29 58?	PPS	e 45·0
Florissant		109·4	55	e 14 42	P	e 27 8	S	e 19 17	PP	—
St. Louis		109·5	55	e 14 46	P	e 27 6	S	e 19 17	PP	—
La Paz	Z.	110·0	118	e 14 44	P	28 51	PS	19 20	PP	57·1
Tananarive		111·9	237	—	—	—	—	e 47 50	Q	e 55·4
Chicago		112·1	52	e 19 36	PP	e 26 52	{+32}	e 29 12	PS	—
Tashkent		113·3	306	e 21 25	PPP	25 16	[− 9]	39 14	SSS	—
Sverdlovsk		119·6	323	19 1	[+ 9]	25 55	[+ 6]	e 20 19	PP	—
Ottawa		121·0	49	e 20 31	PP	e 26 7	[+14]	e 30 34	PS	58·1
Philadelphia		121·2	55	e 19 44	[+49]	e 26 5	[+11]	e 22 50	PPP	e 50·4
Fordham		122·3	54	e 19 9	[+12]	e 32 19	PPS	e 20 52	PP	—
Harvard		124·0	52	e 20 58	PP	—	—	—	—	e 60·1
Weston		124·2	52	e 19 13	[+12]	e 31 22	PS	e 21 0	PP	—
Seven Falls		124·4	46	e 21 4	PP	—	—	e 38 34	SSP	46·1
San Juan		125·9	82	e 21 4	PP	e 30 44	PS	e 22 9	PKS	e 49·4
Baku		127·9	305	19 12	[+ 4]	—	—	—	—	—
Bermuda		129·3	65	e 19 26	[+15]	e 32 7	PS	e 21 41	PP	e 65·6
Ivigtut		132·1	25	22 55	PKS	—	—	—	—	63·1
Moscow		132·2	326	e 19 24	[+ 8]	22 52	PKS	e 21 42	PP	—
Upsala		138·0	341	23 9?	PKS	26 42	[+ 6]	e 44 26	SSS	e 62·1
Ksara		139·5	296	e 19 36	[+ 6]	35 22	PPS	22 38	PP	—
Bergen		140·5	348	e 21 46	?	e 24 43	PPP	e 23 19	PKS	—
Warsaw	N.	142·3	329	e 20 1	[+26]	e 27 36	[+53]	e 23 35	PKS	e 77·1
Copenhagen		143·0	340	e 19 40	[+ 4]	26 51	[+ 7]	23 27	PKS	—
Istanbul		143·3	310	e 19 33	[− 3]	e 33 35	PS	—	—	—
Helwan		143·7	291	19 40	[+ 3]	23 14	PKS	22 57	PP	—
Bucharest		144·0	316	19 4?	[−33]	—	—	34 4?	PS	—
Aberdeen		144·6	353	i 19 47	[+ 9]	—	—	—	—	—
Budapest	E.	146·4	326	19 54	[+12]	—	—	—	—	e 84·1
Collmberg		146·4	336	e 19 51	[+ 9]	e 29 37	{−21}	e 23 31	PP	e 61·1
Prague		146·8	333	e 19 34	[− 8]	e 25 4?	?	e 37 4?	PPS	e 72·1
Durham	N.	146·9	353	i 19 57	[+15]	—	—	—	—	—
Belgrade		147·2	320	e 19 31	[−12]	—	—	—	—	e 68·1
Cheb		147·6	335	e 19 54	[+10]	—	—	—	—	e 74·1
De Bilt		148·2	344	i 19 54	[+ 9]	—	—	i 23 34	PP	e 71·1
Zagreb		149·1	326	e 19 55	[+ 9]	—	—	—	—	e 86·1
Uccle		149·6	345	e 19 56a	[+ 9]	e 42 58	SS	e 23 28	PKS	e 71·1
Triest		150·3	328	e 20 3	[+15]	e 33 26	PSKS	e 43 42	SS	—
Strasbourg		150·5	337	i 19 58	[+10]	e 27 43	[+49]	e 23 6	PP	e 67·0
Zürich		151·3	336	e 19 14	[−35]	—	—	—	—	—
Basle		151·5	337	e 19 59	[+ 9]	—	—	—	—	—
Paris		151·9	344	e 19 59a	[+ 9]	i 26 43	[−13]	i 23 46	PP	e 73·1
Florence	E.	152·9	328	i 20 3	[+11]	—	—	—	—	—
Rome		153·4	323	i 19 2	[−50]	e 49 33	SSS	i 22 27	?	—
Clermont-Ferrand		154·6	342	i 20 3	[+ 9]	e 49 25	SSS	i 24 3	PP	e 80·1
Tortosa	N.	159·8	339	e 24 25	PP	—	—	—	—	e 102·1
Toledo		161·8	350	e 20 4	[+ 1]	—	—	—	—	86·1
Alicante		162·4	340	e 20 12	[+ 9]	—	—	24 47	PP	e 75·0
Lisbon		163·3	3	20 14	[+10]	—	—	24 56	PP	77·6
Granada		164·3	346	i 20 13a	[+ 8]	31 53	{+18}	i 24 57	PP	80·3
Malaga		164·9	347	i 20 47a	[+41]	i 29 20	PPP	i 25 24	PP	69·1

Additional readings :—
Suva i = 2m.24s. and 6m.44s.?, P_cP = 8m.4s.?, P_cS = 12m.14s.?
Auckland PP = 4m.24s., i = 5m.20s., P_cP = 8m.21s., S_cP? = 10m.50s., P_cS = 11m.20s., S_cS? = 15m.19s.
Wellington iZ = 5m.15s., i = 5m.24s., iZ = 5m.28s., sS = 8m.34s., SS = 9m.29s., SSS = 9m.51s.
Christchurch sP = 5m.39s., P_cP = 8m.48s., sS = 9m.44s., S_cS = 15m.40s.
Riverview iZ = 5m.20s., isPN = 5m.29s., iPPE = 5m.34s., iP_cPZ = 8m.52s., iE = 9m.10s., isS?E = 9m.33s., iSSN = 9m.43s., eQE = 9m.48s.
Perth i = 13m.4s. and 22m.59s.
Honolulu e = 13m.10s.
Vladivostok PS = 21m.37s.
Berkeley iZ = 12m.59s., iPSZ = 24m.37s., iE = 24m.45s., eQE = 37m.40s.
Overton iP = 13m.26s.
Sitka e = 24m.20s., eSS = 31m.6s.

Continued on next page.

Tucson e =15m.42s., ePPS =26m.24s., eSS =30m.58s., eSSS =34m.20s.
Irkutsk PPS =26m.5s., SS =30m.10s.
Bozeman ePPP =19m.46s., eSKS =24m.26s., ePS =26m.40s., eSS =32m.21s.
New Delhi eN =30m.44s.
Florissant ePSE =28m.44s.
St. Louis eE =20m.38s., ePS?E =28m.52s., eE =31m.43s.
La Paz PPP =22m.47s., PPSZ =30m.32s., SSZ =35m.54s.
Chicago eSSS =39m.10s., e =42m.15s.
Sverdlovsk PS =30m.11s., SS =36m.46s.
Ottawa eE =38m.4s.?, and 42m. 4s.?
Philadelphia e =28m.47s., ePPS =31m.30s., eSS =37m.31s., e =44m.15s.
Weston ePPS =32m.33s., eSS =38m.6s.
San Juan e =38m.9s., 40m.4s., and 41m.4s.
Bermuda ePKS =22m.44s., e =34m.44s. and 41m.33s.
Warsaw ePKP?N =20m.14s., eN =21m.31s. and 23m.19s., ePPP?N =25m.36s., ePS?N =32m.16s., eSKKS?N =36m.48s., eN =38m.25s., and 42m.49s.
Copenhagen 25m.46s., SS =41m.34s., SSS =47m.16s.
Helwan SS =41m.40s.
Budapest ePN =20m.4s.
Collmberg eN =19m.54s., eZ =20m.31s., eN =21m.46s.
Belgrade e =22m.15s. and 24m.26s.
Cheb e =50m.4s.?
De Bilt iPKP =20m.0s.
Zagreb eZ =20m.11s.
Uccle eN =20m.2s., ePPE =23m.36s., ePPPN =26m.45s., e =31m.11s., ePSKSEN =33m.46s., ePPSN =36m.33s., eSSSN =48m.56s., eN =53m.59s.
Strasbourg e =20m.20s., eSKP =24m.7s., e =31m.30s., 34m.4s., 36m.38s., and 40m.24s., eSS =43m.28s., eSSS =49m.34s.
Paris e =24m.13s., i =25m.11s., eSS =42m.56s.
Granada PKP_2 =21m.12s., SKP =24m.5s., PPP =29m.17s., SKSP =35m.43s., PPS =40m.11s., SS =45m.44s., SSP =46m.59s., SSS =51m.56s.
Malaga $iPKP_2$ =21m.36s.
Long waves were also recorded at Santa Clara and Columbia.

Aug. 15d. 19h. 25m. 21s. Epicentre 27°·5N. 65°·3E.

A = +·3712, B = +·8070, C = +·4593; δ = −1; h = +3;
D = +·909, E = −·418; G = +·192, H = +·417, K = −·888.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Delhi		10·6	81	e 2 35	− 1	i 4 30	− 7	—	—	—
Bombay		11·0	140	—	—	i 4 51	+ 4	—	—	i 5·6
Samarkand		12·2	6	2 56	− 2	—	—	—	—	—
Tashkent		14·2	13	e 3 23	− 1	e 6 3	− 1	—	—	—
Andijan		14·4	22	e 3 28	+ 1	—	—	—	—	—
Tchimkent	*	15·2	12	i 3 37	− 1	—	—	—	—	—
Hyderabad	N.	15·7	127	5 1	+77	7 35	+56	—	—	—
Frunse		17·1	24	e 4 23?	+21	e 7 33?	+21	—	—	—
Baku		18·1	320	4 19	+ 5	e 7 39	+ 4	—	—	—
Almata		18·4	28	4 18	0	—	—	—	—	—
Kodaikanal	E.	20·6	145	4 27	−16	8 17	−12	—	—	10·5
Calcutta	N.	21·4	98	e 4 50	− 1	i 8 50	+ 5	—	—	i 11·2
Leninkan		22·0	313	e 4 43	−15	—	—	—	—	—
Colombo	E.	24·7	145	5 3	−21	—	—	—	—	—
Ksara		26·0	291	e 5 33?	− 3	i 10 29	+23	12 1	SSS	—
Sotchi		26·1	316	e 5 37	0	—	—	—	—	—
Sverdlovsk		29·5	355	6 10	+ 2	e 11 4	+ 2	—	—	—
Helwan		29·8	283	e 6 24	+13	i 11 33	+26	7 42	PPP	—
Istanbul		32·6	305	e 6 29	− 6	e 11 47	− 4	—	—	—
Moscow		34·5	333	i 6 53	+ 1	i 12 25	+ 5	—	—	—
Bucharest		35·5	310	6 39?	−21	—	—	—	—	—
Irkutsk		38·1	38	e 7 40?	+18	—	—	—	—	—
Budapest		41·0	313	—	—	e 14 54	+55	e 18 54	Q	e 24·6
Warsaw	N.	41·1	319	—	—	e 14 6	+ 5	e 17 9	SS	e 22·6
Zagreb		42·8	309	e 8 6	+ 5	—	—	—	—	e 28·6
Triest		44·4	309	e 8 13	− 1	e 14 49	0	e 10 27	PPP	—
Prague		44·6	315	—	—	e 18 3	SS	—	—	e 24·8
Rome		45·1	304	e 8 16	− 4	e 14 57	− 2	—	—	e 22·1
Collmberg		45·7	316	e 8 23	− 1	e 15 10	+ 2	e 10 14	PP	e 24·6
Upsala		45·7	329	—	—	e 15 3	− 5	e 19 14	SSS	e 21·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Cheb		45·9	315	—	—	e 15 10	− 1	—	—	i 29·9
Florence		46·0	306	i 9 3	+36	e 16 4	+52	—	—	—
Copenhagen		47·0	323	e 8 37	+ 2	i 15 28	+ 2	i 10 35	PP	26·6
Zürich		48·1	311	e 8 45	+ 2	—	—	—	—	—
Strasbourg		48·7	313	i 8 48	0	e 15 53	+ 3	i 11 44	PPP	e 28·2
Basle		48·8	311	e 8 48	− 1	—	—	—	—	—
De Bilt		50·6	317	i 9 7	+ 5	i 16 23	+ 6	e 20 9	SS	e 29·6
Uccle		51·0	315	e 9 6	0	e 16 25	+ 3	e 20 22	SS	e 25·6
Bergen		51·7	328	—	—	e 23 3	Q	—	—	e 31·7
Clermont-Ferrand		51·8	308	—	—	e 16 37	+ 4	—	—	e 34·6
Paris		52·2	312	e 8 39?	−36	—	—	—	—	e 29·6
Aberdeen		55·2	323	—	—	i 17 12	− 8	—	—	—
Alicante		55·2	300	—	—	17 17	− 3	24 59	SSS	e 36·9
Vladivostok		55·2	55	—	—	17 31	+11	—	—	—
Toledo	z.	57·7	302	e 8 39	−76	—	—	—	—	—
Granada		57·9	299	i 10 14k	+18	e 18 16	+21	24 45	SSS	36·0
Palomar	z.	119·5	2	e 19 59	PP	—	—	—	—	—
Tucson		120·5	355	e 19 56	PP	—	—	—	—	e 65·5

Additional readings :—
New Delhi eE = 2m.39s.
Helwan SS = 13m.27s.
Bucharest eE = 18m.54s.
Warsaw eN = 14m.53s., 18m.24s., 20m.8s., and 21m.13s.
Triest eSSS = 18m.42s.
Collmberg eZ = 8m.28s., 8m.42s., 9m.22s., 9m.28s., and 10m.43s.
Upsala eN = 16m.57s., eSSSN = 19m.20s.
Strasbourg eSS = 19m.26s.
De Bilt iP = 9m.28s.
Uccle eSSSE = 21m.48s.
Tucson ePP = 20m.25s., e = 22m.1s.
Long waves were also recorded at Riverview, Pasadena, Philadelphia, and La Paz.

Aug. 15d. Readings also at 0h. (Tucson), 1h. (Tchimkent and near Andijan), 3h. (Leninakan and near Sotchi), 4h. (Suva), 8h. (near Leninakan), 13h. and 16h. (near Mizusawa), 17h. (Collmberg and Toledo), 18h. (St. Louis, Tucson, and near Fresno), 19h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, and near Tucson), 20h. (Branner, Mount Wilson, Pasadena, Riverside, Palomar, and Tucson), 22h. (Sverdlovsk), 23h. (Rome).

Aug. 16d. 17h. 15m. 20s. Epicentre 12°·5N. 86°·8W. (as on 1939, December 19d.).

$A = +\cdot0545$, $B = -\cdot9751$, $C = +\cdot2151$; $\delta = +6$; $h = +6$;
$D = -\cdot998$, $E = -\cdot056$; $G = +\cdot011$, $H = -\cdot215$, $K = -\cdot977$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya	E.	13·7	301	e 3 19	+ 1	e 6 9	SS	—	—	e 7·7
Fort de France		25·0	82	e 5 29	+ 2	—	—	—	—	—
Huancayo		26·9	154	e 5 39	− 6	e 10 13	− 7	e 6 20	PP	e 12·2
Philadelphia		29·2	19	e 6 9	+ 4	(e 10 58)	0	e 7 10	PPP	e 11·0
Chicago		29·3	357	e 7 4	PP	e 9 16	P_cP	—	—	e 11·1
Tucson		29·5	314	e 6 7	− 1	e 12 8	+66	e 8 58	P_cP	e 15·0
Harvard		32·7	21	e 6 38	+ 2	e 11 6	−46	e 7 52	PPP	e 16·7
Weston		32·7	21	e 6 39	+ 3	e 12 7	+15	e 7 54	PPP	—
Ottawa		34·1	13	6 51	+ 3	12 26	+12	8 0	PP	17·1
La Paz	z.	34·2	145	6 51	+ 2	13 31	+75	—	—	18·7
Palomar		34·4	312	i 6 47	− 4	—	—	—	—	—
Riverside	z.	35·1	313	i 6 55	− 2	—	—	—	—	—
Mount Wilson	z.	35·7	313	i 7 0	− 2	—	—	—	—	—
Pasadena		35·7	313	i 7 0	− 2	—	—	e 7 7	?	e 20·4
Uccle		81·2	39	e 7 4	?	e 22 37	+ 8	(e 28 40?)	SS	e 28·7
Rome		88·5	48	—	—	e 23 58	+17	—	—	—

Readings of the Philadelphia and Chicago were wrongly identified.
Tucson gives also e = 6m.22s.
Long waves were also recorded at Sitka, and at other European stations.

Aug. 16d. Readings also at 2h. (Arapuni, Wellington, Christchurch, Collmberg, Uccle, Strasbourg, Tucson, St. Louis, Harvard, Weston, Bogota, and Fort de France), 3h. (Tucson), 4h. (Ksara, New Delhi, and Tucson), 11h. (near Fort de France), 15h. (Tucson and near Tchimkent (2)), 17h. (Uccle, San Juan and near Tacubaya), 18h. (Tucson (2)), 19h. (Tucson and Tacubaya), 21h. (near Berkeley), 23h. (Tucson, St. Louis, Riverside, Mount Wilson, Collmberg, Sverdlovsk, and New Delhi).

Aug. 17d. 4h. 44m. 41s. Epicentre 19°·6N. 69°·4W. (as on 11d.).

$A = +\cdot3317$, $B = -\cdot8825$, $B = +\cdot3334$; $\delta = -1$; $h = +5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	e 0 47	− 6	i 1 16	−19	—	—	i 1·6
Fort de France		9·2	120	e 2 8	− 8	—	—	—	—	—
Bogota		15·6	198	e 3 40	− 3	e 6 27	−10	i 3 47	PP	—
Philadelphia		20·9	348	e 4 46	0	e 8 42	+ 7	—	—	e 10·6
Weston		22·8	357	e 5 5	0	—	—	—	—	—
Harvard		22·9	357	—	—	e 8 19?	−54	—	—	—
St. Louis		26·2	321	e 5 39	+ 1	e 10 25	+16	e 6 7	PP	—
Tucson		39·1	298	e 7 31	0	—	—	e 9 2	PP	—
Overton		42·8	304	i 8 2	+ 1	—	—	—	—	—
Boulder City		43·0	303	i 8 2	− 1	—	—	—	—	—
Palomar	z.	44·3	299	e 8 13	0	—	—	—	—	—
Riverside	z.	44·8	300	e 8 17	0	—	—	—	—	—
Mount Wilson	z.	45·4	300	e 8 21	− 1	—	—	—	—	—
Pasadena	z.	45·4	300	i 8 22	0	—	—	—	—	—
Tinemaha		45·9	304	e 8 26	0	—	—	—	—	—

Additional readings :—
Bogota eSS = 6m.43s.
Tucson e = 7m.58s. and 10m.3s.
Long waves were also recorded at Columbia and Chicago.

Aug. 17d. 9h. 48m. 3s. Epicentre 35°·6N. 45°·8E. (as on July 27d.).

Destructive in the regions of Penjuin and Sulaimanyiah.

Epicentre 35°·8N. 45°·7E. (Strasbourg).
35°·8N. 45°·0E. (U.S.S.R.).

Annales de l'Institut de Physique du Globe de Strasbourg, année, 1946, 2ème partie, Séismologie, Nouvelle Série, Tome XI, p. 64.

$A = +\cdot5682$, $B = +\cdot5843$, $C = +\cdot5795$; $\delta = +8$; $h = 0$;
$D = +\cdot717$, $E = -\cdot697$; $G = +\cdot404$, $H = +\cdot415$, $K = -\cdot815$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Leninakan		5·4	345	e 1 28	+ 4	i 2 36	+ 8	i 1 48	P_g	—
Ksara		8·3	261	i 2 6	+ 2	3 50	+10	—	—	—
Piatigorsk		8·7	347	2 11	+ 1	3 59	+ 9	—	—	—
Sotchi		9·2	331	e 2 25	+ 9	—	—	—	—	—
Helwan		13·4	249	i 3 15k	+ 1	5 53	+ 8	3 33	PPP	—
Istanbul	N.	14·2	297	e 3 35	+11	e 6 19	+15	—	—	—
Bucharest		17·4	306	e 4 10	+ 4	e 7 27	+ 8	e 7 33	SS	10·3
Sofia		18·8	299	e 4 27	+ 4	e 8 11	SS	e 7 55	PPP	10·5
Tashkent		19·2	65	e 4 24	− 4	e 8 4	+ 5	—	—	—
Tchimkent		19·6	62	e 4 10	−22	—	—	—	—	—
Moscow		20·9	347	i 4 44	− 2	i 8 32	− 3	—	—	—
Belgrade		21·4	303	e 4 5	−46	e 9 15	SS	e 5 21	PPP	e 14·0
Andijan		21·5	68	e 4 51	− 1	e 8 51	+ 4	—	—	—
Kalossa		22·9	309	e 5 12	+ 6	—	—	e 5 15	?	—
Budapest	E.	23·1	310	5 12	+ 4	9 28	+12	—	—	14·5
	N.	23·1	310	5 12	+ 4	9 22	+ 6	—	—	—

Continued on next page.

		△	Az.	P.	O – C.	S.	O – C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Frunse		23·4	63	e 5 9	– 2	—	—	—	—	—
Sverdlovsk		23·5	21	e 5 10	– 2	e 9 22	– 1	—	—	—
Warsaw	N.	24·2	322	e 5 21	+ 2	9 39	+ 4	5 48	PP	e 12·5
Zagreb		24·7	304	e 5 27	+ 3	e 9 49	+ 5	—	—	—
Almata		25·1	62	5 39	+11	—	—	—	—	—
Triest		26·2	303	e 5 36	– 2	i 10 17	+ 8	e 6 5	pP	—
Rome		26·6	295	e 5 39	– 3	e 10 26	+10	e 6 17	PP	—
Prague		26·9	313	e 5 43	– 2	e 10 13	– 7	e 6 17	pP	e 15·5
New Delhi	N.	27·4	95	—	—	i 10 27	– 1	10 48	sS	17·2
Florence	E.	27·7	298	e 5 59	+ 7	i 10 34	+ 1	—	—	—
Cheb		28·2	312	e 7 7	PPP	e 10 47	+ 6	e 8 54	PcP	e 18·0
Collmberg		28·2	314	e 5 55	– 1	e 10 40	– 1	e 6 39	PP	e 17·0
Bombay	E.	29·1	117	—	—	e 10 57	+ 1	—	—	—
Zürich		30·0	305	i 6 9k	– 3	e 11 1	– 9	—	—	—
Copenhagen		30·3	323	i 6 14	– 1	i 11 13	– 2	—	—	17·0
Upsala		30·4	332	e 8 35	?	e 11 9	– 7	12 44	SS	e 15·0
Basle		30·7	305	e 6 16	– 3	—	—	—	—	—
Strasbourg		30·7	308	e 6 25	+ 6	e 11 23	+ 2	e 13 23	SSS	—
De Bilt		33·1	314	e 6 40	0	e 11 57?	– 2	—	—	e 15·0
Uccle		33·3	311	e 6 43	+ 2	e 12 1	– 1	e 7 49	PP	e 14·2
Clermont-Ferrand		33·6	301	e 2 3	?	e 5 57	?	—	—	e 9·3
Paris		34·2	307	e 6 46	– 3	14 54	SSS	e 8 24	PPP	e 22·0
Bergen	N.	35·8	327	—	—	e 14 36	SS	e 17 26	ScS	19·5
Alicante		36·8	289	7 21	+10	13 14	+18	—	—	—
Granada		39·4	287	i 7 34a	+ 1	i 13 44	+ 9	9 43	PPP	—
Malaga	Z.	40·2	289	i 7 38a	– 2	i 13 42	– 6	i 7 42	pP	19·8
Irkutsk		44·0	48	8 8	– 3	e 14 39	– 4	—	—	—
St. Louis	E.	95·7	327	—	—	e 24 54	+10	e 26 7	PS	—
Mount Wilson	Z.	108·9	346	e 18 58	PP	—	—	—	—	—

Additional readings :—
Helwan SS =7m.7s.
Bucharest eE =6m.34s.
Belgrade e =6m.13s.
Warsaw eN =7m.18s., iN =9m.58s., SSN =10m.26s., iN =11m.17s. and 11m.54s.
Triest esPE =6m.32s., iPcP =10m.7s., isS =11m.5s., eScS =16m.33s.
Cheb e =8m.13s., 11m.7s., and 13m.27s.
Collmberg eZ =6m.0s., and 7m.38s., eN =11m.45s.
Upsala eSS?E =12m.28s.
Strasbourg eS =11m.57s.
Paris e =7m.12s. and 15m.27s.
Bergen eN =14m.39s.
Long waves were also recorded at La Paz.

Aug. 17d. 11h. 19m. 52s. Epicentre 19°·6N. 69°·4W. (as at 4h.).

		△	Az.	P.	O – C.	S.	O – C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	e 0 40	–13	i 1 9	–26	—	—	i 1·4
Balboa Heights		14·4	224	e 3 19	– 8	e 5 59	–10	—	—	—
Bogota		15·6	198	e 3 38	– 5	i 6 27	–10	i 3 49	PP	—
Philadelphia		20·9	348	e 4 57	+11	e 8 41	+ 6	e 5 43	PPP	e 9·8
Weston		22·8	357	e 5 16	+11	—	—	—	—	—
Harvard		22·9	357	e 4 56	–10	e 9 16	+ 3	—	—	—
St. Louis		26·2	321	e 5 39	+ 1	e 10 29	+20	e 9 49	?	—
Chicago		27·0	329	—	—	e 10 15	– 7	—	—	—
Tucson		39·1	298	e 7 32	+ 1	—	—	e 7 47	?	e 29·8
Overton		42·8	304	i 8 3	+ 2	—	—	—	—	—
Boulder City		43·0	303	i 8 4	+ 1	—	—	—	—	—
Riverside	Z.	44·8	300	i 8 17a	0	—	—	—	—	—
Pasadena		45·4	300	i 8 23	+ 1	—	—	—	—	—
Tinemaha		45·9	304	e 8 27	+ 1	—	—	—	—	—
Shasta Dam		49·6	308	e 8 52	– 3	—	—	—	—	—

Bogota gives also i =3m.44s., e =6m.10s.

Aug. 17d. 23h. 37m. 37s. Epicentre 35°·6N. 45°·8E. (as at 9h.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Leninakan		5·4	345	1 26	+ 2	—	—	i 1 48	P_g	—
Baku		5·8	33	1 34	+ 5	—	—	—	—	—
Ksara		8·3	261	i 2 6	+ 2	3 52?	+12	—	—	—
Sotchi		9·2	331	e 2 7	− 9	—	—	—	—	—
Yalta		12·6	319	3 4	+ 1	5 27	+ 1	—	—	—
Helwan		13·4	249	i 3 16k	+ 2	5 56	+11	3 36	PPP	—
Istanbul		14·2	297	e 2 35	−49	e 5 22	−42	—	—	—
Samarkand		17·3	70	e 3 58	− 6	—	—	—	—	—
Bucharest		17·4	306	e 4 10	+ 4	e 7 27	+ 8	i 7 34	SS	10·4
Sofia		18·8	299	i 4 27	+ 4	e 7 59	+ 9	—	—	e 11·0
Tashkent		19·2	65	e 4 23	− 5	e 7 56	− 3	—	—	—
Tchimkent		19·6	62	e 4 37	+ 5	—	—	—	—	—
Moscow		20·9	347	4 43	− 3	8 33	− 2	—	—	—
Belgrade		21·4	303	e 5 25	PPP	e 8 35	−10	e 9 21	SS	—
Andijan		21·5	68	e 4 53	+ 1	—	—	—	—	—
Kalossa		22·9	309	e 5 10	+ 4	—	—	—	—	—
Budapest	E.	23·1	310	5 10	+ 2	e 9 28	+12	i 5 43	PP	14·4
	N.	23·1	310	5 11	+ 3	9 22	+ 6	—	—	e 13·9
Frunse		23·4	63	e 5 12	+ 1	—	—	—	—	—
Sverdlovsk		23·5	21	i 5 10	− 2	i 9 32	+ 9	—	—	—
Warsaw	N.	24·2	322	5 23	+ 4	9 40	+ 5	5 51	PP	e 12·4
Zagreb		24·7	304	e 5 23k	− 1	e 9 51	+ 7	—	—	—
Triest		26·2	303	e 5 37	− 1	i 10 15	+ 6	e 6 7	pP	—
Rome		26·6	295	i 5 41a	− 1	e 10 14	− 2	i 11 14	SS	—
Prague		26·9	313	e 5 42	− 3	e 10 21	+ 1	e 6 15	PP	—
New Delhi		27·4	95	e 5 47	− 2	i 10 29	+ 1	10 50	sS	17·4
Dehra Dun	N.	27·5	91	e 8 25	?	—	—	—	—	—
Florence	E.	27·7	298	e 6 1	+ 9	i 10 36	+ 3	—	—	—
Cheb		28·2	312	e 5 57	+ 1	e 10 44	+ 3	e 12 13	SS	e 17·4
Collmberg		28·2	314	e 5 55	− 1	e 10 40	− 1	e 6 43	PP	—
Bombay		29·1	117	e 5 58	− 6	—	—	—	—	—
Cheb		29·2	304	e 6 3	− 2	e 11 5	+ 7	—	—	—
Zürich		30·0	305	e 6 10k	− 2	e 11 5	− 5	—	—	—
Copenhagen		30·3	323	i 6 14	− 1	i 11 15	0	—	—	15·4
Upsala		30·4	332	6 14	− 2	e 11 10	− 6	—	—	e 13·4
Basle		30·7	305	e 6 14	− 5	e 11 16	− 5	e 13 53	SSS	—
Strasbourg		30·7	308	e 6 17	− 2	e 11 19	− 2	e 7 12	PP	e 17·9
Neuchatel		31·0	304	e 6 19	− 2	e 11 20	− 6	—	—	—
De Bilt		33·1	314	i 6 39a	− 1	e 11 47	−12	—	—	e 15·4
Uccle		33·3	311	e 6 40k	− 1	e 12 3	+ 1	e 7 45	PP	e 14·4
Clermont-Ferrand		33·6	301	e 6 51	+ 7	e 11 57	− 9	—	—	e 15·6
Paris		34·2	307	i 6 48	− 1	e 12 10	− 6	8 4	PP	e 21·4
Bergen		35·8	327	e 6 54	− 9	e 12 44	+ 3	e 8 24	PP	16·9
Alicante		36·8	289	i 7 33	+22	i 12 57	+ 1	8 47	PP	e 16·7
Durham	N.	37·6	316	—	—	i 13 4	− 4	—	—	—
Aberdeen		38·4	320	—	—	i 13 15	− 5	—	—	—
Granada		39·4	287	i 7 27a	− 6	i 13 35	0	9 9	PP	18·7
Malaga	z.	40·2	287	i 7 39a	− 1	i 13 34	−14	i 7 49	pP	20·8
Philadelphia		87·2	318	e 22 55	?	e 23 29	+ 1	e 29 26	SS	e 42·8
St. Louis		95·7	327	e 13 26	− 3	e 24 35	− 9	—	—	—
Boulder City		106·6	344	e 18 28	[+ 2]	—	—	—	—	—
Mount Wilson	z.	108·9	346	i 18 56	PP	—	—	—	—	—
Pasadena	z.	109·0	346	e 18 58	PP	—	—	—	—	e 63·4
Riverside	z.	109·0	346	e 18 56	PP	—	—	—	—	—
Tucson		109·0	339	e 19 1	PP	—	—	—	—	e 57·0
Palomar	z.	109·5	345	i 19 1	PP	—	—	—	—	—

Additional readings :—
Helwan SS = 7m.19s.
Belgrade e = 6m.4s.
Warsaw eN = 6m.37s., 7m.19s., and 8m.1s., SS?N = 10m.24s., eN = 11m.11s., and 11m.55s.

Continued on next page.

Triest esP =6m.34s., iP$_c$P =10m.7s., isS =11m.6s., eS$_c$P =13m.6s., eS$_c$S =17m.32s.
New Delhi SSN =13m.33s.
Cheb e =7m.50s.
Collmberg eZ =6m.32s., 7m.5s., and 7m.34s. eE =11m.1s., eSS?N =12m.15s., cE = 13m.2s.
Paris eSS =14m.52s., e =15m.29s., eQ =18·4m.
Bergen eSN =12m.35s., SSE =14m.53s.
Alicante P$_c$P =10m.2s., P$_c$S =13m.59s., S$_c$S =18m.1s.
Granada iSS =16m.17s.
Philadelphia eS =23m.59s.
Long waves were recorded at La Paz.

Aug. 17d. Readings also at 0h. (Huancayo), 4h. (near Granada), 5h. (Harvard), 7h. (Kew and St. Louis (2)), 9h. (Palomar and Tucson), 11h. (Toledo), 12h. (Tucson and near Malaga), 14h. (Tucson), 16h. (near Fort de France), 17h. (Harvard, Sofia, Bucharest, near Istanbul), 19h. (Shasta Dam and Tucson), 23h. (Tucson).

Aug. 18d. 2h. 15m. 35s. Epicentre 19°·4N. 70°·4W. (as on 14d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		10·0	116	e 3 15	P$_g$	—	—	—	—	—
Bogota		15·1	194	e 3 40	+ 4	e 6 24	− 1	i 3 54	PP	—
Philadelphia		20·9	351	e 4 46	0	e 8 41	+ 6	—	—	e 10·5
Weston		22·9	359	e 5 5	− 1	—	—	—	—	—
Harvard		23·1	359	e 5 13	+ 5	e 9 7	− 9	—	—	—
St. Louis		25·8	322	e 5 29	− 5	e 10 9	+ 7	—	—	—
Riverside	z.	44·0	300	e 8 10	− 1	—	—	—	—	—
Mount Wilson	z.	44·6	300	e 8 15	− 1	—	—	—	—	—

Long waves also recorded at Uccle and Upsala.

Aug. 18d. 6h. 47m. 28s. Epicentre 33°·3N. 140°·5E. Depth of focus 0·015.
Intensity V at Hachijojama ; IV at Yokohama ; and II-III at Tokyo, Tu, Kakioka, and Hukusima.
Epicentre as adopted. Macroseismic radius >300km.
Seismo. Bull. Cent. Met. Obs. Japan for 1946. Tokyo, 1951, p.22, with isoseismic chart.

A = −·6463, B = +·5327, C = +·5464 ; δ = +3 ; h = +1 ;
D = +·636, E = +·772 ; G = −·422, H = +·348, K = −·838.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mera	1·7	341	0 30	− 1	0 51	− 3	—	—	—
Misima	2·2	325	0 36a	− 1	1 5	0	—	—	—
Omaesaki	2·3	304	0 39a	+ 1	1 4	− 3	—	—	—
Yokohama	2·3	342	0 36	− 2	1 3	− 4	—	—	—
Shizuoka	2·4	314	0 40k	0	1 12	+ 2	—	—	—
Tokyo	2·5	345	0 38	− 3	1 9	− 3	—	—	—
Hunatu	2·6	327	0 42	0	1 13	− 1	—	—	—
Kakioka	2·9	355	0 42k	− 4	1 14	− 7	—	—	—
Tukubasan	2·9	354	0 42	− 4	1 16	− 5	—	—	—
Kumagaya	3·0	342	0 46	− 2	1 21	− 3	—	—	—
Mito	3·1	359	0 45a	− 4	1 23	− 3	—	—	—
Nagoya	3·5	304	0 52a	− 2	1 34	− 2	—	—	—
Onahama	3·7	5	0 51	− 6	1 29	−11	—	—	—
Owase	3·7	283	0 56a	− 1	1 40	0	—	—	—
Nagano	3·9	332	0 59a	0	—	—	—	—	—
Hikone	4·0	301	1 1a	0	1 50	+ 3	—	—	—
Kyoto	4·3	295	1 7a	+ 2	1 58	+ 3	—	—	—
Osaka	4·4	290	1 8a	+ 2	2 6	+ 9	—	—	—
Hukusima	4·4	0	0 57	− 9	1 44	−13	—	—	—
Kobe	4·6	289	1 10a	+ 1	2 4	+ 2	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sumoto		4·8	284	1 10a	− 2	2 5	− 2	—	—	—
Sendai		5·0	4	1 9	− 5	2 2	−10	—	—	—
Toyooka		5·2	297	1 16a	− 1	2 19	+ 3	—	—	—
Mizusawa	E.	5·8	5	1 23	− 2	2 22	− 9	—	—	—
Akita		6·4	357	1 38	+ 5	2 39	− 6	—	—	—
Miyako		6·4	10	1 32	− 1	2 36	− 9	—	—	—
Morioka		6·4	5	1 14	−19	2 23	−22	—	—	—
Hukuoka		8·4	275	2 3a	+ 3	3 54	+20	—	—	—
Mori		8·8	0	1 53	−12	3 54	+11	—	—	—
Vladivostok		11·9	328	e 2 55	+ 8	i 4 56	− 1	—	—	—
Irkutsk		32·2	318	6 19	+ 1	i 11 27	+ 7	—	—	—
Frunse		51·6	301	e 8 56	+ 1	—	—	—	—	—
Andijan		53·7	299	e 9 13	+ 2	—	—	—	—	—
Sverdlovsk		57·5	320	9 36	− 2	i 17 27	+ 4	—	—	—
Samarkand		57·9	299	e 9 35	− 6	e 17 30	+ 1	—	—	—
Moscow		69·8	324	e 10 59	+ 1	20 0	+ 4	—	—	—
Grand Coulee		72·4	44	i 11 13	− 1	—	—	i 11 41	pP	—
Leninakan		73·7	308	11 41	PcP	—	—	—	—	—
Shasta Dam		74·0	52	i 11 24	+ 1	—	—	i 14 9	PP	—
Berkeley		75·5	54	e 11 32	0	—	—	—	—	—
Tinemaha		78·6	53	e 11 51	+ 2	—	—	—	—	—
Santa Barbara		79·0	56	i 11 55	+ 4	—	—	—	—	—
Haiwee		79·3	53	i 11 53k	0	—	—	—	—	—
Warsaw		79·8	327	—	—	e 21 49	+ 3	e 22 32	PS	e 42·5
Mount Wilson		80·3	55	i 11 58k	0	—	—	i 12 26	pP	—
Pasadena		80·3	55	i 11 58k	0	—	—	i 12 24	pP	—
Riverside		80·9	55	i 12 0k	− 1	—	—	e 12 28	pP	—
Copenhagen		80·9	333	i 22 1	S	(i 22 1)	+ 3	e 27 14	SS	34·5
Boulder City		81·5	52	i 12 5	+ 1	—	—	—	—	—
Overton		81·5	52	i 12 6	+ 2	—	—	—	—	—
La Jolla	z.	81·6	56	i 12 5	0	—	—	—	—	—
Palomar		81·6	55	i 12 4k	− 1	—	—	i 12 20	pP	—
Ksara		82·7	305	e 11 49?	−22	e 22 24	+ 8	—	—	—
Collmberg	z.	84·0	329	i 12 17	0	—	—	e 12 42	pP	—
Tucson		86·4	54	e 12 30	+ 1	—	—	e 15 50	PP	—
St. Louis		94·3	38	i 13 6	0	e 23 32	[+ 5]	i 13 34	pP	—
La Paz		149·2	64	19 41	[+12]	—	—	—	—	—

Additional readings :—
Grand Coulee i =10m.54s.
Shasta Dam i =11m.51s.
Berkeley eZ =11m.40s.
Pasadena eZ =12m.19s.
Copenhagen 22m.45s. and 29m.4s.
Collmberg eZ =12m.24s., 12m.29s., and 13m.23s.
Tucson e =12m.51s. and 13m.13s.
St. Louis eZ =13m.45s. and 16m.5s., esSE =24m.21s.

Aug. 18d. 17h. 9m. 23s. Epicentre 19°·4N. 70°·4W. (as at 2h.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	e 0 59	+24	i 1 34	+32	—	—	2·1
San Juan		4·2	103	e 0 48	−19	e 1 17	P*	—	—	i 1·5
Bogota		15·1	194	e 3 37	+ 1	e 6 27	+ 2	—	—	—
Weston		22·9	359	e 5 4	− 2	—	—	—	—	—
Harvard		23·1	359	e 5 5	− 3	e 9 19	+ 3	—	—	e 13·6
St. Louis		25·8	322	e 5 37	+ 3	e 10 23	+21	—	—	—
Ottawa		26·3	352	e 5 38	− 1	—	—	—	—	13·6
Huancayo		31·6	189	e 6 24	− 2	—	—	e 7 28	PP	—
Tucson		38·4	298	e 7 29	+ 4	—	—	—	—	—
Mount Wilson	z.	44·6	300	e 8 17	+ 1	—	—	—	—	—

Additional readings and note :—
San Juan iS =1m.23s. =P_g.
Bogota i =3m.43s.
Tucson e =7m.43s. and 8m.24s.
The readings of the two nearest stations above would be better suited by the alternative epicentre 18°·9N. 68°·9W. of August 4d. 17h.

Aug. 18d. Readings also at 0h. (Sverdlovsk and Tucson), 5h. (near Mizusawa), 8h. (near Bucharest), 9h. (Rome, near Andijan, Frunse, and Tchimkent), 10h. (Tucson), 11h. (Bucharest, Sofia, Zagreb, Rome, and Triest), 12h. (Warsaw), 13h. (Chicago), 14h. (near Mizusawa), 17h. (Port au Prince), 18h. (Rome), 19h. (Port au Prince), 21h. (Berkeley, Shasta Dam, and near Lick), 22h. (near Tananarive), 23h. (near Mizusawa).

Aug. 19d. 4h. 3m. 6s. Epicentre 19°·6N. 69°·4W. (as on 17d.).

$A = +\cdot3317$, $B = -\cdot8825$, $C = +\cdot3334$; $\delta = -1$; $h = +5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	e 0 57	+ 7	1 32	+ 5	1 7	P_g	—
San Juan		3·3	111	e 0 54	+ 1	i 1 26	− 9	—	—	i 1·6
Bogota		15·6	198	e 3 39	− 4	e 6 25	−12	i 3 47	PP	—
Weston		22·8	357	e 5 5	0	—	—	—	—	—
Harvard		22·9	357	e 5 7	+ 1	e 9 18	+ 5	—	—	e 13·9
St. Louis		26·2	321	i 5 39	+ 1	e 10 9	0	—	—	e 13·4
Ottawa		26·3	350	e 5 39	0	—	—	—	—	9·9
Huancayo		32·0	192	e 6 27	− 3	—	—	—	—	—
Tucson		39·1	298	e 7 34	+ 3	—	—	—	—	—
Overton		42·8	304	i 8 4	+ 3	—	—	—	—	—
Boulder City		43·0	303	i 8 4	+ 1	—	—	—	—	—
Riverside	z.	44·8	300	e 8 20	+ 3	—	—	i 8 33	pP	—
Mount Wilson	z.	45·4	300	e 8 17	− 5	—	—	i 8 24	pP	—
Shasta Dam		49·6	308	i 8 51	− 4	—	—	i 8 55	?	—

Bogota also gives iPPP = 3m.53s.
Long waves were also recorded at Pasadena, Uccle, and Sitka.

Aug. 19d. 5h. 40m. 48s. Epicentre 19°·6N. 69°·4W. (as at 4h.).

$A = +\cdot3317$, $B = -\cdot8825$, $C = +\cdot3334$; $\delta = -1$; $h = +5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	i 0 46	− 4	i 1 11	−16	i 1 1	P_g	1·8
San Juan		3·3	111	e 0 54	+ 1	i 1 25	−10	—	—	i 1·6
Balboa Heights		14·4	224	e 3 21	− 6	e 5 54	−15	—	—	—
Bogota		15·6	198	e 3 39	− 4	e 6 32	− 5	e 3 47	PP	—
Columbia		17·7	328	—	—	e 7 25	− 1	—	—	—
Philadelphia		20·9	348	e 4 51	+ 5	e 8 36	+ 1	e 5 18	PP	e 10·3
Fordham		21·5	351	4 57	+ 5	8 54	+ 7	—	—	—
Weston		22·8	357	e 5 9	+ 4	—	—	—	—	—
Harvard		22·9	357	i 5 9	+ 3	e 9 11	− 2	—	—	e 11·2
St. Louis		26·2	321	i 5 37	− 1	e 10 17	+ 8	i 6 27	PP	e 13·2
Ottawa		26·3	350	e 5 46	+ 7	e 10 12	+ 1	—	—	13·2
Florissant	E.	26·4	321	e 5 41	+ 1	e 10 24	+12	—	—	—
Chicago		27·0	329	—	—	e 10 10	−12	—	—	11·9
Huancayo		32·0	192	e 6 29	− 1	e 11 42	0	e 7 33	PP	e 16·5
La Paz	z.	35·9	178	7 8	+ 4	e 12 44	+ 2	—	—	19·2
Tucson		39·1	298	e 7 29	− 2	—	—	e 8 52	PP	e 22·6
Overton		42·8	304	i 8 2	+ 1	—	—	—	—	—
Boulder City		43·0	303	e 8 2	− 1	—	—	—	—	—
Pasadena		45·4	300	i 8 22	0	—	—	—	—	e 28·2
Tinemaha		45·9	304	e 8 26	0	—	—	—	—	—
Grand Coulee		48·9	318	i 8 27	−23	—	—	—	—	—
Shasta Dam		49·6	308	i 8 51	− 4	—	—	i 9 7	?	—
Strasbourg		67·1	44	—	—	e 20 0	+ 9	e 24 30	SS	e 32·2
Copenhagen		69·5	37	—	—	i 20 24	+ 4	—	—	32·2
Ksara		91·3	54	e 15 16	?	e 26 4	PPS	—	—	—

Additional readings :—
Bogota iPPP = 3m.52s.
Philadelphia e = 5m.51s.
St. Louis iPZ = 5m.40s., iZ = 5m.52s., 6m.8s., and 6m.38s., iSE = 10m.24s., iSSE = 11m.25s.
Huancayo iP = 6m.33s., i = 7m.7s.
Tucson e = 7m.42s. and 9m.15s.
Long waves were also recorded at Bozeman, Malaga, Kew, Paris, De Bilt, Uccle, Sitka, Warsaw, and Alicante.

Aug. 19d. 20h. Undetermined shock.

Vladivostok eP =0m.13s., S =2m.19s.
Irkutsk eP =4m.4s. and 9m.0s.
Sverdlovsk iP =7m.14s., eS =15m.6s.
Moscow iP =8m.39s., eS =17m.33s.
Ksara eP =9m.24s., ePP =12m.16s.
Copenhagen iP =9m.58s., L =37m.0s.
Collmberg iPZ =10m.7s., eZ =10m.13s., 10m.24s., 11m.7s., and 12m.30s.
De Bilt eP =10m.23s., eL =41m.0s.
Uccle ePZ =10m.31s., eL =38m.0s.
Basle e =10m.32s.
Grand Coulee eP =10m.39s.
Paris iP? =10m.43s., eL =44m.0s.
Shasta Dam iP =10m.49s., e =14m.24s.
New Delhi iN =11m.38s., e =20m.20s.
Fort de France e =13m.11s., iS =13m.22s.
Tashkent eS =14m.6s.
Tucson e =16m.1s.
Long waves were also recorded at Warsaw, Upsala, Cheb, Clermont-Ferrand, Strasbourg, Rome, Kew, Aberdeen, and Malaga.

Aug. 19d. Readings also at 0h. (Grand Coulee), 1h. (Shasta Dam), 3h. (Tucson, Ksara, and St. Louis), 5h. and 6h. (Port au Prince), 7h. (Ksara, La Paz, near Algiers, and near Huancayo), 8h. (La Paz, Leninakan, and Ksara), 9h. (La Paz), 10h. (Rome and near Leninakan), 11h. (near Andijan and Rome), 13h. (near Mizusawa), 18h. (Port au Prince and Harvard), 16h. (Tucson), 19h. (near Tacubaya (2)), 23h. (Tucson).

Aug. 20d. 3h. Undetermined shock.

Tacubaya ePN =30m.23s., eSEN =34m.58s.
Columbia e =32m.7s., eL =36m.22s.
St. Louis ePZ =32m.44s., eSE =37m.23s., eE =38m.17s. and 43m.39s.
Philadelphia e =33m.18s., eL =38m.14s.
Tucson eP =33m.30s., eS =40m.12s., eL =43m.8s.
Palomar ePZ =33m.54s.
Ottawa PZ =33m.56s., PPPN =35m.0s., SN =39m.30s., L =45m.0s.
Riverside ePZ =34m.9s.
Mount Wilson iPZ =34m.13s.
Pasadena iPZ =34m.13s., eLZ =48m.0s.
Huancayo e =36m.6s., eS =37m.16s., eL =39m.15s.
La Paz eZ =40m.30s., LZ =46m.0s.
Long waves were also recorded at San Juan, Bermuda, Chicago, Paris, Uccle, and De Bilt.

Aug. 20d. 9h. 42m. 37s. Epicentre 33°·3N. 132°·1E. (as on 1944, June 7d.).

Intensity VI at Shimonoseki; V at Kumamoto and Uwajima; IV at Iida and Kochi; II-III at Tokushima, Hamada, Fukuoka, Yonaga, and Tsu.
Macroseismic radius between 200 and 300km. Epicentre 33°·4N. 132°·0E. Shallow.
The Seismological Bulletin of the Central Meteorological Observatory, Japan, for the year 1946, Tokyo, 1951, p. 23, isoseismic chart, p. 23.

$A = -\cdot5615$, $B = +\cdot6214$, $C = +\cdot5464$; $\delta = -3$; $h = +1$;
$D = +\cdot742$, $E = +\cdot670$; $G = -\cdot366$, $H = +\cdot405$, $K = -\cdot838$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Izuka	1·2	287	0 28a	+ 4	0 43	+ 2	—	—	—
Kumamoto	1·3	248	0 29a	+ 4	0 45	+ 1	—	—	—
Hukuoka	1·4	281	0 32a	+ 5	0 45	− 1	—	—	—
Sumoto	2·5	66	0 44a	+ 1	1 23	+ 9	—	—	—
Kobe	2·9	62	0 47a	− 1	1 22	− 2	1 25	S	—
Toyooka	3·2	44	0 51	− 1	1 32	0	—	—	—
Kyoto	3·5	59	0 42	−15	1 31	− 9	—	—	—
Hikone	4·0	58	1 2	− 2	2 6	SS	—	—	—
Nagoya	4·4	64	1 7a	− 3	2 6	+ 4	—	—	—
Omaesaki	5·2	74	1 27	PP	2 53	Sg	—	—	—
Shizuoka	5·5	70	1 25	0	2 50	S*	—	—	—
Hunatu	5·9	66	1 31	0	2 32	− 8	—	—	—
Misima	6·0	70	1 29	− 3	3 1	S*	—	—	—
Nagano	6·0	54	1 33	+ 1	3 15	Sg	—	—	—
Yokohama	6·6	69	1 41	0	3 3	+ 5	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tokyo		6·8	67	1 50	+ 6	3 19	S*	—	—	—
Utunomiya		7·2	61	1 47	− 2	3 45	S*	—	—	—
Mito		7·5	63	1 51	− 2	3 57	S*	—	—	—
Mizusawa	E.	9·3	49	2 20	+ 3	e 4 33	S*	—	—	—
Vladivostok		9·8	357	e 2 41	PP	(5 17)	S_g	—	—	5·3
Irkutsk		27·6	323	e 5 51	0	e 10 30	− 2	—	—	—
Andijan		47·6	298	e 8 47	+ 8	e 15 29	− 6	—	—	—
Tashkent		49·6	300	—	—	e 15 46?	−17	—	—	—
Sverdlovsk		52·9	321	e 9 16	− 4	16 42	− 6	—	—	—
Moscow		65·6	323	i 10 43	− 5	e 19 27	− 6	—	—	—
Ksara		76·9	302	13 0	+64	22 25	PS	—	—	—
Copenhagen		77·5	330	—	—	i 21 41	− 9	—	—	36·4
Grand Coulee		77·7	42	i 11 52	− 8	—	—	—	—	—
Shasta Dam		79·4	49	e 12 7	− 2	—	—	—	—	—
Collmberg	Z.	80·2	327	e 12 11	− 3	—	—	e 12 32	P_cP	—
Berkeley		81·1	51	e 12 16	− 2	e 22 23	− 5	e 12 30	P_cP	—
Haiwee	Z.	84·9	50	i 12 35	− 3	—	—	i 12 49	P_cP	—
Pasadena	Z.	85·9	52	i 12 39	− 4	—	—	—	—	e 41·4
Mount Wilson	Z.	86·0	52	i 12 41	− 2	—	—	i 12 54	P_cP	—
Riverside	Z.	86·6	52	i 12 43	− 3	—	—	—	—	—
Overton		86·8	49	e 12 41	− 6	—	—	—	—	—
Boulder City		86·9	49	i 12 47	− 1	—	—	—	—	—
Rome	Z.	86·9	320	—	—	e 22 58	−28	—	—	—
La Jolla	Z.	87·3	53	e 12 48	− 2	—	—	—	—	—
Palomar	Z.	87·3	52	e 12 49	− 1	—	—	i 13 2	P_cP	—
Tucson		91·9	49	e 13 10	− 1	—	—	—	—	—
St. Louis	E.	98·3	33	e 26 46	PS	e 24 31	[+12]	e 25 24	S	—
Huancayo		147·2	56	e 19 45	[+ 2]	—	—	—	—	—

Additional readings :—
Collmberg eZ = 12m.27s., 12m.39s., 12m.54s., and 15m.42s.
St. Louis eE = 31m.47s.
Long waves were also recorded at De Bilt, Cheb, Uccle, and Clermont-Ferrand.

Aug. 20d. 12h. 49m. 18s. Epicentre 18°·9N. 68°·9W. (as on 9d.).

$A = +·3408$, $B = -·8833$, $C = +·3220$; $\delta = +5$; $h = +5$.

	△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	2·7	101	e 0 50	+ 5	i 1 21	+ 2	—	—	i 1·6
Port au Prince	3·3	264	i 0 55	+ 2	i 1 35	0	i 1 50	SS	2·3
Fort de France	8·5	118	e 2 15	PP	—	—	—	—	—
Bogota	15·1	200	e 3 41	+ 5	e 6 29	+ 4	i 3 50	PP	—
Philadelphia	21·7	348	e 5 1	+ 6	e 8 50	− 1	e 5 38	PPP	e 10·2
Fordham	22·3	351	5 1	0	8 57	− 5	—	—	—
Weston	23·5	357	e 10 8	SS	—	—	—	—	—
Harvard	23·6	357	i 5 11	− 2	i 9 20	− 5	—	—	—
Ottawa	27·0	350	5 43	− 2	10 17	− 5	—	—	12·7
St. Louis	27·0	321	i 5 44	− 1	e 10 14	− 8	e 11 8	SS	—
Chicago	27·8	329	—	—	e 10 23	−12	11 21	SS	e 12·8
Seven Falls	28·2	358	e 7 2	PP	(10 42?)	+ 1	—	—	10·7
Tucson	39·8	298	e 7 36	0	—	—	e 8 36	?	—
Overton	43·5	304	i 8 7	0	—	—	—	—	—
Boulder City	43·7	303	i 8 7	− 1	—	—	—	—	—
Butte	44·9	319	—	—	e 14 26	−30	e 14 51	PS	e 22·2
Pasadena	46·2	300	i 8 27	− 1	—	—	—	—	e 27·7
Tinemaha	46·7	304	e 8 32	0	—	—	—	—	—
Grand Coulee	49·7	318	i 8 47	− 9	—	—	—	—	—
Shasta Dam	50·4	308	i 8 56	− 5	—	—	—	—	—
Rome	71·3	52	—	—	e 28 42	SSS	—	—	—

Additional readings :—
Bogota iPPP = 3m.57s., eSS = 6m.38s., i = 7m.30s.
Philadelphia e = 5m.21s.
St. Louis iZ = 5m.50s. and 9m.11s., eE = 10m.31s. and 10m.51s.
Long waves were also recorded at Uccle, De Bilt, Bozeman, and Sitka.

Aug. 20d. 17h. 26m. 37s. Epicentre 41°·2N. 19°·9E. (as on 1946, April 16d.).

$A = +\cdot7095$, $B = +\cdot2569$, $C = +\cdot6561$; $\delta = -14$; $h = -2$;
$D = +\cdot340$, $E = -\cdot940$; $G = +\cdot617$, $H = +\cdot223$, $K = -\cdot755$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Sofia		3·0	58	i 0 54	+ 4	i 1 35	+ 8	i 1 52	S_g	—
Belgrade		3·7	6	i 1 4	+ 4	i 2 15	S_g	i 1 33	PS	—
Kalossa		5·4	354	e 1 45	P_g	—	—	e 1 55	P_g	e 3·6
Zagreb		5·5	330	e 1 24a	− 1	e 2 30	0	e 1 29	PP	i 3·4
Bucharest		5·6	52	e 1 33	+ 6	e 2 50	S*	e 1 40	PP	i 3·2
Rome		5·7	281	e 1 23a	− 5	e 2 16	−19	—	—	e 3·2
Budapest	E.	6·3	355	1 45	+ 9	3 39	+49	2 26	PP	4·9
	N.	6·3	355	1 53	P*	3 39	+49	e 2 14	P_g	5·4
Triest		6·4	317	e 1 36	− 2	i 2 48	− 5	—	—	i 3·9
Florence	E.	6·9	295	e 1 47	+ 2	i 3 0	− 5	—	—	—
Istanbul		6·9	88	1 43	− 2	4 35	SSS	—	—	—
Chur		9·4	311	e 2 19	+ 1	e 4 1	− 6	—	—	—
Prague		9·7	339	—	—	e 4 34	+19	—	—	e 5·1
Zürich		10·2	211	e 2 29	− 2	e 4 24	− 3	—	—	—
Cheb		10·3	332	e 4 2	+90	e 5 3	SSS	e 4 28	P	e 5·6
Basle		10·9	310	e 2 40	0	e 4 44	0	—	—	—
Neuchatel		11·0	306	e 2 37	− 5	e 4 32	−15	—	—	—
Warsaw	N.	11·1	5	e 2 46	+ 3	5 47	+58	e 3 5	PP	e 7·4
Collmberg		11·2	337	e 2 43	− 1	e 4 47	− 5	e 2 51	PP	e 5·9
Jena	N.	11·3	332	e 2 54	+ 8	—	—	e 6 39	Q	i 6·8
Strasbourg		11·4	315	e 2 50	+ 3	e 4 55	− 1	e 5 29	SSS	e 6·6
Potsdam		12·2	339	—	—	e 5 59	SSS	—	—	7·4
Clermont-Ferrand		13·0	296	—	—	e 5 55	SS	i 8 33	Q	9·7
Algiers		13·8	256	3 23	+ 4	5 53	− 1	—	—	9·4
Uccle		14·4	317	e 3 53	PP	e 6 28	SS	e 7 0	SSS	e 7·4
Paris		14·5	308	i 3 28	0	e 6 2	− 9	e 6 26	SS	e 7·2
Helwan		14·7	138	e 3 17	−14	e 6 8	− 8	e 6 34	SS	—
Ksara		14·7	115	e 3 24	− 7	e 6 35	SS	e 7 13	SSS	—
De Bilt		14·9	322	i 3 39a	+ 5	e 6 42	SS	—	—	e 7·4
Sotchi		14·9	74	e 3 26	− 8	—	—	—	—	—
Copenhagen		15·3	344	e 3 40	+ 1	e 6 48	SS	—	—	8·1
Alicante		15·9	267	3 39	− 8	i 6 45	+ 1	3 51	PP	e 8·6
Toledo		18·2	273	e 4 12	− 4	i 7 38	+ 1	i 8 3	SS	—
Granada		18·6	266	i 4 18k	− 3	i 7 51	+ 5	4 41	pP	9·7
Moscow		18·6	32	i 4 20	− 1	8 7	SS	—	—	—
Upsala		18·7	357	e 4 21	− 1	e 7 59	+11	e 10 36	Q	i 10·9
Malaga	Z.	19·4	264	i 4 24a	− 6	i 8 0	− 4	—	—	9·9
Durham	N.	19·7	322	—	—	8 12	+ 2	—	—	10·8
Bergen		21·2	341	5 30	PPP	e 9 43	SSS	—	—	—
Aberdeen		21·4	326	—	—	i 8 50	+ 5	—	—	12·0
Sverdlovsk		30·4	45	6 15	− 1	—	—	—	—	—
Samarkand		35·5	77	e 6 53	− 7	—	—	—	—	—
Irkutsk		55·8	48	e 9 38	− 3	—	—	—	—	—

Additional readings :—
Belgrade iP_g = 1m.19s., i = 1m.35s.
Zagreb eNE = 2m.1s., eNWZ = 2m.15s., cNE = 2m.20s., iNE = 2m.47s., iNW = 3m.1s., iNWZ = 3m.8s., i = 3m.11s.
Bucharest eN = 1m.57s., iN = 3m.5s.
Budapest SSEN = 4m.39s.
Warsaw SSN = 6m.23s.
Collmberg eZ = 3m.56s. and 5m.49s.
Paris i = 3m.34s.
Toledo P_cSEN = 12m.29s.
Granada PP = 4m.59s., pPP = 5m.11s., sS = 8m.41s.
Alicante PPP = 3m.55s.
Long waves were also recorded at Besançon, Barcelona, Lisbon, and Tortosa.

Aug. 20d. 22h. Undetermined shock.

Brisbane iPN = 14m.18s., eE = 14m.25s., eSN = 17m.46s., eS?E = 17m.50s., eLN = 21m.26s.
Riverview ePZ = 15m.18s., iS?N = 20m.20s., eLE = 22·8m.
Irkutsk eP = 20m.47s., eS = 29m.51s.?
Tashkent eP = 22m.25s., eS = 32m.43s.
Palomar iPZ = 22m.57s.
Mount Wilson iPZ = 22m.58s.a
Pasadena iPZ = 22m.58s., eLZ = 53m.0s.
Riverside iPZ = 23m.1s.
Uccle ePZ = 25m.51s., eL = 73m.
Sverdlovsk ePP = 26m.48s., SKS = 33m.26s.
Honolulu eS = 27m.30s., eSS = 31m.44s., eL = 33m.38s.
Ksara e = 29m.9s., e = 39m.39s.
Cheb e = 30m.0s.
Rome eZ = 32m.0s., eN = 32m.20s., eZ = 26m.1s.
Strasbourg eSKP = 32m.0s., e = 33m.12s., eL = 75·8m.
Paris eSKP = 32m.5s., e = 63m.0s., eL = 80m.0s.
Frunse eS = 32m.12s.
Sitka eS = 32m.52s., eL = 53m.0s.
Moscow eSKS = 34m.28s.
Warsaw eN = 35m.14s., eLN = 72m.0s.
Granada SKKS = 39m.30s.a, SS = 51m.10s., eL = 79·6m.
Alicante e = 50m.56s., eL = 68m.27s.
Long waves were also recorded at Auckland, Christchurch, Arapuni, Wellington, Tucson, Chicago, Bermuda, and Clermont-Ferrand.

Aug. 20d. Readings also at 0h. and 3h. (Ksara), 8h. (Zürich and near Triest), 12h. (Warsaw), 13h. (Uccle), 14h. (Tucson), 16h. (Copenhagen), 17h. (Malaga), 18h. (Tucson), 22h. (Triest, Tucson, near Frunse, Andijan, and Almata), 23h. (De Bilt and Cheb).

Aug. 21d. 14h. 29m. 50s. Epicentre 19°·4N. 70°·4W. (as on 18d.).
Intensity II at Port au Prince. Repetition almost as important as the principal shock on August 4.

Joseph Lynch, S.J., and Ralph R. Bodle.
"The Dominican Earthquakes of August, 1946." Bull. of the Seismolog. Soc. of America, Vol. 38, No. 1, January, 1948, pp. 1-17, 17 figures.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

$A = +\cdot3166,\ B = -\cdot8892,\ C = +\cdot3302;\quad \delta = -6;\quad h = +5.$

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Fort de France		10·0	116	e 2 18	− 9	—	—	—	—	—
Bogota		15·1	194	e 3 37	+ 1	e 6 25	0	—	—	—
Philadelphia		20·9	351	e 4 48	+ 2	e 8 45	+10	e 6 2	PPP	e 10·3
Harvard		23·1	359	e 5 2	− 6	e 9 13	− 3	—	—	—
St. Louis		25·8	322	i 5 31	− 3	e 10 6	+ 4	—	—	—
Tucson		38·4	298	e 7 26	+ 1	—	—	e 7 40	pP	—
Palomar		43·5	299	i 8 12	+ 5	—	—	—	—	—
Riverside	z.	44·0	300	i 8 12	+ 1	—	—	—	—	—
Mount Wilson	z.	44·6	300	i 8 16	0	—	—	—	—	—
Pasadena	z.	44·7	300	i 8 17	+ 1	—	—	—	—	—
Haiwee	z.	44·8	302	e 8 18	+ 1	—	—	—	—	—
Tinemaha		45·2	303	e 8 22	+ 2	—	—	—	—	—
Santa Barbara	z.	46·0	300	i 8 28	+ 1	—	—	—	—	—

Additional readings :—
Harvard i = 5m.15s.
St. Louis eP?Z = 5m.22s., eE = 9m.35s.

Aug. 21d. 18h. 0m. 19s. Epicentre 25°·0S. 176°·5W. Depth of focus 0·010.

$A = -·9057$, $B = -·0554$, $C = -·4203$; $\delta = +1$; $h = +4$;
$D = -·061$, $E = +·998$; $G = +·420$, $H = +·026$, $K = -·907$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		14·0	210	3 56	PPP	7 6	+78	4 13	pP	10·0
Arapuni		14·6	205	—	—	7 17	?	—	—	—
Wellington		17·8	202	4 0	− 3	7 3	−12	4 33	sP	9·4
Christchurch		20·5	203	4 35	+ 3	8 9	− 2	9 10	PcP	—
Brisbane		27·4	258	5 36	− 2	i 10 5	− 5	e 5 59	PP	i 11·9
Riverview		29·4	245	5 58k	+ 2	i 10 40	− 2	i 6 19	pP	e 13·9
Honolulu		49·5	24	e 8 39	− 3	e 15 43	+ 2	e 9 47	PcP	e 20·3
Santa Barbara		80·0	45	i 12 3	+ 3	e 22 2	+ 7	—	—	—
Branner		80·4	41	e 12 5	+ 3	e 22 35	ScS	e 12 27	pP	—
Berkeley		80·6	41	i 11 53	−10	i 22 8	+ 7	i 12 27	pP	—
La Jolla		80·6	47	e 12 2	− 1	—	—	—	—	—
Pasadena		80·8	46	i 12 5k	+ 1	i 22 10	+ 7	i 12 30	pP	e 36·0
Santa Clara		80·8	41	i 12 5	+ 1	i 22 9	+ 6	—	—	—
Mount Wilson		80·9	46	i 12 5k	0	—	—	i 12 31	pP	—
Ukiah		80·9	39	e 12 4	− 1	e 22 12	+ 8	—	—	e 34·0
Palomar		81·1	47	i 12 3k	− 3	i 22 7	+ 1	i 12 29	pP	—
Riverside		81·2	46	i 12 7k	+ 1	e 22 35	ScS	i 12 31	pP	—
Haiwee		82·1	44	i 12 12	+ 1	e 22 25	+ 9	i 12 37	pP	—
Shasta Dam		82·4	39	i 12 13	0	—	—	i 12 37	pP	—
Tinemaha		82·6	44	e 12 15	+ 1	e 22 30	+ 9	e 12 41	pP	—
Vladivostok		82·7	325	i 12 13	− 1	e 22 21	− 1	—	—	—
Boulder City		84·1	46	i 12 23	+ 2	i 22 41	+ 5	i 12 44	pP	—
Overton		84·6	46	i 12 27	+ 3	e 22 45	+ 4	—	—	—
Tucson		84·6	51	i 12 25	+ 1	e 22 45	+ 4	i 12 50	pP	—
Tacubaya		87·2	68	e 12 39	+ 3	i 23 19	+13	i 13 8	pP	—
Victoria		87·2	33	12 36	0	23 0	− 6	28 59	SS	39·7
Grand Coulee		89·1	35	i 12 45	− 1	—	—	—	—	—
Sitka		89·2	22	e 12 40	− 6	i 23 7	−18	e 16 9	PP	e 35·1
Logan		89·3	43	i 12 48	+ 2	i 23 14	−12	i 16 21	PP	e 36·9
Butte		91·4	38	e 12 55	− 2	e 23 48	+ 3	e 24 34	sS	e 37·2
Bozeman		92·0	40	e 13 2	+ 3	i 23 29	[+ 8]	e 24 41	sS	e 38·1
College		92·3	12	e 12 42	−18	e 23 5	[−18]	e 16 18	PP	e 42·3
Huancayo		94·9	106	e 13 21	+ 9	e 23 51	[+14]	i 24 37	S	e 40·8
Saskatoon		98·0	36	e 17 26	PP	e 23 58	[+ 4]	—	—	44·7
Lincoln		98·8	49	(17 56)	PP	(e 24 40)	− 8	—	—	—
La Paz	Z.	99·0	113	13 38	+ 7	25 21	+31	17 34	PP	46·2
Florissant		102·4	53	e 13 45	− 1	i 24 18	[+ 2]	i 26 12	sS	—
St. Louis		102·4	53	e 13 47	+ 1	e 24 16	[0]	i 26 12	sS	—
Irkutsk		103·1	322	e 13 46	− 3	i 24 20	[+ 1]	e 36 41	SSS	—
Columbia		107·8	60	e 28 1	PS	e 24 48	[+ 8]	e 26 13	?	—
Ottawa		114·7	49	e 18 32	[+ 3]	e 25 9	[+ 1]	e 19 29	PP	52·7
New Delhi	N.	115·1	292	—	—	i 25 7	[− 3]	i 27 1	S	—
San Juan		115·6	80	e 19 43	PP	e 25 20	[+ 8]	e 27 7	S	—
Bombay	E.	116·0	280	e 22 16	PPP	—	—	—	—	—
Seven Falls		118·3	48	e 19 53	PP	e 25 21	[0]	e 29 29	PS	35·7
Bermuda		120·6	66	e 20 11	PP	e 25 43	[+14]	e 37 17	sSS	e 49·7
Andijan		121·5	304	18 46	[+ 3]	e 27 6	SKKS	—	—	—
Tashkent		123·8	305	e 20 25	PP	e 25 42	[+ 3]	27 14	SKKS	—
Samarkand		125·4	302	19 11	[+21]	—	—	—	—	—
Sverdlovsk		128·4	324	e 18 58	[+ 2]	25 58	[+ 2]	20 51	PP	—
Ivigtut		129·8	30	21 5	PP	22 5	PKS	—	—	—
Moscow		140·5	330	19 10	[− 9]	22 51	PKS	e 22 9	PP	—
Leninakan		143·0	306	20 21	[+58]	—	—	—	—	—
Upsala		143·8	349	19 22	[− 2]	e 22 55	PKS	22 33	PP	e 67·7
Bergen		144·6	359	19 22	[− 3]	29 26	SKKS	22 33	PP	e 67·7
Aberdeen		147·6	6	i 19 35	[+ 4]	i 29 45	SKKS	—	—	i 96·1
Copenhagen		148·6	350	i 19 33	[+ 1]	i 29 49	SKKS	23 1	PP	67·7
Edinburgh		148·7	7	e 19 41	[+ 9]	—	—	—	—	—
Warsaw		149·7	338	e 19 39	[+ 5]	23 8	SKP	29 57	SKKS	e 76·7
Durham	N.	150·0	5	e 19 42	[+ 8]	i 36 5	PPS	e 23 12	SKP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		150·5	264	i 19 39	[+ 4]	36 11	PPS	20 17	pPKP	—
Potsdam		151·7	348	e 19 55	[+18]	—	—	—	—	—
Collmberg		152·7	347	e 19 37	[− 1]	e 23 25	PKS	33 48	PS	—
De Bilt		152·9	357	i 19 40	[+ 1]	i 30 15	SKKS	i 23 30	PP	e 71·7
Bucharest		153·3	322	20 42	[+63]	e 30 14	SKKS	—	—	—
Istanbul		153·4	313	e 19 36	[− 3]	e 33 38	PSKS	—	—	—
Cheb		154·0	347	e 19 55	[+15]	e 43 51	SS	e 23 33	PP	72·7
Uccle		154·2	0	e 19 42k	[+ 2]	e 30 19	SKKS	e 23 31	PP	71·7
Budapest	E.	154·4	335	20 3	[+22]	30 22	SKKS	—	—	—
	N.	154·4	335	20 9	[+28]	30 22	SKKS	—	—	—
Helwan		154·8	287	e 19 44	[+ 2]	—	—	21 56	?	—
Kalossa		155·2	335	e 20 21	pPKP	—	—	—	—	—
Sofia		156·0	322	e 20 13	pPKP	30 31	SKKS	—	—	—
Paris		156·2	2	i 19 44	[+ 1]	30 19	SKKS	i 20 11	pPKP	e 72·7
Strasbourg		156·2	352	e 19 45	[+ 2]	i 30 36	SKKS	e 23 44	PP	57·7
Zagreb		156·9	337	e 19 45	[+ 1]	e 30 30	SKKS	e 23 53	PKS	—
Basle		157·3	352	e 20 15	pPKP	e 30 35	SKKS	—	—	—
Zürich		157·3	351	e 20 15	pPKP	e 30 31	SKKS	—	—	—
Chur		157·7	349	e 19 45	[0]	—	—	e 20 17	pPKP	—
Triest		157·8	341	e 20 3	pPKP	i 30 38	SKKS	e 44 14	SS	—
Neuchatel		157·9	353	e 19 46	[+ 1]	i 30 41	SKKS	—	—	—
Clermont-Ferrand		159·3	0	e 19 46	[− 1]	i 30 50	SKKS	i 24 4	PP	e 74·7
Florence	z.	160·2	343	i 20 27	pPKP	—	—	—	—	—
Rome		161·6	340	e 19 50k	[0]	i 31 0	SKKS	i 20 31	pPKP	—
Barcelona		163·6	4	—	—	e 31 9	SKKS	e 45 54	SS	—
Alicante		166·3	13	e 20 55	pPKP	45 29	SS	25 15	PP	e 75·2
Granada		166·4	25	i 20 15k	[+21]	i 31 46	SKKS	20 56	pPKP	84·5
Malaga	z.	166·5	29	i 19 55a	[+ 1]	26 47	[+ 1]	24 43	PP	78·8
Algiers		168·2	2	e 20 49	pPKP	i 31 33	SKKS	24 53	PP	—

Additional readings and notes :—
Auckland sS = 7m.37s., P_cP = 8m.32s., S_cP = 11m.57s., S_cS = 15m.38s., sS_cS = 16m.17s., sS_cS,S_cS? = 28m.2s.
Wellington i = 4m.53s., iZ = 5m.56s., sS = 7m.41s., SS = 7m.56s., i = 8m.18s. and 8m.26s., P_cP = 8m.47s., S_cS = 15m.41s., sS_cS = 16m.27s., S_cS,S_cS = 26m.57s., sS_cS,S_cS? = 28m.56s.
Brisbane iS?E = 10m.9s.
Riverview iPPEZ = 6m.57s., iE = 7m.16s., isPPE = 7m.41s., eE = 10m.7s., esSN = 11m.14s., isSE = 11m.18s., iQ?N = 11m.54s., iN = 12m.26s., iS_cPN = 12m.47s., iN = 12m.59s.
Honolulu e = 17m.37s.?
Berkeley eZ = 22m.13s.
Pasadena iEN = 22m.50s.
Palomar eE = 22m.19s.
Tucson i = 13m.22s., e = 15m.13s., ePP = 15m.44s., esS = 23m.27s., e = 34m.13s., ePKP, PKP = 38m.49s.
Tacubaya esSE = 24m.0s.
Sitka i = 23m.53s.
Logan i = 23m.36s. and 24m.16s.
Butte ePP = 16m.33s., eSKS = 23m.23s., e = 27m.22s., esSS = 29m.55s.
Bozeman ePP = 16m.41s., iS = 24m.2s., e = 26m.9s. and 28m.41s., eSS = 30m.5s., esSS = 30m.32s., e = 36m.26s.
College e = 23m.38s., 24m.55s., and 25m.38s., eSS = 29m.13s.
Huancayo e = 25m.6s., e = 29m.39s.
Lincoln readings increased by 2m.
La Paz SSZ = 32m.51s.
Florissant ePPZ = 17m.55s., iSKKSE = 24m.56s., iSN = 25m.27s., iSSN = 32m.32s.
St. Louis ePPE = 17m.59s., epPPE = 18m.21s., iSKSE = 24m.20s., iSKKSE = 24m.58s., iSE = 25m.29s., iSSN = 32m.33s., iE = 34m.6s.
Ottawa eN = 27m.14s. and 27m.57s., eE = 29m.6s.
San Juan eSKKS = 26m.0s.
Bermuda eS = 27m.55s., ePS = 29m.59s., eSS = 36m.37s., e = 39m.39s. and 39m.45s., eSSS = 40m.47s.
Sverdlovsk iPKS = 22m.9s., PPS = 32m.3s.
Moscow iSKKS = 29m.0s.?, PS = 32m.20s., PPS = 34m.45s.
Upsala PKKPN = 28m.34s., eSKKSE = 29m.11s., SKKSN = 29m.16s., eN = 32m.41s.?, SKKKS?E = 37m.17s., eSSN = 39m.41s.?
Bergen PSN = 32m.47s., eSSN = 40m.41s.?
Aberdeen iE = 19m.40s., iEN = 87m.45s.
Copenhagen 19m.36s., 20m.1s., 33m.21s., and 35m.43s., SS = 42m.41s.
Warsaw eN = 24m.33s. and 30m.36s., PPPZ = 33m.27s., eN = 34m.3s., SKKSZ = 34m.49s., SSSN = 38m.29s., eN = 43m.22s. and 49m.22s.

Continued on next page.

Durham iN = 29m.57s. and 33m.27s.
Ksara PP = 23m.15s.
Collmberg iZ = 19m.45s., 19m.55s., 20m.12s., and 20m.29s., eZ = 20m.39s. and 24m.14s., ePP?N = 25m.15s., eEN = 30m.12s., eZ = 33m.14s.
De Bilt ePPP = 27m.1s., iPSKS? = 33m.40s., ePPS = 36m.41s., eSS = 43m.51s.
Cheb e = 30m.26s. and 38m.49s.
Uccle iPKP$_2$Z = 20m.3s., ePPN = 23m.35s., eN = 23m.57s., 31m.4s., and 33m.32s., ePSKSN = 33m.54s.
Paris e = 23m.31s., iPP = 23m.46s., eSKS = 27m.12s., e = 29m.10s. and 30m.32s., i = 31m.18s., e = 32m.16s.
Strasbourg e = 19m.52s., iPKP$_2$? = 20m.11s., ePPP$_2$? = 32m.51s.
Zagreb eP = 19m.50s., ePKP$_2$ = 20m.13s.
Clermont-Ferrand i = 20m.23s.
Rome iPPZ = 24m.16s., ePSKSE = 34m.41s., ePPSE = 37m.40s.?
Alicante PKS = 24m.17s., PPP = 28m.49s., PPS = 38m.43s., SSS = 51m.47s., Q = 67m.1s.
Granada pPKP = 21m.24s., sPKP = 21m.53s., sSKP = 24m.38s., iPP = 25m.15s., pPP = 25m.45s., sSKS = 28m.17s., PPP = 28m.55s., pPPP = 29m.40s., sSKKS = 32m.33s., SKSP = 35m.39s., sSKSP = 36m.23s., PPS = 38m.48s., SS = 45m.27s., Q = 81m.5s.
Malaga iPKP$_2$Z = 20m.58s., PPPZ = 28m.27s., PPSZ = 37m.59s., QZ = 67m.23s.
Algiers e = 21m.41s., i = 23m.28s. and 35m.41s.
Long waves were also recorded at Santa Lucia.

Aug. 21d. 18h. 59m. 21s. Epicentre 18°·9N. 68°·9W. (as on 20d.).

A = +·3408, B = −·8833, C = +·3220; δ = +5; h = +5.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·3	264	e 0 55	+ 2	i 1 30	− 5	—	—	1·8
Fort de France		8·5	118	e 2 13	+ 6	—	—	—	—	—
Bogota		15·1	200	e 3 37	+ 1	e 6 25	0	i 3 45	PP	—
Weston		23·5	357	e 5 12	0	—	—	—	—	—
Harvard		23·6	357	e 5 12	− 1	e 9 20	− 5	—	—	—
St. Louis	z.	27·0	321	e 5 37	− 8	—	—	—	—	—
Huancayo		31·4	192	e 6 27	+ 2	—	—	—	—	—
Tucson		39·8	298	e 7 34	− 2	—	—	e 9 11	PP	—
Palomar	z.	45·0	299	i 8 17	− 2	—	—	—	—	—
Riverside	z.	45·5	300	e 8 24	+ 1	—	—	—	—	—
Mount Wilson	z.	46·1	300	i 8 25	− 3	—	—	—	—	—
Tinemaha		46·7	304	e 8 30	− 2	—	—	—	—	—

Aug. 21d. 19h. 17m. 39s. Epicentre 18°·9N. 68°·9W. (as at 18h.).

Intensity III at Cape Haïtien, Fonds Verrettes, Petit Goâve, and Port au Prince.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

A = +·3408, B = −·8833, C = +·3220; δ = +5; h = +5.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan	2·7	101	i 0 55	+10	i 1 22	+ 3	—	—	i 1·5
Port au Prince	3·3	264	i 0 57	+ 4	1 52	SSS	—	—	—
Fort de France	8·5	118	e 2 14	+ 7	i 4 16	SSS	—	—	—
Bermuda	13·9	15	e 3 19	− 2	i 5 32	−25	—	—	i 6·4
Balboa Heights	14·3	228	e 3 29	+ 3	e 6 1	− 5	—	—	—
Bogota	15·1	200	e 3 41	+ 5	e 6 31	+ 6	i 3 49	PP	—
Columbia	18·5	328	e 4 8	−11	e 7 27	−17	—	—	e 8·5
Merida	19·6	280	e 4 28	− 4	i 8 3	− 5	i 4 58	PPP	—
Mobile	21·0	308	4 44	− 3	8 32	− 5	—	—	—
Georgetown	21·2	344	i 4 43	− 6	i 8 39	− 2	e 8 21	S	—
Philadelphia	21·7	348	e 4 51	− 4	e 8 44	− 7	i 5 36	?	i 9·5
Fordham	22·3	351	e 4 57	− 4	i 8 55	− 7	—	—	—
Pennsylvania	23·1	343	i 5 4	− 4	i 9 14	− 2	—	—	—
Weston	23·5	357	i 5 10	− 2	i 9 13	−10	i 5 37	PP	i 10·9
New Kensington	23·5	339	e 5 12	0	i 9 22	− 1	—	—	e 10·5
Harvard	23·6	357	i 5 9a	− 4	i 9 24	− 1	i 10 3	SS	e 11·2
Halifax	26·0	10	5 37	+ 1	10 4	− 2	11 21?	SS	—
Ottawa	27·0	350	5 42	− 3	10 17	− 5	6 31	PP	12·5
St. Louis	27·0	321	i 5 40	− 5	i 10 8	−14	—	—	—
Florissant	27·2	321	e 5 43	− 4	i 10 17	− 8	i 5 56	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chicago		27·8	329	e 5 49	− 4	i 10 27	− 8	—	—	i 13·1
Shawinigan Falls		27·8	356	5 49	− 4	10 19	−16	—	—	14·0
Seven Falls		28·2	358	6 1	+ 5	10 36	− 5	12 13	SSS	13·4
Huancayo		31·4	192	e 6 29	+ 4	i 11 35	+ 3	i 7 45	PPP	e 12·4
Lincoln		32·3	319	e 6 29	− 4	e 11 33	−13	e 7 14	PP	e 13·9
La Paz	z.	35·2	178	i 7 1k	+ 3	i 12 35	+ 4	15 1	SS	19·9
Tucson		39·8	298	e 7 33	− 3	i 13 39	− 3	i 16 28	SS	e 18·2
Logan		42·9	313	i 7 59	− 3	i 14 19	− 8	e 17 20	SS	e 21·0
Overton		43·5	304	i 8 4	− 3	—	—	—	—	—
Boulder City		43·7	303	i 8 6	− 2	e 14 6	−33	e 18 3	S_cS	—
Bozeman		43·8	318	e 8 8	− 1	e 14 29	−11	e 10 0	PP	e 18·2
Saskatoon		44·4	327	8 16	+ 2	14 40	− 9	17 52	SS	21·4
Ivigtut		44·7	15	i 8 15	− 1	14 51	− 3	18 3	SS	20·4
Butte		44·9	319	e 8 17	− 1	e 14 48	− 8	e 17 59	SS	e 19·2
Palomar		45·0	299	i 8 22	+ 3	e 14 57	− 1	—	—	—
La Jolla		45·3	298	e 8 17	− 4	e 14 58	− 4	—	—	—
Riverside		45·5	300	i 8 20	− 3	e 18 17	SS	—	—	—
Mount Wilson	z.	46·1	300	i 8 25	− 3	—	—	—	—	—
Pasadena		46·2	300	i 8 26k	− 2	i 15 10	− 5	i 18 55	S_cS	e 21·7
Haiwee		46·3	303	i 8 26	− 3	e 15 12	− 4	—	—	—
Tinemaha		46·7	304	i 8 30	− 2	e 15 19	− 3	—	—	—
Santa Barbara		47·5	300	i 8 37	− 1	e 15 29	− 5	—	—	—
Fresno	N.	47·8	304	e 8 39	− 2	e 18 27	S_cS	—	—	e 26·7
Grand Coulee		49·7	318	i 8 50	− 6	e 15 55	− 9	—	—	—
Branner		49·8	304	e 8 53	− 3	e 16 1	− 5	e 9 1	pP	e 26·9
Berkeley		49·9	304	i 8 54	− 3	e 16 1	− 6	i 10 23	P_cP	e 22·7
Shasta Dam		50·4	308	i 8 54	− 7	—	—	e 11 46	PPP	—
Ukiah		50·8	306	e 9 4	0	e 16 16	− 4	—	—	e 20·1
Victoria		52·7	317	9 26	+ 8	16 39	− 7	—	—	25·4
Lisbon		55·0	56	e 9 38a	+ 3	17 24	+ 7	23 10	Q	25·4
Malaga	z.	58·7	58	i 10 4k	+ 2	i 18 7	+ 1	12 41	PP	27·7
Toledo		59·0	55	i 10 4	0	i 18 19	+ 9	22 28	SS	27·8
Granada		59·4	57	i 10 10a	+ 4	i 18 28	+13	i 10 35	pP	28·1
Jersey		60·8	43	e 10 16	0	—	—	—	—	27·4
Edinburgh		61·0	36	e 10 21	+ 3	—	—	—	—	—
Sitka		61·6	326	e 10 27	+ 5	i 18 35	− 8	e 13 59	PPP	i 25·4
Alicante		61·8	56	i 10 25	+ 2	e 18 45	− 1	12 45	PP	30·4
Tortosa	N.	62·4	53	10 33	+ 6	18 57	+ 4	12 38	PP	28·7
Barcelona		63·7	52	10 38	+ 2	e 17 56?	−74	—	—	28·5
Paris		63·8	44	10 37	+ 1	i 19 12	+ 1	19 30	PS	26·4
Clermont-Ferrand		64·2	48	i 10 39	0	i 19 24	+ 8	i 10 41	P_cP	e 27·4
Algiers		64·7	58	e 10 38	− 4	19 30	+ 8	e 10 45	pP	—
Uccle		65·0	42	e 10 44k	0	19 28	+ 2	e 20 36	S_cS	—
De Bilt		65·6	41	e 10 38k	−10	i 19 35	+ 2	e 26 51	SSS	e 32·4
Bergen		66·0	31	10 49	− 1	19 38	0	20 46	S_cS	27·9
Neuchatel		66·9	46	e 10 56	0	e 19 53	+ 4	—	—	—
Basle		67·2	45	e 10 58	0	e 19 56	+ 4	—	—	—
Strasbourg		67·3	44	i 10 59	0	i 19 58	+ 4	e 13 59	PP	e 27·4
Zürich		67·9	45	i 11 3	+ 1	i 20 4	+ 3	—	—	—
College		68·3	334	e 10 51	−14	e 19 43	−23	e 13 30	PP	e 27·4
Chur		68·6	47	e 11 8k	+ 1	e 21 13	S_cS	—	—	—
Jena	N.	69·6	42	e 11 13	0	e 20 24	+ 3	—	—	—
Copenhagen		69·8	37	i 11 13	− 1	i 20 24	+ 1	21 32	S_cS	32·4
Cheb		70·2	43	e 10 21	−56	e 20 36	+ 8	e 14 13	PP	e 35·4
Florence	E.	70·2	49	i 11 26	+ 9	i 20 32	+ 4	—	—	—
Collmberg		70·5	41	e 11 17	− 1	e 20 32	0	e 11 43	P_cP	e 29·4
Potsdam		70·8	40	e 11 21	+ 1	e 20 36	+ 1	—	—	e 31·4
Rome		71·3	52	i 11 27k	+ 4	i 20 53	+12	i 12 4	pP	36·9
Prague		71·5	42	11 25	+ 1	e 20 45	+ 2	—	—	e 28·4
Triest		71·7	47	e 11 29	+ 3	e 20 45	0	e 13 50	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Upsala		72·1	32	11 30	+ 2	e 20 48	− 2	e 25 23	SS	e 28·4
Zagreb		73·2	47	e 11 32	− 3	e 20 52	−10	e 11 40	P_cP	e 36·4
Budapest	E.	75·0	44	11 47	+ 2	e 21 21	− 2	—	—	e 31·9
	N.	75·0	44	e 12 13	+28	21 24	+ 1	—	—	e 33·4
Kalocsa		75·1	45	e 11 51	+ 5	—	—	e 12 1	P	—
Warsaw	N.	75·2	40	e 11 45	− 1	21 28	+ 3	14 43	PP	e 32·9
Belgrade		76·5	47	e 13 5	+71	e 23 12	PPS	e 15 37	PP	e 40·3
Sofia		79·0	49	e 12 11	+ 4	e 22 14	+ 8	—	—	—
Bucharest		80·5	47	e 12 19	+ 4	e 22 27	+ 5	—	—	—
Moscow		83·5	33	i 12 32	+ 1	i 22 54	+ 2	—	—	—
Istanbul		83·6	49	e 12 25	− 6	e 23 41	PPS	—	—	—
Helwan		89·2	59	i 13 3a	+ 4	23 33	[+ 5]	23 57	S	—
Ksara		91·3	54	i 13 15	+ 6	24 22	+16	16 52	PP	—
Sverdlovsk		93·6	25	i 13 20	+ 1	i 24 28	+ 2	16 56	PP	—
Tashkent		108·6	32	e 14 27	P	26 0	{+ 5}	e 21 37	PPP	—
Samarkand		108·7	36	18 58	[+28]	—	—	—	—	—
Irkutsk		108·9	4	e 14 29	P	25 9	[+ 1]	18 56	PP	—
Andijan		110·6	30	e 18 52	[+18]	25 34	[+20]	28 41	PS	—
New Delhi		122·5	35	i 20 34	PP	—	—	—	—	e 61·7
Bombay	E.	126·9	47	e 20 41	PP	—	—	—	—	—

Additional readings and notes :—
Bogota i = 3m.45s., iSS = 6m.49s., S_cP = 11m.28s.
Merida iN = 5m.44s. and 5m.54s., iP_cPN = 8m.49s.
Harvard i = 5m.13s.
Weston i = 5m.22s., iP_cP? = 9m.21s., iQ = 9m.32s.
Ottawa i = 10m.33s., SS = 11m.33s.
St. Louis iZ = 5m.44s., iE = 10m.14s.
Huancayo i = 6m.51s.
La Paz iSE = 12m.39s.
Tucson i = 8m.19s. and 8m.33s., iPP? = 8m.53s., i = 9m.43s., e = 14m.24s.
Logan iPP = 9m.19s.
Saskatoon PPPNW = 10m.1s.
Butte ePP = 9m.45s.
Pasadena eS_cPZ = 13m.56s.
Berkeley i = 8m.59s., iPPN = 10m.58s., iN = 17m.3s., eSSE = 19m.45s., iZ = 19m.58s.
Shasta Dam e = 12m.56s.
Malaga P_cPZ = 10m.35s., PPPZ = 13m.45s., S_cPZ = 14m.38s., SSZ = 21m.57s.
Toledo PPZ = 11m.10s., QE = 25m.5s.
Granada P_cP = 11m.1s., PP = 12m.42s., PPP = 13m.55s., P_cS = 14m.49s., pS = 19m.4s., sS = 19m.33s., S_cS = 20m.15s., SS = 22m.44s., SSS = 25m.55s.
Sitka i = 20m.11s., iSS = 22m.43s.
Alicante eP = 10m.37s., P_cP = 11m.22s., PS = 18m.57s., S_cS = 20m.1s.
Tortosa iN = 10m.38s., P_cPN = 11m.30s., PPPN = 13m.52s., P_cSN = 15m.4s., SSN = 23m.35s.
Paris i = 11m.6s., e = 11m.44s., 15m.42s., 20m.30s., 21m.33s., and 22m.2s.
Clermont-Ferrand 11m.51s.
Uccle eE = 20m.44s., eSSS = 26m.21s.?
De Bilt ePPS? = 20m.21s.
Bergen SSE = 23m.58s.
Strasbourg eP_cP = 11m.40s., ePS = 20m.30s., e = 21m.15s.
College e = 20m.35s., eSS = 23m.52s.
Collmberg eZ = 13m.18s., ePPZ = 14m.8s., eS_cSN = 21m.27s., eSSN = 24m.57s., eN = 27m.31s., ePKP,PKPZ = 39m.13s.
Upsala iSN = 20m.51s., iN = 21m.33s.
Zagreb ePZ = 11m.36s.
Warsaw eN = 17m.39s., PSN = 22m.14s., SSN = 26m.40s.
Helwan e = 16m.24s., PS = 24m.54s.
Ksara PS = 25m.26s.
Sverdlovsk eSKS = 23m.53s., PS = 25m.46s.
Tashkent ePP = 18m.50s., PS = 28m.17s., ePPS = 29m.50s.
Irkutsk ePPP = 21m.13s., ePS = 27m.47s., eSS = 34m.3s., eSSS = 37m.15s.
Andijan ePP = 19m.45s.
Long waves were also recorded at Besançon and Riverview.

Aug. 21d. 21h. 52m. 19s. Epicentre 18°·9N. 68°·9W. (as at 19h.).

$A = +\cdot3408$, $B = -\cdot8833$, $C = +\cdot3220$; $\delta = +5$; $h = +5$;

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
San Juan		2·7	101	e 0 52	+ 7	i 1 31	+12	e 1 1	PP		i 1·7
Fort de France		8·5	118	e 2 14	+ 7	—	—	—		—	—
Bogota		15·1	200	e 3 39	+ 3	e 6 43	+18	i 3 54	PP		—
Philadelphia		21·7	348	e 4 56	+ 1	e 8 43	− 8	e 5 31	PP		e 10·3
Weston		23·5	357	e 5 11	− 1	—	—	—		—	—
Harvard		23·6	357	e 5 10	− 3	e 9 14	−11	—		—	—
Ottawa		27·0	350	5 43	− 2	10 11	−11	—		—	e 13·7
St. Louis		27·0	321	e 5 45	0	e 10 14	− 8	—		—	—
Tucson		39·8	298	e 7 35	− 1	—	—	—		—	—
Pasadena	z.	46·2	300	i 8 22	− 6	—	—	—		—	—
Tinemaha		46·7	304	e 8 27	− 5	—	—	—		—	—

Bogota also gives i = 3m.45s.
Long waves were also recorded at Granada and Uccle.

Aug. 21d. Readings also at 2h. (Auckland and Tucson), 3h. (Tucson (2), Riverside, Mount Wilson, Palomar, St. Louis, and Fort de France), 4h. (St. Louis, Tucson, Palomar, Riverside, Mount Wilson, Pasadena, Bermuda, Philadelphia, Warsaw, Almata, near Andijan (2), Tchimkent (2), Samarkand, and Tashkent (2)), 5h. (Harvard, Bombay, New Delhi, and Ksara), 6h. (Tucson, Weston, Andijan, Tchimkent, Samarkand, and De Bilt), 8h. (Irkutsk and Tashkent), 9h. (Sverdlovsk, Warsaw, Paris, Strasbourg, and De Bilt), 11h. (Tucson), 12h. (Ksara), 13h. (near Leninakan), 15h. (Zürich), 16h. (Zürich, Tucson, and Shasta Dam), 18h. (Tucson and La Plata), 19h. (Tucson and La Plata), 21h. (near Mizusawa), 22h. (Port au Prince), 23h. (Bogota, Harvard, St. Louis, and Tucson).

Aug. 22d. 1h. 17m. 43s. (I) } Epicentre 19°·6N. 69°·4W.
1h. 45m. 5s. (II) } (as on 19d.).

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
II	San Juan	3·3	111	i 0 57	+ 4	i 1 30	− 5	—		—	i 1·7
I	Bogota	15·6	198	e 3 41	− 2	e 6 28	− 9	i 3 48	PP		—
II		15·6	198	e 3 40	− 3	e 6 26	−11	i 3 45	PP		—
II	Philadelphia	20·9	348	e 4 51	+ 5	e 8 45	+10	e 5 27	PP		e 10·2
I	Weston	22·8	357	e 5 8	+ 3	—	—	—		—	—
II		22·8	357	i 5 7	+ 2	—	—	—		—	—
I	Harvard	22·9	357	e 5 5	− 1	e 9 17	+ 4	—		—	—
II		22·9	357	e 5 7	+ 1	e 9 15	+ 2	—		—	—
I	St. Louis	26·2	321	e 5 40	+ 2	e 10 11	+ 2	—		—	—
II		26·2	321	e 5 36	− 2	e 10 13	+ 4	i 6 13	PP		—
II	Ottawa	26·3	350	5 41	+ 2	10 13	+ 2	—		—	13·9
II	Huancayo	32·0	192	e 6 29	− 1	—	—	—		—	e 16·5
II	La Paz	35·9	178	12 55	S	(12 55)	+13	—		—	21·9
I	Tucson	39·1	298	e 7 31	0	—	—	—		—	—
II		39·1	298	e 7 29	− 2	—	—	e 9 15	PP		—
II	Overton	42·8	304	e 8 1	0	—	—	—		—	—
I	Riverside	z. 44·8	300	i 8 16	− 1	—	—	—		—	—
I	Tinemaha	45·9	304	e 8 26	0	—	—	—		—	—

Additional readings :—
St. Louis II iPZ = 5m.39s., iZ = 10m.34s.
Tucson I e = 8m.27s., II e = 7m.50s. and 8m.21s.
Long waves were also recorded at Columbia and Granada to shock II.

Aug. 22d. Readings also at 0h. (Port au Prince), 1h. (St. Louis, near Andijan, Stalinabad, and Tchimkent), 9h. (Alicante), 11h. (Tucson), 13h. (near Tacubaya (2)), 15h. (La Paz and near Ottawa), 16h. (Riverview, Arapuni, Auckland, Christchurch, Wellington, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Huancayo, La Paz, La Plata, Florissant, Paris, Strasbourg, Helwan, Ksara, and Istanbul), 17h. (Tucson, Ukiah, Clermont-Ferrand, Rome, De Bilt, Kew, and Copenhagen), 18h. (Alicante and Malaga), 19h. (Santa Clara), 20h. (near Andijan, Samarkand, and Tashkent), 21h. (Huancayo, Harvard, Overton, Tucson, and Riverside), 22h. (Ksara and near Tacubaya (4)).

Aug. 23d. 20h. Italian shock.

Triest eP_g =30m.24s., e =30m.28s., iP_gP_g =30m.34s., iS_g =30m.40s., iSS =30m.46s.
Chur eP =31m.43s., eS_g =32m.10s.
Zürich eP =31m.56s., eS_g =32m.34s.
Neuchatel eP =32m.5s.
Basle eP =32m.5s., eS_g =33m.1s.
Strasbourg eP =32m.11s., eP* =32m.25s., eS =33m.2s., eS* =33m.15s.
Jena eN =32m.28s. and 33m.8s., eE =33m.33s., eN =33m.36s.

Aug. 23d. Readings also at 0h. (near Berkeley), 4h. (Overton and Tucson), 5h. (Sitka and Tucson), 7h. (Sitka and near Triest), 8h. (Boulder City, Overton, Shasta Dam, Tucson, and St. Louis), 9h. (near Triest), 10h. (St. Louis and near Tananarive), 11h. (Helwan and Ksara), 15h. (Tucson and near Huancayo), 16h. (Tucson), 17h. (near Andijan, Samarkand, Tashkent, and Tchimkent), 20h. (Collmberg and near Tananarive).

Aug. 24d. 0h. 29m. 24s. Epicentre 13°·5N. 51°·5E. (as on 1940, Aug. 13d.).

$A = +·6055$, $B = +·7612$, $C = +·2320$; $\delta = -12$; $h = +6$;
$D = +·783$, $E = -·623$; $G = +·144$, $H = +·182$, $K = -·973$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		24·7	327	e 5 24	0	e 10 5	+21	—	—	—
Helwan		24·8	314	e 5 33	+ 8	e 10 12	+26	e 6 36	PPP	—
Baku		26·8	357	—	—	10 6	−13	—	—	—
Leninakan		28·0	347	e 6 6	+11	—	—	—	—	—
Istanbul		33·7	329	e 6 42	− 3	—	—	—	—	—
Moscow		43·5	348	e 8 6	− 1	e 14 26	−10	—	—	—
Rome		44·1	318	e 8 6	− 6	—	—	—	—	—
Triest		45·2	323	e 8 17	− 3	e 14 55	− 6	e 18 50	SS	e 26·0
Warsaw	N.	45·8	335	—	—	e 15 8	− 1	—	—	e 25·9
Collmberg	Z.	48·8	328	e 8 45	− 4	—	—	—	—	—
Strasbourg		50·2	323	e 11 52	PPP	e 16 13	+ 2	—	—	e 26·6
Clermont-Ferrand		51·8	318	—	—	e 16 36	+ 3	—	—	—
Copenhagen		51·8	333	—	—	i 16 34	+ 1	—	—	28·6
De Bilt		53·3	327	—	—	e 17 6	+12	—	—	e 27·6
Paris		53·4	321	—	—	e 17 7	+12	—	—	e 31·6

Collmberg gives also eZ =9m.3s.
Long waves were also recorded at other European stations.

Aug 24d. 2h. 42m. 4s. Epicentre 11°·5N. 86°·3W. (as on 1944 April 7d.).

Doubtful.

$A = +·0633$, $B = -·9782$, $C = +·1981$; $\delta = +13$; $h = +6$;
$D = -·998$, $E = -·065$; $G = +·013$, $H = -·198$, $K = -·980$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Balboa Heights	7·0	109	2 7	P*	—	—	—	—	—
Bogota	13·9	119	e 3 33	+12	—	—	—	—	—
San Juan	20·6	68	e 5 9	+26	e 8 49	+20	e 5 58	PP	e 10·1
Columbia	22·9	11	e 5 8	+ 2	e 9 26	+13	—	—	e 12·2
Huancayo	25·8	155	e 5 41	+ 7	e 10 11	+ 9	e 5 58	PP	e 14·0
St. Louis	27·2	354	e 5 47	0	e 10 34	+ 9	i 6 18	PP	—
Philadelphia	30·0	18	e 6 16	+ 4	e 10 45	−25	e 6 55	PP	e 11·3
Chicago	30·2	358	e 6 12	− 2	e 12 54	SS	e 7 20	PP	e 14·0
Tucson	30·6	317	e 6 14	− 4	e 12 23	+63	e 7 37	PP	—
La Paz	33·1	147	e 8 44	PPP	—	—	—	—	19·6
Harvard	33·4	20	e 6 46	+ 4	—	—	—	—	e 16·9
Weston	33·4	20	e 6 46	+ 4	—	—	—	—	—
Ottawa	35·0	13	6 56	0	12 41	+13	8 16	PP	16·9
Palomar	35·4	314	i 6 58a	− 2	—	—	i 8 42	PP	—
Boulder City	35·5	319	e 6 57	− 3	—	—	—	—	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Overton		35·5	320	e 7 4	+ 4	—	—	—	—	—
Riverside	Z.	36·1	315	i 7 5a	0	—	—	—	—	—
Pasadena		36·8	315	i 7 10a	− 1	—	—	i 8 33	PP	e 15·9
Logan		37·5	329	e 7 16	− 1	—	—	17 56	Q	e 27·0
Tinemaha	E.	38·4	318	e 7 25	0	—	—	—	—	—
Butte		41·0	333	e 8 7	+21	—	—	e 10 7	PPP	e 26·1
Berkeley		41·5	316	e 7 38	−12	e 14 8	+ 1	e 17 54	SS	e 23·7
Paris		80·7	42	—	—	e 23 25	PPS	e 28 21	SS	e 39·9
Strasbourg		84·1	42	—	—	e 23 21	PS	e 29 28	SS	e 38·9
Ksara		109·0	48	e 10 6	?	e 13 32	?	—	—	—

Additional readings :—
Bogota i = 3m.40s.
Tucson i = 6m.33s.
Palomar iNZ = 9m.31s.
Strasbourg e = 24m.12s. and 24m.22s.
Long waves were also recorded at Sitka and other European stations.

Aug. 24d. 14h. 18m. 17s. Epicentre 19°·6N. 69°·4W. (as on 22d.).

Intensity III at Fonds Verrettes and Port au Prince.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		3·0	249	i 0 46	− 4	i 1 21	− 6	i 1 3	P_g	i 2·0
San Juan		3·3	111	e 0 53	0	i 1 27	− 8	—	—	i 1·8
Fort de France		9·2	120	—	—	3 21	?	—	—	—
Bogota		15·6	198	e 3 40	− 3	e 6 24	−13	i 3 48	PP	—
Columbia		17·7	328	e 4 10	0	e 7 26	0	—	—	e 9·2
Philadelphia		20·9	348	e 4 45	− 1	i 8 40	+ 5	e 5 16	PP	e 9·7
Weston		22·8	357	e 5 5	0	e 9 7	− 4	—	—	e 9·3
Harvard		22·9	357	e 5 7	+ 1	e 9 18	+ 5	—	—	e 9·7
Ottawa		26·3	350	5 40	+ 1	10 13	+ 2	—	—	12·7
Chicago		27·0	329	e 6 2	+17	e 10 20	− 2	—	—	e 12·1
Seven Falls		27·5	358	—	—	e 11 19	+49	—	—	15·7
Huancayo		32·0	192	e 6 27	− 3	'e 11 39	− 3	i 8 3	PPP	e 16·2
La Paz	Z.	35·9	178	i 7 7a	+ 3	i 12 47	+ 5	8 19	PP	21·2
Tucson		39·1	298	e 7 31	0	e 13 51	+20	19 17	PP	e 22·4
Logan		42·1	313	e 7 55	0	i 14 14	− 2	e 10 10	PPP	e 19·5
Overton		42·8	304	e 8 0	− 1	—	—	—	—	—
Boulder City		43·0	303	i 8 2	− 1	—	—	—	—	—
Bozeman		43·0	318	—	—	e 14 9	−20	—	—	e 17·9
Butte		44·1	319	e 8 14	+ 2	e 14 42	− 3	—	—	e 18·1
Ivigtut		44·2	15	—	—	15 1	+15	—	—	22·7
Palomar		44·3	299	i 8 13	0	e 14 52	+ 4	—	—	—
Riverside	Z.	44·8	300	i 8 16	− 1	—	—	—	—	—
Mount Wilson		45·4	300	i 8 21a	− 1	—	—	—	—	—
Pasadena		45·4	300	i 8 21a	− 1	i 15 6	+ 2	—	—	—
Tinemaha		45·9	304	e 8 26	0	e 15 14	+ 3	—	—	—
Santa Clara		48·8	304	e 8 45	− 4	e 15 56	+ 4	—	—	—
Berkeley		49·1	304	e 8 49	− 2	e 15 57	+ 1	e 19 55	SS	e 24·9
Shasta Dam		49·6	308	i 8 52	− 3	—	—	—	—	—
Malaga	Z.	58·8	58	i 10 0a	− 2	i 19 23	?	11 55	PP	27·4
Toledo		59·0	55	i 10 5	+ 1	i 18 11	+ 1	—	—	27·7
Granada		59·4	57	i 10 12a	+ 6	i 18 21	+ 6	i 10 39	pP	i 28·5
Sitka		60·8	326	—	—	e 18 31	− 2	e 20 3	S_oS	e 25·5
Aberdeen	E.	61·5	34	e 10 45	+24	—	—	—	—	e 28·9
Alicante		61·8	56	10 39	+16	e 19 3	PPS	—	—	e 29·6
Kew		61·9	42	e 11 25?	+61	e 18 47	0	—	—	e 24·7
Paris		63·7	44	e 10 34	− 2	e 19 14	+ 4	e 22 48?	SS	e 28·7
Clermont-Ferrand		64·1	48	—	—	e 19 16	+ 1	—	—	e 32·7
Uccle		64·8	42	e 10 46a	+ 3	e 19 24	+ 1	e 23 25	SS	e 30·7
De Bilt		65·4	41	e 10 49	+ 2	e 19 33	+ 3	—	—	e 30·7
Strasbourg		67·1	44	e 11 2	+ 5	e 19 54	+ 3	e 20 55	PS	e 31·7

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
College	67·5	334	—	—	e 19 46	−10	e 27 42	SSS	e 34·2
Copenhagen	69·5	37	e 11 16	+ 4	1 20 22	+ 2	—	—	31·7
Cheb	70·0	43	e 8 43	?	e 20 30	+ 4	—	—	e 33·7
Collmberg	70·3	41	e 11 17	0	—	—	—	—	e 35·7
Prague	71·3	42	11 5	−18	e 20 28	−13	—	—	e 34·7
Rome	71·3	52	e 11 28	+ 5	e 20 45	+ 4	—	—	—
Triest	71·6	47	e 11 25	0	e 20 45	+ 1	e 21 28	PS	—
Moscow	83·2	33	12 33	+ 4	22 49	0	—	—	—
Istanbul	83·5	49	i 12 38	+ 7	e 22 57	+ 5	—	—	—
Helwan	89·3	59	13 5	+ 6	23 55	+ 7	23 31	SKS	—
Ksara	91·3	54	e 11 46	?	e 23 50	−16	—	—	—
Sverdlovsk	93·1	25	e 13 22	+ 5	23 48	[− 3]	i 25 34	PS	—
Baku	97·9	42	—	—	e 24 24	[+ 8]	—	—	—
Irkutsk	108·2	4	—	—	25 1	[− 4]	—	—	—

Additional readings :—
Bogota e = 6m.34s., eSS = 6m.42s.
La Paz SS = 15m.5s.
Tucson i = 8m.8s., e = 16m.25s.
Malaga PPPZ = 13m.9s., SSZ = 20m.55s.
Granada P_cP = 10m.59s., ePP = 12m.29s., eSSS = 22m.44s.
Alicante PS = 19m.15s.
Kew eZ = 15m.39s.
Paris i? = 10m.38s.
Uccle eS_cSE = 20m.49s.
Strasbourg eS = 20m.0s., eSS = 24m.16s., e = 27m.1s.
Collmberg eZ = 11m.24s. and 13m.11s.
Sverdlovsk PP = 16m.52s., S = 24m.25s., SS = 30m.48s.
Long waves were also recorded at Ukiah.

Aug. 24d. Readings also at 0h. (Bombay), 2h. (Tucson), 3h. (near Mizusawa), 5h. (Ksara), 7h. (Tucson and near Bogota), 9h. (Boulder City and Overton), 11h. (Tucson), 12h. (Port au Prince and near Fresno), 13h. (Palomar, Pasadena, Tinemaha, Tucson, Overton, St. Louis, Chicago, Weston, Harvard, and Philadelphia), 14h. (Balboa Heights), 15h. (Harvard and Weston), 17h. (Mizusawa and near Fresno), 22h. (near Branner).

Aug. 25d. 11h. 23m. 42s. Epicentre 41°·7N. 33°·6E.
Felt at Cankiri and Kastamonu.
Annales de l'Institut de Physique du Globe de Strasbourg, 1946, 2e partie, Séismologie, Nouvelle Série, Tome XI, p. 65. Epicentres 41°·3N. 33°·2E. (Strasbourg), 42°·1N. 32°·1E. (U.S.S.R.).

$A = +·6237$, $B = +·4144$, $C = +·6627$; $\delta = -10$; $h = -2$;
$D = +·553$, $E = -·833$; $G = +·552$, $H = +·367$, $K = -·749$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Yalta		2·8	8	0 52	+ 5	1 20	− 2	1 34	S_g	—
Istanbul		3·5	261	0 47	−10	1 40	0	—	—	—
Bucharest	N.	6·1	299	e 1 36	+ 2	i 2 41	− 4	i 3 10	S*	—
Piatigorsk		7·3	68	e 1 54	+ 4	—	—	—	—	—
Sofia		7·7	281	e 2 0	+ 4	e 3 36	+11	e 2 46	P_g	i 4·3
Ksara		8·1	166	e 1 47	−15	e 3 43	+ 8	—	—	—
Grozny		9·1	76	e 1 58	−16	—	—	—	—	—
Belgrade		10·1	293	e 3 1	?	e 5 50	L	—	—	(e 5·8)
Kalossa		11·6	300	e 4 31	?	e 5 1	0	—	—	e 7·0
Budapest		11·9	304	e 4 36	?	e 5 58	L	—	—	e 8·8
Helwan		12·0	189	e 2 39	−16	—	—	—	—	—
Zagreb		13·4	294	e 3 15	+ 1	—	—	e 7 9	SSS	—
Warsaw	N.	13·6	325	e 5 50	S	(e 5 50)	0	—	—	e 11·7
Moscow		14·3	9	3 25	− 1	6 6	0	—	—	—
Triest		14·9	292	e 3 29	− 5	—	—	—	—	—
Prague		15·7	309	e 3 48	+ 4	—	—	—	—	—
Rome		15·8	278	e 3 44	− 1	e 6 58	+16	—	—	e 8·8
Florence	E.	16·6	285	e 4 0	+ 4	i 7 24	+24	—	—	—
Cheb		16·9	307	e 7 22	S	(e 7 22)	+15	—	—	e 9·3
Collmberg	Z.	17·1	311	e 4 2	0	e 6 45	−27	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Potsdam	N.	17·6	315	—	—	e 8 12	+49	—	—	—
Chur		18·0	296	e 4 21	+ 8	—	—	—	—	—
Zürich		18·7	297	e 4 19	− 3	—	—	—	—	—
Basle		19·4	297	e 4 29	− 1	—	—	—	—	e 12·7
Strasbourg		19·4	300	e 4 31	+ 1	e 8 14	+10	e 4 50	PP	e 11·3
Copenhagen		19·7	324	e 4 42	+ 8	i 8 24	+14	—	—	10·3
Upsala		20·7	336	e 4 48	+ 4	8 27	− 4	—	—	e 10·3
De Bilt		21·9	310	e 4 57	0	e 9 6	+12	—	—	e 11·3
Uccle		22·1	304	e 4 40	−19	e 8 54	− 4	—	—	e 12·3
Clermont-Ferrand		22·3	291	e 4 44	−17	—	—	—	—	—
Paris		22·9	300	i 5 6	0	—	—	—	—	e 13·3
Sverdlovsk		23·0	40	i 5 9	+ 2	9 17	+ 3	—	—	—
Kew		25·1	305	—	—	e 10 2?	+11	—	—	e 15·3
Samarkand		25·3	85	e 5 18	−12	—	—	—	—	—
Tashkent		26·6	79	e 5 41	− 1	e 10 26	+10	—	—	—
Andijan		29·0	79	6 3	− 1	—	—	—	—	—

Additional readings :—
Bucharest eEN = 1m.40s., eE = 1m.47s., iN = 2m.21s., iE = 2m.29s. and 2m.57s.
Budapest e = 6m.18s.
Helwan e = 3m.30s.
Warsaw eN = 6m.23s., 7m.7s., and 7m.51s., SN = 9m.13s., SSN = 9m.52s., eN = 10m.55s.
Collmberg eZ = 4m.48s.
Strasbourg e = 5m.29s. and 5m.52s.
Long waves were also recorded at Alicante and Malaga.

Aug. 25d. Readings also at 0h. (Tucson), 1h. (Tucson, Bogota, Huancayo, and La Paz), 7h. (Ksara), 9h. (Mizusawa), 11h. (near Grozny, Leninakan, and Piatigorsk), 13h. (Copenhagen and De Bilt), 14h. (Uccle), 15h. (Haiwee, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson (2), Overton, La Paz, and Ksara), 16h. (De Bilt, Uccle, Copenhagen, Kew, Paris, Strasbourg, and Rome), 21h. (Boulder City).

Aug. 26d. Readings at 2h. (Boulder City and Overton), 4h. (near Fort de France), 7h. (Andijan, Samarkand, and Tashkent), 9h. (Rome, Triest, Zagreb, Istanbul, Bucharest, Strasbourg, Paris, Collmberg, Warsaw, near Andijan, and near Mizusawa), 10h. (Ksara), 11h. (New Delhi, Grozny, Ksara, and Tashkent), 13h. (near San Francisco), 16h. (near Mizusawa), 17h. (Ksara and near Grozny), 21h. (Tucson), 22h. (La Paz and Philadelphia).

Aug. 27d. 14h. 34m. 41s. Epicentre 29°·5S. 63°·0E.

Rough.

$A = +·3958$, $B = +·7768$, $C = -·4899$; $\delta = +8$; $h = +2$;
$D = +·891$, $E = -·454$; $G = -·222$, $H = -·437$, $K = -·872$.

		Δ	Az.	P.	O−C.	S.	O−C.	L.
		°	°	m. s.	s.	m. s.	s.	m.
Tananrive		17·6	303	e 4 10	+ 2	6 47	−36	e 7·7
Ksara		68·0	335	e 11 2	− 1	e 20 5	+ 3	—
Andijan		70·4	8	e 11 21	+ 3	—	—	—
Tashkent		70·7	5	e 11 12	− 8	e 20 19	−15	—
Sverdlovsk		86·0	358	12 43	0	23 9	− 8	—
Moscow		87·6	346	12 51	0	e 23 28	− 4	—
Zürich		90·9	326	e 13 8	+ 1	—	—	—
Collmberg	Z.	91·7	331	e 13 12	+ 2	—	—	—
Tucson		174·0	299	e 21 48	[+97]	—	—	—

Collmberg gives also eZ = 13m.28s. and 14m.4s.

Aug. 27d. Readings also at 0h. (Ferndale and near Basle), 3h. (near Grozny), 7h. (Pasadena, Tucson, St. Louis, La Paz, and near Bogota), 8h. (Tucson, Bogota, La Paz, and near Huancayo), 9h. (La Paz (2) and near Triest), 10h. (Tashkent and near Irkutsk), 11h. (Kew, Paris, Strasbourg, and La Paz), 15h. (near Zürich), 16h. (Tucson, near Tacubaya, and near Fort de France), 17h. (near La Paz (2), and near Oaxaca), 21h. (La Paz), 22h. (near Tacubaya), 23h. (St. Louis, Tucson, and near Tacubaya).

Aug. 28d. 20h. Epicentre South-west Pacific.

Suva iP = 8m.12s., i = 8m.25s., S = 10m.20s.?
Brisbane iPN = 8m.33s., iSN = 13m.27s.
Christchurch P = 11m.25s., S = 15m.44s., Q = 16m.46s., R = 18m.1s.
Riverview ePEZ = 14m.5s., eS?E = 18m.52s., eQN = 20·2m., eSS?N = 20m.22s., eR = 21·2m.
Wellington e = 14·8m., Q = 16m.8s., R = 12·2m.
Pasadena iPZ = 18m.31s., eSN? = 29m.29s., eLE = 38m.0s.
Berkeley ePZ = 18m.32s., eN = 18m.36s., eSEN = 28m.28s., eLEN = 39·1m.
Santa Barbara ePZ = 18m.32s.
Mount Wilson ePZ = 18m.33s.
Palomar ePZ = 18m.33s.
Riverside ePZ = 18m.34s.
Santa Clara eZ = 18m.34s., eLZ = 46m.15s.
La Jolla ePZ = 18m.35s.
Shasta Dam eP = 18m.40s.
Tinemaha iPEZ = 18m.43s.
Haiwee eP = 18m.44s.
Boulder City eP = 18m.49s.
Overton eP = 18m.54s.
Tucson e = 18m.54s., i = 18m.58s. and 19m.43s., eSS? = 34m.46s., e = 41m.23s., eL = 45m.38s.
Sitka e = 19m.17s., eS? = 29m.49s., e = 37m.31s., eL = 43m.10s.
Irkutsk eP = 20m.0s., ePP = 24m.0s., ePPS = 34m.0s., SS = 39m.0s.
Tashkent PKP = 25m.25s. SKKS = 33m.46s.
Sverdlovsk ePKP = 25m.36s., PKS = 28m.55s.
Sotchi ePKP = 25m.52s.
Moscow iPKP = 25m.58s., iPP = 28m.48s., SKKS = 35m.44s., PS = 39m.8s.
Copenhagen 26m.15s., L = 90m.
Ksara ePKP = 26m.21s., ePP = 30m.3s., PSKS? = 40m.7s.
Helwan ePKP? = 26m.25s., PKP_2? = 26m.52s., PP? = 30m.28s.
Malaga iPKPZ = 27m.4s.k, PPZ = 31m.16s., SKS?Z = 33m.38s., PPS?Z = 44m.14s., LZ = 92m.46s.
Rome ePKP? = 28m.22s., eSS?E = 52m.7s.
Huancayo e = 30m.27s., 38m.30s., and 52m.0s.
St. Louis eSKS?E = 30m.56s., eE = 31m.30s., eSKKS?E = 32m.0s., eE = 33m.25s. and 33m.46s., ePS?E = 34m.55s., eE = 38m.49s., eSS?E = 41m.21s., eE = 43m.29s., eLE = 56m.15s.
Philadelphia e = 33m.35s. and 35m.18s., ePP? = 35m.47s., eSKS? = 41m.21s., ePS = 45m.12s., e = 57m.10s., eL = 63m.42s.
Long waves were also recorded at Auckland and other American and European stations.

Aug. 28d. 22h. 26m. 23s. Epicentre 19°·4N. 70°·4W. (as on 21d.).

		△	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Fort de France		10·0	116	e 0 44	?	—	—	—		—	—
Bogota		15·1	194	e 3 45	+ 9	i 6 40	+15	—		—	—
Philadelphia		20·9	351	e 4 47	+ 1	e 8 34	− 1	—		—	e 10·0
Weston		22·9	359	i 4 57	− 9	—	—	—		—	—
Harvard		23·1	359	e 5 6	− 2	e 9 5	−11	—		—	—
St. Louis		25·8	322	e 5 33	− 1	e 10 7	+ 5	—		—	—
Tucson		38·4	298	e 7 24	− 1	—	—	—		—	—
Mount Wilson	z.	44·6	300	e 8 15	− 1	—	—	—		—	—
Tinemaha	z.	45·2	303	e 8 20	0	—	—	—		—	—
Malaga	z.	59·7	58	e 10 16	+ 7	12 41	PP	14 3	PPP		—

Additional readings :—
Bogota i = 3m.48s. and 4m.19s.

Aug. 28d. 22h. 28m. 23s. Epicentre 26°·3S. 63°·2W. Depth of focus 0·090.

P. Caloi and F. Peronaci.
" Il Batisismo del 28 Aug. 1946, e la profondita del nucleo terrestre," Annali di Geofisica, Rivista dell'Istituto Nazionale di Geofisica, Vol. II, No. 4, Rome, pp. 493-502, Oct., 1949.

Suggested Epicentres :—
27°·0S. 63°·5W. (J.S.A.).
26°S. 63°W. (Pasadena).
26°S. 62°W. (La Plata).

$A = +·4047$, $B = -·8012$, $C = -·4407$; $\delta = -8$; $h = +3$;
$D = -·893$, $E = -451$; $G = -·199$, $H = +·393$, $K = -898$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Montezuma		6·3	304	e 1 43	− 1	i 3 3	− 4	—	—	i 3·6
La Plata		9·7	153	i 2 10	− 6	4 1	− 4	13 41	S_cS	4·4
Santa Lucia		9·7	221	1 57	−19	—	—	—	—	3·7
La Paz		10·8	334	2 27k	0	i 4 27	+ 2	—	—	4·6
Huancayo		18·2	319	i 3 37	− 1	i 6 27	− 7	i 4 7	PP	i 7·3
Bogota		32·5	340	i 5 43	− 1	e 10 4	−15	e 11 1	SS	—
Balboa Heights		38·5	335	e 6 12	−21	e 11 48	0	—	—	e 15·6
Fort de France		40·8	4	i 6 49	− 3	i 10 17	?	—	—	—
San Juan		44·5	357	e 7 18	− 3	i 13 7	− 7	i 16 15	sS	i 17·2
Bermuda		58·4	359	e 9 5	+ 4	i 16 25	+ 6	e 11 17	PP	e 23·8
Columbia		62·3	344	e 10 54	PP	i 17 7	0	e 18 9	S_cS	—
Georgetown		66·2	349	e 9 51	0	i 17 56	+ 2	—	—	—
Philadelphia		66·9	351	e 9 55	0	i 17 55	− 7	e 12 5	pP	—
Fordham		67·5	352	i 9 59	0	i 18 13	+ 4	—	—	—
Pennsylvania	N.	68·1	348	—	—	i 18 18	+ 2	—	—	—
New Kensington		68·3	347	e 9 53	−11	i 18 22	+ 4	—	—	—
Weston		68·8	354	i 10 7	+ 1	i 18 27	+ 3	—	—	—
Harvard		68·9	354	i 10 8	+ 1	i 18 28	+ 3	i 12 4	pP	—
St. Louis		69·4	338	i 10 8	− 2	i 18 27	− 3	i 12 5	pP	—
Florissant		69·6	338	e 10 9	− 2	i 18 29	− 4	e 12 6	pP	—
Chicago		71·4	341	e 10 19	− 3	i 18 49	− 4	e 12 17	pP	—
Ottawa		72·3	351	10 26	− 1	19 5	+ 2	e 22 37	SS	30·6
Shawinigan Falls		73·0	354	10 31	0	19 15	+ 5	—	—	—
Seven Falls		73·4	355	10 36	+ 3	19 16	+ 1	—	—	27·6
Tucson		73·8	320	e 10 37	+ 2	i 19 23	+ 4	i 12 36	pP	e 30·7
La Jolla		78·1	316	i 11 2	+ 3	e 20 8	+ 3	e 13 2	pP	—
Palomar		78·2	317	i 11 0	+ 1	i 20 10	+ 4	e 13 3	pP	—
Boulder City		78·8	320	i 11 4	+ 1	e 16 33	PPP	—	—	—
Overton		79·0	321	i 11 5	+ 1	i 20 19	+ 5	i 13 7	pP	—
Riverside		79·0	317	e 11 6	+ 2	e 20 18	+ 4	—	—	—
Mount Wilson		79·5	317	i 11 7a	+ 1	i 20 23	+ 4	e 13 7	pP	—
Pasadena		79·6	317	i 11 7a	0	i 20 24	+ 4	i 13 7	pP	—
Santa Barbara		80·7	316	i 11 15	+ 3	e 20 33	+ 2	e 13 16	pP	—
Haiwee		80·8	318	i 11 14	+ 1	e 20 36	+ 4	e 13 16	pP	—
Logan		81·3	326	i 11 18	+ 3	i 20 42	+ 5	i 13 35	pP	e 37·7
Tinemaha		81·6	319	i 11 18	+ 1	e 20 47	+ 7	e 13 21	pP	—
Fresno	N.	82·3	318	e 12 23	+63	e 21 46	+59	e 22 40	PS	—
Malaga	Z.	83·6	44	i 12 11k	+44	i 22 29	?	15 29	PP	33·8
Bozeman		83·8	329	—	—	i 21 5	+ 4	—	—	—
Santa Clara	Z.	84·0	317	e 11 32	+ 3	e 21 6	+ 3	—	—	—
Branner	N.	84·2	317	—	—	e 21 10	+ 5	—	—	—
Granada		84·4	44	i 11 28a	− 3	i 21 34	+27	13 26	pP	31·1
Berkeley		84·5	317	i 11 32	+ 1	i 21 13	+ 5	—	—	—
Mineral	E.	85·7	319	e 12 8	+31	e 21 21	+ 2	—	—	—
Toledo		85·8	42	i 11 39	+ 1	i 21 14	− 6	i 13 54	pP	—
Shasta Dam		86·4	319	e 11 39	− 1	i 21 25	− 1	e 37 31	P'P'	—
Saskatoon		86·9	335	—	—	e 21 15	−15	—	—	—
Alicante		87·1	45	i 11 50	+ 6	i 21 15	−17	14 53	PP	33·7
Ferndale		87·4	318	—	—	e 21 49	+14	—	—	—
Algiers		88·4	47	i 11 54	+ 4	i 21 27	−17	i 13 59	pP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tortosa	N.	89·1	44	i 11 56	+ 3	21 35	−15	14 45	PP	—
Clermont-Ferrand		93·6	40	i 12 13	− 1	i 21 56	[+ 5]	i 14 19	pP	—
Christchurch		93·7	217	—	—	24 37?	SP	—	—	—
Kew		95·0	34	i 12 21	+ 1	(e 21 37?)	[−21]	i 16 19	PP	e 21·6
Paris		95·0	37	e 12 20	0	—	—	i 14 26	pP	e 34·6
Neuchatel		96·5	41	e 12 28	+ 1	—	—	e 16 27	PP	—
Basle		97·1	40	e 12 31	+ 1	e 22 6	[− 2]	e 16 34	PP	—
Uccle		97·1	36	e 16 34	PP	e 22 14	[+ 6]	—	—	e 30·6
Rome		97·3	46	e 12 32	+ 2	i 22 13	[+ 3]	e 14 59	pP	e 29·8
Zürich		97·6	41	e 12 33	+ 1	e 23 15	+12	e 14 41	pP	—
Strasbourg		97·8	40	e 16 33	PP	e 22 18	[+ 5]	e 18 28	PPP	e 25·6
Chur		97·9	41	e 12 34	+ 1	e 22 18	[+ 5]	—	—	—
De Bilt		98·2	35	e 12 37?	+ 3	i 22 23	[+ 8]	e 16 41	PP	—
Triest		99·9	44	e 16 54	PP	i 22 27	[+ 4]	e 18 33	pPP	—
Cheb		101·1	39	e 12 48	0	—	—	e 19 57	PPP	—
Zagreb		101·4	45	e 17 10	PP	e 22 37	[+ 8]	—	—	—
Prague		102·3	40	e 17 9	PP	e 22 42	[+ 8]	—	—	—
Potsdam	E.	102·6	37	e 17 13	PP	e 22 43	[+ 8]	—	—	—
Bergen		102·7	28	e 21 29	?	e 22 29	[− 6]	e 26 37	PS	—
Sitka		102·9	328	e 19 1	PPP	i 22 37	[+ 1]	e 31 13	SS	—
Copenhagen		103·7	34	e 17 24	PP	i 22 47	[+ 6]	i 26 45	PS	—
Belgrade		103·8	47	e 15 56	?	e 22 54	[+13]	e 24 55	?	—
Helwan		106·3	65	e 13 13	P	i 22 55	[+ 2]	e 15 19	pP	—
Warsaw	N.	107·0	40	e 19 3	?	e 23 4	[+ 9]	—	—	e 26·6
Bucharest		107·4	49	17 37?	?	—	—	39 37	?	—
Upsala		108·0	31	e 13 22	P	23 1	[+ 2]	e 17 51	PP	e 42·6
Ksara		111·2	62	18 18	PP	i 31 8	SS	20 9	pPP	—
Riverview		111·9	210	e 18 23	PP	i 23 20	[+ 5]	i 27 1	SP	—
Sotchi		116·6	52	e 17 27	[− 9]	—	—	—	—	—
Moscow		117·3	38	17 39	[+ 1]	27 40	SP	i 18 57	PP	—
Grozny		120·9	53	17 37	[− 8]	—	—	—	—	—
Baku		123·6	57	e 19 49	PP	—	—	—	—	—
Sverdlovsk		130·0	36	i 18 4	[+ 2]	i 24 37	[+23]	i 20 23	PP	—
Samarkand		136·7	59	i 20 49	PP	—	—	—	—	—
Tashkent		138·3	56	e 18 20	[+ 2]	—	—	—	—	—
Tchimkent		138·4	54	18 16	[− 3]	—	—	i 21 5	PP	—
Andijan		140·7	57	e 18 21	[− 2]	—	—	—	—	—
Irkutsk		152·4	17	18 43	[+ 2]	—	—	—	—	—

Additional readings :—
La Plata S?N =3m.49s., SL =3m.56s.
Huancayo i =3m.55s., 4m.15s., 5m.12s., and 6m.58s.
Bogota i =6m.33s., e =7m.22s., i =10m.21s., and 10m.27s., eS$_c$S =15m.57s.
San Juan i =13m.33s., 14m.11s., and 16m.42s.
Bermuda i =16m.55s. and 17m.58s., esS =19m.37s., eSS =20m.27s.
Columbia esS =20m.22s., eSS =21m.21s., e =23m.44s.
Georgetown 18m.53s.
Philadelphia i =10m.10s., e =12m.55s., iS$_c$S =18m.56s., esS =20m.54s., eSS? =22m.16s., eSSS =25m.50s.
Fordham i =18m.59s.
New Kensington e =19m.7s.
St. Louis iZ =10m.12s., 10m.46s., 11m.3s., 11m.14s, 11m.32s., 12m.24s., and 12m.29s., iPPZ =12m.51s., iZ =12m.59s., isPZ =13m.6s., iZ =13m.12s. and 13m.58s., iE = 18m.45s., iS$_c$SE =19m.13s., isSE =21m.57s., esPSE =22m.39s., iE =23m.1s. and 32m.32s.
Florissant iE =19m.16s., iSSE =21m.59s.
Chicago iS$_c$S =19m.29s., e =22m.14s.
Tucson iPP =13m.35s., iPPP =15m.15s., iSP =19m.57s., i =20m.23s., ePKP,PKP = 38m.8s., eSKP,PKP =40m.50s.
Palomar esPZ =14m.4s., ePKP,PKPZ =37m.40s.
Mount Wilson isPZ =14m.16s., ePKP,PKPZ =37m.52s., eZ =40m.1s., iZ =40m.28s.
Pasadena esPZ =14m.26s., eN =33m.9s., ePKP,PKPZ =37m.55s., iZ =40m.27s.
Logan i =11m.36s. and 13m.42s., eSS =26m.5s.
Tinemaha ePKP,PKPZ =39m.47s.
Malaga PPPZ =17m.15s., PSZ =23m.33s., PPSZ =23m.57s.
Granada sP =14m.11s., iPP =14m.50s., SS =23m.51s., sPS =24m.54s., sSS =28m.50s.
Berkeley eE =21m.1s.
Toledo sPZ =14m.37s., SSE =25m.4s., iN =28m.51s.

Continued on next page.

Shasta Dam iPKKP =29m.34s., i =30m.28s.
Saskatoon iEN =21m.31s.
Alicante PPP =16m.43s., PS =22m.25s., PPS =22m.55s.
Tortosa iN =12m.4s.
Clermont-Ferrand i =17m.52s., pPP =18m.46s., isPP =19m.12s.
Paris iPP =16m.15s., pPP =18m.5s.
Rome ePPE =15m.53s., epPPE =18m.22s., esSN =26m.13s., eSSE =28m.15s.
Zürich ePP =16m.35s.
Strasbourg e =16m.40s.
De Bilt e =26m.7s.
Triest iPPP =19m.6s., esS =26m.16s.
Cheb e =15m.5s. and 16m.2s.
Sitka iS =23m.49s.
Copenhagen 23m.33s., 27m.46s., SS =31m.25s., SSS =36m.1s.
Helwan sP =16m.16s., PPP =20m.27s., SKKS =23m.31s.
Upsala ePPN =17m.55s., eN =21m.8s, SKKSE =23m.57s., epS?E =27m.1s., iE = 27m.31s.
Riverview eS?E =25m.9s., eZ =29m.49s.
Moscow ipPP =20m.49s., i =21m.33s., iN =23m.39s., iE =24m.58s.
Sverdlovsk i =20m.39s., pPP =22m.19s., PS =30m.44s.
Irkutsk i =19m.4s.

Aug. 28d. Readings also at 0h. (near Mizusawa), 1h. (Arapuni, Auckland, Christchurch, Wellington, Riverview, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Boulder City, Overton, Shasta Dam, and Ksara), 2h. (Weston and Ksara), 3h. (Copenhagen, De Bilt, Kew, Granada, and Malaga), 5h. (Tucson), 6h. (near Andijan), 7h. (Ksara), 8h. (near Copiapo), 9h. (Tucson and near Ottawa), 13h. (Tucson), 22h. (Weston), 23h. (St. Louis).

Aug. 29d. 22h. Undetermined shock, probably New Hebrides !
Suva iP =57m.16s., S? =58m.55s., L =59m.12s.?
Brisbane iPN =59m.30s., iPPN =59m.44s., iSN =63m.0s., iLN =64m.46s.
Wellington PZ =59m.46s., pPZ =60m.4s., PPZ =60m.35s., iZ =61m.36s., S =63m.11s., P_cP?Z =64m.29s., RZ =65m.40s.
Christchurch P =59m.47s., S =64m.4s., L =66m.11s.
Auckland P? =60m.0s., S? =63m.17s., L =64m.4s.
Riverview iPE =60m.21s., iPPN =60m.47s., iSEZ =64m.18s., iSN =64m.22s., isSZ = 64m.33s., iSSN =64m.57s., eRN =65m.45s.
Arapuni S? =63m.0s.
Pasadena ePZ =68m.15s., eLEZ =95·6m.
Mount Wilson ePZ =68m.16s.
Shasta Dam eP =68m.18s.
Palomar ePEZ =68m.19s.
Tucson eP =68m.40s.
Tinemaha ePZ =68m.48s.
Ksara ePKP =74m.54s., e =90m.18s.
Zagreb eZ =75m.
Helwan e =75m.0s. and 75m.14s.
Istanbul eP =75m.5s., eS_e? =76m.14s.
Collmberg ePZ =75m.11s., eZ =75m.28s., 75m.40s., 76m.15s., and 76m.40s.
Rome ePKP?Z =75m.20s.
St. Louis eSKS?E =80m.32s., eE =83m.23s., ePSE =83m.59s., eLE =108m.44s.
Long waves were also recorded at De Bilt, Granada, and Malaga.

Aug. 29d. Readings also at 0h. (Arapuni, Auckland, Christchurch, Wellington, Suva, Riverview, Haiwee, Mount Wilson, Pasadena, Palomar, Tucson, and Ksara), 4h. (College, Sitka, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Shasta Dam, Boulder City, Overton, Grand Coulee, St. Louis, Weston, and Philadelphia), 6h. (La Jolla, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson (2), Bombay, Hyderabad, Kodaikanal, New Delhi, Ksara, Istanbul, and near Andijan), 9h. (near Istanbul), 11h. (near Mizusawa), 12h. (Samarkand, and near Andijan), 15h. (near Andijan, Samarkand, Tashkent, and Tchimkent), 17h. (Zagreb)

Aug. 30d. 11h. 16m. 45s. Epicentre 33°·2N. 115°·7W.

Given by Pasadena.

A = −·3636, B = −·7555, C = +·5450; δ = +1; h = − ;
D = −·901, E = +·434; G = −·236, H = −·491, K = −·838.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Palomar		1·0	279	i 0 20$_a$	− 1	—	—	—	—	—
La Jolla		1·4	256	i 0 25$_a$	− 2	i 0 43	− 3	—	—	—
Riverside		1·5	300	e 0 29	+ 1	i 0 51	+ 2	—	—	—
Mount Wilson		2·2	297	e 0 41	+ 3	i 1 10	+ 4	—	—	—
Pasadena		2·3	295	e 0 42	+ 2	i 1 11	+ 2	—	—	—
Boulder City		2·8	14	e 0 48	+ 1	e 1 37	S$_g$	i 0 55	P$_g$	—
Overton		3·5	18	i 0 56	− 1	—	—	i 1 16	P$_g$	e 1·9
Santa Barbara	z.	3·6	291	e 1 3	+ 5	—	—	—	—	—
Tucson		4·2	102	e 1 5	− 2	i 2 10	S*	i 2 18	S$_g$	i 2·4
Tinemaha		4·4	332	e 1 8	− 2	i 1 47	−15	—	—	—
Fresno	N.	4·9	317	e 1 33	P*	e 2 37	S*	e 1 40	P$_g$	—
Lick		6·4	312	e 1 4	−34	e 3 19	S*	—	—	—
St. Louis		21·3	68	e 4 51	+ 1	—	—	—	—	e 11·8

Additional readings :—
Tucson i = 1m.24s.
Fresno eS$_g$N = 2m.41s.
Long waves were also recorded at Butte

Aug. 30d. Readings also at 3h. (Ksara), 4h. (Florence (2), Zagreb, and near Triest), 5h. (Chicago, St. Louis, Butte, Boulder City, Shasta Dam, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, and near Tucson), 6h. (Boulder City, Overton, Tucson, near Triest, and near Bogota), 7h. (Bogota and near Mizusawa), 10h. (near Shasta Dam), 11h. (near Boulder City and Overton), 15h. (near Piatigorsk), 16h. (Shasta Dam, Tucson, Mizusawa, and Sverdlovsk), 18h. (Tucson), 19h. (near Mizusawa and near Alicante), 20h. (Arapuni, Auckland, Christchurch, Wellington, Suva, Brisbane, Riverview, Mount Wilson, Pasadena, Palomar, Tinemaha, Tucson (2), Boulder City, Overton, and Shasta Dam), 21h. (Malaga), 22h. (near Branner), 23h. (Haiwee, Mount Wilson (2), Pasadena, Palomar (2), Riverside, Tinemaha (2), Tucson (2), Shasta Dam, Collmberg, and Copenhagen (2)).

Aug. 31d. Readings at 0h. (Christchurch), 1h. (La Paz and Mineral), 8h. (Alicante), 9h. (near Berkeley (2), Branner, Fresno, and San Francisco), 10h. (near Mineral), 11h. (Paris, Strasbourg, and Istanbul), 13h. (Budapest and Mizusawa), 14h. (Christchurch and Wellington), 15h. (Boulder City, Overton, and Collmberg), 18h. (near Fort de France), 20h. (Tucson).

September 1d. Readings at 4h. (near Mizusawa and near Seven Falls), 5h. (Samarkand, Tashkent, and near Andijan (2)), 8h. (Bogota, Collmberg, Ksara, Sverdlovsk, Tashkent, Andijan, and New Delhi), 9h. (near Bogota), 12h. (La Paz), 15h. (St. Louis), 16h. (near Zürich), 18h. (Helwan and Ksara), 20h. (Strasbourg), 21h. (Samarkand and near Stalinabad).

September 2d. 21h. 51m. 42s. Epicentre 15°·5N. 96°·7W. (as on 1946 May 20d.).

Suggested Deep.

A = −·1125, B = −·9575, C + ·2656; δ = +1; h = +6.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Oaxaca		1·5	358	0 56	+28	—	—	—	—	1·4
Vera Cruz	E.	3·7	8	0 59	− 1	—	—	—	—	1·5
Puebla	N.	3·8	337	1 9	P*	—	—	—	—	2·0
Tacubaya	Z.	4·5	329	1 30	P$_g$	i 2 10	+ 5	—	—	2·6
Merida	E.	8·6	50	1 46	−23	i 2 52	P$_g$	—	—	—
Tucson		21·1	326	i 4 49	+ 1	e 8 48	+ 9	i 5 15	pP	e 9·4
St. Louis		23·8	12	i 4 49	−26	e 8 41	−47	i 5 4	pP	—
Florissant		23·9	12	i 4 50	−26	e 8 43	−47	5 19	P	—
Palomar		25·5	319	i 5 33	+ 1	—	—	i 6 0	pP	—
Boulder City		26·0	326	i 5 36	0	—	—	i 6 3	pP	e 14·7

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside	z.	26·2	319	e 5 39	+ 1	—	—	e 6 10	pP	—
Mount Wilson		26·8	319	e 5 45	+ 1	—	—	i 6 13	pP	—
Pasadena		26·8	319	e 5 46	+ 2	—	—	6 13	pP	—
Chicago		27·4	14	e 5 49	0	e 9 33	−55	e 10 25	SS	e 10·5
Tinemaha		28·8	323	e 5 57	− 5	—	—	—	—	—
San Juan		29·4	79	e 6 2	− 5	(e 10 46)	−15	—	—	e 10·8
Shasta Dam		33·6	324	e 6 38	− 6	—	—	—	—	—
Ottawa		34·6	26	6 52	− 1	12 18	− 4	—	—	21·3

Additional readings :—
Tucson isP =5m.24s., i =6m.27s.
St. Louis iZ =5m.18s. and 5m.49s., esSE =9m.15s.
Florissant eN =8m.47s., eE =8m.58s.
Palomar iZ =6m.17s.
Riverside eZ =6m.24s.
Mount Wilson i =6m.28s.
Pasadena iZ =6m.29s.

September 2d. Readings also at 0h. (Huancayo and La Paz), 1h. (near Mizusawa), 8h. (Ksara), 11h. (Rome), 12h. (La Paz), 13h. (Mount Wilson, Pasadena, Riverside Tinemaha, Tucson, Boulder City, and Overton), 15h. (Bucharest, Istanbul, Rome, Triest, Paris, and Strasbourg), 16h. (near Tacubaya).

September 3d. Readings at 2h. (Samarkand near Andijan and Stalinabad), 3h. (Mizusawa), 4h. (Arapuni, Christchurch, Wellington, Riverview, Brisbane, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Shasta Dam, and Tashkent), 5h. (Copenhagen, Paris, and Strasbourg), 6h. (Ksara (2)), 10h. and 13h. (near Andijan), 14h. (near Leninakan), 19h. (Ksara).

Sept. 4d. 1h. Himalaya.
Dehra Dun ePN =35m.24s., eS?N =35m.36s.
New Delhi iN =36m.18s., ePN =36m.22s., P*N =36m.28s., P_gN =36m.35s., iEN = 36m.51s., iSEN =37m.6s., S*E =37m.13s., S_gE =37m.20s.
Stalinabad eP =37m.55s., iS =40m.49s.
Andijan eP =37m.58s., iS =40m.54s.
Tashkent eP =38m.18s., eS =41m.36s.
Samarkand P =38m.23s.
Calcutta eN =40m.42s. and 41m.58s., iN =42m.32s.
Baku P =40m.49s.
Frunse eS =41m.35s.
Bombay eN =41m.38s., S?N =42m.14s.
Leninakan eP =41m.44s.

Sept. 4d. Readings also at 0h. (Ksara, Mount Wilson, Riverside, Tinemaha, Tucson, Boulder City, Shasta Dam, and near Ottawa), 5h. (near Berkeley), 8h. (Wellington, Riverview, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, and Overton), 9h. (Brisbane), 12h. (Ksara, La Paz, Samarkand, Frunse, near Andijan, Stalinabad, and Tashkent), 14h. (near Zürich), 16h. (Mount Wilson, Palomar, Tinemaha, Tucson, and Boulder City), 17h. (Cheb), 18h. (Ksara, Sverdlovsk, St. Louis, and Boulder City), 19h. (Copenhagen, De Bilt, Paris, Strasbourg, Helwan, Shasta Dam, and near Ottawa), 20h. (Grand Coulee), 21h. (Shasta Dam), 23h. (Grand Coulee and Shasta Dam).

Sept. 5d. Readings at 1h. (Mount Wilson, Palomar, Tucson, Shasta Dam, Collmberg, Chur, and Zürich), 2h. (near Mizusawa), 3h. (Palomar and Tucson), 8h. (near Alicante, Almeria, Malaga, Granada, and Toledo), 9h. (Tashkent, near Andijan, and Stalinabad), 11h. (near Yalta), 12h. (Shasta Dam (2), La Paz, Helwan, Ksara, Tashkent, near Andijan, and near Istanbul), 13h. (Copenhagen, De Bilt, Kew, Paris (2), Strasbourg, and Clermont-Ferrand), 15h. (Belgrade, Bucharest, Sofia, Zagreb, Triest, Collmberg, Zürich, San Juan, Tinemaha, and Tucson), 17h. (Collmberg, Boulder City, and near Fresno), 21h. (Shasta Dam and near Fresno).

Sept. 6d. 21h. 59m. 16s. Epicentre 19°·6N. 69°·4W. (as on 1946 Aug. 24d.).

$A = +·3317$, $B = -·8825$, $C = +·3334$; $\delta = -1$; $h = +5$;
$D = -·936$, $E = -·352$; $G = +117$, $H = -·312$, $K = -·943$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	e 0 56	+ 3	i 1 37	+ 2	i 1 7	P_g	—
Fort de France		9·2	120	e 2 19	+ 3	e 4 21	+18	—	—	—
Bermuda		13·4	17	—	—	e 4 52	−53	—	—	i 5·9
Bogota		15·6	198	e 3 38	− 5	e 6 26	−11	i 3 44	PP	—
Philadelphia		20·9	348	e 4 51	+ 5	e 8 31	− 4	e 5 20	PP	e 8·7
Weston		22·8	357	e 5 8	+ 3	e 9 11	0	—	—	—
Harvard		22·9	357	e 5 9	+ 3	e 9 21	+ 8	5 21	PP	e 11·2
St. Louis		26·2	321	i 5 36	− 2	e 10 9	0	i 6 18	PP	e 13·4
Ottawa		26·3	350	e 5 44	+ 5	e 10 14	+ 3	—	—	12·7
Florissant	N.	26·4	321	—	—	e 10 25	+13	—	—	—
Chicago		27·0	329	—	—	e 10 4	−18	—	—	e 12·6
Shawinigan Falls		27·0	356	e 5 48	+ 3	—	—	—	—	11·4
Huancayo		32·0	192	—	—	(e 11 46)	+ 4	—	—	e 11·8
Tucson		39·1	298	e 7 30	− 1	—	—	e 8 54	PP	—
Boulder City		43·0	303	e 8 0	− 3	—	—	—	—	—
Riverside	z.	44·8	300	e 8 14	− 3	—	—	—	—	—
Mount Wilson	z.	45·4	300	e 8 20	− 2	—	—	—	—	—
Tinemaha	z.	45·9	304	e 8 46	+20	—	—	—	—	—
Shasta Dam		49·6	308	i 8 50	− 5	—	—	—	—	—
Granada		59·4	57	—	—	(i 18 38)	+23	—	—	i 18·6
Alicante		61·8	56	—	—	—	—	(e 24 29?)	SS	e 24·5
Clermont-Ferrand		64·1	48	—	—	—	—	e 26 44?	SSS	e 30·7
Strasbourg		67·1	44	—	—	—	—	e 24 6	SS	e 31·7
Copenhagen		69·5	37	—	—	20 26	+ 6	—	—	33·7
Cheb		70·0	43	e 15 44?	PPP	—	—	—	—	e 34·7
Prague		71·3	42	—	—	24 22	?	—	—	e 34·7
Rome		71·3	52	e 11 21	− 2	e 19 40	−61	—	—	—
Belgrade		76·4	47	—	—	24 26	?	—	—	36·7
Ksara		91·3	54	12 44?	−25	e 24 17	+11	—	—	—

Additional readings :—
Bogota eSS = 6m.38s.
St. Louis iPPPZ = 6m.33s., eSSE = 11m.40s.
Tucson e = 8m.10s. and 8m.28s.
Long waves were also recorded at Pasadena, Sitka, and other European stations.

Sept. 6d. Readings also at 1h. (Fresno), 2h. (Bogota), 4h. (Ksara, Tananarive, Boulder City, and Tucson), 5h. (De Bilt, Uccle, Paris, Kew, and Strasbourg), 7h. (Shasta Dam), 8h. (Tucson, and near Fort de France), 9h. (near Huancayo), 11h. (Shasta Dam), 15h. (La Paz), 17h. (Harvard), 18h. (near Fort de France), 19h. (La Paz).

Sept. 7d. 8h. 0m. 21s. Epicentre 47°·8N. 154°·8E.

$A = -·6101$, $B = +·2871$, $C = +·7385$; $\delta = +3$; $h = -5$;
$D = +·426$, $E = +·905$; $G = -·668$, $H = +·314$, $K = -·674$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa	E.	13·2	234	e 2 49	−22	4 44	−56	—	—	—
Irkutsk		32·2	298	e 6 39	+ 7	—	—	—	—	—
Sverdlovsk		53·8	317	e 9 28	+ 2	17 4	+ 3	—	—	—
Frunse		54·2	296	e 9 26	− 3	e 17 4	− 2	—	—	—
Andijan		56·8	295	e 9 45	− 3	e 17 43	+ 2	—	—	—
Shasta Dam		57·1	63	i 9 49	− 1	—	—	—	—	—
Tashkent		58·5	298	e 9 55	− 5	e 17 58	− 5	—	—	—
Stalinabad		60·3	295	i 10 16	+ 3	18 35	+ 9	—	—	—
Samarkand		60·7	297	i 10 9	− 6	—	—	—	—	—
Tinemaha		61·8	65	e 10 23	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Haiwee	z.	62·6	65	e 10 27	− 1	—	—	—	—	—
Mount Wilson	z.	63·8	67	i 10 34	− 2	—	—	—	—	—
Pasadena	z.	63·8	67	i 10 33	− 3	—	—	—	—	—
Moscow		64·2	326	i 10 38	− 1	—	—	—	—	—
Overton		64·5	62	i 10 39	− 2	—	—	—	—	—
Riverside	z.	64·5	67	i 10 37	− 4	—	—	—	—	—
Boulder City		64·6	63	i 10 41	0	—	—	—	—	—
Palomar	z.	65·1	67	i 10 42	− 3	—	—	—	—	—
Tucson		69·6	64	i 11 12	− 1	—	—	—	—	—
Baku		69·9	308	—	—	20 34	+10	—	—	—
Grozny		70·2	312	e 11 11	− 6	—	—	—	—	—
Copenhagen		72·2	339	e 11 29	0	e 21 1	+10	—	—	35·7
Sotchi		72·6	316	e 11 25	− 6	—	—	—	—	—
Leninakan		72·7	311	e 11 30	− 2	—	—	—	—	—
Warsaw		72·9	331	e 12 54	?	—	—	e 15 50	PPP	—
Collmberg	z.	76·0	336	e 11 49	− 2	—	—	e 12 1	PcP	—
St. Louis	z.	76·3	47	i 11 52	0	—	—	1 12 11	PcP	—
Paris		80·8	341	i 12 38	PcP	—	—	—	—	e 43·7
Triest		81·0	333	e 11 22	−56	—	—	—	—	—
Ksara		82·3	312	(e 12 29)	+ 4	(22 42)	+ 2	—	—	—
Rome	z.	84·7	333	e 12 15	−22	—	—	—	—	—

Additional readings :—
Warsaw eN = 13m.4s. and 17m.8s.
Collmberg eZ = 11m.55s., 12m.6s., 12m.23s., and 12m.41s.
Ksara readings increased by 2 minutes.
Long waves were also recorded at College, Kew, and Strasbourg.

Sept. 7d. 12h. Undetermined shock.

Brisbane iPN = 25m.11s., eSE = 28m.42s.
Riverview iZ = 26m.20s., iS?N = 30m.18s., iEN = 30m.24s., eLE = 31·8m.
Auckland S? = 29m.31s., L = 32m.20s.
Shasta Dam eP = 33m.57s.
Mount Wilson ePZ = 33m.59s.
Riverside ePZ = 34m.2s.
Palomar ePZ = 34m.4s.
Boulder City e = 34m.14s.
Tucson eP = 34m.24s.
Ksara ePKP? = 40m.33s., PP = 43m.17s.
Basle eP = 40m.43s. a.
Strasbourg ePKP = 40m.50s., e = 41m.0s. and 41m.4s., eL = 94m.0s.
Kew eZ = 40m.51s., eLNZ = 100m.0s.
Chur eP = 40m.53s.
Zürich eP = 40m.53s. a
Paris iPKP = 40m.55s., ePP = 47m.5s., eL = 100m.0s.
Rome eZ = 40m.58s.
Clermont-Ferrand ePKP = 41m.1s., L = 110m.0s.
Long waves were also recorded at Arapuni, Christchurch, Wellington, St. Louis, and Pasadena.

Sept. 7d. Readings also at 1h. (near Lick), 3h. (near Frunse, Stalinabad, Andijan, and Samarkand), 5h. (Palomar and Tucson), 6h. (near Alicante), 8h. (Sofia, Belgrade, near Bucharest, and near Istanbul), 10h. (Balboa Heights and near Bogota), 12h. (Tucson, Palomar, and near Apia), 13h. (Rome), 16h. (near Grozny), 17h. (Zürich, Strasbourg, and near Neuchatel), 19h. (Ksara and near Istanbul), 20h. (Belgrade and San Juan), 21h. (near Bogota), 23h. (near Bucharest).

Sept. 8d. Readings at 0h. (Harvard), 7h. (Tucson), 9h. (near Andijan and near Leninakan), 11h. (Mount Wilson and Tucson), 13h. (near Fort de France), 14h. (near Neuchatel), 18h. (Overton).

Sept. 9d. 10h. 36m. 33s. Epicentre 23°·4N. 121°·6E.

$A = -\cdot4814$, $B = +\cdot7825$, $C = +\cdot3949$; $\delta = 0$; $h = +4$;
$D = +\cdot852$, $E = +\cdot524$; $G = -\cdot207$, $H = +\cdot336$, $K = -\cdot919$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Mizusawa		22·8	42	5 9	+ 4	9 46	+35	—	—	—
Calcutta	N.	30·6	276	e 6 32	+14	i 10 54	−26	i 13 35	SS	—
Irkutsk		31·7	340	6 26	− 1	11 32	− 5	—	—	—
Hyderabad	N.	40·8	271	7 47	+ 2	13 54	− 2	9 21	PP	—
Colombo	E.	43·3	255	6 15	?	14 45	+12	—	—	—
Frunse		43·3	309	e 8 9	+ 4	—	—	—	—	—
Kodaikanal	E.	44·0	262	e 7 57	−14	—	—	—	—	—
Andijan		44·6	305	e 8 18	+ 2	e 14 51	− 1	—	—	—
Bombay	E.	45·6	274	e 8 24	0	15 31	+25	—	—	22·7
	N.	45·6	274	e 8 27	+ 3	e 15 7	+ 1	—	—	—
Tchimkent		46·8	307	e 8 31	− 2	—	—	—	—	—
Tashkent		46·9	306	e 8 34	0	e 15 23	− 2	—	—	—
Stalinabad		47·1	303	i 8 37	+ 2	i 15 30	+ 2	—	—	—
Samarkand		48·6	304	8 49	+ 2	—	—	—	—	—
Sverdlovsk		54·9	325	e 9 33	− 2	i 17 10	− 6	e 19 7	PS	—
Brisbane		59·0	147	e 10 2	− 2	(e 18 5)	− 5	—	—	e 18·1
Riverview		63·5	153	e 10 52	+18	e 19 8	+ 1	e 19 17	PS	e 30·0
Grozny		64·3	309	10 40	+ 1	—	—	—	—	—
Moscow		67·7	323	i 10 59	− 2	19 49	− 9	—	—	—
College		69·3	28	e 11 12	+ 1	e 20 13	− 4	e 24 27	SS	e 31·1
Honolulu		73·6	74	e 11 49	+12	e 20 53	−14	—	—	e 35·0
Ksara		74·0	300	i 11 39	0	21 50	PS	14 30	PP	—
Upsala		76·8	331	11 54 a	− 1	e 21 32	−10	e 21 57	PS	e 35·4
Sitka		77·3	33	e 11 52	− 6	i 21 44	− 4	—	—	e 42·0
Warsaw		78·0	322	e 12 3	+ 1	e 21 51	− 4	e 22 12	PS	e 37·4
Helwan		78·9	298	i 12 8 k	+ 1	22 1	− 4	—	—	—
Copenhagen		81·1	328	12 10	− 8	—	—	—	—	—
Bergen	N.	81·9	334	e 15 44	PP	e 22 17?	−19	—	—	e 40·2
Prague		82·7	322	—	—	—	—	e 38 27?	Q	e 43·4
Collmberg	Z.	82·9	324	e 12 25	− 3	e 22 39	− 7	e 15 34	PP	e 45·4
Zagreb		83·7	318	e 12 33	+ 1	—	—	—	—	—
Cheb		83·9	323	—	—	e 22 27?	−29	—	—	e 48·4
Triest		85·2	318	e 12 40	+ 1	i 23 19	+10	i 23 4	SKS	—
Aberdeen		86·9	334	—	—	i 23 17	− 9	—	—	e 42·6
Chur		87·1	321	e 12 47	− 2	—	—	—	—	—
Strasbourg		87·2	323	e 12 44	− 5	e 23 44	+16	e 16 13	PP	44·6
Zürich		87·4	322	e 12 48	− 2	—	—	—	—	—
Florence	E.	87·7	317	—	—	i 23 48	+15	i 29 45	SS	—
Rome		87·8	315	i 12 51 a	− 1	e 23 31	− 3	e 16 15	PP	—
Uccle		87·8	326	e 12 52 a	0	e 23 29	− 5	e 16 17	PP	e 42·4
Victoria		87·9	38	—	—	e 23 26	{0}	—	—	50·4
Edinburgh		88·2	332	—	—	e 23 27	{− 1}	—	—	—
Durham	E.	88·3	331	e 14 2	+67	e 23 51	+12	—	—	—
Paris		90·1	325	e 13 3	0	e 23 52	− 3	e 16 34	PP	e 45·4
Grand Coulee		90·6	36	i 13 4	− 1	—	—	—	—	—
Clermont-Ferrand		91·4	321	e 13 26	+17	e 24 22	+15	e 16 46	PP	e 45·4
Berkeley		94·5	46	i 13 25	+ 2	i 24 29	− 5	i 23 59	SKS	e 44·4
Tinemaha	Z.	97·6	44	e 13 39	+ 1	—	—	—	—	—
Alicante		98·0	318	e 17 25	PP	—	—	—	—	e 49·6
Halwee	Z.	98·3	45	e 13 40	− 1	—	—	—	—	—
Mount Wilson	Z.	99·4	47	e 13 45	− 1	—	—	e 17 45	PP	—
Pasadena		99·4	47	e 13 47	+ 1	—	—	e 17 55	PP	e 46·4
Riverside	Z.	100·0	47	e 13 48	0	—	—	e 17 56	PP	—
Overton		100·3	43	e 13 56	+ 6	—	—	—	—	—
Boulder City		100·4	44	e 18 12	PP	—	—	—	—	—
Palomar		100·7	47	e 13 53	+ 1	—	—	e 17 56	PP	—
Granada		100·7	319	e 13 40 a	−12	24 52	{− 7}	e 18 7	PP	51·8
Tucson		105·4	44	e 14 21	+ 9	e 27 32	PS	e 18 23	PKP	e 48·9
Huancayo		160·3	56	e 19 52	[− 9]	e 31 18	{+ 4}	e 44 25	SS	e 75·5

For Notes see next page.

NOTES TO SEPTEMBER 9d. 10h. 36m. 33s.

Additional readings :—
Mizusawa PN =5m.15s.
Hyderabad SSN =17m.11s.
Riverview iS_cSE =20m.28s.
Honolulu i =12m.21s.
Upsala eSN =21m.24s., eSSSN =28m.53s.
Sitka iP =11m.55s.
Warsaw ePSN =22m.15s., eN =22m.43s., 30m.44s., 31m.27s., and 33m.48s.
Collmberg iZ =12m.28s., eZ =12m.43s., 14m.45s., and 15m.37s.
Cheb e =29m.27s.? and 39m.27s.?
Triest eSS =29m.43s.
Strasbourg eP =12m.49s., e =19m.44s., eSS =29m.27s.
Rome ePPSE =24m.45s., eSSE =29m.39s., eSSSE =33m.27s.?
Uccle eP_cP =13m.17s., e =19m.53s.
Durham eE =3m.53s. and 7m.7s.
Paris e =15m.10s., ePS? =25m.10s., e =25m.53s., eSS? =30m.0s.
Alicante P_cP =17m.41s., PP =20m.49s., PPP =22m.51s., SS =23m.37s., Q =39m.39s., phases wrongly identified.
Granada SKS =24m.0s., PPS =27m.17s., SS =32m.39s.
Tucson ePP =18m.43s.
Huancayo e =33m.22s.
Long waves were also recorded at Arapuni, Wellington, Chicago, Philadelphia, Lisbon, and Besançon.

Sept. 9d. 17h. 26m. 26s. Epicentre 36°·4N. 4°·1E.

Damage at El Esnam, intensity VI-VII at Bouira ; IV at Mallot and Michelet.

J. P. Rothé.
" Les Séismes de Kerrata, et la séismicité de l'Algérie." Annales de l'Institut de Physique du Globe de Strasbourg 3e partie. Geophysique, tome VI, 1950, p. 34.

Radius of macroseimic area 80km., epicentre as adopted.

$A = +\cdot8048$, $B = +\cdot0577$, $C = +\cdot5908$; $\delta = +8$; $\lambda = 0$;
$D = +\cdot071$, $E = -\cdot997$; $G = +\cdot589$, $H = +\cdot042$, $K = -\cdot807$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Algiers		0·9	295	i 0 21	+ 1	e 0 33	− 1	—	—	—
Alicante		4·1	300	1 15	P*	i 2 16	S_g	1 22	P_g	i 3·4
Barcelona		5·2	344	e 1 20	− 1	e 2 21	− 1	i 2 32	S*	2·8
Tortosa		5·2	329	i 1 24	+ 3	2 16	− 6	3 9	S_g	3·6
Almeria		5·3	277	1 15	− 7	—	—	—	—	—
Granada		6·3	280	1 38a	+ 2	i 3 2	+12	1 55	P*	i 3·9
Malaga		6·9	276	2 25	P_g	—	—	—	—	—
Toledo	z.	7·3	301	i 1 49	− 1	3 47	S*	4 5	S_g	—
Rome		8·5	46	e 3 4	+57	4 4	+19	—	—	—
Florence	E.	9·2	34	e 4 1	S	(e 4 1)	− 2	—	—	—
Clermont-Ferrand		9·4	356	e 2 19	+ 1	e 4 2	− 5	—	—	e 5·0
Neuchatel		10·8	10	e 2 37	− 2	—	—	—	—	—
Basle		11·4	12	e 2 50	+ 3	—	—	—	—	—
Zürich		11·5	15	e 2 55	+ 7	—	—	—	—	—
Paris		12·5	355	i 3 4	+ 2	e 5 44	+21	—	—	e 6·6
Uccle		14·4	1	e 3 31	+ 4	—	—	—	—	e 7·6
Collmberg		16·2	20	e 3 51	+ 1	7 29	SSS	e 4 4	PP	—
Warsaw		19·8	33	e 5 42	+67	e 8 29	+16	—	—	e 12·6
Istanbul		20·0	68	e 4 39	+ 2	e 8 27	+10	—	—	—
Copenhagen		20·1	14	4 39	+ 1	e 8 24	+ 5	e 8 51	SS	10·8
Helwan		23·7	98	e 5 12	− 2	—	—	e 5 52	PP	—
Ksara		26·1	87	e 5 35	− 2	e 10 49	+42	—	—	—
Sverdlovsk		42·4	43	e 7 55	− 3	e 14 18	− 2	—	—	—
Tucson		88·5	310	e 12 55	− 1	—	—	—	—	—
Tinemaha	z.	89·5	317	e 13 0	0	—	—	—	—	—
Riverside	z.	91·2	315	e 13 5	− 3	—	—	—	—	—
Mount Wilson	z.	91·4	315	e 13 8	− 1	—	—	—	—	—

For Notes see next page.

NOTES TO SEPTEMBER 9d. 17h. 26m. 26s.

Additional readings :—
Algiers i = 1m.34s., 2m.4s., and 2m.41s.
Alicante P_g = 1m.29s. and 1m.33s., P_gS_g = 1m.55s., S_g = 2m.21s. and 2m.29s.
Tortosa P_gN = 1m.51s. and 1m.56s., P_gS_g?N = 2m.34s. and 2m.39s., P_gS_gE = 2m.43s. and 3m.2s., S_gN = 3m.20s., S_gE = 3m.24s.
Granada P_gS_g = 2m.37s. and 2m.55s., S_g = 3m.7s., 3m.12s., and 3m.19s.
Toledo iSZ = 5m.2s., SZ = 5m.11s.
Collmberg eNZ = 3m.56s., eZ = 3m.59s. and 4m.18s.
Warsaw eE = 5m.58s.
Helwan e = 5m.37s.
Long waves were also recorded at Lisbon, De Bilt, Cheb, and Strasbourg.

Sept. 9d. Readings also at 2h. (Grozny, Tashkent, and near Samarkand), 3h. (near Strasbourg), 7h. (Riverview), 9h. (Helwan), 12h. (near Berkeley), 16h. (Collmberg and Riverview), 17h. (Suva), 18h. (Grozny and near Leninakan), 19h. (Auckland, Suva, Brisbane, and Riverview), 20h. (Harvard), 22h. (Florence).

Sept. 10d. 0h. 19m. 35s. Epicentre 35°·0S. 101°·5W.

A = −·1637, B = −·8045, C = −·5710 ; δ = +6 ; h = 0 ;
D = −·980, E = +·199 ; G = +·114, H = +·560, K = −·821.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		32·9	53	e 6 39	+ 1	i 11 55	− 1	—	—	e 13·9
La Paz		35·0	68	6 55	− 1	12 30	+ 2	12 40	S	17·3
Tucson		67·5	352	e 10 53	− 7	—	—	e 13 31	PP	—
La Jolla	z.	69·1	347	e 11 11	+ 1	—	—	—	—	—
Palomar		69·5	347	e 11 12	0	—	—	—	—	—
Riverside	z.	70·2	346	e 11 16	− 1	—	—	—	—	—
Pasadena	z.	70·5	346	e 11 19	+ 1	—	—	—	—	e 34·0
Mount Wilson	z.	70·6	346	e 11 18	− 1	—	—	—	—	—
Santa Barbara	z.	71·2	345	e 11 29	+ 6	—	—	—	—	—
Boulder City		71·7	349	e 11 25	− 1	—	—	—	—	—
Overton		72·2	350	i 11 27	− 2	—	—	—	—	—
Tinemaha	z.	73·4	347	e 11 36	0	—	—	—	—	—
St. Louis		74·0	10	i 11 37	− 2	e 21 8	− 3	—	—	—
Shasta Dam		77·7	344	i 11 58	− 2	—	—	—	—	—
Philadelphia		78·4	21	—	—	e 22 2	+ 2	e 30 28	SSS	e 33·2
Weston		81·8	23	e 12 25	+ 3	e 22 37	+ 2	—	—	—
Riverview		83·5	233	—	—	e 22 49	− 3	e 28 16	SS	e 40·2
Ksara		145·0	80	e 19 32	[− 7]	—	—	e 31 52	?	—

Additional readings :—
Tucson ePP = 11m.36s.
Philadelphia e = 25m.22s.
Riverview eN = 28m.43s.
Long waves were also recorded at Christchurch, Paris, Strasbourg, Clermont-Ferrand, Uccle, and De Bilt.

Sept. 10d. 21h. Switzerland.

Chur eP = 0m.58s. k, eS_g = 1m.12s.
Zürich eP = 1m.10s., eS_g = 1m.36s.
Neuchatel eP = 1m.16s., iP_g = 1m.21s., eS_g = 1m.50s.
Basle eP = 1m.22s., eS_g = 1m.54s.
Strasbourg eP_g = 1m.42s., e = 2m.8s., eS_g = 2m.22s.
Besançon eS_g = 2m.14s.
Collmberg eZ = 2m.35s., 2m.39s., 3m.30s., 3m.55s., and 4m.8s.

Sept. 10d. Readings also at 2h. (Bozeman and Harvard), 6h. (Boulder City and Strasbourg), 10h. (Harvard), 16h. (near Andijan), 19h. (Tucson), 20h. (Andijan and near Stalinabad), 21h. (Shasta Dam and near Andijan), 22h. (near Florence).

Sept. 11d. 2h. Undetermined shock.

College e = 5m.48s. and 6m.4s., eS = 6m.41s., eL = 7m.0s.
Sitka e = 10m.12s., i = 10m.55s.
Tinemaha ePZ = 11m.23s.
Mount Wilson ePZ = 11m.43s.
Pasadena ePZ = 11m.45s.
Riverside ePZ = 11m.46s.
Palomar ePZ = 11m.53s.
St. Louis iZ = 12m.10s., eE = 26m.22s.
Tucson eP = 12m.13s., ePP = 14m.8s., eS = 19m.46s., eL = 29m.35s.
Grand Coulee eP = 17m.39s.
Long waves were also recorded at Salt Lake City, Philadelphia, Bozeman, Butte, Granada, and Alicante.

Sept. 11d. 9h. 55m. 34s. Epicentre 0°·7S. 27°·8E.

A = +·8845, B = +·4664, C = −·0122; δ = +2; h = +7;
D = +·466, E = −·885; G = −·011, H = −·006, K = −1·000.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Johannesburg		25·3	179	i 5 26	− 4	i 9 56	+ 2	e 11 14	SS	i 12·8
Tananarive		26·5	135	e 5 48	+ 7	e 10 16	+ 2	i 12 19	Q	e 12·6
Helwan		30·6	6	i 6 20k	+ 2	11 21	+ 1	7 17	PP	—
Ksara		35·2	12	e 6 57	− 1	e 12 49	+18	—	—	—
Istanbul		41·6	2	e 7 57	+ 6	14 19	+11	—	—	—
Sofia		43·4	355	e 8 12	+ 6	e 14 26	− 9	—	—	—
Algiers		43·8	331	e 8 11	+ 2	—	—	i 8 17	pP	—
Rome		44·6	345	e 8 15	− 1	e 14 52	0	e 10 6	PP	e 21·4
Baku		45·6	24	8 33	+ 9	e 15 14	+ 8	—	—	—
Belgrade		45·8	353	e 8 26	+ 1	e 16 18	+69	e 9 56	PcP	28·4
Florence	E.	46·7	344	e 8 45	+13	e 15 25	+ 3	—	—	—
Grozny		46·7	18	e 8 32	0	e 15 27	+ 5	—	—	—
Alicante		46·8	331	i 8 33	0	e 15 48	+24	8 40	pP	e 24·6
Zagreb		47·5	349	e 8 30	− 8	—	—	—	—	e 20·6
Granada		47·6	326	i 8 41	+ 2	i 15 38	+ 3	i 8 48	pP	i 24·4
Triest		47·8	347	e 8 44	+ 3	e 15 38	0	e 10 43	PP	—
Tortosa	N.	48·2	333	i 8 51	+ 7	i 15 50	+ 7	10 17	PcP	e 25·4
Bombay	E.	48·3	64	e 8 45	0	—	—	—	—	—
Toledo		49·8	328	i 8 58	+ 2	e 16 9	+ 3	20 0	SS	24·4
Chur		50·0	344	e 8 23k	−35	—	—	—	—	—
Zürich		50·7	343	e 9 5	+ 2	e 16 23	+ 5	—	—	—
Clermont-Ferrand		51·1	338	i 9 4	− 2	e 16 25	+ 1	i 11 9	PP	24·4
Basle		51·2	343	e 9 5	− 2	e 16 8	−17	—	—	—
Lisbon		51·9	324	9 11a	− 1	—	—	—	—	29·4
Prague		51·9	350	e 16 31	S	e 16 31	− 4	24 50	Q	29·4
Strasbourg		52·1	344	e 9 11	− 3	e 16 35	− 3	e 11 16	PP	e 24·9
Warsaw		53·0	356	—	—	e 16 45	− 5	e 22 16	SSS	e 29·4
Collmberg		53·3	348	e 9 20	− 3	—	—	e 11 28	PP	e 30·4
Samarkand		53·7	38	e 9 22	− 4	—	—	—	—	—
Paris		54·0	340	e 9 26	− 2	e 16 35	PS	e 11 18	PP	e 24·9
Stalinabad		54·2	40	i 9 28	− 1	i 17 9	+ 3	—	—	—
Uccle		55·1	342	e 9 42	+ 6	—	—	—	—	e 26·4
New Delhi	N.	55·5	55	i 17 26	PS	—	—	—	—	e 32·7
De Bilt		56·0	344	—	—	e 22 26?	SSS	—	—	—
Tashkent		56·2	37	e 9 39	− 5	e 17 31	− 2	—	—	—
Moscow		56·8	7	e 9 45	− 3	e 17 42	+ 1	12 19	PP	—
Tchimkent		57·0	37	e 9 48	− 2	e 17 42	− 1	—	—	—
Kew		57·2	340	(e 9 26)	−25	—	—	—	—	e 9·4
Copenhagen		57·6	350	—	—	i 17 51	0	—	—	—
Andijan		57·8	40	9 53	− 2	e 17 53	− 1	—	—	—
Frunse		60·3	39	e 10 15	+ 2	—	—	—	—	—
Upsala		60·9	354	9 55k	−22	18 12	−22	e 22 26?	SS	e 31·4
Sverdlovsk		63·1	20	i 10 28	− 4	18 59	− 3	—	—	—
Irkutsk		82·3	37	12 21	− 4	22 36	− 4	—	—	—
Fort de France		89·2	284	e 12 43	−16	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Vladivostok		100·8	47	18 4	PP	—	—	—	—	—
Tucson		130·0	313	e 19 10	[− 2]	—	—	e 21 35	PP	e 72·2
Overton		130·1	320	e 19 6	[− 6]	—	—	e 19 17	pPKP	—
Boulder City		130·7	319	e 19 12	[− 1]	—	—	—	—	—
Tinemaha	z.	132·1	322	e 19 19	[+ 3]	—	—	—	—	—
Riverside	z.	133·5	319	e 19 17	[− 2]	—	—	—	—	—

Additional readings :—
Helwan PPP =7m.32s.
Rome eE =18m.22s.
Belgrade e =12m.8s.
Alicante P_cP =9m.49s., PP =10m.13s., PPP =11m.9s., P_cS =13m.59s., S_cS =18m.57s., Q =21m.17s.
Granada iPP =10m.48s., P_cS =13m.46s., iSS =19m.27s.
Tortosa iN =9m.38s., PPN =10m.44s.
Strasbourg e =9m.26s.
Collmberg iZ =9m.28s., eZ =10m.17s. and 11m.46s.
Warsaw eN =17m.7s. and 24m.34s.
Long waves were also recorded at Barcelona, Aberdeen, Durham, Philadelphia, Bermuda, Huancayo, La Paz, and Riverview.

Sept. 11d. 13h. Undetermined shock.

Brisbane iPN =6m.29s., eE =8m.55s., iSS?N =9m.30s.
Riverview iP?N =6m.37s., eS?N =11m.15s., iZ =11m.39s., iN =11m.42s., eE =12m.31s., eLE =15·1m.
Christchurch P? =6m.37s., S =14m.4s., Q =19m.25s., R =23m.10s.
Tashkent eP =13m.13s., ePP =16m.58s., eS =24m.9s.
Shasta Dam iP =13m.42s.
Mount Wilson ePZ =13m.56s.
Pasadena ePZ =13m.56s., eLZ =51m.57s.
Tinemaha ePZ =13m.56s.
Riverside ePZ =13m.57s.
Palomar ePZ =13m.59s.
La Jolla ePZ =14m.0s.
Boulder City eP =14m.8s.
Overton iP =14m.10s.
Tucson eP =14m.22s.
New Delhi iN =34m.30s., i =35m.0s.
Long waves were also recorded at Wellington and Auckland, Alicante, Granada, and Paris.

Sept. 11d. Readings also at 0h. (La Plata), 2h. (Riverview, Tucson, Riverside, and Butte), 3h. (near Fort de France), 4h. (Ksara and near Istanbul), 6h. (Shasta Dam), 7h. (near Andijan), 9h. (Shasta Dam), 10h. (Algiers), 12h. (Brisbane, Christchurch, Riverview, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton, Shasta Dam, and near La Paz), 13h. (Paris), 14h. (Salt Lake City and Harvard), 15h. (Calcutta and Bombay), 18h. (Brisbane and Riverview), 23h. (Boulder City and Brisbane).

Sept. 12d. 13h. 55m. 36s. Epicentre 5°·6S. 150°·5E. (as on 1944, Aug. 7d.).

$A = -·8663$, $B = +·4901$, $C = -·0969$; $\delta = +6$; $h = +7$;
$D = +·492$, $E = +·870$; $G = +·084$, $H = -·048$, $K = -·995$.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	21·9	174	i 4 55	− 2	i 8 55	+ 1	i 5 14	PP	i 10·9
Riverview	28·1	179	e 5 56	+ 1	e 10 46	+ 6	i 7 2	PP	e 14·7
Suva	30·0	118	—	—	i 10 26	−44	—	—	—
Auckland	38·2	147	6 15	−68	13 8	− 9	8 54	PPP	19·3
Arapuni	39·6	148	e 13 24	P_cS	—	—	—	—	17·8
Wellington	41·6	152	—	—	13 59	− 9	17 27	SSS	21·4
Perth	41·7	226	—	—	i 17 29	SSS	—	—	i 24·2
Vladivostok	51·3	344	e 9 10	+ 2	16 39	+13	19 2	S_cS	—
Honolulu	57·3	60	—	—	—	—	(e 24 20)	SSS	e 24·3
Irkutsk	69·7	332	11 19	+ 5	25 18	SS	28 6	SSS	—
College	83·5	22	—	—	e 22 43	− 9	e 28 47	SS	e 34·5
Stalinabad	87·0	309	e 12 57	+ 9	e 23 24	− 3	23 52	S	—
Tashkent	87·1	312	e 12 52	+ 3	23 21	− 7	16 27	PP	—
Berkeley	91·1	52	i 13 6	− 2	e 23 40	[+ 1]	e 36 54	Q	e 40·4
Shasta Dam	91·4	50	i 13 9	0	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Pasadena		94·2	56	i 13 21 a	− 1	—	—	—	—	e 38·3
Mount Wilson	z.	94·3	56	e 13 20	− 3	—	—	—	—	—
Tinemaha	z.	94·3	53	e 13 22	− 1	—	—	—	—	—
Haiwee	z.	94·5	54	e 13 23	0	—	—	—	—	—
Sverdlovsk		94·6	326	i 13 29	+ 5	24 2	[+ 3]	i 17 22	PP	—
Riverside	z.	94·9	56	e 13 23	− 2	—	—	—	—	—
Palomar		95·2	57	i 13 25	− 2	—	—	—	—	—
Boulder City		97·0	54	e 13 33	− 2	—	—	e 17 23	PP	—
Overton		97·4	54	i 13 36	− 1	—	—	—	—	—
Pierce Ferry		97·7	54	e 13 35	− 3	—	—	i 17 29	PP	—
Bozeman		99·9	45	—	—	e 24 25	[− 2]	e 36 1	SSS	e 41·9
Tucson		100·3	58	e 13 49	− 1	—	—	e 17 47	PP	—
Moscow		107·5	327	14 22	?	28 7	PS	18 52	PP	—
Ksara		113·5	304	e 19 46	PP	—	—	e 33 34	?	—
De Bilt		125·5	334	e 21 0	PP	e 38 24?	SS	—	—	e 59·4
Strasbourg		126·8	330	e 19 13	[+ 7]	—	—	e 21 11	PP	—
Harvard		127·7	38	—	—	e 37 55	SS	—	—	e 64·4
Rome		128·1	320	e 19 12	[+ 4]	e 39 24?	SSP	—	—	60·4
Paris		129·1	333	e 19 18	[+ 8]	e 22 38	PKS	e 21 24	PP	64·4
Clermont-Ferrand		131·1	330	e 19 19	[+ 5]	e 22 53	PKS	—	—	70·4
Bermuda		137·7	46	e 22 4	PP	e 23 1	PKS	e 40 4	SS	e 55·2
Alicante		138·1	326	e 20 40	[+73]	—	—	—	—	e 72·8
Granada		140·7	327	i 19 37 a	[+ 5]	26 14	[−26]	29 14	SKKS	68·2
Fort de France		147·6	71	e 18 41	[−63]	—	—	—	—	—

Additional readings :—
Brisbane iSS = 9m.35s.
Riverview iNZ = 6m.11s., iN = 11m.7s., iE = 12m.0s., SSE = 12m.16s., iN = 12m.36s.
Auckland PP = 7m.56s., P_cS = 11m.19s.
Vladivostok SS = 20m.22s.
College eSSS = 32m.11s.
Tashkent SS = 29m.48s.
Berkeley iSKSE = 23m.52s.
Sverdlovsk iPS = 26m.9s., SS = 31m.18s., SSS = 35m.30s.
Pierce Ferry iP = 13m.38s.
Bozeman e = 31m.10s.
Rome ePPE = 22m.19s.
Paris ePPS = 32m.24s., eSS = 38m.24s.
Bermuda eSKSP = 32m.25s., e = 35m.37s.
Granada pPKP = 20m.7s., pPP = 23m.25s., sSKS = 27m.13s., PPS = 34m.58s., SS = 40m.58s.
Long waves were also recorded at San Juan, Salt Lake City, Weston, Upsala, Bergen, and Triest.

Sept. 12d. 15h. 17m. 17s. (I) } Epicentre 23°·9N. 96°·2E.
15h. 20m. 23s. (II) }

North-East of Burma; felt at Narayanganj, Noakhali, and Silchar; at Noakhali reservoirs and lakes were disturbed by large waves for about 10 minutes.

Epicentre : 23°·5N. 96°E. (Pasadena).
23°·5N. 98°·5E. (Poona).

Seismological Bulletin of Bombay, July-September, 1946, Government of India Meteorological Department, p. 10.

$A = -·0988$, $B = +·9099$, $C = +·4029$; $\delta = +1$; $h = +4$;
$D = +·994$, $E = +·108$; $G = -·044$, $H = +·401$, $K = -·915$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Calcutta	N.	7·4	260	e 2 2	+10	i 3 26	+ 8	—	—	—
I Dehra Dun		17·4	245	e 4 37	PPP	i 7 32	SS	—	—	e 9·8
I New Delhi	E.	17·7	289	i 4 1	− 9	i 7 7	−19	4 11	PP	8·2
I Hyderabad	N.	17·8	252	4 9	− 2	7 37	+ 9	i 4 14	PP	—
II		17·8	252	4 1	−10	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Bombay		22·3	262	5 2	+ 1	i 9 13	+11	—	—	—
I Kodaikanal	E.	22·4	237	i 5 4	+ 2	—	—	—	—	—
I Colombo	E.	23·0	225	5 5	− 2	—	—	—	—	—
I Frunse		26·0	322	e 5 34	− 2	—	—	—	—	—
I Andijan		26·1	316	5 35	− 2	i 10 11	+ 4	—	—	—
I Stalinabad		27·5	310	e 5 47	− 3	e 10 33	+ 3	—	—	—
I Tashkent		28·4	315	5 50	− 8	e 10 39	− 6	—	—	—
I Tchimkent		28·7	317	i 6 1	0	i 11 3	+13	—	—	—
I Irkutsk		29·0	11	6 1	− 3	i 10 52	− 2	—	—	—
I Samarkand		29·2	310	6 11	+ 6	—	—	—	—	—
I Hukuoka		31·4	65	i 6 29k	+ 4	i 11 35	+ 3	—	—	e 14·6
I Miyazaki		32·0	68	6 37	+ 7	12 2	+20	9 24	PcP	21·2
I Sumoto		35·2	63	e 6 56	− 2	12 30	− 1	—	—	—
I Kobe		35·5	63	7 5	+ 5	12 43	+ 7	—	—	—
I Wazima		37·2	59	i 7 26	+11	13 14	+12	—	—	—
I Yokohama		39·2	63	e 7 38	+ 7	13 57	+25	9 17	PP	21·1
I Tokyo		39·3	62	e 7 35	+ 3	i 16 23	SS	i 9 38	PcP	18·1
I Sendai		40·5	58	e 7 42	0	13 57	+ 5	—	—	—
I Mizusawa		40·8	58	7 47	+ 2	14 4	+ 8	—	—	e 19·2
I Mori		40·9	53	e 7 53	+ 7	14 1	+ 3	—	—	e 21·8
I Sapporo		41·7	51	7 53	+ 1	14 16	+ 6	—	—	e 20·4
I Sverdlovsk		41·8	332	i 7 49	− 4	—	—	—	—	—
I Baku		42·9	305	7 58	− 4	—	—	e 9 27	PP	—
I Grozny		45·6	309	8 19	− 5	e 15 3	− 3	10 15	PcP	—
I Erevan		46·1	304	e 8 28	0	15 16	+ 2	11 42	PPP	—
I Leninakan		46·7	305	e 8 30	− 2	—	—	i 10 39	PP	—
I Piatogorsk		47·5	309	e 8 49	+11	—	—	—	—	—
I Sotchi		49·9	308	8 55	− 2	16 7	0	—	—	—
I Moscow		53·0	324	9 14	− 7	16 44	− 6	—	—	—
I Ksara		53·1	295	9 19	− 2	16 55	+ 4	—	—	—
II		53·1	295	9 21	0	16 53	+ 2	—	—	—
I Yalta		53·9	309	e 9 22	− 5	e 16 58	− 4	e 12 28	PPP	—
I Helwan		57·5	292	i 9 52a	− 1	e 17 49	− 1	18 21	PPS	—
II		57·5	292	i 17 47	PS	—	—	—	—	—
I Istanbul		57·8	305	e 9 49	− 6	e 16 42	−72	—	—	—
I Perth		58·6	160	i 9 55	− 6	—	—	i 12 38	PP	—
I Bucharest		59·7	309	e 10 7	− 2	i 18 17	− 2	e 10 57	PcP	29·7
II		59·7	309	i 18 42	PS	i 18 47	PPS	—	—	—
I Campulung		60·4	310	e 10 20	+ 7	—	—	—	—	29·7
I Sofia	E.	61·9	307	e 10 21	− 3	e 18 49	+ 2	e 14 13	PPP	31·7
II		61·9	307	i 10 27	+ 3	—	—	e 14 17	PPP	—
I Warsaw		62·5	318	e 10 28	0	i 18 54	0	19 22	PPS	—
II		62·5	318	10 54	PcP	i 18 50	− 4	19 40	PPS	—
I Belgrade		63·7	310	e 10 32	− 4	i 19 8	− 2	—	—	30·7
II		63·7	310	e 10 33	− 3	i 19 37?	PS	i 12 55	PP	—
I Tananarive		63·7	233	e 10 34	− 2	i 19 12	+ 2	12 56	PP	30·9
II		63·7	233	i 10 31	− 5	i 19 2	− 8	—	—	—
I Upsala		63·9	327	10 29a	− 8	19 8	− 4	12 59	PP	30·7
II	E.	63·9	327	i 14 16	PPP	i 19 16	+ 4	—	—	—
I Kalossa		64·4	313	e 11 1	PcP	23 31	SS	—	—	32·7
II		64·4	313	e 10 55	PcP	—	—	—	—	—
I Zagreb		66·6	312	e 10 52a	− 2	e 19 46	+ 1	i 23 54	SS	—
II		66·6	312	i 10 47	− 7	e 19 23	−22	i 14 52	PPP	—
I Prague		66·9	317	10 53	− 3	19 45	− 4	e 15 2	PPP	e 28·7
I Copenhagen		67·0	318	i 10 57	0	i 19 55	+ 5	i 24 11	SS	30·7
II		67·0	318	11 3	+ 6	—	—	—	—	—
I Potsdam	N.	67·3	320	e 11 1	+ 2	i 19 50	− 4	—	—	e 28·7
II	N.	67·3	320	i 11 11	+12	i 19 43	−11	i 14 32?	PPP	—
I Collmberg		67·6	318	e 10 57	− 4	i 19 54	− 3	e 13 33	PP	e 28·7
II		67·6	318	e 10 58	− 3	e 19 57	0	e 24 39	SS	—
I Cheb		68·2	317	e 11 7	+ 3	e 20 25	+21	e 15 27	PPP	e 32·7
II		68·2	317	e 11 11	+ 7	e 20 19	+15	e 15 43	PPP	—
I Triest		68·2	312	e 10 59	− 5	i 19 36	−28	i 13 33	PP	—
I Jena		68·5	318	e 11 3	− 3	e 20 5	− 3	e 13 35	PP	—
I Rome		69·9	309	i 11 8a	− 7	e 20 32	+ 8	e 13 58	PP	—
II		69·9	309	e 21 17	PPS	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I Bergen		70·0	329	11 12	− 3	20 23	− 3	13 54	PP	—
II		70·0	329	e 14 49	PPP	e 20 25	− 1	—	—	—
I Florence	E.	70·4	310	i 11 15	− 3	i 20 25	− 5	—	—	—
I Chur		70·8	313	e 11 16k	− 4	e 20 31	− 4	e 14 25	PP	—
I Zürich		71·3	315	e 11 18k	− 5	e 20 37	− 4	e 13 52	PP	—
I Strasbourg		71·5	316	e 11 20	− 4	i 20 39	− 4	e 13 55	PP	34·7
II		71·5	316	e 11 28	+ 4	i 20 37	− 6	e 14 11	PP	—
I Basle		71·9	315	e 11 21	− 6	e 20 42	− 6	e 14 31	PP	—
I De Bilt		72·1	320	i 11 27a	− 1	i 20 49	− 1	i 14 5	PP	e 39·7
I Neuchatel		72·4	315	e 11 31	+ 1	e 20 49	− 4	—	—	—
I Besançon		73·0	314	e 12 5	PcP	e 20 58	− 2	—	—	35·7
I Uccle		73·0	319	e 11 32a	− 1	e 20 55	− 5	e 14 8	PP	e 35·7
II		73·0	319	—	—	i 21 0	0	—	—	—
I Aberdeen		74·6	326	i 11 43	0	i 21 12	− 6	i 16 0	PPP	35·9
I Paris		74·7	317	e 11 39	− 4	i 21 13	− 6	i 14 19	PP	e 37·7
II		74·7	317	i 11 44	+ 1	i 21 16	− 3	—	—	—
I Brisbane		74·9	129	e 11 44	0	i 21 32	+10	—	—	—
II	N.	74·9	129	i 11 42	− 2	—	—	—	—	—
I Durham		75·1	324	i 11 43	− 3	i 21 24	0	i 16 37	PPP	41·2
II	E.	75·1	324	—	—	i 21 23	− 1	—	—	—
I Clermont-Ferrand		75·3	314	11 44	− 3	e 21 17	− 9	i 14 35	PP	—
I Edinburgh		75·6	325	11 45	− 3	21 48	[− 7]	12 8	PcP	—
I Barcelona		77·5	310	e 11 31	−28	i 21 45	− 5	—	—	38·0
II		77·5	310	—	—	21 44	− 6	—	—	—
I Riverview		77·6	136	e 12 5	+ 5	i 22 5	+14	i 12 13k	PcP	e 36·0
II		77·6	136	e 11 50k	−10	i 21 53	+ 2	i 15 1	PP	e 36·3
I Algiers		78·5	305	12 12	+ 8	i 21 54	− 7	e 14 57	PP	—
II		78·5	305	i 12 30	PcP	—	—	—	—	—
I College		78·9	23	e 12 6	− 1	e 22 4	− 1	e 27 10	SS	e 34·2
II		78·9	23	e 12 6	− 1	—	—	e 14 43	PP	—
I Tortosa		78·9	310	e 12 5	− 2	i 22 0	− 5	i 12 18	PcP	35·7
II	N.	78·9	310	i 12 16	+ 9	i 21 59	− 6	—	—	—
I Reykjavik	N.	80·0	337	e 17 39	PPP	i 21 28	−49	—	—	e 32·0
II		80·0	337	e 22 54	PPS	e 21 21	−56	—	—	—
I Alicante		80·5	308	12 13	− 2	i 21 57	−25	12 33	pP	e 40·7
II		80·5	308	12 13	− 2	28 3	SS	—	—	—
I Toledo		82·4	310	i 12 22	− 3	i 22 39	− 2	23 43	PS	38·6
I Johannesburg		82·6	237	e 12 25	− 1	e 22 43	0	i 17 25	PPP	35·7
II		82·6	237	i 12 19	− 7	i 22 37	− 6	—	—	41·6
I Granada		83·2	308	i 12 29k	0	i 22 44	− 5	12 50	pP	46·4
II		83·2	308	15 49	PP	—	—	—	—	—
I Lisbon		86·5	311	e 12 40	− 4	22 48	[−23]	13 1	pP	41·7
II		86·5	311	12 46	0	—	—	—	—	—
I Sitka		88·1	25	i 12 59	+ 5	i 23 27	−10	i 16 31	PP	e 35·9
II		88·1	25	e 12 39	−15	i 23 1	−36	e 29 24	SS	e 33·0
I Suva		90·4	110	—	—	i 23 57	− 1	—	—	39·7
II		90·4	110	14 7	+63	23 46	[+11]	30 37?	SS	—
I Honolulu		95·1	64	e 14 18	+52	e 24 1	[− 1]	e 17 3	PP	e 41·1
II		95·1	64	e 17 11	PP	i 25 53	PS	i 19 43	PPP	e 40·9
I Auckland		95·5	129	17 13	PP	i 24 55	+13	—	—	46·7
I Arapuni		96·6	130	e 18 31	?	26 37	PS	32 13	SS	42·2
I Christchurch		96·9	136	13 44	+10	24 18	[+ 7]	17 40	PP	50·5
I Wellington		97·4	132	13 45	+ 8	—	—	—	—	44·7
II		97·4	132	19 4	PPP	e 24 36	{ 0}	e 31 56	SS	—
I Victoria		99·7	26	17 19	PP	24 39	{−13}	26 58	PS	43·7
II		99·7	26	e 18 25	PP	—	—	—	—	—
I Seattle		100·8	25	e 22 53	?	e 35 54	SSS	e 31 19	?	e 40·1
II		100·8	25	e 26 46	PS	e 24 17	[−14]	e 25 9	S	e 41·4
I Saskatoon		101·7	14	e 18 7	PP	e 25 45	+19	e 27 15	PS	44·4
II		101·7	14	e 17 58	PP	e 28 42	PPS	20 39	PPP	—
I Grand Coulee		101·8	23	e 20 46	PPP	—	—	—	—	—
I Butte		105·7	20	e 18 41	PP	e 24 53	[− 1]	e 20 33	PPP	e 41·7
II		105·7	20	e 18 35	PP	e 21 46	PKS	—	—	—
I Shasta Dam		106·4	29	e 17 7	?	—	—	e 18 50	PP	—
II		106·4	29	i 18 32	PP	—	—	—	—	—
I Bozeman		106·5	19	e 18 46	PP	i 24 58	[+ 1]	e 24 54	SKS	e 49·9
II		106·5	19	e 18 50	PP	i 24 54	[− 3]	e 25 59	S	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
I	Seven Falls	108·3	350	18 42	PP	26 34	S	33 49	SS	44·7
I	Berkeley	108·7	31	e 18 46	[+16]	i 25 8	[+ 1]	i 19 7	PP	—
I	Branner	109·1	31	e 18 55	PP	29 11	PPS	—	—	e 34·8
II		109·1	31	e 18 51	PP	—	—	—	—	—
I	Shawinigan Falls	109·2	351	e 19 19	PP	e 28 19	PS	—	—	55·7
II		109·2	351	e 19 16	PP	e 34 19	SS	—	—	—
I	Halifax	109·3	345	e 19 7	PP	e 25 7	[− 2]	e 28 13	PS	43·7
I	Santa Clara	109·3	31	e 19 4	PP	e 25 17	[+ 8]	—	—	—
II	Lick	109·4	31	e 18 53	PP	—	—	—	—	—
I	Logan	109·7	22	e 19 16	PP	e 24 48	[−23]	—	—	e 50·6
I	Ottawa	110·6	354	e 22 13	PPP	e 24 43	[−32]	i 28 23	PS	e 50·7
II		110·6	354	—	—	e 34 29	SS	e 39 1	SSS	—
I	Fresno N.	110·8	30	e 18 31	[− 4]	—	—	—	—	—
II		110·8	30	e 18 24	[−11]	—	—	e 19 4	PP	—
I	Tinemaha Z.	111·2	29	e 19 10	PP	i 29 47	PPS	e 29 34	PKKP	—
II		111·2	29	e 19 8	PP	—	—	e 29 25	PKKP	—
I	Haiwee Z.	112·1	29	e 19 4	PP	—	—	—	—	—
I	Harvard	113·0	349	e 19 29	PP	e 29 3	PS	e 30 14	PPS	e 45·7
I	Weston	113·1	349	e 19 31	PP	—	—	e 43 38	Q	e 51·7
I	Overton	113·3	26	e 14 55	?	—	—	e 18 10	PKP	—
II		113·3	26	e 19 16	PP	—	—	—	—	—
I	Boulder City	113·6	27	e 18 9	[−31]	—	—	e 29 30	PKKP	—
II		113·6	27	e 19 17	PP	—	—	—	—	—
I	Denver	113·6	18	e 17 56	?	i 25 33	[+ 6]	i 19 36	PP	—
I	Mount Wilson Z.	113·7	30	e 14 49	P	—	—	i 29 37	PKKP	—
II		113·7	30	e 14 47	P	—	—	i 29 16	PKKP	—
I	Pasadena	113·7	30	e 18 31	[− 9]	e 25 32	[+ 5]	i 19 37	PP	e 47·3
II		113·7	30	e 18 51	[+11]	i 25 31	[+ 4]	i 19 31	PP	—
I	Pierce Ferry	113·8	26	e 15 3	P	—	—	e 19 20	PP	—
II		113·8	26	e 14 2	?	i 29 17	PS	e 19 15	PP	—
I	Riverside Z.	114·2	30	e 19 37	PP	—	—	e 29 35	PKKP	—
II		114·2	30	e 19 28	PP	—	—	i 29 14	PKKP	—
I	Chicago	114·5	3	e 18 2	[−40]	e 26 40	{+ 3}	e 19 45	PP	e 43·8
II		114·5	3	e 18 51	[+ 9]	e 26 27	{−10}	e 30 1	PPS	—
I	Lincoln	114·5	10	—	—	e 27 17	{+40}	—	—	e 46·1
I	Fordham	114·9	351	e 19 44	PP	i 26 42	{+ 3}	e 22 10	PPP	e 57·7
I	Palomar Z.	114·9	30	e 19 15	PP	—	—	i 29 29	PKKP	—
II		114·9	30	e 19 26	PP	—	—	e 29 12	PKKP	—
I	Pennsylvannia N.	115·4	354	—	—	e 26 49	{+ 6}	e 35 43	SS	—
I	Philadelphia	116·0	351	e 19 50	PP	e 25 21	[−15]	e 35 39	SS	e50·2
II		116·0	351	e 19 14	PP	e 24 33	[−63]	e 35 41	SS	—
I	Georgetown	117·2	353	e 29 41	PS	e 27 43	{+48}	e 35 45	SS	—
I	Cincinnati	117·3	0	19 55	PP	27 39	{+43}	22 26	PPP	—
I	Florissant	117·5	6	i 20 1	PP	i 25 41	[0]	i 29 51	PS	—
I	Tucson	118·5	26	e 18 45	[− 5]	e 25 49	[+ 4]	e 20 3	PP	i 46·9
II		118·5	26	i 18 40	[−10]	e 25 45	[0]	i 19 45	PP	e 51·7
I	Bermuda	120·0	341	e 20 23	PP	e 25 21	[−29]	e 30 11	PS	e 48·4
II		120·0	341	e 20 5	PP	e 25 10	[−40]	e 30 5	PS	e 48·6
I	Guadalajara N.	131·8	25	e 23 44	PPP	—	—	—	—	63·2
I	Tacubaya	134·4	21	e 21 32	PP	e 23 1	PKS	e 33 40	PPS	e 65·5
II		134·4	21	e 21 46	PP	i 26 30	[0]	e 24 26	PPP	—
I	San Juan	134·6	336	i 22 50	PKS	e 25 57	[−33]	e 32 8	PS	e 54·2
II		134·6	336	e 18 44	[−36]	e 26 54	[+24]	e 22 33	PKS	e 54·1
I	Merida	135·1	7	e 21 56	PP	e 28 46	{− 6}	e 22 52	PKS	e 55·5
II		135·1	7	e 21 36	PP	—	—	—	—	—
I	Fort de France	135·7	327	e 21 30	PP	—	—	—	—	—
I	Balboa Heights	147·1	352	e 19 54	[+11]	—	—	—	—	—
I	Bogota	150·1	340	i 19 59	[+11]	i 27 41	[+47]	i 23 0	SKP	82·7
I	La Plata E.	155·0	238	20 25	[+30]	30 37	{− 9}	28 1	PPP	63·7
	N.	155·0	238	20 19	[+24]	27 37	[+37]	24 37	PP	—
	Z.	155·0	238	20 25	[+30]	27 43?	[+43]	—	—	68·0
I	La Paz	163·5	294	20 9	[+ 5]	i 27 7	[0]	24 25	PP	72·7
II	Santa Lucia E.	165·1	228	19 0	[−66]	52 30	SSS	—	—	66·0
I	Huancayo	165·7	324	e 20 11	[+ 5]	i 30 35	{−67}	i 23 48	PP	e 64·4
II		165·7	324	i 19 55	[−11]	i 31 57	{+15}	i 23 49	PP	e 65·1

For Notes see next page.

NOTES TO SEPTEMBER 12d. 15h. 17m. 17s. (I).
15h. 20m. 23s. (II).

Additional readings and notes :—
Miyazaki (I) i =7m.35s. and 14m.10s., S_cS? =18m.46s.
Yokohama (I) SSE =16m.48s., Q =19m.4s.
Helwan (I) i =19m.37s.
Bucharest (I) ePN =10m.13s., ePPE =12m.19s., iPPPE =13m.55s., iE =18m.38s., iPSE =18m.59s., iS_cSEN =19m.59s.,
Sofia (I) iE =23m.29s.
Warsaw (I) ePP?N =12m.18s., PPE =12m.34s., eE =14m.22s., eN =14m.31s., iSN = 18m.49s., iN =19m.46s., SSE =22m.59s., SSSE =24m.48s., SSSN =25m.2s.
Belgrade (II) i =23m.10s.
Tananarive (I) e =14m.5s., iPS =19m.49s., SS? =24m.14s. ; (II) SS? =24m.8s.
Upsala (I) ePN =10m.40s., PPE =12m.56s., PPP =14m.34s., SN =19m.5s., SS?E = 23m.19s., SS?N =23m.35s., SSSE =26m.13s., SSSN =26m.28s.
Zagreb (I) eE =11m.19s., iP_cP =11m.52s., ePPEZ =15m.1s., e =23m.42s., e =27m.25s. ; (II) iPPP =13m.24s., i =14m.21s., and 15m.19s.
Prague (I) eSS =23m.55s.
Copenhagen (I) 11m.3s., 13m.27s., 19m.45s., iS_cS =20m.59s.
Collmberg (I) ePPPE =15m.15s., eSSE =24m.35s., iSSSN =27m.30s., eSKP,PKP?Z = 42m.20s. Many other readings given without phase.
Cheb (I) e =12m.43s. and 21m.34s., eSSS =27m.57s. ; (II) e =27m.49s.
Triest (I) iPPPE =15m.0s., iPS =20m.29s., iSS =24m.9s., iSSS =26m.57s.
Jena (I) ePZ =11m.7s., eP =11m.11s., eE =15m.19s. eSN =19m.35s., eSE =19m.40s., ePSZ =20m.9s., eE =24m.15s., eN =24m.21s. and 27m.51s.
Rome (I) i =11m.16s., ePPE =13m.38s., ePPPE =15m.53s., iSE =20m.0s., eSSS? = 26m.43s.
Bergen (I) PPPZ =15m.29s., SSN =24m.51s.
Strasbourg (I) i =11m.25s., 11m.38s., and 11m.54s., iPPP =15m.37s., e =16m.0s., ePPS? =21m.34s., eSS? =26m.7s., eSSS? =29m.18s., i =34m.19s.; (II) i =11m.35s., iSS =25m.55s.
Uccle (I) ePPP =15m.53s., eSN =20m.52s., eSSN =25m.24s., eSSSN =28m.49s.
Aberdeen (I) iEN =24m.22s. and 29m.44s.
Paris (I) e =13m.59s. and 16m.49s., iSS? =25m.34s., eQ =32m.43s.; (II) eSS? =27m.17s.
Durham (I) iEN =12m.17s. and 13m.53s., iE =30m.19s.
Clermont-Ferrand (I) i =12m.0s., iPPP =16m.17s.
Edinburgh (I) PP =14m.22s., S =20m.56s., PS =21m.22s., SS =25m.26s.
Riverview (I) iS_cSE =22m.42s.; (II) iP_cPNE =12m.2s., iPPSE =22m.52s., iSSE = 26m.53s., iSSN =27m.0s., iSSSE =30m.46s., eQN =32m.1s. ; many other readings given without phase.
Algiers (I) PPP =16m.13s., e =22m.14s. ; (II) i =21m.57s.
College (I) ePP =14m.40s., i =23m.57s., eSSS =30m.58s.
Tortosa (I) PPN =15m.2s., PPPN =17m.8s., PSN =22m.54s., PPSN =23m.25s., SSN = 27m.15s., QN =32m.44s.
Alicante (I) sP =12m.45s., PPPN =16m.53s., S_cS =22m.17s., PS =22m.33s., SS = 27m.37s.
Toledo (I) PPZ =15m.17s., iSE =22m.24s., PSEN =23m.31s., QN =34m.34s.
Johannesburg (I) i?N =16m.37s., eQ?N =35·7m.
Granada (I) sP =13m.12s., PP =15m.59s., pPP =16m.21s., PPP =18m.15s., S =23m.34s., sS =24m.16s. ; (II) iSS =26m.40s.
Lisbon (I) E =23m.9s., iN =23m.25s., QN =39·2m. ; (II) E =23m.11s., N =23m.22s.
Sitka (I) eSS =29m.23s. ; (II) ePP =15m.42s.
Honolulu (I) ePPP =19m.28s., iSKS =24m.9s., iPS =26m.9s., iSS =31m.39s., eSSS = 36m.14s. ; (II) iSSS =35m.57s.
Auckland (I) PS =20m.20s., SS =27m.43s., SSS =32m.23s., i =34m.13s. and 38m.38s., Q? =41m.45s. ; readings wrongly identified.
Arapuni PPP =29m.31s., SSS =33m.55s.
Christchurch (I) PP =18m.0s., PPP =20m.18s., SKKS =25m.8s., S =25m.39s., iN = 26m.16s., PS =27m.12s., PPS =28m.0s., SS =32m.41s., Q =43m.43s.
Wellington (I) PPZ =14m.28s., PPP =16m.30s.; (II) SKS(PPS?) =27m.32s., SS(PS?) = 26m.21s.
Victoria (I) SS =32m.31s., SSS =35m.43s.?
Butte (I) eSS =32m.31s.
Bozeman (II) iPS =27m.7s., eSS =34m.35s.
Seven Falls (I) e =22m.47s., PPS =29m.13s., SSS =37m.31s.
Berkeley (I) iE =19m.13s. and 25m.13s., iZ =28m.37s.
Branner (I) eE =27m.45s. ; (II) eEN =20m.49s.
Logan (I) eSS =33m.10s., e =39m.47s.
Ottawa (I) e =23m.1s., eE =27m.1s., iN =29m.7s., e =45m.23s.
Harvard (I) e =20m.58s., ePKS =21m.52s., e =23m.47s.
Boulder City (I) ePP =19m.13s.
Denver (I) i =23m.41s., iSKKS =26m.41s., iPS =29m19s.. iPPS =30m.28s.
Pasadena (I) eZ =19m.25s., iPSNZ =29m.16s., iPKKPZ =29m.39s., eSSN =35m.25s.; (II) ePSZ =29m.15s., iPKKPZ =29m.16s., iZ =29m.38s., eSSN =35m.31s.
Pierce Ferry (I) i =32m.23s.
Chicago (I) ePPS =30m.16s., eSS =33m.39s., eSSS =38m.29s.
Fordham (I) iPS =29m.33s., iSS =35m.39s., iSSS =39m.53s.
Pennsylvania (I) eN =39m.5s.

Continued on next page.

Philadelphia (II) iS = 26m.33s., ePS = 29m.27s., eSSS = 40m.55s.
Cincinnati (I) e = 24m.31s.
Tucson (I) e = 19m.13s., iPP = 20m.16s., eSKKS = 27m.7s., ePS = 29m.51s., iPPS = 31m.59s., eSS = 37m.23s., iSSS = 39m.43s.; (II) ePS = 29m.51s., iPPS = 31m.40s., i = 42m.17s., e = 42m.35s.
Bermuda (I) eSKKS = 27m.15s., e = 31m.41s., iSS = 36m.43s.; (II) e = 31m.27s., eSS = 37m.3s.
Tacubaya (I) ePKSE = 23m.4s., iPPP = 25m.8s., ePSE = 32m.27s., eZ = 34m.14s., eN = 38m.3s. and 38m.13s.; (II) ePPN = 21m.28s., eN = 22m.30s., eZ = 24m.2s., eN = = 32m.37s., eE = 34m.14s.
San Juan (I) eSS = 38m.42s., e = 39m.51s., iSS = 42m.53s.; (II) ePP = 21m.17s., ePS = 32m.3s., iSS = 38m.14s., eSSS = 44m.3s.
Merida (I) eEN = 26m.54s., e = 28m.56s.
Bogota (I) iP = 14m.50s., iPP = 22m.49s., iSKP = 22m.52s., ePPPP = 28m.7s.
La Plata (I) E PP = 23m.7s., 32m.13s., and 33m.41s., SKSP = 34m.37s., 40m.7s., and 41m.25s., PSS? = 45m.49s., SSS? = 52m.7s.; N PP = 22m.55s., PPP = 26m.25s., 31m.37s., SKSP = 33m.37s., 38m.25s., and 42m.31s., SS = 42m.37s., SSS = 46m.7s. and 48m.43s.; z 22m.49s.
La Paz (I) iPKPZ = 20m.19s., iPKP$_2$Z = 21m.3s., iZ = 25m.7s., PPPZ = 28m.9s., iZ = 29m.48s., iPSKS = 35m.23s., iZ = 38m.3s., SSZ = 44m.23s., SSN = 45m.14s., SSS = 49m.49s., QN = 62·1m.
Santa Lucia (II) E = 30m.30s., SSE = 44m.30s.
Huancayo (I) i = 20m.44s., 21m.7s., and 24m.31s., iSKSP = 34m.33s., i = 35m.52s., iSSS = 49m.42s.; (II) i = 36m.24s. and 37m.13s., iSSS = 49m.44s.
Long waves were also recorded at St. Louis and Columbia.

Sept. 12d. 17h. 39m. 33s. Epicentre 19°·4N. 70°·4W. (as on 1946, August 28d.).

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

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	i 0 47	P_g	i 1 7	S_g	i 1 16	SS	—
Balboa Heights		13·7	222	e 3 27	PP	e 5 58	+ 6	—	—	—
Bermuda		13·9	21	e 3 12	− 9	i 5 45	−12	—	—	i 5·8
Bogota		15·1	194	i 3 44	+ 8	e 6 35	+10	i 3 54	PP	—
Columbia		17·4	330	e 4 3	− 3	e 7 10	− 9	—	—	e 7·8
Merida		18·1	278	e 4 18	+ 4	i 7 51	SS	i 4 40	PPP	—
Philadelphia		20·9	351	i 4 42	− 4	i 8 31	− 4	i 5 24	PPP	i 10·5
Pennsylvania	N.	22·3	345	e 4 55	− 6	e 8 59	− 3	i 5 26	PP	—
Weston		22·9	359	i 5 7	+ 1	i 8 59	−14	—	—	—
Harvard		23·1	359	i 5 7	− 1	i 9 5	−11	—	—	—
Halifax		25·8	12	e 5 30	− 4	e 9 58	− 4	—	—	11·5
Chicago		26·7	331	e 5 51	+ 8	e 10 23	+ 6	e 6 12	PP	e 12·6
Tacubaya		27·1	275	e 5 55	+ 9	e 10 49	+25	i 9 6	P_eP	—
Shawinigan Falls		27·2	358	e 5 42	− 4	—	—	—	—	18·5
Seven Falls		27·7	0	e 5 58	+ 6	—	—	e 11 5	Q	13·5
Huancayo		31·6	189	i 6 31	+ 5	e 11 55	+20	i 7 22	PP	e 14·3
La Paz	z.	35·8	175	7 3	0	12 45	+ 4	—	—	19·5
Tucson		38·4	298	i 7 15	−10	—	—	i 9 39	P_eP	—
Pierce Ferry		41·6	303	i 7 52	+ 1	—	—	e 9 32	PP	—
Overton		42·1	304	i 7 56	+ 1	—	—	—	—	—
Boulder City		42·3	303	i 7 57	0	—	—	—	—	—
Palomar		43·5	299	i 8 7	0	—	—	—	—	—
La Jolla	z.	43·8	298	e 8 6	− 3	—	—	—	—	—
Riverside	z.	44·0	300	i 8 12	+ 1	—	—	—	—	—
Mount Wilson	z.	44·6	300	i 8 16	0	—	—	—	—	—
Pasadena	z.	44·7	300	i 8 17	+ 1	—	—	—	—	—
Haiwee		44·8	302	e 8 18	+ 1	—	—	—	—	—
Tinemaha		45·2	303	i 8 21	+ 1	—	—	i 8 29	pP	—
Santa Clara	z.	48·1	304	i 8 46	+ 3	—	—	—	—	—
Branner		48·3	304	e 8 46	+ 1	—	—	e 8 59	pP	—
Grand Coulee		48·4	318	i 8 43	− 3	—	—	—	—	—
Berkeley	z.	48·5	304	e 8 46	0	—	—	e 9 13	?	—
Shasta Dam		49·0	308	e 8 46	− 4	—	—	—	—	—
Toledo	z.	59·9	54	i 10 6	− 4	—	—	—	—	—
Granada		60·3	58	i 10 12	− 1	18 15	−11	—	—	26·6

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tortosa	N.	63·3	53	e 10 32	− 1	—	—	11 9	—	—
Basle		67·9	46	e 10 58	− 4	—	—	—	—	—
Zürich		68·6	46	e 11 3	− 4	—	—	—	—	—
Collmberg	Z.	71·0	41	e 11 17	− 5	—	—	e 13 55	PP	—
Rome	E.	72·1	52	e 11 27	− 1	—	—	—	—	—
Zagreb		73·9	46	e 11 33	− 6	e 21 3	− 7	—	—	—

Additional readings :—
Bogota i =3m.48s., iPPP =3m.59s., eSS? =6m.49s., ePcP? =8m.50s.
Philadelphia e =5m.27s.
Pennsylvania iN =5m.4s., 5m.43s., and 9m.49s.
Tacubaya iN =10m.21s., iSSE =12m.8s.
Collmberg eZ =11m.50s.
Long waves were also recorded at Lincoln, Auckland, Arapuni, Wellington, and Riverview.

Sept. 12d. Readings also at 3h. (near Istanbul), 5h. (Boulder City and Pierce Ferry), 6h. (near Mineral), 8h. (Kodaikanal and near Leninakan), 9h. (near Zürich), 10h. (Stalinabad (2), Tashkent, and near Samarkand), 13h. (Christchurch), 14h. (Suva, Santa Lucia, Shasta Dam, Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Pierce Ferry, Boulder City, and Overton), 15h. (Clermont-Ferrand, Paris, Rome, Strasbourg, and near Fort de France), 16h. (Granada, and Grand Coulee), 17h. (Leninakan, near Grozny, and near Berkeley), 18h. (Granada, La Jolla, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, and Brisbane), 19h. (Pierce Ferry, Tucson, and Overton), 21h. and 22h. (near La Paz), 23h. (near Tananarive).

Sept. 13d. 4h. 53m. 59s. Epicentre 29°·8N. 42°·7W.

A = +·6388, B = −·5894, C = +·4945 ; δ = −1 ; h = +2 ;
D = −·678, E = −·735 ; G = +·363, H = −·335, K = −·869.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bermuda		19·0	284	i 4 23	− 3	i 7 41	−14	—	—	i 7·8
Fort de France		22·7	231	e 3 19	?	—	—	—	—	—
San Juan		24·2	248	e 5 19	0	—	—	—	—	e 9·7
Toledo		33·1	61	e 6 38	− 2	e 10 52	−67	—	—	—
Granada		33·2	66	i 6 42a	+ 2	e 11 42	−18	7 52	PP	15·1
Alicante		35·7	64	e 6 49	−13	e 11 14	−85	7 25	PP	e 14·7
Clermont-Ferrand		39·0	52	—	—	e 14 33	+64	—	—	18·0
Paris		39·1	48	—	—	e 13 29	− 2	e 15 58	SS	e 18·0
St. Louis		39·9	296	i 7 38	+ 1	—	—	e 16 36	SSS	—
Florissant	N.	40·0	296	—	—	e 16 41	SS	—	—	—
Uccle		40·7	44	e 9 37	PP	e 13 52	− 3	—	—	e 19·0
Strasbourg		42·5	48	—	—	e 14 25	+ 3	—	—	e 20·0
Florence	E.	44·7	56	e 7 53	−23	e 14 32	−22	—	—	—
Rome		45·6	58	e 8 24	0	e 15 4	− 2	—	—	—
Cheb		45·7	47	e 12 1?	?	e 16 1?	+53	—	—	e 26·0
Collmberg	Z.	46·2	45	e 8 27	− 1	—	—	—	—	—
Triest		46·4	54	e 8 32	+ 2	e 15 20	+ 2	—	—	—
Copenhagen		46·5	39	—	—	i 15 22	+ 3	18 25	SS	23·0
Tucson		57·5	291	e 9 55	+ 2	—	—	—	—	—
Istanbul		58·0	57	e 9 23	−34	e 17 20	−37	—	—	—
Pierce Ferry		58·9	296	i 10 5	+ 2	—	—	—	—	—
Overton		59·2	297	e 10 6	+ 1	—	—	—	—	—
Boulder City		59·6	296	e 10 8	0	—	—	—	—	—
Tinemaha	Z.	62·0	298	i 10 25	+ 1	—	—	—	—	—
Riverside	Z.	62·2	295	e 10 26	0	—	—	—	—	—
Mount Wilson	Z.	62·7	295	e 10 33	+ 4	—	—	—	—	—
Shasta Dam		63·9	295	e 10 34	− 3	—	—	—	—	—
Ksara		65·3	63	e 7 53	?	—	—	e 13 14	PP	—

Additiona. readings :—
Granada PcP =9m.30s., SS =12m.24s.
St. Louis iZ =7m.46s. and 7m. 52s.
Collmberg eZ =8m.37s.
Copenhagen 20m.13s.
Long waves were also recorded at Harvard, Philadelphia, Chicago, De Bilt, and Pasadena.

Sept. 13d. 15h. 47m. 20s. Epicentre 21°·0S. 169°·5E. (as on 1941, July 25d.).

$A = -\cdot 9188$, $B = +\cdot 1703$, $C = -\cdot 3563$; $\delta = +15$; $h = +4$;
$D = +\cdot 182$, $E = +\cdot 983$; $G = +\cdot 350$, $H = -\cdot 065$, $K = -\cdot 934$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		8·9	73	i 1 59	−13	i 4 7	+12	—	—	4·5
Brisbane		16·3	244	i 3 51	− 1	i 7 5	+12	i 7 13	SS	i 8·2
Auckland		16·4	165	3 45	− 8	7 42	SS	—	—	9·1
Arapuni		17·8	165	—	—	(6 10)	?	—	—	6·2
Riverview		20·6	228	i 4 44k	+ 1	i 8 33	+ 4	i 5 3	pP	e 10·0
Wellington	z.	20·7	169	4 44	0	8 21	−10	5 0	pP	9·8
Christchurch		22·6	174	4 40	−23	9 0	− 7	5 0	pP	11·7
Vladivostok		72·6	333	—	—	i 21 4	+ 8	—	—	—
Berkeley		86·8	48	e 12 48	+ 1	e 23 40	+15	e 24 40	PPS	—
Santa Barbara	z.	86·9	53	e 13 8	+20	—	—	—	—	—
Pasadena	z.	87·9	53	e 13 2	+ 9	—	—	e 13 13	pP	—
La Jolla	z.	88·0	54	e 13 19	+26	—	—	—	—	—
Mount Wilson	z.	88·1	53	i 12 58	+ 4	—	—	i 13 14	pP	—
Shasta Dam		88·1	45	i 12 54	0	—	—	—	—	—
Riverside	z.	88·4	53	i 12 59	+ 4	—	—	—	—	—
Palomar	z.	88·5	54	e 12 58	+ 2	—	—	i 13 16	pP	—
Haiwee	z.	89·0	51	e 13 18	+20	—	—	—	—	—
Tinemaha	z.	89·2	50	e 13 13	+14	—	—	—	—	—
Boulder City		91·2	52	e 13 8	0	e 22 32	[−68]	e 18 23	PPP	—
Overton		91·7	51	e 13 15	+ 5	e 22 40	[−63]	i 18 37	PPP	—
Pierce Ferry		91·9	52	e 13 12	+ 1	e 23 59	−12	—	—	—
Tucson		92·7	57	e 13 18	+ 3	—	—	—	—	—
Guadalajara	N.	94·7	69	e 18 50	PPP	—	—	—	—	—
Chihuahua	z.	95·2	61	e 16 22	PP	17 25	?	—	—	—
Salt Lake City		95·3	48	e 19 11	PPP	(e 24 28)	−13	—	—	e 24·5
Kodaikanal	E.	95·5	280	—	—	e 24 7	[+ 3]	—	—	—
Bozeman		97·7	44	—	—	e 24 17	[+ 2]	(e 27 17)	PPS	e 27·3
Tacubaya		97·9	73	i 17 51	PP	—	—	—	—	e 20·8
New Delhi	N.	101·7	296	—	—	e 24 39	[+ 4]	i 25 44	S	e 65·5
Bombay		102·6	285	e 18 27	PP	e 24 48	[+ 8]	—	—	—
Lincoln		106·2	52	—	—	(e 25 40]	{+ 2}	—	—	e 25·7
Florissant		110·5	56	—	—	e 26 23	{+14}	e 29 0	PS	—
St. Louis		110·6	56	i 20 5	PP	e 26 49	S	—	—	—
Tashkent		111·0	308	e 19 36	PP	e 28 58	PS	—	—	—
Chicago		113·1	52	—	—	e 25 15	[−10]	—	—	e 27·6
Columbia		117·2	62	—	—	(e 30 9)	PS	—	—	e 30·2
Sverdlovsk		117·6	324	e 20 3	PP	e 29 57	PS	—	—	—
Philadelphia		122·4	56	—	—	(e 31 50)	PPS	—	—	e 31·8
Seven Falls		125·2	47	—	—	e 35 34	?	—	—	63·7
Moscow		130·3	328	e 21 20	PP	e 33 22	PPS	—	—	—
Bermuda		130·7	65	e 22 35	PKS	e 33 15	PPS	—	—	e 67·7
Ksara		137·2	297	e 19 29	[+ 4]	32 42	PS	22 27	PP	—
Istanbul		141·1	311	e 19 28	[− 4]	—	—	e 22 34	PP	—
Copenhagen		141·4	341	e 19 29	[− 4]	e 22 32	PP	—	—	e 60·7
Helwan		141·4	293	e 19 30	[− 3]	e 22 46	PP	—	—	—
Budapest	E.	144·4	325	19 56	[+18]	—	—	—	—	—
Sofia		144·4	315	e 19 40	[+ 2]	e 23 10	PP	—	—	—
Collmberg	z.	144·6	335	e 19 40	[+ 2]	—	—	—	—	—
Belgrade		145·2	319	e 19 40	[0]	—	—	e 24 12	PP	—
De Bilt		146·7	343	e 19 45	[+ 3]	—	—	e 23 15	PP	e 77·7
Zagreb		147·1	325	e 19 47	[+ 4]	—	—	20 19	?	—
Triest	N.	148·1	328	e 19 59	[+15]	—	—	—	—	—
Uccle		148·1	343	e 19 52	[+ 8]	—	—	—	—	e 60·7
Strasbourg		148·8	337	e 19 52	[+ 6]	—	—	—	—	58·7
Basle		149·8	336	e 19 53	[+ 6]	—	—	—	—	—
Paris		150·4	342	19 55	[+ 7]	—	—	—	—	—
Florence	E.	151·0	326	i 20 13	[+24]	—	—	—	—	—
Alicante		160·7	336	20 44	[+43]	44 18	SS	24 54	PP	e 93·4
Granada		162·8	342	i 20 40k	[+36]	27 31	[+24]	24 43	PP	83·3

For Notes see next page.

Notes to September 13d. 15h. 47m. 20s.

Additional readings :—
Suva i = 2m.15s. and 3m.7s.
Riverview iZ = 4m.47s., iPPN = 5m.13s., iP_cPN = 8m.41s.
Wellington PPZ = 5m.14s., PPPZ = 5m.35s., S_cS = 16m.18s.
Christchurch Q = 9m.43s.
Berkeley eZ = 19m.24s.
Shasta Dam i = 13m.15s.
Pierce Ferry i = 13m.32s., e = 18m.19s. and 22m.4s., i = 22m.19s.
Guadalajara eE = 19m.30s.
Copenhagen 45m.16s.
Budapest PN = 20m.7s.
Collmberg eZ = 19m.46s., 20m.4s., 20m.43s., and 20m.52s.
Belgrade e = 21m.42s.
Alicante PKP_2 = 21m.34s., PKS = 24m.10s., PPP = 28m.24s., PPS = 38m.34s., PSS = 45m.54s., SSS = 50m.52s.
Granada SKKS = 30m.59s., SKSP = 35m.6s., PPS = 38m.39s., SS = 45m.15s., SSS = 47m.45s.
Long waves were also recorded at Santa Clara, Sitka, Harvard, Huancayo, Upsala, and Clermont-Ferrand.

Sept. 13d. 18h. 59m. 5s. Epicentre 52°·4N. 158°·7E.

A = −·5708, B = +·2226, C = +·7903 ; δ = −6 ; h = −6 ;
D = +·363, E = +·932 ; G = −·736, H = +·287, K = −·613.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Morioka		17·5	230	e 4 7	0	7 6	−15	—	—	—
Mizusawa		18·0	229	e 4 15	+ 2	8 2	+30	—	—	—
Vladivostok		20·2	252	i 4 33	− 6	i 8 26	+ 5	—	—	—
Mito		20·6	226	4 42	− 1	8 22	− 7	—	—	—
Tokyo		21·5	226	e 4 55	+ 3	8 38	− 9	—	—	—
Hikone		23·4	230	5 11	0	9 18	− 3	—	—	—
College		29·5	43	e 6 10	+ 2	e 11 1	− 1	e 7 13	PP	e 13·5
Irkutsk		32·6	292	6 36	+ 1	—	—	—	—	—
Sitka		36·9	55	i 7 14	+ 2	i 12 59	+ 1	i 8 42	PP	e 15·5
Honolulu		45·6	115	e 7 54	−30	i 14 2	−64	i 10 22	PP	e 20·1
Grand Coulee		50·2	59	i 9 0	0	—	—	—	—	—
Sverdlovsk		52·2	315	i 9 14	− 1	i 16 33	− 6	—	—	—
Shasta Dam		52·9	68	i 9 20	0	e 16 49	+ 1	—	—	—
Saskatoon		53·7	49	e 8 49?	−37	e 16 22?	−37	—	—	24·9
Butte		54·8	57	e 9 35	+ 1	e 17 13	− 1	—	—	e 32·2
Berkeley		54·9	71	e 9 33	− 2	i 17 17	+ 1	—	—	e 25·4
Branner		55·2	71	e 9 31	− 6	e 17 21	+ 1	—	—	—
Santa Clara		55·4	71	i 9 39	+ 1	e 17 24	+ 2	—	—	—
Bozeman		55·8	57	e 9 36	− 5	e 17 24	− 4	e 21 15	SS	e 24·9
Fresno	N.	57·1	70	e 9 45	− 5	e 17 44	− 1	e 12 25	PP	—
Andijan		57·1	294	e 9 57	+ 7	—	—	—	—	—
Tinemaha		57·7	69	i 9 55	0	e 17 56	+ 3	i 10 5	pP	—
Tashkent		58·4	297	e 9 55	− 5	—	—	—	—	—
Haiwee		58·6	69	i 10 1	0	e 18 5	+ 1	—	—	—
Pasadena		59·8	71	i 18 8a	− 1	i 18 20	0	i 10 20	pP	e 25·1
Mount Wilson		59·9	71	i 10 9a	− 1	e 18 19	− 2	i 10 22	pP	—
Overton		60·3	67	i 10 13	0	e 18 28	+ 2	e 39 27	P′P′	—
Riverside		60·4	71	i 10 12	− 1	—	—	e 39 11	P′P′	—
Boulder City		60·5	68	i 10 14	0	17 29	−60	e 39 28	P′P′	—
Stalinabad		60·6	295	i 10 15	0	i 18 27	− 3	—	—	—
Samarkand		60·8	297	10 11	− 5	—	—	—	—	—
Pierce Ferry		60·8	67	i 10 17	+ 1	i 18 34	+ 1	e 39 38	P′P′	—
Palomar		61·2	71	e 10 18	− 1	i 18 37	− 1	i 10 30	pP	—
La Jolla		61·3	72	e 10 20	0	e 18 37	− 2	—	—	—
Moscow		61·8	326	10 21	− 2	18 39	− 7	—	—	—
New Delhi	N.	62·9	282	i 10 28	− 2	e 19 34	+34	22 7	SS	—
Denver		63·1	59	e 10 30	− 2	e 18 58	− 4	—	—	—
Upsala		63·8	339	i 10 33a	− 3	19 3	− 8	e 23 45	SS	e 30·9
Tucson		65·5	68	i 10 46	− 1	i 19 27	− 5	i 11 1	pP	—
Grozny		68·5	313	e 11 14	+ 8	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Copenhagen		68·7	340	i 11 5a	− 2	i 20 5	− 5	16 5	PPP	32·9
Baku		68·9	309	e 11 15	+ 6	—	—	—	—	—
Aberdeen		69·7	348	—	—	—	—	e 31 5	Q	e 35·8
Warsaw	N.	69·8	332	e 11 17	+ 3	e 20 21	− 2	e 15 13	PPP	e 39·9
Chicago		70·1	46	e 11 14	− 2	e 20 28	+ 1	e 15 41	PPP	e 40·1
Hyderabad	N.	70·5	272	e 11 16	− 2	e 21 10	+38	—	—	—
Florissant		71·2	49	i 11 22	− 1	i 20 37	− 3	i 20 59	sS	—
St. Louis		71·4	49	i 11 23	− 1	i 20 39	− 3	i 11 40	pP	—
Leninakan		71·4	313	e 11 17	− 7	—	—	—	—	—
Erevan		71·6	311	e 11 24	− 1	—	—	—	—	—
Ottawa		72·0	37	i 11 26	− 2	—	—	—	—	33·9
Seven Falls		72·2	32	—	—	e 19 55	−56	—	—	34·9
Suva		72·3	159	—	—	e 20 10	−42	—	—	e 31·9
Yalta		72·3	321	e 11 22	− 7	—	—	—	—	—
Collmberg		72·7	337	e 11 31	− 1	e 21 28	+31	e 16 34	PPP	e 35·9
Bombay		72·8	277	e 11 44	+12	e 20 58	0	—	—	—
Jena		73·4	338	e 11 36	0	e 21 4	− 1	e 14 35	PP	—
De Bilt		73·5	343	i 11 38a	+ 2	i 21 6	0	e 16 11	PPP	e 33·9
Prague		73·5	335	e 10 44	−52	e 21 7	+ 1	e 21 34	PS	e 35·9
Budapest		74·7	332	11 44	+ 1	e 21 55?	+36	—	—	e 35·9
Uccle		74·9	343	e 11 45	+ 1	e 21 18	− 4	e 21 41	PS	e 36·9
Bucharest		75·3	326	e 11 49	+ 2	—	—	—	—	35·9
Harvard		76·0	35	i 11 53	+ 2	—	—	—	—	e 42·9
Weston		76·2	35	i 11 54	+ 2	e 21 53	+17	e 14 45	PP	—
Strasbourg		76·4	340	i 11 53	0	e 21 35	− 3	e 21 59	PS	38·9
Fordham		76·6	38	i 11 54	0	e 15 3	PP	e 16 38	PPP	41·9
Kodaikanal	E.	76·6	269	e 11 52	− 2	—	—	—	—	—
Belgrade		76·7	330	e 11 55	0	e 21 38	− 3	—	—	—
Philadelphia		76·8	39	e 11 54	− 1	e 21 41	− 1	e 14 29	PP	e 30·8
Zagreb		77·1	333	e 11 57a	0	e 21 33	−13	—	—	—
Paris		77·1	343	i 11 59	+ 2	e 21 43	− 3	e 17 13	PPP	e 36·9
Istanbul		77·2	322	e 11 56	− 1	e 21 10	−37	—	—	—
Basle		77·4	340	e 11 59a	+ 1	—	—	—	—	—
Zürich		77·4	339	e 11 58a	0	e 21 46	− 3	e 12 35	sP	—
Chur		77·7	338	e 12 1a	+ 1	—	—	—	—	—
Sofia		77·7	327	e 11 57	− 3	—	—	—	—	32·9
Triest		77·8	335	e 11 57	− 4	e 21 44	− 9	e 27 5	SS	—
Neuchatel		78·1	340	e 12 3	+ 1	—	—	—	—	—
Brisbane	N.	79·7	184	i 12 6	− 5	—	—	—	—	—
Clermont-Ferrand		80·0	342	i 12 14	+ 1	i 22 14	− 3	—	—	41·9
Florence	E.	80·2	336	e 12 15	+ 1	i 22 18	− 1	—	—	—
Ksara		80·7	314	i 12 17	+ 1	e 22 18	− 6	—	—	—
Rome		81·6	335	i 12 20	− 1	e 22 30	− 3	e 23 15	PS	e 36·9
Tacubaya		82·0	69	i 12 25	+ 2	i 22 38	+ 1	e 23 2	sS	—
Barcelona		84·4	342	—	—	i 22 57	− 4	—	—	e 50·9
Tortosa	N.	85·2	343	12 39	0	23 4	− 5	15 35	PP	e 45·9
Riverview		86·1	185	e 12 52	+ 8	e 23 18	0	i 23 2	SKS	e 40·1
Helwan		86·1	315	e 12 44k	0	23 1	[− 7]	e 15 19	PP	—
Toledo		86·9	346	i 12 47	− 1	i 23 24	− 2	23 12	SKS	—
Bermuda		87·4	35	i 12 53	+ 3	e 23 21	− 9	e 16 15	PP	e 35·1
Alicante		87·8	343	13 5	+13	23 21	[+ 2]	13 21	pP	e 40·2
Lisbon		88·6	350	12 58	+ 2	23 39	− 3	—	—	44·9
Granada		89·4	346	i 13 1k	+ 1	i 23 47	− 2	13 27	pP	45·0

Additional readings :—
Grand Coulee i =9m.7s.
Shasta Dam i =9m.37s.
Butte e =17m.37s.
Berkeley iN =9m.37s., eN =23m.31s.
Branner eEN =9m.36s.
Bozeman e =17m.58s.
Fresno eN =10m.29s., e =18m.29s.
Tinemaha eN =18m.20s.
Pasadena isPZ =10m.37s., iEN =18m.50s., ePKP,PKPZ =39m.41s.
Mount Wilson ePKP,PKPZ =39m.18s.
Overton e =39m.39s.

Continued on next page.

Palomar iE =10m.43s. and 19m.4s., ePKP,PKPZ =39m.35s.
New Delhi S_cSN =20m.11s., SSS =24m.19s.
Denver eP =10m.34s.
Upsala S_cSE =20m.18s., eSSS =26m.29s.
Copenhagen 13m.40s., S_cS =21m.17s., SS =25m.11s., SSS =28m.7s.
Warsaw eN =11m.38s. and 17m.53s., PSN =20m.59s., eSSS?N =28m.3s.
Chicago eSS =34m.29s.
St. Louis isSE? =21m.9s.
Collmberg eN =12m.42s. and 14m.15s., eZ =21m.32s., ePS?Z =22m.22s.
De Bilt eSS =25m.55s.?
Budapest eN =19m.45s.
Uccle eSSN =26m.1s.
Harvard i =12m.6s.
Strasbourg e =12m.20s., 13m.9s., 17m.55s.?, and 18m.32s.
Belgrade e =13m.29s.
Philadelphia ePPP =16m.37s.
Zagreb e =12m.6s., eNEZ =12m.25s., eNE =12m.36s.
Paris i =12m.19s.
Clermont-Ferrand i =13m.3s.
Ksara i =18m.52s.
Rome eSSE =27m.50s.
Tacubaya eN =18m.38s., eE =19m.8s.
Tortosa S_cS?N =23m.36s., PSN =24m.19s.
Riverview eSN =23m.26s., eSSN =28m.39s., true S is given as S_cS.
Helwan e =13m.7s., PPS =24m.33s.
Bermuda iS =23m.50s.
Alicante PP =16m.25s., PPP =18m.33s., PS =23m.41s., sS =23m.57s., PPS =24m.3s., SS =28m.49s., Q =34m.17s.
Lisbon SEZ =23m.43s.
Granada P_cP =13m.6s., PP =16m.5s., pPP =17m.5s., PPP =18m.13s., pPPP =18m.27s., SKS =23m.27s., SKKS =24m.7s., PS =24m.18s., sS =24m.36s., SS =30m.30s., sSS =30m.54s., SSS =33m.59s.
Long waves also recorded at Wellington and Auckland.

Sept. 13d. 19h. 43m. 30s. Epicentre 24°·5N. 109°·0W. (as on 1942, May 30d.).

Approximate.

A = −·2966, B = −·8614, C = +·4124; δ = +6; λ = +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.
Chihuahua	Z.	4·8	31	1 26	P*	2 30	S*	—	—	—
Guadalajara	N.	6·4	124	—	—	e 3 26	S_c	—	—	—
Tucson		7·8	350	i 1 56	− 2	e 3 54	S*	—	—	e 4·2
Tacubaya		10·4	117	e 3 8	+34	—	—	—	—	e 5·8
La Jolla	Z.	11·0	320	e 2 55	+13	—	—	—	—	—
Palomar		11·2	324	e 2 41	− 3	—	—	—	—	e 6·2
Riverside	Z.	11·9	325	e 2 54	0	—	—	—	—	—
Pierce Ferry		12·3	341	i 2 58	− 1	e 6 46	L	—	—	(e 6·8)
Mount Wilson	Z.	12·5	324	e 3 4	+ 2	—	—	—	—	—
Pasadena	Z.	12·5	324	e 3 9	+ 7	—	—	—	—	e 6·3
Boulder City		12·5	338	i 3 1	− 1	e 7 3	L	—	—	(e 7·0)
Overton		12·8	340	i 3 6	0	e 7 28	L	—	—	(e 7·5)
Santa Barbara	Z.	13·6	319	e 3 17	0	—	—	—	—	—
Haiwee		13·9	328	e 3 19	− 2	—	—	—	—	—
Tinemaha		14·8	330	i 3 38	+ 6	—	—	—	—	—
Fresno	N.	15·3	325	e 3 37	− 2	—	—	—	—	—
Berkeley		17·5	323	e 4 3	− 4	e 7 37	+16	—	—	e 8·4
Shasta Dam		19·7	330	i 4 27	− 7	—	—	—	—	—

Additional readings :—
Mount Wilson iZ =3m.9s.
Berkeley eZ =4m.9s.
Long waves were also recorded at other American stations.

Sept. 13d. 20h. 6m. 18s. Epicentre 24°·5N. 109°·0W. (as at 19h.).

Approximate.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chihuahua	z.	4·8	31	1 16	+ 1	2 20	+ 8	—	—	—
Guadalajara		6·4	124	—	—	e 3 25	S_g	—	—	e 5·1
Tucson		7·8	350	e 1 53	− 5	e 3 53	S*	—	—	e 4·1
Palomar	z.	11·2	324	e 2 39	− 5	—	—	—	—	—
Riverside	z.	11·9	325	e 2 53	− 1	—	—	—	—	—
Pierce Ferry		12·3	341	e 2 55	− 4	e 6 44	L	—	—	(e 6·7)
Mount Wilson	z.	12·5	324	e 3 8	+ 6	—	—	—	—	—
Pasadena	z.	12·5	324	e 3 8	+ 6	—	—	—	—	e 6·0
Boulder City		12·5	338	e 2 59	− 3	e 7 17	L	—	—	(e 7·3)
Overton		12·8	340	e 3 3	− 3	e 7 22	L	—	—	(e 7·4)
Santa Barbara	z.	13·6	319	e 3 19	+ 2	—	—	—	—	—
Haiwee		13·9	328	e 3 17	− 4	—	—	—	—	—
Tinemaha	z.	14·8	330	i 3 34	+ 2	—	—	—	—	—
Berkeley		17·5	323	e 4 4	− 3	e 7 4	−17	7 38	SS	e 10·6
Lincoln		19·2	32	—	—	e 8 2	+ 3	—	—	e 10·2
Shasta Dam		19·7	330	e 4 25	− 9	—	—	—	—	—
Bozeman		21·2	356	—	—	e 8 49	+ 8	—	—	e 11·9
St. Louis		21·3	44	—	—	i 7 28	?	—	—	—
Fort de France		45·9	93	—	—	e 15 56	+45	—	—	—

Additional readings :—
Pierce Ferry i =6m.16s. and 16m.32s.
Berkeley eZ =4m.9s., eN =7m.38s., eE =8m.18s., eEN =10m.36s.
Long waves were also recorded at Tacubaya and other American stations.

Sept. 13d. Readings also at 5h. (near Tacubaya and Guadalajara), 8h. (Mount Wilson, Palomar, Riverside, Tinemaha, Tucson, Pierce Ferry, Ksara, Bogota, Huancayo, and La Paz), 9h. (near Andijan), 10h. (near Leninakan), 13h. (Aberdeen), 15h. (Auckland and De Bilt), 16h. (Harvard, Tinemaha, Haiwee, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, and near Fresno), 17h. (Suva), 19h. (Christchurch and near Alicante), 20h. (Tinemaha, Mount Wilson, Tucson, Weston, and near Fort de France), 21h. (La Paz and near Stalinabad), 22h. (Shasta Dam), 23h. (Bermuda).

Sept. 14d. 1h. 43m. 25s. Epicentre 35°·8N. 140°·8E. (as on 1943, October 19d.).

A = −·6300, B = +·5138, C = +·5823 ; δ = −4 ; λ = −1 ;
D = +·632, E = +·775 ; G = −·451, H = +·368, K = −·813.

		Δ	Az.	P.	O−C.	S.	O−C.
		°	°	m. s.	s.	m. s.	s.
Mizusawa		3·3	5	0 55	+ 2	e 1 21	−14
Vladivostok		10·1	319	e 2 26	− 2	e 4 36	+11
Irkutsk		30·6	316	e 6 35	+17	—	—
Andijan		52·7	298	e 9 22	+ 4	—	—
Tashkent		54·7	299	e 9 26	− 7	—	—
Sverdlovsk		55·8	320	i 9 40	− 1	17 23	− 5
Samarkand		57·0	299	e 9 50	0	—	—
Shasta Dam		72·2	53	e 11 29	0	—	—
Collmberg	z.	81·9	330	e 12 23	0	—	—
Tucson		84·7	54	e 12 38	+ 1	—	—

Collmberg gives also eZ =12m.33s. and 12m.49s.
Long waves were also recorded at Ksara, Rome, Triest, Uccle, and Granada,

Sept. 14d. 2h. 44m. 40s. Epicentre 22°·5S. 176°·2W. (as on 1945, October, 29d.).

$A = -\cdot 9228$, $B = -\cdot 0613$, $C = -\cdot 3805$; $\delta = +10$; $h = +4$;
$D = -\cdot 066$, $E = +\cdot 998$; $G = +\cdot 380$, $H = +\cdot 025$, $K = -\cdot 925$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		6·6	310	i 1 40	− 1	i 3 53?	S_g	—	—	—
Arapuni		17·0	202	—	—	e 7 50	+40	—	—	—
Wellington		20·2	199	4 39	0	6 37	?	15 38	S_cS	—
Brisbane	N.	28·3	253	e 5 52	− 5	—	—	—	—	—
Riverview	N.	30·8	240	—	—	i 11 25	+ 2	—	—	e 13·7
Santa Barbara	Z.	78·0	45	e 12 5	+ 3	—	—	—	—	—
La Jolla	Z.	78·7	47	e 12 9	+ 3	—	—	—	—	—
Pasadena		78·8	45	i 12 8	+ 2	—	—	—	—	—
Mount Wilson	Z.	79·0	45	i 12 9a	+ 2	—	—	—	—	—
Palomar		79·2	47	i 12 11	+ 3	—	—	—	—	—
Riverside	Z.	79·3	45	i 12 9	0	—	—	—	—	—
Haiwee	Z.	80·2	44	e 12 16	+ 2	—	—	—	—	—
Shasta Dam		80·3	38	i 12 17	+ 3	—	—	—	—	—
Tinemaha	Z.	80·6	43	e 12 18	+ 2	—	—	—	—	—
Boulder City		82·1	46	i 12 26	+ 2	—	—	—	—	—
Overton		82·7	45	i 12 28	+ 1	e 22 46	+ 2	—	—	—
Pierce Ferry		82·8	46	i 12 29	+ 2	—	—	—	—	—
Tucson		82·8	50	i 12 29	+ 2	—	—	—	—	—
Tashkent		122·6	306	18 28	[−30]	—	—	—	—	—
Sverdlovsk		126·6	325	e 18 54	[−11]	25 54	[−17]	—	—	—
Grozny		139·7	310	e 20 9	[+39]	—	—	—	—	—
Leninakan		141·8	308	e 20 43	[+69]	—	—	—	—	—
Ksara		149·7	298	i 19 43	[− 4]	—	—	22 59	PP	—
Collmberg		150·4	347	e 19 27	[−21]	e 30 11	{− 9}	e 23 28	PP	—
Istanbul		151·8	317	e 19 46	[− 4]	e 23 58	PP	—	—	—
Helwan		154·3	291	e 20 6	[+12]	e 20 41	PKP_2	e 24 31	PP	—
Zürich		154·9	353	e 21 16	?	—	—	—	—	—
Chur		155·3	352	e 20 18k	[+23]	—	—	—	—	—
Rome	Z.	159·3	342	e 24 20?	PP	—	—	—	—	—
Alicante		163·8	12	25 57	PP	46 23	SSP	29 35	PPP	e 72·1
Granada		164·0	22	20 53a	PKP_2	31 25	{− 8}	i 24 49	PP	86·6

Additional readings :—
Wellington e = 6m.57s., i = 7m.31s.
Riverview iN = 12m.12s. and 12m.34s., eQ?N = 12m.38s.
Tucson i = 13m.18s.
Collmberg iZ = 19m.47s., 19m.54s., and 19m.57s., eZ = 20m.21s., iZ = 20m.26s. and 20m.30s., eZ = 20m.35s. and 25m.47s.
Granada SKSP = 34m.48s., SS = 45m.21s., SSS = 50m.30s.

Sept. 14d. 6h. 16m. 0s. Epicentre 24°·1N. 108°·7W. (as on 1945, May 13d.).

$A = -\cdot 2930$, $B = -\cdot 8656$, $C = +\cdot 4061$; $\delta = +3$; $h = +4$;
$D = -\cdot 947$, $E = +\cdot 321$; $G = -\cdot 130$, $H = -\cdot 385$, $K = -\cdot 914$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chihuahua	Z.	5·1	27	1 13	− 7	2 16	− 4	—	—	—
Tucson		8·3	347	e 1 59	− 5	e 3 47	+ 7	—	—	e 4·1
Tacubaya	E.	10·0	116	i 2 34	+ 7	e 4 46?	S*	—	—	—
	N.	10·0	116	e 2 55	P*	e 4 52	S*	—	—	i 5·8
Palomar	Z.	11·6	324	e 2 52	+ 2	—	—	—	—	—
Riverside	Z.	12·4	325	e 3 1	0	—	—	—	—	—
Pierce Ferry		12·8	340	e 3 2	− 4	e 6 46	L	—	—	(e 6·8)
Mount Wilson	Z.	13·0	323	e 3 15	+ 6	—	—	—	—	—
Pasadena	Z.	13·0	323	e 3 17	+ 8	—	—	—	—	e 6·2
Boulder City		13·0	337	e 3 5	− 4	e 7 12	L	—	—	(e 7·2)
Overton		13·3	340	e 3 10	− 3	e 7 8	L	i 3 31	PPP	(e 7·1)
Haiwee	Z.	14·4	328	e 3 32	+ 5	—	—	—	—	—
Tinemaha	Z.	15·3	330	e 3 40	+ 1	—	—	—	—	—
Salt Lake City		16·8	352	e 3 56	− 2	e 7 25	+20	—	—	e 8·8
Logan		17·8	354	e 4 10	− 1	—	—	e 9 43	Q	e 10·5

Continued on next page.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Berkeley	18·0	325	e 4 16	+ 3	e 7 38	+ 6	—	—	e 9·4
Shasta Dam	20·1	330	e 4 33	− 5	—	—	—	—	—
Florissant	21·4	43	—	—	e 8 19	−26	—	—	e 11·3
St. Louis	21·4	43	i 4 59	+ 8	—	—	—	—	e 10·7
Bozeman	21·6	357	—	—	e 8 57	+ 8	—	—	e 11·4
Butte	22·1	354	—	—	e 9 6	+ 8	—	—	e 13·8
Chicago	24·9	39	—	—	e 9 57	+10	—	—	e 12·4
Columbia	26·0	61	—	—	e 10 8	+ 2	—	—	e 14·2

Additional readings :—
Logan i = 5m.1s.
St. Louis iZ = 5m.3s.
Long waves were also recorded at Guadalajara, Honolulu, and other American and European stations.

Sept. 14d. 10h. 51m. 20s. Epicentre 39°·2S. 178°·5E.
Intensity VI on the East Coast of North Island, N.Z.

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

A = −·7768, B = +·0203, C = −·6295 ; δ = +10 ; h = −1 ;
D = +·026, E = +1·000 ; G = +·629, H = −·016, K = −·777.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Tuai	1·1	291	0 23	+ 1	0 35	− 4
Arapuni	2·5	297	—	—	1 10?	− 4
New Plymouth	3·4	271	1 0	+ 5	1 35	− 2
Wellington	3·5	232	1 9	P_g	1 39	− 1
Auckland	3·7	307	1 8	P*	1 40	− 5
Christchurch	6·2	224	—	—	2 44	− 4
Kaimata	6·3	236	—	—	2 47	− 3

Long waves were recorded at Riverview.

Sept. 14d. 19h. 48m. 42s. Epicentre 40°·2S. 149°·0E.

Felt in Tasmania and on the east coast of Victoria.
Seismo. Bull. Riverview College Observatory, 1946, p. 42.

A = −·6565, B = +·3945, C = −·6429 ; δ = −6 ; h = −2 ;
D = +·515, E = +·857 ; G = +·551, H = −·331, K = −·766.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverview		6·6	16	1 40	− 1	2 57	− 1	1 59	P*	3·2
Brisbane		13·1	16	e 3 10	0	i 5 56	+18	i 3 34	PP	i 6·9
Christchurch		17·9	109	4 12 a	0	7 33	+ 3	4 41	PP	—
Wellington		19·5	101	4 34	+ 3	8 9	+ 3	4 55	PP	10·1
Auckland		20·4	89	5 3	+22	8 28	+ 3	5 40	PP	10·0
Suva		33·6	57	6 33	−11	13 3	+57	17 4	S_cS	—
Vladivostok		84·4	348	—	—	e 23 10	+ 9	24 8	PS	—
New Delhi	N.	95·5	303	—	—	i 24 47	+ 5	—	—	e 52·6
Irkutsk		99·9	334	17 18	PP	—	—	—	—	—
Tashkent		108·7	309	e 18 31	[0]	e 36 32?	SS	—	—	—
Mount Wilson	z.	113·1	64	e 18 41	[+ 2]	e 25 17	[− 8]	—	—	—
Palomar	z.	113·5	66	e 18 6	[−34]	—	—	e 19 36	PP	—
Riverside		113·5	64	e 18 17	[−23]	e 25 27	[+ 1]	e 19 28	PP	—
Huancayo		113·7	132	—	—	e 34 30	SS	i 35 49	SSP	e 54·6
Tinemaha	z.	114·5	62	e 18 47	[+ 5]	—	—	e 19 42	PP	—
Boulder City		116·3	64	e 19 53	PP	—	—	—	—	—
Pierce Ferry		116·9	65	e 18 47	[0]	i 29 21	PKKP	e 19 56	PP	—
Tucson		117·1	70	e 19 58	PP	—	—	—	—	e 45·8
Seattle		117·5	50	—	—	e 35 16	SS	—	—	e 48·3
Sverdlovsk		121·7	320	i 18 59	[+ 3]	38 1	SS	20 30	PP	—

Continued on next page.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ksara		127·3	285	e 19 12	[+ 5]	32 19	PPS	21 13	PP	—
Helwan		128·8	279	i 19 14k	[+ 4]	—	—	21 21	PP	—
Moscow		133·5	314	i 19 23	[+ 4]	22 53	PKS	i 21 53	PP	—
St. Louis	z.	135·0	72	i 19 24	[+ 3]	—	—	i 22 53	PKS	—
Istanbul		135·2	292	e 19 17	[− 5]	e 31 36	PS	—	—	—
Warsaw		142·8	306	e 19 37	[+ 2]	e 29 40	{+ 2}	i 23 20	PKS	e 77·3
Zagreb		145·6	295	e 19 45a	[+ 5]	—	—	—	—	—
Rome		147·4	288	i 19 44	[+ 1]	e 23 10	PKS	e 48 38	SSS	—
Copenhagen		147·6	314	i 19 50	[+ 6]	23 22	PKS	33 42	PS	66·3
Collmberg		147·8	305	e 19 46	[+ 2]	e 26 10	[−41]	e 23 19	PKS	—
Jena	N.	148·7	304	e 19 54	[+ 9]	—	—	—	—	—
Chur		150·1	296	e 19 49	[+ 1]	—	—	—	—	—
Zürich		150·8	298	e 19 50	[+ 1]	—	—	—	—	—
Strasbourg		151·3	301	e 19 58	[+ 9]	e 23 18	PKS	e 33 33	PS	79·3
Basle		151·5	298	e 19 51	[+ 1]	—	—	—	—	—
Neuchatel		151·9	297	e 19 53	[+ 3]	—	—	—	—	—
Uccle		153·3	306	e 20 4k	[+12]	—	—	—	—	—
Clermont-Ferrand		154·6	294	e 19 57	[+ 3]	—	—	e 23 59	PP	79·3
Paris		154·8	301	e 19 57	[+ 3]	e 42 9	SS	e 24 1	PP	e 79·3
Tortosa	N.	156·1	282	20 18	[+22]	21 37	?	20 57	PKP_1	—
Alicante		156·4	276	20 3	[+ 6]	30 41	{−12}	20 19	pPKP	e 68·6
Granada		158·4	271	i 20 1k	[+ 2]	31 5	{+ 1}	i 20 37	pPKP	81·4
Toledo	z.	159·4	278	i 20 3	[+ 3]	—	—	—	—	—

Additional readings :—
Riverview Q?E =2m.47s.
Christchurch SS =8m.2s.
Wellington PPPZ =5m.13s., P_cP =8m.39s.
Auckland P_cP? =9m.50s., S_cS? =17m.43s.
Vladivostok SS =28m.36s.
Ksara PPS =34m.32s.
Moscow PPP =25m.46s.
Warsaw eN =21m.4s. and 21m.31s., eE =21m.35s., eN =24m.38s., 25m.21s., 31m.26s., and 32m.41s., eE =33m.16s., eN =36m.44s., 37m.19s., and 37m.27s., eE =41m.34s., eN =41m.47s., 42m.29s., and 43m.30s.
Zagreb iZ =19m.50s., i =19m.56s., 20m.6s., and 20m.31s.
Rome ePKP?Z =20m.2s., ePSKS?E =33m.42s.
Collmberg iNZ =19m.50s., iZ =19m.54s., eZ =20m.50s., ePKP?Z =21m.47s., $ePKP_1$?Z = 22m.14s., eN =24m.0s.
Chur e =19m.56s.
Zürich i =19m.57s.a.
Strasbourg $ePKP_2$ =20m.17s., e =23m.35s.
Paris e =20m.7s.
Alicante PKP_2 =20m.51s., PKS =23m.37s., PP =24m.29s., PPP =28m.23s., SS = 44m.26s., SPS =45m.49s., SSS =50m.43s.
Granada PKP_2 =20m.55s., iPP =24m.29s., pPP =25m.4s., SKSP =34m.42s., PPS = 38m.35s., SS =44m.47s., SSS =51m.59s.
Toledo iZ =20m.42s.
Long waves were also recorded at Arapuni, Pasadena, Florissant, and De Bilt.

Sept. 14d. 21h. Undetermined epicentre, probably region of New Hebrides.

Suva iP =59m.46s., iS =61m.40s., i =63m.20s.?
Christchurch P =62m.29s., S =67m.3s., Q =68m.0s., R =69m.39s.
Riverview ePEZ =62m.44s., ipPEZ =63m.2s., iPPZ =63m.11s., iSE =66m.43s., eSSEN = 67m.7s., eRE =67·9m.
Auckland e =65m.6s.
Wellington e =66m.30s., L? =69m.
Mount Wilson ePZ =70m.44s.
Shasta Dam eP =70m.47s.
Palomar ePZ =70m.47s.
Riverside ePZ =70m.48s.
Pasadena eZ =70m.51s.
Boulder City eP =71m.2s.
Pierce Ferry iP =71m.4s.
Tucson eP =71m.8s.
Collmberg eZ =77m.33s., 77m.40s., 77m.50s., 78m.11s., 78m.28s., and 78m.40s.
St. Louis iZ =78m.10s. 78m.17s., and 84m.7s.
Long waves were also recorded at Arapuni, Rome, Alicante, and Granada.

Sept. 14d. Readings also at 0h. (Tucson), 1h. (Bermuda), 5h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Overton, Pierce Ferry, Shasta Dam, and St. Louis), 6h. (Harvard), 9h. (near Boulder City, Overton, Pierce Ferry, Shasta Dam, and near Fresno), 17h. (Zürich), 19h. (Mount Wilson, Tinemaha, Tucson, and near Mineral).

Sept. 15d. 5h. 21m. 22s. Epicentre 5°·0N. 78°·0W.

$A = +·2071$, $B = -·9744$, $C = +·0866$; $\delta = -15$; $h = +7$;
$D = -·978$, $E = -·208$; $G = +·018$, $H = -·085$, $K = -·996$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Bogota		4·0	97	i 1 5	+ 1	i 1 45	− 7	i 1 10	P*	—
Balboa Heights		4·3	337	e 1 6	− 2	i 1 51	− 9	—	—	—
Huancayo		17·2	172	e 4 5	+ 2	i 7 26	+12	—	—	i 9·2
San Juan		17·7	40	i 4 9	− 1	e 7 22	− 4	—	—	—
La Paz	z.	23·5	154	5 18	+ 6	—	—	—	—	14·6
St. Louis	z.	35·3	344	i 6 57	− 2	—	—	i 9 27	P_cP	—
Tucson		41·0	316	i 7 46	0	e 14 7	+ 8	—	—	e 17·1
Pierce Ferry		45·3	318	i 8 20	− 1	—	—	—	—	—
Boulder City		45·8	317	e 8 25	0	—	—	—	—	—
Overton		45·8	318	i 8 25	0	—	—	—	—	—
Palomar	z.	45·8	314	e 8 26	+ 1	—	—	—	—	—
Mount Wilson	z.	47·1	314	e 8 35	0	—	—	—	—	—
Pasadena	z.	47·2	314	e 8 38	+ 2	—	—	—	—	—
Tinemaha		48·7	314	e 8 47	− 1	—	—	—	—	—

Bogota also gives iS* = 1m.55s., and iS_g? = 2m.5s.
Long waves were also recorded at Granada and Seattle.

Sept. 15d. 15h. 52m. 49s. Epicentre 34°·0N. 86°·5E.

Epicentre as adopted (U.S.S.R.).

$A = +·0507$, $B = +·8293$, $C = +·5566$; $\delta = +11$; $h = +1$;
$D = +·998$, $E = -·061$; $G = +·034$, $H = +·556$, $K = -·831$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
New Delhi		9·6	241	i 2 30	+ 9	i 4 20	+ 8	5 45	S_g	—
Calcutta		11·5	172	—	—	i 5 20	SS	8 54	P_cP	—
Frunse		12·9	317	e 3 8	+ 1	—	—	—	—	—
Andijan		13·1	305	e 3 16	+ 6	—	—	—	—	—
Stalinabad		15·0	293	i 3 37	+ 2	i 6 24	+ 1	—	—	—
Tashkent		15·4	303	e 3 45	+ 5	e 6 40	+ 8	—	—	—
Samarkand		16·6	295	3 49	− 7	—	—	—	—	—
Hyderabad	N.	18·0	206	4 9	− 4	—	—	—	—	—
Irkutsk		22·4	29	4 49	−13	8 52	−12	—	—	—
Kodaikanal	E.	25·1	202	—	—	e 9 13	−38	e 12 10	Q	13·5
Sverdlovsk		28·8	330	i 5 57	− 5	10 50	− 1	—	—	—
Baku		29·7	293	—	—	e 11 11	+ 5	—	—	—
Grozny		32·9	299	e 6 17	−21	—	—	—	—	—
Leninakan		34·3	294	e 6 36	−14	—	—	—	—	—
Yalta		41·2	300	e 7 44	− 4	—	—	—	—	—
Ksara		41·6	284	e 6 55	−56	e 13 55	−13	14 41	SS	—
Istanbul		45·4	297	7 23	−59	—	—	—	—	—
Helwan		46·5	280	e 7 31	−60	e 15 31	+12	e 10 37	PP	—
Warsaw		49·4	312	—	—	e 19 26	SS	—	—	e 27·2
Upsala	N.	50·8	323	—	—	e 18 15	S_cS	e 20 31	SS	e 23·8
Belgrade		50·9	303	e 17 11?	PPS	—	—	—	—	—
Prague		53·8	311	e 16 53	PS	—	—	—	—	—
Collmberg		54·5	313	e 8 52	−40	e 18 57	S_cS	e 11 48	PP	—
Rome		57·2	302	e 7 55	?	e 22 15	SS	—	—	e 27·2
Chur		57·8	308	e 9 5	−50	—	—	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Uccle		59·9	314	—	—	e 24 5	SSS	—	—	e 30·2
Paris		61·6	312	—	—	e 20 11	S_cS	—	—	e 33·2
Alicante		67·8	302	e 10 28	−34	i 20 24	+24	13 28	PP	e 35·1
Granada		70·5	302	i 10 49a	−29	e 20 32	0	13 41	PP	37·3
Tinemaha	z.	105·6	20	e 15 59	?	—	—	—	—	—
Overton		107·2	17	i 16 3	?	—	—	—	—	—
Pierce Ferry		107·7	17	i 16 5	?	—	—	e 18 8	PP	—
Mount Wilson	z.	108·3	21	e 16 3	?	—	—	e 30 48	PKKP	—
Riverside	z.	108·8	21	e 16 5	?	—	—	i 30 55	PKKP	—
Palomar	z.	109·5	20	—	—	—	—	e 30 55	PKKP	—
Tucson		112·1	15	i 16 16	?	i 19 38	PP	i 20 21	?	—

Additional readings :—
New Delhi S_eE =5m.47s.
Helwan e =8m.33s.
Warsaw eE =19m.54s., eN =21m.6s., eN =22m.39s., eE =22m.45s., 23m.51s., and 24m.26s.
Collmberg eZ =9m.14s., 9m.22s., and 9m.31s., eP_cP?Z =9m.59s.
Alicante PPP =15m.28s., ScS =20m.32s., SS =24m.54s., Q =30m.46s.
Granada SS =25m.1s.
Long waves were also recorded at Riverview and other European stations.

September 15d. 16h. 10m. 9s. Epicentre 18°·9N. 68°·9W. (as on 1946 Aug. 21d.).

Intensity III at Port au Prince.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

A = +·3408, B = −·8833, C = +·3220 ; δ = +5 ; h = +5 ;
D = −·933, E = −·360; G = +·116, H = −·300, K = −·947

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 53	P_g	i 1 25	S*	—	—	1·6
Fort de France		8·5	118	e 2 11	+ 4	e 3 43	− 2	2 30	P_g	—
Bogota		15·1	200	—	—	i 6 25	0	—	—	—
Philadelphia		21·7	348	e 4 57	+ 2	e 8 49	− 2	e 5 35	PPP	e 9·6
Weston		23·5	357	i 5 38	PP	e 9 33	+10	—	—	—
Harvard		23·6	357	i 5 15	+ 2	i 9 40	+15	i 5 40	PP	i 9·9
Ottawa		27·0	350	e 5 46	+ 1	e 10 6	−16	—	—	14·9
St. Louis		27·0	321	i 5 45	0	e 11 7	SS	i 6 42	PPP	—
Florissant	N.	27·2	321	—	—	e 11 14	SS	—	—	—
Shawinigan Falls		27·8	356	e 5 53	0	e 11 46	SS	—	—	—
Huancayo		31·4	192	—	—	e 11 8	−24	—	—	i 12·7
Tucson		39·8	298	i 7 35	− 1	—	—	e 9 5	PP	—
Pierce Ferry		43·1	303	i 8 2	− 2	—	—	i 9 48	PP	e 17·8
Overton		43·5	304	i 8 6	− 1	—	—	i 8 35	?	—
Boulder City		43·7	303	i 8 7	− 1	—	—	—	—	—
Palomar		45·0	299	e 8 16	− 3	—	—	—	—	—
La Jolla		45·3	298	e 8 20	− 1	—	—	—	—	—
Riverside	z.	45·5	300	e 8 21	− 2	—	—	—	—	—
Mount Wilson	z.	46·1	300	i 8 27	− 1	—	—	—	—	—
Pasadena	z.	46·2	300	e 8 25	− 3	—	—	—	—	—
Tinemaha		46·7	304	e 8 30	− 2	—	—	—	—	—
Granada		59·4	57	i 10 5k	− 1	—	—	—	—	—
Aberdeen		61·8	35	e 14 28	PPP	—	—	e 15 39	?	—
Collmberg	z.	70·5	41	e 11 16	− 2	—	—	—	—	—
Budapest		75·0	44	e 11 21	−24	—	—	—	—	—

Additional readings :—
Fort de France SS_g =3m.47s.
Long waves were also recorded at Bermuda.

Sept. 15d. Readings also at 2h. (Overton and Pierce Ferry), 3h. (Shasta Dam, Tinemaha, Mount Wilson, Palomar, Overton, Riverside, Pierce Ferry, Tucson, and St. Louis), 4h. (Granada and Alicante), 7h. (Bombay, Calcutta, New Delhi, Kodaikanal, Andijan, Stalinabad, Tashkent, Sverdlovsk, Huancayo, and near Mizusawa), 8h. (Shasta Dam, Tinemaha, Riverside, Pierce Ferry, Mount Wilson, Tucson, Rome, Collmberg, Ksara, Granada (2), and Alicante), 9h. (Tucson), 10h. (Palomar (2), Tinemaha (2), Mount Wilson, Pasadena, Riverside, Brisbane, and Riverview), 11h. (Christchurch, Auckland, and Wellington), 12h. (Leninakan), 14h. (Riverview, Tinemaha, and Tucson), 15h. (Paris, Colombo, Kodaikanal, and Bombay), 18h. (Bombay), 19h. (near Logan and near Fort de France), 21h. (Kodaikanal), 22h. (Stalinabad, Tashkent, New Delhi, Sverdlovsk, Bombay, De Bilt, and near Logan), 23h. (near Stalinabad).

Sept. 16d. 10h. North Pacific.

College eP =0m.5s., e =2m.27s., eL =3m.38s.
Sitka eP =0m.27s., i =3m.26s., e =4m.15s.
Shasta Dam eP =2m.39s.
Tinemaha ePZ =3m.22s., iZ =3m.38s.
Mount Wilson eZ =3m.38s. and 3m.50s.
Pierce Ferry eP =3m.48s.
Riverside eZ =3m.49s.
Palomar eZ =3m.50s. and 4m.2s.
Boulder City eP =3m.52s.
Tucson eP =4m.25s., ePP =5m.51s., eL =19m.18s.
St. Louis iZ =5m.25s. and 5m.38s., eE =12m.37s.
Stalinabad eP =6m.34s., eS =16m.18s.?
Sverdlovsk P =7m.0s.
Collmberg eZ =8m.9s., 8m.14s., and 8m.19s.
Rome eZ =9m.9s., e =14m.10s. and 20m.0s., eL =44m.53s.?.
Long waves were also recorded at Honolulu, Pasadena, Bozeman, Chicago, Philadelphia, and Warsaw.

Sept. 16d. Readings also at 0h. (near Alicante), 1h. (Bombay, Kodaikanal, Tananarive, and Shasta Dam), 2h. (Alicante and Granada), 5h. (near Leninakan), 7h. (Bogota, Harvard, Weston, Fort de France, near Port au Prince, and San Juan, Andijan, near Frunse, and near Leninakan), 10h. (near Leninakan), 11h. (near Apia), 12h. (Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Salt Lake City, Chicago, Philadelphia, Columbia, and near La Paz (2)), 13h. (Tucson, Palomar, and Tinemaha), 17h. (Bucharest and near Sofia), 19h. (near Sofia), 20h. (near Irkutsk).

Sept. 17d. Readings at 5h. (Grozny, Erevan, and near Leninakan), 6h. (Ksara), 12h. (Andijan, Samarkand, Stalinabad, Bombay, Hyderabad, and New Delhi), 19h. (Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Pierce Ferry, Grand Coulee, and Shasta Dam), 20h. (St. Louis), 21h. (Cheb, Collmberg, and Jena).

Sept. 18d. 2h. 9m. 5s. Epicentre 15°·5N. 101°·0W.

A = −·1840, B = −·9464, C = +·2656; δ = +7; h = +6;
D = −·982, E = +·191; G = −·051, H = −·264, K = −·964.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Tacubaya		4·2	26	1 4	− 3	1 59	+ 2	—	—	i 2·1
Puebla		4·4	39	1 2	− 8	—	—	—	—	2·1
Tucson		18·9	334	i 4 19	− 5	i 7 47	− 6	i 5 0	PPP	e 9·2
La Jolla		22·7	323	e 5 2	− 2	—	—	—	—	—
Palomar		22·8	325	i 5 6	+ 1	—	—	—	—	—
Pierce Ferry		23·6	334	i 5 13	0	—	—	i 5 40	PP	e 10·4
Riverside	z.	23·6	325	i 5 12	− 1	—	—	—	—	—
Boulder City		23·8	333	i 5 15	0	—	—	i 5 37	PP	e 12·5
Overton		24·1	333	i 5 18	0	—	—	i 5 45	PP	e 12·3
Mount Wilson		24·2	325	i 5 17	− 2	—	—	—	—	—
Pasadena		24·2	325	i 5 18	− 1	—	—	—	—	e 15·9
Denver		24·5	353	e 5 19	− 3	e 9 33	− 7	i 9 39	S	—
St. Louis		24·9	20	i 5 24	− 2	e 9 43	− 4	i 6 11	PP	—
Florissant		25·0	20	i 5 26	− 1	e 9 45	− 4	e 10 55	SS	—
Santa Barbara	z.	25·3	322	e 5 31	+ 1	—	—	—	—	—

Continued on next page.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Haiwee		25·5	327	e 5 31	− 1	—	—	—	—	—
Tinemaha		26·4	328	i 5 39	− 1	—	—	—	—	—
Salt Lake City		26·9	342	e 5 46	+ 1	—	—	—	—	e 13·2
Logan		27·8	343	e 6 8	+15	—	—	—	—	e 14·6
Chicago		28·6	20	e 5 56	− 4	e 10 42	− 6	—	—	e 15·2
Bozeman		31·3	347	—	—	e 11 26	− 5	—	—	e 16·2
Fordham		34·5	38	e 6 55	+ 3	e 12 24	+ 4	—	—	—
Grand Coulee		35·6	340	e 6 58	− 3	—	—	—	—	—
Ottawa		36·6	30	e 7 10	0	—	—	—	—	16·9
Harvard		36·9	37	i 7 15	+ 3	—	—	—	—	e 13·9
Weston		37·0	37	i 7 16	+ 3	e 13 3	+ 4	—	—	—
Granada		86·5	52	i 12 54a	+ 8	e 23 33	+11	13 6	pP	—
Alicante		88·5	50	e 12 45	−11	e 23 29	−12	16 29	PP	e 38·9
Ksara		116·0	40	e 18 47	[+ 2]	e 29 53	PS	—	—	—

Additional readings :—
St. Louis eSSN = 10m.52s.
Granada ePP = 16m.24s., eSS = 28m.56s.
Alicante PPP = 18m.9s., PS = 24m.5s., PPS = 25m.3s., SS = 28m.49s., SSS = 32m.23s.
Long waves were also recorded at Bermuda and Butte.

Sept. 18d. Readings also at 0h. (Ksara), 1h. (near Apia), 5h. (San Juan, Bermuda, Harvard, and near Fort de France), 6h. (near Fresno (2)), 7h. (near Port au Prince and near Leninakan (2)), 8h. (Bogota, Harvard, Weston, Bermuda, and near San Juan), 9h. (Tucson and Mount Wilson), 13h. (near Stalinabad and Andijan), 15h. and 17h. (Brisbane), 18h. (Overton, Pierce Ferry, Collmberg, and Paris), 20h. (Rome and Ksara).

Sept. 19d. 0h. 11m. 20s. Epicentre 29°·5N. 57°·5E. (as on 1942, July 29d.).

A = +·4684, B = +·7353, C = +·4899 ; δ = +7 ; h = +2 ;
D = +·843, E = −·537 ; G = +·263, H = +·413, K = −·872.

		△ °	Az. °	P. m. s.	O−C. s.	S. m. s.	O−C. s.	Supp. m. s.		L. m.
Samarkand		12·8	35	3 0	− 6	—	—	—	—	—
Stalinabad		13·0	43	i 3 10	+ 1	5 52	+17	—	—	—
Tashkent		15·2	35	e 3 32	− 6	e 6 32	+ 4	—	—	—
Andijan		16·5	43	e 3 59	+ 5	7 7	+ 9	—	—	—
Bombay	N.	17·5	124	e 4 40	+33	—	—	—	—	—
Ksara		18·9	289	i 4 23	− 1	e 7 56	+ 3	—	—	—
Helwan		22·8	277	e 5 11	+ 6	9 18	+ 7	5 49	PPP	—
Kodaikanal	E.	26·7	132	—	—	e 11 14	SS	—	—	—
Sverdlovsk		27·4	4	e 5 43	− 6	10 14	−14	—	—	—
Bucharest		29·0	310	—	—	9 40?	−74	—	—	—
Moscow		29·8	338	e 6 34	+23	11 14	+ 7	—	—	—
Warsaw		35·2	321	—	—	e 13 39	+68	—	—	e 20·7
Rome		38·2	303	e 8 49	PP	e 15 12	SS	e 15 41	SS	e 18·9
Collmberg	Z.	39·5	316	e 7 32	− 2	—	—	—	—	—
Copenhagen		41·2	323	—	—	e 13 21	−41	15 40	?	24·7
Granada		50·9	296	i 7 37	?	—	—	—	—	23·2

Additional readings :—
Warsaw eZ = 13m.49s., eE = 14m.10s. and 15m.50s.
Collmberg eZ = 7m.36s., 8m.20s., and 8m.32s.
Long waves were also recorded at Triest.

Sept. 19d. 2h. 1m. 50s. Epicentre 19°·6N. 69°·4W. (as on Sept. 6d.).

$A = +\cdot3317$, $B = -\cdot8825$, $C = +\cdot3334$; $\delta = -1$; $h = +5$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		3·3	111	i 0 52	− 1	e 1 27	− 8	—	—	e 1·6
Fort de France		9·2	120	e 2 11	− 5	—	—	—	—	—
Bogota		15·6	198	e 3 41	− 2	e 6 23	−14	i 3 47	PP	—
Weston		22·8	357	e 5 19	+14	e 9 15	+ 4	—	—	—
Harvard		22·9	357	e 5 8	+ 2	e 9 10	− 3	i 5 27	PP	—
Tucson		39·1	298	e 7 36	+ 5	—	—	—	—	—
Pierce Ferry		42·3	304	i 7 58	+ 1	—	—	—	—	—
Riverside	z.	44·8	300	e 8 20	+ 3	—	—	—	—	—
Tinemaha	z.	45·9	304	e 8 27	+ 1	—	—	—	—	—
Shasta Dam		49·6	308	e 8 53	− 2	—	—	—	—	—

Long waves were also recorded at Bermuda.

Sept 19d. 6h. 57m. 1s. Epicentre 19°·4N. 70°·4W. (as on 1946, Sept. 12d.).

$A = +\cdot3166$, $B = -\cdot8892$, $C = +\cdot3302$; $\delta = -6$; $h = +5$;
$D = -\cdot942$, $E = -\cdot335$; $G = +111$, $H = -311$, $K = -\cdot944$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·0	245	0 52	P_g	1 30	?	—	—	—
San Juan		4·2	103	e 1 4	− 3	i 1 50	− 7	—	—	e 2·0
Bermuda		13·9	21	e 3 29	+ 8	(i 5 39)	−18	—	—	i 5·6
Bogota		15·1	194	e 3 47	+11	e 6 49	+24	—	—	e 7·0
Philadelphia		20·9	351	e 4 41	− 5	e 8 29	− 6	i 5 4	PP	e 9·6
Weston		22·9	359	e 5 3	− 3	e 8 55	−18	—	—	e 9·2
Harvard		23·1	359	e 5 4	− 4	i 9 4	−12	—	—	e 14·5
St. Louis		25·8	322	i 5 32	− 2	e 10 3	+ 1	i 6 5	PP	—
Florissant	z.	25·9	322	e 5 33	− 2	e 10 3	− 1	—	—	—
Ottawa		26·3	352	5 35	− 4	10 11	0	—	—	14·0
Chicago		26·7	331	—	—	e 10 19	+ 2	—	—	e 12·9
Shawinigan Falls		27·2	358	e 5 42	− 5	e 10 59	+34	—	—	—
Seven Falls		27·7	0	e 5 59	+ 7	—	—	—	—	12·0
Huancayo		31·6	189	e 6 37	+11	(e 12 14)	+39	—	—	e 12·2
La Paz	z.	35·8	175	7 23	+20	—	—	—	—	20·0
Tucson		38·4	298	i 7 26	+ 1	—	—	e 8 54	PP	e 22·8
Pierce Ferry		41·6	303	i 7 52	+ 1	—	—	—	—	—
Overton		42·1	304	i 7 56	+ 1	—	—	—	—	—
Boulder City		42·3	303	i 7 57	0	—	—	—	—	—
Saskatoon		43·2	328	—	—	—	—	e 17 55	SS	22·0
Palomar	z.	43·5	299	i 8 8	+ 1	—	—	—	—	—
Riverside	z.	44·0	300	e 8 12	+ 1	—	—	—	—	—
Mount Wilson	z.	44·6	300	e 8 17	+ 1	—	—	—	—	—
Pasadena	z.	44·7	300	e 8 17	+ 1	—	—	—	—	e 31·6
Tinemaha	z.	45·2	303	i 8 21	+ 1	—	—	—	—	—
Shasta Dam		49·0	308	i 8 47	− 3	—	—	—	—	—
Ksara		92·1	54	e 12 43	−29	e 24 19	+ 6	30 59	SS	—

Additional readings :—
Port au Prince i = 1m.16s.
Philadelphia iP = 4m.45s.
Harvard i = 5m.17s.
St. Louis eN = 10m.15s.
La Paz iZ = 11m.45s.
Tucson i = 7m.51s.
Long waves were also recorded at Columbia, Butte, Bozeman, Alicante, Granada, Kew, and Warsaw.

Sept. 19d. Readings also at 0h. (Tashkent, near Andijan, Samarkand, Stalinabad, and near Ottawa), 4h. (La Paz and near Grozny), 7h. (Huancayo, Overton, near Pierce Ferry, and near Granada), 8h. (Shasta Dam), 10h. (Tashkent near Samarkand and Stalinabad), 14h. (Stalinabad), 15h. (Zürich and near Triest), 16h. (Collmberg), 19h. (Paris and near Tacubaya), 22h. (La Plata and Santa Lucia).

Sept. 20d. 2h. 31m. 19s. Epicentre 20°·5N. 71°·5W.

A = +·2974, B = −·8890, C = +·3481; δ = −6; h = +5;
D = −·948, E = −·317; G = +·110, H = −·330, K = −·937.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince		2·1	202	e 0 40	+ 3	i 1 5	+ 1	i 1 25	S_g	—
San Juan		5·5	112	e 0 50	−35	i 2 15	−15	—	—	i 2·6
Bogota		16·0	189	e 3 37	−11	e 6 50	+ 4	—	—	—
Philadelphia		19·7	353	e 4 40	+ 6	—	—	—	—	e 9·9
Weston		21·8	2	e 4 56	0	e 8 47	− 5	—	—	—
Harvard		22·0	2	e 4 57	− 1	e 8 51	− 5	—	—	—
Huancayo		32·6	187	i 10 33	?	—	—	—	—	—
Tucson		36·9	298	e 7 13	+ 1	—	—	e 9 5	PP	—
Pierce Ferry		40·2	303	e 7 41	+ 1	—	—	—	—	—
Overton		40·6	303	e 7 45	+ 2	—	—	—	—	—
Boulder City		40·8	302	e 7 46	+ 1	—	—	—	—	—
Palomar	z.	42·1	299	e 7 56	+ 1	—	—	—	—	—
Riverside	z.	42·6	299	e 7 59	0	—	—	—	—	—
Mount Wilson	z.	43·2	299	i 8 16	+12	—	—	—	—	—
Tinemaha	z.	43·7	303	i 8 10	+ 2	—	—	—	—	—
Malaga		60·0	59	9 54	−17	—	—	—	—	—

Additional readings :—
Bogota e =6m.35s.
Tinemaha iZ =8m.16s.
Long waves were also recorded at Bermuda and Granada.

Sept. 20d. 17h. 35m. 55s. Epicentre 18°·9N. 68°·9W. (as on 15d.).

A = +·3408, B = −·8833, C = +·3220; δ = +5; h = +5;
D = −·933, E = −·360; G = +116, H = −300, K = −947.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 53	P_g	i 1 31	S_g	—	—	i 1·7
Port au Prince		3·3	264	(i 0 44)	− 9	(1 13)	P_g	(i 1 57)	S_g	—
Bogota		15·1	200	3 49	+13	e 6 40	+15	i 3 55	PP	—
Philadelphia		21·7	348	i 4 52	− 3	e 8 47	− 4	i 5 15	PP	e 9·8
Harvard		23·6	357	i 5 13	0	i 9 25	0	—	—	e 12·1
Ottawa		27·0	350	5 45	0	10 27	+ 5	—	—	13·5
St. Louis		27·0	321	i 5 45	0	e 10 18	− 4	—	—	e 14·6
Florissant	z.	27·2	321	i 5 43	− 4	e 10 39	+14	—	—	e 13·7
Chicago		27·8	329	—	—	e 10 19	−16	—	—	—
Shawinigan Falls		27·8	356	e 5 50	− 3	—	—	—	—	18·1
Seven Falls		28·2	358	6 16	+20	11 35	+54	—	—	16·1
Tucson		39·8	298	i 7 36	0	—	—	i 9 0	PP	e 17·1
Pierce Ferry		43·1	303	e 8 6	+ 2	—	—	—	—	—
Palomar		45·0	299	i 8 19	0	—	—	—	—	—
Riverside	z.	45·5	300	e 8 22	− 1	—	—	—	—	—
Mount Wilson	z.	46·1	300	e 8 28	0	—	—	—	—	—
Pasadena	z.	46·2	300	e 8 28	0	—	—	—	—	e 31·7
Haiwee	E.	46·3	303	e 8 30	+ 1	—	—	—	—	—
Tinemaha		46·7	304	i 8 31k	− 1	—	—	—	—	—
Santa Barbara	z.	47·5	300	i 8 38	0	—	—	—	—	—

Additional readings and notes :—
Port au Prince readings have been increased by 1m.
Bogota eSS =7m.0s.
Long waves were also recorded at Kew, Rome, and Warsaw.

Sept. 20d. Readings also at 0h. (Paris), 1h. (Malaga, Huancayo (2), and La Paz), 2h. (Pierce Ferry, Riverside, and Tinemaha), 4h. (Collmberg and Huancayo), 5h. (Palomar (2), Riverside, Tucson (2), Boulder City (2), Overton (2), Pierce Ferry (2), and Shasta Dam), 6h. (Rome, Overton (2), Pierce Ferry, Tucson (2), Palomar, Tinemaha (2), and near Apia), 9h. (near Lick), 10h. (near Branner, near Stalinabad, and near Leninakan), 12h. (Haiwee, La Jolla, Mount Wilson, Pasadena, Palomar, Riverside, Tinemaha (2), Tucson (2), Boulder City, Overton, Pierce Ferry, Shasta Dam, Philadelphia, and Bermuda), 13h. (Paris), 14h. (Harvard and near Lick), 15h. (Jena and near Collmberg), 16h. (Collmberg), 17h. (Collmberg), 18h. (Mount Wilson, Riverside, Tinemaha, Tucson, Overton, and Bermuda), 19h. (Palomar, Riverside, Tinemaha (2), Tucson (2), Frunse, Tchimkent, near Andijan, Obigarm, Samarkand, Stalinabad, and near Mizusawa), 20h. (Brisbane and Pierce Ferry), 21h. (Riverview (2), Suva, Mount Wilson, Palomar, Riverside, Tucson, Boulder City, Pierce Ferry, Rome, and Ksara), 23h. (Boulder City and Shasta Dam).

Sept. 21d. 21h. Undetermined shock.
Suva iP =27m.10s., iS? =31m.0s., P_cP? =31m.50s., iL =32m.42s.
Auckland e =40m.?
Pasadena eP =40m.19s., iZ =40m.27s. and 40m.35s.
Mount Wilson ePZ =40m.21s., iZ =40m.36s.
La Jolla ePZ =40m.24s.
Palomar eP =40m.24s.
Riverside ePZ =40m.24s.
Shasta Dam eP =40m.26s.
Haiwee ePZ =40m.29s.
Tinemaha ePEZ =40m.31s., iZ =40m.38s.
Boulder City eP =40m.38s
Tucson iP =40m 46s., e =42m.39s., eL =56m.15s.
Riverview eE =42m.18s., eN =44m.48s.
Collmberg eZ =48m.29s., 48m.33s., 49m.14s., and 49m.50s.
Basle e =48m.37s.
Istanbul eP =48m.37s.
Paris eP =48m.40s., i =48m.45s., eL =104m.
Strasbourg ePKP =48m.42s., e =48m.47s. and 51m.0s.
Ksara ePKP =48m.43s., PP =52m.19s.
Zürich e =48m.44s.
Granada ePKP =52m.27s.,s, iPP =54m.48s., pPP =55m.1s., SKKS =61m.54s., eSS = 72m.51s., eSSS =79m.9s., L =110·9m.
Alicante e = 72m.22s., eL =115m.6s.
Kew iP?Z =93m.3s., eL =102m.
Long waves were also recorded at Arapuni, Wellington, Harvard, De Bilt, Uccle, Rome, Clermont-Ferrand, Cheb, and Warsaw.

Sept. 21d. Readings also at 0h. (near Misusawa), 2h. (Ksara, Samarkand, Frunse, and near Stalinabad), 4h. (Fort de France), 16h. (Santa Lucia, Copiapo, La Plata, Malaga, and Calcutta), 20h. (Huancayo, Malaga, New Delhi, and Bombay), 22h. (Shasta Dam and Triest), 23h. (Harvard and Pierce Ferry).

Sept. 22d. Readings at 2h. (La Paz), 3h. (Haiwee, Pasadena, Palomar (2), Riverside (2), Tinemaha (2), Tucson (2), Boulder City, Overton, Pierce Ferry, and near Montezuma), 6h. (Ksara, Haiwee, Palomar, Pasadena, Riverside, Tinemaha, Tucson, Boulder City, Pierce Ferry, Shasta Dam, Bogota, Huancayo, La Paz, Santa Lucia, and near Montezuma), 7h. (Haiwee (2), Palomar (2), Pasadena (2), Riverside (2), Tinemaha (2), Tucson (2), Boulder City, Pierce Ferry, and Huancayo), 8h. (Haiwee, Palomar, Pasadena, Riverside, Tinemaha, Tucson, Boulder City, Overton, Shasta Dam, Florissant, St. Louis, and Collmberg), 10h. (Bombay, New Delhi, Calcutta, Andijan, Tashkent, Stalinabad, and near Granada), 11h. (Haiwee, Palomar, Riverside, Tucson, Boulder City, Pierce Ferry, and Collmberg), 12h. (Palomar, Tucson (2), Boulder City, Pierce Ferry, and near Collmberg), 13h. (Jena and near Collmberg), 14h. (Andijan, Tashkent, Baku, Grozny, Erevan, Leninakan, Sverdlovsk, Ksara, and Copenhagen), 17h. (Tucson, Palomar, Pasadena, Riverside, Manzanillo, and Tacubaya), 19h. (Riverview), 20h. (Pierce Ferry), 21h. (Palomar, Pasadena, Riverside, Tucson, and Boulder City), 22h. (near Tacubaya (2)), 23h. (Budapest and Calcutta).

Sept. 23d. 21h. 53m. 32s. Epicentre 13°·7S. 167°·2E. (as on 1942, Sept. 20d.).

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

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Suva		11·7	114	i 2 43	− 8	i 5 3	− 1	—	—	—
Brisbane		19·0	222	i 4 23	− 3	i 7 52	− 3	i 4 48	PP	i 9·8
Auckland		24·0	166	—	—	10 28?	SS	—	—	11·2
Riverview		24·8	213	i 5 25a	0	i 9 45	− 1	i 5 33	pP	e 11·6
Wellington		28·3	168	3 42	?	10 44	+ 1	13 9	SSS	16·3
Christchurch		30·1	172	6 20	+ 7	11 10	− 2	11 48	Q	14·3
Honolulu		48·9	45	e 8 35	−15	e 15 46	− 7	e 10 58	PP	e 20·6
Perth		50·2	239	—	—	i 19 40	SS	—	—	i 25·8
Vladivostok		65·1	333	i 10 40	− 5	i 19 23	− 4	—	—	—
Ukiah		83·3	47	—	—	e 24 2	PPS	—	—	e 34·3
Berkeley		83·5	49	i 12 38	+ 7	i 23 58	PPS	i 22 16	SKS	e 39·0
Santa Clara	z.	83·6	49	e 10 58	?	—	—	—	—	—
Shasta Dam		84·6	46	e 12 42	+ 6	—	—	—	—	—
Irkutsk		85·0	327	e 12 39	+ 1	e 23 1	− 6	e 15 56	PP	—
Calcutta	N.	85·2	294	e 13 3	+24	i 23 13	+ 4	—	—	—
Pasadena	z.	85·3	53	e 12 42	+ 2	i 24 31	PPS	—	—	e 39·6
Mount Wilson	z.	85·4	53	e 12 47	+ 7	—	—	—	—	—
College		85·4	17	—	—	e 22 50	−21	e 27 39	SS	e 35·2
Riverside	z.	85·9	53	e 12 49	+ 6	—	—	—	—	—
Boulder City		88·5	53	e 12 58	+ 2	—	—	—	—	—
Overton		88·9	52	e 13 1	+ 3	—	—	—	—	—
Colombo	E.	89·0	277	12 59	+ 1	23 18	[− 9]	—	—	—
Pierce Ferry		89·2	53	e 13 3	+ 4	—	—	—	—	—
Tucson		90·6	57	i 13 7	+ 2	e 24 3	+ 3	e 29 56	SS	e 35·0
Kodaikanal	E.	92·1	281	e 13 30	+18	—	—	—	—	—
Salt Lake City		92·1	48	e 17 24	PP	e 25 48	PS	—	—	e 38·2
Logan		92·4	47	e 11 59	−75	e 23 54	[+ 7]	—	—	e 36·7
Bozeman		94·0	44	—	—	e 25 58	PS	e 31 17	SS	e 39·9
Bombay		98·4	288	e 13 27	−14	—	—	—	—	—
Florissant		108·1	54	—	—	i 28 25	PS	—	—	e 51·9
St. Louis		108·2	54	—	—	e 28 23	PS	e 38 6	SSS	e 54·8
Sverdlovsk		110·4	327	19 14	PP	26 10	{+ 2}	28 33	PS	—
Huancayo		112·9	110	—	—	(e 29 58)	PPS	—	—	e 30·0
Ottawa		118·6	45	—	—	e 29 52	PS	e 36 58	SSP	51·5
Baku		119·5	309	e 20 15	PP	—	—	—	—	—
Philadelphia		119·8	52	—	—	e 30 5	PS	e 36 59	SS	e 46·2
Seven Falls		121·6	43	—	—	e 25 40	[−15]	—	—	56·5
Bermuda		129·1	59	—	—	e 22 28	PKS	e 39 3	SSP	e 63·6
Ksara		131·7	304	i 19 17	[+ 2]	39 19	SS	21 39	PP	—
Copenhagen		133·8	341	22 53	PP	39 36	SS	—	—	65·5
Helwan		136·3	299	e 19 26	[+ 3]	22 58	PKS	22 7	PP	—
Collmberg	z.	137·1	337	e 19 29	[+ 4]	—	—	e 22 11	PP	—
Cheb		138·3	336	e 17 28?	?	40 28?	SS	e 22 28?	PP	e 67·5
De Bilt		139·1	344	e 19 32	[+ 3]	—	—	e 22 27	PP	e 64·5
Zagreb		139·8	329	e 21 28?	PP	—	—	—	—	—
Triest		141·1	331	e 23 7	PP	e 41 2	SS	e 45 50	SSS	e 68·1
Strasbourg		141·3	339	e 19 31	[− 2]	e 35 44?	PPS	e 22 38	PP	71·5
Paris		142·8	344	e 19 31	[− 4]	—	—	e 22 56	PP	e 73·5
Florence	E.	143·6	331	i 23 19	PP	—	—	e 46 4	SSS	—
Rome		144·4	327	i 19 34a	[− 4]	26 20	[−26]	i 23 13	PKS	e 67·6
Clermont-Ferrand		145·4	341	i 19 43	[+ 3]	—	—	—	—	75·5
Toledo	z.	152·8	346	19 44	[− 8]	20 15	pPKP	20 32	PKP_2	—
Alicante		153·1	340	20 1	[+ 9]	26 59	[+ 1]	23 35	PKS	e 77·2
Granada		155·2	343	i 19 55k	[0]	i 24 0	PP	20 15	pPKP	85·7

Additional readings :—
Brisbane iSSE =8m.22s.
Riverview iPEN =5m.28s., iEN =5m.49s., iPP =6m.3s., iZ =9m.48s., iN =9m.56s., isSE =10m.0s., eQEN =10m.40s., iSSZ =10m.50s.
Wellington P_cP =4m.40s., PP =5m.38s., PPP =6m.36s., P_cS =8m.57s , SSS? =14m 23s.
Honolulu eP_cP =10m.1s.

Continued on next page.

Berkeley iN =24m.10s., eN =36m.11s., eE =37m.40s., eZ =38m.22s.
Irkutsk eSS =28m.46s.
Mount Wilson eZ =13m.4s.
Overton e =13m.22s.
Tucson e =13m.56s., ePS =25m.23s., eSSS =33m.48s.
Florissant iE =28m.40s.
St. Louis eE =28m.40s., ePPS?E =28m.59s.
Sverdlovsk PPS =29m.44s., SS =34m.30s.
Ottawa eN =48m.4s.
Philadelphia e =32m.38s., eSSS =41m.44s.
Ksara PPS =33m.47s.
Copenhagen 36m.33s.
Helwan PPP =25m.13s.
Collmberg eZ =23m.2s. and 24m.53s.
Cheb e =30m.28s.?, and 44m.28s.?.
Strasbourg ePP =25m.48s.
Paris e =19m.38s., i =19m.44s.
Rome pPKP =21m.6s., PP =22m.50s., ePPP? =24m.58s., PSKS? =32m.50s., ePPS = 35m.28s., eSSE =42m.14s., eSSS =47m.26s., e =57m.36s.
Alicante PKP_2 =20m.15s., PP =23m.49s., PPP =27m.11s., PKKP =28m.7s., SKKS = 30m.11s., e =53m.35s., Q =64m.9s.
Granada $pPKP_2$ =20m.51s., pPP =24m.34s., PPP =27m.28s., ePPS =38m.6s.
Long waves were also recorded at Arapuni, La Paz, Butte, Harvard, Uccle, Upsala, Prague, and Warsaw.

Sept. 23d. 23h. 30m. 0s. Epicentre 6°·5S. 145°·8E. Depth of focus 0·010.

A = −·8220, B = +·5586, C = −·1108 ; δ = −1 ; h = +7 ;
D = +·562, E = +·827 ; G = +·092, H = −·062, K = −·994.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		22·1	163	i 4 42	− 6	i 8 33	− 7	i 5 10	PP	—
Riverview		27·7	171	i 6 10a	+29	i 10 17	+ 3	i 6 36	PP	11·9
Suva		33·9	114	i 6 23	−13	i 11 35	−17	i 7 8	PP	14·0
Perth		37·8	224	7 30	+22	12 43	− 9	8 50	PP	16·9
Auckland		40·2	143	7 51?	+23	14 5	+37	10 16	PPP	—
Arapuni		41·6	144	e 8 0	+20	14 48	+60	e 10 12	PPP	—
Yokohama		42·0	353	7 39	− 4	13 47	− 7	—	—	—
Kobe		42·1	348	i 7 44	0	13 50	− 6	—	—	—
Tokyo		42·2	354	e 7 46	+ 1	13 46	−11	9 11	PP	16·5
Hukuoka		42·4	342	6 39k	−67	i 13 53	− 7	—	—	17·5
Tukubasan		42·7	354	7 54	+ 5	13 59	− 6	—	—	—
Tuai		42·9	144	7 52	+ 2	14 7	− 1	—	—	17·5
Wellington		43·2	148	7 53	0	14 4	− 8	i 8 20	pP	20·3
Christchurch		43·9	152	8 4s	+ 5	14 23	+ 1	8 26	pP	—
Wazima		44·3	351	i 8 0	− 2	14 31	+ 3	—	—	—
Sendai		44·7	356	8 1	− 4	14 18	−16	—	—	—
Mizusawa	E.	45·5	356	8 12	+ 1	14 40	− 5	—	—	—
Mori		48·5	356	8 34	− 1	15 24	− 3	—	—	—
Sapporo		49·4	357	8 40	− 2	15 36	− 4	—	—	—
Vladivostok		50·9	348	i 8 47	− 6	i 15 53	− 8	—	—	—
Honolulu		61·8	62	i 9 46	−25	i 18 1	−24	i 10 35	pP	i 25·1
Calcutta	N.	63·1	300	i 10 23k	+ 3	i 18 51	+10	i 19 40	sS	—
Colombo	E.	67·1	280	10 42	− 3	(19 28)	− 2	—	—	19·5
Irkutsk		68·3	334	i 10 51	− 2	i 19 41	− 3	20 17	PS	—
Kodaikanal	E.	70·0	284	i 11 20	+17	i 20 25	+21	13 50	PP	33·6
Bombay		76·1	292	i 11 37	− 2	i 21 12	− 1	26 10	SS	35·9
Frunse		80·8	315	i 12 7	+ 3	i 22 4	+ 1	i 12 29	PcP	—
Andijan		81·8	313	e 12 10	0	i 22 14	+ 1	—	—	—
Obi-garm		83·2	311	e 12 17	0	i 22 31	+ 4	—	—	—
Stalinabad		83·9	310	e 12 20	0	i 22 37	+ 3	—	—	—
Tchimkent		84·2	314	i 12 38	+16	i 22 42	+ 5	—	—	—
Samarkand		85·5	311	i 12 32	+ 4	22 50	0	12 50	PcP	—
College		86·0	23	i 12 15	−16	e 22 28	−27	e 12 58	pP	e 34·9
Sitka		89·4	32	e 12 21	−26	i 23 0	[− 6]	i 24 24	PS	e 37·2
Sverdlovsk		92·7	327	i 13 1	− 1	i 23 20	[− 5]	i 16 40	PP	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Ukiah		94·8	51	e 13 17	+ 5	i 24 36	+22	e 17 4	PP	e 37·7
Victoria		95·3	42	e 22 0?	?	e 25 14	+56	—	—	e 41·0
Berkeley		95·4	53	e 13 14	− 1	e 23 38	[− 2]	i 17 6	PP	e 43·2
Shasta Dam		95·5	50	i 13 14	− 1	e 23 41	[0]	i 17 7	PP	—
Santa Clara		95·6	53	e 13 15	− 1	e 23 42	[+ 1]	e 17 1	PP	—
Tananarive		95·7	251	e 13 16	0	24 17	− 5	19 25	PPP	45·4
Lick		95·9	53	e 13 19	+ 2	e 23 40	[− 3]	e 17 9	—	—
Fresno	N.	97·3	54	e 13 28	+ 5	—	—	17 28	PP	—
Santa Barbara	Z.	97·3	57	e 13 22	− 1	—	—	—	—	—
Grand Coulee		98·2	42	i 14 25	+58	e 24 49	+ 6	e 18 27	PKP	—
Pasadena		98·5	57	i 13 28	− 1	i 24 48	+ 3	e 17 16	PP	e 39·9
Mount Wilson		98·7	57	i 13 29	− 1	e 23 59	[+ 1]	—	—	—
Haiwee	Z.	98·8	55	e 13 30	0	—	—	—	—	—
Riverside		99·2	57	i 13 31	− 1	e 24 3	[+ 3]	i 14 28	sP	—
La Jolla	Z.	99·3	58	e 13 34	+ 2	—	—	—	—	—
Palomar		99·6	57	e 13 33	− 1	i 24 1	[− 1]	—	—	—
Boulder City		101·3	54	e 13 40	− 1	e 25 13	+ 4	e 24 7	SKS	—
Overton		101·6	54	e 13 52	+ 9	e 24 14	[+ 2]	—	—	—
Grozny		101·7	313	13 44	+ 1	24 14	[+ 2]	17 30	PP	—
Pierce Ferry		102·0	54	e 13 43	− 1	e 24 43	[+29]	e 17 46	PP	—
Butte		102·7	44	e 14 35	sP	e 25 18	− 2	e 17 40	PP	—
Erevan		102·7	310	17 56	PKP	24 44	[+28]	—	—	—
Leninakan		103·3	311	e 13 53	+ 3	24 31	[+12]	—	—	—
Logan		103·5	48	e 18 11	PP	e 25 23	− 4	e 24 18	SKS	e 42·4
Salt Lake City		103·5	49	e 16 57	?	25 21	− 6	e 24 17	SKS	e 42·4
Piatigorsk		103·6	314	e 18 6	PKP	—	—	—	—	—
Bozeman		103·8	45	e 13 50	− 2	e 25 25	− 5	e 17 52	PKP	e 42·8
Tucson		104·7	58	e 13 58	+ 2	e 24 22	[− 4]	e 14 38	sP	e 43·4
Moscow		105·5	326	18 0	[−11]	27 22	PS	18 20	PP	—
Saskatoon		105·8	38	e 17 24	PP	24 10	[−21]	25 14	SKKS	45·5
Sotchi		106·0	314	18 30	[+18]	—	—	33 14	SS	—
Denver		108·8	51	e 18 36	[+19]	i 24 46	[+ 2]	25 38	SKKS	—
Upsala		113·9	334	e 19 22	PP	e 28 36	PS	e 21 23	PPP	e 50·0
Istanbul		114·2	312	e 14 20	P	—	—	—	—	—
Helwan		114·4	299	e 14 39	P	26 4	SKKS	18 18	PKP	—
Bucharest		115·5	316	e 19 18	PP	i 29 12	PS	i 21 55	PPP	43·0
Tacubaya		115·7	72	e 18 14	[−17]	e 25 16	[+ 5]	19 48	PP	—
Warsaw		115·8	325	e 19 27	PP	i 29 42	PS	i 30 6	PPS	e 60·0
Sofia		117·9	315	e 18 40?	[+ 5]	e 29 36	PS	i 19 56	PP	—
Copenhagen		118·5	332	18 37	[0]	26 45	SKKS	19 56	PP	56·0
Budapest	E.	119·0	321	18 37	[− 1]	29 24	?	e 30 27	PS	50·0
Belgrade		119·1	318	e 18 40	[+ 2]	e 24 30	[−53]	e 20 0?	PP	51·0
Potsdam		120·1	329	e 20 6	PP	—	—	—	—	e 53·0
Florissant		120·1	49	i 18 40	[0]	e 27 53	S	i 21 2	PP	e 59·4
St. Louis		120·2	49	i 18 39	[− 1]	i 25 28	[+ 1]	e 20 3	PP	—
Prague		120·5	326	i 20 8	PP	e 25 48	[+21]	e 30 48	PS	e 52·0
Collmberg	Z.	120·7	328	i 18 40	[− 1]	e 29 51	PS	e 20 8	PP	e 55·0
Jena		121·6	327	e 18 42	[− 1]	e 30 2	PS	e 20 18	PP	—
Zagreb		121·6	321	e 18 46	[+ 3]	e 28 5	S	e 20 8	PP	—
Cheb		121·7	327	e 20 9	PP	e 27 0?	SKKS	e 36 46	SS	e 56·0
Triest		123·1	322	e 18 46	[0]	i 22 10	SKP	i 20 22	PP	—
Aberdeen		123·5	340	—	—	i 29 53	PS	i 38 29	SS	56·0
De Bilt		124·1	332	e 18 49	[+ 2]	e 30 30	PS	i 20 28 k	PP	e 59·0
Strasbourg		125·0	327	i 18 50	[+ 1]	27 27	SKKS	i 20 41	PP	58·3
Chur		125·0	324	e 18 48	[− 1]	—	—	—	—	—
Zürich		125·2	326	e 18 48	[− 1]	e 26 19	[+36]	e 20 35	PP	—
Uccle		125·4	331	e 18 52	[+ 2]	e 27 26	SKKS	e 20 42	PP	e 59·0
Florence	E.	125·5	320	i 18 54	[+ 4]	i 28 40	?	—	—	—
Rome		125·6	317	i 18 47	[− 3]	i 25 59	[+15]	i 20 29	PP	60·2
Basle		125·7	326	e 18 50	[− 1]	e 26 54	SKKS	e 20 45	PP	—
Neuchatel		126·4	326	e 18 51	[0]	—	—	—	—	—
Ottawa		127·1	35	i 18 52	[− 1]	25 48	[− 1]	20 50	PP	49·0
Paris		127·6	330	i 18 55	[+ 1]	i 27 30	SKKS	i 20 58	PP	e 61·0
Shawinigan Falls		128·1	32	18 54	[− 1]	27 54	SKKS	21 6	PP	—
Pennsylvania	E.	128·2	41	e 20 53	PP	e 27 34	SKKS	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Seven Falls		128·7	30	18 56	[0]	28 48	S	21 9 PP	53·0
Columbia		128·8	50	e 22 6	pPP	e 31 49	pPS	e 38 5 SS	e 51·8
Clermont-Ferrand		129·2	326	i 18 59	[+ 2]	e 31 9	PS	i 21 9 PP	55·0
Georgetown		129·6	43	e 18 57	[− 1]	i 22 21	SKP	e 21 8 PP	—
Philadelphia		130·4	41	e 19 1	[+ 1]	i 22 22	PKS	e 21 10 PP	e 52·6
Fordham		130·7	39	i 19 1	[+ 1]	i 27 57	SKKS	i 21 16 PP	e 53·3
Harvard		131·2	36	e 19 1	[0]	e 22 27	PKS	e 21 15 PP	e 55·0
Weston		131·4	36	i 19 0	[− 1]	e 22 26	PKS	i 21 18 PP	—
Barcelona		132·5	323	e 13 35	?	i 22 31	PKS	— —	65·1
La Plata	E.	133·2	153	19 24	[+19]	29 18	SKKS	22 0 PP	68·3
	N.	133·2	153	19 10	[+ 5]	28 7	SKKS	22 5 PP	62·3
	Z.	133·2	153	19 9	[+ 4]	—	—	22 22 PP	—
Tortosa		133·8	323	i 19 13	[+ 7]	26 20	[+15]	21 40 PP	e 63·0
Halifax		134·1	29	e 22 12	PP	—	—	(32 0?) PS	32·0
Algiers		134·5	317	i 19 10	[+ 3]	e 22 37	PKS	i 21 44 PP	93·0
Huancayo		135·2	114	e 19 12	[+ 4]	e 39 39	SS	e 19 45 pPKP	e 51·5
Alicante		135·9	321	i 19 11	[+ 1]	26 2	[− 7]	19 51 pPKP	67·6
Toledo		137·1	325	e 19 3	[− 9]	28 38	S	i 19 46 pPKP	63·8
Granada		138·6	322	i 19 16a	[+ 2]	29 26	SKKS	20 5 pPKP	71·3
La Paz	Z.	139·4	125	i 19 10	[− 6]	25 52	[−23]	i 19 48 pPKP	73·0
Bogota		140·3	90	e 19 15	[− 3]	e 32 55	PSKS	e 22 19 PP	—
Lisbon		140·7	328	19 11k	[− 8]	22 56	PKS	22 21 PP	65·0
Bermuda		141·6	43	i 19 17	[− 3]	i 26 38	[+20]	i 22 12 PP	e 58·2
San Juan		146·7	66	i 19 28	[− 1]	e 29 5	SKKS	i 19 52 pPKP	e 59·1
Fort de France		152·3	71	e 19 37	[− 1]	—	—	e 23 22 PP	—

Additional readings :—
Riverview iN =7m.5s., iE =8m.40s., iN =10m.3s., iNZ =10m.42s., iN =11m.16s., iE =11m.39s.
Suva P_cP? =12m.25s.
Perth i =13m.45s., SS =14m.55s.
Auckland S_cS =17m.58s.
Tokyo PPP? =10m.48s.
Wellington pP =9m.5s., PP =10m.0s., P_cP =10m.36s., i =11m.42s. and 15m.5s., SS =15m.25s., S_cS =18m.22s., sS_cS =19m.0s.
Christchurch sS =15m.3s., S_cS =17m.49s., pS_cS? =18m.16s.
Honolulu i =11m.16s., esS =18m.58s., eS_cS =19m.10s., eSS =21m.56s.
Calcutta iN =16m.54s., SSN =24m.17s.
Irkutsk SSS =26m.47s.
Kodaikanal PSE =20m.48s., SSE =24m.43s.
College e =14m.22s., eSKS =22m.23s., esS =23m.28s., eSS =28m.4s.
Sitka esS =24m.5s., isPS =25m.16s., iSS =29m.20., iSSS =33m.5s.
Sverdlovsk iPS =25m.10s., iPPS =25m.49s., SS =29m.56s.
Ukiah ipPP =17m.40s., i =17m.48s., iSKS =23m.32s., i =26m.25s., eSS =30m.24s.
Berkeley eN =13m.17s., eE =13m.20s., iN =16m.47s., iN =31m.54s., iE =32m.2s.
Santa Clara iPPPZ =17m.52s., eSSE =26m.27s., eSSSE =31m.11s.
Tananarive SKS =23m.44s., PS =25m.47s., SS =30m.55s.?, SS =35m.19s.
Pasadena iSKSE =23m.51s., iEZ =26m.11s., iE =27m.10s.
Riverside iZ =14m.58s.
Pierce Ferry e =19m.44s., eSP =26m.48s.
Butte e =19m.18s., eSKS =24m.14s., e =31m.28s.
Logan eSP =27m.7s., eSPP =28m.0s., eSS =33m.23s.
Salt Lake City esPS =27m.51s., eSS =31m.55s., eSSS =38m.0s.
Bozeman ePP =18m.10s., iSKS =24m.22s., e =28m.45s., esSS =33m.43s.
Tucson ePKP =17m.55s., i =18m.10s., iPP =18m.16s., ipPP =18m.39s., ePPP =20m.24s., eSKKS =25m.5s., epS =26m.4s., esS =26m.16s., e =26m.44s., eSP =27m.10s., isPS =28m.4s., iSPP =28m.13s., iSS =33m.5s., eSSS =37m.3s.
Moscow SS =32m.30s.
Saskatoon PPS =28m.3s., SS =33m.0s.?, SSS =38m.0s.?
Denver iPP =18m.48s., i =19m.56s., 28m.1s., and 28m.38s.
Upsala ePSN =28m.54s.?, eN =33m.48s., eSSE =35m.0s.?, eSSSE =38m.54s.?, eSSSN =39m.0s.?, eE =43m.0s.?
Helwan PP =19m.24s., PS =29m.10s., e =35m.12s.
Bucharest eE =19m.30s., iE =19m.39s., iN =27m.14s., iE =27m.20s. and 30m.20s.
Tacubaya eN =20m.43s., ePPPE =22m.13s., eE =22m.45s., eN =22m.56s. and 24m.17s., eSN =27m.11s., ePSN =29m.10s., ePSE =29m.13s.
Warsaw eZ =20m.18s., eE =20m.22s., iE =20m.32s., iZ =20m.37s., eE =22m.58s., eZ =23m.30s., eN =24m.2s., eZ =24m.38s., iE =27m.25s. and 28m.24s., iZ =30m.3s., eE =30m.51s., iZ =31m.11s., eN =31m.37s. eE =36m.25s., iZ =37m.35s., eN =37m.39s., iZ =38m.15s., iE =40m.25s., iZ =40m.36s., iE =41m.55s. and 45m.10s.
Sofia e =35m.48s.
Copenhagen 25m.30s., iPS =29m.40s., iE =30m.32s., SS =35m.54s., SSS =40m.24s,
Budapest ePN =19m.57s., ePPSE =40m.30s., SSE =45m.4s,

Continued on next page,

Belgrade e =22m.5s., ePS =30m.17s., SS =35m.43s., SSS =40m.22s.
Florissant iEZ =20m.1s., iE =21m.5s., 29m.2s., and 32m.46s.
St. Louis iSZ=27m.53s., iPSZ=29m.54s., iPPSZ=30m.38s., iSSE =36m.23s., iZ=37m.17s.
Prague eSKKS=27m.0s., ePPS?=32m.48s., eSKKS(Δ >180°)=36m.36s., eSSS=41m.18s.
Collmberg ePZ =15m.7s., iZ =18m.43s. and 18m.47s., eZ =19m.13s. and 19m.31s., eE =20m.12s., eZ =21m.39s. and 22m.35s., ePKKPZ =28m.47s., eZ =29m.34s., ePPSZ =31m.22s., eE =31m.31s., eSSSE =41m.6s.
Jena eP?N =18m.45s., eP?E =18m.48s., eN =36m.28s., eE =36m.32s.
Zagreb eNE =21m.40s.
Cheb e =30m.55s. and 42m.11s.
Triest i =28m.14s.
De Bilt eSS =37m.0s.?
Strasbourg e =19m.3s., ePPP =23m.23s., ePS =30m.26s., ePPS =31m.53s.
Uccle ePPN =20m.49s., eSKP =22m.4s., ePPP =23m.23s., ePSE =30m.30s., ePPS =31m.51s., eSSE =37m.18s., eSSS?N =41m.2s., eSSS?E =41m.10s.
Rome PZ =15m.39s., ipPKP =20m.44s., SKP =22m.1s., i =22m.40s., PPP =23m.7s., i =23m.31s. and 27m.0s.?, iSP =30m.29s., PS? =30m.53s., iPPS =32m.1s., i =32m.41s., iSSE =37m.14s.
Ottawa SKKS =27m.35s., SE =28m.35s., PSN =31m.0s., PPS =33m.6s., SS =37m.50s., SSS =42m.30s.
Paris i =22m.15s., ePPP =23m.46s., e =28m.26s., ePS? =30m.50s., i =32m.22s., 33m.10s. and 36m.10s., iSS =37m.53s., i =40m.28s. and 40m.41s., e =43m.2s. and 44m.0s.?, eQ =57m.
Shawinigan Falls PS =32m.0s.?, SS =38m.0s.?
Pennsylvania eE =21m.21s. and 26m.47s.
Seven Falls SKP =22m.16s., PPP =23m.30s., PS =31m.2s., PPS =32m.42s.
Columbia e =33m.21s. and 34m.7s.
Clermont-Ferrand i =22m.21s.
Georgetown ePS =31m.7s., SS? =38m.29s.
Philadelphia esPP =22m.1s., i =23m.12s., epPPP =24m.44s., e =29m.44s., eSP =31m.2s., ePPS =33m.11s., eSS =37m.58s.
Fordham i =23m.16s., eSS? =38m.33s., eSSS? =44m.18s.
Harvard e =22m.5s., 32m.5s., 33m.55s., and 35m.12s., eSS =38m.59s.
Weston eSS =39m.4s.
La Plata PKSN =23m.2s., PKSZ =23m.28s., SKSPN? =31m.24s., SKPSE =32m.6s., SS?E =39m.6s., SSN =39m.30s., SSSN =44m.18s., N =49m.18s.
Tortosa SKPEN =22m.38s., PPPE =24m.36s., SKKSEN =28m.21s., SKSPN =31m.52s., PSN =32m.10s., PPSN =33m.11s.
Algiers e =23m.14s., ePPS =33m.33s.
Huancayo isPKP =20m.6s., i =21m.49s., iPP =22m.6s., ipPP =22m.25s., ePPP =25m.16s., e =31m.22s., i =36m.0s.
Alicante PKP_2 =19m.35s., i =21m.35s., PKS =22m.27s., PP =22m.43s., PPP =26m.41s., PKKP =28m.9s., SKSP =33m.47s., PPS =36m.11s., SS =42m.27s., SPS =43m.31s., SSS =49m.7s., Q =59m.23s.
Toledo pPKPZ =19m.15s., iPPZ =22m.0s., PKSN =22m.43s., iSSEN =40m.2s.
Granada SKP =22m.8s., iPP =22m.41s., pPP =23m.21s., PPP =25m.44s., SKSP =32m.11s., PPS =35m.17s.
La Paz iZ =19m.24s., isPKPZ =20m.12s., PPZ =22m.6s., SKPZ =22m.44s., ipPPZ =23m.4s., isPPZ =23m.50s., PPSZ =31m.24s., iZ =38m.14s., iSSZ =39m.10s., SSSZ =44m.12s.
Bogota $iPKP_2$ =19m.20s., e =20m.2s., ePSKS =31m.56s.
Lisbon PKP =19m.19s., PPSE =34m.35s., PPSN =34m.57s., SSN =40m.54s.
Bermuda ipPP =23m.0s., iSKKS =29m.3s., iSKSP =32m.20s., iSPP =34m.42s., iSS =41m.12s., i =42m.32s.
San Juan isPKP =20m.0s., epPP =23m.39s., e =28m.42s. and 31m.33s., epPS =34m.23s., eSS =42m.7s., esSS =42m.38s., iSSS =47m.0s.
Fort de France e =20m.1s. and 20m.10s.
Long waves were also recorded at Bergen and Besançon.

Sept. 23d. Readings also at 3h. (near Mizusawa), 9h. (near Obi-garm), 12h. (Copiapo), 13h. (Huancayo), 14h. (Bogota and La Paz), 15h. (Brisbane, Riverview, Stalinabad, and Andijan), 16h. (near Fort de France), 17h. (Jena, Collmberg, near Florence, and Triest), 18h. (Collmberg, Pierce Ferry, and Tucson).

Sept. 24d. 6h. 40m. 41s. Epicentre 37°·3S. 178°·3E. Depth of focus 0·030.

A = −·7970, B = +·0237, C = −·6034; δ = −14; h = 0;
D = +·030, E = +1·000; G = +·603, H = −·018, K = −·797.

	Δ	Az.	P.	O−C.	S.	O−C.
	°	°	m. s.	s.	m. s.	s.
Tuai	1·8	212	0 39	0	1 8	− 1
Auckland	2·8	279	0 49	0	1 27	0
New Plymouth	3·8	240	1 0	− 1	1 48	0
Wellington	4·8	214	1 12	− 1	1 30	−41
Kaimata	7·4	223	—	—	3 2	− 7
Christchurch	7·6	212	1 51	+ 2	3 12	− 2

Sept. 24d. 18h. 12m. 40s. Epicentre 19°·5N. 68°·0W. (as on Aug. 1d.).

A = +·3534, B = −·8746, C = +·3318 ; δ = −9 ; h = +5 ;
D = −·927, E = −·375 ; G = +·124, H = −·308, K = −·943.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·1	122	i 0 37	0	i 1 18	SS	—	—	1·5
Port au Prince		4·2	258	e 1 25	P_g	i 2 15	S_g	—	—	i 2·5
Fort de France		8·1	125	e 1 58	− 4	—	—	—	—	—
Bogota		15·9	203	e 3 44	− 3	e 6 33	−11	i 3 50	PP	—
Philadelphia	•	21·3	346	e 4 55	+ 5	e 8 51	+ 8	e 5 24	PP	e 10·4
Weston		23·0	355	e 5 14	+ 7	e 9 11	− 3	e 9 26	S	—
Harvard		23·1	355	i 5 11	+ 3	i 9 5	−11	i 5 33	PP	—
Tucson		40·3	298	e 7 51	+11	—	—	e 9 16	PP	—
Palomar	N.	45·5	299	e 8 46	+23	—	—	—	—	—
Riverside	Z.	46·0	300	e 8 24	− 3	—	—	e 8 37	?	—
Mount Wilson	Z.	46·6	300	e 8 41	+ 9	—	—	—	—	—
Pasadena	Z.	46·7	300	e 8 44	+12	—	—	—	—	—

Additional readings :—
Bogota i = 4m.19s.
Harvard i = 9m.22s.
Long waves were also recorded at Uccle, De Bilt, Rome, Paris, Bermuda, and Bozeman.

Sept. 24d. Readings also at 0h. (Tacubaya, Mount Wilson, Tucson, near Branner, and near Lick), 2h. (Andijan), 4h. (Fort de France, Bogota, Andijan, and near Stalinabad), 5h. (Riverview, Overton, and Grand Coulee), 6h. (near Tacubaya), 10h. (near Grozny (2), near Obi-garm, Stalinabad, and near France), 11h. (Santa Lucia), 12h. (La Paz), 13h. (Jena and near Collmberg), 14h. (near Collmberg), 15h. (Collmberg, Boulder City, Tucson, Palomar, Pierce Ferry, Riverside, Pasadena, Mount Wilson, Haiwee, and near Tacubaya), 18h. (Collmberg), 19h. (De Bilt)), 21h. Tucson, Pierce Ferry, Riverside, Mount Wilson, near Granada, and Malaga, near Huancayo, La Paz, and Bogota), 22h. (Paris, Rome, Ksara, Piatigorsk, Stalinabad, Andijan, near Grozny (2), Erevan, and Leninakan), 23h. (Pierce Ferry).

Sept. 25d. 10h. 5m. 38s. Epicentre 19°·4N. 70°·4W. (as on 19d.).

Intensity II at Cape Haïtien.
Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

A = +·3166, B = −·8892, C = +·3302 ; δ = −6 ; h = −5.

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Port au Prince	2·0	245	i 0 46	PP	i 1 19	SSS	—	—	1·7
San Juan	4·2	103	i 1 4	− 3	i 1 48	− 9	—	—	i 2·0
Fort de France	10·0	116	e 2 29	+ 2	e 4 54	SSS	—	—	—
Balboa Heights	13·7	222	e 3 36	PP	e 6 4	+12	—	—	—
Bermuda	13·9	21	e 3 14	− 7	i 5 42	−15	i 4 2	SSS	i 6·2
Bogota	15·1	194	i 3 47	PP	i 6 34	+ 9	i 3 51	pP	—
Columbia	17·4	330	e 4 8	+ 2	e 7 18	− 1	—	—	e 7·8
Mobile	19·6	309	4 4	−28	7 46	−22	—	—	—
Georgetown	20·3	347	i 4 37	− 3	e 8 21	− 2	—	—	—
Philadelphia	20·9	351	e 4 43	− 3	i 8 34	− 1	i 5 13	PP	i 9·6
Fordham	21·6	353	e 4 54	0	e 8 53	+ 4	i 4 58	P	—
Pennsylvania	22·3	345	e 5 0	− 1	e 8 57	− 5	—	—	—
Weston	22·9	359	e 5 4	− 2	e 8 57	−16	—	—	—
Harvard	23·1	359	i 5 6	− 2	i 9 3	−13	—	—	e 10·9
Halifax	25·8	12	5 31	− 3	10 7	+ 5	—	—	11·9
St. Louis	25·8	322	i 5 34	0	e 10 7	+ 5	i 10 17	?	e 12·4
Florissant	25·9	322	i 5 35	0	e 10 11	+ 7	i 6 12	PP	e 12·4
Ottawa	26·3	352	5 38	− 1	10 7	− 4	e 10 29	?	12·9
Chicago	26·7	331	e 5 42	− 1	e 10 16	− 1	e 6 16	PP	e 11·4
Shawinigan Falls	27·2	358	5 45	− 2	11 4	+39	—	—	18·4
Seven Falls	27·7	0	5 52	0	10 58	+25	—	—	16·0
Huancayo	31·6	189	e 6 7	−19	i 10 46	−49	i 7 28	PP	i 11·8
La Paz	35·8	175	7 9	+ 6	e 12 54	+13	—	—	20·0
Denver	36·0	311	e 7 8	+ 3	e 12 46	+ 2	i 13 16	S	—
Tucson	38·4	298	i 7 27	+ 2	e 13 25	+ 5	e 8 50	PP	e 16·0

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Salt Lake City		41·2	311	e 7 50	+ 2	e 14 2	0	—	—	e 16·9
Logan		41·5	312	e 7 53	+ 3	e 14 38	PPS	i 9 45	PP	e 16·7
Pierce Ferry		41·6	303	i 7 55	+ 4	—	—	i 8 48	?	—
Overton		42·1	304	e 7 58	+ 3	—	—	i 9 8	PP	—
Boulder City		42·3	303	i 8 0	+ 3	—	—	e 9 45	PP	—
Bozeman		42·5	318	e 7 59	0	e 13 58	−24	e 9 48	PP	e 18·0
Saskatoon		43·2	328	7 47	−17	14 7	−25	9 41	PP	21·4
Palomar		43·5	299	i 8 11	+ 4	—	—	—	—	—
Butte		43·6	318	e 8 6	− 2	e 14 35	− 3	—	—	e 18·1
La Jolla	z.	43·8	298	e 8 13	+ 4	—	—	—	—	—
Riverside	z.	44·0	300	i 8 14a	+ 3	—	—	—	—	—
Mount Wilson	z.	44·6	300	i 8 18	+ 2	—	—	—	—	—
Pasadena		44·7	300	i 8 19	+ 3	—	—	—	—	e 18·4
Haiwee		44·8	302	e 8 20	+ 3	—	—	—	—	—
Santa Barbara	z.	46·0	300	e 8 30	+ 3	—	—	—	—	—
Fresno	N.	46·3	303	e 8 32	+ 3	—	—	—	—	—
Santa Clara		48·1	304	e 8 47	+ 4	—	—	—	—	e 25·9
Branner		48·3	304	e 8 51	+ 6	—	—	e 9 4	?	—
Grand Coulee		48·4	318	i 8 45	− 1	—	—	—	—	—
Berkeley		48·5	304	e 8 44	− 2	—	—	i 10 44	PP	e 24·4
Shasta Dam		49·0	308	e 8 47	− 3	—	—	—	—	—
Lisbon		55·9	56	9 52	+10	17 22	− 7	23 22	Q	26·0
Toledo		59·9	54	i 10 8	− 2	i 18 37	+16	—	—	28·0
Granada		60·3	58	10 14a	+ 1	18 26	0	11 2	PcP	—
Aberdeen	E.	62·2	35	—	—	i 18 55	+ 4	—	—	—
Alicante		62·7	56	e 10 24	− 5	e 18 24	−33	11 4	pP	e 27·6
Tortosa		63·4	53	10 32	− 1	19 6	+ 2	11 9	PcP	e 27·4
Paris		64·5	45	i 10 38	− 3	e 19 36	+17	e 26 58	SSS	e 28·4
Clermont-Ferrand		64·9	48	i 10 46	+ 3	e 19 25	+ 1	—	—	29·4
Uccle		65·4	42	e 10 52	+ 4	e 19 29	− 4	e 19 46	PS	e 30·4
De Bilt		66·1	40	e 10 52	+ 1	e 19 32	− 7	—	—	e 29·4
College		67·3	334	e 10 58	− 1	e 19 49	− 5	—	—	e 27·6
Basle		67·9	46	e 10 57	− 5	—	—	—	—	—
Strasbourg		67·9	44	e 10 59	− 3	—	—	e 13 29	PP	e 31·9
Zürich		68·6	46	e 11 4	− 3	—	—	—	—	—
Copenhagen		70·2	37	—	—	e 20 28	0	28 10	SSS	33·4
Cheb		70·8	42	e 11 22?	+ 2	e 20 22?	−13	21 22?	ScS	e 33·4
Florence	E.	70·9	49	i 9 46	?	i 19 16	?	—	—	—
Collmberg		71·0	41	e 11 20	− 2	—	—	e 14 11	PP	e 35·4
Prague		72·1	42	e 9 30	−118	e 20 46	− 4	—	—	e 31·4
Rome		72·1	52	e 11 26a	− 2	20 50	0	e 14 10	PP	e 34·0
Triest		72·4	47	e 11 28	− 2	20 56	+ 3	—	—	—
Warsaw		75·8	40	11 45	− 5	e 21 25	− 6	e 21 52	PS	e 37·4
Istanbul		84·3	48	i 12 36	+ 1	i 22 55	− 5	—	—	—
Helwan		90·2	58	i 13 5a	+ 1	24 28	+32	16 54	PP	—
Ksara		92·1	54	i 13 15	+ 3	e 25 44	PS	17 4	PP	—

Additional readings :—
Bogota iPP =3m.54s., iPPP =3m.57s., e =6m.14s., isS? =6m.40s., ePcP =8m.26s.
Philadelphia i =5m.29s.
Florissant ePPPE? =6m.35s., eN =7m.18s.
Seven Falls e =7m.42s., SS =12m.46s.
Huancayo e =6m.34s., ePP =7m.23s., i =7m.47s.
Overton i =8m.4s.
Saskatoon SSS =17m.34s.
Berkeley iE =8m.48s. and 10m.40s.
Granada PP =11m.35s., PPP =13m.26s., SS =22m.29s.
Alicante PP =12m.34s., PcS =16m.22s., PS =18m.58s., ScS =20m.10s., Q =23m.34s.
Tortosa PPN =12m.52s., PcSN =15m.23s., PS?E =19m.51s., PPSE =20m.17s.
Paris eSS? =22m.22s.
Uccle eSE =19m.26s., eSSE =23m.32s.?, eE =27m.7s.
Cheb e =27m.22s.
Collmberg eZ =11m.26s. and 11m.31s.
Rome ePS =21m.19s., eSS =25m.28s., eSSS =27m.56s.
Warsaw eE =23m.24s.
Helwan SKKS =24m.10s.
Long waves were also recorded at Victoria, Ukiah, Sitka, Upsala, and Bergen.

Sept. 25d. 14h. 57m. 52s. Epicentre 18°·9N. 68°·9W. (as on 20d.).

Intensity II at Cape Haïtien.

Liste des séismes ressentis dans la République de Haïti au courant de l'année 1946.

$A = +\cdot3408$, $B = -\cdot8833$, $C = +\cdot3220$; $\delta = +5$; $h = +5$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
San Juan		2·7	101	i 0 46	+ 1	e 1 25	S*	i 1 28	S_g	i 1·7
Port au Prince		3·3	264	i 1 8	P_g	i 1 43	S*	i 1 24	SS	i 2·1
Fort de France		8·5	118	e 2 11	+ 4	e 4 15	S*	—	—	—
Bermuda		13·9	15	e 3 23	+ 2	—	—	—	—	i 6·0
Balboa Heights		14·3	228	e 3 42	PP	—	—	—	—	e 6·2
Bogota		15·1	200	i 3 45	PP	e 6 35	+10	i 3 48	pP	i 7·1
Philadelphia		21·7	348	e 4 49	− 6	e 8 49	− 2	e 5 16	PP	e 10·4
Weston		23·5	357	e 5 10	− 2	e 9 12	−11	—	—	—
Harvard		23·6	357	i 5 11	− 2	i 9 21	− 4	—	—	e 12·1
Ottawa		27·0	350	5 45	0	10 20	− 2	—	—	14·1
St. Louis		27·0	321	i 5 47	+ 2	e 10 28	+ 6	i 5 56	pP	e 13·3
Florissant		27·2	321	—	—	e 10 38	+13	e 11 45	SS	e 14·5
Chicago		27·8	329	—	—	e 10 31	− 4	—	—	e 13·2
Shawinigan Falls		27·8	356	e 5 50	− 3	—	—	—	—	18·1
Huancayo		31·4	192	e 7 8	PP	e 11 43	+11	i 7 50	PPP	e 13·5
La Paz		35·2	178	7 8	+10	—	—	—	—	22·1
Tucson		39·8	298	e 7 37	+ 1	e 13 18	−24	i 9 11	PP	—
Salt Lake City		42·6	311	—	—	e 14 19	− 4	—	—	e 17·8
Pierce Ferry		43·1	303	i 8 4	0	—	—	—	—	—
Bozeman		43·8	318	—	—	e 14 35	− 5	—	—	e 20·2
Butte		44·9	319	—	—	e 14 44	−12	—	—	e 22·4
Palomar		45·0	299	i 8 21	+ 2	—	—	—	—	—
La Jolla	z.	45·3	298	e 8 23	+ 2	—	—	—	—	—
Riverside	z.	45·5	300	e 8 25	+ 2	—	—	—	—	—
Mount Wilson		46·1	300	i 8 30	+ 2	—	—	—	—	—
Pasadena		46·2	300	i 8 25	− 3	—	—	—	—	e 31·7
Haiwee		46·3	303	i 8 32	+ 3	—	—	—	—	—
Santa Barbara	z.	47·5	300	i 8 41	+ 3	—	—	—	—	—
Grand Coulee		49·7	318	e 8 56	0	—	—	—	—	—
Shasta Dam		50·4	308	i 9 0	− 1	—	—	—	—	—
Toledo	z.	59·0	55	i 10 3	− 1	—	—	—	—	—
Paris		63·8	44	e 10 35	− 1	—	—	—	—	e 30·1
Strasbourg		67·3	44	e 10 58	− 1	—	—	e 12 4	?	—
Zürich		67·9	45	e 12 1	+59	—	—	—	—	—
Chur		68·6	47	e 11 3	− 4	—	—	—	—	—
Collmberg	z.	70·5	41	e 11 17	− 1	—	—	—	—	—
Rome		71·3	52	e 11 22	− 1	—	—	—	—	—
Istanbul		83·6	49	e 12 32	+ 1	e 22 42	−11	—	—	—
Ksara		91·3	59	e 13 13	+ 4	e 25 20	PS	—	—	—

Additional readings :—
Bogota isS? =6m.43s.
Philadelphia iP =4m.54s.
St. Louis esS?E =6m.48s., eSSE =11m.35s.
Huancayo iPP =7m.32s.
Tucson i =8m.2s. and 9m.25s.
Collmberg eZ =11m.24s. and 12m.13s.
Long waves were also recorded at Sitka, Warsaw, Uccle, De Bilt, and Cheb.

Sept. 25d. Readings also at 2h. (near Grozny), 4h. (Santa Lucia), 6h. (Tchimkent, near Obi-garm, and Stalinabad), 8h. (Balboa Heights, near Grozny, near Obi-garm, and Andijan), 9h. (Riverview and near Istanbul), 14h. (near Obi-garm), 15h. (near Mizusawa), 16h. (Yalta (2) and Collmberg), 18h. (near Obi-garm), 22h. (Ksara).

Sept. 26d. 10h. 53m. 16s. Epicentre 25°·5S. 178°·5E. Depth of focus 0·090.
(as on 1937, June 19d.).

$A = -·9034$, $B = +·0237$, $C = -·4281$; $\delta = -4$; $h = +3$;
$D = +·026$, $E = +·1·000$; $G = +·428$, $H = -·011$, $K = -·904$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Auckland		11·8	195	2 28	− 9	4 35	− 8	7 7	P_cP	—
Arapuni		12·8	190	—	—	5 38	+38	—	—	—
Tuai		13·3	185	2 50	− 1	5 8	− 1	13 47	S_cS	—
New Plymouth		14·0	194	3 2	+ 4	5 31	+ 9	—	—	—
Wellington		16·1	190	3 14	− 4	5 45	− 4	3 40	PP	—
Kaimata		18·0	199	3 36	0	6 30	0	13 59	S_cS	—
Christchurch		18·6	194	3 40a	− 2	6 34?	− 6	4 22	PP	—
Brisbane		22·9	260	i 4 15	− 6	i 6 52	−58	—	—	—
Riverview		25·1	244	i 4 40a	0	i 8 28	+ 3	i 6 31	pP	e 12·2
Honolulu		51·9	29	i 8 18	+ 2	e 15 0	+ 5	e 9 6	P_cP	e 20·7
Santa Barbara		83·6	48	i 11 29	+ 2	e 20 56	− 4	e 13 34	pP	—
Branner		83·8	43	i 11 30	+ 2	e 20 58	− 3	—	—	—
Berkeley		84·0	43	i 11 30	+ 1	i 20 58	− 5	i 13 36	pP	—
Lick		84·1	43	e 11 31	+ 2	e 21 0	− 4	—	—	—
La Jolla		84·3	50	e 11 32	+ 2	e 21 5	− 1	e 13 40	pP	—
Pasadena		84·4	48	i 11 32	+ 1	i 21 3	− 4	i 13 36	pP	—
Mount Wilson		84·5	48	i 11 33	+ 2	e 21 4	− 4	e 13 40	pP	—
Palomar		84·8	50	i 11 35	+ 2	i 21 9	− 2	e 13 38	pP	—
Riverside		84·9	49	i 11 34	+ 1	i 21 6	− 6	e 13 41	pP	—
Fresno	N.	84·9	46	i 11 36	+ 3	e 21 24	+12	—	—	—
Shasta Dam		85·7	42	i 11 38	+ 1	e 21 9	−10	i 13 44	pP	—
Haiwee		85·7	47	i 11 33	− 4	e 21 12	− 7	e 13 47	pP	—
Tinemaha		86·1	46	i 11 39	0	i 21 14	− 9	—	—	—
Boulder City		87·7	49	i 11 48	+ 1	e 21 49	+11	i 13 56	pP	—
Overton		88·3	49	i 11 53	+ 4	i 21 31	[+10]	—	—	—
Pierce Ferry		88·4	49	i 11 50	0	i 21 28	[+ 7]	i 14 4	pP	—
Tucson		88·5	54	i 11 52	+ 2	i 21 57	+12	i 13 58	pP	—
Victoria		90·1	35	e 11 56	− 2	e 21 35	[+ 4]	—	—	—
Sitka		91·3	24	e 11 52	−11	i 22 13	+ 3	e 14 9	pP	—
Grand Coulee		92·1	37	i 12 7	0	—	—	e 14 15	pP	—
College		93·8	14	—	—	e 22 31	0	e 21 52	SKS	e 36·3
Butte		94·6	41	—	—	e 22 52	+14	e 21 57	SKS	—
Bozeman		95·4	42	—	—	e 22 54	+10	e 22 6	SKS	e 44·9
Calcutta	N.	99·5	291	e 18 53	PPP	i 22 55	−24	i 21 55	SKS	—
Colombo	E.	100·7	273	17 3	PP	22 28	[+ 1]	—	—	—
Saskatoon		101·1	37	—	—	e 22 6	[−23]	(26 14)	PS	26·2
Kodaikanal		104·2	275	e 17 34	PP	—	—	—	—	—
Florissant	Z.	106·3	54	e 17 41	PKP	—	—	e 20 31	PPP	—
St. Louis		106·4	54	i 17 31	PKP	i 23 48	SKKS	e 17 58	PP	—
Bombay		111·7	282	e 18 18	PP	i 23 18	[+ 4]	—	—	—
Philadelphia		118·0	57	e 18 47	?	e 23 39	[+ 1]	i 19 6	PP	e 51·7
Ottawa		118·5	49	e 17 39	[− 1]	e 23 44	[+ 5]	e 19 52	PP	29·2
Fordham		119·1	56	e 19 14	PP	i 23 45	[+ 4]	i 25 13	SKKS	—
San Juan		120·1	82	e 19 20	PP	i 23 47	[+ 2]	i 27 54	SP	—
Weston		121·2	55	e 19 26	PP	e 23 52	[+ 4]	e 20 28	PPP	—
Bermuda		125·0	68	e 19 54	PP	e 24 17	[+17]	e 32 44	SS	—
Ksara		146·6	291	i 18 38	[+ 5]	22 7	PP	i 20 48	pPKP	—
Copenhagen		148·2	345	i 18 41	[+ 6]	24 40	[− 5]	i 20 51	pPKP	—
Warsaw		148·3	333	e 17 44	[−51]	—	—	e 19 53	pPKP	e 36·7
Istanbul		150·3	310	e 18 42	[+ 5]	e 28 50	SKKS	—	—	—
Helwan		150·6	285	i 18 47k	[+ 9]	35 36	PPS	20 59	pPKP	—
Prague		152·5	338	e 21 44?	PP	—	—	—	—	—
Jena	N.	152·7	341	e 18 53	[+12]	—	—	—	—	—
De Bilt		153·0	350	e 41 44?	SS	—	—	—	—	e 76·7
Uccle		154·3	353	e 18 15?	[−28]	—	—	—	—	e 42·7

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.	L.
		°	°	m. s.	s.	m. s.	s.	m. s.	m.
Strasbourg		155·8	345	e 18 48	[+ 3]	—	—	— —	—
Triest		156·4	333	e 42 5	SS	—	—	— —	—
Paris		156·5	353	e 18 49	[+ 3]	—	—	e 19 24 PKP$_3$	—
Zürich		156·7	344	e 18 48	[+ 1]	—	—	— —	—
Basle		156·9	345	e 19 7	[+20]	—	—	— —	—
Rome		160·0	331	e 21 25	pPKP	43 56	SSP	e 29 6 SKKS	71·4
Toledo	z.	165·5	8	i 20 0	?	—	—	23 48 ?	—
Alicante		167·2	359	—	—	e 25 58	[+55]	63 14 Q	e 74·2
Granada		168·2	8	i 19 0$_s$	[+ 2]	26 7	[+63]	i 24 0 PP	—

Additional readings :—
Auckland i =8m.1s. and 9m.3s., S_cP =9m.32s., P_cS =10m.34s., S_cS =13m.35s., sS_cS = 17m.42s.
Wellington iZ =3m.27s., P_cP =7m.50s., sP_cP =9m.46s., P_cS =10m.59s., S_cS =13m.55s., sS_cS =18m.4s.
Christchurch sS =7m.51s., P_cP =8m.24s., S_cP =11m.44s., S_cS =14m.2s., sS_cS? = 15m.34s.
Brisbane iN =4m.19s. and 7m.40s.
Riverview iN =4m.47s. and 6m.57s., isPEZ =7m.21s., iP_cPN =7m.54s., iE =9m.22s., iS_cPZ =10m.41s., isSE =11m.6s., iP_cSE =11m.20s., iP_cSZ =11m.23s., iN =11m.30s.
Honolulu iS_cP =12m.28s., iS_cS =17m.11s.
Branner eN =11m.59s.
Berkeley iPPZ =14m.34s., iE =21m.1s., iZ =22m.8s., iE =23m.36s., iZ =40m.22s.
Lick eN =11m.42s.
La Jolla eSEN =21m.20s.
Pasadena esPZ =14m.29s., iSN =21m.18s., eSSZ =38m.50s., iSKP,PKPZ? =40m.17s.
Mount Wilson iZ =11m.46s., eZ =14m.56s., eSEN =21m.35s., iZ =40m.15s. and 40m.33s.
Palomar iNZ =13m.42s., iSEN =21m.25s., eZ =40m.14s.
Riverside eZ =15m.1s., and 40m.15s., iZ =40m.32s.
Fresno eN =11m.40s.
Shasta Dam e =44m.34s.
Haiwee eN =21m.33s.
Tinemaha iPEN =11m.42s., eZ =12m.41s., eN =21m.35s.
Boulder City iSKS =21m.26s.
Tucson isP =14m.54s., iPP =15m.30s., ipPP =17m.24s., iSKS =21m.27s., esS =25m.29s.
Sitka ePP =15m.44s., eSKS =21m.36s., isS =25m.50s., e =26m.30s., isPS =26m.56s.
College ePS =25m.17s., esS =26m.20s.
Butte esS =26m.2s.
Bozeman esS =26m.44s., e =30m.51s., esSS =32m.44s.
St. Louis epPKP?E =17m.46s., eSKS?E =22m.53s., iSE =24m.30s., eN =27m.30s. and 32m.8s.
Philadelphia eSKKS =25m.4s., eS =26m.13s., eSP =27m.47s., eSKKP =30m.50s., esPS =31m.30s., eSS =34m.43s.
Ottawa eE =24m.56s.
San Juan eS =25m.10s., iS =25m.15s., ePS =29m.13s.
Bermuda e =21m.15s.
Ksara isPKP =21m.46s.
Copenhagen 40m.26s., 42m. 3s., sSS =44m.8s.
Warsaw eZ =20m.15s. and 20m.47s.
Helwan $pPKP_3$ =21m.9s., sPKP =21m.54s.
Jena eEN =19m.4s.
Strasbourg e =19m.18s.
Paris e =19m.20s.
Zürich e =19m.21s.
Rome eSKKS? =31m.35s., SSS? =48m.50s.
Granada pPKP =19m.15s., sPKP =20m.12s., SKP =22m.33s., PPP =28m.28s., SKKS = 30m.29s., sSKKS =31m.39s., SKSP =34m.37s.
Long waves were also recorded at Kew and Cheb.

Sept. 26d. Readings also at 7h. (Arapuni, Christchurch, Wellington, Brisbane, Mount Wilson, Tucson, Palomar, Riverside, and Tinemaha), 8h. (Frunse), 12h. (Paris, Chicago, Bozeman, Butte, Mount Wilson, Pasadena, Palomar, Riverside, Tucson, Tinemaha, Overton, Pierce Ferry, Grand Coulee, and Sitka), 13h. (St. Louis and near Fort de France), 14h. (St. Louis), 15h. (Tinemaha and Tucson), 16h. (Bermuda), 17h. (near La Paz and near Grozny), 18h. (Pierce Ferry), 21h. (La Paz, near Ottawa, Seven Falls and Shawinigan Falls), 22h. (near Mizusawa).

Sept. 27d. 16h. European shock.

Istanbul eP =14m.36s., eS$_g$? =17m.6s.
Sofia ePEN =14m.44s.?, iEN =16m.47s.
Helwan e =15m.27s., 16m.9s., and 17m.6s.
Ksara e =15m.45s.
Zagreb eP =15m.45s., eE =15m.50s., e =17m.54s., eE =20m.9s.
Rome eP? =15m.49s., eS =17m.30s., eQ =19m.0s.
Bucharest 16m.
Chur eP =16m.27s.
Belgrade e =16m.49s., eS? =18m.25s., e =21m.16s. and 23m.18s.
Cheb e =17m. and 20m.14s., eL =22m.12s.
Strasbourg eP? =17m.1s., e =17m.23s. and 18m.31s., eL? =23m.8s.
Granada iPZ =17m.42s.k, i =18m.7s. and 19m.58s.
Copenhagen P =17m.42s., L =25m.
Triest eP =17m.43s., eS? =19m.42s.
Toledo iPZ =17m.48s.
Florence eP?E =17m.50s., iS?E =19m.31s.
Long waves were also recorded at Warsaw, Prague, Uccle, De Bilt, and Kew.

Sept. 27d. 19h. Neighbourhood of Formosa.

Irkutsk P =50m.26s., eS =55m.42s.
Bombay eEN =52m.11s.
Obi-garm eP =52m.27s.
Sverdlovsk iP =53m.32s., S =61m.20s.
Calcutta eN =54m.41s. and 58m.13s., iN =62m.55s.
Ksara e =55m.33s.
Helwan P =56m.0s., e =58m.33s.
Rome eP? =56m.16s., eS? =67m.40s., ePPS? =69m.10s., eSSS? =78m.0s., eL? =80m.10s.
New Delhi iN =58m.9s.
Strasbourg eP? =76m.15s., e =90m.25s., eL =93·3m.
Long waves were also recorded at other European stations.

Sept. 27d. Readings also at 4h. (Pierce Ferry), 5h. (Overton, Pierce Ferry, and near Mizusawa), 10h. (Paris), 11h. (Kodaikanal, Chur, Jena, Rome, near Triest, and Zagreb), 12h. (near Fort de France), 16h. (near Obi-garm), 19h. (Belgrade), 21h. (Bombay and Calcutta).

Sept. 28d. 7h. 19m. 8s. Epicentre 34°·0N. 116°·8W.

Intensity VI at Banning, Cabazon, Cathedral City, and Palm Springs; V at Aguanga, Beaumont, Forest Home, and Riverside. Macroseismic areas, 9000 sq. m.

R. R. Bodle and L. M. Murphy.
United States Earthquakes, 1946, Serial No. 714, Washington, 1948, p.16. Epicentre 33°57′N. 116°51′W.

A = −·3746, B = −·7416, C = +·5566; δ = +10; h = 0;
D = −·893, E = +·451; G = −·251, H = −·497, K = −·831.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Riverside		0·5	270	i 0 10$_a$	− 4	1 0 17	− 6	—	—	—
Palomar		0·6	185	i 0 13	− 2	—	—	—	—	—
Pasadena		1·1	278	i 0 22$_a$	0	1 0 37	− 2	—	—	—
La Jolla		1·2	198	i 0 22$_k$	− 2	1 0 36	− 5	—	—	—
Haiwee		2·3	336	i 0 40$_a$	0	1 1 18	+ 9	—	—	—
Boulder City		2·5	39	i 0 44	+ 1	e 1 22	S$_g$	1 0 48	P$_g$	—
Santa Barbara		2·5	280	i 0 41$_a$	− 2	—	—	—	—	—
Pierce Ferry		3·1	47	i 0 51	0	—	—	1 0 54	P*	—
Overton		3·2	37	i 0 53	+ 1	—	—	i 1 3	P*	—
Tinemaha		3·3	339	i 0 54	+ 1	e 1 43	S*	—	—	—
Fresno	N.	3·7	319	e 0 58	− 2	i 1 56	S*	e 1 7	P*	—
Lick		5·2	312	e 1 19	− 2	e 2 23	+ 1	e 1 27	P*	—
Tucson		5·3	107	i 1 19	− 3	e 1 48	P$_g$	i 1 39	P*	i 2·8
Santa Clara	E.	5·4	310	e 2 49	S*	—	—	—	—	—
Branner	E.	5·5	310	e 1 25	0	e 2 26	− 4	e 1 44	P$_g$	e 2·6
Berkeley		5·9	313	e 1 28	− 3	e 2 52	+12	e 2 59	S*	—
Mineral	E.	7·4	331	e 1 58	+ 6	e 3 52	S*	—	—	—
Shasta Dam		8·0	328	e 2 4	+ 4	i 4 9	S*	—	—	—
St. Louis	E.	21·9	70	i 5 1	+ 4	—	—	—	—	—

Berkeley gives also eN =1m.34s. and 3m.26s.
Long waves were also recorded at Bozeman and Salt Lake City.

Sept. 28d. 13h. Undetermined shock, probably at sea off coast of Chili.

Copiapo PE =18m.46s., SE =19m.5s., E =19m.45s.
Santa Lucia PN =19m.23s., PE =19m.28s., N =19m.56s., E =20m.2s., SE =20m.17s., E =20m.28s., N =20m.37s., E =20m.58s. and 21m.1s., N =21m.18s.
Huancayo iP =19m.52s., i =20m.16s. and 20m.28s., iS =22m.29s., iL =23m.9s.
La Paz PE =20m.3s., SN =22m.52s., LN =23m.40s.
La Plata PZ =20m.14s., PN =20m.17s., SN =22m.42s., SE =22m.48s., LN =23m.0s.
Fort de France e =25m.9s.
Tucson iP =28m.15s., ePP =30m.10s., e =34m.53s., eL =53m.30s.
Overton eP =28m.18s.
Pierce Ferry eP =28m.23s.
La Jolla ePZ =28m.39s.
Palomar iP =28m.40s.k.
Riverside iPZ =28m.44s.
Boulder City iP =28m.45s.
Pasadena iP =28m.46s.
Santa Barbara iPZ =28m.54s.
Haiwee ePZ =28m.56s.
Tinemaha ePEN =29m.1s.
Shasta Dam iP =29m.24s.
Helwan e =36m.45s. and 46m.42s.
Ksara ePKP? =37m.15s., PP =39m.55s., S? =53m.25s.
Rome e? =38m.2s., e =45m.6s. and 52m.3s.
Long waves recorded at De Bilt and Riverview.

Sept. 28d. 19h. 29m. 41s. Epicentre 0°·4N. 123°·7E.

$A = -\cdot5548$, $B = +\cdot8319$, $C = +\cdot0070$; $\delta = -9$; $h = +7$;
$D = +\cdot832$, $E = +\cdot555$; $G = -\cdot004$, $H = +\cdot006$, $K = -1\cdot000$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane		39·5	137	e 7 32	− 2	e 13 9	−28	e 16 9	SS	—
Calcutta	N.	40·8	305	e 10 32	?	i 14 4	+ 8	—	—	—
Mizusawa	E.	41·7	21	e 7 50	− 2	e 8 9	?	—	—	—
Riverview		42·7	146	e 8 3	+ 3	i 14 20	− 4	i 9 34	PP	e 25·4
Bombay		53·2	294	e 9 24	+ 2	e 16 43	− 9	—	—	—
Irkutsk		54·2	345	e 9 29	0	e 17 7	+ 1	—	—	—
Frunse		60·9	321	e 10 18	+ 1	e 18 34	0	—	—	—
Andijan		61·4	317	e 10 18	− 2	18 38	− 2	—	—	—
Stalinabad		62·9	314	i 10 31	+ 1	i 18 57	− 3	—	—	—
Tchimkent		63·9	318	e 10 33	− 4	—	—	—	—	—
Samarkand		64·7	314	e 10 42	0	—	—	—	—	—
Sverdlovsk		75·2	330	—	—	e 21 14	−11	—	—	—
Baku		77·4	312	e 11 36	−22	—	—	—	—	—
Grozny		81·0	314	e 12 17	− 1	e 22 17	−10	—	—	—
Leninkan		82·1	311	e 12 24	0	—	—	—	—	—
Helwan		91·8	300	e 13 10	− 1	—	—	i 16 52	PP	—
Collmberg	Z.	102·5	323	e 13 57	− 3	—	—	e 18 22	PP	—
Rome		105·4	315	e 19 5	PP	e 25 28	{− 5}	e 28 19	PS	e 54·8
Shasta Dam		107·7	47	e 14 21	P	—	—	i 18 27	PKP	—
Tinemaha	E.	111·8	50	e 18 38	[+ 1]	—	—	—	—	—
Haiwee		112·3	50	i 18 38	[0]	—	—	—	—	—
Pasadena	Z.	112·8	53	i 18 38a	[− 1]	—	—	e 14 42	P	—
Riverside	Z.	113·5	53	e 18 38	[− 2]	—	—	e 14 53a	P	—
Palomar	Z.	114·0	53	i 18 40	[− 1]	—	—	—	—	—
Boulder City		114·8	50	i 18 53	[+10]	—	—	—	—	—
Overton		114·9	49	i 18 45	[+ 2]	—	—	—	—	—
Pierce Ferry		115·4	49	i 18 43	[− 1]	—	—	—	—	—
Tucson		119·2	52	i 18 50	[− 1]	i 29 2	PKKP	i 20 9	PP	—
Ottawa	Z.	131·3	18	e 19 12	[− 2]	—	—	e 22 28	PKS	—
Tacubaya		133·6	63	i 19 22	[+ 3]	—	—	i 22 47	PKS	—
Bogota		161·6	73	i 20 3	[+ 1]	—	—	e 24 31	PP	—
Fort de France		164·2	16	e 20 0	[− 5]	—	—	—	—	—

Additional readings :—
Brisbane ePE =7m.39s.
Riverview iZ =8m.42s., iEZ =14m.13s., eN =17m.16s., $iS_cS?E$ =17m.27s., $iS_cS?N$ =17m.33s.
Helwan e =19m.33s.
Collmberg eZ =14m.27s., 14m.43s., 15m.35s., 17m.5s., 17m.27s., 19m.55s., and 20m.53s.
Pasadena iZ =19m.33s.
Tacubaya eE =25m.23s. and 25m.43s.
Bogota i =20m.49s.
Long waves were also recorded at Strasbourg.

Sept. 28d. Readings also at 3h. (Fort de France, Bermuda, Harvard, Tucson, Boulder City, Pierce Ferry, and Riverside), 6h. (San Juan), 7h. (Pierce Ferry and near Ferndale), 11h. (Bogota, Huancayo, Copiapo, Santa Lucia, and near La Paz), 12h. (Fort de France, Boulder City, Overton, Pierce Ferry, Tucson, Haiwee, Pasadena, Riverside, Palomar, Tinemaha, and near Tacubaya), 13h. (Huancayo, Copiapo, and near La Paz), 14h. (La Plata, Santa Lucia, Fort de France, Boulder City, Overton, Pierce Ferry, Tucson, Haiwee, Pasadena, Riverside, Palomar, and Tinemaha), 18h. (near Mizusawa), 19h. (Copiapo), 20h. (La Paz (2)), 21h. (near Andijan), 23h. (Riverview).

Sept. 29d. 3h. 1m. 55s. Epicentre 5°·1S. 153°·1E. (as on July 24d.).

$A = -\cdot 8883$, $B = +\cdot 4507$, $C = -\cdot 0883$; $\delta = 0$; $h = +7$;
$D = +\cdot 452$, $E = +\cdot 892$; $G = +\cdot 079$, $H = -\cdot 040$, $K = -\cdot 996$.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Brisbane	N.	22·3	182	i 5 1	0	—	—	—	—	—
Riverview		28·6	184	i 6 4a	+ 4	i 10 55	+ 7	i 6 48	PP	e 13·4
Auckland		37·3	152	7 14	− 2	13 9	+ 5	7 30	pP	19·4
Arapuni		38·7	152	7 11	−16	13 59	+34	9 5	PP	16·8
New Plymouth		38·8	153	7 30	+ 2	13 32	+ 6	—	—	20·4
Tuai		40·0	151	7 41	+ 3	13 33	−11	17 53	S_cS	17·1
Wellington		40·9	155	7 45	− 1	13 49	− 9	8 0	pP	16·9
Christchurch		42·0	159	7 58a	+ 4	14 30	+16	9 45	P_cP	21·1
Miyazaki		42·2	333	7 50	− 6	13 48	−29	i 9 45	PP	17·1
Yokohama		42·2	344	8 0	+ 4	—	—	e 9 56	PP	e 17·8
Tokyo		42·5	344	8 10	+11	13 53	−29	e 17 53	SSS	22·0
Nagoya		42·8	342	8 7	+ 6	13 53	−33	—	—	18·6
Sumoto		42·8	339	e 7 58	− 3	13 48	−38	—	—	17·6
Hikone		43·2	341	8 3	− 1	14 27	− 5	—	—	17·9
Perth		43·9	228	i 8 11	+ 1	13 56	−46	i 14 55	PPS	—
Sendai		44·6	347	8 13	− 3	14 26	−26	17 58	SS	20·0
Wazima		44·9	342	i 8 22	+ 4	15 6	+10	—	—	21·4
Mizusawa	E.	45·4	348	8 21	− 1	e 15 9	+ 5	—	—	e 22·6
	N.	45·4	348	8 29	+ 7	e 15 11	+ 7	—	—	e 22·8
Miyako		45·7	348	8 22	− 2	15 5	− 3	e 18 25	SS	—
Mori		48·4	348	8 47	+ 1	15 46	0	—	—	21·4
Sapporo		49·1	349	8 49	− 2	15 50	− 6	—	—	e 23·1
Honolulu		54·8	60	i 9 35	+ 1	e 17 5	− 9	i 11 28	PP	e 21·8
Calcutta	N.	69·0	297	e 11 11	+ 2	i 19 59	−15	i 26 44	SSS	—
Irkutsk		70·5	332	11 15	− 3	i 20 49	+17	—	—	—
Colombo		74·1	279	11 42	+ 2	21 5?	− 7	—	—	36·1
Kodaikanal	E.	76·8	282	i 12 3	+ 8	i 21 53	+11	14 49	PP	37·2
Hyderabad	N.	77·0	290	12 4	+ 8	21 56	+11	26 52	SS	—
Dehra Dun	N.	79·8	302	(e 12 6)	− 6	(e 22 47)	PS	—	—	(e 39·4)
New Delhi		80·1	299	e 12 11	− 2	i 22 15	− 3	15 13	PP	i 34·0
College		82·0	22	e 12 21	− 2	e 22 28	− 9	e 23 44	PPS	e 34·0
Bombay		82·5	290	i 12 36	+10	i 22 36	− 6	i 28 10	SS	32·2
Sitka		84·4	32	i 12 29	− 7	i 23 8	+ 7	e 17 46	PPP	i 34·4
Frunse		85·1	314	e 12 41	+ 2	23 16	S_cS	—	—	—
Andijan		86·3	311	e 12 45	0	23 17	− 3	i 13 1	PS	—
Ferndale		87·7	49	e 14 13	?	e 24 37	PS	—	—	e 37·1
Ukiah		88·3	51	e 12 43	−12	e 23 35	− 4	i 29 44	SS	i 36·2
Stalinabad		88·7	308	i 12 54	− 3	i 23 42	− 1	—	—	—
Berkeley		88·9	53	e 13 0	+ 2	i 23 43	− 1	e 29 56	SS	e 40·5
Branner		88·9	53	e 13 6	+ 8	e 23 43	− 1	e 16 37	PP	e 37·4
Shasta Dam		89·1	49	e 12 56	− 2	e 23 44	− 2	—	—	—
Lick	N.	89·3	53	e 12 56	− 3	e 23 50	+ 2	e 16 53	PP	e 37·8
Victoria		89·5	42	13 17	+17	23 52	+ 2	33 22	SSS	42·1
Santa Clara		89·6	53	e 12 59	− 2	i 23 49	− 2	—	—	e 36·7
Seattle		90·1	43	e 17 55	PPP	34 16	SSS	—	—	e 38·0
Santa Barbara		90·5	56	e 13 7	+ 2	i 24 1	+ 2	—	—	—
Fresno	N.	90·7	53	e 13 18	+12	e 23 43	[+ 6]	e 14 32	?	e 36·8
Pasadena		91·8	57	i 13 8	− 3	i 24 1	−10	i 16 43	PP	i 38·0
Tinemaha		92·0	54	e 13 11	− 1	e 24 13	+ 1	—	—	—
Haiwee		92·1	54	e 13 18	+ 6	e 25 3	+50	e 38 52	P′P′	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Grand Coulee		92·4	42	e 13 9	− 5	e 23 50	−26	e 14 38	?	—
Riverside		92·4	57	e 13 11	− 3	e 24 11	− 5	e 38 43	P′P′	—
Palomar		92·8	58	i 13 14	− 2	i 24 11	− 8	e 38 36	P′P′	i 42·4
Boulder City		94·6	55	e 13 21	− 3	i 24 29	− 6	e 24 20	S_cS	—
Overton		95·0	54	e 13 7	−19	i 24 25	−13	i 13 20	P_cP	—
Pierce Ferry		95·3	55	e 13 58	+31	i 25 6	+25	i 18 0	PP	—
Sverdlovsk		95·6	327	e 13 33	+ 5	24 8	[+ 4]	i 24 50	S	—
Butte		96·7	45	e 13 55	+22	i 24 34	{+ 3}	e 31 49	SS	i 40·4
Salt Lake City		97·1	49	e 13 51	+16	e 24 15	[+ 3]	e 31 33	SS	i 37·0
Logan		97·2	48	e 13 49	+13	i 24 29	{− 5}	i 17 14	PP	i 40·6
Bozeman		97·7	45	e 13 38	0	e 24 15	[0]	e 17 40	PP	i 38·8
Tucson		97·8	58	e 13 37	− 1	i 25 8	+ 6	e 17 40	PP	e 38·6
Saskatoon		100·3	38	13 35	−15	24 17	[−11]	17 42	PP	41·1
Chihuahua	z.	101·9	62	e 22 37	PKS	i 26 38	PS	e 32 15	SS	53·3
Tananarive		103·0	249	e 14 8	+ 6	25 51	+ 5	18 27	PP	e 50·0
Baku		103·3	311	e 14 15	+12	—	—	e 18 16	PP	—
Guadalajara	N.	104·5	70	—	—	—	—	e 38 35	SSS	e 48·6
Grozny		106·1	314	e 14 19	P	i 25 55	{+17}	e 18 33	PP	—
Leninakan		107·9	311	e 14 28	P	e 25 8	[+ 5]	e 18 58	PP	—
Moscow		108·4	328	18 20	[−10]	25 3	[− 2]	19 2	PP	—
Tacubaya		108·6	72	e 19 2	PP	e 26 13	S	e 21 34	PPP	49·9
Sotchi		110·4	315	e 14 38	P	—	—	i 19 40	PP	—
St. Louis		113·9	50	e 18 22	[−19]	e 25 48	[+20]	i 19 47	PP	—
Yalta		114·0	316	18 43	[+ 2]	—	—	19 49	PP	—
Scoresby Sund		114·6	358	18 35	[− 7]	i 25 52	[+22]	29 5	PS	—
Chicago		115·0	46	e 15 54	?	i 25 53	[+21]	e 19 51	PP	i 43·3
Ksara		115·4	304	e 14 54?	P	29 46	PS	19 56?	PP	—
Upsala		115·8	337	e 19 30	PP	i 25 34	[− 1]	29 30	PS	e 48·1
Johannesburg		118·4	237	20 35	PP	e 26 5	[+20]	31 35	PPS	55·1
Istanbul		118·7	316	e 15 10	P	e 26 59	{− 5}	—	—	—
Warsaw		118·7	328	e 19 7	[+17]	i 25 49	[+ 3]	20 24	PP	e 47·1
Bucharest		119·4	319	e 19 10	[+18]	i 25 52	[+ 4]	e 20 15	PP	—
Bergen		119·7	344	e 19 0	[+ 8]	25 52	[+ 3]	20 2	PP	53·2
Campulung		119·8	320	e 19 14	[+22]	—	—	—	—	—
Helwan		119·9	301	e 18 53	[0]	26 5	[+15]	20 23	PP	—
Copenhagen		120·6	335	e 18 54	[0]	27 36	{+18}	30 18	PS	50·1
Ottawa		121·6	38	18 59	[+ 3]	26 17	[+22]	20 39	PP	49·1
Ivigtut		121·8	12	19 11	[+15]	26 16	[+22]	30 30	PS	—
Sofia		122·0	318	e 19 5	[+ 8]	26 20	[+23]	30 32	PS	—
Budapest	N.	122·3	324	e 19 5	[+ 8]	27 49	{+20}	e 20 51	PP	50·1
	E.	122·3	324	e 19 4	[+ 7]	27 52	{+23}	e 20 45	PP	51·1
Columbia		122·3	53	e 20 43	PP	e 26 0	[+ 2]	e 30 31	PS	e 48·9
Potsdam	N.	122·5	333	e 19 23	[+25]	i 26 7	[+ 9]	i 20 47	PP	51·1
Belgrade		122·8	321	i 18 53	[− 6]	e 25 24	[−35]	e 20 7	PP	48·1
Shawinigan Falls		122·9	36	19 6	[+ 7]	26 22	[+22]	20 54	PP	51·1
Collmberg		123·3	322	i 18 59	[0]	e 26 15	[+14]	e 20 48	PP	e 50·1
Prague		123·3	329	e 19 11	[+12]	e 26 18	[+17]	e 20 51	PP	49·1
Santa Lucia	N.	123·5	136	22 24	PKS	29 16	?	42 6	SSS	53·1
Georgetown		123·6	46	19 15	[+15]	26 2	[0]	20 55	PP	—
Seven Falls		123·7	35	18 55	[− 5]	26 8	[+ 6]	20 55	PP	49·1
Jena		124·2	331	e 19 2	[+ 1]	e 26 9	[+ 6]	e 20 51	PP	—
Cheb		124·4	331	e 19 20	[+19]	e 26 25	[+21]	21 2	PP	57·1
Aberdeen		124·5	344	i 20 37	PP	i 26 28	[+24]	i 38 5	SS	54·5
Philadelphia		124·5	44	e 19 29	[+28]	i 26 14	[+10]	20 40	PP	i 49·2
Fordham		125·0	43	e 19 12	[+10]	26 24	[+18]	i 21 4	PP	51·9
Zagreb		125·0	324	e 19 4	[+ 2]	i 26 12	[+ 6]	i 21 6	PP	e 52·1
Harvard		125·7	40	e 19 2	[− 2]	e 22 32	PKS	e 20 58	PP	e 52·1
Edinburgh		125·9	343	21 8	PP	28 10	{+17}	40 19	SSS	—
Weston		125·9	40	e 19 7	[+ 3]	i 31 11	PS	i 32 15	PPS	—
De Bilt		126·2	336	i 19 8	[+ 3]	e 26 29	[+20]	i 21 5	PP	e 53·1
Durham		126·4	341	i 21 12	PP	30 52	PS	i 38 27	SS	56·4

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		Δ	Az.	P.	O−C.	S.	O−C.	Supp.			L.
		°	°	m. s.	s.	m. s.	s.	m. s.			m.
Triest		126·4	326	e 19 13	[+ 8]	i 26 16	[+ 6]	21 14		PP	i 53·0
Uccle		127·5	336	19 9a	[+ 2]	e 26 35	[+22]	e 21 16		PP	e 56·1
Balboa Heights		127·6	82	e 19 51	[+43]	—	—	21 46		PP	—
Strasbourg		127·6	332	e 19 7	[− 1]	i 26 33	[+20]	i 21 20		PP	58·1
Chur		127·9	330	e 19 2	[− 6]	e 28 19	{+13}	—		—	—
Halifax		128·5	33	22 41	SKP	26 43	[+27]	38 47		SS	53·1
Florence	E.	128·9	325	e 15 55	P	i 26 38	[+21]	—		—	—
Huancayo		128·9	110	e 19 13	[+ 3]	e 26 43	[+26]	21 37		PP	i 53·7
Neuchatel		129·1	330	e 19 10	[0]	—	—	—		—	—
Rome		129·3	322	e 19 11	[0]	i 26 41	[+23]	31 22		PS	55·2
Besançon		129·4	331	e 19 22	[+11]	e 28 20	{+ 4}	e 39 9		SS	59·1
Paris		129·8	335	e 19 15	[+ 3]	i 28 35	{+17}	i 21 12		PP	e 60·1
La Plata	E.	130·6	147	21 41	PP	28 35	{+11}	22 29		PKS	53·1
	N.	130·6	147	19 23	[+10]	26 35	[+14]	21 5?		PP	53·6
	Z.	130·6	147	22 46	PKS	—	—	—		—	65·0
Clermont-Ferrand		131·8	332	i 19 18	[+ 3]	i 22 40	SKP	i 21 47		PP	39·1
Bogota		133·0	88	e 20 5?	[+47]	—	—	i 24 5		PPP	73·1
La Paz		133·9	120	i 19 35k	[+16]	28 29	{−15}	i 22 5		PP	66·1
Barcelona		135·5	329	e 19 34	[+12]	i 26 58	[+26]	i 23 8		PKS	63·7
Bermuda		135·5	48	i 19 47	[+25]	i 23 1	PKS	i 22 9		PP	e 55·2
Tortosa		136·8	329	i 19 25	[0]	26 30	[− 4]	22 17		PP	56·9
Algiers		138·2	322	e 19 26	[− 1]	i 26 53	[+17]	i 22 35		PP	56·1
Alicante		139·1	328	19 23	[− 6]	26 27	[−11]	19 32		pPKP	66·1
San Juan		139·5	67	e 19 31	[+ 1]	i 23 20	PKS	e 22 36		PP	i 53·3
Toledo		139·7	333	i 19 27	[− 3]	26 38	[− 1]	i 19 47		pPKP	66·2
Granada		142·5	330	i 19 34	[− 1]	29 50	{+ 7}	20 33		pPKP	65·4
Lisbon		142·9	337	19 28?	[− 8]	29 39	{− 5}	22 45		PP	65·9
Fort de France		145·0	73	e 19 34	[− 5]	—	—	—		—	—

Additional readings and notes :—
Riverview iN =6m.18s., 7m.16s., 7m.57s., and 10m.17s., iE =11m.3s., iN =11m.15s., and 11m.22s., iE =11m.31s., iN =12m.9s., iE =12m.28s.
Auckland PP =8m.50s., P_cP =9m.17s., sS =14m.16s., SS =15m.36s., S_cS? =16m.20s.?
Wellington PP =8m.30s., PPP =8m.50s., P_cP =9m.50s.
Christchurch SS =17m.22s., S_cS =17m.43s.
Miyazaki i =8m.19s.
Perth i =10m.15s. and 17m.50s.
Honolulu iPPP =12m.41s. and 14m.27s.
Kodaikanal PS =22m.24s., SS =26m.38s.
Hyderabad iP =12m.20s., PS =22m.35s.
Dehra Dun readings increased by 4m.
New Delhi iPE =12m.22s., iPN =12m.25s., iSE =22m.10s., S_cSN =22m.38s., PSN =22m.53s., PPSN =23m.13s., SSN =27m.27s., SSE =27m.31s., iN =33m.39s.
College e =12m.52s. and 14m.34s., ePP =15m.51s., iSS =28m.2s., eSSS =31m.41s.
Bombay iPPE =15m.42s., LE =31m.42s.
Sitka i =13m.38s., 15m.2s., eS =22m.45s., iSS =28m.25s., iSSS =32m.5s.
Ukiah e =14m.50s., ePP =15m.50s., eS =23m.29s.
Berkeley iZ =13m.11s., eN =13m.19s., eE =13m.31s., iZ =13m.46s., eZ =16m.43s., iSZ =22m.17s., eE =30m.11s., eN =36m.29s.
Branner eN =20m.25s., eSN =23m.58s., eN =29m.56s., and 33m.27s.
Victoria S =30m.3s., i =36m.48s.
Seattle e =18m.2s., 21m.52s., and 22m.55s., iSS =28m.23s., e =34m.35s.
Pasadena iZ =13m.28s. and 38m.52s., iSN =24m.6s., eP'P'Z =38m.47s.
Riverside iZ =13m.14s.
Palomar iZ =13m.33s. and 13m.40s., iSEN =23m.54s.
Sverdlovsk sPP =17m.35s.
Butte e =25m.9s. and 29m.0s.
Salt Lake City e =14m.30s., ePP =17m.52s., iS =25m.16s., iPS =26m.43s., e =28m.18s., iSSS =33m.59s.
Logan i =14m.12s. and 27m.16s.
Bozeman ePPP =19m.54s., eS =24m.52s., i =25m.17s., e =30m.34s., iSS =31m.51s., eSSS =35m.26s.
Tucson e =21m.17s., eSKS =24m.34s., ePS =26m.41s., iPPS =27m.19s., ePKKP =30m.17s., eSS =31m.1s., iSS =31m.53s., eSSS =35m.22s., i =37m.5s., ePKP,PKP =38m.35s.
Saskatoon SKKS =25m.2s., PS =26m.37s., SS =32m.5s., SS =35m.29s.
Chihuahua eZ =31m.13s. and 35m.50s., iZ =46m.47s.
Tananarive PPP? =21m.6s., SKS =24m.47s., SKKS =25m.20s., PS? =27m.36s., PPS =28m.21s., SS =32m.58s., eQ =42m.52s.
Moscow P =14m.26s., SKKS =25m.59s., PS =28m.13s.
Tacubaya iE =20m.9s., eEN =25m.34s., ePPSE =28m.45s., eE =29m.30s., eN =30m.23s., eE =35m.14s., eN =45m.7s., eZ =48m.30s.

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St. Louis eP?E =14m.56s., eE =15m.0s., eN =23m.20s., and 24m.46s., eSKKS?N = 27m.0s., eSN =27m.34s., ePSN =29m.6s., iPSZ =29m.10s.
Scoresby Sund P =15m.6s., i =19m.53s., 20m.38s., 21m.35s., iSKKSN =26m.59s., eSE =27m.43s., PS =29m.5s., PPS =30m.23s., 32m.35s., 36m.5s.
Chicago e =22m.6s., eS =27m.30s., iPS =29m.32s., eSS =35m.14s., iSS =35m.45s., eSSS =40m.3s.
Ksara PPS =31m.6s.
Upsala eN =19m.39s., PPE =19m.53s., e =20m.49s., eE =25m.24s., iSKS =25m.53s., iSKKS?E =26m.50s., i =27m.0s.?, iSS =35m.51s., SSS =39m.32s., eE =45m.54s.
Johannesburg iSKKS =27m.35s., iEN =28m.23s., ePSEN =30m.23s., eSSN =36m.29s., eN =38m.35s., eQEN =48m.59s.
Warsaw ePKP?E =19m.17s., PPN =20m.29s., PPPE =23m.16s., PPPN =23m.19s., iSKSN =26m.2s., iSKSE =26m.5s., iSKKSN =27m.25s., iPKKPEN =28m.59s., SSN =37m.5s., SSE =37m.23s., SSSEN =41m.52s., many other readings without phase.
Bucharest eE =19m.26s. and 20m.26s., ePcPE =20m.48s., eSN =25m.55s., iE =26m.10s., iSSN =28m.39s., iSSE =28m.43s., LEN =33m.5s.?
Bergen ePZ =15m.14s., eZ =21m.33s., iN =26m.9s., SKKS =27m.28s., eEN = 30m.2s.?, eN =31m.12s., PPSE =31m.37s., eZ =42m.17s., QE =50·4m.
Helwan eP =15m.26s., S =28m.13s., PS =30m.11s.
Copenhagen i =20m.36s., 26m.3s., and 26m.14s., SS =36m.53s.
Ottawa SKKS =27m.47s., SN =28m.41s., PS =30m.29s., PPSZ =31m.47s., SS =37m.17s. e =40m.17s., SSS =41m.53s., e =46m.5s.
Ivigtut 20m.35s., SKKS =27m.44s., PPS =31m.47s., SS =36m.59s.
Sofia eE =19m.14s., eN =19m.26s., ePPEN =20m.46s., eSKKSEN =27m.50s.
Budapest ePPPN =26m.9s., PPPE =26m.17s., SKKS =30m.35s., iN =31m.47s., eE =32m.12s., iN =39m.12s., and 40m.46s.
Columbia e =23m.15s., eSS =36m.48s., eSSS =41m.19s.
Potsdam iSKSN =26m.24s., iSKKSN =27m.36s., iN =27m.51s., iPSN =30m.41s., eSSPN =37m.29s.
Belgrade ePS =29m.44s., eSS =36m.22s., SSS =40m.5s.?
Shawinigan Falls PPP =22m.20s., e =24m.2s., SKKS =27m.54s., e =31m.24s., SS = 37m.30s.
Collmberg ePZ =15m.31s., ePPP =23m.16s., eSKKSZ =27m.20s., eSKKKS?E = 27m.53s., ePKKPZ =28m.49s., ePSZ =30m.37s., eSSEN =38m.9s., other readings given without phase.
Prague eP =16m.11s., eSKKS =27m.53s., ePS =30m.45s., eSS =37m.23s., eSSS = 41m.41s.
Georgetown PS =30m.53s., SS =37m.41s.
Seven Falls SKP =22m.11s., SKKS =27m.59s., S =38m.50s., PS =30m.45s., SS = 37m.30s., SSS =41m.11s.
Jena eE =19m.5s., eN =20m.45s., eE =26m.25s., eEN =30m.49s., eN =30m.52s. and 38m.9s., eE =38m.17s.
Cheb e =20m.15s., SKKS =28m.3s., iPS =30m.54s., eSS =38m.2s., eSSS =41m.38s.
Aberdeen iPEN =20m.55s., iEN =28m.2s., iSKSEN =30m.51s., iSS =38m.31s.
Philadelphia iS =29m.1s., ePS =30m.49s., i =34m.11s., eSS =37m.1s., iSS =37m.44s., eSSS =41m.51s.
Fordham eP =15m.54s., iPKP =19m.18s.
Zagreb e =19m.10s., 19m.20s., 22m.57s., and 25m.8s., eSKKS =28m.4s., eNE =30m.58s., ePSNE =32m.8s., ePPSNE =33m.18s., eSSNE =38m.4s., e =40m.5s., eSSS =43m.5s.
Harvard i =19m.17s., 21m.12s., and 26m.32s., eSS =38m.2s.
Edinburgh readings reduced by 2m.
Weston e =15m.57s.
De Bilt eP =15m.57s., ePKS =22m.37s., iSKKS =28m.8s., ePS =31m.5s.?, eSS = 38m.35s.
Durham eE=20m.41s., iEN =22m.37s., 26m.21s., 26m.31s., and 28m.15s., S?E =32m.22s.
Uccle e =19m.22s., ePPN =21m.20s., eSKP =22m.24s., ePPPN =24m.8s., eSKKSE = 28m.13s., eSKKSN =28m.17s., eSN =29m.40s., ePSE =31m.34s., ePSN =31m.37s., ePPS =32m.43s., iSSEN =39m.6s., iSS =39m.21s., and other unidentified readings.
Strasbourg e =19m.26s., eSKP =22m.31s., iPPP =24m.10s., i =31m.21s., iPS =31m.35s., iPPS =33m.1s., iSS =38m.7s.
Halifax S =31m.41s., SSS =45m.5s.?
Huancayo i =20m.6s and 20m.30s., iPKS =22m.22s., e =27m.30s., iS =29m.10s., iPS = 31m.40s., i =32m.27s., iSS =38m.42s., iSSS =43m.25s.
Rome eP? =16m.7s., eZ =19m.27s., i =21m.31s., iZ =22m.37s., i =22m.43s. and 23m.5s., iN =24m.49s., iS?E =28m.1s., iE =28m.35s., PS? =30m.13s., eE =51m.52s.
Besançon eSKP =22m.45s.
Rome i =19m.26s. and 21m.36s., iPKS =22m.28s., iPSKS =26m.37s., iPS =31m.36s., iSS =38m.26s., e = 39m.17s., i =41m.24s. and 41m.32s., eQ =53m.5s.
Santa Lucia N =39m.6s.
La Plata E. PPP =26m.42s., SKKS =31m.17s. and 38m.41s., SS =41m.29s. and 43m.53s., SSS =46m.5s.
La Plata N. PKS? =22m.30s., SKKS =28m.35s., SKSP =31m.24s., SS =38m.35s. and 41m.17s., SSS =43m.35s.
Clermont-Ferrand eS? =28m.42s.
La Paz SKPZ =22m.49s., PPPN =25m.21s., PPS =34m.13s., SSN =38m.43s., SSSN =45m.0s., QN =56·9m.
Barcelona i =24m.22s.

Continued on next page.

Bermuda iSKSP =32m.13s., ePS =33m.15s., iSS =40m.0s., iSSS =44m.31s.
Tortosa SKPEN =23m.12s., PPPN =24m.36s., SKKSN =29m.21s., SKSPN =32m.6s., PSN =32m.28s., PPSN =34m.12s., SKKSN =35m.45s., PKP,PKPN =37m.43s., SSN =39m.10s., SSPN =40m.47s., SSSN =44m.40s.
Algiers iPKP$_2$ =19m.47s., iSKP =23m.10s., i =23m.21s., iPKS? =23m.31s., iSKKS =29m.21s., PS =32m.5s., PPS =34m.31s., SS =40m.35s.
Alicante PP =21m.23s., PKS =22m.3s., i =23m.35s., PPP =25m.23s., PKKP =28m.21s., SKKS =29m.7s., PS =32m.37s., pPS =34m.49s., SS =39m.59s., PSS =41m.23s., SSS =44m.13s., Q =57m.59s.,
San Juan iPKP =19m.49s., i =30m.10s. and 37m.23s., eSS =40m.8s., i =42m.26s., iSSS =45m.41s.
Toledo ipPKPZ =22m.38s., iPKSZ =23m.28s., PPPZ =25m.43s., P$_c$P,PKPZ =27m.35s., SKSPZ =32m.53s., S$_c$SPKPZ =34m.46s., iSSE =41m.25s., SSSE =47m.29s., iQE =58m.26s.
Granada iPP =22m.56s., ipPP =23m.34s., PPP =26m.24s., SKSP =33m.5s., SS =41m.32s., Q =59m.5s.
Lisbon PKPNZ =19m.39s., Z =23m.24s., E =29m.13s., iEN =29m.56s., SSPN =41m.41s., SSPE =41m.53s.?, SSSN =46m.5s., SSSE =46m.17s., QN =60m.17s.
Long waves were also recorded at Oaxaca.

Sept. 29d. 9h. South West Pacific.
Wellington e =15m. and 27m., L =29·5m.
Christchurch P =17m.10s., S =23m.40s., Q =27m.7s., R =30m.49s.
Riverview iZ =17m.23s., eLN =20·6m.
Irkutsk eP =20m.42s., eS =29m.40s.
Boulder City eP =21m.48s.
Bombay eEN =22m.0s.
Frunse eP =22m.6s.
Andijan eP =22m.11s., eS =32m.35s.
Stalinabad iP =22m.23s., iS$_c$S =33m.18s.
Samarkand eP =22m.26s.
Shasta Dam eP =22m.27s.
Riverside ePZ =22m.37s., iZ =23m.0s.
Pasadena eZ =22m.50s., eLZ =51m.48s.
Pierce Ferry eP =22m.52s.
Palomar eZ =23m.0s.
Haiwee ePZ =23m.10s.
Tucson ePP =27m.11s., ePS =36m.23s.
Collmberg ePZ =28m.25s., eZ =28m.28s., 28m.37s., 28m.52s., 29m.53s., and 30m.21s.
Strasbourg ePKP =28m.34s., ePP =30m.43s., eSKS =35m.55s., SSS? =53m.0s., eL =70m.0s.
Ksara ePP =29m.13s., ePS =38m.58s.
Rome P =31m.56s., eSKS? =42m.28s., eSSS? =54m.44s., eL =67m.40s.
Paris e =32m.1s., eL =64m.0s.
Sverdlovsk iSKS =33m.26s., S =34m.5s., ePS =35m.24s.
Baku eSKS =34m.11s.
Grozny SKS =34m.18s.
St. Louis eSKKS?E =35m.58s., ePS?E =38m.55s., eSS?E =44m.39s.
Long waves were also recorded at Arapuni, Auckland, Philadelphia, De Bilt, Copenhagen, and Cheb.

Sept. 29d. 20h. 22m. 7s. Epicentre 12°·6N. 47°·9E.

A = +·6545, B = +·7244, C = +·2165; δ = 0; h = +7;
D = +·742, E = −·670; G = +·145, H = +·161, K = −·976.

		△	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan		23·1	320	5 9	+ 1	e 9 26	+10	5 38	PP	—
Ksara		23·8	334	5 18	+ 3	e 9 46	+18	—	—	—
Bombay		24·8	72	i 5 26	+ 1	i 9 51	+ 5	e 9 57	S	—
Baku		27·7	3	e 5 57	+ 5	—	—	—	—	—
Leninakan		28·3	353	e 5 57	0	—	—	—	—	—
Kodaikanal	E.	29·1	91	e 6 3	− 1	—	—	—	—	—
Grozny		30·7	357	e 6 17	− 2	—	—	—	—	—
Samarkand		31·8	28	e 6 25	− 3	—	—	—	—	—
Stalinabad		31·8	32	6 28	0	—	—	—	—	—
Istanbul		32·8	333	e 6 38	+ 1	e 12 7	+13	—	—	—
Tashkent		34·1	29	e 6 45	− 3	e 12 17	+ 3	—	—	—
Andijan		35·3	33	e 7 1	+ 2	12 34	+ 1	—	—	—
Bucharest		36·8	333	6 53?	−18	—	—	—	—	18·9
Frunse		38·0	32	e 7 21	0	—	—	—	—	—
Calcutta	N.	39·7	70	—	—	e 13 33	− 7	e 18 18	S$_c$S	i 19·5

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Rome		42·4	320	e 8 0	+ 2	e 14 27	+ 7	e 17 45	SS	e 21·2
Zagreb		42·8	327	e 8 2	+ 1	—	—	—	—	—
Moscow		43·8	351	i 8 8	− 1	14 44	+ 4	—	—	—
Triest		43·9	325	i 8 11	+ 1	i 14 46	+ 4	e 18 17	S_cS	—
Florence		44·2	321	e 8 21	+ 9	i 14 45	− 1	—	—	—
Sverdlovsk		45·2	9	i 8 21	+ 1	15 0	− 1	—	—	—
Warsaw		45·2	337	e 8 28	+ 8	e 15 3	+ 2	e 18 33	SS	e 25·9
Chur		46·9	324	e 8 32	− 2	—	—	—	—	—
Cheb		47·4	329	—	—	e 17 53?	S_cS	—	—	—
Collmberg	Z.	47·8	330	e 8 40	− 1	—	—	e 10 9	P_cP	—
Zürich		47·8	324	e 8 40	− 1	—	—	—	—	—
Basle		48·6	325	e 8 45	− 2	—	—	—	—	—
Strasbourg		48·9	326	e 8 49	− 1	e 15 56	+ 3	e 10 43	PP	e 28·4
Alicante		49·9	310	9 19	+22	e 19 47	SS	—	—	38·7
Tortosa	N.	50·0	313	e 9 8	+10	—	—	—	—	e 33·9
Clermont-Ferrand		50·2	320	e 9 10	+10	e 16 12	+ 1	—	—	37·9
Copenhagen		51·0	335	e 9 6	0	i 16 26	+ 4	11 17	PP	25·9
Uccle		51·9	326	e 9 11	− 1	16 40	+ 5	—	—	e 24·9
Granada		52·0	307	i 9 16a	+ 3	i 16 49	+13	9 28	pP	e 30·2
Paris		52·0	323	e 8 52	−21	—	—	—	—	e 30·9
De Bilt		52·2	328	i 9 16	+ 1	e 16 48	+ 9	—	—	27·9
Pierce Ferry		128·6	340	e 20 12	[+63]	—	—	—	—	—
Tucson		131·0	335	e 19 17	[+ 3]	—	—	—	—	—

Additional readings :—
Helwan S_cS =16m.21s.
Rome PP? =9m.21s., PPP? =10m.0s.
Warsaw ePE =8m.33s., eSN =15m.11s., eSSSE =18m.42s.
Collmberg eZ =8m.46s., 8m.50s., 9m.18s., 9m.35s., and 10m.34s.
Strasbourg e =8m.53s., i =9m.0s., e =9m.18s., eSS =19m.29s.
Granada P_cP =10m.6s., PP =11m.19s., PPP =11m.55s., PS =17m.43s., S_cS =18m.55s., SS =20m.43s.

Sept. 29d. Readings also at 0h. (Shasta Dam, Pierce Ferry, Riverside, Pasadena, Palomar, Boulder City, Tucson, and near La Paz), 1h. (Tucson, Pierce Ferry, Riverside, Boulder City, Palomar, near Oaxaca and Tacubaya), 2h. (near Fresno), 3h. (Brisbane, Andijan, Balboa Heights, and Mineral), 4h. (Pasadena, Riverside, and Palomar), 5h. (Collmberg, Samarkand, Fort de France, Brisbane (2), Pasadena, Palomar, Riverside, Tucson, Overton, and Boulder City (2)), 6h. (St. Louis), 8h. (St. Louis, Tucson, Pierce Ferry, Boulder City, Overton, Palomar, Riverside, Tinemaha, Brisbane, Riverview, near Oaxaca and Tacubaya), 9h. (Rome, Christchurch, Shasta Dam, Pasadena, Riverside, Tinemaha, Boulder City, Palomar, and Tucson), 12h. (Shasta Dam), 14h. (Brisbane, Riverview, and Balboa Heights), 15h. (Christchurch, Wellington, Haiwee, Riverside, Boulder City, Pierce Ferry, Palomar, La Jolla, and Tucson), 16h. (Collmberg and near Mizusawa), 17h. (Andijan and near Stalinabad), 18h. (near Mizusawa), 19h. (La Paz, Shasta Dam, Pasadena, Riverside, Palomar, Pierce Ferry, Boulder City, La Jolla, and near Stalinabad), 20h. (Pasadena, Riverside, Palomar, Haiwee, Boulder City, Pierce Ferry, Overton, and Tucson), 21h. (Collmberg and Helwan, Ksara (2)), 22h. (Copiapo).

Sept. 30d. 0h. 59m. 38s. Epicentre 13°·6S. 75°·9W. Depth of focus 0·005.

Scale VI at Pisco. Epicentre 12°·6S. 75°·8W. J.S.A. Depth 70-100km.
13°S. 76°W. Pasadena.

E. Silgado.
" Informe preliminar sobre el sismo del 29 Sept. en Pisco." Datos seismológicos del Perú, 1946. Instituto Geológico del Perú, Bulletin 7, Lima, 1947, pp. 23-25 with photograph.

$A = +·2369$, $B = -·9430$, $C = -·2337$; $\delta = -1$; $h = +6$;
$D = -·970$, $E = -·244$; $G = -·056$, $H = +·227$, $K = -·972$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Huancayo		1·6	20	i 0 28	+ 1	—	—	—	—	i 1·7
La Paz		8·0	111	i 1 58a	+ 2	i 3 32	+ 6	—	—	4·4
Bogota		18·2	6	i 4 14	+ 4	e 7 26	− 1	i 4 26	PP	—
Santa Lucia	N.	20·3	167	5 20	+47	9 17	+65	—	—	—
Balboa Heights		22·7	352	e 5 0	+ 3	e 9 8	+12	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata		26·7	145	5 33	− 2	9 58	− 6	6 28	PP	13·6
Fort de France		31·7	29	e 6 16	− 4	—	—	—	—	—
San Juan		33·2	17	i 6 32	− 1	i 11 44	− 3	i 6 50	pP	i 13·0
Tacubaya		40·0	325	i 7 35a	+ 5	e 13 37	+ 6	e 17 31	S_cS	—
Bermuda		47·0	13	e 8 24	− 3	i 15 12	0	i 9 44	PP	i 18·9
Columbia		47·6	355	e 8 29	− 2	e 15 18	− 3	e 18 13	S_cP	e 19·0
Georgetown		52·2	359	e 9 10	+ 4	i 16 28	+ 3	9 26	pP	—
Philadelphia		53·3	1	e 9 12	− 3	i 16 40	0	e 9 42	pP	e 21·9
St. Louis		53·7	346	e 9 15	− 3	e 16 34	−11	i 9 31	pP	—
Fordham		54·2	2	e 9 22	+ 1	i 16 51	− 1	—	—	—
Weston		55·9	5	i 9 33	− 1	i 17 15	+ 1	e 19 12	S_cS	—
Harvard		56·0	5	e 9 33	− 1	e 17 16	0	e 19 14	S_cS	e 23·4
Chicago		56·2	349	—	—	e 17 9	− 9	e 17 40	sS	e 23·1
Tucson		56·5	324	i 9 37	− 1	e 17 7	−15	i 10 7	pP	e 22·4
Ottawa		58·7	0	9 52	− 1	17 52	+ 1	24 34	SSS	29·4
Denver		59·6	334	e 10 2	+ 3	i 18 5	+ 2	—	—	—
Shawinigan Falls		59·9	3	10 4	+ 2	18 11	+ 4	—	—	—
Seven Falls		60·6	4	10 9	+ 3	18 8	− 8	—	—	24·4
La Jolla		60·8	320	e 10 7	− 1	—	—	—	—	—
Palomar		60·9	321	i 10 8k	0	—	—	i 10 29	pP	—
Pierce Ferry		61·2	325	i 10 6	− 4	i 18 19	− 4	i 10 10	pP	—
Boulder City		61·5	324	i 10 12	0	e 18 32	+ 5	—	—	—
Riverside		61·6	321	i 10 11k	− 2	e 18 33	+ 5	i 10 31	pP	—
Pasadena		61·7	321	i 10 17k	+ 3	i 18 42	+12	i 10 37	pP	e 30·7
Overton		61·7	325	i 10 16	+ 2	e 18 37	+ 7	—	—	—
Haiwee		63·4	323	e 10 25	0	—	—	—	—	—
Santa Barbara	Z.	63·4	320	e 10 25	0	—	—	—	—	—
Salt Lake City		63·5	330	e 10 25	− 1	e 18 53	+ 1	e 11 2	sP	e 27·1
Tinemaha		64·3	323	i 10 31	0	e 19 6	+ 4	—	—	—
Fresno	N.	64·9	322	e 10 34	− 1	—	—	e 13 33	PP	—
Lick		66·4	321	e 10 44	0	—	—	e 10 58	pP	—
Branner		66·8	321	i 10 48	+ 1	e 19 38	+ 5	—	—	—
Bozeman		67·0	334	—	—	e 19 37	+ 2	e 24 27	SS	e 32·5
Berkeley		67·2	321	e 10 49	0	e 19 44	+ 6	—	—	e 32·8
Shasta Dam		69·1	324	i 10 59	− 2	e 20 0	0	—	—	—
Grand Coulee		72·3	331	i 11 20	0	—	—	—	—	—
Lisbon		81·1	47	12 12a	+ 2	i 22 19	+ 6	12 32	pP	38·2
Granada		84·5	50	i 12 32a	+ 5	i 22 46	− 1	12 53	pP	42·0
Toledo		85·2	47	i 12 34	+ 3	i 22 49	− 5	12 39	P_cP	40·0
Alicante		87·2	49	e 12 51	+11	i 23 17	+ 4	16 3	PP	e 40·2
Tortosa		88·8	47	13 3	+15	23 15	−13	16 8	PP	e 42·4
Clermont-Ferrand		92·1	44	—	—	e 23 33	[+ 4]	—	—	33·4
Paris		92·6	41	e 13 25	+19	23 31	[− 1]	17 1	PP	e 42·4
Uccle		94·4	39	—	—	e 23 45	[+ 3]	—	—	e 46·4
De Bilt		95·2	37	e 13 36	+18	e 24 30	+ 6	e 17 26	PP	e 45·4
Christchurch		95·7	225	—	—	25 22?	PS	—	—	—
Strasbourg		95·9	42	e 13 36	+15	e 23 52	[+ 2]	e 26 0	PS	41·7
Zürich		96·2	43	e 13 26	+ 4	e 23 57	[+ 6]	—	—	—
Chur		96·7	44	e 13 27k	+ 3	—	—	—	—	—
Auckland		96·8	230	—	—	e 36 22?	?	—	—	—
Florence		97·2	47	e 17 42	PP	i 24 34	− 7	—	—	—
Rome		97·8	49	e 13 41	+12	24 52	+ 6	e 17 19	PP	45·0
Cheb		99·2	40	—	—	e 24 13	[+ 6]	e 29 22?	?	e 47·4
Triest		99·3	46	e 17 38	PP	i 24 13	[+ 6]	i 26 24?	PS	e 46·5
Collmberg		99·8	39	e 13 42	+ 4	—	—	e 17 44	PP	e 48·4
Copenhagen		100·2	36	17 47	PP	25 11	+ 5	i 24 14	SKS	47·4
Prague		100·5	41	—	—	e 24 16	[+ 3]	(24 52)	S	24·9
Upsala		103·4	32	—	—	e 25 37	+ 4	e 24 24	SKS	e 49·4
Warsaw	E.	104·9	39	—	—	e 24 34	[0]	e 27 27	PS	e 52·4
Istanbul		110·0	51	e 17 56?	PP	e 29 4	PPS	—	—	—

Continued on next page,

	Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
	°	°	m. s.	s.	m. s.	s.	m. s.		m.
Helwan	111·5	64	e 18 55	PP	—	—	—	—	—
Riverview	115·0	222	—	—	e 29 40	PS	e 35 52	SSP	e 43·5
Ksara	115·5	60	e 19 39	PP	29 14	PS	19 57	pPP	—
Tashkent	139·0	42	e 19 22	[+ 3]	e 22 44	PKS	e 24 26	PPP	—
Stalinabad	140·1	45	19 26	[+ 5]	23 4	PKS	—	—	—
Andijan	141·3	41	19 34	[+11]	23 2	PKS	—	—	—
Bombay	149·5	76	e 19 42	[+ 4]	—	—	—	—	e 75·4

Additional readings :—
Bogota iPPP =4m.30s., i =5m.2s., eSS =7m.52s., eSSS =8m.4s., iP_cP =8m.53s., i = 9m.59s., eS_cP =11m.51s.
Santa Lucia N =5m.53s.
La Plata E =5m.46s., N =5m.52s., Z =6m.4s., PPPN =6m.34s., N =7m.22s., E = 7m.46s., N =7m.58s., SSE =10m.40s.
San Juan iPP =7m.38s., esPP =8m.26s., i =9m.30s. and 12m.29s.
Tacubaya eN =15m.38s.
Bermuda iS_cP =17m.52s.
Georgetown sS =16m.57s., SS =20m.10s.
Philadelphia $ePcP$ =10m.25s., ePP =11m.56s., iS_cP =18m.54s., eSS =20m.23s.
St. Louis iSE =16m.41s., isSE =17m.9s., iE =18m.55s.
Weston eSS =20m.58s.
Harvard e =18m.8s.
Chicago eS_cP =19m.10s.
Tucson iPP =11m.46s., esS =18m.1s., eS_cP =18m.36s., eSS =21m.1s., esSS =21m.54s., eSSS =23m.28s., iPKP,PKP =39m.42s.
Palomar isPZ =10m.40s., iZ =11m.27s., ePKP,PKPZ =39m.25s., eZ =40m.24s., eSKP,PKPZ =43m.11s.
Pierce Ferry i =18m.9s.
Pasadena isPZ =10m.48s., ePKP,PKPZ =39m.25s., eSKP,PKPZ =43m.11s.
Salt Lake City ePP =12m.44s., eSS =19m.30s.
Branner eN =11m.30s.
Berkeley ePNZ =11m.24s.
Granada P_cP =12m.50s., pP_cP =13m.5s., sP =13m.26s., PP =15m.23s., pPPP = 16m.11s., sS =23m.17s., SS =28m.10s.
Toledo iS_cSEN =23m.4s., PSE =23m.34s.
Alicante PPP =18m.1s., SKS =23m.5s., S_cS =23m.25s., PPS =24m.7s., SS =28m.39s., Q =34m.45s.
Tortosa S_cSN =23m.36s., PSN =24m.49s.
Paris PS =25m.17s., e =27m.1s.
De Bilt ePPP =19m.26s., iSKS =23m.49s.
Strasbourg ePPS? =27m.37s.
Rome e =17m.42s., iSKS =24m.3s., SKKS =24m.38s., PPS =26m.24s., SS =31m.17s., SSS? =35m.44s.
Cheb e =39m.22s.
Triest eSS =31m.50s.
Collmberg eZ =13m.59s. and 14m.31s.
Copenhagen 25m.49s., SS =31m.46s.
Warsaw eE =25m.16s. and 28m.40s.
Helwan e =19m.7s. and 19m.40s.
Long waves were also recorded at Arapuni, Wellington, Kodaikanal, and Barcelona.

Sept. 30d. 11h. 29m. 18s. Epicentre 38°·5S. 17°·0W.

$A = +·7503$, $B = -·2294$, $C = -·6199$; $\delta = -15$; $h = -1$;
$D = -·292$, $E = -·956$; $G = -·593$, $H = +·181$, $K = -·785$.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
La Plata	E.	32·8	263	6 40	+ 3	12 1	+ 7	7 42	PP	15·1
La Paz		49·7	282	i 8 57k	+ 1	i 16 7	+ 3	i 16 20	PS	25·0
Huancayo		57·9	280	e 9 55	− 1	e 17 57	+ 2	e 12 4	PP	e 25·1
Tananarive		58·7	90	e 18 26	PS	—	—	—	—	e 28·0
Granada		76·3	11	11 52k	0	i 21 37	0	12 4	P_cP	38·2
Algiers		77·2	17	e 11 59	+ 2	21 42	− 5	—	—	—
Alicante		78·0	13	i 12 3	+ 1	e 21 47	− 8	12 31	pP	e 38·0
Toledo	Z.	78·9	10	e 12 3	− 4	—	—	—	—	—
Tortosa	N.	80·5	14	e 12 16	+ 1	e 22 20	− 2	i 16 36	PPP	e 38·7
Helwan		81·6	41	i 12 21a	0	22 32	− 1	15 30	PP	—
Bermuda		83·3	321	e 12 4	−26	e 22 47	− 3	—	—	e 34·2
Rome		84·4	22	12 34	− 2	23 0	− 1	15 48	PP	40·1
Clermont-Ferrand		85·8	14	i 12 44	+ 2	e 23 17	+ 2	—	—	e 38·7
Florence	E.	85·8	20	e 10 2	?	i 21 2	?	—	—	—
Ksara		87·1	42	e 12 51	+ 2	e 23 14	[− 1]	—	—	—

Continued on next page.

		Δ	Az.	P.	O−C.	S.	O−C.	Supp.		L.
		°	°	m. s.	s.	m. s.	s.	m. s.		m.
Chur		88·2	18	e 12 52	− 2	—	—	—	—	—
Triest		88·2	21	e 12 54	0	i 23 39	+ 1	i 24 38	PS	—
Basle		88·4	17	e 12 55	0	—	—	—	—	—
Zürich		88·5	17	e 12 57	+ 1	—	—	—	—	—
Paris		88·6	13	i 12 57	+ 1	e 24 15	PS	e 16 41	PP	e 41·7
Zagreb		89·0	23	e 12 56k	− 2	—	—	—	—	—
Strasbourg		89·5	16	e 12 58	− 2	e 23 30	[0]	e 17 5	PP	e 42·7
Istanbul		89·7	33	e 13 1	0	e 22 14	?	—	—	—
Uccle		90·9	13	e 13 5	− 2	e 24 4	+ 1	—	—	e 43·7
Cheb		91·9	18	e 24 18	S	(e 24 18)	+ 7	e 30 14	SS	e 48·7
De Bilt		92·3	13	e 14 6	?	e 24 21	+ 6	e 25 27	PS	e 43·7
Prague		92·4	20	e 14 30	?	e 24 20	+ 4	—	—	e 46·7
Collmberg		93·2	18	e 13 17	0	—	—	e 16 56	PP	e 48·7
Durham		93·8	9	—	—	24 41	+13	25 48	PS	—
Weston		94·3	323	e 13 20	− 3	e 25 40	PS	e 17 20	PP	—
Philadelphia		94·5	319	—	—	e 24 37	+ 3	e 25 49	PS	e 43·7
Aberdeen		96·1	8	e 18 42?	PP	—	—	—	—	—
Warsaw		96·2	22	—	—	e 24 46	− 2	e 27 42	PPS	e 48·7
Copenhagen		97·1	16	i 13 37	+ 2	25 7	+11	17 25	PP	45·7
Colombo	E.	99·6	89	24 35	SKS	(24 35)	[+10]	—	—	48·6
Kodaikanal	E.	99·8	84	e 18 1	PP	—	—	—	—	—
Bombay		101·4	75	e 19 8	?	—	—	—	—	—
St. Louis	E.	102·0	310	e 18 5	PP	i 25 32	− 5	i 27 11	PS	e 49·0
Moscow		104·7	29	e 14 23	+14	18 34	PP	e 18 20	PKP	—
Riverview		107·2	170	e 13 58	−22	i 24 27	[−33]	—	—	e 54·2
New Delhi	N.	110·2	69	—	—	i 29 54	PPS	e 34 46	SS	—
Tashkent		111·7	54	19 18	PP	—	—	—	—	—
Tucson		111·9	294	e 19 13	PP	—	—	—	—	e 52·9
Sverdlovsk		115·2	36	e 19 42	PP	29 23	PS	35 33	SS	—
Boulder City		116·7	296	e 19 55	PP	—	—	—	—	—
Overton		116·7	297	e 19 57	PP	—	—	—	—	—
Palomar	Z.	116·9	293	e 19 56	PP	—	—	—	—	—
Riverside	Z.	117·5	293	e 19 57	PP	—	—	—	—	—
Pasadena	Z.	118·2	293	e 20 3	PP	—	—	—	—	e 55·7
Irkutsk		137·7	51	e 19 42	[+16]	e 32 42	PS	e 22 12	PP	—

Additional readings :—
Huancayo e =14m.12s., iS =18m.4s., e =21m.34s.
Granada pP =12m.32s., pP_cP =12m.49s., sP =13m.19s., PP =14m.3s., pPP =14m.28s., sPP =15m.22s., PPP =16m.55s., sS =22m.27s., SS =26m.24s.
Alicante P_cP =12m.9s., PP =15m.11s., PPP =16m.47s., PS =22m.29s., PPS =22m.49s., SS =26m.33s., SSS =29m.45s., Q =32m.29s.
Tortosa SS?N =26m.27s.
Helwan ePS =23m.24s.
Rome PS =23m.55s., SS =28m.36s.
Paris i =13m.8s., ePPP =18m.19s., e =19m.31s., ePS? =25m.41s., e =27m.26s., eSS? =29m.13s.
Strasbourg e =14m.12s., ePPP =18m.0s., e =20m.14s., ePPS? =24m.50s., eSS? =29m.30s.
De Bilt eSS =30m.21s., eSSS =34m.2s.
Collmberg eZ =13m.20s., 13m.23s., 13m.44s., 13m.50s., 16m.46s., and 18m.10s.
Weston ePPS =26m.42s.
Philadelphia eSS =30m.0s.
Warsaw eN =24m.51s., iE =24m.57s.
Copenhagen 24m.18s., SS =31m.18s.
St. Louis eE =28m.44s., iSSE =32m.52s., eSSSE =36m.27s.
Long waves were also recorded at Budapest, Bergen, Upsala, Santa Lucia, Bozeman, College, Christchurch, Wellington, and Brisbane.

Sept. 30d. Readings also at 0h. (Samarkand, near Andijan, and Stalinabad), 1h. (Brisbane), 3h. (Tashkent, Samarkand, near Andijan, Stalinabad, and near Fresno), 5h. (Andijan, Frunse, Obi-garm, Stalinabad, and Tashkent), 8h. (Clermont-Ferrand and near Basle and Zürich), 10h. (Andijan, near Obi-garm, and Stalinabad), 11h. (near San Juan), 12h. (near Obi-garm and Stalinabad), 13h. (Palomar and Tucson), 14h. (Stalinabad, and near Obi-garm), 15h. (Collmberg and Tucson), 17h. (Palomar, Shasta Dam, and Tucson), 18h. (Bombay, Stalinabad, Frunse, and near Andijan), 20h. (Triest and near Rome), 21h. (Istanbul, Mizusawa, and near Branner), 22h, (near Alicante).

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

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

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

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