

$\phi = 40^\circ 51' 47''$ N
 $\lambda = 73^\circ 53' 8''$ W
 $h = 24$ m
 $a = +.210$
 $b = -.726$
 $c = +.654$

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1939 APR 28 PM 3 : 47

INSTRUMENTS:
 Wiechert
 Galitzin-Wilp
 Milne-Shaw
 Wood-Anderson
 (Short-Period)
 Benioff
 Foundation:
 Fordham Gneiss

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1.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Jan. 3	eP	17	26	05	4900	
	iPR ₁	17	27	40		
	eL _N	17	39	--		
	M	17	43	--		
4	i	21	55	39		
	i	21	55	52		
5	eZ	16	36	35		
5	eL _N	18	27	--		
7	i	18	36	29		
7	i	19	39	02		
7	e	21	30	04		
7	i	21	44	10		
8	i	09	00	44.7		Deep focus?
	i	09	00	52.5		
9	i	21	20	25		
9	i	22	35	40		
10	i	20	11	48		
16	e	03	18	--		
17	i	19	00	22		Blast?
	i	19	00	33		
	i	19	00	40.5 max.		
17	i	19	16	37.5		Blast?
	i	19	16	43.8		
	i	19	16	44.5 max.		
18	i	01	55	26.5		Dilatation Deep focus.
	i	01	55	45.0		
	i	01	55	53.0		
18	iP	12	50	29		Dilatation.
18	iP	14	58	31		
	i	14	58	45		

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2.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Jan. 18	i	19	42	35.0	3500	Dilatation
	i	19	42	39.3		
19	i _{NE}	10	15	22		Beginning obscured by microseisms.
	L _N	10	22.5			
	M _Z	10	25.5			
20	i _P	20	46	43	3500	Dilatation. Epicenter 13°N, 91.5°W (USCGS)
	i _{S_{NE}}	20	51	54		
	M	21	01	--		
21	i	01	48	12		See Bulletin no. 14 NESA
	i	01	48	17		
21	i	21	29	52.9		
	i	21	29	57.4		
	i	21	30	04.3		
22	i	03	29	57.6		
	i	03	30	01.9		
	i	03	30	09.9		
22	e _{N(?)}	05	03	40		
	e _{ZN}	05	34	--		
22	e _N	14	26	--		Microseisms very severe.
	M _N	14	55	--		
24	i	19	58	59		Dilatation; deep focus.
25	i _P	03	44	01	8600	Dilatation; 36 mm. deflection on short period Benioff. Des- tructive in Chile; 37°S, 73°W (USCGS) 36.6°S, 72.2°W (Strasb.) Very large deflections for S phases on the Galitzins. Nature: Feb. 4, Feb. 11, 1939.
	i _{pP}	03	44	42		
	i _Z	03	46	13		
	i _{PR1}	03	47	24		
	i _{S_{NE}}	03	53	47		
	i _{NE}	03	54	41		
	i _{NE}	03	55	03		
	i _{NE}	03	55	18		
	i _L	04	08	45		
	M	04	13.5	--		
	Brunner's depth chart gives depth of 180 kms. and epicentral distance of 78.8°.					
	i	03	59	28		After shocks or late phases of above Chile earthquake, registered on Benioff
	i	04	11	17		
	e	04	31	14		

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3.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Jan. 25	i	12	04	33		
	i	12	04	38		
	i	12	04	45		
27	iP	14	18	07	3800	
	eN	14	23	07		
	eS _N	14	23	41		
	LN	14	28.6	--		
	M _{zN}	14	32	--		
27	iP ₂	20	08	41.5	155	quarry blast, Hudson N.Y. NESA no. 14.
	i	20	08	43.8		
	i	20	08	46.5		
	iS ₂	20	09	00.0		
	i	20	09	02.6		
	i	20	09	04.0		
28	i	23	29	04		Dilatation. Deep focus.
29	e _{zN}	18	56	52		
	e _{zN}	18	57	39		
	eN	19	01	42		
	M	19	10	--		
30	iP'	02	37	29	13800	Dilatation, Solomon Islands 7°S, 155°E (USCGS) 6°S, 156°E (Strasbourg) Nature March 11, 1939.
	iPR ₁	02	39	12		
	iSKS	02	44	33		
	iSR ₁	02	56	08		
	GN	03	11.2	--		
	M	03	26	--		
30	M	06	31	--		Superimposed on late surface waves of above earthquake.
31	i _z	00	12	10		Severe microseisms, Particularly on vert- ical and east; very high wind.
	i _z	00	14	00		
	i _N	00	28	32		
Feb. 3	P'	05	45	20	13800	10°S, 159°E (USCGS)
	PR ₁	05	46	58		
	eSKS _{NE}	05	52	36		
	iPS _{zNE}	05	57	14		
	e _N	06	04	26		
	eLN	06	24	04		
	M	06	35	--		

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4.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Feb. 3	eL	21	14	--		
4	eL	06	19	--		
8	ez	06	46	48		Severe microseisms.
	iN	07	00	47		
	iN	07	02	31		
	izN	07	03	19		
	iN	07	23	43		
8	eL	20	58	--		
9	iP	15	36	59	3530	Compression 11.5°N, 88°W (USCGS) Nature March 11, 1939.
	iz	15	38	25		
	eN	15	42	43		
	iN	15	45	25		
	iN	15	46	37		
	L	15	48.2	--		
	M	15	53	--		
13	i	23	13	56.5		Deep focus.
	i	23	14	06.3		
16	M	19	55	--		
17	i	21	13	31.5		S phases of distant local?
	i	21	13	38.3		
	i	21	13	45.6		
18	i	11	01	53		Deep focus or distant teleseism.
19	i	13	02	53.0		Deep focus or distant teleseism.
	i	13	03	12.0		
20	M	05	53	--		
20	iP ₂	23	10	50.0	138	Recorded also at Weston. NESA Bull. no. 16.
	i	23	10	51.8		
	iS ₂	23	11	06.6		
	i	23	11	09.5		
	i	23	11	10.0max.		
23	i	19	02	12.9		
	i	19	02	15.7		
24	i(?)	00	32	15.5		

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5.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Feb. 24	iP	14	25	35.2	ca 6100	Surface waves weak.
	ipP	14	25	48.2		
	iSN	14	33	55		
	eSR ₁	14	37	39		
	M(?)	14	47	--		
26	ez	23	44	58		Large deflection.
	izNE	23	45	37		
	iN	23	46	07		
	iN	23	46	41		
	izE	23	48	41		
28	eLN	01	35	--		
	M	01	39	--		
28	M	21	59	--		

Numerous local disturbances were recorded during the month of February on the short period Benioff vertical seismometer; they have been reported in the bulletins of the NESA.

Mar. 2	iz	07	20	35.7	}	Short period Benioff; 1st impulse small, 2nd and 3rd much larger.
	iz	07	23	14.5		
	iz	07	24	13.0		
	eN	07	32	23		
	eN	07	39	43		
	M _{ZN}	08	09	--		
2	iP _n	21	05	45.2	314	Epicenter 39.2°N, 70.5°W NESA Bull. no. 17.
	i	21	06	26.7		
	i	21	06	30.0		
	iS ₁	21	06	32.5		
	i	21	06	33.5		
5	iP _n	15	16	09.0	1735	Compression Epicenter 25°N, 73°W NESA Bull. no. 17 Supplement.
	i	15	16	19.2		
	i	15	16	23.8		
	iS _n	15	19	11.0		
	i	15	19	30.8		
	i	15	19	40.5		
M(?)	15	27	--			
6	i	08	58	34		
7	M	03	06	--		

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6.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Mar. 7	iP _n	11	26	05	2235	See NESA Bulletin no. 17 Supplement.
	iS _n	11	29	49		
7	M	18	32	--		
7	iP _n	22	15	55.8	2255	Dilatation, Epicenter 22°N, 62°W NESA Bull. 17 Supplement.
	i	22	16	02.5		
	i	22	16	06.8		
	iS _n	22	19	42.0		
	i	22	19	48.5		
	i	22	19	55.5		
8	i	22	20	00.5		
	i _z	22	17	14.0		Compression.
	e _N	22	55	--		
	M _{zN}	23	06	--		
13	M	06	14	--		
20	e _z	03	40	55		Nature April 1, 1939 reports severe earthquake on Island Kyushu, Japan.
	e _E	03	48	12		
	i _E	03	48	31		
	M	04	24	--		
20	M	13	18	--		
20	i	21	14	01.3		Dilatation.
	i	21	14	19.7		
	i	21	14	22.1		
	i	21	14	23.0		
21	iP	01	30	55	15300	
	iPR ₁	01	33	36		
	iSKP	01	34	38		
	i _z	01	36	06		
	iSR ₁	01	51	38		
	i _N	01	52	25		
	M	02	34	--		
21	M	09	03	--		
22	M	05	02	--		
22	M	08	21	--		
22	i	21	06	27		

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7.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Mar. 23	iP ₁	15	10	52.0	115	
	i	15	10	53.2		
	i	15	10	54.4		
	iS ₁	15	11	06.0		
	i	15	11	08.0		
23	e	16	40	49		
	M	17	27	--		
23	i	21	49	37		
26	i	04	15	59.2		
	i	04	16	10.0		
27	i	16	02	57		
28	e _{NE}	03	58	40		
	e _Z	04	02	52		
30	iP ₁	16	13	49.5	88	
	iS ₁	16	14	00.3		
	i	16	14	03.0max		

J.J.L., S.J.

W.A.L.

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8.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
April 1	i	18	19	57.7		
	i	18	20	10.2		
1	i	22	30	48.8		Blast at Meriden, Conn. NESA 19
3	M	16	52	-		
3	i	20	07	49		
4	M	11	19	-		
5	iP'	17	01	37	14,000	Epicenter region of 27° S, 167° E (JSA); 20° S, 168° E (Strasbourg). Strasbourg gives depth of 175 kms.
	i _Z	17	02	39		
	iPR _{1Z}	17	03	15		
	iSKS _E	17	08	43		
	iSKKS _E	17	10	19		
	eS _n	17	11	24		
	i _E	17	13	16		
	iPPS _E	17	14	54		
	iSR _{1n}	17	20	25		
	M	17	47	-		
7	i	16	25	32		
8	i	13	39	46		
12	eL _n	14	13	-		
13	iP ₂	01	57	33	210	See NESA 19
	iS ₂	01	57	58		
13	iP ₂	22	15	08.7	140	See NESA 19
	iP ₁ S ₁	22	15	12.8		
	i	22	15	23.5		
	iS ₂	22	15	25.4		
	i ₂ (S ₁ S ₁)	22	15	30.1 max.		
15	M	16	02	-		
15	M	21	20	-		
17	i	20	10	25		

APR 2 1939

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9.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
April 18	iP	06	33	38	7500	Epicenter: 27°S, 71°W(USCGS) 27°S, 70°W(Strasbourg) 25.8°S, 75.2°W (JSA) Note in Nature April 29, 1939. Depth of focus 125 kms. by Brunner's chart, 100 kms. by Schon's approximater. 5 phases very sharp
	ipP	06	34	07		
	iPR ₁	06	36	06		
	iS _{NE}	06	42	33		
	iN	06	43	12		
	isS _N	06	43	22		
	iE	06	43	35		
	iNE	06	43	49		
	iN	06	43	55		
	iG _N	06	57	-		
	iP'P'	07	02	00		
	M	07	05	-		
20	i	16	31	35		
20	iP ₁	20	00	20.3	104	Blast at No. Branford, Conn. NESA 20
	i	20	00	21.4		
	iS ₁	20	00	33.0		
	i	20	00	38.8		
21	iP	04	40	56	9500	Dilatation Epicenter: 0°N, 140°E (USCGS) 48.6°N, 138.0°E(JSA) 47°N, 141°E(Strasbourg) Depth of 525 kms. by Brunner's chart, 520 kms. by Schon's approximater. Note in Nature May, 6, 1939
	i _z	04	41	01		
	ipP	04	42	54		
	iSKS _N	04	50	32		
	iE	04	50	36		
	iS _E	04	50	49		
	i _{zN}	04	50	52		
	isS _N	04	54	22		
	isS _E	04	54	25		
	i(SR ₂) _z	04	58	44		
	21	i	19	02		
i		19	02	15.		
i		19	02	16.8		
i		19	02	34.0		

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Date. 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
April 23	iP	16	33	47	2135	Small dilatation followed by large compression. Epicenter 1° S, 17° W (USCGS); 2° N, 18° W (Strasbourg); 0.1° N, 18.0° W (JSA) Note in Nature May 6, 1939.
	iP	16	33	49		
	iS _{NE}	16	42	3		
	M	16	9	-		
	eP'P'	17	02	39		
23	eP _z	17	34	06	2135	NESA 20
	eS _{zE}	17	37	42		
24	i	17	18	7		
	i	17	19	01		
25	iP	13	02	47	9300	Epicenter 12.2° S, 71.3° W (JSA) Felt in Lima, Peru. Depth of 160 kms. by Brunner's chart, 150 by Bohon's approximeter.
	ipP	13	03	28		
	iS _N	13	10	14		
	isS _E	13	11	04		
	e(sSR ₁) _N	13	1	00		
26	M	22	02	-		
27	i(?)	1	33	40.0		
	i	1	33	41.		
	i	1	33	43.0		
	i	1	34	10.0		
	i	1	34	16.0		
	i	1	34	19.0 max.		
30	eP _z	03	11	12	13700	Epicenter 11° S, 158° E (USCGS) 7.5° S, 159.6° E (Strasbourg). Depth about 80 kms. Felt in Solomon Islands. Note in Nature May 27, 1939.
	eP' _z	03	14	31		
	i(pP') _z	03	14	46		
	i _z	03	14	56		
	iPR _{1z}	03	16	14		
	i(SKS) _{NE}	03	22	04		
	i(S) _E	03	23	20		
	i _{NE}	03	26	18		
	iSR _{1NE}	03	33	12		
M	04	02	-			

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11.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
May 1	P	06	13	32	104 0	Epicenter: 40°N, 139°E, (USCGS, JSA) Destructive in Akita, Japan. Note in Nature May 13, 1939.
	PR ₁	06	17	20		
	iN	06	22	27		
	iz	06	24	12		
	iN	06	24	43		
	iLN	06	46	43		
	M	06	55	-		
1	eP	16	19	21	10,000	
	iSKS _N	16	29	49		
	M?	17	06	-		
2	M	00	15	-		
2	iP	13	21	36	3800	Epicenter: 29.1°N, 113.8°W (USCGS): 29.4°N, 113.°W (JSA). Located in Gulf of Lower California.
	iPR ₂	13	23	01		
	iz	13	24	48		
	iz	13	25	13		
	iS	13	27	06		
	iSR ₁	13	29	19		
	iSR ₂	13	29	-		
	iT	13	31	18		
	iz	13	32	42		
	M	13	3	-		
4	P	00	13	32	104 0	Epicenter: 40°N, 139°E (USCGS, JSA) Destructive in Akita, Japan Note in Nature May 13, 1939.
	iN	00	17	36		
	iz	06	22	27		
4	iz	13	18	31		Destructive in Akita, Japan Note in Nature May 13, 1939.
	i	13	58	39		
	iN	13	18	49		
6	iP	06	07	18	4100	Epicenter: 5.0°N, 84°W (USCGS)
	iS	06	13	01		
	iE	06	13	59		
	iE	06	15	33		
	iN	06	15	39		
	iLN	06	17	33		
6	M	06	21	-	3400	Epicenter: 29.1°N, 113.8°W (USCGS): 29.4°N, 113.°W (JSA). Located in Gulf of Lower California.
	i	08	10	00.2		
6	i	08	50	14.6		Deep Focus? 29.4°N, 113.°W (JSA). Located in Gulf of Lower California.
	i	08	50	14.6		

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12.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
May 6	M	18	20	-		
6	M	21	13	-		
8	iP	01	54	10	4300	Epicenter: 37° N, 24° W (USCGS); 37.0° N, 23.9° W (Strasbourg) Felt strongly on Island of San Miguel, Azores. Note in Nature, June 17, 1939.
	i _z	01	56	27		
	e _E	01	59	51		
	iS _E	02	00	11		
	i _E	02	01	44		
	i _N	02	02	18		
	i _z	02	03	26		
	i _{NE}	02	07	3		
	M	02	10	-		
9	i _E	07	45	07		
	eL	07	56	-		
10	iP	07	55	10	7400	Dilatation. Epicenter: 1° N, 179° W (USCGS); 51.0° N, 177.2° W (JSA) Note in Nature June 24, 1939.
	eS _E	08	04	03		
	iPS _E	08	04	42		
	L	08	20	43		
	M	08	26	-		
11	iP	17	50	48		
	M	18	23	-		
11	i	20	06	02		
12	i _z	07	48	57.2		Dilatation Deep focus.
	i _z	07	49	13.5		
12	i	11	46	02		Quarry blast near Conway N.H.? NESAs 21
15	i	21	32	45		Same as above.
16	M	15	15	-		June 17, 1939

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 c = +.654

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 Benioff
 Foundation:
 Fordham Gneiss

13.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
May 16	i	19	21	58.6		
	i	19	22	02.3		
	i	19	22	04.8		
17	M	00	26	-		
17	ePR _{1z}	18	49	31	12,000	
	iSKKS _E	18	56	57		
	e _z	19	00	07		
	iSR _{1E}	19	04	39		
	i _E	19	34	47		
	M	19	40	-		
21	M	04	34	-		Note: Shortperiod Benioff not working from May 19, to May 22.
22	i _z	01	57	34		
	e _{NE}	02	06	48		
	M	02	45	-		
22	M	06	50	-		
23	i _z	02	56	12		Dilatation
	i _z	02	57	27		
	e _{NE}	03	02	36		
26	e _z	18	12	11		
	i _z	18	13	05		
	e _{zNE}	18	22	07		
	e _N	18	29	29		
	i _E	18	29	57		
	M	19	02	-		
26	i _z	20	26	15.0		Deep focus.
	i _z	20	27	07.8		
27	e(SKS) _N	04	11	02	(12700)	
	i(PS) _z	04	14	42		
	i _z	04	15	16		
	e(SR ₁) _N	04	21	00		

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14.

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 Benioff
 Foundation:
 Fordham Gneiss

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
June 2	e(P') _z	03	52	25	(15000)	
	i(PR ₁) _z	03	54	12		
	i _z	03	55	39		
	e _z	03	56	30		
	e _N	04	05	02		
4	iP _z	00	43	30	(8100)	Compression
	i _z	00	43	43		
	e(PR ₁) _z	00	47	05		
4	i _{zNE}	01	34	24		
	e _{zNE}	01	36	13		
	i _{zE}	01	37	19		
4	M	13	01	-		
4	M	16	32	-		
5	eP _z	23	09	56	3300	Stuttgart
	eS _{NE}	23	14	58		places epicenter
	(M)	23	24	÷		at about 37°N, 38°W (west of Azores)
6	i(?)	16	00	46.5		
	i	16	00	48.0		
	i	16	00	50.0		
	i	16	00	53.3 max.		
7	iP ₂	11	42	00.0		Compression
	iS ₂	11	42	20.0		
8	eP _z	21	01	02	12000	Epicenter:
	ipP _z	21	01	34		15°S, 173°W.
	ePR _{1z}	21	05	34		Depth of focus
	iSKS _E	21	12	32		a pproximately
	iS _N	21	13	03		100 kms. by
	isS _N	21	13	51		Brunner's chart.
	iPS _{zE}	21	14	47		
	M	21	43	-		

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15.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
June 9	ePR _{1z}	00	22	09	6100	
	eS _{NE}	00	27	29		
	eN	00	41	40		
9	i	19	02	55.0		
	i	19	03	16.5		
	i	19	03	27.8		
	i	19	03	43.5		
9	e _z	19	28	15		
	e _z	19	30	47		
	e _{zNE}	19	31	49		
9	M	20	24	-		
11	M	07	46	-		
12	iP	04	09	57.0	2350	Compression Epicenter: 21.8°N, 66.0°W (USCGS)
	i _z	04	10	07.5		
	iS _{zNE}	04	13	54		
	i _E	04	14	08		
	iLN	04	15	43		
	M	04	17.5	-		
12	i _E	16	07	25		
	e _z	16	12	57		
13	e _{zNE}	17	35	52		
13	e _z	21	01	56		
	i _z	21	02	30		
15	iP ₂	19	00	21.5	158	Blast NESA 24
i	19	00	22.4			
i	19	00	22.8			
i	19	00	24.0			
iS ₂	19	00	40.2			
i	19	00	42.8			
i	19	00	43.0 max.			

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16.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s		
June 17	M	13	04	"		
17	i	19	29	13		
18	eP	16	52	30	3380	
	e _z	16	52	44		
	iPR _{1zN}	16	53	32		
	iS _{zNE}	16	57	33		
	eL	17	01	9 -		
	(M)	17	06.5	-		
19	e _z	21	49	58		NESA 24
	i _z	21	51	47		
	eNE	21	51	49		
	eLN	23	07.5	-		
21	i	04	28	55		
21	i	17	45	03		
21	i	20	44	22.8		
	i	20	44	30.2		
	i	20	44	31.6		
	i	20	44	34.0		
	i	20	44	37.2max.		
21	i	21	00	56.9		Quarry blast?
	i	21	00	58.2		NESA 24
	i	21	00	59.1		
	i	21	01	01.8		
22	iP _z	19	31	07	8100	Compression
	ePR _{1E}	19	33	54		Epicenter:
	eSE	19	40	42		5°N, 1°W (USCGS).
	eSR _{1E}	19	44	52		Destructive in
	eI.	19	53.6	-		Accra, Gold Coast,
	M	20	01	-		West Africa. Note
						in Nature.
						July 1, 1939
24	eLN	00	13	29		
24	e _z	11	32	28		

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17.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
June 24	iE	12	04	46		
24	eLN	13	20.5	-		
	M	13	25.2	-		
24	iP ₂	15	09	56.0	182	NESA 24
	iS ₂	15	10	17.4		
	i	15	10	19.0		
	i	15	10	19.5max.		
24	eLNE	16	46.4	-		
24	i	17	23	41.5		Probably S phases of shock felt in Baie St. Paul, P.Q. NESA 24
	i	17	23	46.8		
	i	17	23	56.0		
	i	17	24	08.0max.		
25	e _z	03	03	02		
27	iP' _z	23	23	30	14,300	Epicenter 8°N, 128°E (USCGS).
	iPR _{1z} NE	23	25	30		
	iNE	23	26	48		
	eN	23	35	34		
	eSR _{1N}	23	42	54		
	M	24	20	-		

J.J.L., S.J.
 W.A.L.

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18.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
July 1	e _z	20	49	31		
	i _z	20	50	37		
2	i _z	13	08	38		
2	iP _z	19	53	49	7300	Compression
	i _z	19	54	28		
	e _{SN}	20	02	41		
	e _N	20	03	45		
	N	20	24	-		
3	i _z	15	39	44		S phases of distant local?
	i _z	15	39	49		
	i _z	15	39	54		
	i _z	15	39	59		
4	i _z	18	36	04	7000	Compression Depth 300kms. Epicenter: 23°S, 67°W, (ULCGS) 19.9°S, 67.3°W (JSA).
	epP _z	18	37	10		
	i(sP _z)	18	37	38		
	i _z	18	41	27		
	i _{SN}	18	44	08		
	e _N	18	45	04		
	i _z	18	45	28		
	i _{SSN}	18	46	12		
	e _{SSN}	18	51	50		
5	e _z	22	57	23	13000	Epicenter: 24°S, 179°W (ULCGS) 24.0°S, 180.0°W JSA. Depth about 650 kms.
	e _z	22	58	04		
	e _z	23	00	01		
	i(S _N)	23	06	22		
	i(sS _N)	23	11	00		
	(SS)	23	1	19		
	(SSS)	23	21	-		

~~7/19/39~~
~~7/22/39~~

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 vertical)
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 Fordham Gneiss

19.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
July 8	iP ₂	15	44	49	150	Dilatation NESA 25
	i	15	44	51		
	iS ₂	15	45	07		
	i	15	45	11max.		
8	i	21	38	01		Dilatation Deep focus. NESA 25
	i	21	38	16		
10	i	02	26	12		Compression. NESA 25
10	i	20	48	43		NESA 25
12	e _z (?)	23	16	46		Clock correction in doubt.
	i _z	23	17	55		
	i _z	23	18	25		
	iE	23	18	29		
	eNE	23	43	21		
		24	13.8	-		
14	iP _z	08	42	54	7700	Dilatation.
	eSE	08	52	05		
	eL	09	07.9	-		
16	e _z	12	41	17		
	M	13	37.2	-		
18	eP	03	34	09	4300	Epicenter: 49.0°N, 130.5°W (USCGS)
	iPR _{1zE}	03	35	39		
	eN	03	40	06		
	iSE	03	40	14		
	iSR _{1NE}	03	42	59		
	iLNE	03	46	39		

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 Benioff
 Foundation:
 Fordham Gneiss

20.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
July 19	e _z	23	35	32		
	M	24	36	-		
20	ePR _{2z}	02	45	00	13100	Epicenter 22.6°S, 177°W, (JSA.) Depth about 650 kms.
	iSKSE	02	46	32		
	iSKKSE	02	48	38		
	iSP _z	02	50	30		
	isSN	02	52	50		
	iSS _{NE}	02	57	00		
23	e _{zN}	15	25	32		
	eL	15	32	24		
	M	15	41.4	-		
25	iP	07	37	00		Compression.
25	iP ₁	20	00	17.5	102	Compression Quarry blast at No. Branford Conn. NESA 26
	iS ₁	20	00	30.0		
	i	20	00	32.5		
27	iP ₂ ₂	14	01	33.4		
	iS ₂	14	01	49.5		
	iS ₁ ₁	14	01	51.3		
	i	14	01	52.7		
	i	14	01	54.5max.		
31	e _z	19	20	56		
	e _E	19	27	58		
	e _z	19	31	34		
	M	19	36	-		
August 1	iP	16	07	46		Compression
	1pP	16	08	18		NESA 27
2	eP _z	00	59	45		
	o(S) _N	01	10	47		
	eLN	01	25.1	-		

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21.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
		<i>See Aug. 1 & 2 on last page of July.</i>				
Aug. 3	eLN	03	24	-		
	M	03	29	-		
3	eL	13	16	-		
5	eL	09	40	-		
5	iP ₂	15	36	02	180	Dilatation
	iS ₂	15	36	23		NESA 27
	iS ₁	15	36	26		
11	e _z N	06	08	22		
	eE	06	12	57		
	e _z NE	06	14	51		
12	(eP')	02	26	02	13,300	Epicenter:
	iPR _{1z} E	02	27	34		13°S, 169°E,
	iSKS _E	02	32	46		(USCGS),
	iSN	02	35	23		14.2°S, 168.9°E
	isSN	02	36	40		(JSA)
	iSR _{1N}	02	43	58		Depth about 150
	isSR _{1N}	02	45	10		kms. (Note in
						Nature, Sept. 23.)
12	iP	10	02	29	9500	Epicenter:
	eSKS _{NE}	10	12	53		45°N, 153°E,
	M	10	50	-		(USCGS)
						44.3°N, 152.5°E
						(JSA).
12	iS ₁ S ₁	15	39	09	115	NESA 27 and 30
	i ₂ (S ₁ S ₁)	15	39	12		
	i	15	39	14		
15	iP	03	56	57		
	eN	04	00	35		
	M	04	07	-		
16	iP	17	13	27	3700	Epicenter:
	iS	17	18	54		13°N, 91°W
	L	17	25	34		(USCGS)
	M	17	28	-		10:0°N, 93.0°W
						(JSA)

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22.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Aug. 18	iPR _{1z}	22	36	34	13700	Epicenter: 18°S, 168°E (USCGS) 18.0°S, 167.9°E (JSA)
	ePR _{2zE}	22	39	22		
	eE	22	48	10		
	eSR _{1E}	22	54	05		
	M	23	21	-		
20	iP	07	27	13		Deep focus NESA 28 and 29
	ipP	07	27	30		
21	(P _z)	15	30	12		
	eNE	15	40	09		
	M	15	56	-		
22	iP ₁	20	56	42.8	20	NESA 29
	iS ₁	20	56	45.0		
23	M	05	28	-		
25	e _{zE}	04	08	55		
	M	04	51	-		
25	iP ₂	15	19	31.7	170	Probably a blast. NESA 28 and 29
	iS ₂	15	19	51.3		
28	iP ₂	15	07	44.0	162	Probably a blast. NESA 29
	iS ₂	15	08	03.0		
28	eN	15	37	31		
28	eN	16	59	27		
Sept. 1	iP ₂	19	59	44.7	155	Dilatation Probably a blast near Hudson, N.Y. NESA 29
	iP ₁	19	59	45.5		
	iP ₁ S ₁	19	59	49.2		
	iS ₂	20	00	03.2		
	iS ₁ S ₁	20	00	06.0		

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23.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Sept. 2	ePR _{1z} E	09	19	01		
	ePS _{NE}	09	28	51		
	eSR _{1E}	09	35	01		
	M	10	00	-		
2	iP _z	14	01	03		Compression.
4	iP _z	08	53	57		Dilatation.
5	e _z NE	15	33	23		
	e _z NE	15	38	23		
	L _N	15	48.3	-		
8	iP _z	12	15	58	7900	Small dilatation Large compression. Epicenter; 51°N, 175°E, (USCGS)
	iP _z	12	16	05		
	iPR _{1z}	12	18	50		
	iPR _{2z}	12	20	24		
	iS _{NE}	12	25	13		
	iSR _{1NE}	12	30	32		
	iSR _{2N}	12	33	00		
	iL _N	12	37	52		
	e _z	12	44	00		
	M	12	46	-		
	9	iP ₁	20	37		
iS ₁		20	37	37		
10	e	18	10	28		Surface waves.
11	eP _z	08	03	46	6750	
	eS _{NE}	08	12	10		
	eL	08	24	20		
	M	08	30.6	-		
12	e	10	45	22		
13	iP ₁	01	22	07.1	18	Felt in Union City, N.J. NESA 29
	iS ₁	01	22	09.1		

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24.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Sept. 14	e	10	14.5-			
15	L	12	43.6-			
	M	12	49 -			
15	M	22	33 -			
15	iP	23	15 42			
15	iP _z	23	28 04	8200		
	iS _{NE}	23	37 39			
	LN	23	53.5 -			
16	iP ₂	18	17 11.8	190	Compression	
	iS ₂	18	17 33.9		Albany County, N.Y. NESA 30	
18	eLN	19	31.9 -			
18	i _{LN}	20	28.7 -			
18	iP ₂	20	07 34.8	170	NESA 30	
	iS ₂	20	07 55.0			
	iS ₁	20	07 57.0			
	i ₂ (S ₁ S ₁)	20	07 59.5			
	i	20	08 02.5			
19	eLN	04	16.2 -			
20	eiP _z	00	30 38	7500	Compression	
	eS _E	00	39 40			
	ePS _{NE}	00	40 09			
20	iP _z	03	56 47		Dilatation	
	i _z	03	58 19		All phases on	
	i _z	03	58 30		short period	
	i _z	03	58 42		Benioff, except last	
	i _z	03	58 52		on Galitzen's.	
	i _z	03	59 00		NESA 31 gives	
	i _z	03	59 15		48°30' N,	
	i _{NE}	03	59 42		80°34' W.	

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 h = 24 m
 a = + .210
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 (Short Period)
 Benioff
 (Long and short period,
 vertical)
 Foundation:
 Fordham Gneiss

25.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Sept. 20	iP _z	07	02	23	5900	Dilatation
	eS _{NE}	07	09	57		
20	M	08	44	-		
21	eL _N	12	59.6	-		
21	iP ₁	20	30	11.3	60	NESA 30
	iS ₁	20	30	18.9		Orange
	iS ₁ S ₁	20	30	20.4		County, N.Y.
	i2(S ₁ S ₁)	20	30	21.5		
21	iL _N	21	45	27	3820	Epicenter:
	i _N	21	46	11		30°N, 114°W (USCGS) 30.0°N, 114.0°W (JSA)
22	eP _z	00	48	03	8000	
	eS _{NE}	00	57	31		
	M	01	15	-		
25	eL _N	16	41.3	-		
26	M	10	58	-		
27	eL _N	14	51.5	-		
28	iP	15	04	33	3300	Compression
	eS _{zNE}	15	09	31		Epicenter:
	eL _N	15	13.5	-		14.5°N, 89.0°W (USCGS)
30	i(S ₂)	15	26	25.0	133	NESA 30
	i(S ₁ S ₁)	15	26	26.5		Columbia
	i	15	26	28.0		County, N.Y.

J. J. L., S. J.
 W. A. L.

OCT. - DEC. 1939

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(Short Period)
Benioff
(Long and short period,
vertical)
Foundation:
Fordham Gneiss

1940 FEB - 1941 AM 9:46
16-11-12

Date 1939	Phase	G.M.T.			Distance kms.	Remarks	
		h.	m.	s.			
Oct. 2	i	16	05	26.0		Probably S phases origin SW of Fordham NESA 31	
	i	16	05	30.2			
	i	16	05	35.2			
	i	16	05	39.6			
	i	16	05	43.3			
	16-11-12	iP ₂	16	11	36.4	160	Compression NESA 31 Azimuth SW of Fordham.
		iP ₁ P ₁	16	11	37.6		
		iS ₂	16	11	54.0		
		iS ₁ S ₁	16	11	55.8		
		i	16	12	00.7		
i		16	12	01.6			
i		16	12	03.0			
4	iLN	22	42	23		Near 23.8°N, 108.1°W (JSA)	
13-00-33	iP ₂	13	00	56.8	138	Dilatation	
	iS ₂	13	01	13.5			
6	i	02	14	15		Deep focus	
7	e _z	21	02	23			
	e _N	21	06	02			
	e _N	21	12	36			
	e _N	21	25	-			
21-07-47	iP ₁	21	07	56.8	54		
	iS ₁	21	08	03.5			
9	e _N	02	55.3	-			
	eLN	03	14.3	-			
18-32-27	eP _z	18	45	16	10200	Epicenter: 41°N, 143°E (USCGS) 41.2°N, 143.4°E (JSA)	
	eSKS _{NE}	18	55	49			
	iS _E	18	56	24			
	i _N	19	10	07			
	eLN	19	16	04			
21-21-29	iP ₂	21	21	57.2	175	Dilatation NESA 31	
	iP ₁ P ₁	21	21	59.0			
	iS ₂	21	22	17.5			
	i	21	22	18.5max.			

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27.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Oct. 10	i_z	21	25	05		Dilatation
	e_z	21	25	17		
6-32-19	iP'_z	06	40	55	13500	Dilatation
	iPR_{1zE}	06	42	17		Epicenter:
	i_z	06	44	15		$16^{\circ}S, 168^{\circ}E$
	$iSKSE$	06	47	41		(USCGS)
	$iSKKSE$	06	49	11		$16.8^{\circ}S, 167.7^{\circ}E$
	e_z	06	54	30		(JSA)
	eLN	07	13	37		Depth by Brunner chart is 100 kms.
						Note in Nature Dec. 9, 1939.
11-53-42	iP_z	11	55	46	800	Dilatation
	$i(S)$	11	57	17		Epicenter:
	i_{zNE}	11	57	24		$47.6^{\circ}N, 70.0^{\circ}W$
	i_{zNE}	11	58	19		(JSA)
20-05-57	iP_z	20	12	52	3700	
	eSN	20	18	21		
	M	20	28	-		
	$e_z(?)$	08	10	37	820	Epicenter:
	iS	08	11	03		$47^{\circ}30' N,$ $70^{\circ}55' W,$ (NESA)
8-59-32	iP	09	00	14	275	Epicenter:
	iS	09	00	45		$43.3^{\circ}N, 73.3^{\circ}W$
	i	09	00	47		(NESA)
	i	09	00	54		Felt in Glens Falls, N.Y.
19-16-16	iP_2	19	16	44	180	Epicenter:
	iS_2	19	17	05		$42^{\circ}30'N, 73^{\circ}50'W,$
	i	19	17	10		(NESA)
	i	19	17	15		Probably blast north of Hudson, N.Y.

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28.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Oct. 22	eP _z	14	52	35	5900	Epicenter: 48.0°N, 147.0°E, (JSA) Depth about 100 kms.
	ipP _z	14	52	58		
	esP _z	14	53	15		
	eS _{NE}	15	03	01		
	i _{zNE}	15	04	28		
25	iP ₂	14	47	06.0	170	Felt in Hudson, N.Y. NESA 32
	iS ₂	14	47	26.0		
	iS ₁	14	47	28.2		
26	ei _z	01	08	06		
	e _N	01	16	50		
26	eL	22	29.4	-		
27	i	01	39	16	855	NESA 32 Aftershock of Saguenay quake of Oct. 19.
	iS	01	40	00		
	i	01	40	16		
	i	01	40	33max.		
Nov. 1	eL	00	14	-		
17-02-44 1.0 2	iP ₁	17	03	03.2	101	Small Dilatation NESA 33
	iS ₁	17	03	15.5		
	i ₂ (S ₁ S ₁)	17	03	20.5		
	i	17	03	24.2		
2	i	21	09	39		
	i	21	09	43.5		
3	(?)	20	40	46		NESA 33
	i	20	41	02.0		
	i	20	41	05.1		
	i	20	41	06.7		
	i	20	41	08.0max.		
3	eL _N	20	44.5	-		
2-02-07 49.5 5	iP _z	02	11	00	5300	Compression Severe microseisms.
	i	02	11	56		
	iS _N	02	18	02		
	eL _N	02	24	-		

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29.

INSTRUMENTS:
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 Benioff
 (Long and short period,
 vertical)
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 Fordham Gneiss

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Nov. 7 15-48-48 0.6	eP _Z	15	49	01	2500	Felt in Port Au Prince, Haiti.
	eS _N	15	53	06		
	eL _N	15	55.4	-		
8	i	05	06	58		
8	eL _N	18	15.0	-		
10	eL _N	21	28.3	-		
19-16-01 1.5	11 iP ₂	19	16	25.0	152	Quarry blast at Hudson N.Y., NESAs 33
	i	19	16	29.5		
	iS ₂	19	16	43.1		
	i	19	16	45.8		
	i	19	16	48.0max.		
13	iP _Z	07	52	47	3900	Dilatation Very strong microseisms Damage in Seattle, Wash. Epicenter: 47°35'N, 123°15'W (USCGS) 47.7°N, 123.4°W (JSA)
	iPR _{1Z}	07	53	51		
	iL _N	08	03.3	-		
15	i	19	52	00		
19-35-06 1.0	17 iP ₂	19	35	25	141	NESAs 34
	iS ₂	19	35	38		
17	iP _Z	19	38	48		
	eN	19	54	38		
	eN	19	58	30		
01-32-11 84.0	18 iP _Z	01	44	42	9000	Kamchatka
	iS _N	01	54	56		
	eL _N	02	10.8	-		
02-32-23 2.5	18 iP	02	33	03.5	268	Felt in Baltimore.
	iS	02	33	33.5		
	i	02	33	35.5		
	i	02	33	41.0		

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30.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Nov. 21	eLN	09	26.5	-		
21	iP	11	14	53	12700	Dilatation Depth 220 kms. Epicenter: 10°N, 60°E, (USCGS)
	ipP _z	11	15	49		
	i _z N	11	18	49		
	i _z	11	22	04		
	i _N	11	26	39		
	i _E	11	26	46		
	i _z N	11	28	24		
	i _{NE}	11	28	49		
3-27-59 18.3	iP	03	32	15	1900	
	iS	03	35	31		
23	iP _z	15	17	51		NESA 34: epicenter in vicinity of St. Louis Numerous phases on short period Benioff.
	e _N	15	21	49		
25	eLN	00	13.2	-		
26	iP	06	34	57		Deep focus
	ipP	06	35	30		
28	e _E	02	23.5	-		
29	eLN	04	49	-		
29	e _z	15	19	10		
Dec. 1	e _N	07	00	26		
	eLN	07	23.7	-		
1	iP ₁	21	16	18.5	63	NESA 35: probably blast in Orange Co. N.Y.
	iS ₁	21	16	26.1		
21-16-09, 0.5	iS ₁ S ₁	21	16	28.2		
	i	21	16	30.1		
	i	21	16	33.6max.		
3	eLN	00	15.5	-		
4	eL	00	16	-		

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31.

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 Benioff
 (Long and short period,
 vertical)
 Foundation:
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Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Dec. 5	iP _z	08	36	26	3400	Compression Epicenter: 14.5°N, 92.5°W (USCGS) 13.5°N, 90.9°W (JSA)
	iPR _{1zN}	08	37	37		
	iPR _{2zN}	08	37	51		
	iS _{NE}	08	41	30		
	iL _N	08	45	33		
	M	08	50	-		
5	eL	18	11	-		
7	iP _z	11	27	13	8600	
	i _z	11	27	34		
	eS _N	11	37	05		
	eL _N	11	48.5	-		
	M	11	58.5	-		
11	e _z	02	09	18		NESA 35
	e _z	02	12	47		
12	iP ₂	17	24	40		NESA 35 Quarry blast north of Hudson, N.Y.
	iS ₂	17	25	00		
16	iP _z	10	59	16	9700	Small compression followed by large dilatation. 41.9°N, 147.3°E (USCGS) 45.7°N, 145.3°E (JSA) Depth about 80 kms.
	ipP _z	10	59	36		
	iPR _{1z}	11	02	42		
	eS _N	11	09	38		
	iS _{NE}	11	09	51		
	isS _{NE}	11	10	19		
	i _z	11	11	19		
	M	11	34	-		
16	eL	18	13.5	-		
17	i _z	07	49	11		
	i _z	07	49	33		
17	i _z	08	08	19		
	i _z	08	08	37		

8-30-04,
31.5

11-15-00
80.4

17-24-13
1.5

10-46-36
85.8

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32.

Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Dec. 18	e _z	10	40	05		
	i _z	10	43	11		
19 <i>15-03-16</i> <i>2.3</i>	iP	15	03	54	250	NESA 36. Azimuth SW of Fordham?
	iS	15	04	22		
	i	15	04	26		
	i	15	04	37		
19 <i>18-20-45</i> <i>1.9</i>	iP ₂	18	21	18	205	
	iS ₂	18	21	42		
19 <i>19-50-32</i> <i>1.4</i>	iP ₂	19	50	57	161	
	iS ₂	19	51	16		
19	eL	20	01.3	-		
	M	20	09.8	-		
20	iP	13	22	31		Deep focus NESA 36
	i	13	22	36		
21 <i>20-54-48</i> <i>32.5</i>	iP	21	01	18	3600	Compression 10.0°N; 87.0°W, (USCGS) 9.9°N; 84.7°W (JSA)
	iPR ₂	21	02	33		
	iS _N	21	06	29		
	i _{zE}	21	07	01		
	M	21	13	-		
21	i	21	19	38	13700	2°S, 122°E (USCGS) 0°N, 122.0°E (JSA)
	iPR ₁	21	22	33		
	i	21	23	08		
	i	21	34	26		
22 <i>4-43-41</i> <i>34.6</i>	cP	04	50	31	3620	9.6°N, 85.0°W (USCGS)
	iP	04	50	36		
	i _{zNE}	04	51	42		
	iS _{NE}	04	55	56		
	M	05	04.5	-		

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Date 1939	Phase	G.M.T.			Distance kms.	Remarks
		h.	m.	s.		
Dec. 22 <i>6-57-12)</i> <i>35.6</i>	eP	07	06	11	3750	
	eSN	07	11	42		
	iLE	07	16	14		
	M	07	20.	-		
23 <i>17-11-06)</i> <i>32.5</i>	iP	17	17	37	3400	Dilatation
	i _z N	17	18	58		
	eSN	17	22	48		
	iN	17	23	42		
	eLN	17	27	27		
	M	17	32.3	-		
24 <i>18-53-51)</i> <i>24.3</i>	eP	18	59	10	2400	NESA 36
	iP	18	59	24		
	iS	19	03	20		
	i	19	03	28		
	i	19	03	44		
25	eLN	16	32.6	-		
26 <i>11-55-15)</i> <i>30.3</i>	iP	12	01	27	3400	Compression Severe microscisms 13.5°N; 88.4°W (USCGS)
	i _z	12	01	41		
	iSN	12	06	22		
	L	12	11.3	-		
	M	12	15	-		
26	eLN	22	02	-		
27 <i>0-07-25)</i> <i>78.3</i>	iP	00	09	27	8300	Compression 39°N; 39°E (USCGS) Destructive in Turkey
	i _z	00	09	47		
	i _z	00	10	12		
	i _z	00	11	59		
	i _z	00	12	51		
	i _z	00	13	35		
	iS _{NE}	00	19	07		
	i _z NE	00	19	53		
	M	00	38.5	-		
27	i	03	00	31		NESA 36
	i	03	00	38		
	e	03	24	19		
27	eL	01	07	-		
27	eL	12	35	-		

J.J.L., S.J.
W.A.L.