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STATION CONSTANTS AND INSTRUMENTS

Latitude—40° 26.7′ North.

Longitude—79° 57.2′ West.

Lithological foundation—Birmingham Shale—Pennsylvania age.

Elevation—273 meters above sea level.

Instruments

Two Wenner horizontal seismographs (Orientation N 30° W and N 60° E)

One Benioff vertical seismograph (long-period recording only)

(The above instruments operate with photographic recording.)

Time Service and Control

Time marks are given by two Observatory master clocks. One is a special astronomical type (used as stand-by), while the other is a Frodsham astronomical clock (used for routine work).

Time signals are recorded automatically (or manually, depending on weather conditions) several times daily. These signals are transmitted from Washington, D. C. via Stations NSS and WWV, and from Ottawa via Station CHU.

The average clock drift is one-half second per day.

Instrument Constants

Magnification curves for the Wenner seismographs were given in No. 1 of this Bulletin. The magnification curve for the Benioff is not yet completed. The "nominal" magnification for this instrument is approximately 24,000.

New Instrument Vault

A new instrument vault has been built in the Cathedral of Learning to house the mechanically recording pendula. Included in this vault will be an interferometer-type tiltmeter and a well-gage recorder.

Visual Recorder

A visual recorder for adaptation to the Wenner seismometer is under development at the time of publication of this Bulletin.

MICROSEISMIC ACTIVITY

These data have been evaluated according to the following scale:

HORIZONTAL AMPLITUDE	DESIGNATION
Less than 2 microns	Below normal
Between 2 and 3 microns	Normal
More than 3 microns	Above normal

	DATE	EVALUATION
January	1 – 10	Above normal
	10 – 12	Considerably above normal
	12 – 13	Above normal
	13 – 26	Considerably above normal
	26 – 31	Above normal
February	1 – 6	Considerably above normal
	6 – 8	Above normal
	8 – 11	Slightly above normal
	11 – 12	Considerably above normal
	12 – 20	Above normal
	20 – 21	Considerably above normal
	21 – 23	Above normal
	23 – 24	Normal
	24 – 28	Above normal
March	1 – 4	Slightly above normal
	4 – 5	Normal
	5 – 8	Slightly below normal
	8 – 11	Normal
	11 – 18	Slightly above normal
	18 – 23	Normal
	23 – 24	Slightly above normal
	24 – 28	Normal
	28 – 31	Above normal
April	1 – 14	Above normal
	14 – 15	Slightly above normal
	15 – 17	Considerably above normal
	17 – 19	Above normal
	19 – 20	Normal
	20 – 22	Considerably above normal

	DATE	EVALUATION
	22 – 23	Above normal
	23 – 27	Slightly above normal
	27 – 30	Above normal
May	1 – 5	Above normal
	5 – 10	Normal
	10 – 20	Slightly below normal
	20 – 28	Below normal
	28 – 29	Normal
	29 – 31	Slightly above normal
June	1 – 3	Above normal
	3 – 5	Slightly above normal
	5 – 15	Normal
	15 – 18	Slightly below normal
	18 – 30	Station closed
July	1 – 11	Station closed
	11 – 31	Slightly below normal
August	1 – 2	Normal
	2 – 3	Above normal
	3 – 30	Below normal
	30 – 31	Normal
September	1 – 9	Normal
	9 – 10	Slightly above normal
	10 – 16	Above normal
	16 – 21	Slightly above normal
	21 – 26	Normal
	26 – 30	Station inoperative
October	1 – 3	Station inoperative
	3 – 4	Slightly above normal
	4 – 10	Normal
	10 – 15	Slightly above normal
	15 – 22	Above normal
	22 – 31	Slightly above normal

DATE		EVALUATION
November	1 – 4	Above normal
	4 – 10	Considerably above normal
	10 – 11	Above normal
	11 – 15	Slightly above normal
	15 – 19	Above normal
	19 – 23	Slightly above normal
	23 – 24	Above normal
	24 – 26	Considerably above normal
	26 – 30	Above normal
December	1 – 3	Above normal
	3 – 6	Considerably above normal
	6 – 15	Above normal
	15 – 16	Considerably above normal
	16 – 17	Above normal
	17 – 23	Slightly above normal
	23 – 28	Above normal
	28 – 30	Considerably above normal
	30 – 31	Above normal

SECTION ON SEISMIC DATA

Earthquakes for which preliminary phases have been identified or for which preliminary epicenters have been worked out, are numbered in the left-hand column as of No. 1, September 8, 1939. It was on this date that our new station was placed in operation.

	GNWCH DATE	COMPNT.	PHASE	GMT	
227	Jan. 5	H	iP	01-20-42	Δ(S-P) = 28.4° = 3,155 km
		H	iPP	01-46-29	H = 01-14-44 (GMT)
		H	eS	01-25-36	U.S.C.G.S. gives
		H	iH	01-26-37	H = 1h 15.0m (GMT)
					Lat. 15.5° North
					Long. 91.0° West
		Seismic activity centering about 20h 24m (GMT)			
	Jan. 7	Seismic activity centering about 06h 50m (GMT)			
228	Jan. 11	Z	iP	01-45-35	Δ(S-P) = 73.1° = 8,120 km
		NW	iS	01-55-07	H = 01-34-08 (GMT)
		NW	i	01-55-38	
	Jan. 12	Z	iP	20-33-57	
		Z	i	20-35-52	
		Other phases ihdiscernible because of overlapping trace.			
	Feb. 12	Seismic activity centering about 12h 50m (GMT)			
	Mar. 12	Seismic activity centering about 00h 35m (GMT)			
	Mar. 15	Seismic activity centering about 08h 50m (GMT)			
		H	e	13-36-20	U.S.C.G.S. gives
		H	i	13-37-12	H = 13h 49.6m (GMT)
					Lat. 35.7° North
					Long. 118.0° West
					Δ = 3,350 km
229	Mar. 25	Z	iP	08-52-26	Δ (S-P) = 23° = 2,555 km
		H	eS	08-56-36	H = 08-47-21 (GMT)
		H	e	22-28-05	
	Mar. 26	Z	eP	17-28-33	
230	Mar. 29	Z	iP	07-33-56	Δ(S-P) = 41° = 4,555 km
		Z	i	07-34-08	H = 07-26-13 (GMT)
		H	eS	07-40-12	
		H	i	07-40-16	
231	Apr. 1	Z	eP	12-38-29	Δ(S-P) = 57.6° = 6,400 km
		H	iS	12-48-56	H = 12-28-43 (GMT)

	GNWCH DATE	COMPNT.	PHASE	GMT	
232		Z	iP	19-07-14	Δ(S-P) = 58.4° = 6,490 km
		Z	i	19-07-16	H = 19-57-22 (GMT)
		H	eS	19-15-22	
	Apr. 2	Seismic activity centering about 16h 30m (GMT)			
	Apr. 3	Seismic activity centering about 03h 15m (GMT)			
		Seismic activity centering about 09h 40m (GMT)			
	Apr. 6	Seismic activity centering about 05h 40m (GMT)			
233	Apr. 11	Z	eP	02-03-59	Δ (S-P) = 72.2° = 8,020 km
		H	eS	02-13-26	H = 01-52-38 (GMT)
	Apr. 23	Z	e	05-15-51	
		Z	e	05-27-32	
	May 3	H	i	22-44-14	U.S.C.G.S. gives H = 22h 23.4m (GMT) Lat. 90° South Long. 153° East
234	May 8	H	eP	05-37-31	Ca. Δ = 143° = 15,890km
		Z	eP′	05-39-51	H = 05-20-15 (GMT)
		Z	iPP	05-42-52	
		Seismic activity centering about 10h 30m (GMT)			
235	May 9	H	eP	23-40-20	Δ(S-P) = 30.1 = 3,345 km
		H	eS	23-45-26	H = 23-34-07 (GMT)
		H	eL	23-47-08	U.S.C.G.S. gives
		H	eM	23-50-18	H = 23h 34.4m (GMT) Lat. 22° North Long. 108° West
236	May 15	Z	iP	21-16-41	Δ(S-P) = 28.7° = 3,190 km
		Z	i	21-16-56	H = 21-10-41 (GMT)
		H	eS	21-21-37	U.S.C.G.S. gives H = 22h 10.6m (GMT) Lat. 16° North Long. 96° West

	GNWCH DATE	COMPNT.	PHASE	GMT	
237	May 21	Z	iP	09-22-58	Δ(S-P) = 29.1° = 3,235 km
		H	eS	09-27-54	H = 09-16-54 (GMT) U.S.C.G.S. gives H = 9h 16.6m (GMT) Lat. 14.2° North Long. 60.8° West
	June 2	Seismic activity centering about 02h 25m (GMT)			
	June 5	Seismic activity centering about 01h 58m (GMT)			
	June 6	Seismic activity centering about 11h 05m (GMT)			
238	June 7	Z	iP	04-19-17?	Δ(S-P) = 27.2° = 3,020 km
		H	iS	04-24-02?	H = 04-03-30 (GMT)
		Other phases indiscernible			U.S.C.G.S. gives H = 4h 13.3m (GMT) Lat. 17° North Long. 94° West
	June 18-July 11	Station closed for adjustment			
	July 12	Seismic activity centering about 22h 30m (GMT)			
239	July 18	H	eP	06-13-59	Δ(S-P) = 36.1° = 4,010 km
		H	ePP	06-15-08	H = 06-06-54
		H	eS	06-19-47	U.S.C.G.S. gives
		H	eSS	06-23-19	H = 6h 07.1m (GMT)
		H	iL	06-26-13	Lat. 50° North Long. 129° West
	July 18	H	eS	07-29-07	(Aftershock)
	July 18	H	i	14-43-09	
240	July 25	Z	iP	16-52-50	Δ(S-P) = 65.7° = 7,300 km
		H	eS	17-01-43	H = 16-42-16 (GMT)
		H	eL	17-11-57	U.S.C.G.S. gives H = 16h 42.1m (GMT) Lat. 51° North Long. 179° West

	GNWCH DATE	COMPNT.	PHASE	GMT	
241	July 26	Z	iP	06-54-56	Δ(S-P) = 59.9° = 6,655 km
		H	iS	07-03-14	H = 07-44-54 (GMT)
		H	eL	07-13-16	U.S.C.G.S. gives
					H = 6h 44.7m (GMT)
					Lat. 21.6° South
					Long. 70.0° West
	July 28	Seismic activity centering about 08h 16m (GMT)			
	July 31	H	e	00-35-36	
		H	i	00-41-55	
242	Aug. 2	Z	iP	19-29-41	Δ(S-P) = 66.2° = 7,355 km
		H	iS	19-38-36	H = 19-18-58 (GMT)
		H	iPS	19-39-04	U.S.C.G.S. gives
					H = 19h 18.7m (GMT)
					Lat. 27° South
					Long. 70° West
	Aug. 5	H	e	02-51-42	
		H	i	03-46-59	
		H	e	05-51-20	
		H	e	12-38-23	
		H	e	12-42-33	
243	Aug. 7	Z	iP	18-31-47	Δ(S-P) = 21.6° = 2,400 km
		H	iS	18-35-45	H = 18-26-56 (GMT)
		H	iSS	18-36-35	(Aftershock of Aug. 4 quake)
244		Z	iP	19-26-45	(Aftershock)
		H	iS	19-30-43	
245	Aug. 8	Z	iP	01-51-44	
		Z	iP	13-33-46	(Aftershock)
		H	iPP	13-34-21	
		H	eS	13-37-40	
		H	iS	13-37-48	
246		Z	iP	17-30-16	(Aftershock)
		H	iS	17-34-14	
	Aug. 9	Z	iP	09-30-46	(Aftershock)
		H	eP	20-11-50	

	GNWCH DATE	COMPNT.	PHASE	GMT	
	Aug. 10	H	eP	02-13-33	(Aftershocks)
		H	eP	07-03-45	
		H	eP	09-05-25	
		H	eP	11-50-54	
	Aug. 11	Seismic activity centering about 03h 15m (GMT)			
					U.S.C.G.S. gives
					H = 1h 54.3m (GMT)
					Lat. 8° South
					Long. 155° East
	Aug. 19	Seismic activity centering about 06h 05m (GMT)			
247	Aug. 21	Z	iP	19-22-46	Δ(S-P) = 23.2° = 2,580 km
		Z	iPP	19-23-17	H = 19-17-39 (GMT)
		H	iS	19-26-58	
	Aug. 22	H	e	01-50-14	
		H	e	01-54-19	
	Aug. 24	H	eS	14-27-32	
248	Aug. 28	Z	iP	22-38-25	Δ(S-P) = 59.4° = 6,600 km
		H	iS	22-46-40	H = 22-28-26 (GMT)
					U.S.C.G.S. gives
					H = 22h 28.2m (GMT)
					Lat. 21° South
					Long. 70° West
	Sept. 6	H	e	22-08-34	
	Sept. 12	Severe seismic activity centering about 15h 45m (GMT)			
		Phases indiscernible because of overlapping trace			
					U.S.C.G.S. gives
					H = 15h 16.9m (GMT)
					Lat. 25.5° North
					Long. 89° East
					Δ = 12,900 km

	GNWCH DATE	COMPNT.	PHASE	GMT	
249	Sept. 13	Z	iP	19-10-44	Δ(S-P) = 73.3° = 8,145 km
		H	eS ?	19-20-19	H = 19-09-17 (GMT)
		H	eP ?	19-59-07	
250	Sept. 15	Z	iP	16-15-48	Δ(S-P) = 21.4° = 2,380 km
		H	eS ?	16-19-34	H = 16-10-59 (GMT)
251	Sept. 19	H	eP	07-02-12	Δ(S-P) = 19.3° = 2,145 km
		H	eS ?	07-09-06	H = 06-57-47 (GMT)
252	Sept. 23	Z	iP′	23-48-50	Δ(S-P) = 127.1° = 14,120 km
		H	iPP	23-50-46	H = 23-29-44 (GMT)
		H	ePKS	23-52-39	U.S.C.G.S. gives
		H	e	00-08-28	H = 23h 29.8m (GMT)
					Lat. 3° South
					Long. 144° East
253	Sept. 25	H	eP	10-10-38	Δ(S-P) = 22.1° = 2,455 km
		H	eS	10-14-40	H = 10-05-42 (GMT)
		H	i	10-14-44	U.S.C.G.S. gives
					H = 10h 0.5m (GMT)
					Dominican Republic
		H	eS ?	15-07-06	
	Sept. 26-Oct. 3	Station inoperative			
254	Oct. 4	Z	iP	14-50-32	Δ(S-P) = 22.7° = 2,520 km
		Z	iPP	14-50-58	H = 14-45-30 (GMT)
		H	eS	14-54-40	U.S.C.G.S. gives
		H	iS	14-54-44	H = 14h 45m 26s (GMT)
					Off Sanana Peninsula
	Oct. 22	Seismic activity centering about 10h 40m (GMT)			
255	Oct. 30	Z	eP	07-57-10	Δ(S-P) = 54.4° = 6,045 km
		H	iS	08-04-53	H = 07-47-46 (GMT)
		H	i	08-05-13	U.S.C.G.S. gives
		H	e	08-06-56	H = 07h 47.6m (G.M.T.)
					Lat. 54° North
					Long. 164° West

	GNWCH DATE	COMPNT.	PHASE	GMT	
256	Nov. 1	Z	iP	11-24-45	Δ(S-P) = 60.6° = 6,735 km
		H	iS	11-33-08	H = 11-14-39 (GMT)
		H	e	11-36-59	U.S.C.G.S. gives
					H = 11h 14.4m (GMT)
					Lat. 52° North
					Long. 174° West
	Nov. 1	Aftershocks at			
		H	i	11-39-48	
		H	i	11-52-55	
257	Nov. 2	Z	iP	18-41-52	Δ(S-P) = 97.6° = 10,890 km
		Z	iPP	18-45-45	H = 18-28-17 (GMT)
		H	iPS ?	18-54-20	U.S.C.G.S. gives
		H	eSS	19-00-12	H = 18h 28.4m (GMT)
					Lat. 41° North
					Long. 76° East
	Nov. 3	Seismic activity centering about 20h 05m (GMT)			
					U.S.C.G.S. gives
					H = 19h 32.5m (GMT)
					Lat. 0°
					Long. 16° West
258	Nov. 4	Z	iP	22-00-19	Δ(S-P) = 84.9° = 9,435 km
		Z	iPP	22-03-36	H = 21-47-47 (GMT)
		H	iS	22-10-49	U.S.C.G.S. gives
		H	i	22-11-07	H = 21h 47.6m (GMT)
		H	i	22-12-19	Lat. 40° North
					Long. 53° East
	Nov. 7	Seismic activity centering about 18h 05m (GMT)			
					U.S.C.G.S. gives
					H = 17h 42.8m (GMT)
					Lat. 9° South
					Long. 77.5° West

	GNWCH DATE	COMPNT.	PHASE	GMT	
	Nov. 12	Seismic activity centering about 06h 50m (GMT)			
					U.S.C.G.S. gives
					H = 17h 28.7m (GMT)
					Lat. 21° South
					Long. 173° West
	Dec. 18	Seismic activity centering about 00h 45m (GMT)			
	Dec. 19	H	e	03-22-18	
		H	e	03-24-48	
259	Dec. 20	H	eP	19-32-51	Δ(S-P) = 98.4° = 10,935 km
		H	iPP	19-37-04	H = 19h 19m 12s (GMT)
		H	iSKKS	19-43-57	U.S.C.G.S. gives
		H	iS	19-44-22	H = 19h 19.0m (GMT)
		H	iPS	19-47-50	Lat. 33.3° North
					Long. 134.0° East
		Other phases indiscernible because of overlapping trace			
	Dec. 21	Seismic activity centering about 04h 15m (GMT)			
260	Dec. 21	Z	iP	10-31-26	Δ(S-P) = 83.9° = 9,320 km
		H	iS	10-41-51	H = 10h 18m 59s (GMT)
		H	iS_1	10-42-11	U.S.C.G.S. gives
		H	SS	10-47-27	H = 10h 08.8m (GMT)
					Lat. 44° North
					Long. 148° West
261	Dec. 21	Z	iP	20-01-21	Δ(S-P) = 85.7° = 9,520 km
		H	i	20-02-31	H = 19h 48m 45s (GMT)
		H	iS	20-11-55	
		H	e	20-17-01	
262	Dec. 28	Z	iP	01-03-26	Δ(S-P) = 21.8° = 2,420 km
		H	iS	01-09-20	H = 00h 58m 33s (GMT)