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STATION CONSTANTS AND INSTRUMENTS

Latitude— $40^{\circ} 26.7'$ North.

Longitude— $79^{\circ} 57.2'$ West.

Lithological foundation—Birmingham Shale—Pennsylvania age.

Elevation—273 meters above sea level.

Instruments

Two Wenner horizontal seismographs (Orientation $N 30^{\circ} W$ and $N 60^{\circ} E$)

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.

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

Instrument Constants

Magnification curves for the Wenner seismographs were given in No. 1, Vol. 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, adapted to the Wenner seismometer, is being used currently on an experimental basis.

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 - 2	Above normal
2 - 5	Normal
5 - 6	Above normal
6 - 10	Considerably above normal
10 - 12	Above normal
12 - 14	Considerably above normal
14 - 15	Slightly above normal
15 - 16	Above normal
16 - 17	Considerably above normal
17 - 21	Above normal
21 - 29	Slightly above normal
29 - 31	Above normal
February 1 - 6	Above normal
6 - 7	Slightly above normal
7 - 17	Above normal
17 - 18	Slightly above normal
18 - 28	Above normal
March 1 - 3	Slightly above normal
3 - 6	Above normal
6 - 8	Slightly above normal
8 - 10	Above normal
10 - 15	Slightly above normal
15 - 22	Above normal
22 - 23	Slightly above normal
23 - 25	Above normal
25 - 30	Slightly above normal
30 - 31	Above normal

(4)

MICROSEISMIC ACTIVITY

5

DATE	EVALUATION
April 1 - 18	Recording apparatus overhauled and adjusted
18 - 23	Normal
23 - 27	Slightly above normal
27 - 28	Normal
28 - 29	Slightly above normal
29 - 30	Normal
May 1 - 7	Normal
7 - 11	Slightly above normal
11 - 15	Normal
15 - 27	Below normal
27 - 31	Normal
June 1 - 13	Slightly below normal
13 - 17	Below normal
17 - 20	Slightly below normal
20 - 23	Below normal
23 - 24	Normal
24 - 27	Slightly above normal
27 - 28	Normal
28 - 30	Below normal
July 1 - 9	Below normal
9 - 10	Normal
10 - 12	Below normal
12 - 16	Normal
16 - 19	Below normal
19 - 21	Normal
21 - 31	Below normal
August 1 - 3	Slightly below normal
3 - 4	Normal
4 - 14	Below normal
14 - 16	Normal
16 - 18	Above normal
18 - 20	Considerably above normal
20 - 21	Above normal
21 - 26	Normal
26 - 31	Below normal

	DATE	EVALUATION
September	1 - 3	Below normal
	3 - 4	Normal
	4 - 11	Above normal
	11 - 14	Considerably above normal
	14 - 16	Above normal
	16 - 17	Normal
	17 - 18	Above normal
	18 - 19	Considerably above normal
	19 - 21	Above normal
	21 - 24	Normal
	24 - 26	Above normal
	26 - 30	Normal
October	1 - 3	Normal
	3 - 5	Slightly above normal
	5 - 18	Above normal
	18 - 21	Slightly above normal
	21 - 23	Above normal
	23 - 26	Slightly above normal
	26 - 28	Above normal
	28 - 29	Considerably above normal
	29 - 30	Above normal
	30 - 31	Slightly above normal
	November	1 - 9
9 - 16		Slightly above normal
16 - 17		Normal
17 - 21		Slightly above normal
21 - 23		Above normal
23 - 24		Considerably above normal
24 - 26		Above normal
26 - 29		Considerably above normal
29 - 30	Above normal	
December	1 - 14	Above normal
	14 - 15	Slightly above normal
	15 - 16	Above normal
	16 - 17	Considerably above normal
	17 - 18	Above normal
	18 - 23	Considerably above normal
	23 - 28	Above Normal
	28 - 29	Considerably above normal
	29 - 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		
Jan. 3				Seismic activity centering about 03h 20m (GCT)	
Jan. 29	NW	i	00-14-34	U.S.C.G.S. gives H = 00h56m 32s G.C.T. Lat. 54°S Long. 71°W	
Feb. 3				Seismic activity centering about 01h10m (GCT) Seismic activity centering about 05h 55m (GCT)	
Feb. 5				Seismic activity centering about 03h 05m (GCT) U.S.C.G.S. gives H = 01h 23m 30s GCT Lat. 50° S Long. 164° E	
Feb. 17	NW	i	03-53-12	U.S.C.G.S. gives H = 03h 47m21s GCT Lat. 13½° N Long. 91° W	
326	Feb. 28	Z	iP	10-33-03	Δ (S-P) = 77.2° = 8580 Km
		Z	i	10-34-21	H = 10-21-08 (GCT)
		Z	i	10-35-36	U.S.C.G.S. gives
		H	iS	10-42-56	H = 10h20m 58s GCT Lat. 46° N Long. 143½° E
Mar. 7	NW	e	02-28-40	U.S.C.G.S. gives	
	NW	i	02-38-44	H = 02h07m 46s GCT Lat. 10° N Long. 124° E	
327	Mar. 14	Z	ip	03-18-35	Δ (S-P) = 46.4° = 5155 Km
		H	iS	03-25-28	H = 03-10-09
		H	i	03-26-30	U.S.C.G.S. gives H = 03h 10 m 02S GCT Lat. 8° S Long. 74° W

GNWCH DATE	COMPNT.	PHASE	GMT	
Mar. 27				Seismic activity centering about 13h 40m GCT U.S.C.G.S. gives H = 13h 04.7m04S GCT Lat. $53\frac{1}{2}^{\circ}$ N Long. 173° E
Apr. 1-18				Recording apparatus overhauled and adjusted
Apr. 26				Seismic activity centering about 07h 40m (GCT)
Apr. 30				Seismic activity centering about 11h 02m (GCT) Seismic activity centering about 00h 10m (GCT)
May 11				Seismic activity centering about 00h 47m (GCT)
May 16				Seismic activity centering about 19h 20m (GCT)
May 19	H	e	02-59-26	U.S.C.G.S. gives
	H	e	03-04-01	H = 02-38-10 GCT
	H	e	03-08-05	Lat. $20\frac{1}{2}^{\circ}$ S Long. 169° E
				Seismic activity centering about 08h 36m GCT
May 25				Seismic activity centering about 08h 40m GCT
June 5				Seismic activity centering about 11h 45m GCT
June 7	Z	i	17-00-39	U.S.C.G.S. gives
	NW	i	17-06-03	H = 16h 52m 34S GCT
	NW	i	17-07-08	Lat. 4° S
	NW	i	17-11-00	Long. $76\frac{1}{2}^{\circ}$ W
June 8	NW	e	16-25-55	
	NW	i	16-32-16	
June 19	Z	i	12-56-35	
June 21				Seismic activity centering about 07h 50m GCT
June 25	NW	e	22-45-41	
	NW	i	22-57-06	
July 8				Seismic activity centering about 04h 40m GCT
July 12	H	e	11-27-01	
July 13	H	i	04-21-28	
	H	i	04-26-50	
	H	i	04-30-41	

GNWCH DATE	COMPNT.	PHASE	GMT	
July 20				Seismic activity centering about 10h 05m GCT
July 21	H	i	20-53-14	
	H	i	21-01-55	
July 25				Seismic activity centering about 18h 40m GCT
July 28	H	eR	03-44-19	
	H	e	05-56-36	
	H	e	17-42-22	
				(Phases unreadable-overlapping trace) seismic activity centering about 18h 05m GCT
July 29				Seismic activity centering about 15h 05m GCT
	H	i	17-08-44	
July 30	H	i	00-09-22	
Aug. 1	H	i	08-55-53	U.S.C.G.S. gives
	H	i	09-37-14	H = 09h 11m 39s GCT Lat. $42\frac{1}{2}^{\circ}$ N Long. 145° E
Aug. 17				Seismic activity centering about 23h 05m GCT Records unreadable because of overlapping trace
Aug. 5	H	i	09-38-51	U.S.C.G.S. gives
	H	i	09-41-34	H = 09h 16m 48s GCT
	H	i	09-42-21	Lat. 50° S Long. 164° E
Aug. 7	H	e?	03-04-09	U.S.C.G.S. gives
	H	i	03-21-49	H = 02h 44m GCT Lat. 6° N Long. 126° E
Aug. 13	H	i	16-52-19	U.S.C.G.S. gives H = 16h 43m 20s GCT Lat. $19\frac{1}{2}^{\circ}$ N Long. $70\frac{1}{2}^{\circ}$ W

GNWCH DATE	COMPNT.	PHASE	GMT	
Aug. 15	Seismic activity centering about 24h 40m GCT			
	Seismic activity centering about 14h 24m 11S			
	(Records unreadable - overlapping trace)			
			U.S.C.G.S. gives	
			H = 14h 09m 30s GCT	
			Lat. $28\frac{1}{2}^{\circ}$ N	
			Long. 97° E	
Aug. 17	Seismic activity centering about 16h 50m GCT			
Sept. 9	Seismic activity centering about 10h 50m GCT			
Sept. 10	NW	i	15-35-58	U.S.C.G.S. gives
				H = 15h 15m 57S GCT
	NW	i	15-38-25	Lat. 14° S
				Long. 167° E
Sept. 16	NW	i	01-12-09	U.S.C.G.S. gives
				H = 00h 55m 36S GCT
				Lat. 4° S
				Long. $104\frac{1}{2}^{\circ}$ W
Sept. 20	Phases unreadable - microseismic activity.			
Sept. 23	NW	e	00-17-13	U.S.C.G.S. gives
				H = 23h 53m 29S GCT
	NW	e	00-18-03	Lat. 18° S
	NW	i	00-18-38	Long. 177° W
	NW	i	00-26-11	
	NW	i	00-28-42	
Sept. 27	Seismic activity centering about 04h 10m GCT			
328 Sept. 29	Z	eP	06-38-44	$\Delta(S-P) = 30.4^{\circ} = 3380$ Km
	H	iPP	06-40-13	H = 06-32-28
	H	iS	06-43-52	U.S.C.G.S. gives
				H = 06h 32m 14S GCT
				Lat. 19° N
				Long. 107° W
	Aftershock-beginning about 08h 02m GCT			
Oct. 3	Seismic activity centering about 13h 04m GCT			

GNWCH DATE	COMPNT.	PHASE	GMT	
Oct. 5	H	eP	16-15-44	U.S.C.G.S. gives
	H	iP	16-15-46	H = 16h 09m 34S GCT
	Overlapping trace - other phases			Lat. $10\frac{1}{2}^{\circ}$ N
	Undiscernible			Long. 85° W
	Aftershock centering about 17h 15m GCT			
Oct. 8	H	i	03-42-58?	
	H	i	03-46-15?	
Oct. 20	Z	e	07-50-53	
	H	e	07-55-11	
329 Oct. 21	H	ep	09-49-03	$\Delta(S-P) = 30.3^{\circ} = 3380$ Km
	H	iS	09-54-11	H = 09-42-58
Oct. 23	Z	eP	16-19-27	$\Delta(S-P) = 29.1^{\circ} = 3235$ Km
	Z	i	16-19-40	H = 16-13-23
	H	iS	16-24-26	U.S.C.G.S. gives
				H = 16h 13m 24S GCT
				Lat. $14\frac{1}{2}^{\circ}$ N
				Long. 92° W
	Z	iP	17-53-56	(aftershock)
	H	i	23-51-17	
Oct. 24	H	i	01-03-34	
Nov. 5	Seismic activity centering about 17h 02m GCT			
	Seismic activity centering about 18h 40m GCT			
Nov. 6	Seismic activity centering about 03h 30m GCT			
Nov. 11	Seismic activity centering about 09h 55m GCT			
330 Nov. 17	H	iP	19-34-26	$\Delta(S-P) = 28.1^{\circ} = 3120$ Km
	H	i	19-35-28	H = 19-28-31
	H	iS	19-39-18	
	H	iSS	19-40-36	
Dec. 1	Z	i	14-58-21	U.S.C.G.S. gives
	Z	i	14-59-49	H = 14h 51m 00S GCT
				Lat. 14° N
				Long. 47° W

GNWCH DATE	COMPNT.	PHASE	GMT	
Dec. 2	Z	i	15-27-14	U.S.C.G.S. gives
	H	i	15-33-51	H = 15h 19m 20s GCT Lat. 8° S Long. 71½° W
	Z	e	20-10-36	U.S.C.G.S. gives
	H	i	20-17-36	H = 19h 51m 45s GCT
	H	i	20-18-53	Lat. 18° S
	H	i	20-21-54	Long. 167° E
Dec. 4	H	i	16-48-18	
331 Dec. 9	Z	iP	21-49-19	$\Delta(S-P) = 62.6^\circ = 6955\text{Km}$
	H	i	21-50-11	H = 21m 39S
	H	iS	21-57-54	U.S.C.G.S. gives H = 21h 38m 56S GCT Lat. 24° S Long. 67½° W
Dec. 10	Z	i	03-00-08	U.S.C.G.S. gives H = 02h 50m 30S GCT
	H	i	03-07-43	Lat. 14½° S
	H	i	03-09-42	Long. 76½° W
	Z	i	13-41-21	U.S.C.G.S. gives
	H	i	13-47-42	H = 13h 23m 10S GCT
	H	i	13-48-50	Lat. 28½° S Long. 179° W
Dec. 14	H	i	02-07-43	U.S.C.G.S. gives
	H	i	02-11-12	H = 01h 52m 47S GCT
	H	i	02-17-05	Lat. 19½° S Long. 176° W
Seismic activity centering about 13h 50m GCT				
Dec. 18	Z	iP	08-10-18	U.S.C.G.S. gives
	H	i	08-14-47	H = 08h 04m 46S GCT Lat. 15° N Long. 90° W