

# Seismological Bulletin.

No. 1.

Jan.-March 1924.

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

$\phi=53^{\circ} 50' 40''$  N.     $\lambda=2^{\circ} 28' 12''$  W.     $h=116$ m.

Lithologic Foundation : Millstone Grit over Carboniferous Limestone Shales.    Time : Mean Greenwich, 0 or 24=Midnight.

### INSTRUMENTS.

	MASS	COMP.	T <sub>0</sub>	ε	V	1" TILT
I Milne ... ..	1 Kg.	E-W	12.05	20:1	150	26.2mm
II Milne-Shaw ...	1 lb.	E-W	18.0	-	-	2.3 "

No.	Date	Phase	Time			Period	Ampl. A <sub>E</sub>	Δ	REMARKS
			h.	m.	s.				
1.	1924 Jan. 14	P(?)	21.	2.	50				
		S		13.	13				
		M		44.	0				
		F	22.	22	-				
2.	" 21	In	2.	12.	13			very small	
		F	3.	1	-				
3.	" 29.	iS(?)	2.	19.	20				
		L		40	-				
		M <sub>1</sub>		48.	30				
		M <sub>2</sub>		52.	0				
		M <sub>3</sub>		55.	20				
		F	4.	13	-				
4.	Feb 13	eL	23.	54	-			(Milne).	
5.	" 19	eP	17.	10.	30				
		M		26.	0				
		F	18.	12	-				
6.	" "	e	23.	20	-				
		F	2.	35	-				
7.	" "	eP	7.	12.	30				
		M		25.	30				
		F	8.	22	-				
8.	" 29.	M	9.	43	-			" In & F lost in micros.	
9.	March 4.	P	lost at change of film.						
		S(?)	10.	29.	40				
		SR(?)		35.	15				
		L		44.	0				
		M <sub>1</sub>		48.	30				
		M <sub>2</sub>		52.	45				
		F	13.	15	-				
10.	" 11	e	11.	3	-			Small.	
		L		20	30				
		F		45	-				

# Seismological Bulletin.

 No. 2

March-April 1924

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl. $\frac{A}{E}$ $\mu$	$\Delta$ km.	REMARKS
			h.	m.	s.				
11	1924 Mar. 11	In	23.	27	-			Very small	
12	" "	In	23.	42	-			" "	
13	" 12	M	14.	3	40			Small	
14	" 13	In	13.	10	-				
		M		13	20			very small.	
15	" 15	S	10.	52	32				
		L	11.	5	30				
		M <sub>1</sub>		13	20				
		M <sub>2</sub>		16	30				
		F	12.	15	-				
16	" 16	L	10.	24	-				
		M		27.	15			Small	
17	" 22	In	12.	56.	26				
		M	13.	4	-			very small	
18	" 22	i S(?)	13.	13.	20				
		L		18	-				
		M <sub>1</sub>		19.	20			Small	
		M <sub>2</sub>		20.	40				
		F		48	-				
19	" 24	M	23.	10	-			very small	
20	" 25	M	14.	48	-			" "	
21	" 25	M	15.	48	-			" "	
22	" 26	M	21.	30	-			" "	
23	" 30	e	0.	40.	10				
		M		48.	30			Small.	
		F	1.	35	-				
24	Apr. 4	iP	17.	53.	40			very small rapid oscill?	
25	" 4	iP	17.	54.	7			do. (Nottingham?)	
26	" 4	iP	23.	45.	3	1(ea)	3	Nottingham E.Q.	
		F		45.	48				
27	" 13	P	14.	8.	15			very small	
		F		22.	45				
28	" 13	eP	14.	46	-			Small.	
			15.	12.	30				
29	" 14	iP	16.	39.	20			(Guam).	
		PR <sub>1</sub> (?)		45.	30				
		L	17.	5.	15				
		M		23	-	20	720		
		F	19.	50	-				
30	" 19	P	10.	15.	28				
		M		15.	36	< 1	6	Nottingham E.Q.	
		F		15.	45				

# Seismological Bulletin.

No. 3.

April - May 1924

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl.	$\Delta$ km.	REMARKS
			h.	m.	s.		$\mu$		
31.	Apr. 20	S(?)	14.	44.	55			<i>P lost in local disturbance</i>	
		L	15.	5.	35				
		M		9.	45				
		F		47	-				
32.	" 21	In(?)	14.	48	-			<i>Small &amp; ill-defined.</i>	
		F	16	-	-				
33.	" 21	In	20.	23	-			<i>" " "</i>	
		M		45	-				
		F	21.	9	-				
34.	" 26	P, M	15.	35.	46	< 1	20	<i>Local E.Q. or Spurious.</i>	
		F		35.	58				
35	" 28	M	17.	43.	30			<i>Small.</i>	
36	" 29	In	9.	35	-			<i>Ill-defined.</i>	
		M		37	30				
37.	" 29	M	9.	45.	0			<i>"</i>	
		F		47	- 0				
38	" 29	M	10.	43	-			<i>"</i>	
39.	" 29	In	21.	23.	30			<i>"</i>	
		M <sub>1</sub>		39	-				
		M <sub>2</sub>		44.	30				
		F	22.	12	-				
40	" 30	In	5.	39	-			<i>"</i>	
		M		50.	30				
		F	6.	16	-				
41	" 30	In	6.	36	-			<i>"</i>	
		M		58.	30				
		F	7.	30	-				
42	May 1	P	20.	6.	20			$\Delta 77^{\circ}4$ .	
43	" 4	S		16.	10			<i>Very rapid initial Tremors. No other phases discernable.</i>	
		L		39.	-				
		iP	17.	10.	32				
44	" 6	M <sub>1</sub>		17.	20			$\Delta 79^{\circ}5$ .	
		F	19.	4	-				
45	" 13	P	16.	23.	28			<i>Small</i>	
		S		33.	30				
		L		57.	30				
46	" 17	M	2.	16.	30			<i>"</i>	
		In	5.	35.	53				
		S(?)		45.	37				
		L	6.	16	-				
		M		27	-				

# Seismological Bulletin.

 No. 4.

May - July 1924

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl. $\frac{A}{E}$ $\mu$	$\Delta$ km.	REMARKS
			h.	m.	s.				
47.	May 28	P? S? S? F	10	5	22 35 33 3 -			Phases very uncertain.	
48.	" 31	M	12.	58	-				
49	June 26	eP ? L? M F	1.	57	36 55 - - -	28 20	12.5 mm 11.5 mm	Origin South Pacific.	
50	" 30	P S L M	15.	57.	0 0 - 30.30			Milne Seismograph.	
51	July 3	iP iS L M F	4.	50.	10 24 57 50 -		24 mm	$\Delta 60^{\circ} 5'$ . Tibet.	
52	" 5	e	23.	37	-			very small	
53	" 5	e	23.	52	-			" "	
54	" 6	In	16	-	- (ca)			Unmeasurable owing to entanglement.	
55	" 6	iP S.	18.	40.	56.? 53.			Times uncertain owing to irregularities in motor clock.	
56	" 7	eP	3.	56	-			very small.	
57	" 11	P S M. F	19.	54.	48 0 3 -	15	24 mm	$\Delta 60^{\circ} 2'$ . Tibet as on 3 <sup>rd</sup>	
58	" 11	M	23.	50.	30			Small	
59	" 12	P PR <sub>1</sub> S. SR <sub>1</sub> L <sub>2</sub> M F.	15.	21.	38 35 51 43 5 25 17 - (ca)			$50^{\circ} 2'$ To $15^{\circ} 12' 30''$ . Origin as on 6 <sup>th</sup> 18 <sup>th</sup>	
60	" 22	P(?) P(?) S M.	4.	16.	33 22 19 -				
61	" 22	P.	6.	17.	6		76.7	Very small local shock. (Pontypridd, N. Wales).	

# Seismological Bulletin.

 No. 5.

July - August 1924.

## STONYHURST COLLEGE OBSERVATORY

### BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl. <sub>A</sub> <sub>E</sub> $\mu$	$\Delta$  km.	REMARKS
			h.	m.	s.				
62.	July 22	P.	14	47	33		77.2°		
		S		57	22				
		L	15	8	-				
		M		15	-				
63.	" 24	P??	5.	15.	24		97°?		
		or S?	5.	16.	30				
		S?		27.	0				
		L		52.	0				
		M <sub>1</sub>		54.	30				
		M <sub>2</sub>	6.	16.	0				
64	" 27	M	21.	53.	30			Small.	
65	" 29	P	5.	48.	26				
		M	6.	27.	30				
66	Aug. 10	P	6.	46.	20			Small.	
		M	7.	50.	30				
		F	8.	32	-				
67	" 14	M	0.	42.	30			very small.	
68	" 14	P	18.	15.	30 (approx)			} Timing Clock not working.	
		S		26	-	"			
		M		57	-	"			
69	" 14	P	23.	40	-	"			
		S.		50	-	"			
70.	" 17	In	2.	9	-				
71	" 17	In	2.	29.	30				
		M	3.	6	-			Small.	
		F		47	-				
72	" 25	P	2.	39.	50				
		M	3.	20.	10				
		F	4.	15	-				
73.	" 25	P	14.	43.	30				
		S.		54.	7				
		L	15.	14	-				
		M.		16	30			Small.	
		F.	16.	15	-				
74.	" 25	P.	23.	27.	30			v. Small.	
		M.		55	-				
		F.	24.	32	-				
75	" 27	P.	22.	38.	57				
		S.		43.	0				
		M.		45.	20			v. Small.	
		F.	23.	18.	-				
76.	" 29	P.	0.	36.	0				
		M.		45.	45			v. Small.	
		F.	1.	4	-				

# Seismological Bulletin.

 No. 6.

August - September 1924.

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl.	$\Delta$ km.	REMARKS
			h.	m.	s.		$\mu$		
77	Aug. 30	P.	3.	23.	31			4450	
		S		29	44				
		L		56	-				
		M	4.	3.	30				
		F	6	1	-				
78	Sept. 4	M	16.	12.	20			Confused by local disturbances.	
79	" "	P	3.	51.	10				
		L	4.	20	-				
		M		38	-				
		F	5.	0	-				
80	" 13	P	14.	40.	57				
		S		46	3				
		M <sub>w</sub>		58	5				
		M <sub>E</sub>		58.	15				
		F	?						
81	" 14	M	14.	6	-			Confused by micros. " " "	
82	" 14	M	15.	6.	50				
83	" 16	P	2.	52.	10?				
		S		55.	56				
		M	3.	12.	40				
		F		32	-				
84	" 27	P.	4.	34.	10				
		S.		39.	30				
		M.		52	-				
		F	5.	18	-				
85	" 28	S	13.	38.	15				
		L		42.	50				
		M		44.	30				
		F.	14.	22	-				

*J. P. Howland S.J.*

# Seismological Bulletin.

No. 7.

October 1924.

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

$\phi=53^{\circ} 50' 40''$  N.     $\lambda=2^{\circ} 28' 12''$  W.     $h=116$ m.

Lithologic Foundation: Millstone Grit over Carboniferous Limestone Shales.    Time: Mean Greenwich, 0 or 24=Midnight.

### INSTRUMENTS.

	MASS	COMP.	T <sub>0</sub>	ε	V	1" TILT
I Milne ... ..	1 Kg.	E-W	18.05	—	—	2.3 mm.
II Milne-Shaw ...	1 lb.	E-W	12.05	19:1	150	26.2 mm.

No.	Date	Phase	Time			Period s.	Ampl. A <sub>E</sub> μ	Δ km.	REMARKS
			h.	m.	s.				
86	Oct. 8	P	20.	47.	30				
		S?		52.	38				
		L	21.	13.	33				
		F	22	-	-				
87	" 12	S	19	53	15				
		L		58	30				
		M	20	3	15				
		F		53	-				
88	" 13	iP	16	26.	35		49.2		
		S		33	42				
		L		37	58				
		M		39	40				
89	" 14	F	17.	20	-				
		P	5	8	28		44.2		
		S		15	5				
		L		20	0				
90	" 18	M		22	35				
		F	6.	17	-				
		eL	20	25	-				
		M		39	-				
91	" 18	P	23.	17.	42		81.4		
		S		27.	54				
		L		46.	-				
		M	24.	1.	-				
92	" 20	F.		20	-				
		P	0.	1.	25				
		S.		8.	40			very small.	
		iS	20.	13.	14				
93.	" 20	L		35	-				
		F	21.	48	-				
		iP	16.	50.	15			Small British Shock, felt at Birmingham.	
		F		50.	33				
95.	" 27	e	20.	10.	20				
		M		21.	2	-			
		F.		25	-				

# Seismological Bulletin.

 No. 8.

November-December 1924.

## STONYHURST COLLEGE OBSERVATORY

BLACKBURN, ENGLAND.

No.	Date	Phase	Time			Period s.	Ampl.	$\Delta$ km.	REMARKS
			h.	m.	s.		$\mu$		
96.	Nov. 5.	eL	19.	4.	0			very small.	
97	" 6	e	23.	9.	35			" "	
		F.		14	-				
98.	" 19	e	20.	19	-			" "	
		F.	24.	9	-				
99.	" 20	iP	20.	33.	29				
		S		38.	10				
		M.		49.	50				
		F.	21.	18.	-				
100	" 28	In	21.	59	-			Small, Confused by	
		F.	22.	6	-			micros.	
101	Dec. 11.	In	18.	55.	-			v. small.	
		F.	19.	0	-				
102.	" 12.	P.	2.	29.	30			Small.	
		F.		34.	30				
103.	" 17.	e	6.	13				Trace.	
		F.	6.	17.	-				
104	" 26	iP	1.	13.	52			Small local shock	
		M.		13.	55			felt at Blackburn	
		F.		14.	2			& vicinity.	
105	" 27	In	11.	40.	-	ea		Lost in micros.	
		F	12.	30	-	"			
106.	" 28	In	23.	24	-	approx.		Confused by very	
		M		45.	40			heavy micros.	
		F	24.	20		approx.			

*J. P. Rowland S. J.*

*21/5/25.*