

## SEISMOGRAPH RECORDS

For the Month of January, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE $A_E$ $\mu$	REMARKS.
		h.	m.	s.			
January 1	P	20	6	22			
	M	21	18		18	$\pm 10$	
	F	22	54	$\pm$			Seismograph out of order
6	eP	14	30	20			from 5 <sup>d</sup> 6 <sup>h</sup> to 6 <sup>d</sup> 6 <sup>h</sup>
	L	15	9	$\pm$			
	M	15	17	5	18	$\pm 45$	
	F	17	25	$\pm$			
6	e	20	19	15			
	M	20	28		20	$\pm 11$	
	F	21	17	$\pm$			Seismograph out of order
17	P	4	3	33			from 7 <sup>d</sup> 14 <sup>h</sup> to 9 <sup>d</sup> 7 <sup>h</sup>
17	PR	4	6	0			
	S	4	8	12			
	M <sub>1</sub>	4	13	30	7	$\pm 45$	
	M <sub>2</sub>	4	17	58	8	- 60	
	M <sub>3</sub>	4	18	2	8	+ 51	
	M <sub>4</sub>	4	20	24	8	+ 42	
	M <sub>5</sub>	4	20	36	8	- 53	
	M <sub>6</sub>	4	22	13	10	- 86	
	M <sub>7</sub>	4	22	18	10	+ 108	
	M <sub>8</sub>	4	22	38	10	- 93	
	F	7	15	$\pm$			
17	e	11	33				

# SEISMOGRAPH RECORDS

For the Month of January, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\varphi = 29^{\circ} 51' N$  ,       $\lambda = 31^{\circ} 20' E$  ,       $h = 115$  m.

Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ox.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
January 17	M	11	43		14	$\pm 3$	
	F	11	58				
19	e	18	0	20			
	L	18	18				
	M	18	20	30	18	$\pm 8$	
	F	19	16	$\pm$			
/ 19	e	22	18	15			
	L	22	58	35			
	M	23	8		20	$\pm 23$	
20	F	1	5				
/ 22	P	3	43	57			
	L	4	38				
	M	4	55		19	$\pm 8$	
	F	6	4	$\pm$			
22	e	15	11				
	M	15	20		18	$\pm 6$	
	F	15	36				
/ 22	P	21	4	29			No well determined max.
	L	22	7				A <sub>E</sub> < 10
	F	23	32				
23	eP	16	32	20			
	eS	16	34	0			
	M	16	34	30	3	$\pm 18$	✓

# SEISMOGRAPH RECORDS

For the Month of January, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\phi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
January 23	F	17	18	$\pm$			
28	P	10	42	30			
	S	10	46	29			
	M	10	53		9	$\pm 28$	
	F	11	26	$\pm$			
28	P	19	4	35			
	S	19	8	41			
	M	19	15		9	$\pm 30$	
	F	19	50	$\pm$			
/ 31	e	13	36				
	M	14	18		30	$\pm 100$	
	F	17	24	$\pm$			

## SEISMOGRAPH RECORDS

For the Month of February, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ February 5	iP	4	3	8			
	S	4	3	36			
	M	4	3	41	7	- 7	
	F	4	50	$\pm$			
/ February 14	eP	12	55	0			This interpretation is doubtful. There are signs of tremors from 12 <sup>h</sup> 25 <sup>m</sup> onwards which may be connected with this shock.
	S	13	2	50			
	L	13	20				
	M	13	22		16	$\pm$ 12	
	F	15	25				
/ February 16	e	3	37				
	L	4	8				
	M	4	14	30	22	$\pm$ 13	
	F	5	44				
February 17	iP	11	35	32			
	S	11	39	7			
	M	11	44	40	11	$\pm$ 25	
	F	12	25				
February 18	P	6	49	5			
	S	6	51	45			
	M	6	54	37	10	$\pm$ 11	

# SEISMOGRAPH RECORDS

For the Month of February, 1922.

**FROM HELWAN OBSERVATORY, EGYPT.**

$\phi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$ .	REMARKS.
		h.	m.	s.			
February 18	F	7	23				
<p>Smaller tremors were also recorded at 1<sup>d</sup> 17<sup>h</sup>, 2<sup>d</sup> 4<sup>h</sup>, 3<sup>d</sup> 17<sup>h</sup>, 10<sup>d</sup> 0<sup>h</sup>, 14<sup>d</sup> 0<sup>h</sup>,  15<sup>d</sup> 5<sup>h</sup>, 15<sup>d</sup> 8<sup>h</sup>, 15<sup>d</sup> 15<sup>h</sup>, 16<sup>d</sup> 11<sup>h</sup>, 17<sup>d</sup> 14<sup>h</sup>, 18<sup>d</sup> 10<sup>h</sup>, 18<sup>d</sup> 20<sup>h</sup>, 19<sup>d</sup> 22<sup>h</sup>, 24<sup>d</sup> 13<sup>h</sup>,  26<sup>d</sup> 9<sup>h</sup>.</p> <p style="text-align: center;"><i>small tremors</i></p> <p>During the January the following were recorded in addition to  those measured. At 1<sup>d</sup> 12<sup>h</sup>, 3<sup>d</sup> 21<sup>h</sup>, 10<sup>d</sup> 14<sup>h</sup>, 21<sup>d</sup> 0<sup>h</sup>.</p>							

## SEISMOGRAPH RECORDS

For the Month of March, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum =  $12^s.0$ .

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE $A_E$ $\mu$	REMARKS.
		h.	m.	s.			
March <u>1</u>	eP	9	16	55			
	S	9	20	35			
	M	9	25	42	4	$\pm 6$	
	F	9	55	$\pm$			
<u>1</u>	P	11	45	39			
	S	11	49	13			
	M	11	54	50	10	$\pm 12$	
	F	12	40	$\pm$			
/ <u>4</u>	iP	13	19	54			
	iS	13	29	54			Doubtful whether this is S
	M	13	30	1	10	$+ 30$	
	F	15	50	$\pm$			
/ <u>8</u>	eP	17	35	55			Period of S waves only $2^s$ .
	S	17	37	20			
	M	17	43	35	8	$\pm 5$	
	F	18	11				
/ <u>10</u>	P	17	11	22			
	M	17	44	55	8	$\pm 4$	
	F	19	10	$\pm$			

## SEISMOGRAPH RECORDS

For the Month of March, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum =  $12^s.0$ .

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 1922	PHASE.	TIME.			PERIOD. s.	AMPLITUDE $A_E$ $\mu$	REMARKS.
		h.	m.	s.			
<u>March 12</u>	e	17	12	5			
	L	17	53	30			
	M	18	7	0	20	$\pm 70$	
	M	18	10	15	18	$\pm 60$	
	F	20	50	$\pm$			
15	e	3	22	55			
	M	3	27	10	6	-20	
	F	4	30	$\pm$			
<u>16</u>	eP	15	2	22			
	S	15	6	37			
	M	15	10	10	10	$\pm 8$	
	F	15	55				
<u>21</u>	iP	17	0	8			
	S	17	3	22			
	M	17	9	8	8	+45	
	M	17	9	12	8	-40	
	F	18	3	$\pm$			
<u>28</u>	eP	4	16	37			possibly e at 4 <sup>h</sup> 12 <sup>m</sup> .
	S	4	22	38			✓

# SEISMOGRAPH RECORDS

For the Month of March, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\phi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
March 28	L	4	55	$\pm$			
	M	5	6	10	18	$\pm 30$	F after 6 <sup>h</sup> 20 <sup>m</sup> only
Smaller tremors were also recorded at 2 <sup>d</sup> 10 <sup>h</sup> , 2 <sup>d</sup> 14 <sup>h</sup> , 6 <sup>d</sup> 21 <sup>h</sup> , 7 <sup>d</sup> 23 <sup>h</sup> , 10 <sup>d</sup> 12 <sup>h</sup> , 24 <sup>d</sup> 3 <sup>h</sup> , 24 <sup>d</sup> 12 <sup>h</sup> , 25 <sup>d</sup> 22 <sup>h</sup> , 26 <sup>d</sup> 15 <sup>h</sup> , 29 <sup>d</sup> 8 <sup>h</sup> , 30 <sup>d</sup> 10 <sup>h</sup> .							

## SEISMOGRAPH RECORDS

For the Month of April, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ April 8	P	20	51	4			
	S	20	58	2			
	M	21	14	20	20	$\pm 30$	
	F	23	45	$\pm$			
/ " 16	e	13	14	8			
	S	13	19	39			
	M	13	27	27	8	+ 47	
	F	15	32	$\pm$			
/ " 20	1P	10	25	0			Local shock felt in Cairo Maximum amplitude uncertain but about 5 mm. on paper. ----- Clock stopped between 22 <sup>d</sup> 15 <sup>h</sup> and 23 <sup>d</sup> 7 <sup>h</sup> .
	M	10	25	6 $\pm$			
	F	10	38	$\pm$			
/ " 26	1P	4	12	3			
	? PR	4	22	33			
	? S	4	28	30			
	L	4	55	30			
	M	5	2	39	17	$\pm 14$	
	F	6	24				

Smaller tremors were also recorded at 2<sup>d</sup> 0<sup>h</sup>, 2<sup>d</sup> 19<sup>h</sup>, 3<sup>d</sup> 10<sup>h</sup>, 3<sup>d</sup> 19<sup>h</sup>, 5<sup>d</sup> 10<sup>h</sup>,  
6<sup>d</sup> 3<sup>h</sup>, 6<sup>d</sup> 8<sup>h</sup>, 7<sup>d</sup> 16<sup>h</sup>, 8<sup>d</sup> 3<sup>h</sup>, 9<sup>d</sup> 10<sup>h</sup>, 11<sup>d</sup> 0<sup>h</sup>, 11<sup>d</sup> 4<sup>h</sup>, 11<sup>d</sup> 8<sup>h</sup>, 20<sup>d</sup> 7<sup>h</sup>, 23<sup>d</sup> 21<sup>h</sup>,  
25<sup>d</sup> 5<sup>h</sup>, 25<sup>d</sup> 21<sup>h</sup>, 26<sup>d</sup> 1<sup>h</sup>, 28<sup>d</sup> 8<sup>h</sup>, 29<sup>d</sup> 14<sup>h</sup>.

## SEISMOGRAPH RECORDS

For the Month of May, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum =  $12^s.0$ .

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
May / 2	e	11	24	53			
	? S	11	29	22			
	M	11	52	16	16	$\pm 10$	
	F	12	50	$\pm$			
/ 4	iP	9	25	43			
	S	9	36	7			
	L	10	8				
	M	10	10	40	17	$\pm 14$	
	F	12	29	$\pm$			
/ 9	P	14	3	37			
	S	14	14	0			
	M	14	14	35	8	- 14	
	F	15	31	$\pm$			
/ 12	P	18	59	0			
	? S	19	2	43			
	L	19	54				
	M	20	2	58	21	$\pm 15$	
	F	22	23	$\pm$			

Smaller tremors were also recorded at 3<sup>d</sup> 16<sup>h</sup>, 5<sup>d</sup> 0<sup>h</sup>, 5<sup>d</sup> 2<sup>h</sup>, 6<sup>d</sup> 12<sup>h</sup>, 10<sup>d</sup> 9<sup>h</sup>,  
11<sup>d</sup> 1<sup>h</sup>, 15<sup>d</sup> 20<sup>h</sup>, 16<sup>d</sup> 8<sup>h</sup>, 21<sup>d</sup> 16<sup>h</sup>, 22<sup>d</sup> 18<sup>h</sup>, 26<sup>d</sup> 9<sup>h</sup>, 28<sup>d</sup> 15<sup>h</sup>.

## SEISMOGRAPH RECORDS

For the Month of June, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ June 2	iP	20	24	55			
	S	20	35	20			
	M <sub>1</sub>	20	35	55	6	$\pm 8$	
	M <sub>2</sub>	21	13	30	22	$\pm 14$	
	F	23	4				
/ " 3	P	4	15	58			
	S	4	17	10			
	M	4	17	15	2	$\pm 12$	
	F	4	35	$\pm$			
/ " 5	iP	4	33	17			
	S	4	34	55			
	M	4	38	25	2	$\pm 11$	
	F	5	23	$\pm$			
" 18	eP	19	39	21			
	S	19	39	36			
	M	19	39	50	2	$\pm 7$	
	F	19	46				

Clock stopped from 22<sup>d</sup>  
19<sup>h</sup> to 23<sup>d</sup> 10<sup>h</sup> and from  
24<sup>d</sup> 6<sup>h</sup> to 25<sup>d</sup> 10<sup>h</sup>.

Smaller tremors were also recorded at 5<sup>d</sup> 14<sup>h</sup>, 10<sup>d</sup> 4<sup>h</sup>, 12<sup>d</sup> 5<sup>h</sup>, 12<sup>d</sup> 11<sup>h</sup>,  
12<sup>d</sup> 15<sup>h</sup>, 19<sup>d</sup> 0<sup>h</sup>, 20<sup>d</sup> 10<sup>h</sup>, 27<sup>d</sup> 14<sup>h</sup>, 30<sup>d</sup> 16<sup>h</sup>.

## SEISMOGRAPH RECORDS

For the Month of July, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ox.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ July 2	e	13	49	40			
	L	14	27				
	M	14	35		24	$\pm 34$	
	F	16	46				
/ " 3	P	5	38	27			
	? S	5	45	45			
	M	6	12		15	$\pm 5$	
	F	7	25	$\pm$			
" 13	eP	5	11	5			
	S	5	22	0			
	M	6	0		19	$\pm 5$	End lost in changing paper.
/ " 22	P	16	29	1			
	S	16	30	31			
	M	16	36	28	12	$\pm 15$	
Smaller tremors were also recorded at 7 <sup>d</sup> 0 <sup>h</sup> , 9 <sup>d</sup> 15 <sup>h</sup> , 10 <sup>d</sup> 9 <sup>h</sup> , 11 <sup>d</sup> 14 <sup>h</sup> , 12 <sup>d</sup> 6 <sup>h</sup> , 13 <sup>d</sup> 11 <sup>h</sup> , 13 <sup>d</sup> 17 <sup>h</sup> , 19 <sup>d</sup> 13 <sup>h</sup> , 22 <sup>d</sup> 13 <sup>h</sup> , 23 <sup>d</sup> 22 <sup>h</sup> , 24 <sup>d</sup> 2 <sup>h</sup> , 28 <sup>d</sup> 9 <sup>h</sup> , 29 <sup>d</sup> 20 <sup>h</sup> (local shock)							

## SEISMOGRAPH RECORDS

For the Month of August, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
Aug. / 8	iS ?	3	53	26			This seems to be S with P about 2 <sup>m</sup> earlier but record is confused by traces crossing each other.
	M	3	54		3	+ 7	
	F	4	20	±			
/ 11	P	8	21	13			
	iS	8	22	23			
	M	8	30	56	14	-110	
	M	8	31	3	14	+ 130	
	F	10	10	±			
/ 13	iP	0	11	28			Felt throughout Egypt.
	iS	0	12	39			
	M	0	19		17	± 600	
	F	2	50	±			
/ 13	P	12	47	44			
	S	12	48	50			
	M	12	51	50	5	-25	
	M	12	52	10	5	+ 16	
	F	13	40	±			

## SEISMOGRAPH RECORDS

For the Month of September, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500. ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ Sept. 1	1P	19	28	8	9	$\pm 31$	
	S ?	19	38	5			
	M	19	39	14			
	F	23	3	$\pm$			
/ 8	eP	14	22	46	16	$\pm 6$	
	M	14	48	35			
	F	16	14	$\pm$			
/ 11	e	15	0	25	20	$\pm 10$	
	S	15	8	0			
	M	15	40	45			
	F	16	12	$\pm$			
/ 14	eP	19	43	50	17	- 36	
	is	19	53	41			
	M	20	20	44			
	F	22	34	$\pm$			
/ 16	eP	22	56	50	17	$\pm 9$	
	S	23	6	44			
	M	23	38	34			
	F	24	34	$\pm$			

# SEISMOGRAPH RECORDS

For the Month of September, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\phi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox - Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ Sept. 17	eP	7	35	7			
	S	7	44	43			
	M	8	17	3	15	$\pm 8$	
	F	9	32	$\pm$			
/ 17	P	10	11	25			
	S	10	21	18			
	M	10	53	33	15	$\pm 10$	
	F	12	4	$\pm$			
<p>Smaller tremors were also recorded at 1<sup>d</sup> 1<sup>h</sup> (local), 1<sup>d</sup> 13<sup>h</sup>, 2<sup>d</sup> 11<sup>h</sup>,  2<sup>d</sup> 17<sup>h</sup>, 4<sup>d</sup> 17<sup>h</sup>, 10<sup>d</sup> 4<sup>h</sup>, 10<sup>d</sup> 17<sup>h</sup>, 11<sup>d</sup> 13<sup>h</sup>, 19<sup>d</sup> 4<sup>h</sup>, 19<sup>d</sup> 8<sup>h</sup>, 20<sup>d</sup> 0<sup>h</sup>,  22<sup>d</sup> 18<sup>h</sup>, 29<sup>d</sup> 18<sup>h</sup>.</p>							

## SEISMOGRAPH RECORDS

For the Month of October, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox - Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
October 10	eP	21	35	19			
	S	21	37	20			
	M	21	38	48	6	$\pm 4$	
	F	22	9	$\pm$			
/ 11	eP	15	4	20			
	<del>PK</del> R	15	8	45			
	S	15	14	49			
	M	15	53	35	23	$\pm 176$	
	F	18	1	$\pm$			
/ 14	P	23	58	52			
	S	0	8	45			
	M	0	37	13	15	$\pm 16$	
	F	2	36	$\pm$			
/ 16	iP	16	10	14			
	<del>PS</del> R	16	12	8			
	S	16	17	20			
	M	16	36	32	14	$\pm 7$	
	F	17	18	$\pm$			

# SEISMOGRAPH RECORDS

For the Month of October, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\varphi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox - Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
October 24	iP	21	33	42			
	S	21	43	58			
	M <sub>1</sub>	21	44	50	8	$\pm 47$	
	M <sub>2</sub>	22	18	5	17	$\pm 28$	
	F	0	46	$\pm$			
Smaller tremors were also recorded at 5 <sup>d</sup> 5 <sup>h</sup> , 9 <sup>d</sup> 9 <sup>h</sup> , 12 <sup>d</sup> 9 <sup>h</sup> , 14 <sup>d</sup> 1 <sup>h</sup> , 17 <sup>d</sup> 6 <sup>h</sup> , 17 <sup>d</sup> 10 <sup>h</sup> , 17 <sup>d</sup> 15 <sup>h</sup> , 21 <sup>d</sup> 9 <sup>h</sup> , 27 <sup>d</sup> 14 <sup>h</sup> .							

## SEISMOGRAPH RECORDS

For the Month of November, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 1922.	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
Nov. / 4	eP	4	23	6			
	P <sub>R</sub> ?	4	25	8			
	S?	4	30	0			
	M	4	38	32	13	$\pm 15$	
	F	5	57	$\pm$			
/ 7	P	23	19	46			
	S?	23	29	36			*
	M	0	12	55	18	$\pm 66$	
	F	1	48	$\pm$			
/ 11	P	4	47	26			
	P <sub>R</sub>	4	52	0			
	M	5	42		15 $\pm$	$\pm 800 \pm$	
	F	10	8	$\pm$			
/ 11	eP	18	29	3			
	S?	18	38	48			*
	L	19	14				
	M	19	15	9	20	$\pm 30$	
	F	20	54	$\pm$			

# SEISMOGRAPH RECORDS

For the Month of November, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

$\varphi = 29^{\circ} 51' N$  ,  $\lambda = 31^{\circ} 20' E$  ,  $h = 115$  m.

Director H. Knox-Shaw.

Seismograph Milne-Shaw recording E—W motion.

Theoretical magnification = 250.

Period of undamped pendulum = 12<sup>s</sup>.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
Nov. 17	P	11	22	40			
	S ?	11	32	23			* The records of these three shocks are similar in character.
	M	12	15	30	16	$\pm 52$	
	F	14	41	$\pm$			
Smaller tremors were also recorded at 2 <sup>d</sup> 8 <sup>h</sup> , 3 <sup>d</sup> 13 <sup>h</sup> , 3 <sup>d</sup> 18 <sup>h</sup> , 6 <sup>d</sup> 0 <sup>h</sup> , 7 <sup>d</sup> 18 <sup>h</sup> , 8 <sup>d</sup> 23 <sup>h</sup> , 10 <sup>d</sup> 6 <sup>h</sup> , 11 <sup>d</sup> 21 <sup>h</sup> , 11 <sup>d</sup> 23 <sup>h</sup> , 12 <sup>d</sup> 0 <sup>h</sup> , 12 <sup>d</sup> 7 <sup>h</sup> , 12 <sup>d</sup> 18 <sup>h</sup> , 13 <sup>d</sup> 5 <sup>h</sup> , 14 <sup>d</sup> 5 <sup>h</sup> , 20 <sup>d</sup> 4 <sup>h</sup> (local), 20 <sup>d</sup> 16 <sup>h</sup> , 24 <sup>d</sup> 5 <sup>h</sup> (local), 26 <sup>d</sup> 13 <sup>h</sup> .							

## SEISMOGRAPH RECORDS

For the Month of December, 1922.

## FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$ ,  $\lambda = 31^{\circ} 20' E$ ,  $h = 115$  m.Director H. Knex - Shaw.

Seismograph Milne-Shaw recording E-W motion.

Theoretical magnification = 250.

Period of undamped pendulum =  $12^s.0$ .

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>2</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A <sub>E</sub> . $\mu$	REMARKS.
		h.	m.	s.			
/ Dec. 6	iP	14	1	58			
	M	14	16	40	7	$\pm 18$	
	F	15	51	$\pm$			
/ 7	e	16	25	54			
	S	16	29	0			
	M	16	33	42	10	- 10	
	F	18	37	$\pm$			
/ 8	P	22	45	48			
	M	22	56	50	10	$\pm 7$	
	L	23	26				
	F	24	5	$\pm$			
/ 17	iP	0	57	42			
	M	1	5	52	9	$\pm 6$	
	F	2	3	$\pm$			
/ 31	P	7	32	55			
	P <sub>R</sub>	7	43	13			
	M	8	16	25	17	$\pm 22$	
	F	10	30	$\pm$			

