

SEISMOGRAPH RECORDS

For the Month of January, 1923.

FROM HELWAN OBSERVATORY, EGYPT.

 $\varphi = 29^{\circ} 51' N$, $\lambda = 31^{\circ} 20' E$, $h = 115$ m.Director M. 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>3</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
Jan. 13	e	10	01	45			
	M	10	26	7	13	± 6	
	F	11	15	\pm			
21	e	4	16	26			
	S ?	4	18	20			
	M	4	24	57	9	± 5	
	F	4	57	\pm			
22	e	9	22	20			
	M	9	53	20	18	± 24	
	F	12	27	\pm			
Smaller tremors were also recorded at 4 ^d 15 ^h , 7 ^d 8 ^h local, 11 ^d 7 ^h , 20 ^d 22 ^h , 22 ^d 1 ^h , 26 ^d 3 ^h , 26 ^d 21 ^h .							

SEISMOGRAPH RECORDS

For the Month of February, 1923.

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>3</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
February / 2	eP	1	19	20			
	S	1	29	57			
	M	2	5	15	15	± 16	
	F	3	56	\pm			
/ 2	P	5	20	18			
	S	5	31	0			
	M	6	8	8	17	± 76	
	F	8	48	\pm			
/ 3	P	16	14	22			
	M ₁	16	54	30 \pm	20	± 690	Neither PR nor S can be identified.
	M ₂	17	3	45 \pm	20	- 940	
	F	22	20	\pm			
/ 5	iP	22	46	51			
	M	23	57	50	15	± 5	
	F	0	31	\pm			
/ 11	iP	23	8	47			
	M	23	44	44	16	± 8	
	F	0	29	\pm			

SEISMOGRAPH RECORDS

For the Month of February, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>3</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
February / 23	iP	6	5	5			
	M	6	57	5	17	± 9	
	F	7	28	\pm			
/ 24	P	7	47	12			
	S	7	57	48			
	M₁	8	32	45	17	- 104	
	M₂	8	34	12	15	± 104	
	F	11	21	\pm			
Smaller tremors were also recorded at 1 ^d 19 ^h , 4 ^d 12 ^h , 5 ^d 3 ^h , 8 ^d 8 ^h , 12 ^d 2 ^h , 15 ^d 10 ^h , 16 ^d 9 ^h , 19 ^d 0 ^h , 21 ^d 1 ^h , 21 ^d 4 ^h , 23 ^d 10 ^h , 28 ^d 22 ^h .							

SEISMOGRAPH RECORDS

For the Month of March, 1923.

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 .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
March / 2	iP	17	1	52			
	S	17	12	18			
	M	17	49	6	19	± 68	
	F	20	33	\pm			
/ 4	eP	0	19	36			
	S	0	27	54			
	M	0	43	5	15	± 32	
	F	2	9	\pm			
/ 10	e	19	50	30			
	S	19	51	43			
	M	19	53	28	4	± 18	
	F	20	48	\pm			
/ 15	iP	5	44	24			
	S	5	47	33			
	M	6	1	0	15	± 16	
	F	7	15	\pm			
/ 16	eP	22	14	46			
	S	22	25	18			
	M	23	5	52	16	± 20	
	F	1	40	\pm			

SEISMOGRAPH RECORDS

For the Month of March, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
March 24	P	12	50	12			
	S	12	58	20			
	M	13	22	13	16	± 100	
	F	16	31	\pm			
<p>Smaller tremors were also recorded at 3^d 22^h, 4^d 22^{7^h}, 6^d 21^h, 8^d 22^h, 13^d 20^h, 14^d 9^h, 14^d 20^h, 19^d 2^h, 21^d 8^h, 26^d 4^h, 26^d 14^h, 28^d 4^h.</p>							

SEISMOGRAPH RECORDS

For the Month of April, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ April 19	iP	3	21	44			
	S	3	32	5			
	M	4	3	32	18	± 30	
	F	6	9	\pm			
/ 29	P	9	37	17			
	S	9	39	20			
	M	9	43	35	5	$+ 16$	
	F	10	42	\pm			
Smaller tremors were also recorded at 5 ^d 21 ^h , 13 ^d 10 ^h , 13 ^d 15 ^h , 14 ^d 15 ^h , 17 ^d 17 ^h , 23 ^d 3 ^h , 24 ^d 13 ^h , 24 ^d 22 ^h , 27 ^d 10 ^h .							

SEISMOGRAPH RECORDS

For the Month of May, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ May 4	P	16	40	10			
	S	16	51	20			
	M	17	35	33	21	± 71	
	F	20	24	\pm			
/ 12	P	1	32	13			
	S	1	42	28			
	M	2	7	31	21	± 27	
	F	4	6	\pm			
/ 25	P	22	27	2			
	S	22	31	30			
	M	22	38	7	13	± 22	
	F	0	6	\pm			
/ 28	P	1	36	21			
	M	2	4	58	15	± 19	
	F	4	18	\pm			
<p>Smaller tremors were also recorded at 1^d 10^h, 4^d 22^h, 10^d 4^h, 12^d 23^h, 15^d 4^h, 22^d 13^h, 23^d 22^h, 26^d 3^h, 27^d 17^h, 30^d 8^h, 30^d 18^h, 31^d 3^h, 31^d 6^h, 31^d 22^h.</p>							

SEISMOGRAPH RECORDS

For the Month of June, 1923.

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>3</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ June 1	eP	17	37	32			
	Pr	17	41	00			
	S	17	47	58			
	M	18	20	25	15	\pm 29	
	F	23	28	\pm			
/ 18	eP	8	35	44			
	M	8	50	11	77	\pm 11	
	F	10	57	\pm			
/ 22	iP	6	54	43			
	S	7	2	55			
	M	7	26	30	166	\pm 74	
	F	10	9	\pm			
Smaller tremors were also recorded at 2 ^d 1 ^h , 3 ^d 11 ^h , 4 ^d 20 ^h , 6 ^d 17 ^h , 8 ^d 5 ^h , 8 ^d 20 ^h , 11 ^d 11 ^h , 12 ^d 21 ^h , 18 ^d 4 ^h , 19 ^d 22 ^h , 21 ^d 12 ^h , 21 ^d 21 ^h , 25 ^d 11 ^h .							

SEISMOGRAPH RECORDS

For the Month of July, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>3</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ July 10	e P	0	49	3			
	? S	0	58	37			
	M	1	40	40	16	± 22	
	F	2	48	\pm			
/ 13	i P	11	26	0			
	S	11	36	18			
	M	12	6	38	20	± 25	
	F	14	26	\pm			
/ 20	i P	15	12	4			
	i S	15	19	30			
	M	15	36	11	10	± 16	
	F	17	17	\pm			
/ 22	e P	14	31	12			
	S	14	41	43			
	F	17	26	\pm			
<p>Smaller tremors were also recorded at</p> <p>d. h. d. h. d. h. 10 5, 10 18, 12 3, 14 0, 16 13, 18 3, 18 d. 20, 20 d. 5h; d. h. 31 15.</p>							

SEISMOGRAPH RECORDS

For the Month of August, 1923.

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>33</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
August 1	iP	8	18	13			
	S	8	19	32			
	M	8	19	40	2 ?	± 77	Felt in Cairo
	F	9	20	\pm			
8	e	12	14	17			
	S	12	24	35			
	M	12	57	6	15	± 48	
	F	14	18	\pm			

Smaller tremors were also recorded at 1^d 8^h(local), 3^d 1^h,
 4^d 4^h(local), 8^d 12^h, 10^d 2^h, 10^d 16^h, 11^d 1^h, 12^d 10^h, 12^d 17^h,
 14^d 17^h, 16^d 3^h, 16^d 20^h, 17^d 1^h, 19^d 4^h(local), 20^d 18^h,
 28^d 23^h, 31^d 2^h.

SEISMOGRAPH RECORDS

For the Month of September, 1923.

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>3</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ Sept. 1	ip	3	11	13			
	S	3	21	40			
	M	3	53	30	22	± 404	
	F	3 ⁹	13	\pm			
2	P	2	59	25			
	is	3	9	50			
	M	3	42	33	18 ^s	± 131	
	F	6	29	\pm			
/ 2	P	9	39	40			
	is	9	50	01			
	M	10	22	42	16 ^s	± 12	
	F	12	10	\pm			
/ 2	e	22	52	10 \pm			
	is	23	2	33			
	M	23	42	04	18 ^s	± 33	
	F	0	53	\pm			
/ 9	ip	22	13	0			
	ss	22	20	22			
	M	22	39	35	16 ^s	± 96	
	F	1	12	\pm			

SEISMOGRAPH RECORDS

For the Month of September, 1923.

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>3</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
/ Sept. 14	iP	8	16	2			
	S	8	20	23			
	M	8	27	40	11	± 177	
	F	9	16	\pm			
/ 17	eP	7	14	20			
	S	7	18	40			
	M	?			?		
	F	9	14	\pm			
/ 22	iP	20	52	39			
	S	20	56	40			
	M	21	3	10	12	± 272	
	F	23	59	\pm			
/ 23	e	3	24	3			
	S	3	28	5			
	M	3	34	25	13	± 183	
	F	4	13	\pm			

MINISTRY OF PUBLIC WORKS.

PHYSICAL DEPARTMENT.

OBSERVATORY.

HELWAN, EGYPT.

TELEPHONE No. 45 (HELWAN.)

27th. June, 1923

Earthquake recorded by Milne - Shaw Seismograph
at Helwan Observatory.

Date	Phase	G.M.T.			Remarks.
		h	m	s	
/ 1923 June 22	iP	6	54	44	
	S	7	2	55	

[Signature]
Director

Helwan Observatory.

SEISMOGRAPH RECORDS

For the Month of September, 1923

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^s.0.

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 7269-1921-500 ex.

DATE 192 <u>33</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
<u>Sept. 26</u>	<u>e</u>	<u>88</u>	<u>36</u>	<u>33</u>			
	<u>S</u>	<u>88</u>	<u>46</u>	<u>55</u>			
	<u>M</u>	<u>?</u>			<u>?</u>		
	<u>F</u>	<u>10</u>	<u>83</u>	<u>±</u>			
<p>Smaller tremors were also recorded at 1^d 1^h, 11^d 11^h, 11^d 10^h, 12^d 6^h, 14^d 13^h, 14^d 17^h (felt in Sudan), 16^d 15^h, 17^d 4^h, 21^d 20^h, 22^d 18^h, 22 26^d 2^h, 27^d 7^h, 30^d 1^h.</p>							

SEISMOGRAPH RECORDS

For the Month of October, 1923.

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>3</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A_E μ	REMARKS.
		h.	m.	s.			
<u>October 1</u>	e	8	23	30 \pm			
	S ?	8	31	22			
	M	8	39	35	14	± 58	
	F	10	5	\pm			
<u>7</u>	eP	3	43	17			
	PR	3	47	13			
	S	3	53	55			
	M	4	34	00	19	± 84	
<u>10</u>	P	7	19	53			
	S	7	26	47			
	F	9	27	\pm			
Smaller tremors were also recorded at 1 ^d 22 ^h , 2 ^d 11 ^h , 3 ^d 16 ^h , 4 ^d 17 ^h , 9 ^d 0 ^h , 14 ^d 8 ^h , 15 ^d 3 ^h , 17 ^d 12 ^h , 20 ^d 3 ^h , 22 ^d 7 ^h , 24 ^d 1 ^h , 25 ^d 21 ^h , 26 ^d 12 ^h , 28 ^d 1 ^h , 28 ^d 2 ^h , 28 ^d 9 ^h , 30 ^d 22 ^h .							

SEISMOGRAPH RECORDS

For the Month of November, 1923.

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>3</u>	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A _E . μ	REMARKS.
		h.	m.	s.			
November <u>2</u>	e		?				
	PR ?	21	28	17			
	M	23	11	48	25	± 68	
	F	1	4	\pm			
<u>5</u>	P	21	40	19			
	S	21	50	35			
	M	22	24	55	21	± 40	
	F	0	59	\pm			
<u>26</u>	eP	12	29	24			
	S	12	38	13			
	M	12	58	55	17	± 8	
	F F	14	10	\pm			

Smaller tremors were also recorded at 3^d 9^h, 3^d 16^h, 4^d 0^h,
6^d 17^h, 17^d 3^h, 18^d 9^h, 18^d 21^h, 21^d 15^h, 23^d 23^h, 25^d 17^h,

SEISMOGRAPH RECORDS

For the Month of December, 1923.

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 ax.

DATE 192 <u>3</u> .	PHASE.	TIME.			PERIOD. s.	AMPLITUDE A_E μ	REMARKS.
		h.	m.	s.			
Dec. / 5	P	20	59	37			
	eS	21	1	28			
	M	21	8	25	8	+ 23	
	F	1	10	\pm			
/ 10	P	23	58	46			
	iS	0	3	0			
	M	0	7	25	10	\pm 20	
	F	1	12	\pm			
/ 28	P	22	31	20			
	S	22	36	38			
	M	22	51	20	9	\pm 9	
	F	23	34	\pm			

Smaller tremors were also recorded at 1^d 7^h, 1^d 12^h, 2^d 14^h,
7^d 23^h, 8^d 13^h (local, felt in Cairo and Helwan), 11^d 5^h, 12^d 16^h,
14^d 10^h, 16^d 11^h, 19^d 19^h, 20^d 15^h, 22^d 10^h, 27^d 14^h.