

## SEISMOGRAPH RECORDS.

For the Month of JANUARY, 1921933

FROM HELWAN OBSERVATORY, EGYPT.

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

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 9753 A, 1928-400 ex.

| DATE<br>192 .<br>1933 | PHASE.                                                 | TIME.<br>h. m. s.                                            | PERIOD.<br>s. | AMPLITUDE<br>A <sub>E</sub> .<br>μ. | REMARKS.                                                                                             |
|-----------------------|--------------------------------------------------------|--------------------------------------------------------------|---------------|-------------------------------------|------------------------------------------------------------------------------------------------------|
| Jan. 1                | i                                                      | 9 10 41                                                      |               |                                     | Probably S.<br>Beginning doubtful.<br>Continuous tremors<br>up to 11.5h. with<br>no definite points. |
| Jan. 7                | eP<br>iS<br>L<br>M <sub>1</sub><br>M <sub>2</sub><br>F | 4 19 17<br>4 29 48<br>5 00 00<br>5 01 45<br>5 07 40<br>7.0h. | 17<br>20      | + 12<br>+ 20                        |                                                                                                      |
| Jan. 9                | iP<br>iS<br>F<br>G                                     | 2 08 05<br>2 13 12<br>3.5h.<br>21 15                         |               |                                     | No maximum.                                                                                          |
| Jan. 21               | P<br>iS<br>L<br>M<br>F                                 | 19 32 10<br>19 41 16<br>19 52 40<br>19 57 52<br>23.7h.       | 20            | +180                                | 9-06 68                                                                                              |

Smaller tremors were also recorded at :

| Day | Hour | Day | Hour | Day | Hour |
|-----|------|-----|------|-----|------|
| 3   | 00   | 15  | 14   | 20  | 12   |
| 3   | 15   | 15  | 18   | 21  | 07   |
| 4   | 01   | 16  | 03   | 21  | 16   |
| 4   | 04   | 16  | 22   | 22  | 11   |
| 5   | 01   | 17  | 18   | 23  | 03   |
| 5   | 15   | 17  | 22   | 24  | 15   |
| 6   | 00   | 18  | 09   | 26  | 23   |
| 8   | 06   | 18  | 18   | 27  | 22   |
| 9   | 09   | 19  | 20   | 29  | 19   |
|     |      |     |      | 31  | 08   |



# SEISMOGRAPH RECORDS.

For the Month of March, 19 33.



## FROM HELWAN OBSERVATORY, EGYPT.

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

Director P. A. CURRY.

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 4730 A, 1929-300 ex.

| DATE<br>19 <u>33</u> | PHASE. | TIME. |        |    | PERIOD.<br>s. | AMPLITUDE<br>A <sub>E</sub> .<br>μ. | REMARKS.                                                   |
|----------------------|--------|-------|--------|----|---------------|-------------------------------------|------------------------------------------------------------|
|                      |        | h.    | m.     | s. |               |                                     |                                                            |
| March                | 2      | 1P    | 17     | 43 | 44            |                                     |                                                            |
|                      |        | 1     | 17     | 43 | 52            |                                     |                                                            |
|                      |        | 1S    | 17     | 54 | 08            |                                     |                                                            |
|                      |        | L     | 18     | 16 | 35            |                                     |                                                            |
|                      |        | M1    | 18     | 26 | 40            | 20                                  | +840                                                       |
|                      |        | M2    | 18     | 33 | 45            | 20                                  | +860                                                       |
|                      |        | F     | 23.5h. |    |               |                                     |                                                            |
| "                    | 6      | eP    | 13     | 14 | 42            |                                     |                                                            |
|                      |        | eS    | 13     | 22 | 03            |                                     |                                                            |
|                      |        | M     | 13     | 41 | 25            | 18                                  | +10                                                        |
|                      |        | F     | 14.0h. |    |               |                                     |                                                            |
| "                    | 11     | M     | 03     | 02 | 50            | 20                                  | +8                                                         |
|                      |        |       |        |    |               |                                     | California earthquake<br>other details indeter-<br>minate. |
| "                    | 11     | i     | 19     | 54 | 38            |                                     |                                                            |
|                      |        | i     | 19     | 58 | 16            |                                     |                                                            |
| "                    | 14     | e     | 01     | 21 | 20            |                                     |                                                            |
|                      |        | i     | 01     | 23 | 43            |                                     |                                                            |
|                      |        | M     | 01     | 32 | 00            | 10                                  | +8                                                         |
|                      |        | F     | 3.3h.  |    |               |                                     |                                                            |
| "                    | 14     | M     | 02     | 09 | 13            | 12                                  | +7                                                         |
| "                    | 17     | 1P    | 16     | 08 | 04            |                                     |                                                            |
|                      |        | 1S    | 16     | 18 | 35            |                                     |                                                            |
|                      |        | I     | 16     | 19 | 49            |                                     |                                                            |
|                      |        | L     | 16     | 52 | 40            |                                     |                                                            |
|                      |        | M     | 16     | 53 | 22            | 17                                  | +19                                                        |
|                      |        | F     | 18.9h. |    |               |                                     |                                                            |
| "                    | 17     | 1P    | 19     | 45 | 37            |                                     |                                                            |
|                      |        | 1S    | 19     | 56 | 30            |                                     |                                                            |
|                      |        | i     | 19     | 57 | 57            |                                     |                                                            |
|                      |        | L     | 20     | 23 | 50            |                                     |                                                            |
|                      |        | M     | 20     | 34 | 55            | 18                                  | +19                                                        |
|                      |        | F     | 22.5h. |    |               |                                     |                                                            |
| "                    | 18     | L     | 03     | 53 | 20            |                                     |                                                            |
|                      |        | M1    | 03     | 55 | 36            | 16                                  | +29                                                        |
|                      |        | M2    | 03     | 58 | 18            | 16                                  | +41                                                        |
|                      |        | F     | 5.5h.  |    |               |                                     |                                                            |

Smaller tremors were also recorded at :-

3d 9h. 4d 14h. 4d 21h. 7d 14h. 8d 2h. 9d 22h. 11d 14h. 11d 18h.  
13d 18h. 13d 21h 35m. 14d 0h. 15d 5h. 17d 15h. 17d 19h. 18d 16h.  
18d 18h. 19d 0h. 20d 4h. 56m. Local. 22d 2h. 22d 10h 10m Local.  
22d 18h. 23d 18h. 26d 5h. 26d 11h 24m Local. 27d 20h 01m Local.  
28d 4h. 28d 14h 20m Local. 30d 20h. 31d 22h.



International  
Seismological  
Centre

FROM HELWAN OBSERVATORY, EGYPT.

Director P. A. CURRY.

Theoretical magnification = 250.

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

Times are expressed in Greenwich Civil Mean Time.

Govt. Press 4730 A, 1929-300 ex.

| DATE<br>1933.                             |              | PHASE.         | TIME.        |    |              | PERIOD. | AMPLITUDE<br>$A_E$          | REMARKS. |
|-------------------------------------------|--------------|----------------|--------------|----|--------------|---------|-----------------------------|----------|
|                                           |              |                | h.           | m. | s.           | s.      | $\mu$ .                     |          |
| April                                     | p 9          | P              | 2            | 59 | 25           |         |                             |          |
|                                           |              | Pr             | 3            | 02 | 46           |         |                             |          |
|                                           |              | iS             | 3            | 09 | 47           |         |                             |          |
|                                           |              | M              | 3            | 48 | 01           | 18      | $\pm 12$                    |          |
|                                           |              | F              | 5.8h         |    |              |         |                             |          |
| "                                         | 19           | iP             | 6            | 56 | 42           |         |                             |          |
|                                           |              | iS             | 7            | 06 | 40           |         |                             |          |
|                                           |              | L              | 7            | 46 | 10           |         |                             |          |
|                                           |              | M              | 7            | 48 | 45           | 16      | $\pm 16$                    |          |
|                                           |              | F              | 8.4h         |    |              |         |                             |          |
| "                                         | 23           | iP             | 5            | 59 | 25           |         |                             |          |
|                                           |              | iS             | 6            | 00 | 50           |         |                             |          |
|                                           |              | M <sub>1</sub> | 6            | 04 | 55           | 10      | $\pm 110$                   |          |
|                                           |              | M <sub>2</sub> | 6            | 08 | 02           | 15      | $\pm 190$                   |          |
|                                           |              | F              | 9.0h         |    |              |         |                             |          |
| "                                         | 27           | eP             | 2            | 49 | 06           |         |                             |          |
|                                           |              | iS             | 2            | 59 | 50           |         |                             |          |
|                                           |              | L              | 3            | 39 | 40           |         |                             |          |
|                                           |              | M <sub>1</sub> | 3            | 50 | 12           | 12      | $\pm 14$                    |          |
|                                           |              | M <sub>2</sub> | 3            | 54 | 30           | 17      | $\pm 21$                    |          |
|                                           |              | M <sub>3</sub> | 4            | 03 | 38           | 14      | $\pm 14$                    |          |
|                                           |              | F              | 6.1h         |    |              |         |                             |          |
| "                                         | 28           | eP             | 22           | 30 | 18           |         |                             |          |
|                                           |              | iS             | 22           | 31 | 28           |         |                             |          |
|                                           |              | F              | 23.5h        |    |              |         |                             |          |
| Smaller tremors were also recorded at : - |              |                |              |    |              |         |                             |          |
| D                                         | H            | D              | H            | D  | H            | D       | H                           |          |
| 1                                         | 08           | 11             | 07           | 19 | 09 14m Local | 27      | 08 18m Local                |          |
| 1                                         | 09 11m Local | 11             | 14           | 20 | 23           | 27      | 12                          |          |
| 1                                         | 16           | 13             | 23           | 22 | 04 52m Local | 27      | 13                          |          |
| 1                                         | 23           | 14             | 05           | 22 | 13           | 27      | 14                          |          |
| 2                                         | 21           | 15             | 02           | 23 | 09           | 27      | 16                          |          |
| 3                                         | 19           | 15             | 11           | 23 | 11           | 29      | 12                          |          |
| 4                                         | 12           | 16             | 06           | 23 | 14 20m Local | 30      | 05                          |          |
| 8                                         | 10           | 16             | 15 28m Local | 23 | 19           | 30      | 12 <del>58m</del> 58m Local |          |
| 9                                         | 10           | 16             | 19           | 26 | 17           | 30      | 13                          |          |
| 9                                         | 11           | 19             | 03           | 27 | 06 15m Local | 30      | 14                          |          |

## SEISMOGRAPH RECORDS.

For the Month of MAY, 19<sup>33</sup>.

## FROM HELWAN OBSERVATORY, EGYPT.

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

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 4730 A, 1929-300 ex.

| DATE<br>19 .                             |    | PHASE. | TIME.    | PERIOD.  | AMPLITUDE<br>A <sub>E</sub> . | REMARKS. |    |    |                |
|------------------------------------------|----|--------|----------|----------|-------------------------------|----------|----|----|----------------|
|                                          |    |        | h. m. s. | s.       | μ.                            |          |    |    |                |
| May                                      | 8  | eP     | 10 50 08 | 18       | <u>+ 13</u>                   |          |    |    |                |
|                                          |    | iPr    | 10 53 20 |          |                               |          |    |    |                |
|                                          |    | iS     | 11 03 02 |          |                               |          |    |    |                |
|                                          |    | M      | 11 48 37 |          |                               |          |    |    |                |
|                                          |    | F      | 13.5 h.  |          |                               |          |    |    |                |
| "                                        | 11 | iP     | 19 12 42 | 14       | <u>+ 19</u>                   |          |    |    |                |
|                                          |    | iS     | 19 15 10 |          |                               |          |    |    |                |
|                                          |    | M      | 19 21 26 |          |                               |          |    |    |                |
|                                          |    | F      | 20.2 h.  |          |                               |          |    |    |                |
| "                                        | 15 | P      | 20 03 25 |          |                               |          |    |    |                |
|                                          |    | S      | 20 04 34 |          |                               |          |    |    |                |
|                                          |    | F      | 20.5 h.  |          |                               |          |    |    |                |
| "                                        | 16 | P      | 01 23 06 | 17       | <u>+ 25</u>                   |          |    |    |                |
|                                          |    | S      | 01 31 50 |          |                               |          |    |    |                |
|                                          |    | L      | 01 48 00 |          |                               |          |    |    |                |
|                                          |    | M      | 01 52 57 |          |                               |          |    |    |                |
|                                          |    | F      | 3.3 h.   |          |                               |          |    |    |                |
| "                                        | 19 | iP     | 18 07 31 | 14<br>13 | <u>+ 55</u><br><u>+ 56</u>    |          |    |    |                |
|                                          |    | Pr     | 18 10 34 |          |                               |          |    |    |                |
|                                          |    | iS     | 18 15 07 |          |                               |          |    |    |                |
|                                          |    | L      | 18 26 20 |          |                               |          |    |    |                |
|                                          |    | M1     | 18 30 34 |          |                               |          |    |    |                |
|                                          |    | M2     | 18 35 47 |          |                               |          |    |    |                |
|                                          |    | F      | 20.5 h.  |          |                               |          |    |    |                |
| Smaller tremors were also recorded at :- |    |        |          |          |                               |          |    |    |                |
|                                          | D. | H.     | D.       | H.       | D.                            | H.       | D. | H. |                |
| 1                                        |    | 06     | 6        | 10       | 12                            | 16       | 20 | 06 | 27 10<br>27 14 |
| 1                                        |    | 18     | 6        | 20       | 15                            | 03       | 20 | 10 |                |
| 1                                        |    | 19     | 7        | 09       | 16                            | 11       | 20 | 11 |                |
| 1                                        |    | 22     | 7        | 16       | 16                            | 15       | 21 | 09 |                |
| 2                                        |    | 00     | 7        | 17       | 16                            | 17       | 21 | 18 |                |
| 2                                        |    | 23     | 7        | 23       | 18                            | 00       | 23 | 05 |                |
| 4                                        |    | 00     | 8        | 01       | 18                            | 09       | 24 | 04 |                |
| 5                                        |    | 05     | 9        | 06       | 18                            | 10       | 27 | 06 |                |
| 6                                        |    | 05     | 10       | 03       | 20                            | 05       | 27 | 01 |                |

## SEISMOGRAPH RECORDS.

For the Month of JUNE, 1933.

FROM HELWAN OBSERVATORY, EGYPT.

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

Director \_\_\_\_\_ **P. A. CURRY.**

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.

[illegible]

## SEISMOGRAPH RECORDS.

For the Month of July, 1933

FROM HELWAN OBSERVATORY, EGYPT.

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

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.

| DATE<br>193 <u>3</u>    | PHASE.                                           | TIME.<br>h. m. s.                                     | PERIOD.<br>s. | AMPLITUDE<br>A <sub>E</sub> .<br>$\mu$ . | REMARKS.                                                                         |
|-------------------------|--------------------------------------------------|-------------------------------------------------------|---------------|------------------------------------------|----------------------------------------------------------------------------------|
| <u>July</u><br><u>9</u> | P<br>1S<br>M <sub>1</sub><br>M <sub>2</sub><br>P | 1 42 50<br>1 53 09<br>2 27 08<br>2 38 38<br>3.2h      | 17<br>22      | $\pm 9$<br>$\pm 12$                      |                                                                                  |
| <u>9</u>                | P<br>1S<br>M <sub>1</sub><br>M <sub>2</sub><br>P | 12 43 26<br>12 53 47<br>13 23 34<br>13 29 18<br>15.7h | 17<br>16      | $\pm 10$<br>$\pm 12$                     |                                                                                  |
| <u>11</u>               | P<br>S<br>M<br>P                                 | 7 53 47<br>7 56 10<br>7 59 25<br>8.5h                 | 10            | $\pm 7$                                  |                                                                                  |
| <u>19</u>               | P<br>S<br>M<br>P                                 | 20 09 08<br>20 10 37<br>20 19 38<br>20.9h             | 13            | $\pm 10$                                 |                                                                                  |
| <u>21</u>               | P<br>S<br>M<br>P                                 | 20 25 16<br>20 31 03<br>21 04 02<br>23.0h             | 16            | $\pm 22$                                 |                                                                                  |
| <u>22</u>               | P<br>S<br>M<br>P                                 | 21 08 41<br>21 19 17<br>22 03 25<br>24.2h             | 20            | $\pm 23$                                 |                                                                                  |
| <u>24</u>               | P                                                | 3 44 00                                               |               |                                          | Severe shock preceded<br>by a sound,<br>Felt in CAIRO.<br>Mirror was thrown out. |
| <u>25</u>               | P<br>S<br>1<br>M<br>P                            | 6 51 05<br>6 51 35<br>6 51 45<br>6 52 10<br>7.1h      |               |                                          | Period not distinct.                                                             |

## SEISMOGRAPH RECORDS.

For the Month of July, 1933

FROM HELWAN OBSERVATORY, EGYPT.

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

Director

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.

| DATE<br>193 . | PHASE.                        | TIME.                                    |                |                | PERIOD.        | AMPLITUDE<br>A <sub>E</sub> . |                | REMARKS.       |                |                |                |
|---------------|-------------------------------|------------------------------------------|----------------|----------------|----------------|-------------------------------|----------------|----------------|----------------|----------------|----------------|
|               |                               | h.                                       | m.             | s.             |                | s.                            | μ.             |                |                |                |                |
|               |                               | Smaller tremors were also recorded at :- |                |                |                |                               |                |                |                |                |                |
|               | D <sub>o</sub> H <sub>o</sub> | D <sub>o</sub>                           | H <sub>o</sub> | D <sub>o</sub> | H <sub>o</sub> | D <sub>o</sub>                | H <sub>o</sub> | D <sub>o</sub> | H <sub>o</sub> | D <sub>o</sub> | H <sub>o</sub> |
|               | 3 15                          | 9                                        | 10             | 10             | 11             | 17                            | 10             | 19             | 14             | 24             | 19             |
|               | 4 3                           | 9                                        | 16             | 12             | 11             | 18                            | 19             | 19             | 15             | 26             | 4              |
|               | 5 4                           | 9                                        | 21             | 12             | 12             | 19                            | 11             | 19             | 17             | 27             | 2              |
|               | 7 7                           | 10                                       | 00             | 13             | 15             | 19                            | 12             | 20             | 23             | 30             | 17             |
|               | 8 8                           | 10                                       | 3              | 14             | 4              | 19                            | 13             | 21             | 23             | 31             | 00             |
|               |                               |                                          |                |                |                |                               |                |                |                | 31m. Local     |                |
|               |                               |                                          |                |                |                |                               |                | 23             | 5              | 31             | 11             |
|               |                               |                                          |                |                |                |                               |                | 23             | 10             | 31             | 16             |

SEISMOGRAPH RECORDS.

For the Month of AUGUST, 1933.

FROM HELWAN OBSERVATORY, EGYPT.

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

Director P. A. CURRY.

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.

| DATE<br>193 <b>3</b>                    | PHASE.                          | TIME.    | PERIOD. | AMPLITUDE<br>A <sub>E</sub> . | REMARKS.                                |
|-----------------------------------------|---------------------------------|----------|---------|-------------------------------|-----------------------------------------|
|                                         |                                 | h. m. s. | s.      | μ.                            |                                         |
| AUGUST 11                               | P                               | 9 04 02  |         |                               |                                         |
|                                         | Pr                              | 9 07 37  |         |                               |                                         |
|                                         | S                               | 9 12 07  |         |                               |                                         |
|                                         | M                               | 9 33 06  | 12      | ± 6                           |                                         |
|                                         | F                               | 10.3h    |         |                               |                                         |
| " 20                                    | eP                              | 11 57 49 |         |                               |                                         |
|                                         | eS                              | 12 08 12 |         |                               |                                         |
|                                         | M                               | 12 42 40 | 19      | ± 13                          |                                         |
|                                         | F                               | 13.4h    |         |                               |                                         |
| " 25                                    | 1P                              | 8 00 43  |         |                               |                                         |
|                                         | 1                               | 01 40    |         |                               |                                         |
|                                         | 1                               | 03 02    |         |                               |                                         |
|                                         | 1                               | 04 31    |         |                               |                                         |
|                                         | 1S                              | 09 11    |         |                               |                                         |
|                                         | 1                               | 13 20    |         |                               |                                         |
|                                         | M                               | 32 34    | 26      | ± 500                         |                                         |
|                                         | F                               | 11.6 h   |         |                               |                                         |
| " 28                                    | e                               | 22 23 35 |         |                               | Difficult to distinct from microseisms. |
|                                         | ePr                             | 22 27 23 |         |                               |                                         |
|                                         | S <sub>o</sub> P <sub>o</sub> S | 22 44 16 |         |                               |                                         |
|                                         | 1S                              | 22 45 25 |         |                               |                                         |
|                                         | L                               | 23 01 40 |         |                               |                                         |
|                                         | M                               | 23 23 35 | 16      | ± 189                         |                                         |
|                                         | F                               | 26.7h    |         |                               |                                         |
| Smaller tremors were also recorded at : |                                 |          |         |                               |                                         |
|                                         | H                               | D        | H       | D                             | H                                       |
| 3                                       | 05                              | 10       | 00      | 15                            | 20                                      |
| 3                                       | 08                              | 11       | 14      | 16                            | 23                                      |
| 4                                       | 18                              | 12       | 17      | 17                            | 06                                      |
| 5                                       | 01                              | 13       | 09      | (22                           | 11)                                     |
| 5                                       | 04                              | 14       | 18      | 22                            | 15                                      |
| 6                                       | 04                              | 15       | 01      | 24                            | 09                                      |
| 8                                       | 03                              | 15       | 03      | 27                            | 01                                      |
| 9                                       | 23                              | 15       | 04      | 29                            | 15 10m.                                 |

## SEISMOGRAPH RECORDS.

For the Month of SEPTEMBER, 1933.

FROM HELWAN OBSERVATORY, EGYPT.

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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.

| DATE<br>193 <u>3</u> .                  | PHASE.                                 | TIME.<br>h. m. s.                                                             | PERIOD.<br>s. | AMPLITUDE<br>A <sub>E</sub> .<br>$\mu$ . | REMARKS.             |
|-----------------------------------------|----------------------------------------|-------------------------------------------------------------------------------|---------------|------------------------------------------|----------------------|
| SEPTEMBER 2                             | 1P<br>1S<br>1Sr<br>F                   | 16 53 25<br>17 03 12<br>17 06 23<br>18.1h                                     |               |                                          | No definite maximum. |
| " 6                                     | P<br>1<br>1<br>1<br>S<br>F             | 22 27 13<br>22 31 04<br>22 34 37<br>22 36 55<br>22 40 27<br>24.6h             |               |                                          |                      |
| " 24                                    | P<br>F                                 | 13 23 50<br>13.8h                                                             |               |                                          |                      |
| " 24                                    | eP<br>e<br>e<br>e<br>M<br>F            | 15 36 25<br>15 43 29<br>15 45 55<br>15 50 02<br>16 25 36<br>18.3h             | 19            | $\pm 8$                                  |                      |
| " 25                                    | 18P<br>Pr1<br>Pr2<br>S<br>Sr<br>M<br>F | 18 59 48<br>19 00 02<br>19 01 48<br>19 06 51<br>19 10 33<br>19 26 53<br>21.1h | 14            | $\pm 13$                                 |                      |
| Smaller tremors were also recorded at : |                                        |                                                                               |               |                                          |                      |
| D                                       | H                                      | D                                                                             | H             | D                                        | H                    |
| 3                                       | 04                                     | 9                                                                             | 05            | 21                                       | 10                   |
| 6                                       | 02                                     | 9                                                                             | 21            | 22                                       | 12                   |
| 6                                       | 10                                     | 10                                                                            | 08            | 22                                       | 13                   |
| 6                                       | 17                                     | 11                                                                            | 08            | 25                                       | 09                   |
| 7                                       | 08 59m.                                | 14                                                                            | 03            | 25                                       | 14                   |
| 7                                       | 14 43m.                                | 17                                                                            | 16            | 26                                       | 03                   |
| 7                                       | 15                                     | 17                                                                            | 23            | 27                                       | 04                   |
| 7                                       | 18                                     | 20                                                                            | 21            | 27                                       | 22                   |
| 7                                       | 23                                     | 20                                                                            | 23            | 28                                       | 00                   |
| 9                                       | 04                                     | 21                                                                            | 04            | 30                                       | 14                   |



For the Month of NOVEMBER, 1933.

FROM HELWAN OBSERVATORY, EGYPT.

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

Director \_\_\_\_\_ **P. A. CURRY.**

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.

| DATE<br>193 <b>3</b>                    |        | PHASE. | TIME. |    |       | PERIOD. | AMPLITUDE<br>A <sub>E</sub> . |     | REMARKS.                |
|-----------------------------------------|--------|--------|-------|----|-------|---------|-------------------------------|-----|-------------------------|
|                                         |        |        | h.    | m. | s.    | s.      | μ.                            |     |                         |
| November                                | 6      | 1P     | 7     | 10 | 22    |         |                               |     |                         |
|                                         |        | 1S     | 7     | 13 | 03    |         |                               |     |                         |
|                                         |        | L      | 7     | 15 | 05    |         |                               |     |                         |
|                                         |        | M      | 7     | 17 | 07    | 10      | ±                             | 8   |                         |
|                                         |        | F      | 8.1h  |    |       |         |                               |     |                         |
| "                                       | 20     | 1P     | 23    | 32 | 13    |         |                               |     |                         |
|                                         |        | 1S     | 23    | 40 | 58    |         |                               |     |                         |
|                                         |        | L      | 23    | 55 | 19    |         |                               |     |                         |
|                                         |        | M      | 24    | 06 | 19/27 | 19      | ±                             | 63  |                         |
|                                         |        | F      | 27.2h |    |       |         |                               |     |                         |
| "                                       | 22     | "      | 13    | 02 | 10    |         |                               |     | Record confused with    |
|                                         |        | P      | 13    | 02 | 32    |         |                               |     | microseisms.            |
|                                         |        | S      | 13    | 12 | 27    |         |                               |     |                         |
|                                         |        | M      | 13    | 50 | 42    | 25      | ±                             | 26  |                         |
|                                         |        | F      | 15;9h |    |       |         |                               |     |                         |
| "                                       | 28     | 1P     | 11    | 14 | 06    |         |                               |     | Preceded by microseisms |
|                                         |        | Pr     | 11    | 16 | 12    |         |                               |     |                         |
|                                         |        | 1S     | 11    | 18 | 07    |         |                               |     |                         |
|                                         |        | M      | 11    | 24 | 08    | 12      | ±                             | 165 |                         |
|                                         |        | F      | 13.5h |    |       |         |                               |     |                         |
| Smaller tremors were also recorded at : |        |        |       |    |       |         |                               |     |                         |
| D                                       | H      | D      | H     | D  | H     | D       | H                             | D   | H                       |
| 2                                       | 09     | 2      | 12    | 2  | 20    | 3       | 13                            | 4   | 09                      |
| 5                                       | 08     | 5      | 09    | 5  | 20    | 6       | 03                            | 7   | 07                      |
| 12                                      | 02     | 14     | 14    | 18 | 17    | 18      | 23                            | 19  | 03                      |
| 19                                      | 22 07M | 20     | 13    | 22 | 00    | 22      | 05                            | 22  | 23                      |
| 26                                      | 12     | 26     | 21    | 28 | 08    | 28      | 15                            | 28  | 16                      |
| 29                                      | 06     | 29     | 08    | 29 | 20    | 30      | 05                            |     |                         |

## SEISMOGRAPH RECORDS.

For the Month of DECEMBER, 1933.

FROM HELWAN OBSERVATORY, EGYPT.

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

Director P. A. CURRY

Seismograph Milne-Shaw recording E—W motion.

Theoretical magnification = 250.

Period of undamped pendulum =  $12^{\text{s}}.0$ .

Times are expressed in Greenwich Civil Mean Time.

| DATE<br>1933 .                          |    | PHASE. | TIME.                   |    |    | PERIOD. | AMPLITUDE<br>A <sub>E</sub> . |    | REMARKS. |
|-----------------------------------------|----|--------|-------------------------|----|----|---------|-------------------------------|----|----------|
|                                         |    |        | h.                      | m. | s. | s.      | μ.                            |    |          |
| Dec.                                    | 4  | P      | 19                      | 45 | 43 |         |                               |    | 8530     |
|                                         |    | S      | 19                      | 55 | 29 |         |                               |    |          |
|                                         |    | F      | 20.                     | 7h |    |         |                               |    |          |
| "                                       | 12 | P      | 5                       | 30 | 22 |         |                               |    | 1760     |
|                                         |    | S      | 5                       | 33 | 23 |         |                               |    |          |
|                                         |    | M      | 5                       | 37 | 05 | 10      | ± 6                           |    |          |
|                                         |    | F      | Lost in changing paper. |    |    |         |                               |    |          |
| "                                       | 14 | P      | 18                      | 56 | 31 |         |                               |    | 2340     |
|                                         |    | S      | 19                      | 00 | 27 |         |                               |    |          |
|                                         |    | M      | 19                      | 07 | 24 | 10      | ± 54                          |    |          |
|                                         |    | F      | 20.                     | 0h |    |         |                               |    |          |
| Smaller tremors were also recorded at : |    |        |                         |    |    |         |                               |    |          |
| D                                       | H  | D      | H                       | D  | H  | D       | H                             | D  | H        |
| 2                                       | 02 | 2      | 05                      | 2  | 06 | 2       | 20                            | 4  | 11       |
| 6                                       | 05 | 7      | 00                      | 9  | 08 | 10      | 09                            | 12 | 09       |
| 2                                       | 14 | 13     | 21                      | 14 | 05 | 14      | 08                            | 14 | 20       |
| 5                                       | 07 | 16     | 02                      | 17 | 23 | 18      | 10                            | 18 | 22       |
| 9                                       | 00 | 21     | 01                      | 21 | 18 | 24      | 11                            |    |          |