# ROYAL ASTRONOMICAL SOCIETY.

## Dr. LEE in the Chair.

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The Editor has been requested to state that nearly three hundred copies of Mr. Carrington's Catalogue and Charts have been circulated gratuitously, and that the remaining copies are offered for sale (separately if desired) at the establishment of Messrs. Longman and Co., at the price of ten shillings for the Catalogue, and five shillings for the Charts, the latter (ten in number) being packed on a roller.

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*Occultation of the Pleiades observed at Madras, 6th October, 1857.* By Capt. W. S. Jacob, Director of the Madras Observatory.

Madras Sidereal Time.

| | | | h | m | s | |
|---|---|---|---|---|---|---|
| 16 Tauri *a* | disappearance | | 23 | 51 | 12·3 | bright limb. |
| 17 ,, *b* | ,, | | | 56 | 38·6 | ,, |
| 19 ,, *c* | ,, | | | 9 | 36·7 | ,, |
| 20 ,, *d* | ,, | | | 15 | 45·4 | ,, |
| 17 ,, | reappearance | | | 32 | 0·4 | dark limb near the pole. |
| 16 ,, | ,, | | | 56 | 13·5 | dark limb. |
| 19 ,, | ,, | | 1 | 22 | 16·6 | ,, |
| 20 ,, | ,, | | | 25 | 29·6 | |

*a* The star entered at the point of a small peak; it seemed to be projected, but was too faint to be plainly seen on the moon's face.

*b* Star plainly projected on the moon's face.

*c* No projection perceptible.

*d* No projection; the star visibly bisected at the instant of disappearance.

## *Mass of Jupiter.*

A few elongations have been measured of the 3d and 4th satellites, not so much with the view of obtaining a fresh determination of the planet's mass, as of furnishing a *test*, by comparison with the measures of the Astronomer Royal, from which to infer the degree of accuracy that may be attributed to such

observations, and especially to the value of *Saturn's* mass, lately communicated to the Society.

Of the 4th satellite, 7 sets of measures were attained; 4 at the eastern, and 3 at the western elongation; mean value* E., $498''\cdot89$; W., $498''\cdot74$; general mean $= 498''\cdot813$; resulting log. mass (of *Jupiter* + IV) $= 6\cdot979594$; of the whole system $6\cdot979650$, $= \dfrac{1}{1048\cdot0}$

Of the 3d satellite, 6 measures, 3 E., and 3 W. mean of E. $= 283''\cdot59$; W. $= 283''\cdot82$; general mean $283\cdot70$; log. mass (of *Jupiter* + III.) $= 6\cdot980036$; corrected $6\cdot980072 = \dfrac{1}{1046\cdot95}$

Mean of the whole $6\cdot979861$, or $\dfrac{1}{1047\cdot46}$. This is all but identical with Airy's value, given in p. 47, vol. x. of the Society's *Memoirs*; viz. $\dfrac{1}{1046\cdot77}$. The simple mean has been taken of the results of the two satellites, although if the measures were equally good, that of the 4th should have an increased weight proportioned to its distance; but the measures of the 3d are considered decidedly the best, the great distance of the 4th (sometimes exceeding $10'$) rendering it rather unmanageable with the filar micrometer, the two objects coming unpleasantly near the edges of the field. But even if weights were assigned in proportion to the distances, the difference would be very slight in the result, the mean log. being then $6\cdot979803 = \dfrac{1}{1047\cdot6}$.

The power employed throughout was $174$; there does not appear any decided bias or difference between E. and W. measures; the small difference, which does not exceed probable error of observation, being in opposite directions with the two satellites. One measure, taken near conjunction, confirms the surmise of the Astronomer Royal of a sensible error in the inclination of the 4th satellite, the amount being about $8'$. The details of the observations will be furnished hereafter.

*Madras, 9th October,* 1857.

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*Results of the Observations of Small Planets made at the Royal Observatory, Greenwich, from Oct. 20 to Dec. 4, 1857.*

(*Communicated by the Astronomer Royal.*)

### Circe.

| Mean Solar Time of Observation. | Apparent R.A. | Apparent N.P D. |
|---|---|---|
| h  m  s<br>1857, Oct. 30   11  12   1·4 | h  m  s<br>1 48  51·53 | °  ′  ″<br>82  45  18·05 |

* Reduced to *Jupiter's* mean distance.

## Astræa.

| Mean Solar Time of Observation. | Apparent R.A. | Apparent N.P.D. |
|---|---|---|
| h m s | h m s | o ′ ″ |
| 1857, Oct. 28   10 37 41·3 | 1 6 32·62 | 90 43 30·75 |
| Nov. 11   9 33 24·9 | 0 57 17·43 | 91 32 31·45 |
| 24   8 37 30·6 | 0 52 29·19 | 91 44 27·74 |

## Hygeia.

| Mean Solar Time of Observation. | Apparent R.A. | Apparent N.P.D. |
|---|---|---|
| h m s | h m s | o ′ ″ |
| 1857, Oct. 26   11 29 3·4 | 1 50 10·05 | 73 10 12·11 |
| 28   11 19 40·9 | 1 48 39·14 | 73 19 12·45 |
| 30   11 10 19·5 | 1 47 9·32 | 73 28 18·86 |
| Nov. 11   10 14 52·3 | 1 38 51·71 | 74 23 18·93 |
| 24   9 16 56·8 | 1 32 1·92 | 75 17 3·54 |
| Dec. 4   8 34 26·5 | 1 28 50·24 | 75 49 26·43 |

## Irene.

| Mean Solar Time of Observation. | Apparent R.A. | Apparent N.P.D. |
|---|---|---|
| h m s | h m s | o ′ ″ |
| 1857, Oct. 26   13 12 38 3 | 3 34 1·97 | 79 52 9·06 |
| 27   13 7 53·2 | 3 33 12·68 | 79 54 22·71 |
| 30   12 53 31·7 | 3 30 38·44 | 80 0 52·81 |
| 31   12 48 43·0 | 3 29 45·59 | 80 2 59·61 |
| Nov. 11   11 55 3·9 | 3 19 19·76 | 80 24 4·46 |
| 24   10 51 18·3 | 3 6 38·92 | 80 39 9·55 |
| Dec. 1   10 17 35·5 | 3 0 26·52 | 80 40 34·38 |
| 4   10 3 22·7 | 2 58 1·02 | ...... |

## Calliope.

| Mean Solar Time of Observation. | Apparent R.A. | Apparent N.P.D. |
|---|---|---|
| h m s | h m s | o ′ ″ |
| 1857, Nov. 17   13 48 (55·0) | ...... | 63 45 56·69 |
| 21   13 30 6·0 | 5 34 2·99 | 63 24 12·72 |
| 26   13 6 4·8 | 5 29 40·71 | 62 57 29·98 |
| Dec. 4   12 26 44·2 | 5 21 46·06· | (2 17 28·73 |