ROYAL ASTRONOMICAL SOCIETY.

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FRANCIS BAILY, Esq., President, in the Chair.

The Rev. John Moore Heath, M.A., Fellow and Tutor of Trinity College, Cambridge, was balloted for, and duly elected a Fellow of the Society.

The following communications were read:—

I. Description of a small Observatory constructed at Poona, in the year 1842, accompanied by observations of Eclipses, &c. of *Jupiter's* Satellites. By Lieut. W. S. Jacob, R.N.

The observatory was built for the purpose of containing a 5-feet equatoreal of Dollond. It was commenced in May 1842, and was completed in three months, at an expense of about 25*l*. The building is of brick, 20 feet long, from east to west, and 10 feet broad; the angles at the east end being cut off, so as to form part of an octagon. Instead of a rotatory roof, a folding one was constructed, which could be opened on any side that might be required. This was effected by means of a truncated octagonal pyramid, attached by hinges to an octagonal frame, laid on the top of the wall of the building, each side of the pyramid opening independently of the rest, and the top being closed by a flat octagonal shutter, attached to one of the sides of the pyramid by hinges. To support the instrument, a pier was built of brick, in the form of a T, at the ends of which were three stones, forming cubes of thirteen inches, for the foot of the stand.

The following are the observed phenomena of *Jupiter's* satellites, the longitude of Poona being $4^h\ 55^m\ 46^s$ east, and the latitude $18^\circ\ 30'\ 42''$ north.

Eclipses and Occultations of Satellites, and Transits of Satellites and Shadows.

Day, 1842.	Sat.	Phenomenon.	Sidereal Time.
			h m s
Aug. 10	I	Eclipse reappearance.....	21 7 37·7
Sept. 26	I	Ingr. of shad. {first contact	19 34 13
		{total.....	19 36 24
	I	Egr. of sat. ...{first contact	20 35 32
		{last contact	20 37 14
27	III	Egr. of sat. (last contact) ...	19 12 19
	I	Eclipse reappearance.....	19 15 30·5
	III	Ingr. of shad. {first contact	20 58 15
		{total.....	21 3 36
Oct. 3	I	Egr. of sat. ...{first contact	22 54 17
		{last contact	22 57 7
7	II	Eclipse reappearance.....	23 6 43
14	II	Occultation, immersion.....	20 42 23
18	I	Occultation, immersion.....	22 50 32
20	I	Eclipse reappearance.....	21 0 57
Nov. 9	III	Egr. of sat. ...{first contact	22 39 14
		{last contact	22 44 32
	III	Ingr. of shad. {first contact	23 49 51
		{total.....	23 55 42
11	I	Ingr. of sat....{first contact	21 55 24
		{total.....	22 0 36
	I	Ingr. of shad. {first contact	23 5 18
		{total.....	23 8 26
12	I	Eclipse reappearance.....	22 46 20·3
Dec. 3	II	Eclipse reappearance.....	23 51 13·7

II. The following communications concerning the Great Comet of 1843:—

1. A Letter from S. C. Walker, Esq., to Sir J. F. W. Herschel. Communicated by Sir John Herschel.

"*Philadelphia, May* 23, 1843.

"Sir,—From the observations made at the High School Observatory, from March 11th to April 10th, the earliest and latest dates at which the place of the nucleus was measured, we have computed the elements of the orbit on the model of Gauss' *Theoria Motus*, without making any hypothesis respecting the particular conic section in which the comet moves. The result has been as follows:—

Perihelion passage, February $27^d{\cdot}5893933$ Greenwich mean time.

Longitude of the Perihelion	280° 44′ 3″·7	mean eq. March 30.
Longitude of the ascending Node.....	15 57 3·2	
Inclination	34 19 52·0	
Perihelion Distance	0·00410369	
Gaussian Angle χ	2° 26′ 12″·05	
Eccentricity, Sec. χ	1·00090495	
Mean Sidereal Daily Motion.....	159″·58936	retrograde.