

ASTRONOMISCHE NACHRICHTEN.

No. 281.

Schreiben von Sir *John Herschel* Ritter des Bath-Ordens an den Herausgeber.

Feldhausen near Wynberg. Cape of Good Hope. Febr. 24. 1835.

We landed in Table Bay on the 16th January 1834, and the Instruments and apparatus of every kind being disembarked (happily quite uninjured) I proceeded with as little loss of time as possible to seek a proper site for their erection and for the future residence of myself and family. In this I was fortunate enough to succeed beyond my most sanguine hopes. The locality selected (from whence I now address you) is on the extreme edge of the Eastern declivity of the Table Mountain, which rises behind it in a long series of mural precipices, and slopes gently towards the extensive flat sandy tract which in effect almost insulates the Cape Promontory from the main Continent of Africa, and extends nearly North and South between Table Bay and False Bay. — The whole of this Side of that magnificent mountain is clothed with rich verdure and forests of Oak, Pine, etc., interspersed with vineyards and Country Houses. These woods, while they render the scenery of the place in the highest degree beautiful and romantic, afford the advantage (inestimable for astronomical pursuits) of a complete shelter from the violence of those formidable Gales for which the Cape is proverbial. So complete is this shelter (especially from the South East winds, which prevail during the Summer) that I have never had reason to complain of them as an inconvenience, or as offering any obstruction to my sweeps, though conducted entirely in the open air. The climate too of this Side of the Mountain is in every respect preferable to that of Cape Town itself.

Having made my arrangements so as to allow me to commence erecting the Instruments (the 20-foot Reflector, and 7 feet Equatorial Achromatic) while the House was preparing for our reception, the Reflector was already on the 22^d February in a condition for viewing miscellaneous objects. In the interval between that time and the 5th of March, when the regular series of my sweeps commenced you may easily suppose that it was not suffered to remain idle. I had already, by the aid of a small and very portable Reflector of 5 feet focal length and furnished with an object mirror

of 9 inches diameter, on the Newtonian Construction (the same formerly employed by my Aunt as a Comet-Seeker, and which immediately on our arrival I erected in the Garden of our temporary residence) become familiar with most of the greater objects of the Southern Circumpolar region, so rich in wonders, — such as the two Magellanic Clouds, the great Nebula about η Argus, — the great Clusters ω Centauri, 47 Toucani, etc., but the superior power of the 20-foot Reflector, when brought to bear on these and similar objects, presented them in an aspect infinitely more imposing, and I may truly say that I felt repaid, by the views thus obtained of these most astonishing phaenomena, for all the trouble and inconveniences of our voyage hither. They are really magnificent, and such as no description can do justice to. — I did not however suffer this interval to elapse in mere desultory views, but employed it in making careful drawings of the two most remarkable (η Argus and 30 Doradus) as well as in mapping down the stars in and near them so as to be prepared to notice with certainty any change in the disposition of the nebulous matter which may by possibility occur to an appreciable extent during my stay, or by future observus.

Owing to the necessity of erecting a building to sustain the revolving roof, and a pier for the axis of the 7 feet Equatorial, that instrument could not be brought into a state fit for observing before the 2^d May, when I commenced a series of Micrometrical measures of the positions and distances of Southern Double Stars, and a Review (Musterung) of all the stars down to the 7th magnitude which occur in this Hemisphere down to the 105th degree of North Polar Distance, at which *M. Struve's* review of the Northern Double Stars terminates. For the detection of Double Stars below the 7th magnitude, the powers of the reflector are required.

I consider myself extremely fortunate in having thus, within six Months, from the day of our embarkation at Portsmouth, been able to enter satisfactorily upon the series of observations, which formed the object of my voyage.

Just one year has elapsed from the commencement of my sweeps to the day (March 5) on which I now resume this letter. It will give some idea of the clearness of our South African Sky when I state that in that interval I have registered 127 sweeps, and when it is recollected that owing to the invisibility of nebulae by Moonlight, the interval between the 7th and 18th days of the Moon's age is not available for the purpose of sweeping. In these sweeps of course a considerable catalogue both of Nebulae and Double Stars has been collected, some of more, some of less interest. — Among the former the most curious no doubt are the Planetary, and annular Nebulae both by reason of their rarity, and their singular and problematic constitution. The following list will serve to shew that besides the greater and more conspicuous objects before alluded to, the southern sky possesses, among the minuter and more microscopic objects, abundant matter of interest and speculation

RA. 1830 N.P.D.	Places only by an approximate reduction.
9 ^h 6 ^m 131°45'	A perfectly round, uniform faint disc 10" diameter.
9 17 147 35	A perfectly sharp, well defined, uniform disc, 10" or 12" in diameter.
10 0 129 37	A very brilliant large uniform elliptic disc, 30" diam. sharply terminated, and having in, or on it but excentrically placed, a star 9 ^m .
10 18 168 0	A pretty well defined disc, of 30 or 40" diameter a little hazy at the borders, with somewhat of comparative darkness like a division near the middle and rather elliptic.
11 42 146 14	A beautiful round planetary nebula, as sharply terminated as a planet, of a perfectly uniform light and of a fine blue colour inclining to green. NB. This is the only insulated object of a decided blue colour I have ever observed in the heavens.
15 5 135 1	A sharply defined, exactly round, uniform pretty bright Planetary disc. My assistant compared it, for neatness of termination and roundness „to the full moon — only smaller.“
17 11 128 18	An extremely faint and delicate Annulus of uniform light among a crowd of stars in the milky way.

Among the remarkable Double Stars of the Southern Circumpolar regions I may enumerate

γ Lupi	— Class I. Magnitudes (4) (4) vicinissimæ
β Hydræ and Crat.	I. (5) (5.6)
22 Piscis Australis	I. (5) (8)
θ Indi	I. (5) (10)
ε Chameleontis	I. (5.6) (6) pervicinæ

λ Octantis	I. (5.6) (9)
R.A. 11 ^h 0 ^m N.P.D. 131°42'	I. (5.6) (9) vicinissimæ
R.A. 4 ^h 12 ^m N.P.D. 152°39'	II. (5.6) (11)
γ Coronæ Australis	I. (6) (6)
R.A. (20 ^h 37 ^m) N.P.D. 153°2'(*)	I. (6) (6) pervicinæ
R.A. 17 14 N.P.D. 135 4	I. (6) (7)
10 Hydræ	II. (6) (7)
ξ Apparatus. Chem.	II. (6) (7.8)
R.A. 11 33 N.P.D. 122 37	I. (6) (8)
— 8 24 — 137 21	I. (6) (10)
— 22 42 — 126 49	I. (6) (13)
— 9 27 — 138 14	I. (6.7) (7) pervic.
π Horologii	I. (6) (10)
κ Toucani	I. (6.7) (9)
R.A. 17 ^h 24 ^m N.P.D. 122°29'	I. (6.7) (13)
— 11 8 — 135 56	I. (7) (7)
— 0 56 — 131 32	I. (7) (8) vicinissimæ
— 14 45 — 137 11	I. (7) (8)
— 11 57 — 122 0	I. (7) (9)
— 20 2 — 124 36	I. (7) (10)
— 7 39 — 163 51	I. (8) (8) vicinissimæ

Among these Double Stars I may observe that the Star R.A. 20^h 37^m N.P.D. 153°2' agrees in place with one of Mr. *Rümker's* list p. 16 of his „Preliminary Catalogue“ but differs remarkably from it in description, its present distance being at the utmost 1½" while Mr. *R.* makes the difference in R.A. = 15" which corresponds to about 6",8 of angular distance in the parallel. If this be correct the stars have approached, since at present they are difficultly separated with a power of 320, and require a diminished aperture to distinguish the division between them steadily enough for measurement.

I have looked very narrowly on the evenings, of the 29th Jan. and the 18th Febr. in and all around the places of *Halley's* Comet in Mr. *Rümker's* Ephemeris (which reached me on the first named of those days) with a mirror newly polished and in high order, and with every favorable circumstance of clear sky and darkness — but without perceiving it.

J. F. W. Herschel.

P.S. During the whole continuance of total obscuration of the Moon by the Earth's Shadow, or rather of total immersion in the Eclipse of Dec. 26. 1833 which I observed in Lat. 26° 30. S. Long. 22° 0' W. the Moon continued conspicuously visible to the naked eye and of a swarthy copper colour, which, at the going off of the eclipse changed to a pale bluish green at the edges. The cause of this phenomenon (which was extremely remarkable) I conceive to be the accidental absence of clouds over a large portion of that annulus of the Earth's atmosphere grazed by the sun's rays at the time.