

XXIV. 31 M. ANDROMEDÆ.

AR 0^h S4^m 5s PREC. + 3^s.24
 DEC. N 40° 23'.6 ----- N 19".82

MEAN EPOCH OF THE OBSERVATION 1833.70

An overpowering nebulae, with a companion about 25' in the south vertical. It is of an oval shape, light, brightening towards the *sf* edge of the general mass, and of a milky irresolvable nebulosity; but though described "in cingulo Andromedae," is between the robes and left arm of the Lady, and certainly below the girdle. There are numerous telescopic stars around; and three minute ones are involved in the glow, but which can have no connection with it, and are doubtless between our system and the nebulosity. The axis of direction trends *sp* and *nf*; and it may be caught by a good eye, on a very fine night, by running a fancied line from Alamak to Mirak, and from thence carrying a rectangular glance to a distance of about 6½°. It can also be struck upon by a ray from γ in the mouth of Cetus, over Sheratan in the head of Aries, and through Mirak, or β Andromedae, to 6½° beyond.

This is the oldest known nebula; for though it attracted but little notice till the seventeenth century, it was seen, at least, as far back as 905 A.D. Simon Marius re-discovered it,—if such a term can be applied to an object seen with the naked eye: in his rare work—*DeMundo Joviali*—that astronomer acquaints us, that he first examined it with a telescope on the 15th Dec. 1612; he was astonished at the singularity of the phenomenon, but expressly says, that he leaves to others to judge whether it was a new discovery or not. It was therefore by an oversight, that Halley ascribes the discovery, in 1661, to Bulialdus (*Ismael Boulliaud*); who himself mentions its being known as *Nebulosa in cingulo Andromedae*) and that it had been noticed 150 years before, by an expert though anonymous astronomer. The tenuity of its boundary offering no definition for exact comparison, has made the several attempts to figure it so conflicting as to mislead. Marius describes it as resembling the diluted light of the flame of a candle seen through horn,—Halley mentions that it emits a radiant beam,—Cassini calls it *d peu-pres triangulaire*,—Le Gentil considered it round for some years, then oval, but always of an uniform light in all its parts,—while Messier represents it as resembling two cones, or pyramids of light, opposed by their bases. From such statements, Boulliaud and Kircher thought this wonderful object appeared and disappeared, like Mira; and Le Gentil had no doubt of its undergoing changes in form. But probably this discordance is a consequence of the means employed. Le Gentil, by his paper of 1749, seems to have used telescopes of various sizes, in order to see it very clearly—"non teulement pour servir a la reconnoitre, mats encore pour voir si dans la suite elle ne seroit point sujetle a quelque variation, soit dans la figure, soil dans la position;" yet fifteen years afterwards Messier differs from him, by assigning a greater brilliance to the centre than to the edges, which latter accords better with my views of it, than do our apparent mean places. It is, however, remarkable that Messier examined this giant nebula with a 4½ foot Newtonian, and then turned the instrument upon γ Andromedse—"qui en étoit fort près"—to compare its light with that of the star, on a beautiful night of August, 1764; but he makes no mention of the duplicity, or contrasted colours, of that lovely star.

Sir William Herschel, the Prases of all the examiners into the construction of the heavens, gave this phenomenon a rigid scrutiny, and concluded it to be the nearest of all the great nebulas. "The brightest part of it," he says, "approaches to the resolvable nebulosity, and begins to show a faint red colour; which, from many observations on the magnitude and colour of nebula, I believe to be an indication that its distance in the coloured part does not exceed 2000 times the distance of Sirius." Does not exceed that distance! That is, so far from us, that light, which is endowed with the swiftest degree of motion yet known, flying along at the rate of 190,000 miles in a second of time, or nearly twelve millions of miles in a minute, would require upwards of 6000 years to traverse the awful interval: as to that type of terrestrial velocity, so often cited, the cannon-ball, with its 500-miles-an-hour pace, it would have no chance of passing

the same space under nine or ten thousand millions of years. What an overwhelming idea does such an astonishing conclusion give of the All-wise and Omnipotent Intelligence!

Halley considered the light of this object as depending quite on a particular cause. In reality, he says, the spot is "nothing else but the light coming from an extraordinary great space in the ether, through which a lucid medium is diffused that shines with its own proper lustre." Other philosophers have advanced similar opinions, or at least, opinions not remotely different; and there is still a wide field for conjecture and speculation. The causes and arrangement of so astonishing a mass of nebulous matter, if not quite inscrutable, are still so unapproachable that it will probably occupy ages to detect them; but we must hesitate in the conclusion of a contemporaneous lecturer, of its being composed of the united lustre of a vast system of stars.

The companion was discovered in November, 1749, by Le Gentil, and was described by him as being about an eighth of the size of the principal one; he adds, "*elle ma paru exaciement de la mime densiti que Vancienne.*" The light is certainly more feeble than here assigned. Messier—whose No. 32 it is—observed it closely in 1764, and remarked, that no change had taken place since the time of its being first recorded. In form it is nearly circular. The powerful telescope of Lord Rosse* has been applied to this, after finding that no actual re-solution in the large nebulae could be seen, though its edge had stellar symptoms; and it proved to be clearly resolvable into stars—the which directly interferes with Le Gentil's remark.

* This telescope is a reflector of three feet in diameter, of performance hitherto unequalled. It was executed by the Earl of Rosse, under a rare union of skill, assiduity, perseverance, and munificence. The years of application required to accomplish this, have not worn his Lordship's zeal and spirit; like a giant refreshed, he has returned to his task, and is now occupied upon a metallic disc of no less than six feet in diameter. Should the figure of this prove as perfect as the present one, we may soon over-leap what many absurdly look upon as the boundaries of the creation.