

I think the presence of these dusky poles and bright belt would rather imply that this satellite at least is in a physical condition not vastly different from that of *Jupiter* itself.

Mount Hamilton, California:
1893 November 27.

Photograph of the Nebulæ H I 56 and 57 Leonis.
By Isaac Roberts, D.Sc., F.R.S.

The photograph of the nebulae H I 56 and 57 *Leonis*, R.A. $9^{\text{h}} 26^{\text{m}}$, Decl. $21^{\circ} 59'$ north, was taken with the 20-inch reflector on 1893, April 4, with exposure of the plate during 4 hours, and is enlarged to the scale of 1 millimètre to 24 seconds of arc.

The nebulae are Nos. 2903 and 2905 in the *New General Catalogue*, and 1861–1863 in the *General Catalogue*.

No. 1861 is described by Sir J. Herschel (*General Catalogue*, p. 79) as considerably bright, very large, extended, gradually much brighter in the middle, resolved; *s. p.* of 2. No. 1863 is described as very faint, considerably large, round, pretty suddenly brighter in the middle, resolved; *n. f.* of 2. These nebulae are figured in the *Phil. Trans.*, 1833, Pl. XV., fig. 70, p. 495, but the drawing does not at all resemble the photograph.

Lord Rosse (*Observations of Nebulae and Clusters of Stars*, pp. 76, 77, and Pl. III., fig. 9, 1851) gives the results of thirty observations of the nebula made between the years 1846 and 1878. A drawing is also given in the *Phil. Trans.* for 1850, Pl. XXXVI., fig. 3. The drawing, which was made in the year 1851, is in its outlines very fairly in agreement with the photograph, but of course the details of the extensions and condensations of the nebulous matter are not as shown on the photograph.

The photograph shows the nebula to be a symmetrical spiral, with great extensions of very faint nebulosity on the north and south sides. The nucleus is stellar in the centre of the convolutions of the spiral, which, owing to perspective effects, are elongated so as to appear of an elliptical form in nearly north and south directions. The convolutions of the spirals are broken up into nebulous star-like patches with faint nebulosity between them. On the negative the faint nebulosity is seen to extend further to the north and to the south than is shown on the print which is now presented.

The nebula H II 260 is also shown on the photograph $2^{\text{m}} 45^{\text{s}}$ following, and 13 minutes of arc north. It has a stellar nucleus resembling two faint stars surrounded by very faint nebulous rings.

It will be observed that the stars in the region of these nebulae are pretty numerous.

Photograph of the Nebula H I 200 Leonis Minoris.

By Isaac Roberts, D.Sc., F.R.S.

The photograph of the nebula H I 200 *Leonis Minoris*, R.A. $8^h 46^m$, Decl. $33^\circ 49'$ north, was taken on 1893, March 19, with exposure of the plate during three hours. Scale: 1 millimètre = 24 seconds arc.

The nebula is No. 2683 in the *New General Catalogue*, and 1713 in the *General Catalogue*, and is described by Sir J. Herschel as very bright, very large, very much extended in the direction of $40^\circ 9'$, gradually much brighter in the middle.

Lord Rosse, in the *Observations of Nebulae and Clusters of Stars*, p. 70, gives the results of sixteen observations of the nebula made between the years 1851 and 1876. He describes it as a very large lenticular ray, slightly concave on the *n. p.* side, gradually very much brighter in the middle, perhaps 10' long, and he suspected the existence of very faint streaks and lanes on each side parallel to the ray.

The photograph shows the nebula with a strong stellar nucleus in the midst of dense nebulosity, which is of a flocculent character, and it is doubtless similar in form to the great nebula in *Andromeda*, but apparently very much smaller in size, and seen more edgewise; the rings are therefore not visible, though their existence is very probable. The nebula measures on the photograph about six and a half minutes of arc in length, and is in a region of the sky which is not exceptionally studded with stars; they are mostly faint, and are shown to about the 16th magnitude.

Observations of the Variable Stars W and X Sagittarii.

By Lieut.-Colonel E. E. Markwick.

W Sagittarii.—This star can be easily compared with No. 14 of *Sagittarius* in the *Uranometria Argentina*, 5.4 m., which is well situated for the purpose, as the binocular shows them nicely in the same field. The following observations were made with a binocular magnifying about five times. The observed magnitudes in the *U. A.* scale were plotted on ruled paper, in which the horizontal lines represent brightness, and the vertical ones the dates. The maxima, calculated from the data given in Mr. S. C. Chandler's valuable *Second Catalogue of Variable Stars*, viz. Epoch 1866 September 4 + 7.59460 E, were then marked by ordinates. A typical curve based on the same period and ($M-m$), the interval from minimum to next following maximum, = 3.00 days, was drawn on tracing-paper, and the differences