in length. The star in the centre is very conspicuous, and of
about 15th magnitude; but there is no other star anywhere in
the nebula, though there are two very faint condensations of
nebulosity near the north preceding margin. The nebula seems
as if it consisted of two nebulous disks superposed: the first a
complete circular plane of faint nebulosity upon which is super-
posed a broad ring of dense nebulosity of lesser diameter than
the plane and leaving uncovered an elliptical space, in the centre,
in the middle of which is placed the star already referred to.

The ring is not of equal breadth all round, but is widened on
the north following and south preceding sides, and narrowed on
the south following and north preceding sides; there is an
absence of structure in the nebulosity, and the photograph does
not indicate any nebulous projections beyond the symmetrical
outline of the nebula. The disappearance of the second star,
seen both by Lord Rosse and Dr. Robinson, is remarkable.

Photograph of the Nebula Η V 46 Ursæ Majoris.
By Isaac Roberts, D.Sc., F.R.S.

The photograph of the nebula Η V 46 Ursæ Majoris, R.A.
11h 5m 22s, Decl. 56° 15' north, was taken with the 20-inch
reflector on 1895 April 20, with exposure of the plate during
four hours, and the copy now presented is enlarged to the scale
of 1 millimetre to 15 seconds of arc.

The nebula is N.G.C. No. 3556, G.C. No. 2318, h 831. Rosse,
Obs. of Neb. and Cl. of Stars, pp. 92, 93.

Sir J. Herschel (G.C. 2318) describes the nebula as consider-
ably bright, 'very large, very much extended in the direction 79°,
pretty bright in the middle, resolvable.

Lord Rosse records seven observations made between 1850
and 1874, and calls it a curiously twisted nebula, a large faint
and much mottled ray with three stars involved; numerous stars
involved; but much uncertainty in his observations is frequently
indicated.

The photograph, as will be seen on the slide now projected on
the screen, shows the nebula as an ellipse viewed at an acute
angle with its plane, the major axis being in the direction of
preceding and following at an angle of 79°, as stated. Four well-
defined stars of 14th to 16th magnitude are involved in the
nebulosity, and, besides, there are six star-like condensations
involved; the nebulosity which forms the rings is much broken
up into masses, and the nebula seems to be one of the class in
which we might expect, within a comparatively short period, to
detect changes taking place in its structure.
Photograph of the Cluster H VII 66, and of the Nebula H IV 75 Cephei. By Isaac Roberts, D.Sc., F.R.S.

The photograph of the cluster H VII 66 Cephei, R.A. 21° 43′ 24″, Decl. 65° 17′ north, was taken with the 20-inch reflector on 1895 September 25, with an exposure of the plate during three hours, and the copy now presented is enlarged to the scale of 1 millimetre to 24 seconds of arc.

The cluster is N.G.C. No. 7142, G.C. No. 4709, h 2134. Rosse, *Obs. of Neb. and Cl. of Stars*, p. 163.

It is described by Sir J. Herschel (G.C. 4709) as considerably large, considerably rich, pretty compressed, stars 11th to 14th magnitude.

The photograph is in agreement with the general descriptions given, and, in addition, shows each star in the cluster in true relative position and magnitude down to about the 17th. The chief use of the photograph will be as a reliable record for future comparison of the stars in the cluster and in the surrounding region of the sky.

Photograph of the Nebula H IV 75 Cephei.

The photograph of the nebula H IV 75 Cephei, R.A. 21° 40′ 34″, Decl. 65° 37′ north (epoch 1895), was taken with the 20-inch reflector on 1895 September 25, with exposure of the plate during three hours, and the copy now presented is enlarged to the scale of 1 millimetre to 24 seconds of arc.

The nebula is N.G.C. No. 7129, G.C. No. 4702, h 2131. Rosse, *Obs. of Neb. and Cl. of Stars*, p. 162.

Sir J. Herschel (G.C. 4702) describes the nebula as a remarkable object, considerably faint, pretty large, gradually brighter in the middle, with three stars involved.

The photograph shows the nebula to be elliptical, measuring 432″ in *north following* to *south preceding* direction, and 285″ in *south following* to *north preceding*. The nebulosity is dense on the *north following* side, and involved in it, as a nucleus, are the three stars referred to by Sir J. Herschel: two of them are of about 12th magnitude and the third 16th magnitude. There are also eleven other stars, ranging between the 12th and 17th magnitudes, apparently involved in the nebula. The character of the nebulosity is flocculent with extensive dark areas, but there is some structure visible near the *north following* margin.

There are three stars, each of about 13th magnitude, surrounded by very faint nebulosity in the positions following, measured from the centre of the tristellar nucleus of the nebula: (1) 358″ *north following*; (2) 326″ *north preceding*; (3) 277″ *north preceding*. The stars Nos. 2 and 3 are not referred to in Dr. Dreyer’s catalogues, and the measurements given above are approximate.
By Lieut.-Colonel E. E. Markwick.

The following observations were made at Gibraltar with a binocular field-glass magnifying about five times, and are in continuation of those appearing at p. 338 vol. lv. of the Monthly Notices.

W Sagittarii. Thirty-five observations, the star being compared with 14 (U.A.) Sagittarii, 5'4 mag. In the table, the first column gives the date of observation for identification. The second is the day and hour of observation reduced to G.M.T., and converted into Julian days and fraction. The next column is the observed magnitude. Maxima were calculated from Dr. Chandler's formula—viz.

1866 Sept. 4 = 240 2849'45 + 7'59460 E.

With the other data in Chandler's second catalogue—viz. variation 4'8 to 5'8 and M = m = 3'00 d—a typical curve was drawn (see Monthly Notices, vol. lv. p. 138), and the observations plotted on the same scale. The distance of each observation from the curve horizontally was then measured off in fractions of a day, those to the left of the curve being negative, and vice versa.

The fourth column gives the interval in days elapsed between date of observation and next preceding maximum. The last column gives the distances just referred to. Remarks from observing book are added.

W Sagittarii.

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