

The Comparison Stars Used.

Hagen's Number.	H.P. Magnitude.	Hagen's Number.	H.P. Magnitude.	Hagen's Number.	H.P. Magnitude.
4	7.7	15	9.5	43	10.9
5	8.3	16	9.5	51	11.2
7	8.6	17	9.6	55	11.4
8	8.8	19	9.7	64	11.8
9	8.9	21	9.8	69	12.0
11	9.1	22	9.9	73	12.3
13	9.3	32	10.3	75	12.4
14	9.4	34	10.4		

*Brackenhurst,
Bucklebury Common, Berks :
1926 May 20.*

Note on the Nova in N.G.C. 4303 (M. 61).

(Communicated by the Astronomer Royal.)

Photographs of the Nova in N.G.C. 4303 were obtained with the Astrographic Refractor on the following dates: 1926 May 15, 16, and 31.

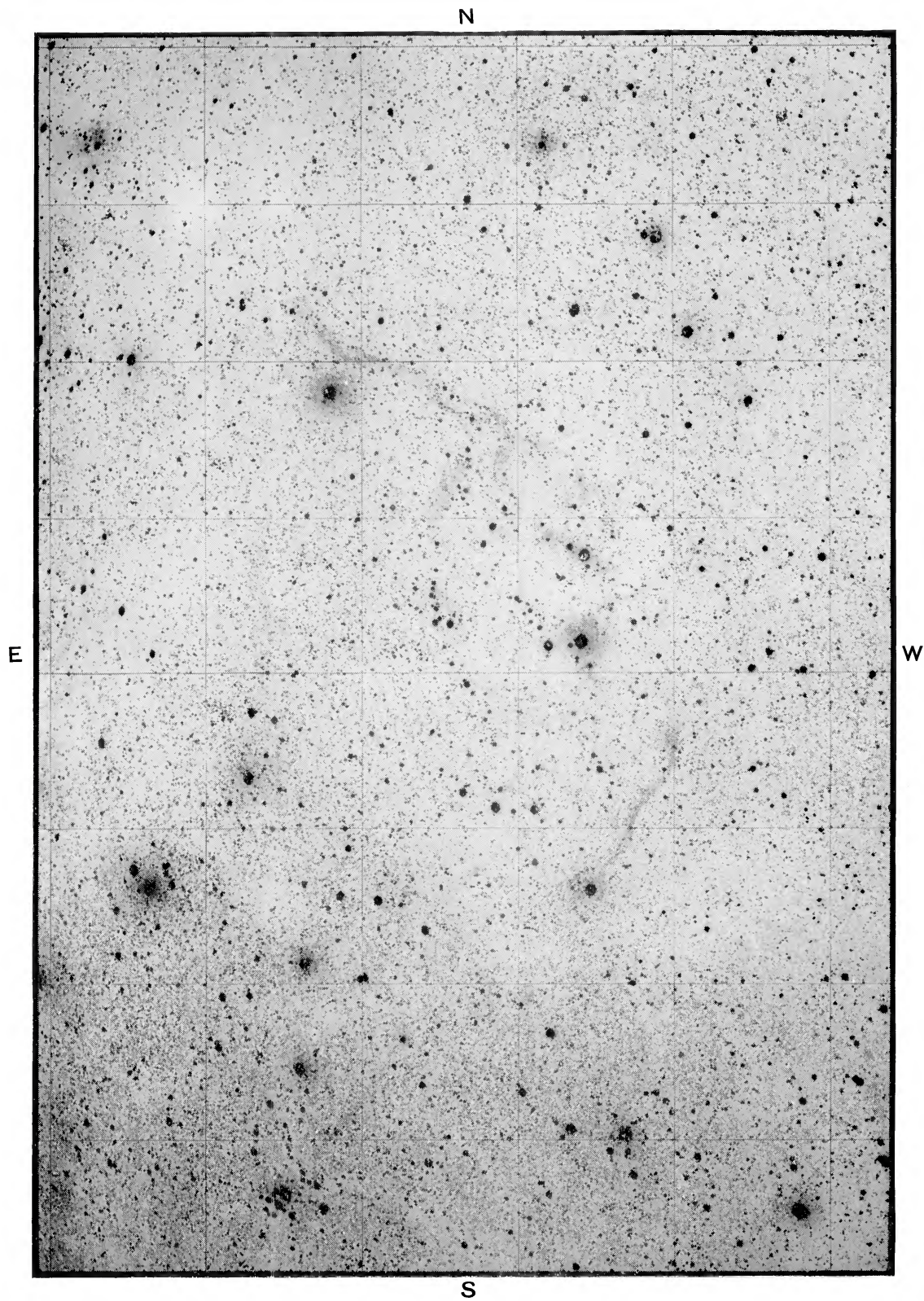
In the period during which the Nova was under observation the photographic magnitude decreased by about 0.3 mag. by comparison with a small star ("A") immediately following the nebula, and possibly connected with it. From being distinctly brighter than star "A" on May 15, the Nova had become slightly fainter than star "A" on May 31. The photographic magnitude is about 13, but until the magnitudes of comparison stars have been obtained it is not possible to make a determination with accuracy. The positions of the Nova and of star "A" with reference to the nucleus of the nebula, as deduced from the plates, are:

	Angle.	Dist.
Nova	35° 0	67.3
Star "A"	256.5	72.0

New Nebulæ shown on Franklin-Adams Chart Plates.

By P. J. Melotte. (Plate 15.)

The following nebulæ, which do not appear to have been recorded elsewhere, were noted when drawing up the Catalogue of Star Clusters shown on Franklin-Adams Chart Plates. They were also independently noted by Dr. Lundmark when examining the same plates. The positions given are for the epoch 1900.0.



Extended Nebula in Vela.

Centre (1900°0) R.A. 8^h 31^m. Dec. -44° 20'.
(1 réseau interval is equal to 1°.)

R.A. $5^{\text{h}} 15^{\text{m}}.9$ Dec. $+8^{\circ} 13'$

Diffuse nebula on *south preceding* side of B.D. $+8^{\circ}$, 933 (mag. 6.5) with which it appears to be associated. The brightest part is roughly pear-shaped, with the pointed end in the direction of the star. There is a noticeable falling-off in star density in the area surrounding the nebula, particularly to the south-west, where there is a strongly marked vacant space over one degree square. A fifteenth magnitude star is near the centre of the brightest part of the nebula, approximately $5'$ west and $4'$ south of B.D. 8° , 933. The nebula is well shown on F.A. Chart 121, where it falls near to the edge of the plate, and it also appears on Chart 97, but somewhat fainter. The fact that this nebula has not been noted before might be explained if it proved to be variable.

R.A. $8^{\text{h}} 30^{\text{m}}$. Dec. $-44^{\circ} 0'$. (See Plate 15.)

Large extended nebula in Vela. The nebula lies between R.A. $8^{\text{h}} 22^{\text{m}}$ and $8^{\text{h}} 39^{\text{m}}$, and extends from Dec. $-42^{\circ} 0'$ to $-46^{\circ} 30'$. It consists of a number of bright nebulous streaks, some of the brightest of which outline an area, seven square degrees in extent, roughly oval in form. The brightest part lies between the two stars at α $8^{\text{h}} 26^{\text{m}}.0$, $\delta -44^{\circ} 23'$ (mag. 5.1) and α $8^{\text{h}} 34^{\text{m}}.2$, $\delta -42^{\circ} 38'$ (mag. 4.1), *e* Velorum, where there are several branches of the nebula. There is much bright diffuse nebula to the south of the area indicated by the limits given above, but its appearance on the plate is confused by the densely crowded star-field. A number of stars in the region are nebulous or show traces of nebulosity near them, of which the following may be noted:—

Mag.	R.A.	Dec.	No.	Mag.	R.A.	Dec.	No.
	h m	° '	°		h m	° '	°
6.4	8 25.7	-43 50	-43, 2636	5.5	8 37.3	-46 17	-46, 2805
8.2	8 26.0	-41 11	-41, 2599	6.0	8 37.9	-46 57	-46, 2819
5.9	8 26.0	-44 23	-44, 2667	6.0	8 38.5	-45 3	-44, 2936
8.0	8 26.2	-43 46	-43, 2645	7.9	8 40.9	-40 55	-40, 2824
6.4	8 25.9	-47 36	-47, 2296	4.8	8 42.5	-45 40	-45, 3014
7.3	8 28.0	-47 32	-47, 2348	5.2	8 34.8	-42 43	-42, 2754
9.4	8 31.8	-40 19	-40, 2666 *				

* *N.G.C.* 2626.

The magnitudes and numbers are from the Cape Photographic Durchmusterung.

R.A. $11^{\text{h}} 5.3^{\text{m}}$. Dec. $-77^{\circ} 7'$.

Nebulous star surrounded with bright nebula (C.P.D. -76° , 654, mag. 8.5). Falls near centre of a vacant area 2.2 square degrees in extent. There is a small patch of nebula near a twelfth magnitude star at α $11^{\text{h}} 3^{\text{m}}$, $\delta -76^{\circ} 48'$. A bright nebula (*H.A.*, lx. 6, p. 161, No. 352) is at the northern end of the vacant area. The obscuration is well defined amongst the surrounding star-field and contains some traces of faint nebulosity in addition to those given above.

R.A. $23^{\text{h}} 56^{\text{m}}.9$. Dec. $-15^{\circ} 59'$.

Faint nebula, $10' \times 2'.5$. A faint star (mag. 15.5) is at the centre, and another star (mag. 16) falls at the southern edge. The nebula is condensed towards the centre, and the southern half appears brighter than the northern. The star distribution in the surrounding area is irregular, the region on the *following* side being almost devoid of stars. The appearance of this nebula and of Barnard's Nebula, *N.G.C.* 6822, is strikingly similar on the plates. The galactic co-ordinates are: Long. 46° , Lat. -74° .

An Ephemeris of the Geminid Radiant-point.

By A. King.

The first person to call special attention to the existence of the Geminid shower of meteors was Mr. R. P. Greg. Observing at Manchester on 1862 December 10–12, he fixed the radiant at $100^{\circ} + 33^{\circ}$, from many paths. This observation was confirmed by Messrs. Marsh and Twining in the United States in the same year.* The position, although undoubtedly in error as regards R.A., appears to have been the first definitive determination of the radiant-point of the shower.

A glance at the observed positions of the Geminid Shower, LXXXVIII. of Mr. W. F. Denning's admirable "General Catalogue," shows at once that they cannot all refer to the same stream. To mention declination alone, we have places varying between the limits $+27^{\circ}$ and $+40^{\circ}$. The truth is that, contemporary with the Geminids, there are several active radiants lying close to the line of march of the centre of the main stream, and furnishing shooting stars very similar in appearance to the members of that shower. It is therefore hard at times to distinguish between true Geminids and meteors belonging to these secondary streams. This must have led to the publication of incorrect radiant-places and to the inclusion of positions of these minor showers in the above-mentioned list. It is, of course, apparent that these debatable determinations were included in this section of the "General Catalogue" because they were considered as Geminid centres by the observers themselves, the section merely aiming at giving a summary of the work done on the shower up to the time of compilation.

All this makes a critical examination of the material a somewhat nice matter. In recent years, however, some very good determinations of the radiant-positions of the Geminids have been made, so that the time seemed opportune for a more precise statement of the places of the shifting radiant than has heretofore appeared.

The motion of the radiant was first detected by Mr. Denning in 1885, and he published a rough ephemeris in 1923.†

The list which follows contains, it is believed, practically all the determinations of the positions of the Geminid radiant which have yet been published. Though a few obviously erratic centres have been weeded out, it is pretty certain that some of the incorrect places above referred to have been included, but in the nature of the case this could hardly be avoided.

* Prof. A. S. Herschel, in *M.N.*, 1865, p. 63.

† *M.N.*, Nov. 1923, p. 46.