

the opening and closing nights of the display, as it is sure to be weak at such times, and it is desirable to ascertain the place of the radiant on dates as widely asunder as possible, as they are more likely to exhibit a displacement than those for succeeding nights.

W. F. DENNING.

[To be continued.]

Nebulæ, unrecorded in the Catalogues, found on Photographs taken at Starfield, Crowborough.

THE photographs here referred to were taken with the 20-inch reflector at my observatory on Crowborough Hill on the dates affixed to each respectively; and the catalogues referred to in the heading are the 'New General Catalogue' and the 'Index Catalogue' by Dr. Dreyer, published in the 'Memoirs of the Royal Astronomical Society.' I wish to express my indebtedness to Dr. Dreyer for collecting the materials from all available sources and compiling, with manifest labour and care, this book of reference so valuable to astronomers.

The co-ordinates of the positions of the new nebulæ are given from measurements made from the nucleus of the nearest object to them found recorded in the N. G. C., the epoch of which is the year 1860.

Region of \mathfrak{H} I. 217 Aurigæ, N. G. C. 1579; Nova, R.A. $4^{\text{h}} 21^{\text{m}} 38^{\text{s}}$, N.P.D. $54^{\circ} 51'9$.—Nebulosity very faint; circular in form; 15th mag. star involved on the north margin and 17th mag. star close to the north preceding side. 1894 January 9th.

Region of \mathfrak{H} II. 37 Virginis, N. G. C. 4527; Nova, R.A. $12^{\text{h}} 25^{\text{m}} 28^{\text{s}}$, N.P.D. $86^{\circ} 34'4$.—Pretty faint; elongated north following to south preceding; no structure or nucleus; 17th mag. star on the north preceding side, and a bright star on the south following side. 1894, March 25th.

Region of \mathfrak{H} I. 92 Comæ Berenicis, N. G. C. 4559; Nova, R.A. $12^{\text{h}} 30^{\text{m}} 23^{\text{s}}$, N.P.D. $61^{\circ} 1'2$.—Like a 15th mag. star involved and surrounded by faint nebulousness; a 15th mag. star $102''$ north following and a 14th mag. near it. 1894, May 1st.

Nova R.A. $12^{\text{h}} 32^{\text{m}} 21^{\text{s}}$, N.P.D. $61^{\circ} 18'6$.—Very faint; elongated south following to north preceding and pointing to a 15th mag. star $163''$ distance from the south following end. Within a radius of $10'$, with this object as a centre, are several nebulous stars of 16th to 17th mag. 1894, May 1st.

Region of \mathfrak{H} VI. 41 Draconis, N. G. C. 6412; Nova, R.A. $17^{\text{h}} 26^{\text{m}} 21^{\text{s}}$, N.P.D. $14^{\circ} 1'2$.—Pretty bright; elongated north to south; no distinct nucleus; bright star south preceding and 15th mag. star north following. \mathfrak{H} VI. 41 is described as a globular cluster, but it is a left-hand spiral nebula with stellar nucleus and a small bright star and five or six stellar condensations in the spirals. 1895, September 11th.

Region of $\text{H}\gamma$ VIII. 76 Cygni, N. G. C. 6991; Nova, R.A. $20^{\text{h}} 51^{\text{m}} 11^{\text{s}}$, N.P.D. $43^{\circ} 7'$.—The nebula precedes and involves the star D.M. 3011, Zone $+46^{\circ}$, mag. 6; is about $6\frac{1}{2}'$ in length from north to south, and $5'$ in breadth from preceding to following; irregular in structure and in outline; nebulosity of a fleecy character, with many stars, both bright and faint, involved in it. 1895, September 13th.

Region of $\text{H}\gamma$ II. 240 Pegasi, N. G. C. 7814; Nova, R.A. $23^{\text{h}} 54^{\text{m}} 57^{\text{s}}$, N.P.D. $74^{\circ} 12'4$.—Very faint; round, about $30''$ in diameter; no structure. 1895, November 17th.

Nova, R.A. $23^{\text{h}} 55^{\text{m}} 28^{\text{s}}$, N.P.D. $74^{\circ} 9'4$.—Faint; elongated north to south; one of three 15th mag. stars involved; condensation at the northern extremity; length, including the star $42''$. 1895, November 17th.

Nova, R.A. $23^{\text{h}} 55^{\text{m}} 31^{\text{s}}$, N.P.D. $74^{\circ} 11'8$.—Bright; small; slightly elongated preceding to following; faint nucleus; 17th mag. star close to the preceding end. 1895, November 17th.

Nova, R.A. $23^{\text{h}} 56^{\text{m}} 2^{\text{s}}$, N.P.D. $74^{\circ} 49'8$.—Bright; elongated north following to south preceding about $50''$; stellar nucleus; about 17th mag., four 12 to 16 mag. stars on the south near it. 1895, November 17th.

Region of $\text{H}\gamma$ I. 157 Trianguli, N. G. C. 672; Nova, R.A. $1^{\text{h}} 39^{\text{m}} 39^{\text{s}}$, N.P.D. $63^{\circ} 22'3$.—It is nearly as large and prominent as $\text{H}\gamma$ I. 157, and distant from centre to centre $8'$ only; nucleus consists of 6 faint stellar condensations forming a straight line in the direction south following to north preceding, and there are 6 or 7 very faint condensations of nebulosity near the preceding margin; 15th mag. star on the north preceding margin and a 16th mag. star at the south following end of the nucleus. 1896, November 29th.

It is remarkable that this object should have escaped detection by the many keen observers who have examined the nebula $\text{H}\gamma$ I. 157, which is only four minutes of arc distance from it; and it appears to me that we are justified by the evidence in inferring that this nebula has come into the state of visibility during the past half-century. Lord Rosse in 1876 made seven observations of the nebula adjoining, but does not refer to this one. It is remarkable also that the nuclei of the two nebulae are straight lines of faint nebulous stars immersed in nebulosity, and they are so clearly depicted on the photograph that I think they should be visible to the eye by aid of telescopic power.

Nova, R.A. $1^{\text{h}} 42^{\text{m}} 19^{\text{s}}$, N.P.D. $63^{\circ} 29'7$.—Faint; elongated south following to north preceding; faint stellar nucleus; probably a spiral; cluster of stars 9 to 15 mag. on the south side $13''$ following the nucleus. 1896, November 29th.

I find that the nebula Swift IX. No. 165 'Index Catalogue' is the same object as $\text{H}\gamma$ II. 612, N. G. C. No. 684.

Region of M 87, 89, and 90 Virginis; Nova, R.A. $12^{\text{h}} 26^{\text{m}} 7^{\text{s}}$, N.P.D. $76^{\circ} 22'0$.—Faint; small; round; no structure. 1892, April 29th.

Nova, R.A. $12^{\text{h}} 26^{\text{m}} 13^{\text{s}}$, N.P.D. $76^{\circ} 22'3$.—Probably a small spiral nebula with a nucleus like a 16th mag. star surrounded by nebulosity. 1892, April 29th.

Nova, R.A. $12^{\text{h}} 26^{\text{m}} 44^{\text{s}}$, N.P.D. $75^{\circ} 54'0$.—Faint; round; small; with a nucleus like a 16th mag. star. 1892, April 29th.

Nova, R.A. $12^{\text{h}} 28^{\text{m}} 22^{\text{s}}$, N.P.D. $76^{\circ} 28'5$.—Small; round; some nebulous condensations involved. 1892, April 29th.

Nova, R.A. $12^{\text{h}} 29^{\text{m}} 40^{\text{s}}$, N.P.D. $75^{\circ} 58'5$.—A streak of nebulosity extending in north preceding direction from a 13th mag. star; two 12th mag. stars near, and the faint *comes* of the one on the north following side seems to touch the nebulosity. 1892, April 29th.

It is necessary to distinguish on photographs between *faint* stars and *small* stars, for I find on numerous plates, taken during the past eleven years, stars which have a small bright nucleus surrounded by nebulosity, and they are quite distinct from the normal faint stars which appear as small round spots without a nucleus. If I were to register all those faint stars having a small bright nucleus, the list would be a very long one, and the objects classified as "small circular nebulae with small bright stellar nuclei."

ISAAC ROBERTS.

Starfield, Crowborough, Sussex,
1897, May 1st.

CORRESPONDENCE.

To the Editors of 'The Observatory.'

The Annular Eclipse of March 15, 1858.

GENTLEMEN,—

It is now nearly forty years since an eclipse of the Sun was central over any part of England, the last being that of 1858 March 15, in which the shadow passed in a north-easterly direction from the western part of the coast of Dorsetshire, through Wiltshire, Oxfordshire, and Northamptonshire to the Wash. It was annular, but probably momentarily total over part of the Atlantic Ocean near the island of Madeira, in consequence of the augmentation of the Moon's diameter. Those of us who are old enough will remember the extensive preparations made to observe it in this country along the line of centrality, which were nearly all unsuccessful on account of the unfavourable state of the weather.

About two years ago was published the 'Life and Letters of Dean Church,' edited by his daughter, Miss Mary C. Church. He was at the time of the Eclipse rector of the small village of Whatley, about three miles from Frome in Somersetshire, which was on the line of centrality, and describes what he saw in a letter to Mr. Johnson, the Radcliffe Observer. The Sun was seen through cloud at the beginning of the Eclipse, afterwards only for a moment