Observations of Nova Persei made at Birr Castle Observatory, Parsonstown. By the Earl of Rosse, F.R.S.

During the time that *Nova Persei* was visible every opportunity was taken for observing that interesting object, but I happened to be in England at the time and no authentic information as to its existence reached us until after its maximum brightness had been much reduced, and subsequently the extreme uncertainty of weather which prevailed at that time much impeded observations. For that reason, however, the work of others was also fragmentary, and in the hope of filling gaps rather than of adding any important matter the notes made at the time from observations principally by Dr. Boeddicker are sent in. Spectroscropic observations were not satisfactory, the instruments having lain unused for some years and having deteriorated with time.

With a direct-vision prism, however, placed between the eye and the eyepiece of the 3-foot reflector, the red line was quite unmistakable. Others in the more refrangible regions were at times satisfactorily seen, but it was not always easy with the means at our disposal to distinguish between a bright line and an absence of dark lines in a continuous spectrum.

Through the whole time that the star was visible the prevailing easterly wind and the accompanying thin clouds generally diffused the star's light and destroyed definition of prism used without a slit. No photography was attempted.

1901 March 1, 10^h M. T. Greenwich. A hurried estimate between clouds. *a Persei* $\geq$ *Nova.*

1901 March 2, 10^h to $10^h\ 50^m$. Sky bad. Passing clouds and haze. Examination during bright interval. *a Persei* > *Nova. Nova* distinctly red. With direct-vision spectroscope before eyepiece, the red very intense at its extreme end, cut off from yellow by very decided dark bands or lines. Further dark lines, very conspicuous, in blue, also—but fainter, more suspected —in violet.

1901 March 3. Passing clouds. *a Persei* > *Nova*; no perceptible change in magnitude since last night. Spectrum magnificently seen with cylindrical lens. Very bright line in red, separated from yellow by a broad, dark band (darkest towards red). Faint narrow dark line in orange, also one between yellow and green. Green fairly uniform, very intense and well defined towards blue, where it is abruptly cut off by a broad dark band. This is followed by a sharply defined bright band (or are there two?) in blue. Very dark band between

blue and violet. A bright band at times suspected in extreme violet.

1901 March 6. Storm and rain. One glimpse of *Nova*. Magnitude 3.

1901 March 7. Fairly clear. Well seen. Magnitude below 3. Extreme red very intense, terminated by a dark band towards yellow. Bright line in yellow. Dark bands in bluish green and blue. A brighter band in blue towards violet. Dark lines in violet suspected.

1901 March 8. Magnitude 4. Intensely red line followed by very dark absorption band. Dark band in green followed by a bright band. Very dark bands in blue. Bright band in blue towards violet (or are there dark absorption bands in violet towards the blue ?). Violet seems of uneven brightness ; there is decidedly a brighter part or band in its extreme end. Dark bands or lines (in violet) suspected.

1901 March 13. Sky very bad. Hazy. Magnitude below 4. Spectrum very badly seen owing to haze and thin clouds.

1901 March 14, $9^h\ 40^m$. Sky very hazy, stars very dim. *Nova* nearly $=o$, certainly $>\nu$. Magnitude increased to about 3·3. Extremely bright line in red followed by dark absorption bands. Dark lines in green, leaving central portion bright, looking like a bright band. Very conspicuous bright line in blue-green, also faint indication of a bright band in violet.

1901 March 21. Sky hazy. Images bad and unsteady. *Nova* fainter than ν but slightly brighter than κ. Red line very conspicuous, followed by very dark absorption band up to yellow. Dark lines suspected in green. Bright band in bluish green very striking, bright band in extreme violet unmistakable.

1901 March 22. Sky hazy. Images unsteady. 5th magnitude stars only visible with great difficulty. *Nova* below σ or 4·5 mag. ; almost 5.

1901 March 25. Clear, cold. ☾. *Nova* almost 6th mag.

1901 April 8. Sky very bad. Covered with cirro-s. Cleared somewhat at $11^h\ 40^m$; when low near the horizon the *Nova* became visible, having increased again to about 4·3 mag., *i.e.* ·2 or ·3 mag. below κ. Not to be reached with telescope.

1901 April 9. Clear for a short time. *Nova* out of reach with 3-foot reflector ; viewed with 4-inch refractor. Magnitude about 4·5, perhaps somewhat brighter. Slightly below κ, yet it

appeared as if this inferiority was due to the difference of colour. At times both equally well seen. Spectrum very striking and hardly, if at all, different since former observation. Very strongly pronounced red line. Bright band suspected in yellow. One, perhaps two, seen in green.

1901 April 10. Sky partly clear. *Nova* much decreased in brightness, below 32 *Persei*. Just on the verge of visibility with naked eye ; only to be seen in glimpses.

1901 April 11. Partly clear at first, then cloudy. *Nova* not very much fainter than last night. Still visible in glimpses, yet with less certainty. Magnitude decidedly below 6.

Further Observations of the New Star in Perseus (4).

By A. Stanley Williams.

During the month of May the position of *Nova Persei* was very unfavourable, and the observations were necessarily made with the star at a low altitude and on a bright sky. Notwithstanding, however, these unfavourable conditions, the estimates of the brightness of the *Nova* have been mostly quite satisfactory owing to fine weather and the generally clear sky even at a very low altitude.

The following estimates of the brightness of the new star were all made with a power of 35 on the $2\frac{3}{4}$-inch refractor ; and in no case, it may be mentioned, was there any uncertainty with regard to the identity of the object or of the comparison stars. No correction for difference of atmospheric absorption has been applied to the provisional magnitudes in the last column, although this correction would probably be quite sensible in the case of the evening observations, at any rate as regards the comparisons with 36 *Persei*. It is probable, therefore, that the provisional magnitudes from the evening observations may be slightly too low, though the influence of the peculiar colour of the star in possibly modifying the effects of absorption perhaps requires to be taken into consideration. In the morning observations the *Nova* and the two comparison stars 36 *Persei* and *a* (B.D.+44°, 734) were all nearly at the same altitude, and should have been about equally affected by absorption. In some cases, where comparisons were made in the evening at short intervals, the separate results are given, as they may be of assistance with regard to this question of absorption. The progressive diminution in brightness shown by the last three observations of May 22 may well have been due to the effect of increased absorption as the star approached the horizon. On May 23 we have a similar change.