Nova Aquilæ (1918). By Harold Thomson.

The Nova was discovered at 11.44 G.M.T., 1918 June 8, and the Royal Observatory notified by telephone. At the time of discovery the Nova was very white, and about equal in magnitude to Altair.

The spectrum was examined frequently during the night with a Hilger-Zöllner eyepiece spectroscope attached to the 12½-inch reflector.

There were no prominent lines in the spectrum, either bright or dark, but several lines of each kind were suspected, including two very faint bright lines in the red and three dark lines in the green blue. In the position of Hβ there was a pronounced darkening, resembling a sudden change of colour rather than a dark line. Possibly if definition had been better this might have appeared as a line or band. The violet end of the spectrum seemed unusually strong.

At 12.45 G.M.T. there was a dark line in the position of Hβ, and it was suspected that there was a bright line on its red side. At 13.58 G.M.T. I considered that there were two bright lines in this region (probably Hβ and 502), and that Hβ had a dark border on the violet side.

June 9.—The Nova was the brightest star in the northern sky, and at least half a magnitude brighter than Vega.

There was no great change in the spectrum from the previous night, but there were undoubtedly indications of several bright, and some dark lines, which were all difficult to locate. Two dark lines were suspected at the extreme red end of the spectrum, and several dark lines in the green blue, with possibly bright edges towards the red. It was considered that Hβ was plainly visible as a dark line at 11.23 G.M.T., when observations ceased.

June 10.—At 9.40 G.M.T. the Nova was equal in magnitude to Arcturus.

It was immediately apparent that intensely brilliant lines had developed in the spectrum, and that the majority of these lines had dark borders on the violet side. At 11.23 G.M.T. the principal lines seen were:

Hα bright.
A faint bright band in red between Hα and D.
A brilliant line at about 517.
A brilliant line at about 502.
Hβ very bright, with a dark border on violet side.
Two dark lines suspected between Hβ and Hγ.
Hγ bright.
Hδ (f). A faint bright line suspected beyond Hγ.

Later in the night it was seen that there was a faint bright line at about 532, and a faint bright line was also seen in about the position of D, with a dark line on its violet side.
night advanced the intensity of the bright lines, especially of Hα, increased, and I am confident that I watched this increase taking place.

At 12.0 G.M.T. the Nova was estimated to be 0.5 mag. brighter than Vega, and 0.3 brighter than Arcturus.

At 12.10 G.M.T. the Hα line had become equal in brightness to Hβ, which had previously been the brightest line in the spectrum, but half an hour later Hβ was again the brighter of the two.

At 12.25 G.M.T. it was noted that there was a strong dark shading on the violet side of the bright line at 517, but later in the night I noted that this shading was not very pronounced. A faint bright line or band was seen at about 492.

At 13 hrs. G.M.T. the Nova was estimated to be equal to Arcturus.

June 11.—The Nova had faded since last night, and was now less than Vega, but still brighter than Altair.

The darkest line in connection with the group Hβ, 502, 517, was that on the violet side of 502, and I am of the opinion that there was a change in this respect from the previous night. The violet end of the spectrum seemed to have faded relatively since June 8. The spectrum was a mass of dark and bright lines, the principal of which were:

Hα very bright, with a broad moderately dark shading rather than line on its violet side.

A double bright band or line in the red orange, with a very faint dark line in its centre, and a dark border on its violet side.

A bright line in the position of D, with a dark border on its violet side.

In the pale green a faint hazy dark line, followed by a faint bright line.

A bright line at about 532.

517, 502, and Hβ very bright.

A faint thin bright line about 492.

A dark line about a quarter of distance from Hγ to Hβ.

Hγ bright.

Other lines, both bright and dark, were suspected, but could not be accurately located.

At 11.47 G.M.T. it was noted that there was then no very strong dark line on violet side of 517.

At 11.50 G.M.T. the Nova was estimated to be 0.25 mag. fainter than Arcturus. The colour was white.

Since the above date further developments and changes have taken place in the spectrum, but these will doubtless be recorded by photography.

I am indebted to Professor Fowler for the approximate wave lengths of the lines shown on my sketches and quoted above.
June 1918. *Observations of Nova Aquilæ (1918).*

*Observations of Nova Aquilæ (1918) made at the Solar Physics Observatory, Cambridge.*

(*Communicated by the Director.*)

A telephone message from the Astronomer Royal on Sunday morning, 1918 June 9, gave information of the discovery on the previous night, by Mr. W. H. Steavenson and others, of a Nova near α Aquilæ. Preparation was made for securing photographs of the spectrum with the new spectroscope attached to the Huggins telescope. Thanks to the careful work done and recorded by Captain Rolston before he went away to military duties, the adjustment was greatly facilitated. The instrument has since his departure been fitted with a convenient sparking apparatus for comparison spectra, and photographs of the spectrum of the Nova have been secured with comparison spectra on the three nights, June 9, 12, and 13.

1918 June 9, Sunday, 9.30–10.0 G.M.T.

The magnitude of the Nova was visually estimated at about one-fifth magnitude brighter than α Lyrae, and nearly a full magnitude brighter than α Aquilæ, no account being taken of the difference due to absorption at different altitudes. The Nova to the naked eye appeared remarkably blue-white, in spite of its low altitude.

The spectrum was observed visually through a direct vision prism and a 4-inch telescope. No signs of discontinuities could be detected in the brilliant continuous spectrum. The star, when observed with a direct vision prism without the use of the telescope, exhibited a spectrum in which, in comparison with α Lyrae, the red part was brighter relatively to the blue.

A photograph of the spectrum was attempted under very unfavourable circumstances; clouds frequently interrupted the exposure. The plate shows only a faint continuous spectrum extending over the region λλ 4000–4900; and the only discontinuity in this region is a doubtful absorption line between 4308 and 4325; no indication of any emission line has been detected in a hasty examination. The exposure was made between 10h 12m and 11h 10m G.M.T.

June 10, Monday, 9.30–10.30 G.M.T. The Nova was distinctly brighter than α Aquilæ, and the Nova at its altitude was estimated as equal to α Lyrae at its altitude.

The spectrum, visually studied with a direct vision prism and the 4-inch telescope, showed not very conspicuous emission line near the position of Hα and a broadish absorption line near the position of Hγ.

No photograph of the spectrum was attempted.