

their increase in intensity relative to the continuous spectrum, and by the increase in the displacement of the absorption bands. From a displacement of 9 angstroms (referred to $H\gamma$) on Aug. 24 this increased to 12 on Aug. 25, to 16 on Aug. 27, and seemed to reach a maximum of a little over 17 by the end of the month, the displacement being, as is always the case, to the violet of the normal position of the lines. The equivalent velocities of these displacements are quoted in the Summary of Measures, from which it is seen that if these represent the velocities of the expanding shell of gas then they increased in the interval mentioned from 650 km. to nearly 1200 km. per sec. As already stated, there is some doubt as to the presence of emission bands to the violet of $H\gamma$ on August 24, but they are quite pronounced on plates of the 25th and by the 27th there is a marked difference between the emission and continuous spectrum. On plates of this latter date, while all the emission bands show evidences of structure, yet it is most pronounced in the case of the hydrogen bands, they having two maxima at the sides with faint absorption between. A peculiarity of this structure is that in the case of hydrogen the absorption divides the emission band unsymmetrically, there being more of it to the violet than to the red. The plate taken the last week of September showed that the light from the star was mostly concentrated in the emission bands, $\lambda 4640$ being prominent.

The emission lines were strongest at the red end and rapidly became fainter as the violet was approached. On a panchromatic plate taken on Sept. 2 with a dispersion such that from $H\alpha$ to K was 32 mm, the red $H\alpha$ line is a very outstanding feature of the spectrum. This band is the probable cause of the strong orange colour to the telescopic image during the latter part of September. The widths of the emission bands are much less than was the case in Nova Aquilæ. The three bands to the red of $H\beta$, namely the enhanced lines of iron at $\lambda\lambda 5169$, 5018 and 4924, and $H\beta$ itself are each about 28 angstroms in width, $H\gamma$ 23, $H\delta$ 19 and K 18 angstroms in width. In the case of $H\alpha$ there is no doubt of a decided increase in its width between Aug. 25 and Sept. 2, it being very noticeable from even a casual inspection of the plates. If anything its centre is more to the red on the latter date than on the former, but no great weight is attached to this owing to the low dispersion used and the band may be considered as occupying its normal position.

In one particular at least the spectrum differs from the general trend in Nova Aquilæ in that the main nebular bands N_1 ($\lambda 5007$) and N_2 ($\lambda 4959$) are not present on any of our plates, although a month had elapsed from the star's maximum brightness. In the case of Nova Aquilæ No. 3, whose decline in brightness was much less rapid, only about 9 or 10 days elapsed after the star started to wane before the N_1 band appeared and it was followed within the month's time by the other nebular bands at $\lambda 4363$ and at $\lambda 4959$.

WIDTHS AND POSITIONS OF THE MAIN EMISSION BANDS

An attempt has been made to determine if the main emission bands occupy their normal positions or if they have suffered any displacement, but owing to the lack of definition of their edges, the determinations are not very trustworthy. The following tables, however, give the results, which may be considered as approximate values at

18908-14

00925710