## The Spectrum of Mira Ceti.

64 kms. per second and that the velocity determined from the bright hydrogen lines is some 15 kms. per second less. This difference of velocity is probably not real, the corresponding shift of the bright lines being produced by some other cause such as abnormal conditions of pressure, temperature, or electrical state in the atmosphere of the star.

The difference in the spectrum of o Ceti as observed here and at previous maxima may be summarized as follows :---

Absorption Spectrum. 1.

Titanium, whose presence has been considered doubtful by Stebbins, is now very prominent as at least one fourth of the identifications of the prominer t absorption lines measured in the two spectra appear to be due to this element.

The magnesium line at  $\lambda$  4571, which was undoubtedly bright in 1902, is now, quite as undoubtedly represented by an absorption line, which was measured in plate 515, and gives a velocity displacement in close agreement with the mean.

The bands seem to end towards the violet at  $\lambda$  4584, as in none of the negatives obtained here could any banded appearance be recognized below that limit. This is also clearly shown in the reproduction. The position of the bands in the blue green, however, agrees with Stebbins' values.

Emission Spectra. 2.

 $II\beta$  which at previous maxima had either been invisible or faint, is now of a decidedly emissive character, apparently over half as intense as Hy.

He recorded by Stebbins as bright in 1902, but previously invisible, cannot be seen in any plate made here.

There is no trace of the triple character of  $H\gamma$  and  $H\delta$ observed by Campbell, but no plates were made here at as early a date in the period as those obtained by him.  $II\beta$ ,  $II\gamma$ ,  $II\delta$  are slightly asymmetric, more intense to the red side of the true emission line, similar to the later plates obtained by Campbell.

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