18. THE FLARE OF 1957 SEPTEMBER 18

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We obtained a series of spectra covering the full development of an importance 2+ disk flare on 1957 September 18. Each spectrum covered the entire visible range from $\lambda 3900$ to $\lambda 7200$ at an average dispersion of 2 Å/mm. At the flash phase the Balmer lines showed great strength; for example, between the 5% above continuum levels Hα was 20 Å and Hδ 9 Å wide while the central intensities in some cases exceeded three times the continuum. Many metal lines had emission cores some with central intensities greater than the continuum. Neutral and ionized helium lines were also present in great strength.

The data indicate that the excitation conditions vary rapidly in depth. The Balmer series wing shapes were found to be compatible either with Stark effect or with a particular distribution of velocities of macroscopic or microscopic elements.

Note added in proof: Further details have now been published in *Ap. J.* **129**, 146, 1959.

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