

Gaposchkin, Sergei. A new bright eclipsing variable.

While working in the Scutum region I have studied the bright spectroscopic binary HD 176853, which is No. 286 in Moore's *Fourth Catalogue of Spectroscopic Binary Stars*. I followed the usual procedure in estimating the brightness relative to that of selected comparison stars. Estimations were difficult because of lack of a suitable bright comparison star. On reducing the 890 estimates by means of the spectroscopic period 1^d849084, given by Pearce,¹ the light curve shown on the slide was obtained. The correspondence with the velocity curve is satisfactory, though perhaps the period should receive a small correction.

The deduced ranges at primary and secondary minimum are 6.63–6.50 and 6.56–6.50. They are based on adopted photographic magnitudes, deduced from photovisual magnitudes of the comparison stars. The star is therefore a photoelectric rather than a photographic object.

Details, as well as relative and absolute dimensions, will be published in a forthcoming *Harvard Bulletin*. The star is interesting because the masses of the B5 and B8 components are well determined.

1. *Pub. Dom. Ap. Obs., Victoria*, 4, 75, 1927.

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Gaposchkin, Sergei. Photographic light curve of Nova Aquilae 1943.

Estimates of the photographic magnitude of Nova Aquilae 1943 were obtained from Harvard plates taken on 44 nights. The greatest brightness observed was 6.42 on May 1, 1943; three days earlier the magnitude was 6.48; probably the maximum was about April 29, with magnitude perhaps 6.1.

The decline in brightness was oscillatory in character, and recalls the light curve of Nova Aquilae 1918. By October 13 the magnitude had fallen to 13.1.

It is difficult to determine pre-maximum brightness because of two near-by, faint stars. It was at least as faint as magnitude 17 and more probably fainter than 18. New observations will settle this point decisively in the near future.

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Herget, Paul. Multiplication of Fourier series.

A method is described whereby the product of

two infinite trigonometric series may be obtained by a rule-of-thumb process. The multiplicand series is arranged in a rectangular array, and the multiplier series is similarly arranged on a stencil in such a manner that for any given superposition of the stencil upon the multiplicand series the sum of the products of all the corresponding numerical coefficients is some particular numerical coefficient in the product series.

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McLaughlin, Dean B. The occurrence of forbidden neon emission in the spectra of novae.

Photographic records exist, for at least one stage, of the spectra of 39 novae during their active variation. The writer has examined 35 of these, and published or communicated data have been relied on for the other four. The [Ne III] pair $\lambda\lambda 3869, 3968$ is present in 17 spectra out of 22 for which the record is considered adequate to determine their presence or absence.

The strength of [Ne III] relative to hydrogen is as follows:

Very strong in: Nova Per 1901, Sgr 1936.7.
Strong in: Nova Cyg 1942, Her 1934, Oph 1919, RS Oph 1933, Per 1887, Pic 1925, Sgr 1936.32, Sgr 1941.
Moderate in: Nova Mon 1939, Pup 1942, Sgr 1936.37.
Weak but present in: Nova Aql 1918, Gem 1912, Lac 1936, Nor 1893.

The strength of [Ne III] relative to [O III] is as follows:

Very strong in: Nova Per 1901, Pic 1925, Sgr 1936.7.
Strong in: Nova Oph 1919, RS Oph 1933, Per 1887, Sgr 1941.
Moderate in: Nova Aql 1918, Gem 1912, Mon 1939, Pup 1942, Sgr 1936.32, Sgr 1936.37.
Weak in: Nova Cyg 1942, Her 1934, Lac 1936, Nor 1893.

The [Ne III] lines were perhaps absent in:

Nova Aql 1936 I, Cyg 1920, Lac 1910, Lyr 1919, Vel 1906.

Either because of underexposure in the violet or because the photographs were not taken late enough in the history of the nova, the records are inadequate for a decision in the following cases:

Nova Aql 1899, Aql 1905, DO Aql 1925, EL Aql 1927, Aql 1936 II, Aql 1943, Ara 1910, Aur 1891, RS Car 1895, X Cir 1926, Gem 1903, Mon 1918, T Pyx 1920, Sgr 1898, Sgr 1910, v363 Sgr 1927, XX Tau 1927.

From one nova to another, the [Ne III] lines are much more variable than those of [O III], and there is no evident relation between their strength and that of other lines, except in so far as their strength is a function of phase of de-