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NSV 13679: AS YET ONLY ONE MINIMUM

In the compilation of his first Zone Catalogue Frank Schlesinger¹ found the star BD+49°3511 at 21^h21^m07^s +50° 17' .7 (1950) lacking on one of the two Allegheny plates on which it was to be measured. The original Allegheny plates are at Yale. Besides the two on Schlesinger's program, I found a third where the star was at the plate edge outside the region to be measured. That plate showed the star at maximum. On the plate on which Schlesinger had reported the star missing it is in fact visible, just above the plate limit, probably about 11.5 or 12th photographic magnitude. Thus the star was normal brightness, 9.1 pg, on August 23 and September 18, 1915, but faint on September 16.

In the Yale Archives there is a copy of a letter from Schlesinger to Harlow Shapley dated December 4, 1924, indicating that Schlesinger had asked Shapley to check the Harvard plates of the region. However, I find no evidence as to whether or not such a search was actually made. Hence, on a visit to Harvard College Observatory, I first searched all the plates covering the region that were taken in August and September 1915. On none of the Harvard plates in this interval (Table I, where A = Allegheny, H = Harvard) was the star fainter than its normal brightness.

TABLE I. Observations Near Minimum, 1915

<u>Before minimum</u>	<u>Minimum</u>	<u>After Minimum</u>
Aug. 23 A	Sept. 16 A	Sept. 18 H
Aug. 25 H		Sept. 19 A
Aug. 26 H		Sept. 21 H
Sept. 9 H		Sept. 22 H
Sept. 10 H		
Sept. 11 H		

I then examined the star on about 200 patrol plates taken between 1898 and 1921 but found no further minima. There are approximately a thousand more plates available for a future visit to Harvard. Meanwhile, can anyone at another observatory find plates taken in the critical 1915 period, especially on September 16, to verify the one minimum found? On the Allegheny plate there is no evidence that the image has been affected by any plate blemish. From one minimum among 200 plates examined, if the star is an eclipsing binary the maximum duration of minimum would be approximately seven days (Sept. 11 to 18). The maximum possible period would then be almost four years.

The Figure is a finding chart based on a Lick Atlas photograph. Table II identifies a number of the neighboring stars and gives their photographic magnitudes from the AGK2 catalogue.² (In the AGK3 the same magnitudes are given, but with a few of the stars omitted.)

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Figure 1

TABLE II. NSV 13679 and Comparison Stars

	BD	pg	Sp
Var.	+49°3511	9.3	A7
A	3513	8.4	F8
B	3516	8.9	K0
C	3514	9.4	K5
Dp	3510p	10.4	A5
Ds	3510s	10.9	-
E	3512	10.5	-

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REFERENCES:

- Schlesinger, F., 1925, Trans. Yale Univ. Obs., Vol. 4.
 Schorr, R. and Kohlschutter, A., 1951, Zweiter Katalog d. Ast.
 Gesellschaft, Vol. 4.