COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
Number 2601

Konkoly Observatory
Budapest
12 October 1984
HU ISSN 0374 - 0676

A POSSIBLE BL HERCULIS VARIABLE IN CETUS

The Maria Mitchell Observatory is conducting a search for variables in the region of the South Galactic Pole. Blinking pairs of plates revealed one definitive variable. The coordinates are $00^h\ 45^m\ 04^s$, $-18^o\ 08'\ 51''$ (1900).

The star appears on approximately 40 plates of the Maria Mitchell collection spanning the years 1980 (when the observatory began photographing the field) to 1984. Using the data from these plates, a Lafler-Kinman (1965) period search was run for the period range .25 day to 10 days. This revealed a period for the variable of 1.137695 $\pm$ .000035 days. The mean error was determined by the method of Belserene (1983). The epoch of maximum is JD2445593.72. The rising branch occupies 0.13 of the cycle.

The range is 13.9 to 14.9, photographic, according to provisional magnitudes for the sequence stars, which are shown in the finding chart, Figure 1. The magnitudes are based on a rather unsatisfactory photographic transfer from photoelectric magnitudes in NGC288, which is 9^o to the south.

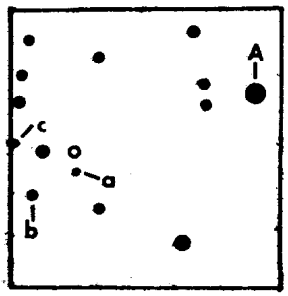

Figure 1. Finding chart, 25' x 25', with north up and east to the left. Star A is SAO 147459. Provisional m_{pg} for a, b, and c are 14.1, 14.7, and 15.4, respectively.

Both the high galactic latitude (-80°) and the large amplitude imply that this may be a variable of the BL Herculis type. Secondary humps, which are characteristic of these short period Population II Cepheids (Kwee 1967) have, however, not been observed.

It would be interesting if observatories with plate archives would study this star for the rapid period changes which are expected in the BL Her stage of evolution. (Christianson 1984, Gingold 1976).

I would like to thank Dr. Emilia P. Belserene for her assistance and guidance. This work was funded by NSF AST 8320491, and I thank the National Science Foundation for support.

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