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Note on three variables of long period

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Citation
Dirks, W. H. (1941). Note on three variables of long period. *Bulletin Of The Astronomical Institutes Of The Netherlands*, *9*, 202. Retrieved from https://hdl.handle.net/1887/5662

Version:	Not Applicable (or Unknown)
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Note: To cite this publication please use the final published version (if applicable).

1941BAN.....9..202D

Note on three variables of long period, by *W. H. Dirks.*

The three variables of long period considered in the present note were estimated on the same series of plates as used in the first article of this issue, where means of the Julian Days of the plates taken during each night are given. As none of these three stars is of particular interest, the observations are not given in detail.

The magnitudes of the comparison stars as found from star-counts, are:

Variable a			Variable b			Variable c		
	s	m		s	m		s	m
A	·0	12·6	a	·0	12·6	a	·0	12·3
a	6·1	13·2	b	4·5	12·9	b	5·2	13·0
b	11·8	13·7	c	8·7	13·4	c	8·0	13·4
c	17·2	14·3	d	11·6	13·8	d	14·4	14·2
d	22·9	15·1	e	14·4	14·5	e	18·2	15·0

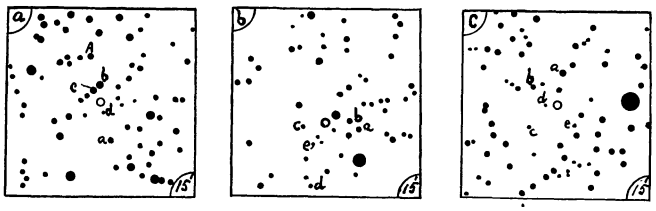
The surroundings of the variables are shown in the three diagrams below. North is at the top.

Variable a.

$\alpha = 7^h\ 52^m\ 28^s{\cdot}5 \quad \delta = -18°\ 50'{\cdot}6$ (1855)
Magnitude 12·8 to > 16·5
Period 264^d
Colour red

This variable was discovered by E. HERTZSPRUNG. It is of the Mira type.

Even on the best plates the variable is frequently invisible. The three well-observed maxima at J. D. 2425680, 2425950 and 2429380 are satisfied by a period of 264^d, which also agrees with the rest of the present observations.



The steepness of the ascending branch of the light-curve is nearly twice that of the descending one. The colour of the star, as found from red-sensitive plates, is red.

Variable b.

$\alpha = 7^h\ 41^m\ 27^s{\cdot}7 \quad \delta = -26°\ 02'{\cdot}3$ (1875)
Magnitude 12·6 to 15·7
Period 400^d
Spectrum Me

This variable is SS Pup = H. V. 3375 = 117.1914 Pup, which was discovered by Miss A. J. CANNON [1]). It was found independently by E. HERTZSPRUNG [2]). Miss CANNON gives the spectrum as Md with Hγ and Hδ bright and also gives a range of light-variation from 11$^m{\cdot}5$ to fainter than 15^m photographic.

It seems that this variable has not been observed since its discovery and the type of variability and the period remained unknown. Estimates by the late W. E. KRUYTBOSCH and the present writer show that SS Pup is a Mira variable with a range of 3$^m{\cdot}1$ and a period of about 400^d.

The epochs of the only two maxima which are well observed are J. D. 2425630 and 2426040. From J. D. 2426110 to 2429407 the variable is near minimum on most of the plates.

Variable c.

$\alpha = 8^h\ 8^m\ 20^s{\cdot}5 \quad \delta = -23°\ 55'{\cdot}6$ (1875)
Magnitude 12·6 to > 16·5

This variable was discovered by C. HOFFMEISTER [3]), who classified it as a star of the Mira type with a range from 12$^m{\cdot}5$ to fainter than 16^m photographic. By means of a sketch of the surroundings kindly provided by Dr. HOFFMEISTER, it was identified with a variable independently found by A. BLAAUW [2]).

The star has been estimated by BLAAUW and the present writer. It was invisible on most of the plates. From J. D. 2426015 to 2426115 the ascending and descending branches of a maximum were observed. The top of this maximum must have occurred at J. D. 2426075. Another maximum has been observed at about J. D. 2427805.

The variable was invisible on the two available red-sensitive plates.

[1]) E. C. PICKERING, *Harv. Circ.* No. 184, 1914.
[2]) *Unpublished.*
[3]) *A. N.* **258**, 41, 1936 (680.1935 Pup).

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