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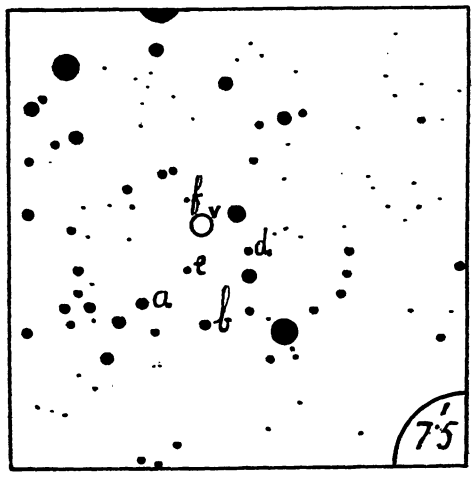
COMMUNICATIONS FROM THE OBSERVATORY AT LEIDEN

Estimates of a new faint eclipsing variable star in Carina, by *M. Rudkjøbing.*

The variability of this star was discovered by Prof. HERTZSPRUNG and it was the first to be found on plates taken at Johannesburg with the new Rockefeller instrument.

The co-ordinates of the variable are $10^h51^m25^s$, $-60°34'·6$ (1875). The star was estimated on 600 Franklin-Adams plates of the η Carinae region. Of the 55 estimates marked as uncertain two (viz. $^p·807$, $11^s·3$: and $^p·987$, $11^s·3$:) were rejected for discordance and the others included with full weight in the total of 598 estimates used in the further discussion.

FIGURE 1.



The surroundings of the variable are shown on Figure 1, on which the positions of the comparison stars a $8^s·0$, b $5^s·0$, d $8^s·3$, e $15^s·9$ and f $20^s·6$ are indicated. The photographic magnitude of a was found by the star-count method to be about $14^m·6$. The difference in provisional magnitude between a and e was measured on three plates in the Schilt photometer by Mr. KOOREMAN, who found in the mean m_{prov} (e)—m_{prov} (a) = $^m·67$.

The period was determined both from 11 epochs at which the star was found fainter than $15^s·85$ and from 11 epochs at which the variable on the rising branch of the light curve was found equal to the comparison star d. The corresponding data are given in Table 1. The period was thus found to be $1^d·6768140 \pm {}^d·0000163$ (m.e.) from the 11 minima and $1^d·6768052 \pm {}^d·0000084$ (m.e.) from the 11

TABLE 1.

minimum at J.D. hel.	E	O—C
d		d
2423879·357	37	— ·019
84·382	40	— 25
·410	40	+ 3
89·468	43	+ 31
3963·198	87	— 19
·223	87	+ 6
4196·326	226	+ 32
4201·338	229	+ 13
06·333	232	— 22
·357	232	+ 2
6126·304	1377	— 3

var = d, ascending branch J.D.hel.	E	O—C
d		d
2423817·404	0	+ ·001
3911·320	56	+ 16
16·318	59	— 17
58·228	84	— 27
4201·408	229	+ 17
80·195	276	— 6
85·215	279	— 17
90·285	282	+ 23
5774·262	1167	+ 27
6364·465	1519	— 5
7427·553	2153	— 12

selected observations on the rising branch. The weighted mean of these two periods is:

$$1^d·6768072 \pm {}^d·0000078 \text{ (m.e.)}$$

The phases were computed according to the formula:

$$\text{phase} = {}^{d-1}·596372 \text{ (J.D. hel. M. astr. T. Grw.} -2420000)$$