

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

NUMBER 792

Konkoly Observatory  
Budapest  
1973 May 22

FIRST EPHEMERIDES OF FIVE VARIABLE STARS  
IN ERIDANUS AND FORNAX

The variable stars discussed in the present paper were discovered by Mrs De Lannoy on plates taken with the 10" Metcalf telescope of the Boyden Observatory.

Charts on which the variables and their comparison stars have been marked are given in Figure 1. They represent a field of approximately 30'x30' around each variable. North is always at the top. Variable 4 is identical with BT Eridani (CPD -39° 325), no chart is given.

Table 1 gives a synopsis of our investigation. The brightnesses of the comparison stars are given in Table 2. They are derived from star-counts, made in a field of  $\frac{1}{4} \square^\circ$  around each variable, and compared with the tables in Groningen Publication no.43. The brightness of the comparison stars for the variable BT Eridani, however, was taken from the Cape Photographic Durchmusterung.

Details of the least-squares solutions, performed by an electronic computer of the Computing Centre at the University of Louvain, following a program established by Messrs. Goossens and Vissenberg, have been collected in Table 3. Data about the normal points of the mean light-curves are to be found in Table 4.

Phase have always been computed with the formula

$$\text{phase} = P^{-1}(\text{J.D.Hel.} - 2436000).$$

The normal points of the light curves are moreover represented graphically in the diagrams 1 to 5.

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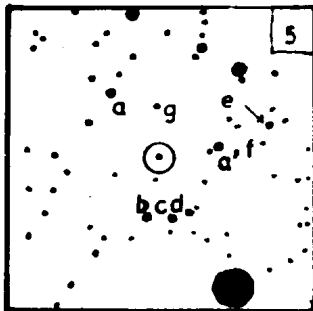
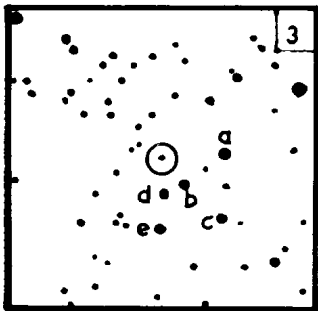
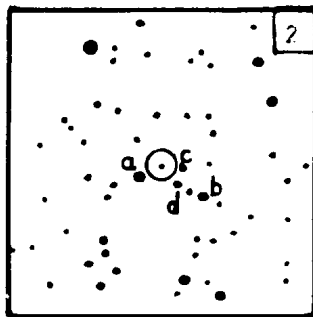
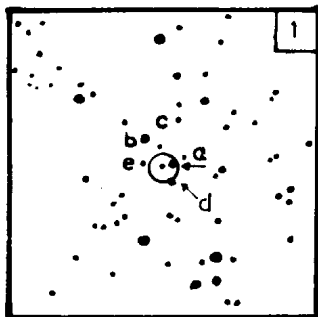
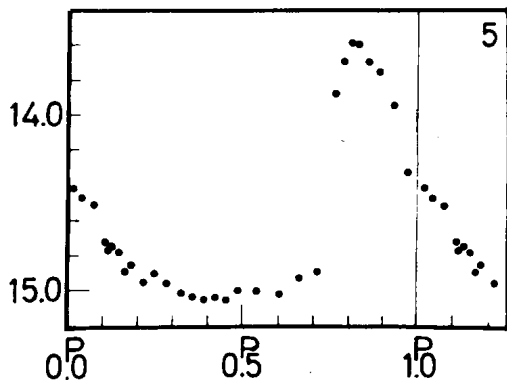
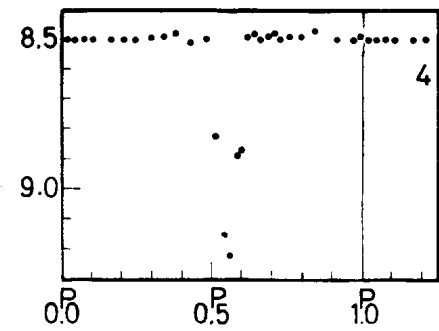
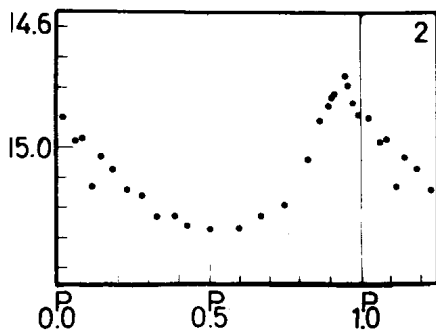
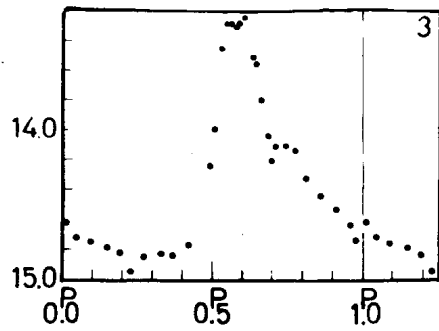
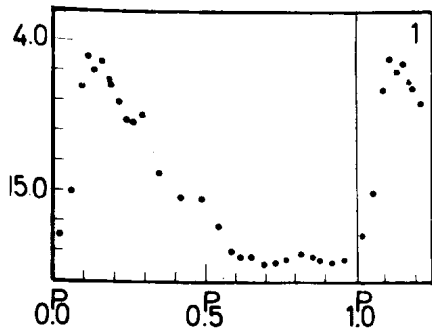


Fig. 1



T A B L E 1

| * R.A.(1875) | Dec.(1875)  | Type     | Period | m.e.      | Epoch<br>J.D.<br>2438... | m.e.<br>of<br>single<br>epoch | phase<br>of<br>epoch | n<br>of<br>ep. | Brightness<br>max. | n<br>of<br>min.     | Brightness<br>of<br>esti |     |
|--------------|---|----------|--------|-----------|--------------------------|-------------------------------|----------------------|----------------|--------------------|---------------------|--------------------------|-----|
| 1            | 3 <sup>h</sup> 16 <sup>m</sup> 42 <sup>s</sup> .4 | -36°12'4 | RR     | 0.4712517 | ±17                      | 401.566                       | ±0.012               | P.143          | 14                 | 14 <sup>m</sup> .10 | 15 <sup>m</sup> .47      | 207 |
| 2            | 3 29 21.8   | -40 02.9 | RR     | 0.3932027 | ±54                      | 401.261                       | ±.021                | .929           | 11                 | 14.76               | 15.27                    | 175 |
| 3            | 3 31 51.9   | -31 40.3 | RR     | 0.4077471 | ±14                      | 401.462                       | ±.014                | .587           | 23                 | 13.28               | 14.95                    | 240 |
| 4            | 3 32 09.4   | -39 47.8 | RR     | 2.112299  | ±64                      | 400.741                       | ±.061                | .553           | 7                  | 8.48                | 9.22                     | 235 |
| 5            | 3 37 42.8   | -32 07.9 | RR     | 0.4791230 | ±25                      | 401.279                       | ±.018                | .821           | 15                 | 13.59               | 15.05                    | 230 |

T A B L E 2  
Comparison Stars

| Var.1                 | Var.2                 | Var.3                 | Var.4                        | Var.5                  |
|-----------------------|-----------------------|-----------------------|------------------------------|------------------------|
| *                     | *                     | *                     | * C.P.D. No.                 | *                      |
| a 13 <sup>m</sup> .71 | a 14 <sup>m</sup> .37 | a 12 <sup>m</sup> .61 | a -40° 330 8 <sup>m</sup> .2 | a' 13 <sup>m</sup> .14 |
| b 14.20               | b 14.78               | b 13.57               | b -39° 321 8.6               | a 13.57                |
| c 14.89               | c 15.05               | c 14.40               | c -39° 320 9.5               | b 13.75                |
| d 15.41               | d 15.32               | d 14.69               |                              | c 13.88                |
| e 15.52               |                       | e 14.94               |                              | d 14.46                |
|                       |                       |                       |                              | e 14.50                |
|                       |                       |                       |                              | f 14.69                |
|                       |                       |                       |                              | g 15.17                |

T A B L E 3

| J.D.  | max.         | t    | O - C        | J.D.         | max.            | t    | O - C   |
|-------|--------------|------|--------------|--------------|-----------------|------|---------|
| Var 1 |              |      |              | Var 3 (cont) |                 |      |         |
|       | <sup>d</sup> |      | <sup>d</sup> | <b>2437</b>  | <b>688.2993</b> | 1145 | -0.0133 |
| 2437  | 223.4248     | 0    | -0.0119      | 2438         | 261.6066        | 2551 | +0.0016 |
|       | 255.4618     | 68   | -0.0201      |              | 263.6400        | 2556 | -0.0038 |
|       | 291.3037     | 144  | +0.0068      |              | 268.5446        | 2568 | +0.0079 |
|       | 634.3628     | 872  | -0.0054      |              | 760.2849        | 3774 | +0.0061 |
|       | 635.3146     | 874  | +0.0039      |              | 995.5790        | 4351 | +0.0290 |
|       | 668.3157     | 944  | +0.0174      | 2439         | 006.5440        | 4378 | -0.0153 |
|       | 693.2827     | 997  | +0.0081      |              | 055.4627        | 4498 | -0.0259 |
| 2438  | 261.5961     | 2203 | -0.0082      |              | 066.5098        | 4525 | +0.0106 |
|       | 262.5680     | 2205 | +0.0212      |              | 089.3405        | 4581 | +0.0092 |
| 2439  | 056.5948     | 3890 | -0.0122      |              | 093.4289        | 4591 | +0.0198 |
|       | 066.4980     | 3911 | -0.0030      |              | 798.3951        | 6320 | -0.0092 |
|       | 094.3118     | 3970 | +0.0061      | 2440         | 178.4116        | 7252 | -0.0137 |
|       | 118.3399     | 4021 | +0.0000      |              |                 |      |         |
| 2440  | 124.4589     | 6156 | -0.0030      |              |                 |      |         |
|       |              |      |              |              |                 |      |         |
| J.D.  | max.         | t    | O - C        | J.D.         | min.            | t    | O - C   |
| Var 2 |              |      |              | Var 4        |                 |      |         |
| 2437  | 142.5991     | 0    | -0.0202      | 2437         | 604.4582        | 0    | +0.0538 |
|       | 291.2928     | 378  | +0.0429      | 2438         | 265.6095        | 313  | +0.0555 |
|       | 577.4887     | 1106 | -0.0127      |              | 267.5819        | 314  | -0.0843 |
|       | 588.5107     | 1134 | -0.0004      | 2439         | 055.5013        | 687  | -0.0519 |
|       | 605.4338     | 1177 | +0.0150      |              | 089.3405        | 703  | -0.0091 |
|       | 633.3465     | 1248 | +0.0103      |              | 091.4477        | 704  | -0.0153 |
|       | 688.3479     | 1388 | -0.0367      | 2440         | 143.4392        | 1202 | +0.0519 |
| 2438  | 263.6399     | 2851 | -0.0003      |              |                 |      |         |
|       | 265.5991     | 2856 | -0.0071      |              |                 |      |         |
|       | 267.5716     | 2861 | -0.0007      |              |                 |      |         |
|       | 798.4058     | 4211 | +0.0107      |              |                 |      |         |
| J.D.  | max.         | t    | O - C        | J.D.         | max.            | t    | O - C   |
| Var 3 |              |      |              | Var 5        |                 |      |         |
| 2437  | 221.4580     | 0    | +0.0159      | 2437         | 142.5989        | 0    | -0.0237 |
|       | 234.5025     | 32   | +0.0125      |              | 286.3489        | 300  | -0.0106 |
|       | 252.4145     | 76   | -0.0164      |              | 581.4966        | 916  | -0.0026 |
|       | 254.4600     | 81   | -0.0096      |              | 604.5032        | 964  | +0.0061 |
|       | 281.3675     | 147  | -0.0134      |              | 605.4543        | 966  | -0.0011 |
|       | 581.4966     | 883  | +0.0138      |              | 632.2932        | 1022 | +0.0070 |
|       | 588.4249     | 900  | +0.0104      |              | 689.2857        | 1141 | -0.0162 |
|       | 603.4807     | 937  | -0.0205      |              | 691.2707        | 1145 | +0.0523 |
|       | 635.3039     | 1015 | -0.0016      | 2438         | 267.5923        | 2348 | -0.0111 |
|       | 668.3372     | 1096 | +0.0043      |              | 268.5654        | 2350 | -0.0038 |
|       |              |      |              | 2439         | 051.4543        | 3984 | +0.0061 |
|       |              |      |              |              | 088.3329        | 4061 | -0.0091 |
|       |              |      |              |              | 468.2991        | 4854 | +0.0137 |
|       |              |      |              |              | 798.3950        | 5543 | -0.0061 |
|       |              |      |              |              | 821.3887        | 5591 | -0.0107 |

