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FK OPHIUCHI = V2 (NGC 6273)

The variability of FK Oph (HV 4337 = HV 9196) was first discovered by I.E. Woods (Swope, 1928). Swope found changes between $14^m.8$ and $15^m.6$ m_{pg} exhibited by this star near the globular cluster NGC 6273 (M 19). Later the star was independently discovered by Luyten (1973, 1938), with the photographic range $13^m.5 - 14^m.5$. At first Luyten was not able to identify his star with FK Oph because of the wrong value of right ascension (by one hour) he originally determined. No information concerning the type of variability is contained in the General Catalogue of Variable Stars.

Sawyer (1943) discovered four variable stars in NGC 6273, as well as two more variables in the surrounding field. Among these variables, V2 in NGC 6273 is identical with FK Oph, as we were able to find by comparison of photographs published by Sawyer and by Swope (1932). Sawyer published 12 observations ($13^m.4 - 14^m.7$ m_{pg}) and considered the star to be a possible long-period Cepheid. The star enters the Third Catalogue of Variable Stars in Globular Clusters (Sawyer Hogg, 1973).

I have made 42 eye-estimates of FK Ophiuchi on the plates obtained with the 40-cm astrograph of the Sternberg Institute Crimean Observatory. The observations are presented in Table I. The three observations marked with asterisks are based on photographs obtained at the same observatory with the 50-cm Maksutov camera. The system of B magnitudes is based on the photometric study of NGC 6273 by Harris, Racine and de Roux (1976). On our plates, the three brightest comparison stars from Sawyer's list are situated too deep in the dense unresolved part of the cluster and cannot be used. Five of Sawyer's comparison stars (d, f, g, h, k) were measured by Harris et al., as the brightest comparison star I used the star ZNQ 5 (cf. Harris et al.).

FK Ophiuchi belongs to CW type stars. Its elements are found to be

$$\text{Max} = 2445133.7 + 14^d.138 \cdot E,$$

$M - m = 0^P.35$. The Maksutov camera observations were not used for the period determination. The earlier observations published by Sawyer (1943) do not

Table I

J.D. 24...	B	J.D. 24...	B	J.D. 24...	B
37109.43	14. ^m 21	44015.45	13. ^m 76	44815.31	14. ^m 41
130.35	13.79	020.44	13.72	818.31	15.35
138.32	14.16	023.42	13.76	819.30	14.66
139.33	14.37	028.43	14.37	820.29	14.33
144.33	13.76	041.38	15.21	45087.52	14.53
145.33	13.59	406.38	15.15	134.41	13.52
40738.50	13.76	409.41	14.58	464.52	13.84
745.44	14.98	410.40	14.37	469.52	14.49
42922.48*	15.12	430.36	13.76	494.43	14.33
43700.36*	15.04	435.34	14.78	496.42	15.37
701.35*	15.04	438.36	14.33	496.45	15.44
989.52	13.59	789.36	15.24	499.41	14.25
992.52	13.79	811.32	13.76	523.38	14.49
993.45	13.79	812.31	13.64	546.32	13.67
994.55	13.81	813.31	13.79	552.3	14.78:

contradict our elements, and their limited number does not give a possibility to improve the elements. The light curve is shown in Figure 1.

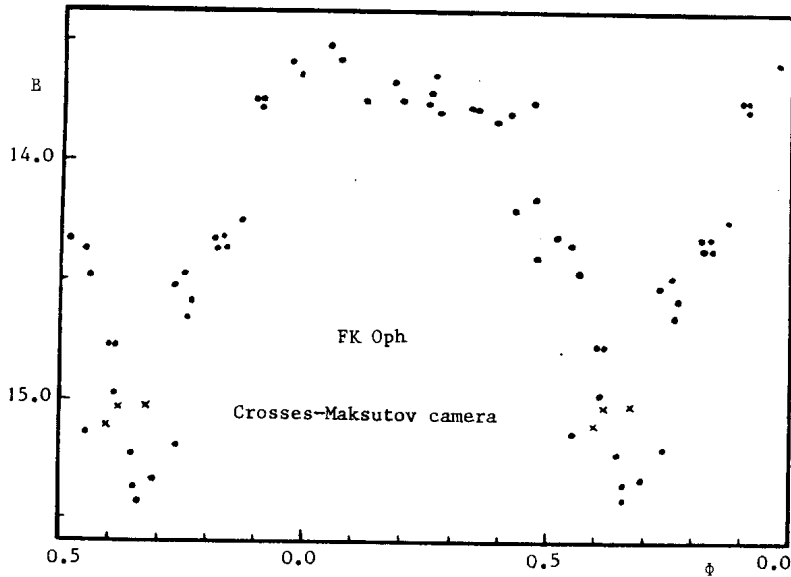


Figure 1

It is worth noting that FK Oph is the star No. 509 ($V = 13.^m40$, $B-V = 0.^m.78$) in the M 19 photometric catalogue by Harris et al. (1976). Their values are compatible with possible cluster membership of this Cepheid.

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References:

- Harris W.E., Racine R., de Roux J., 1976, *Astrophys.J.Suppl.* 31, No. 1, 13
Luyten, W.J., 1937, *Astron.Nachr.* 261, 451
Luyten, W.J., 1938, *Minnesota Obs.Publ.* II, No. 6
Sawyer, H.B., 1943, *Publ. David Dunlap Obs.* I, No. 14
Sawyer Hogg, H., 1973, *Publ. David Dunlap Obs.* 3, No. 6.
Swope, H.H., 1928, *Harvard Obs.Bull.* No. 857, 1
Swope, H.H., 1932, *Harvard Obs.Bull.* No. 887, 6