COMMISSION 27 OF THE I. A. U.
INFORMATION BULLETIN ON VARIABLE STARS
NUMBER 566

Konkoly Observatory
Budapest
1971 July 6

ON THE DISTRIBUTION OF FLARE STARS IN THE PLEIADES CLUSTER

In the paper entitled "Unusual Distribution of flare stars in Pleiades" L.V.Mirzoyan and M.A.Mnatsakanian (1) affirmed that there are no flare stars in the central volume of the Pleiades cluster within the radius 1.4 pc. They suggested that the existence of such a "cavity" might be explained "in the frames of the idea of expansion of stellar associations". However, there is no need to such an idea as the phenomenon treated by the above mentioned authors is only an apparent one.

In Fig.1 the curve of radial distribution of the surface density (per square degree) for flare stars brighter than $18^{m}.5$ in the Pleiades region is given. It is taken from our paper (2) with somewhat more details. The sample of flare stars considered here was taken from papers (3) and (4). The vertical lines correspond to the possible errors of surface densities F(r) determined by the formula $F(r)/\sqrt{n}$, where n is the number of stars used for the calculation of the given value of F(r). Within the range of these errors we must use the curve of distribution F(r) which shows the increase of flare stars density to the very centre of the cluster (curve above). The curve below represents the corresponding spatial density distribution $f(r)$.

The fainter flare variables are also concentrated to the centre of the cluster, and further discoveries of new flare stars in the Pleiades region (5) do not change this conclusion.

The density distribution of flare stars in the Pleiades cluster is the same as that of brighter members of the cluster. The only difference (the less concentration) is due to smaller masses of the flare stars.

Fig.1 contradicts the picture given in paper (1). Results announced in paper (1) are evidently explained by using too narrow zones for star counts and by neglecting the natural uncertainty of the F(r) values derived.

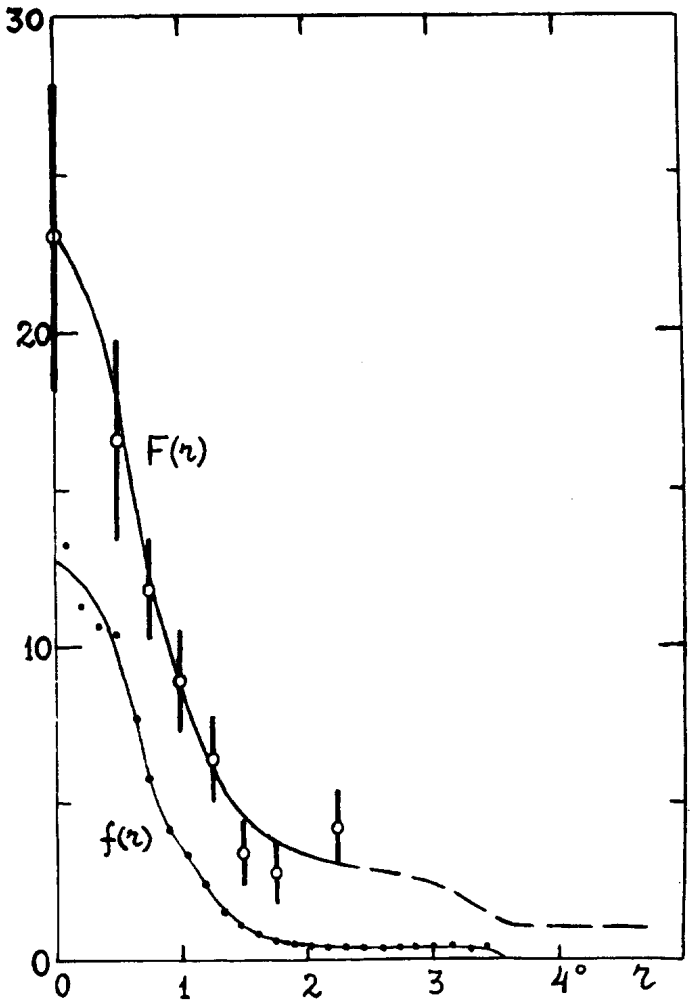

Fig.1

Sternberg Astronomical
Institute, Moscow

P.N. KHOLOPOV

(1) L.V.Mirzoyan, M.A.Mnatsakanian, IBVS N528, 1971.
(2) P.N.Kholopov, Astron.Journ. 48, 529, 1971.
(3) G.Haro, E.Chavira, Tonantzintla y Tacubaya, Bol.,5, 23, 1969.
(4) V.A.Ambartsumian, L.V.Mirzoyan, E.S.Parsamian, O.S.Chavushian, L.K.Erastova, Astrophysics, 6, 7, 1970.
(5) V.A.Ambartsumian, L.V.Mirzoyan, E.S.Parsamian, O.S.Chavushian, L.K.Erastova, Byurakan. Obs. Preprint, N2, 1971.