

49. A STUDY OF O AND B STARS IN VELA, ALONG THE GALACTIC EQUATOR

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The spiral structure of our Galaxy, as defined by optical evidence, shows a striking gap around $l^{\text{II}} = 270^\circ$. Intrigued by this feature, the author started, in 1955, a survey of early type stars based on objective-prism plates taken with the ADH-Schmidt-telescope of the Boyden Observatory (South-Africa); dispersion of the spectra: 240 Å/mm at $H\gamma$.

On the basis of the principle of natural groups (Morgan, 1951), 196 OB stars were segregated. The limiting magnitude is 12.5. For all these stars *UBV*-photometry was carried out with the 60-inch Rockefeller telescope of the Boyden Observatory (1961 and 1962).

The survey deals with the region along the galactic equator, from $l^{\text{II}} = 262^\circ$ to 273° , and $b^{\text{II}} = -4.6$ to $+2.0$. This region shows a conspicuous concentration of early-type stars and several clusters. In earlier work it was supposed to contain the so-called association I Vel, but later on the reality of this association was questioned (Alter *et al.*, 1958). On long-exposure plates (cf: *Georgetown Atlas of the Southern Milky Way*, 1952), a dark cloud narrows the Milky Way boundaries in this area, and filaments of obscuring matter can be traced within the region concerned.

TABLE I

Visual absorption at a distance of 1.3 kpc
for the various regions, indicated by capitals
in Figure 1

Region	A_v	Region	A_v
A	0 ^m .45	G	1 ^m .95
B	1 ^m .15	H	2 ^m .30
C	1 ^m .30	I	2 ^m .75
D	1 ^m .35	J	3 ^m .15
E	1 ^m .50	K	3 ^m .80
F	1 ^m .95	L	4 ^m .40

Figure 1 shows: (a) the surface distribution of the OB stars segregated from the Boyden objective-prism plates; (b) the distribution of the O stars and of those having intrinsic colors $(B-V)_0 < -0.30$; and (c) the boundaries of the bright starfield and of the dark regions around and within it. Capitals in Figure 1 (c) refer to regions of different obscuration; the corresponding A_v -values, given in Table I, are based on data of the stars for which MK types are available (102 stars).

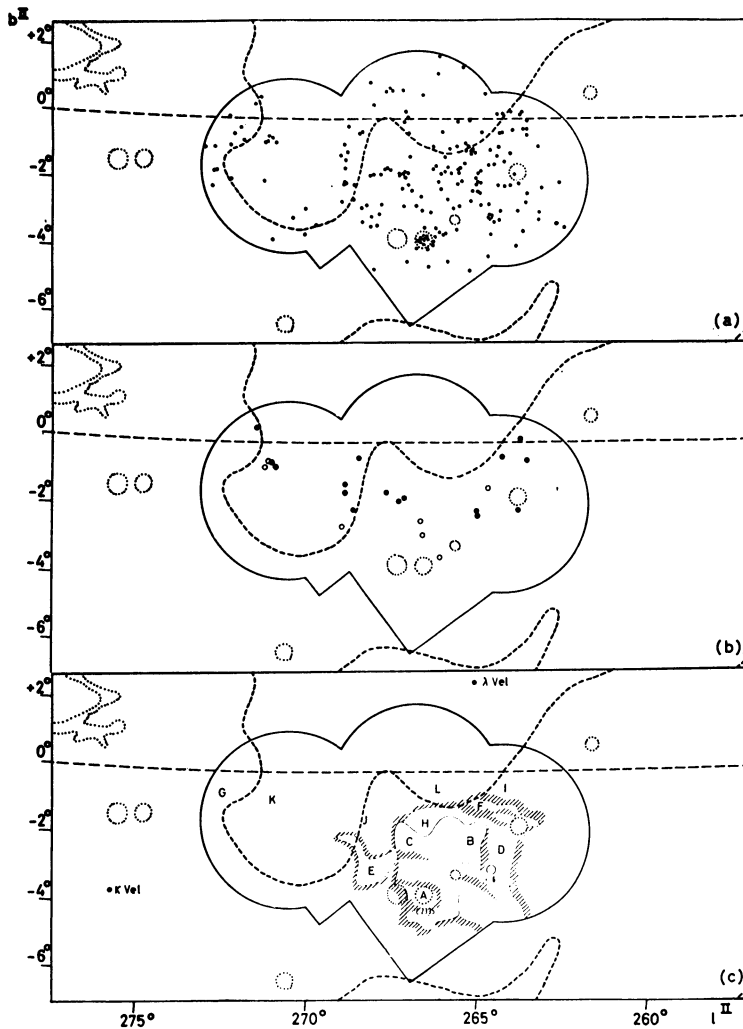


Fig. 1. (a): The surface distribution of the OB stars in the investigated field; (b): the distribution of the O stars and stars with $(B-V)_0 < -0.30$; and (c): boundaries of the bright star cloud and of the obscuring matter; capitals indicate specific regions of different absorption as given in Table I. The background material for the drawings is taken from the Skalnáté Pléso *Atlas of the heavens*.

From the discussion of the data appears: (1) that the assumption concerning the reality of an association in the Vela-region has to be rejected; (2) that a spiral feature at right angles to the galactic center extends up to large distances (more than 5 kpc); this feature could be a linkage between the known Carina-arm and some spiral structure in Puppis, but most of it is hid by obscuring matter. In this connection one should recall that a study of the surface-photometry of the Milky Way by Elsässer and Haug (1960), indicates the existence of an arm in this region, and that the Austrar

lian radio-observations at 1440 MHz (Mathewson *et al.*, 1962) reveal a not unimportant peak in the same direction. An extension of the present study is dealt with in the paper by Denoyelle, presented at this symposium.

References

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