

## BRIGHT STARS IN FIVE LMC STAR CLUSTERS

E. Kontizas\*, E. Xiradaki\*\*, and M. Kontizas\*\*

\* National Observatory, \*\* University of Athens

The bright stars of five LMC clusters were classified for deriving the distribution of various spectral types. The studied clusters are very young (NGC 2093) young (NGC 1818, NGC 2157) intermediate (NGC 1831) and old (NGC 1806) (Van den Bergh 1981). The spectral classification of the stars was carried out using film copies of the 1.2 m Schmidt telescope objective prism plates. Medium dispersion (830 Å at H $\gamma$ ) unwidened YJ and widened UJ and low dispersion (2440 Å at H $\gamma$ ) UJ were examined by means of a binocular microscope. Details of the criteria used for the classification are described by Kontizas et al (1985).

For each cluster a circular area was examined inside its cluster tidal radius. The magnitude range of the studied stars is  $11.5 < m_r < 17.5$ . The stars in the innermost part of the clusters were not classified because of the overlapped images. The figure 1 shows the number of stars per spectral type a) NGC 2098, b) NGC 1818, c) NGC 2137 d) NGC 1831, e) NGC 1806. The dashed line represents the distribution of the various spectral types of the adjoining fields normalized to the cluster area. The stars classified as B represent stars O and B since the method used does not permit us to distinguish them with confidence.

From the diagrams it can be seen that all clusters in our sample show a relatively large number of M type stars even for the very young cluster. On the contrary the fields have not early type stars, within the observed magnitude range in all five regions. The bright late type stars found here confirm the existence of evolved stellar component even for the very young and young clusters, that may mean that the studied LMC cluster stars are either older than those of the young galactic clusters or much more massive.

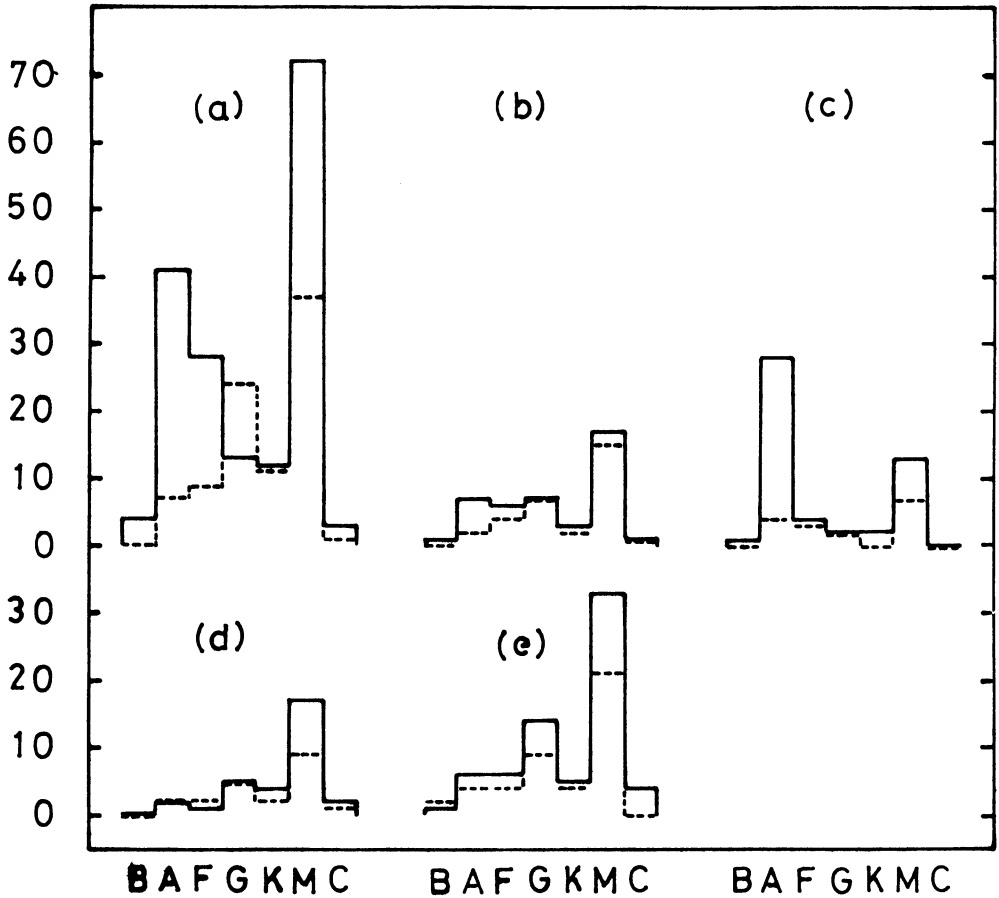


Fig. 1: Number of bright stars per spectral type (solid line) for a) NGC 2098, b) NGC 1818, c) NGC 2157, d) NGC 1831 and e) NGC 1806 and their adjoining fields (dashed line).

#### ACKNOWLEDGEMENTS

We would like to thank the 1.2 m UK Schmidt Unit for loan of the material.

#### REFERENCES

- Kontizas, E., Dapergolas, A., Kontizas, M. 1985 (in preparation).  
 Van den Bergh, S. :1981, *Astron. Astrophys. Suppl.* 46, 78.