Rev. Mexicana Astron. Astrof., **14**, 612 (1987)

THE GREAT CARINA NEBULA: NORMAL OR ABNORMAL EXTINCTION?

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ABSTRACT. The interstellar extinction in the direction of the open clusters in the Great Carina Nebula (NGC 3372) is a matter of controversy. While some authors have argued in favor of a normal interstellar extinction characterized by a value of the coefficient of total to selective absorption R of approximately 3.2 (Turner and Moffat, 1980, *M.N.R.A.S.*, 192, 283), values of 5 and more for the said coefficient have been published (Herbst, 1976, *Ap. J.*, 208, 923. In this paper we present preliminary results of extensive *J,H,K* (some *L* and *M*) photometry of a great number of stars in the open clusters Tr 14, 15 and 16 and Cr 232 and 228 of NGC 3372. Our infrared Observations were combined with previous observations of Feinstein and co-worker (see Feinstein, FitzGerald, and Moffat 1980, *A.J.*, 85, 708, and references therein). The observations were performed on the 1.5-m telescope of CTIO).

An analysis of the $(V-K)$ vs. $(B-V)$ diagram shows that a unique value of the parameter R cannot be deduced as is usual in the variable extinction method. As a matter of fact, the boundaries of this diagram correspond to values of R between 3.2 and 5. This is an indication that the region cannot be described in a straightforward manner by establishing a single "normal or abnormal" value of R. We then calculated the ratio $E(V-K)/E(B-V)$ for each of the observed stars, after eliminating foreground stars and objects with large observational errors. From the distribution of this ratio for each cluster, it is clear that the peak values (which is in general assumed to be proportional to R) vary from cluster to cluster, presenting a "normal" value for Tr 15 and a maximum deviation for Tr 14. Tr 16 and Cr 232 have values in between. The value for Cr 228 has no significant peak and therefore is still an open question. (Our statistic is rather poor for this cluster). The details of the observations as well as the calculations and a discussion on the origin of the described effect will be published shortly.

DISCUSSION

CARRASCO: Hay razones teóricas (relación Kramers-Koenig) que señalan que el valor máximo que R puede adoptar es $\sim$ 5 en función de la cantidad máxima de metales en el medio interestelar.

CHELLI: How do you estimate the infrared excess when you have no spectral information?

ROTH: These stars are all OB stars. ZAMS fitting is straightforward in this case. Our "spectral types" coincide within 0.1 of a spectral type with reported spectroscopic classifications.

MELNICK: ¿Cómo se obtiene R a partir de $E(V-K)/E(B-V)$?

ROTH: Empíricamente, Johnson y otros autores han mostrado que $R = 1.1\ E(V-K)/E(B-V)$. Sin embargo, hasta poder aclarar más las características de la extinción en esta región, preferimos referirnos al cociente de excesos.

1. Visiting Astronomer, Cerro Tololo Interamerican Observatory, operated by AURA, Inc. under contract with the National Science Foundation.

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