

HIGH PRECISION PHOTOMETRY OF 10,000 STARS IN M 3

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ABSTRACT: A new color-magnitude diagram for M 3 is presented. 10,000 stars have been measured down to $V = 22$ with an internal accuracy better than 0.03 mag to get complete and very accurate samples over well defined areas.

More than 10,000 stars have been measured down to $V = 22$ in two different areas. In the first, with $3.5 < r < 6.0$ arcmin, photometric completeness has been achieved down to $V = 21.5$ and an algorithm to correct for losses due to unrecoverable crowding and blending has been experimentally computed. In the second, within a square field of 15×15 arcmin, completeness has been extended only to $V = 18$, well below the horizontal branch.

Many tests made on the data guarantee an internal photometric accuracy better than 0.03 mag at $V = 21$. Therefore, both the total population of each branch and the relative star-number ratios are "bona fide" representatives of the corresponding evolutionary time-scales. Here we simply present: 1) the color-magnitude diagram (see Fig. 1) obtained from the reduction of a wide collection of Palomar plates; 2) a table which presents the contribution of the various branches to the integrated cluster light; 3) the preliminary indication that, within the annulus we have considered, the blue stragglers seem to be slightly less centrally concentrated than the subgiants in the same magnitude interval.

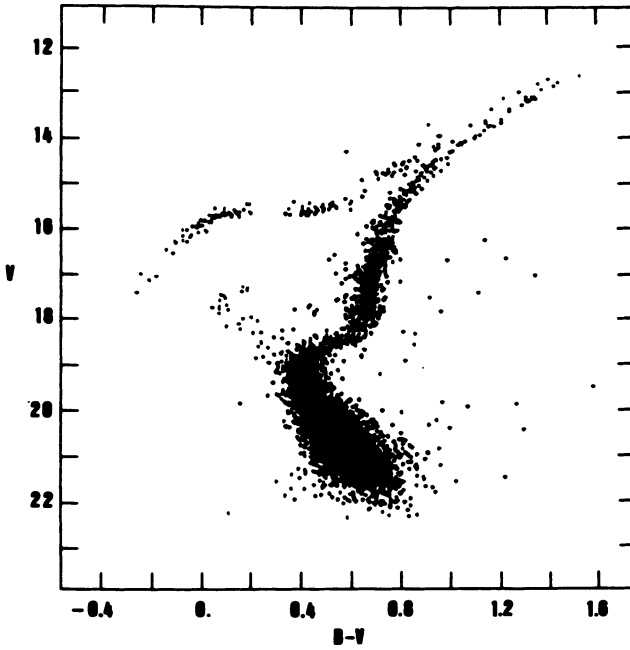


Fig. 1. CMD of M 3, composite sample.

Table I:

Contribution to the cluster integrated light of the various branches, computed over the complete samples

Phase	N(stars)	L/Lo	%Bol	% V	% B
AGB	10	5524	19	11	7
HB	82	4178	14	17	25
RGB	342	10739	37	36	29
SGB	764	2228	8	10	11
MS	8628	5908	21	25	28
BS	53	193	0.7	1.0	1.3