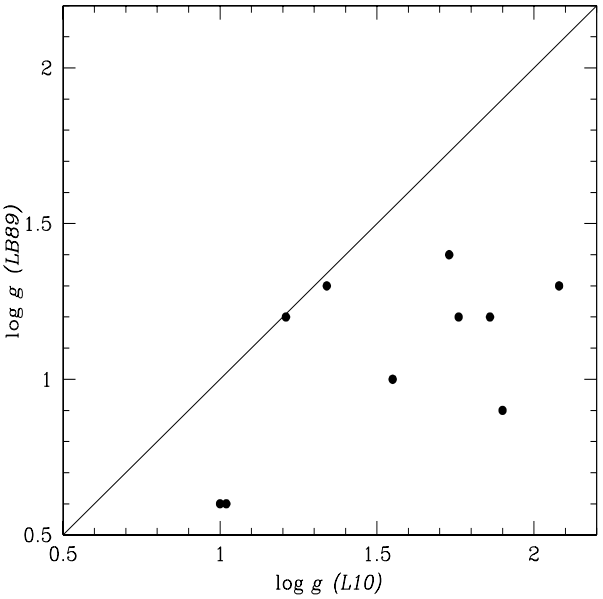

Fig. 4. Comparison of log g values for ten stars in common between Lyubimkov et al. (2010) and Luck & Bond (1989). See text for discussion.

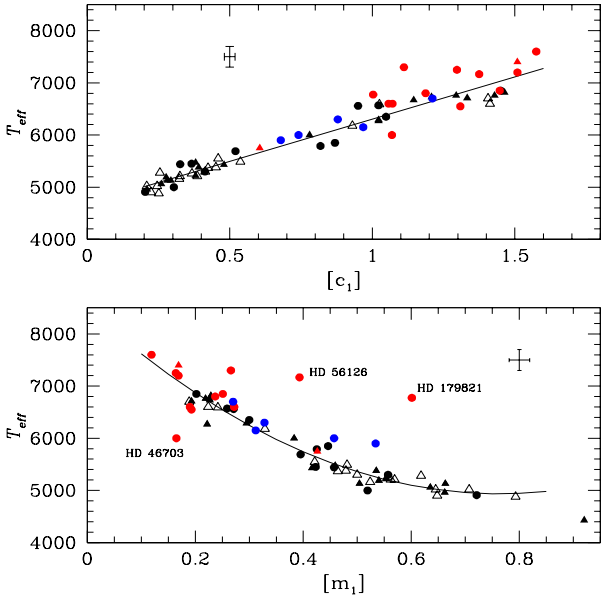

Fig. 5. Inclusion of post-AGB and RV Tau stars in the $T_{\rm eff}$ calibrations. The black symbols are as in Figure 1. The red circles are post-AGB stars and the blue circles are RV Tau stars. The red triangles are the two post-AGB candidate stars HR 6144 and HR 7542 plotted as asterisks in Figures 1, 2 and 3.

A stars and one K0 star. For the $[c_1]$ index the post-AGB and RV Tau stars follow very well the trend defined by the F-G supergiants and, therefore, it seems that the calibration is also valid for these types of stars stars. We have refrained from fitting the straight line with all points since the difference with equation (1) would be negligible. For the $[m_1]$ index the post-AGB's and RV Tau also follow the parabola of the F-G supergiants, except for three stars HD 46703 (F7 IVw), HD 56126 (F5 Iab:) and HD 179821 (G5 Ia). HD 46703 has the spectral type of a subgiant, which may explain its peculiar position. However, for HD 56126 and HD 179821 we have no explanation at hand.

Let us now explore, in a similar way, the role of post-AGB stars on the $\Delta[c_1]$-log g plane. As for the case of the young supergiants we started by plotting the stars on the $[m_1]$-$[c_1]$ diagram from which one can estimate $\Delta[c_1]$. Figure 6 illustrates both these planes. Except for the already noted outliers HD 46703, HD 56126 and HD 179821, both the post-AGB and the RV Tau stars follow the distribution on the $[m_1]$-$[c_1]$ plane. However, on the $\Delta[c_1]$-log g plane the post-AGB stars are at odds with the distribution of the supergiant stars. The five RV Tau stars (blue circles) seem to follow the supergiant trend rather well. With the available information we cannot say whether the post-AGB stars follow a completely different relationship, or if this is a result of the gravities reported by Stasińska et al. (2006) being anomalously too small. In either case it is clear that the relationship in equation (5) should be used only for the young supergiant stars.

6. COMMENTS ON THE DETERMINATION OF M_V

It would be desirable to posses a calibration that could predict the luminosity of young yellow supergiants given an observational parameter, such as for example a color index. Since these stars are luminous they could be used as distance indicators. We have attempted before to calculate such calibration (Arellano Ferro & Parrao 1990; Arellano Ferro & Mendoza 1993). However, an accurate result has been rather elusive. On the other hand a neat calibration of M_V from the intensity of the OI 7774 triplet, valid for a vast range of luminosities, was obtained by Arellano Ferro, Giridhar, & Rojo Arellano (2003), which predicts M_V with an uncertainty of 0.38 mag.

The distances provided by Lyubimkov et al. (2010) could in principle serve to explore a calibration of M_V in terms of a photometric index. The absolute magnitudes listed in Column 9 of Table 1 were calculated from the distances (Column 2) and the reddenings (Column 8). Since $\Delta[c_1]$ is correlated with log g one would expect a relationship between