The distribution of the deviations of the average value of each night from the mean of all other nights and observing runs were used as a final check between the true and calculated errors. As with the formula for σ_{NFE} (see above), an iterative approach to the formula for σ_{AE} was necessary. A satisfactory solution was finally derived: $\sigma_{AE} = 0.85 + 0.45\sigma_{CE}$. The final distributions in the deviations of the averages are shown in figure 7-7 . The lower-right graph of figure 7-7 compares the Gaussian fits to the total calculated errors.

Note that all of the above error analysis was done only on R_s observations with the TI500 CCD at the Lick 1 meter, which comprises the largest homogeneous (same filter and detector) set of observations. For the smaller ($\sim$30%) sample of V2 band observations, we have adopted the σ_{NF} formula for R_s, but have attempted to derive a new σ_{AE} formula from the V2 TI500 CCD images. This analysis has yielded: $\sigma_{AE} = 0.55 + 0.35\sigma_{CE}$. The smaller additive error for the V2 band observations may indicate a better match between the response of the stars and the twilight sky through the V2 band filter (*i.e.* better flat-fielding).

7.5 : Light Curves for Selected Stars and the χ^2 Test

In order to put our light curves on a meaningful scale, we have converted the differential intensities of all the points for a given star or QSO to an apparent magnitude: $m = -2.5\log(I) + m_o$. The value of m_o is derived from the observations with the highest photometric quality available for each object, and the same m_o is used for all the light curve points of a given object. It is important to note that m_o is only accurate to $\sim$4% (much less if only marginally photometric or non-photometric observations are available). Therefore, although the *relative* magnitudes are accurate to the error bars shown in the graphs in figures 7-8 and 8-1 ($\sim$1-2%), the apparent magnitude scale shown on the vertical axis is only accurate to at best a few percent ($\sim$0.04 magnitudes).

To estimate the probability that the points originate from an object with constant flux, we have calculated a χ^2 value for the "fit" of a flat line to the light curve. In this