a substantial effect. However, this would assume that the quantum efficiency curve varies significantly from pixel to pixel.

7.1.4 Other Errors

Isolated high-energy radiation events (e.g. cosmic rays) which appear within a few pixels of a stellar source center, will often not be visible during the reduction process and therefore contribute to a sporadic error in the data values. For QSOs with multiple images taken with the same filter on a given night and for all comparison stars, this effect has been corrected for by rejecting points which deviate excessively from the mean.

The TI 500 CCD (used for all of these observations at the Lick 1 meter), has a large number (50-300) of pixels with excessive dark current (hot pixels) which have been corrected for by subtracting off the hot pixels from long dark exposures. These pixels will have an error much larger than the error derived from counting statistics. Since this condition occurs in less than 1 pixel out of every 1000, we would expect roughly 1 stellar source in 10 to be affected by this error.

Errors in the bias and baselining are probably negligible, since these involve corrections of only a few counts, while the background levels from the night sky for most of the observations were greater than a few hundred counts.

Errors due to deferred charge effects (*cf.* Gilliland 1992) of isolated pixels (*i.e.* non-linearity at low light levels) are difficult to estimate since no serious attempts have ever been made to determine the extent of this effect for the CCDs used in this project.

7.2 Condensing the Multiple Aperture Data– Optimal Weighting of Sums

As mentioned above, the reduction process creates 3 or 4 aperture sums for each stellar source for each image. (For this discussion we will assume 4 apertures.) We would like to reduce this data set down to a single flux value with an associated error for each stellar source for each image.