Another disadvantage to optimal extraction was that the 4th or 5th order polynomial fits generally used for determining the profile were insufficient to describe the "true" profile as a function of spectral points for bright objects. This problem caused "undulations" in the spectral direction, which increased (relative to the S/N) as the S/N in the object increased. However, since the optimal extraction S/N gain was minimal for bright objects, a standard extraction was used for the brighter objects (V$\lesssim$17). The only disadvantage was that we lost the bad pixel rejection.

To determine whether optimal extraction was appropriate for a given object, we divided the optimal and standard extracted spectra. If the deviations from a flat line were smaller than the noise per pixel, the optimal extraction was used as long the S/N gain was non-negligible. The standard extractions were saved for later reference as part of the reduced spectra database.

10.3 : Calibrations

A wavelength scale was applied to each spectra by using exposures of arc lamps which produced a known set of emission lines for elements of He, Hg, Ar, Cd, Fe, and Ne. A polynomial was fit to the emission line (air) wavelengths as a function of pixel centroid and deviant points were rejected. These fits generally yielded residuals on the order of a tenth of a pixel.

After deriving wavelength scales for the arc lamps, the entire scale was shifted to match the positions of night-sky lines in the background of each object image. Since usually only one or two (adequate) sky lines are available for any given object, only a "zeroth-order" shift was applied to the pixel coordinate. This magnitude of this shift was usually $\sim$1 pixel.

To convert the intensities (as a function of wavelength) to ergs s^{-1} cm^{-2} Å^{-1}, exposures of standard stars (with calibration points from the literature) were used to determine the response function for the CCD. This response depends on both position on the