9 Conclusions

I have demonstrated that the digital data base of the HES is a *gold mine* for various types of scientifically exciting stars. Exhaustive efforts to calibrate the HES plate material, and understand the properties of these detectors enable us to select a large variety of stars by *quantitative*, *objective* and *reproducible* selection criteria, and to study the selection probability as a function of stellar parameters and object brightness.

Several stellar projects carried out in the HES indicate that quantitative selection on a digitized objective prism plates are dramatically superior to “manual” selection with binocular microscopes. I have shown that samples selected in the latter way are either highly *incomplete* (as in case of carbon stars, and CVs, although in the latter the HES sample size is still small), or much more *contaminated* with undesired objects than expected for the quality of the spectra used, as in case of metal-poor stars, where I achieved a 3–7 times higher selection efficiency in the HES as compared to the HK survey, which has a 2 times *higher* spectral resolution.

The faint limit of the HES ($B_J \simeq 17.5$) harmonizes very well with the limit to which high-resolution ($R > 40\,000$) spectroscopy is feasible with the new generation of > 8 m class telescopes (e.g., VLT, Subaru, Keck, and HET). It is thus an ideal source for providing targets for these telescopes. Moreover, since the HES is *unique* in the sense that currently no other survey provides as many spectra of a spectral resolution as high as in the HES, I predict that in the next years the scientific community will confront the HES group with an even greater demand of rare and peculiar stellar objects as the author experienced throughout his thesis work.