During our weekend at the Greenbank Radio Observatory, I took spectra and continua of many sources. The data I chose to analyze the most came from our spectra of the Milky Way at many different declinations. The hope was to use the data from these spectra to determine the relationship between recession velocity and galactic longitude. While the synthesis did not turn out as well as hoped, a lot of great data was taken, and I made from this data many interesting observations about the Milky Way.

At Greenbank, Professor Auburger and I undertook the challenge of connecting the PASCO interface to the traditional analog equipment at the telescope, in an attempt to get much more accurate data that is easier to analyze than before. While there were some hiccups in getting the interface set up (including the invalidation of a few measurements), eventually Professor Auburger and I got the setup to work well and allowed us to be much more efficient with our data collection and analysis.

The data I collected initially came in the form of a voltage vs. time plot showing the variation in signal from the telescope. The telescope was only capturing one frequency at a time. We looked at frequencies from 1419.8MHz to 1420.95 MHz, changing the frequency by .01MHz every second. Thus, it was possible to get from the voltage vs. time plot, the relationship between measured voltage and frequency of the sky. I calibrated our instruments in the beginning and end to 500 Jy. Thus I could find the flux in Jy from the measured voltage, thus giving flux vs. frequency. Finally, by applying the doppler shift formula for the data, I was able to determine the recession velocity of that part of the Milky Way relative to Earth.

Unfortunately, due to insufficient communication with the people involved in the spectrometry, I only did this analysis for a single declination of the Milky Way. I had hoped to do this for spectra at all angles to determine recession velocity vs. declination, but was unable to do so. I found that at 41º declination, that part of the galaxy was actually blueshifted, with a velocity of 114 m/s.