Robert Corey

Summer 2015

This summer I worked for Professors Thea Edwards and Brandon Moore in the Biology department of Sewanee. Our project is in conjunction with the University of Pretoria in South Africa and the Medical School of South Carolina in Charleston. I assisted in research of pansteatitis (yellow fat disease) affecting fish in South Africa. More specifically, we investigated the abnormalities caused by the disease in testes and ovaries using histology, which involves the embedding of tissue in wax so that it can be sectioned. Once the tissue, in our case testis or ovary, has been sectioned it can be mounted and cover slipped on slides. I could then use different staining techniques to visualize healthy and diseased cell anatomy under the microscope. Towards the end of the summer, Dr. Edwards and I began to quantify our results in a way to compare different samples. We plan to continue this research during the fall semester.

The skills developed in lab are invaluable tools that cannot be learned in a classroom. Histology also involves trial and error as a means of perfecting your methods. For this reason, I began with catfish samples that were sent along with the tilapia. Because our research focused on tilapia, we used catfish samples as a test run to see how the tilapia testis and ovary would appear using the same procedure. From embedding, sectioning, mounting, cover slipping, and staining there are multiple places where error can occur. Once developing a procedure with the catfish, I continued to fine-tune aspects to perfect the process.

Before I began this histological research, I had never used a microtome to cut thin strips of tissues nor had I taken images on a microscope in order to analyze. These are just a couple of the skills that I learned. I made new stains and replaced solutions when necessary. However,
one of the most important skills I learned and improved was reading and writing scientific
literature. While some knowledge I gained only applies to histology, the ability to read, process
and write is a valuable skill in all fields of science.

I do not know after this summer if research is something that I would like to continue
after my time at Sewanee. I did enjoy the experience; however, I prefer more human interaction.
While the research was interesting, the project takes a long time to complete and requires a
tremendous amount of patience. Devoting several years to one project sounds onerous and
tedious, but I definitely have not ruled out research as a possible career path.

Like with most jobs there were points where I had a great time and also points when I
could not wait to be finished. Everyone in our lab got along well, and we generally played music
loud enough for all the rooms around us to hear. Furthermore, I am one of the strange few that
loves to learn. Almost every day I was in lab I was learning a way to fine-tune my procedure
better or better understand a completely new process. On the other side, histology can be
troublesome since it requires concentration and utmost attention at points. The worst part is that
sometimes when I did put all my focus into the project problems would still arise. Whether it be
the wax shredding on the blade of the microtome or a stain refusing to stick despite my best
efforts.

The most important lesson I learned from this experience is stress management. In the
beginning, I was working two other research jobs. My time management skills were pushed to
their limits. The days with just research were also stressful. Particularly in sectioning and
mounting tissue onto slides precision, skill and luck were needed. Whether there was too much
static causing the wax to stick to the microtome, or the water was too hot and caused the wax
tissue ribbons to stick to the spatula, or the tissue shredded on the razor blade, there are
numerous possibilities that can cause a delay. Several times I had to walk away for a break and
find activities to motivate and re-energize myself.

Fortunately most of the sectioning and mounting portions of my project are behind me.
Staining and determining how to analyze my results can be time consuming but there is
definitely a more precise and certain science to the process. I hope to finish my portion of the
research by the end of this coming semester. Dr. Thea Edwards and I will then be able to either
publish our own results or be a part of a larger paper with the aforementioned universities. With
schools involving health professions becoming more and more selective, having your name on a
scientific paper is a huge advantage in the selection process. Sewanee and its alumni have done
an incredible job making research opportunities possible for me and multiple other students to
further a key aspect of our pre-health track. My professors along with others also need to be
thanked for their sacrifice of time and energy as well as their patience and interest in our career
goals and personal lives.