

The Environmental Studies Internship Fund grant allowed me to continue my studies in forestry and geology this summer. The funding enabled me to accept two unpaid internships and provided the opportunity to become more involved in the Sewanee community. I worked for Sherwood Mining Company the first half of each week and the latter part of each week for the Office of Domain Management at The University of the South. During my six weeks interning for these two organizations, I acquired valuable skills that will be marketable in the future and felt I truly contributed to both organizations. In addition to working the internships, I ran calls for the Sewanee Fire Department, helped the administration plan the August Greek Alumni Summit, gave tours of the University, and engaged in the community beyond the Sewanee gates.

The Gager Mine of Sherwood closed in 1949 and re-opened in 2005 as Sherwood Mining Company. Since 2005 the mine has been selling limestone primarily to the Tennessee Valley Authority for use in emissions control equipment. The equipment captures pollutants from smoke stacks in coal-fired power plants. My goals for the summer included gaining an understanding of the day-to-day inner workings of the large scale mining operation and acquiring experience working in their laboratory. I arrived at the mine at 3:50am and my daily tasks included equipment maintenance, dust control, operating heavy equipment, laboratory testing and occasionally a company trip to Tullahoma, TN or Stephenson, AL. My laboratory duties entailed testing daily product samples for size and moisture and running each sample through an X-ray to test for key elements. These calculations are critical because the mine's contract with the TVA assures a percentage composition of several key elements in their limestone. The foreman reviewed with me company maps, dynamite drilling patterns, mining machines, different types of rock and how the mining operation has changed over the past 120 years. On several occasions we toured the 2,000 ft mine to gain a better understanding

Andrew Carey
September 1, 2011
Page 2

of how the rock forms, predicting which areas will be most profitable for extraction, and how to operate the mine safely.

My internship at Sherwood proved far more valuable. I incorporated my work in the Landscape Analysis Lab at The University of the South (second internship) by consolidating many of the maps mine personnel use on a daily basis. On my final day at the mine I presented several 5'x3' maps to management that I created after work each day. The maps for Sherwood Mining Company combined mine surveys, topographic maps, core sample surveys, mine heights and aerial photos. The new maps consolidate many older, large, paper surveys. They will facilitate explaining mine operations to visitors or sub-contractors in the future. The mine benefited by gaining up-to-date maps that would cost thousands of dollars to produce by an engineering firm. Creating these maps for Sherwood Mining Company also enabled me learn important tools of the ArcMap program.

An added dimension to working at the mine provided the opportunity to meet many residents of the nearby Sherwood community. Few Sewanee students interface with Sherwood residents, and consequently, large misconceptions exist between the parties. This is a gap that hopefully can be bridged. There are an endless number of stories and lessons to be learned from the residents of Sherwood. There is outreach work to be done in the valley. Beginning with my fraternity, I would like to build a connection between Sewanee students and the Sherwood community. KA will hold its first outreach project of this semester in the valley; either working at the Crow Creek Community Center or repainting the town's fire hall. Having the chance to work in the Crow Creek Valley for a few months provided the opportunity to get to know a part of Franklin County that most undergraduates at Sewanee never experience and I look forward to sharing my experiences with them.

The second part of each week I interned for The University of the South's Office of Domain Management, under the leadership of Nathan Wilson. My goal for this internship was to acquire a basic understanding and working knowledge of ArcMap GIS, one of the main Geospatial Information Systems (GIS) used in forestry, geology, engineering, construction and many other industries. I primarily worked on continuing a project that began about one year ago to create a digital database for all lease information for the Office of Domain Management. I used a global positioning system to find and mark one reference point from each of the 1,000 lease surveys. I uploaded each reference point into ArcMap GIS in the university's new Landscape Analysis Lab, adjusted magnetic declination depending on the date of each survey and finally digitally drew boundaries on top of an aerial photo of the Domain for each lease according to bearings recorded on the survey. Currently, the Office of Domain Management depends on a paper and file-cabinet based system to organize all leases. My work this summer brought the office one step closer to becoming a paperless operation. The value in a fully digitized lease database for the Office of Domain Management is limitless. With a digitized lease database, one can click on any lease on the map to instantly access all data pertaining to the lease including lessee, term, acreage, address, and a scanned copy of the land survey and lease agreement. As previously stated, I used these skills at the Sherwood Mining Company to update and consolidate maps of the mine for their use thus proving the value of the skills and knowledge. I now understand how to read and create maps and am proficient in ArcMap GIS, valuable marketable skills to employers in the fields of forestry and geology.

The Environmental Studies Internship Fund grant provided the opportunity to continue my studies in forestry and geology, continue my duties at the Sewanee Fire Department, give tours of the University to perspective students and become a more engaged member of the Sewanee Community. I was able to take advantage of the

Andrew Carey
September 1, 2011
Page 4

resources of the university while continuing my education. In addition, I look forward to building upon the relationships I established in Sherwood to promote and increase student outreach beyond the gates of Sewanee.