

Logan Stockton

Summer 2016

This summer I have been working as a research assistant in the Earth and Environmental Systems Department at The University of the South. My primary duty is assisting with the dendrochronology portion of the Rebel's Rest Research Project and assisting with archeology as needed. The Rebel's Rest Research Project is an experimental research project looking at the structure and grounds of the first post-Civil War building at The University of the South. As a secondary duty, I also worked on dendrochronology projects with Dr. Scott Torreano and Dr. Ken Smith.

The dendrochronology study at Rebel's Rest is an ongoing study conducted by Professor of Forestry Dr. Scott Torreano and post baccalaureate scholar Patrick Vestel. Dendrochronology is the science that uses tree rings dated to the exact year of formation to analyze temporal and spatial patterns of processes in the physical and cultural sciences. The application in this study is to use dendrochronology to date the additions to the original structure of Rebel's Rest to determine whether the logs used to construct the cabin were recycled from other structures in the area. The archaeology study at Rebel's Rest was led by Professor of Archaeology Sarah Sherwood.

My responsibilities while working on this project were to assist Patrick Vestel, the lead dendrochronologist on the study by sanding all samples taken using various grits of sandpaper till reaching a polished finished and shadowing on the dating and measuring system, a stereo zoom microscope with a velmex measuring system. I would redate samples already dated by

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Patrick using the measuring system and then build a chronology using a statistically program called COFECHA, that is used to compare the number and widths of rings between samples in order to assign calendar dates to trees rings, simply know as cross dating in dendrochronology (Figure 1). The purpose of redating the samples was to mentor me in dendrochronology and to look for mistakes in the chronology. Duties I performed while working with Dr. Sherwood included: digging, screening dirt, washing and sorting artifacts, cataloging artifacts, cleaning tools, and mapping featuring using a total station.

My secondary project with Dr. Smith was to sample twenty tree stumps for age, diameter, and age in six small patch clear-cuts in Compartment 22 off of Breakfield road in Sewanee, Tennessee. In this study I went out with two other summer interns from domain management, George Grice and Hank Krebs. George was certified to operate the chainsaw and used a planer attachment to prepare samples for Hank Krebs and myself to date. Some cross sections from smaller samples were also taken back to the Snowden Hall where I would sand and then date them using a microscope. The study revealed there were three age classes of oaks in compartment 22. Out of eighty oaks ten were one hundred plus years old. There was a large group around seventy-five years old followed by another younger group. This indicated that there was most likely a big harvest in the 1930's.

The final project I worked on was with Dr. Scott Torreano. The goal of the study is to develop a chronology for Compartment 31 on the Domain of the University of the South. In this

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project trees were cored in fixed plots using an increment borer. Cores were then taken back to Snowden Hall where they were placed in mounts and sanded. The cores were then dated and measured using a stereozoom microscope with a Velmex measuring system and COFECHA. The study is still ongoing therefore I have no results to report.

In conclusion, this summer I have had the privilege to work on a variety of different projects with a number of different faculty members. I have been able to develop skills in technical abilities like using an increment borer, DBH tape, clinometer, total station, troweling, screening, data recording, using a Velmex measuring system and tree identification. In addition I have also learned many broader skills that will be useful in my career such as, time management, working independently, following instructions, being flexible, and planning logistics.

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Figure 1: Logan Stockton using a microscope to check sanding on a sample before beginning final analysis