Making Telescopes and Observatories Accessible to Students

2017 Summer Internship Project by Rhiannon Larsen
Red Rocks Community College

VISITING OBSERVATORIES

Gunnison Valley Observatory, Western State Colorado University

One of my long term project goals is to unite University funded observatories and make them more accessible for student use. This entails some networking and some facility visits. Over the summer I visited 4 different observatories and researched much more than that. Observatories are unique and spectacular places, each with their own style. During these visits I learned about telescopes of all sizes: their capabilities, their shelter and maintenance requirements, and their eccentricities. I also met some incredible astronomy professors and students! Throughout my internship I've kept an observation journal and sketched my observations in memory of the greats before me. During the Renaissance period, Art and Science were not separate fields of study.

THE ART OF TELESCOPE RESTORATION AND OBSERVATION

Surmise: Taylor on the 30" telescope in the dome at Gunnison Valley Observatory

Colorado University Boulder has a great student run facility on campus that combines their Fiske Planetarium with the Sommers-Bausch Observatory. They host a free admission public night on Fridays at the observatory and many guests purchase tickets to a show at the planetarium prior to viewing. I enjoyed both facilities. The students were very knowledgeable and easy to talk to.

Chamberlin Observatory, Denver University and Denver Astronomical Society

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During my internship I tackled the telescope closet. This treasure trove contained a mishmash of telescopes and parts that have been donated to RRCC over the past couple decades. It certainly needed some love, and I needed a learning project! By downloading old user manuals and watching a great many YouTube tutorials, I was able to disassemble as many as 5 scopes and clean their mirror systems and truss tubes, mount them properly, collimate them, restore some broken focusers, and sort through compatible eyepieces. All of the telescopes that I restored have since viewed the stars!

REFRACTOR: uses a lens to collect light and enlarge the image. Think of a spyglass, camera lens or a set of binoculars.

Blue Mountain Observatory
The Astrophysics Crew at University of Montana in Missoula are also working to make astronomy accessible to the public. They run the Blue Mountain Observatory, a stellar little high country facility where they host public nights every Friday night. I was honored to attend the first night of a new program they are starting where guests can experience a more intimate stargazing session by reservation and a low cost that goes toward facility and program funding. It was well worth it. A truly magical experience!

REFLECTOR: uses a mirror system to collect and focus light. Newtonian design is most common.

Above Left: Photo of a large visual poster of the Messier Catalogue above Right: Standing next to Chamberlin's Sidereal Clock

Above Right: The historical 12.5 ton 20" Refracting telescope. Another view of the refractor above Left: Jupiter and 4 Galilean moons. ****

THE PRIMARY MIRRORS were a BIG project: I removed each of them carefully for cleaning. Then I bathed them gently in warm soapy water, and dried with surgical cotton. They were measured and marked.

The Primary mirrors were a BIG project: I first removed each of them carefully for cleaning. Then I bathed them gently in warm soapy water, and dried with surgical cotton. They were measured and marked. Finally, I had to replace them properly into their corresponding tubes and collimate (align the mirror system) the telescopes.

As part of my mission to make astronomy more accessible to students, I created seasonal star charts for use on the RRCC campus as companions to traditional star charts. These are all hand drawn and laminated. We are working on making PDFs available to print.

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Meanwhile, I will participate in all the RRCC Star Parties that I can and keep learning and honing my skills. This has been a GREAT SUMMER INTERNSHIP!!!