



History of Data Collection on Mt. Rose, Nevada¹

Snow Science on Mount Rose in Nevada begins as all good things in Nature involving man should... with an adventure. In 1895, a young professor of the classics, newly arrived from the University of Michigan, braved the cold and snow and climbed to the 10,800 foot summit of Mount Rose overlooking Reno on one side and Lake Tahoe on the other. That climb was made not because the individual was an avid scientist in search of some truth, but because he was an enthusiastic winter mountaineer. By the way, the young professor was the first white man to stand on the summit of Mount Rose. But as with all good things, it was the beginning of a scientific study that has proven invaluable to millions of Westerners.

The young professor, Dr. James E. Church, made several more trips to the Mount Rose summit, including an important one in 1904 with his wife that somehow opened his eyes to another possible adventure. Dr. Church saw an opportunity, an excuse really, to travel to Mount Rose during the summer and winter, enjoying his outings and gathering scientific information to boot.

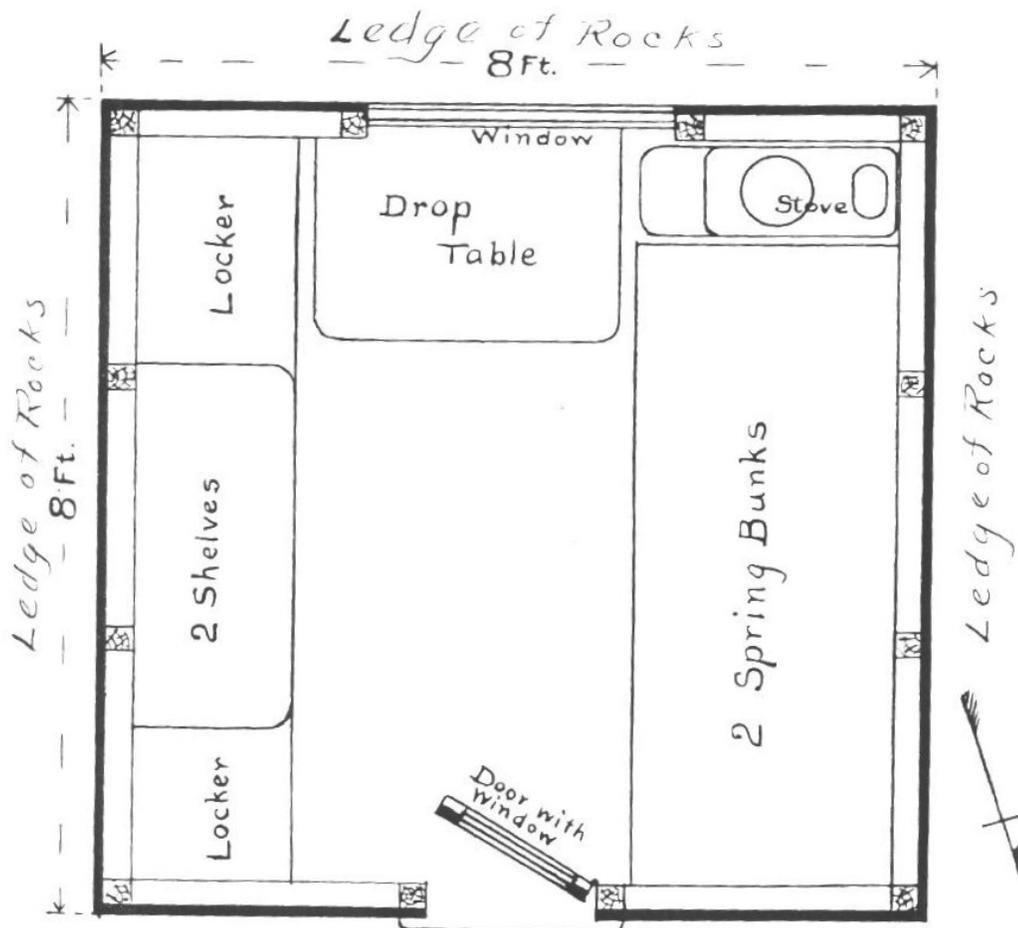
Professor Alexander McAdie, a meteorologist at Harvard University, had discovered that the positioning of minimum thermometers at high elevation mountain tops could be used with some accuracy to predict frost at valley locations. The failure of being able to place a thermometer at the summit of Mount Whitney for these measurements prompted the look for an alternative. It was this discovery of the availability of an enthusiastic Nevada Agricultural Experiment Station that provided funding of \$500.00 (Adams Act) and a forceful, enthusiastic Dr. Church who would place the thermometers and other equipment to make other measurements on Mount Rose.

Dr. Church's first concern was the fact that the \$500.00 would be insufficient to provide for all the construction needed along with the instrumentation. Dr. Church arranged for mostly volunteer work to install the equipment. The volunteers included Professor J.R. Johnson and Professor Singleton Charnock, excavator and carpenter respectively, Professor C. L. Brown, Captain Robert M. Brambila and Frankie Folsom, professional packers, and finally, but most certainly not least, Florence Humphrey Church as the cook and sometimes recorder. Mrs. Church often contributed articles to the Sierra Club Bulletin describing the outings and adventures. Dr. Church also arranged for the contribution of horses, saddles and other packing equipment from D. C. Wheeler, Henry Anderson, and O. F. Mitchell, along with Dr. Church's own horses. That left the food and supplies, instrumentation and construction materials to be paid for from the \$500.00 budget.

The installation at the summit of Mount Rose included a ventilated temperature shelter, an observation building in the shape of a small ship's cabin, including plate glass windows for observation and a precipitation gage that included a 30 gallon storage tank 30 inches in diameter and 48 inches high that had a 20 foot tall, 8 inch diameter intake pipe. The intake was blown over in the winter of 1908 during the storm of November 25 through 27.

Observatory sketch from construction drawings – Report Bulletin No. 67-June 1908.

PLATE V.



GROUND PLAN
OF
OBSERVATORY

The installation of the precipitation gage was a major challenge. The storage tank had to be installed below ground to prevent freezing. To accomplish this task, the crew drilled and dynamited 10 feet into bed rock. This process took most of the spring and summer. On the initial trip to the summit with building materials, including the precipitation storage tank, a gale blew the tank over to a horizontal position on the horse's side. The tank was freed but, as described by Dr. Church, "The tank leaped down the talus slope coming to rest in some scrub pines." It remained there until the autumn when the tank installation was finished.

The measurements taken upon completion of the observatory, included maximum and minimum temperature, wind speed, wind direction, precipitation, and measurements of snow depth and water equivalent at numerous sites down Mount Rose on the Reno side. Initially the measurement of water in the snow was done by snow samples taken in a coffee tin and then melted to determine the amount of water.

Other observations were taken with each visit, which included humidity and other climatic observations. Each visit to the summit lasted from 10 to 14 days and included all of these measurements. A second precipitation measurement location was installed on the ridge just above the current snow survey cabin and also included a 30 gallon sunken tank and 20 foot long intake pipe. The location was approximately at the half way point on the original snow course that was set up for sampling down Mount Rose.

The measurement of snow water equivalent with the Mount Rose Snow Sampler did not occur until the winter of 1909, taking some two years to develop.

What drove the Professor to measure snow? Interestingly, it was primarily an argument involving loggers, Dr. Church and Gifford Pinchot that inspired Church to measure the snow. The loggers contended that cutting the thirsty timbers helped increase the Tahoe basin's snow pack. Church disagreed, claiming that the Tahoe's giant conifers had no negative affect on water content. His invention helped him win the argument. As snow courses were set up around the basin and the focus of the program was more directed to the snow course measurements and water supply forecasts, the use of the observatory and its instrumentation declined. The cost of maintaining the observatory and all of its measurements eventually became too expensive. A high point in the development of the observatory was the application of automated strip charting devices developed and provided by Leupold and Stevens of Beaverton, Oregon. Leupold and Stevens is famous for rifle scopes and binoculars.

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¹ **Special Credit:** This week's article content and attached photos were obtained from the James E. Church Archives, located in the Special Collections Department at the University of Nevada – Reno Library. A special thanks to Jacquelyn Sundstrand (Manuscripts/Archives Librarian) and the rest of the Special Collections Department staff.

Following are pictures showing the pack animals and materials take to the summit of Mount Rose by Pack animal. Note the dents in the storage can, caused from its "leap".

P2004-18/200 c.2



P2004-18/202

Following is a picture of the installation on the summit of Mount Rose.

P2004-18/260



5"

PLATE ~~3A~~ III A

Meteorograph Shelters and Apparatus
on Mount Rose.

(Note the heavy construction to withstand frost feathers.)