

**HISTORY OF WEATHER OBSERVATIONS
Mount Vernon Barracks, Alabama
1840-1892**

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**HISTORY OF WEATHER OBSERVATIONS
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**Stephen R. Doty
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INTRODUCTION

Executive Summary

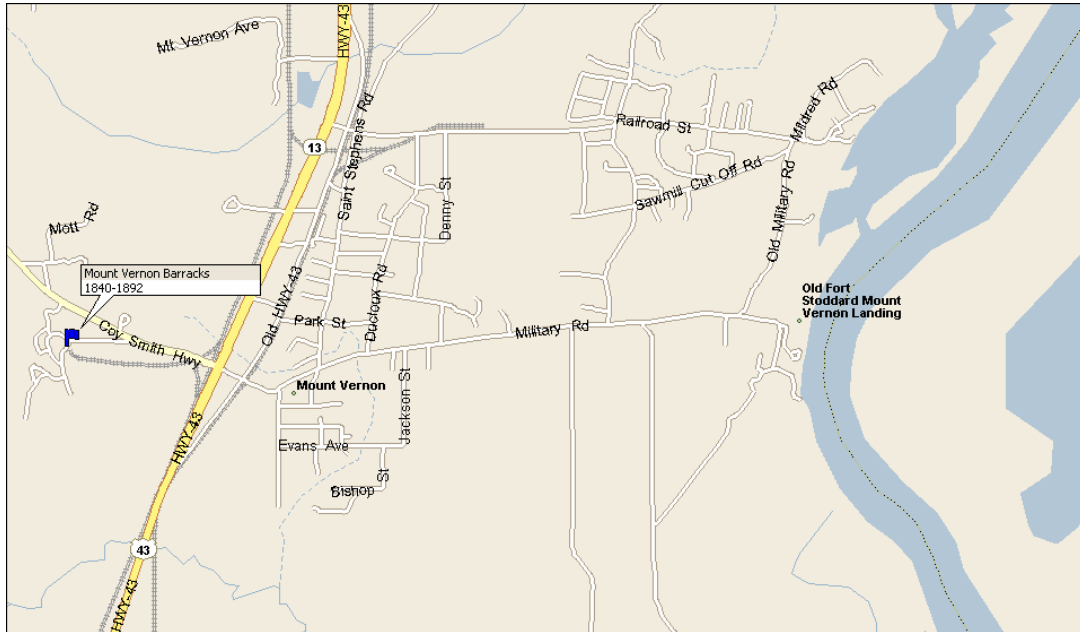
Mount Vernon Arsenal was authorized by Congress in 1824 being completed in 1828. The name was changed to Mount Vernon Barracks in July 1873. Weather observations were made by the U.S. Army post surgeons from September 1840 until February 1892. No weather records have been located for the period December 1860 through September 1873. The facility was closed in 1894 being deeded to the state of Alabama when it became the Searcy Hospital.

Goal of Study

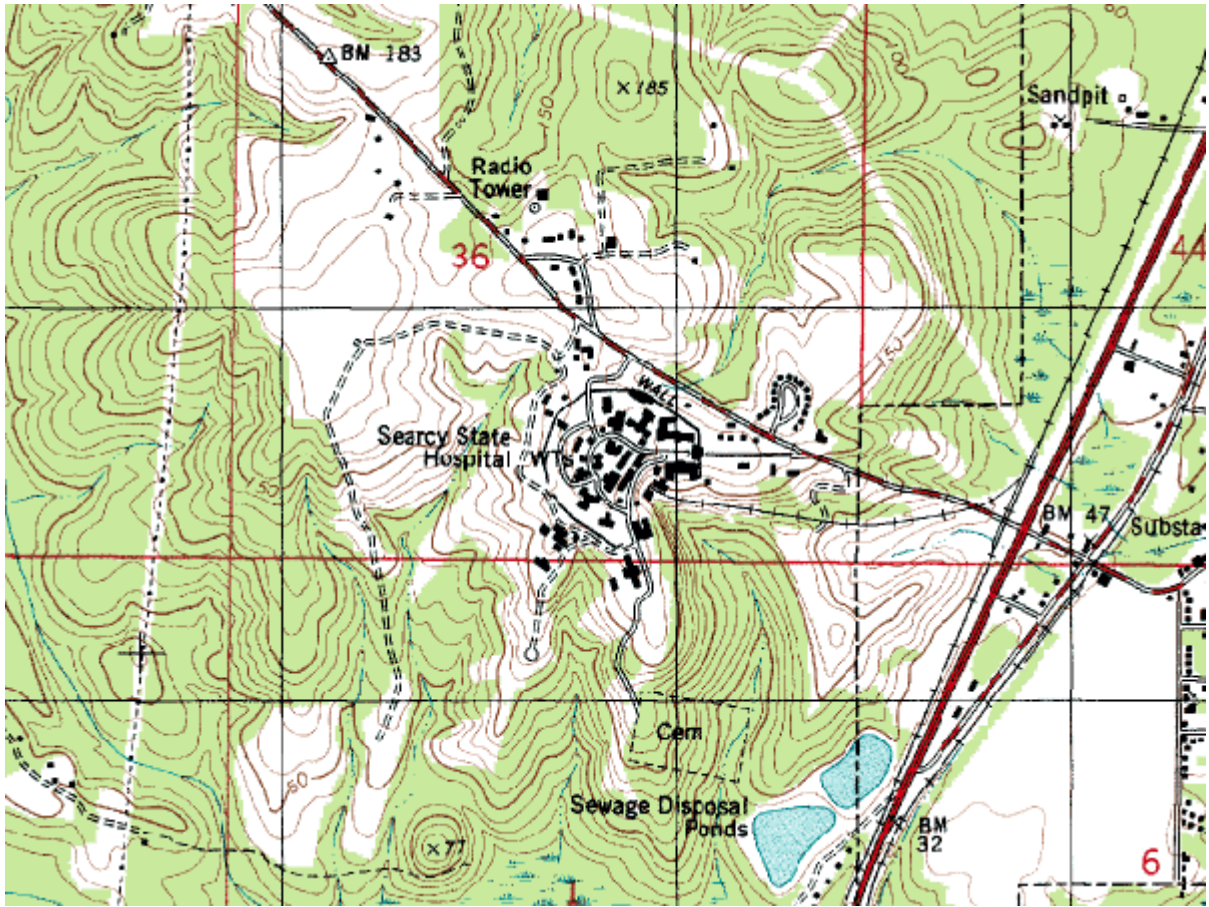
The goal of this study is to document the primary weather observational path at Mount Vernon Barracks, Alabama. Throughout the research for and preparation of this study, the goal was to produce a document that future studies can use to evaluate the validity of the data that were collected here, judge the trustworthiness of the observers who collected them, and determine the climatological significance of the whatever variability may be discerned.

LOCATION OF OBSERVATIONS

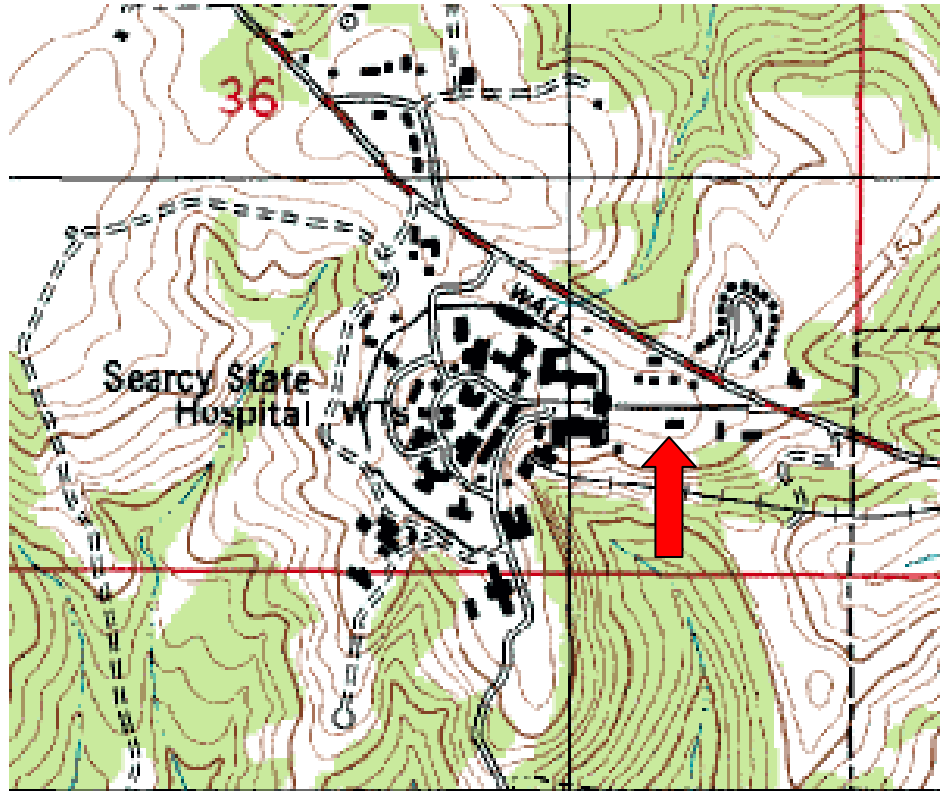
Location maps



Map 1. The location of Mount Vernon Barracks, Alabama. The original name of the facility was Mount Vernon Arsenal. North is to top of map.



Map 2. The topography of Mount Vernon Barracks, Alabama. The Barracks occupied one of the higher points in the area at a little more than 170 feet above sea level. North is to the top of the map. Source: Topozone.com



Map 3. Close-up view of the topography surrounding Mount Vernon Barracks, Alabama. The red arrow indicates the location of the hospital, circa 1890. North is to the top of the map. The contour line just to the south of the building is 170 feet. Source: Topozone.com

Chronology of locations and elevations

The following lists the chronology of weather station locations at Mount Vernon Barracks, Alabama during the period 1840- 1892: (The elevations and latitude and longitude entries derived using U. S. Geological Survey maps as presented on topozone.com. See Map 2.)

1840 – 1860 – Elevation 180+ feet - 31° 05' 17"N, 88° 01' 45"W

- Location of observations unknown, location is center of compound

1873 – 1892 – Elevation 172 feet - 31° 05' 17"N, 88° 01' 33"W

- Hospital

OBSERVERS AND INSTRUMENTATION

1840 – 1892:

U. S. Army surgeons began recording weather observations at Mount Vernon Arsenal in August 1840, a duty they continued until the facility neared closure in 1893. In the first months of observations temperature, wind direction and weather were recorded. By December 1840 rain observations were begun. The exact location of the early observations within the Arsenal has not been determined. Typically the instruments would have been mounted on a north wall or in a window perhaps on a veranda (porch). By 1843 the facility had “standardized” thermometers and rain gage.

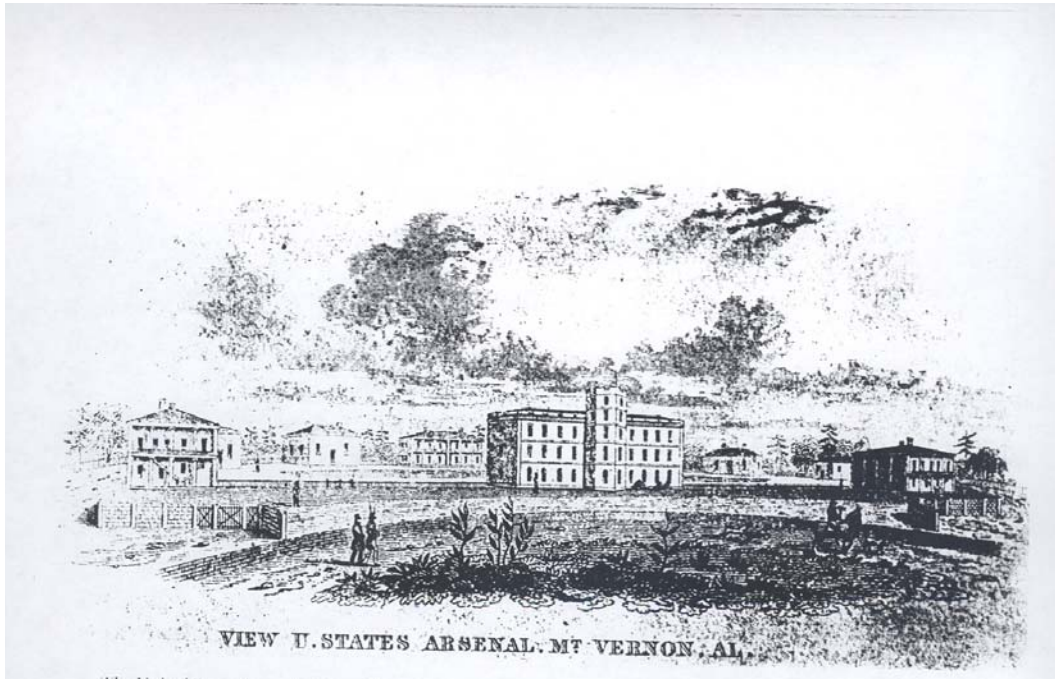


Figure 1. An early view of Mount Vernon Arsenal, Alabama, circa 1838. View is looking northwest.

Source: La Tourette's Map of Alabama, 1838.

The Arsenal/Barracks occupied high ground being situated on a small knoll some 170+ feet above sea level. See Maps 2 and 3 and Figures 1 and 2. The terrain falls off in all directions from the center of the facility. A deep ravine lies to the southeast of the main Arsenal compound, again see Figure 2. A ten foot high brick wall surrounded the compound. Weather observations were recorded at the Arsenal until November 1860.

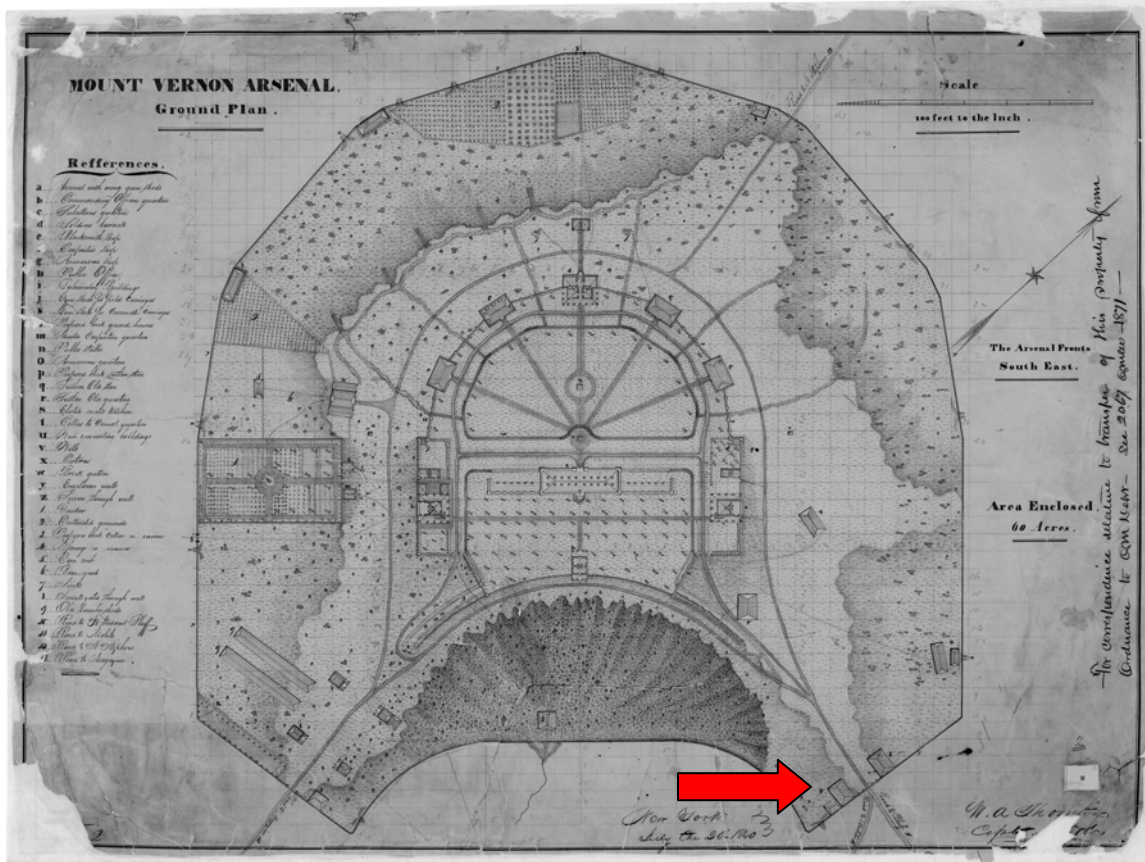


Figure 2. The ground plan for Mount Vernon Arsenal, Alabama, dated 1860. The red arrow indicates the location of the main entrance and the location of the 1870's hospital building which was "proposed" at the time of this drawing. Source: National Archives and Records Administration, Record Group 77, Miscellaneous Forts, File 2.

At the resumption of observations after the civil war, a post hospital had been constructed. The assumption is that the U.S Army surgeons would have been taking observations in the vicinity of the hospital but this has not been documented. The Arsenal's hospital was located just south of the main entrance in a building of the same design as the guard house that it faced. See Figure 2. By the mid-1870's patients had to be removed from this building due to dampness and unfitness. A one-story frame cottage about 30 yards distant (unfortunately no direction was specified) was thus occupied as the Barracks hospital. The name of the facility changed from Mount Vernon Arsenal to Mount Vernon Barracks in 1873.

A hand written note on the observational form of October 1873 (the first available observations after the civil war) indicated that "The only instruments available at this temporary Post for the purpose of this Report are, a Dry & Wet Bulb, and an ordinary Thermometer, and an imperfect Rain Gauge." No observations were found for the period December 1876 through February 1882.

By 1890 a hospital building was constructed southeast of the main entrance of the Barracks and outside the main wall. See Figure 3 and 4.

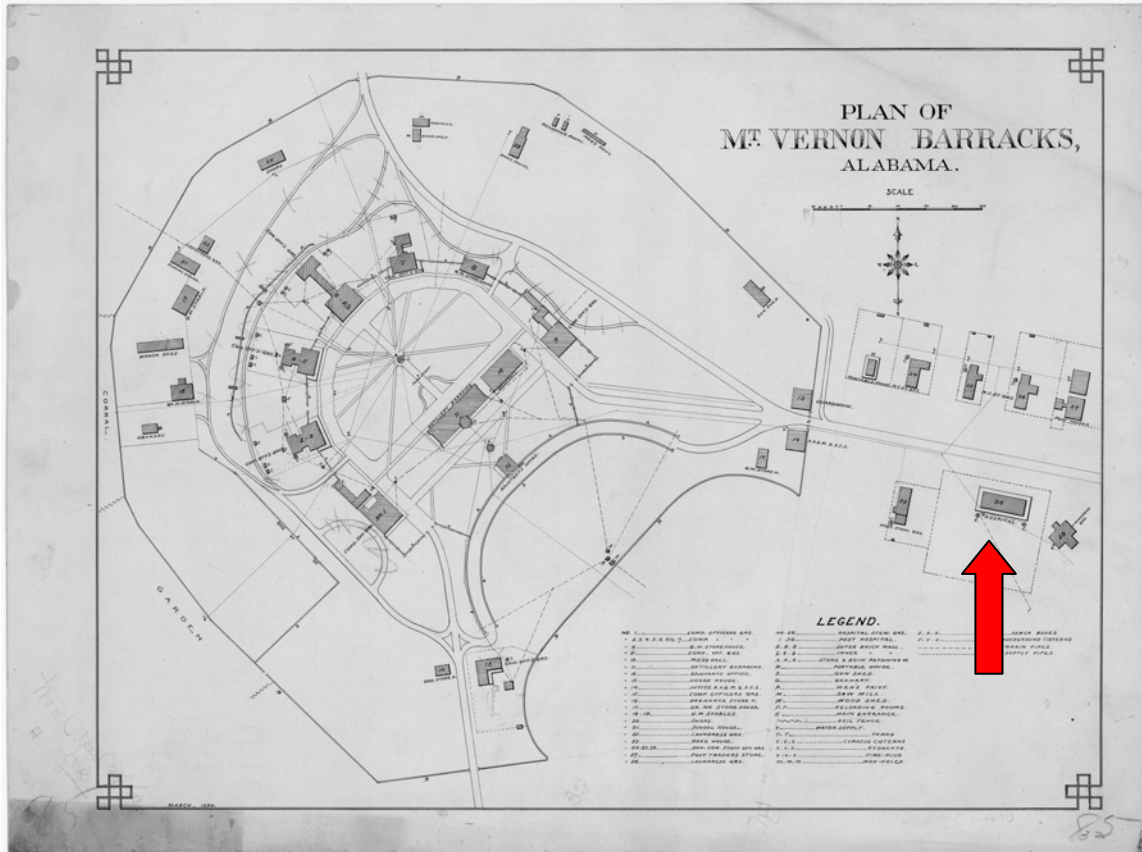
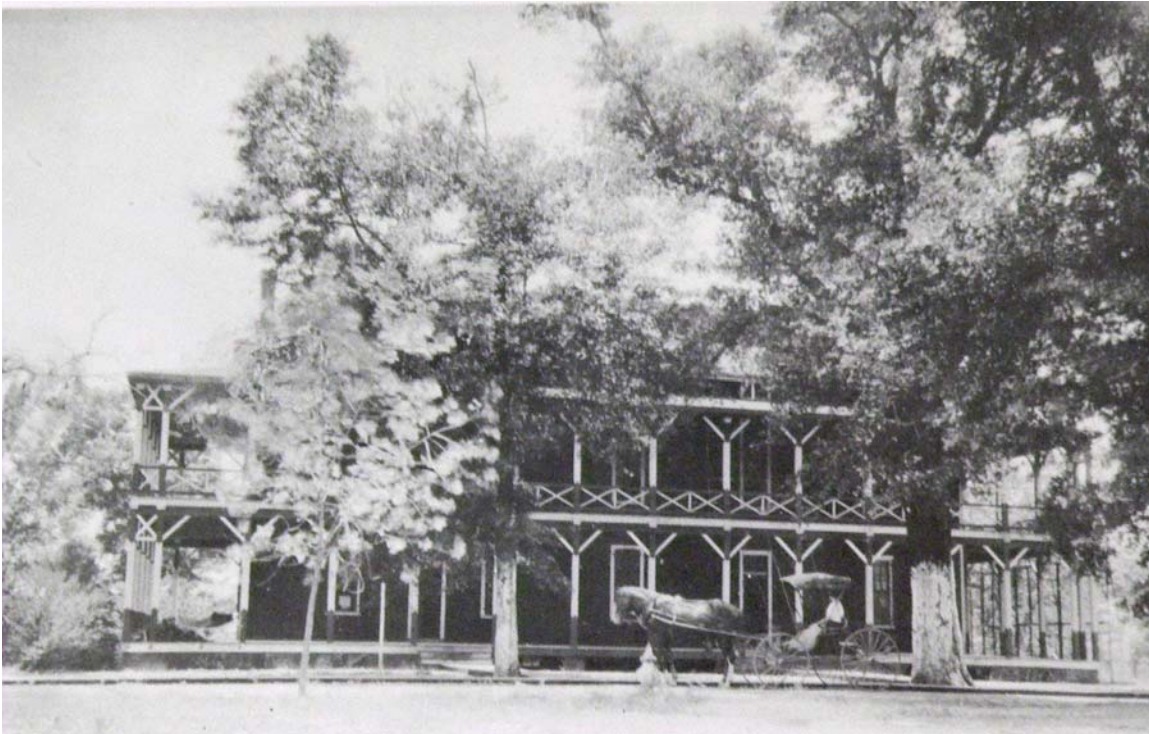


Figure 3. The plan for Mount Vernon Barracks, Alabama, from 1890. Red arrow indicates the location of the hospital.
Source: National Archives and Records Administration, Record Group 92, blueprint file 1.



**Figure 4. The hospital at Mount Vernon Barracks, Alabama as it appeared in 1909. Building faced north northeast.
Source: University of South Alabama Archives.**

The surgeon observers from the 1880's began entering an elevation of 155 feet on their forms. This elevation seems to be in error based on data now available.

Information found in the U.S. Army Signal Service's *Report on Thermometer Exposures* taken in December 1883 indicated that the Barracks now had an instrument shelter located 65 feet from the nearest building. Unfortunately the building was not named nor was a direction from the building indicated. It is believed that this shelter was used beginning in March 1882 and its use continued until observations ceased in February 1892.

The shelter was located such that it was in "... not in the shadow of a tree or building during the year except about one hour after sunrise and about the same length of time before sunset." The thermometer bulbs were five feet above the ground. The shelter was 30 inches in width, 31 inches in depth, and 32 inches in height. It had an open bottom, shingle roof and shingle blinds. See Figure 5. The ground under the shelter was sandy. No information was listed as to which direction the shelter faced.

There is no indication that the Barracks ever had a barometer and thus pressure observations were not recorded.

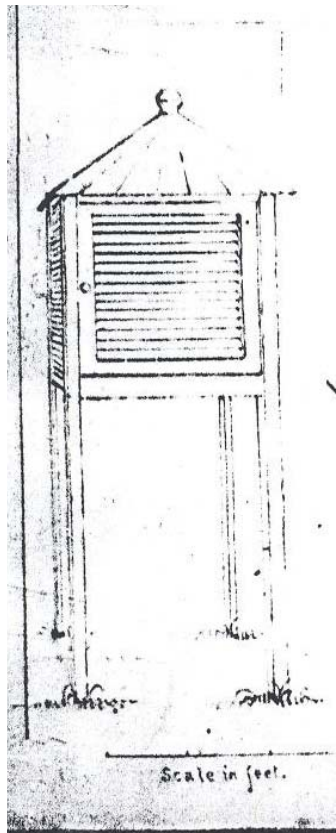


Figure 5. A drawing of the instrument shelter in use at Mount Vernon Barracks, Alabama, December 1883.

Source: U.S. Army Signal Service *Report on Thermometer Exposures*, 1883.

APPENDICES

Appendix 1 – History of Mount Vernon Arsenal and Barracks

The following information was taken from the publication *Searcy – Past, Present and Future*.

“In 1811, a detachment of troops marched from Mobile to Fort Stoddert and laid out a cantonment three miles west of the river at a point known as Mount Vernon Springs. The post was moved to the hills west of the river for health reasons. Yellow fever was prevalent along the rivers and it was hoped the hill site would be a better location.

Local tradition has it that Mount Vernon was established by General Andrew Jackson while he was on his Creek campaign. Although General Jackson did visit Mount Vernon in August 1814, information from the War Department tells us that the Mount Vernon Post was established by troops under the command of Thomas Cushing in December 1811.

No records of activity from the founding of the post are available until the 1820's when the post was designated as a United States Arsenal.

An act of Congress authorized the Mount Vernon Arsenal on May 28, 1828. The act was signed by President Andrew Jackson in 1830.

The arsenal was enclosed by a brick wall, ten feet high and two feet thick, in the shape of a horseshoe. The bricks were all burned to make them more substantial. The wall was also covered with sheet copper to make a stronger fortification.”

“The arsenal was built to support several thousand stands of arms. There were two powder magazines which were built one half mile from the central arsenal. The great supply of arms was necessary for the protection of the country along the Spanish border.”

“On January 4, 1861, the arsenal was seized by orders of Governor [Alabama] Andrew Barry Moore. Four companies of volunteers from Mobile scaled the walls at daylight and took possession before the company of Ordnance men stationed at the arsenal knew anything about it. It was a peaceful take over.

“The arsenal at Mount Vernon was prepared to manufacture equipment for the infantry and artillery. The post was supplied with the necessary machinery and facilities and was producing the various munitions and equipment as required but the work at Mount Vernon was short lived. Although the arsenal was finished with steam power and a good deal of machinery it was considered out of position after the fall of New Orleans and the components were moved to Selma, Alabama.”

After the end of the civil war the arsenal was returned to the Federal Government and on 25 July 1873 the name was officially changed to Mount Vernon Barracks. A small garrison of Infantry, Artillery, and Cavalry were stationed at the Barracks. One of the last operations at the Barracks was the holding of Apache Indian prisoners including Geronimo. He was held at the Barracks for some seven years along with several hundred of his people. They were moved to Fort Sill, Oklahoma, in 1894 and the Barracks was closed at that time.



Figure 6. The Apache Indian Geronimo as seen at Mount Vernon Barracks, Alabama, circa 1889.

Source: University of South Alabama archives

The Federal Government released the reservation to the State of Alabama in 1895. The State established a mental institution at the site in 1900 and by 1902, 320 patients were transferred to the site. The facility is currently known as the Searcy Hospital being named in 1919 for its first superintendent Dr. James T. Searcy.

Appendix 2 – Observer Story – Walter Reed

Walter Reed was born on 13 September 1851 in Belroi, Virginia. He obtained his degree in Medicine from the University of Virginia in 1869 at the age of seventeen, the youngest student to ever graduate from medical school. See Figure 7.



Figure 7. Walter Reed, famous Army doctor and medical researcher. Dr. Reed was an assistant surgeon at Mount Vernon Barracks, Alabama where he recorded weather observations. Date of photograph is unknown.

Source: Walter Reed Army Medical Center (www.wramc.amedd.army.mil)

He joined the United States Army on 26 June 1875 as an Assistant Surgeon and First Lieutenant. He served some 18 years in garrison life serving at Fort Lowell and Fort Apache, Arizona; Fort McHenry, Maryland; Forts Omaha, Sidney and Robinson, Nebraska; Mount Vernon Barracks, Alabama; and finally Fort Snelling, Minnesota. One Reed historian points out “one of the marvels of his life is that his relegation to frontier garrison, unfavorable for intellectual contacts, did not ruin him.”

Captain Reed served at Mount Vernon Barracks from August 1887 until August 1890. His weather observations remain part of America’s weather and climate history. See Figure 8.

METEOROLOGICAL REGISTER

Station: *Mount Vernon Barracks, Ala.* Month: *December*, 18*89*
 Lat.: *31° 6' 21"* Long.: *11° 5' W.* Alt. above sea: *155* ft.

DAY OF MONTH.	TEMPERATURE.			PRECIPITATION.				GENERAL DIRECTION OF THE WIND.
	Maximum.	Minimum.	Range.	Time of Beginning.	Time of Ending.	Total Precipitation.	Depth of Snow-fall.	
1	67	28	39					SE
2	66	20	46					N
3	67	33	34					SE
4	70	40	30					SE
5	73	41	32					E
6	71	43	28					SE
7	70	44	26					SW
8	69	43	26					SE
9	75	46	29					SE
10	74	45	29					S
11	75	42	33					S
12	74	47	27					SE
13	76	45	31					W
14	77	45	32					W
15	77	49	28					SE
16	80	48	32					W
17	76	47	29					W
18	75	55	20					SW
19	78	52	26					SW
20	76	55	21	1 pm	11 pm	0.29		SW
21	76	58	18					S
22	78	51	27					SE
23	76	49	27					S
24	80	47	33					0
25	72	52	20					S
26	76	49	27					SW
27	78	50	28					SE
28	76	57	19					0
29	74	57	17					W
30	58	58	0	7 am	3:12 pm	1.34		SE
31	63	40	23					SE
Total	2279	1446	833			1.63		SE
Mean	73.5	46.6	27					SE

Walter Reed
 Captain, Aft. Surgeon, U. S. Army.

Figure 8. Weather observations for Mount Vernon Barracks, Alabama, as recorded by Captain Walter Reed in December 1889.

Source: Official data files at the National Climatic Data Center

In 1893 Walter Reed was promoted to the rank of Major. In 1900 he was appointed president of a board to study infectious diseases especially yellow fever. Reed was able to determine that yellow fever was carried by mosquitoes and not through other types of contact. A vaccine against yellow fever was not available until 1927 several decades after the death of Walter Reed on 23 November 1902. Walter Reed General Hospital, now Walter Reed Army Medical Center, Washington, DC, opened its doors on 1 May 1909.

Appendix 3 - Methodology

The primary sources of information for this study were the Mount Vernon Arsenal/Barracks observers' daily weather records themselves. Copies of these reports were available from the National Climatic Data Center's on-line system called WSSRD. These reports were considered the primary sources because they were written by the

original observers and not altered by subsequent readers. Additional historical information was obtained from the Searcy Hospital, the University of South Alabama archives, and various web sites dealing with Alabama's rich history.

All these sources were gleaned to obtain a glimpse of the lives of the observers, the location of the observation site, and the historical environment that produced the climatic history of Mount Vernon, Alabama. Maps, drawings, and photographs were included when appropriate to illustrate the information.

The street maps were generated using Microsoft's Streets and Trips software. Elevations, latitude, and longitude were determined from the United States Geological Survey maps available on Topozone.com.

REFERENCES AND DATA SOURCES

Observational forms as found in the National Climatic Data Center archives

Circular No. 8, Report on Hygiene of the United States Army with Description of Military Posts, John S. Billings, Assistant Surgeon United States Army, circa 1875.

Searcy – Past, Present and Future, Belinda Jones, April 30, 1979. Available from Searcy Hospital, Mount Vernon, Alabama.

Personal communications with Robert Erhardt, Assistant Alabama State Climatologist, Mobile, Alabama

University of South Alabama Archives, Mobile, Alabama, Elsie Baldwin archivist.

Report on Thermometer Exposures, U. S. Army Signal Service, 1883.