

**HISTORY OF WEATHER OBSERVATIONS**  
**Austin, Texas**  
**1842-1948**

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NOAA's National Climatic Data Center, Asheville, North Carolina**

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Texas School for the Deaf

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**INTRODUCTION**

**Executive Summary**

U.S. Army surgeons began taking weather observations in the Austin, Texas, area in April 1845. These observations continued off and on until July 1875 at several different locations. In February 1852, Dr. Samuel K. Jennings, Jr. began the long history of civilian observers in Austin. The observations began at a farm south of the Colorado River which later became the site of the Texas School for the Deaf and the second observer, Jacob Van Nostrand, the first Superintendent at the school. Mr. Van Nostrand recorded observations from 1858 until 1876 when De Witt Clinton Baker and his daughter took over the program. Following the Baker's, a series of druggist continued the efforts downtown from 1883 until 1905. From 1905 until 1926 the observations were taken on the campus of The University of Texas at Austin. The Weather Bureau then assumed the observing duties at several sites in downtown Austin including the Littlefield Building and the U.S. Court House. In August 1942, the observing site was moved to the Robert Mueller Airport.

A prominent Austin citizen, Sir Swante Palm, recorded observations from his home in downtown Austin from December 1857 until January 1867. For thirteen years, 1890-1903, Dr. Q. Cincinnatus Smith recorded observations from his office in downtown Austin.

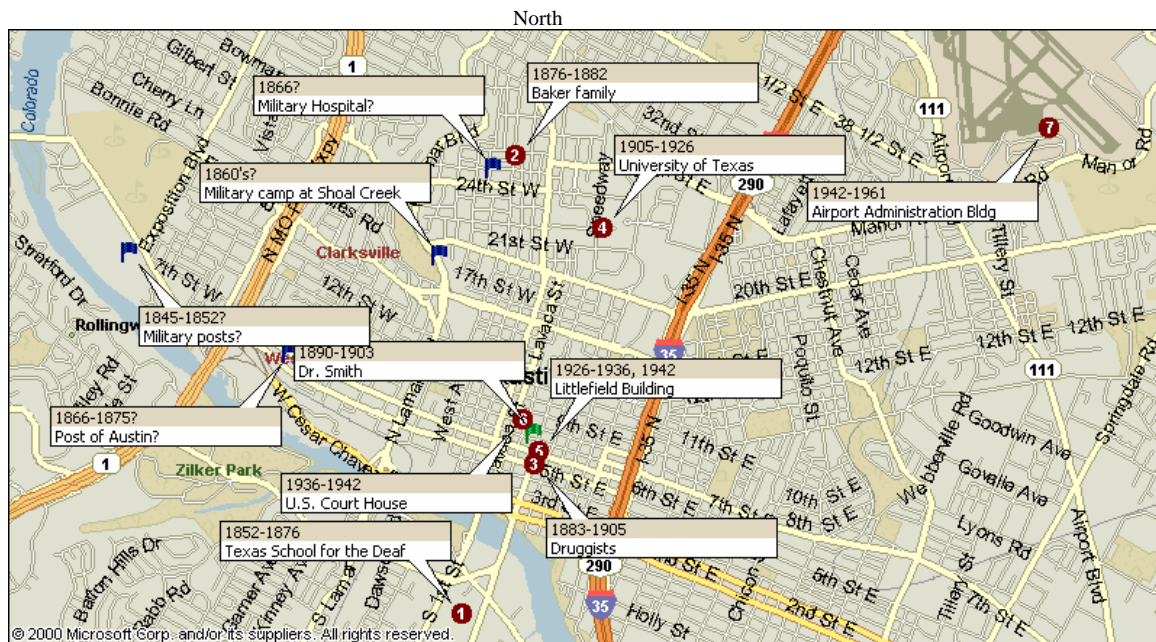
**Goal of Study**

The goal of this study is to document the primary weather observational path at Duluth, Minnesota, leading to the current and on-going National Weather Service observing program. The challenge was to identify and define the roots of the path that began in the 1870s. Though other weather observers have been in the Duluth area those not considered part of the original path have been excluded from this study. This does not minimize the importance of these collateral observations, but does allow for the focusing on the formal weather observing program that continues to this day.

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 any variability or change discerned.

## LOCATION OF OBSERVATIONS

### Location Map

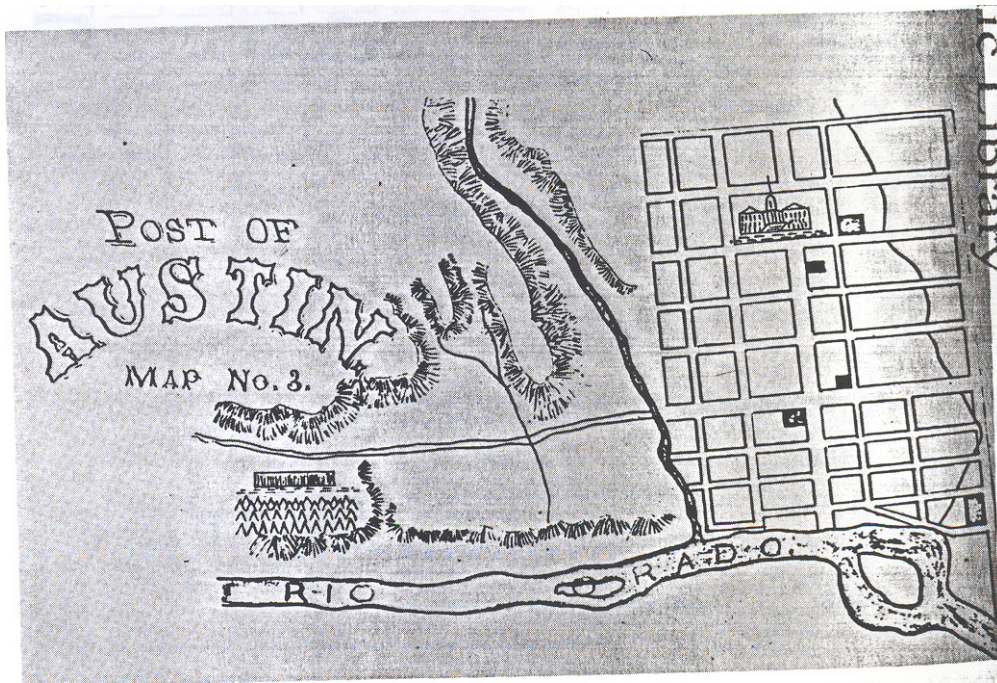


Map 1. The location of weather observing sites at Austin, Texas, 1845-1961

### Location Descriptions

#### *Military Locations*

From the book *The Old Army in Texas*, we learn that the U.S. Army's presence in Austin covered the periods of 1845-1846, 1848-1852, and 1865-1875 at a series of locations called the Austin Arsenal, Camp Austin, Camp Maxwell, Post of Austin, and Camp Sanders. The first presence was at a site on the east bank of the Colorado River on the west edge of Austin occupied from October 1845 until June 1846. The site was reoccupied in November 1848, serving as a supply depot in the antebellum and post-Civil War eras and was the headquarters for the District of Texas and Department of Texas until abandoned in November 1875. A hand drawn map, Figure 1, was located which presents a rough indication of the location for the Post of Austin following the Civil War.



Map of War Department showing layout of army headquarters and bull pen after Civil War.

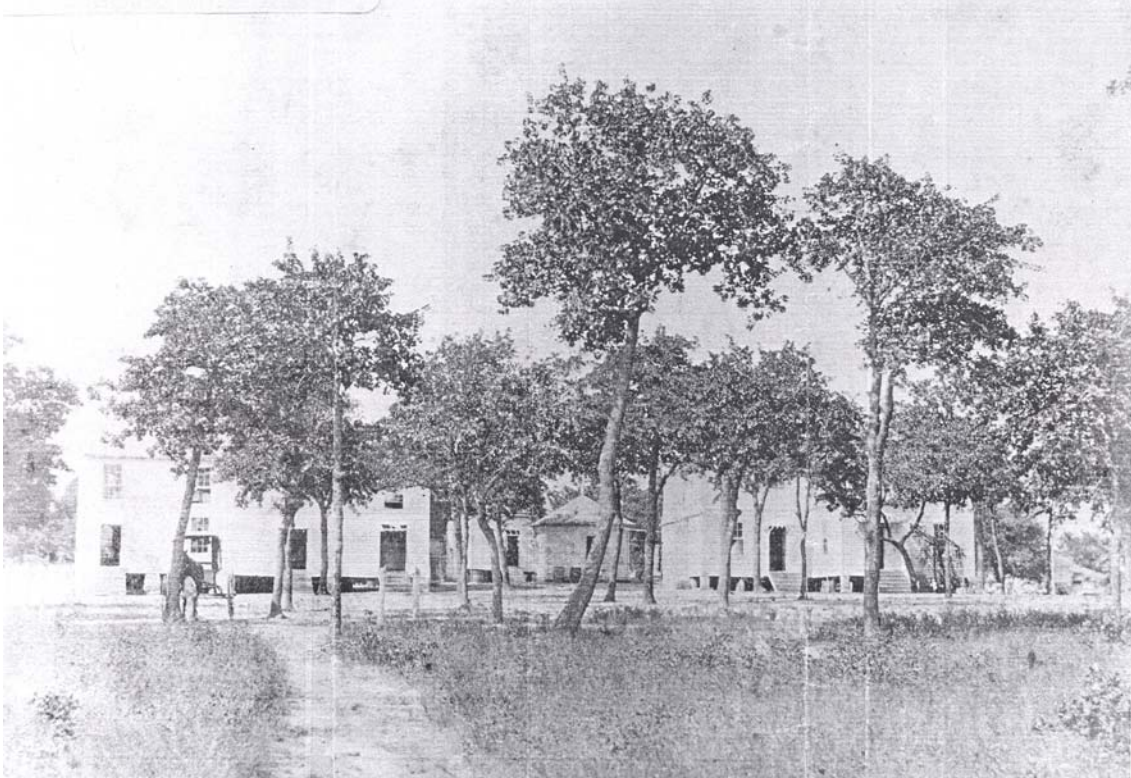
**Figure 1. The location for the Post of Austin, exact date is unknown.**  
**Source: *History of Travis County and Austin, 1839-1899*, Austin History Center, Austin Public Library.**

Another indication of the military presence in Austin was listed in *History of Travis County and Austin, 1839-1899*. It reads “In the spring of 1866, when the volunteers were mustered out, the 6<sup>th</sup> Cavalry broke up camp on Shoal Creek and moved west of there where they set up their small city with its own streets. It was located around the West Sixth Street area, north and east of the underpass. On the hills there they had the drainage they desired, with water available for their stock from the river, and from the ravines on both sides which ran into the river.” Further it states “The commanding officer conducted his business in town, and the hospital was moved from the Neill-Cochran place to a building on West Pecan [now 6<sup>th</sup>].” The Neill-Cochran residence is located at 2310 San Gabriel and is currently a historic house museum. An entry on the October 1866 observing form lists the observer as “In Charge of Hospital” indicating that the surgeon observer was indeed at a hospital.

### *Civilian Locations*

Dr. Samuel K. Jennings, Jr., having just arrived in Austin from Alabama, began taking weather observations in February 1852. He continued this effort through August 1857. He had bought and improved property on the south side of the river. The property had a two-room frame cottage, a smokehouse, and three one-room log cabins. The

Jennings' farm was sold to the State of Texas becoming the site of the Texas Institute for the Deaf and Dumb (later the Texas School for the Deaf) in 1858. In September 1857, the first Superintendent for the Institute, Jacob Van Nostrand, began taking observations (Figure 2.) The address for the School is now 1102 South Congress Avenue.



**Figure 2. The Texas School for the Deaf as it appeared in the summer of 1872.  
Direction of view is unknown.**

**Source: *Views of Austin and Vicinity*, W. J. Oliphant, photographer, as provided by the Austin History Center, PICA 06675.**

Mr. Van Nostrand continued to record weather observations at the Institute until February 1876. In March 1876, De Witt Clinton Baker undertook the role as observer. His first form was actually begun by Jacob Van Nostrand (Figure 3.)



219  
✓ 98

REGISTER OF METEOROLOGICAL OBSERVATIONS,  
UNDER THE DIRECTION OF THE SMITHSONIAN INSTITUTION, ADOPTED BY THE COMMISSIONER OF AGRICULTURE FOR HIS ANNUAL REPORT. 70

Place of Observation: San Gabriel del Norte, County of San Diego, State of Texas  
 Latitude 30 29; Longitude 97 46; Height above the sea: 650 ft.  
 Name and address of Observer: ~~Edwin Nostrand, Austin, Texas~~  
DWG Baker, Austin, Texas For the month of March, 1876

Part of Month	THERMOMETER IN THE OPEN AIR				RAIN AND SNOW				CLOUDS						WINDS			Dir or Barom.
	7 A.M.	9 P.M.	5 P.M.	Max.	Time of beginning of rain or snow	Time of ending of rain or snow	Amount of rain or melted snow by gauge, by inches	Depth of snow, in inches	5 A.M.	9 A.M.	1 P.M.	5 P.M.	9 P.M.	7 A.M.	9 P.M.	9 P.M.		
								Amount of clouds	Kind of clouds	Force or extent of clouds	Direction	Force or extent of clouds	Direction	Force or extent of clouds	Direction	Force or extent of clouds		
1	67							10	Str.	10				NE	1		1	
2																	2	
3																	3	
4																	4	
5																	5	
6																	6	
7																	7	
8																	8	
9																	9	
10																	10	
11	69	52	50	55										SW 2	3	SW 2	11	
12	36	54	43	44										North		North	12	
13	39	61	54	39													13	
14	53	60	63	59	6 am		0.00	10						East			14	
15	65	74	54	61													15	
16	43	63	53	53										North 6			16	
17	59	73	53	57													17	
18	40	65	50	49										North 6			18	
19	50	56	47	50	4 am	noon	.15	10	Str.	10		10	East 2	North 7	North 7	19		
20	39	45	35	36													20	
21	38	60	47	46										South 2			21	
22	47	63	58	56										SW 2			22	

*Observation kept during the time since the 1st but our rain meter this 5th*

**Figure 3. Austin, Texas, observation form from March 1876. Notice that observer name, “Van Nostrand, Austin Texas” has been lined through by the new observer, “DWG Baker, Austin, Texas.”**  
 Source: National Climatic Data Center archives.

The exact location for Mr. Baker’s observations is not known though he had retired from the drug business in 1875 the year before he began taking observations. Perhaps he took observations at his residence at 2620 San Bernard Street, now known as Rio Grande Street. He died in April 1881. In June 1881, and continuing through March 1882, Mr. Baker’s daughter, Lilly Baker, assumed the observer duties. No observations were found for the period April 1882 through July 1883.

In August 1883, a druggist by the name of Oscar Samostz began taking observations at his office at 524 Congress Avenue (see Figure 4.) Mr. Ernst Krueger, a clerk for Mr. Samostz, and later for the J.H. Chiles drug store, assumed the observing duties in June 1891 at the same Congress Avenue location. William R. Neville, Jr., another employee of the drug store, continued the observations from August 1897 until March 1905.



**Figure 4. The 500 block of Congress Avenue in downtown Austin, Texas, as it appeared the late 1800's. Weather observations were taken at 524 Congress Ave from 1883-1905. Direction of view is unknown.**

**Source: Austin History Center, PICA 01392.**

The observing site was moved to The University of Texas at Austin campus in April 1905 where observations continued to be taken through June 1926. The observers appear to be employees of the Engineering Department or the Geology Department. The observation site was the Engineering Building (Figure 5.) There is some indication that the observing site might have moved in April 1923 and again in April 1924, however, no documentation has been located that gives the address for these new locations. The observers at the University included Alexander Deussen, April 1905 to October 1915 and June 1916; Waldemar Fredrick Henniger, November 1915 to May 1916; Fred Morris, July 1916 through November 1922; and Harold Hertig Henderson, January 1923 through June 1926.



**Figure 5. A view of The University of Texas at Austin campus in 1904. Photograph was taken from the Texas Capitol Building looking north. The Engineering Building is the first building to the right of Old Main, the large building in the center of the picture.**

**Source:** *The University of Texas, A Pictorial Account of Its First Century.*

On 15 October 1926, the U.S. Department of Agriculture's Weather Bureau established an observational program at the Littlefield Building in downtown Austin. The building was at the corner of Congress Avenue and 6<sup>th</sup> Street, and the offices were located on the ninth floor in room 901 (Figure 6.) Observations were recorded at this location until 7 October 1936, when they moved to the U.S. Court House located at 200 West 8<sup>th</sup> Street, in room 408 (Figure 7.) On 2 February 1942, the observations were moved back to the Littlefield Building being located in rooms 801-807.



**Figure 6. Weather Bureau location in Austin, Texas, 23 March 1932. View is looking north up Congress Avenue towards the Texas State Capitol. Source: Official station history files at the National Climatic Data Center.**



**Figure 7. The U.S Court House in Austin, Texas. The Weather Bureau occupied several rooms in the building, as marked with an “x”, from October 1936 until February 1942. Photograph taken March 2, 1942. Building faces south. Source: Official station history files at the National Climatic Data Center.**

As aviation grew in America, the observing programs gradually moved to the airport in order to better support the effort. In Austin the Weather Bureau moved to the Robert Mueller Airport in August 1942 occupying space in the Administration Building (Figure 8.) The observing program remained at this location until 1961.



**Figure 8. The Austin, Texas, Robert Mueller Municipal Airport in November 1943.  
Direction of view is unknown.  
Source: Official station history files at the National Climatic Data Center.**

## INSTRUMENTATION DESCRIPTIONS

### Military Instruments

Information is very limited concerning the weather instruments used by the U.S. Army in Austin. One might assume that the observers had some type of standard set of instruments as issued by the Army. A note on the July 1849 observing form states “no barometer at this post” but other than this no other information has been uncovered.

### Civilian Instruments

The first mention of instrumentation is a Weather Bureau “Description of Voluntary Observer’s Station and Instruments” form dated 2 October 1897. William R. Neville lists the elevation as 700 feet, based on county surveyors, with the thermometers on the north side of the building housed in a “2 inch board” shelter located in a second story window. The rain gage was located on the top of the house which had a flat roof being a two story building.

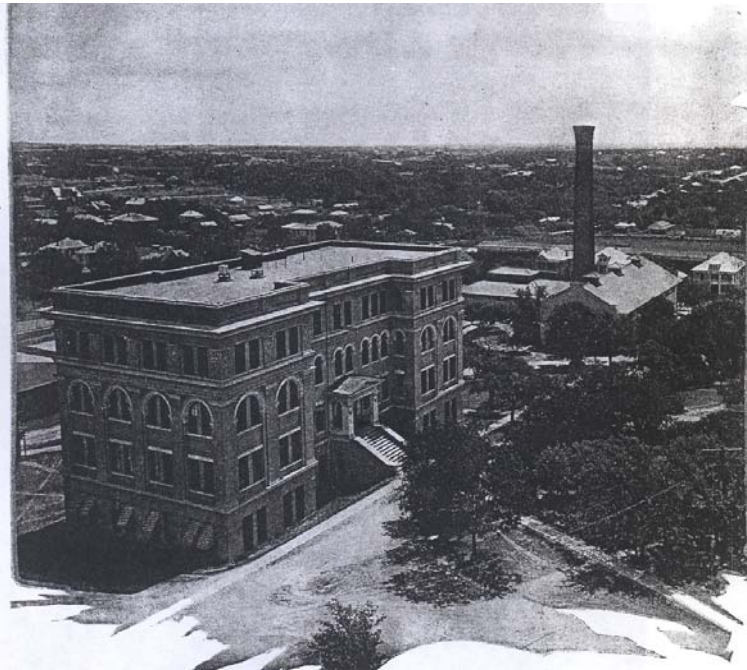
The next available Weather Bureau instrument form, dated 2 May 1904, lists an elevation of 508 feet based on U.S. Geological Survey. The shelter is “that furnished by govt” being located above first story to side of house. The rain gage was a Weather Bureau model located on the roof. William R. Neville was the observer.

The 7 February 1906, Weather Bureau instrument form was prepared by Alexander Deussen at The University of Texas. The elevation given is 593.772 feet above sea level. The thermometers were Drafer thermographs checked with a centigrade standard. The shelter was a regulation shelter prepared by Drafer Mfg. Co. The rain gage in use was a Drafer Pluioimeter. The shelter was located on the north side of Engineering Building, shelter opening towards the south. The rain gage was on the roof of Engineering Building, with the roof about 80 feet above ground. The building is now the oldest building on the campus of the University, currently known as the Dorothy Gebauer Building.

By 26 February 1918, the shelter had been moved to the roof (gravel) of the building, 74 feet above ground (Figure 9.) The rain gage was also on the roof some 74.5 feet above ground. The bottom of the instrument shelter was four feet above the roof and the top of the rain gage was four and a half feet above the roof. It was noted that the “University has practically complete outfit, with barometer, barograph, thermograph, anemometer, self-recording raingage, s.s. [sunshine] recorder, two-magnet register, Friez make.”

From April 1923 until October 1926, the *Local Climatological Data, Annual Summary for Austin, Texas* lists the instrument shelter as being at eight feet above the ground and the rain gage at three feet above ground. However, the LCD also notes that

the site moved twice although the location is still listed as the Engineering Building. This remains a mystery.



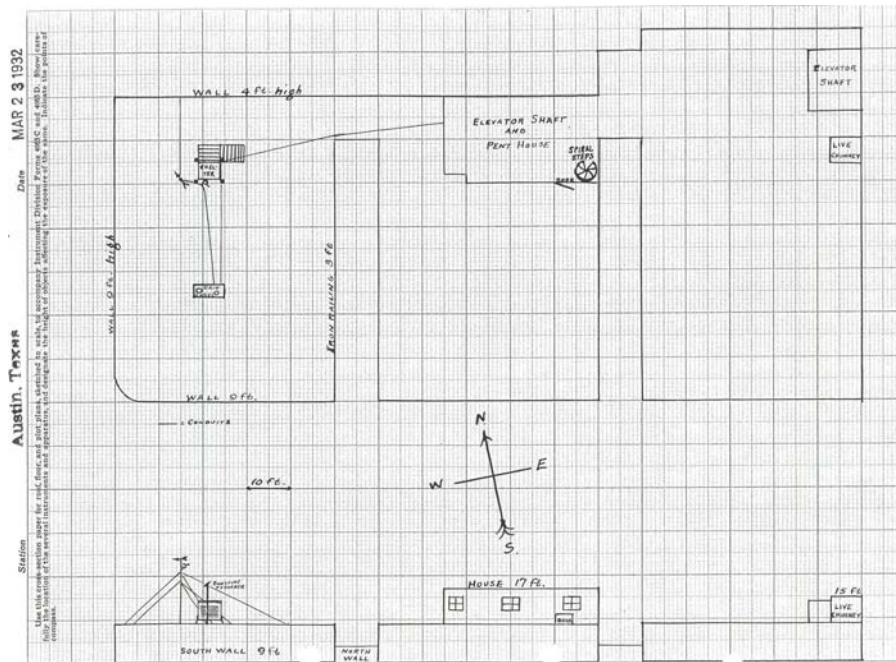
**Figure 9. The Engineering Building on the campus of The University of Texas at Austin in 1917. Notice instrument shelter on roof of building, the leftmost object on the roof. Direction of the view is unknown.  
Source: Engineering Library, The University of Texas at Austin**



**Figure 10. The suite of weather observing instruments on the roof of the Littlefield Building in Austin, Texas, as of March 1932. View is looking west northwest. Source: Official station history files at the National Climatic Data Center.**

On 15 October 1926, the observational program moved to the Littlefield Building. As clearly shown in Figures 10 and 11, the instruments were placed on the roof of the Littlefield Building. The elevation of the building is 495 feet above sea level per the *Local Climatological Data*, however, the entry on the first 1926 observational form indicates an elevation of 605 feet. The wind instruments were at 148 feet above ground level, the thermometers at 135 feet, and the eight-inch rain gage at 128 feet.





**Figure 11. A schematic drawing showing the location of the instruments on the roof of the Littlefield Building in Austin, Texas, March 1942.**

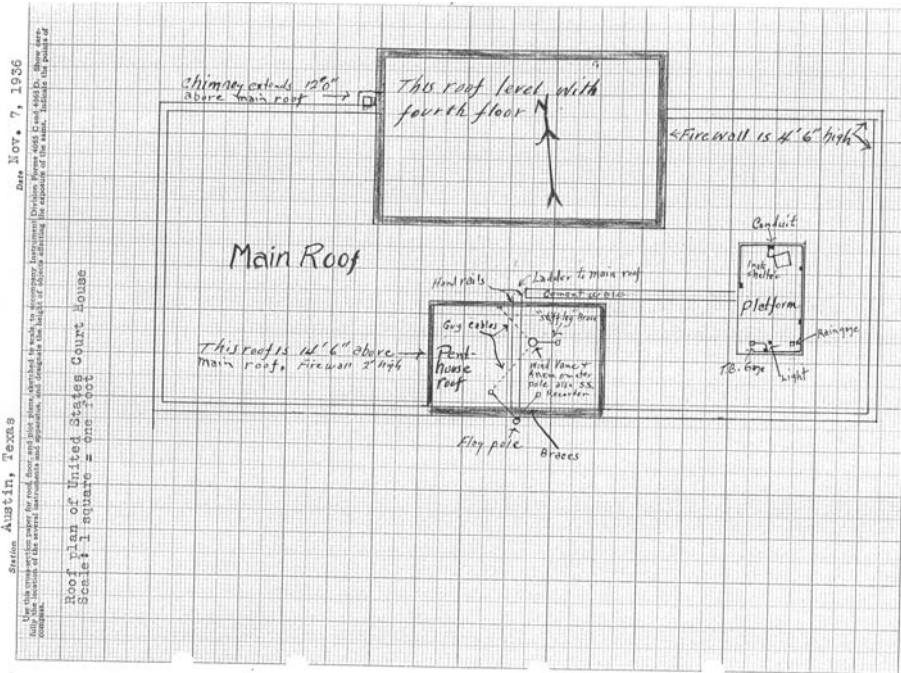
**Source: Official station history files at the National Climatic Data Center.**

Figure 12 shows the instruments on the roof of the U.S. Court House one month after observations began at this location in October 1936. The ground elevation is listed at 540 feet with the wind instruments 79 above ground level, the thermometers at 66 feet, and the eight-inch and tipping bucket rain gages at 60 feet. Figure 13 gives further details as to the placement of the instruments on the roof of the Court House.



**Figure 12. A view of the weather instruments above the U.S. Court House, Austin, Texas, in November 1936. The view is looking southeast.**

**Source: Official station history files at the National Climatic Data Center.**



**Figure 13.** A schematic drawing showing the instruments on the roof of the U.S Court House in Austin, Texas, November 1936.

Source: Official station history files at the National Climatic Data Center.

From February through October 1942 the observing site returned to the Littlefield Building. The instruments were again located on the roof of the building as previously detailed. A March 1942 view of the instruments is shown in Figure 14.

Upon the move to the airport in August 1942, the exposure for the instruments was very different than in previous years. The instruments were located at ground level except for the anemometer which was located on the roof of the administration building at 41 feet until 13 September 1957 when it was lowered to 32 feet. The thermometers were at six feet above the ground and the rain gages at three feet. Field elevation is listed at 615 feet (Figure 15.)



**Figure 14. The roof location of the weather instruments on the Littlefield Building in Austin, Texas, as of March 1942. View is looking north.  
Source: Official station history files at the National Climatic Data Center.**



**Figure 15. The location of the weather instruments at the Robert Mueller Airport, Austin, Texas, in November 1943. View is looking southeast.  
Source: Official station history files at the National Climatic Data Center.**

## APPENDICES

### Appendix 1 – Observer Stories

Though not strictly part of the location and instrumentation history of weather observing, the story of the men and women that dedicated so much time and energy in the recording of the observations cannot be over looked. The story of several observers from Austin, Texas, clearly shows the passion they had for observing and a great curiosity of the weather in general. Little did they know that their efforts at faithful observing would become part of Austin's and America's climatological history.

#### *Samuel K. Jennings, Jr., M.D.*

As early as 1849, Dr. Jennings was a Smithsonian Institution observer in Orrville, Alabama. Dr. Jennings moved to Austin, Texas, from Alabama in 1852. His recording of observations in Austin must have begun almost immediately as the first records are from February 1852. As mentioned earlier, he bought and improved a farm on the south side of the Colorado River across from the growing city of Austin. He returned to Alabama prior to the Civil War. Upon his return to Orrville he again continued his practice of observing for the Smithsonian Institution. Dr. Jennings' observations continued through 1871.

#### *Jacob Van Nostrand*

In January 1857, the Texas Institution for the Deaf and Dumb (now the Texas School for the Deaf) was opened with four pupils. As no superintendent or principal was initially available, a search was made for a person to fill this position. Dr. Harvey P. Peet of the New York Institution influenced the Board of Trustees to appoint Professor Jacob Van Nostrand, one of the head teachers of that school, as Superintendent. He left New York City in the spring of 1857 leaving his wife and only daughter behind. He arrived in the May, traveling to Galveston, Texas, via steamboat and then to Austin by stage, a trip of more than a week. There was no bridge to across the Colorado River from Austin to the Institution so the crossing was made in a ferry boat. Mrs. Van Nostrand and their daughter arrived in Texas in the summer of 1858 but being very delicate and frequently sick she returned to New York in 1860. The 1860 census for Travis County, Austin, lists Jacob Van Nostrand as being 46 years of age, his wife H. J. Nostrand, age 27 and a daughter, T. S. Nostrand, age 11, plus thirty students of various ages.

The location of the Institution was originally leased from Dr. Samuel K. Jennings, Jr. but in 1858 the land was purchased by the state for \$5,500. The first school house was an old smoke house. There was a dwelling house that contained two rooms, each serving as a dormitory, one for boys, the other for girls. There were three one-room houses used by the Superintendent, a laundry, and a kitchen. Over time the buildings were enlarged

but it wasn't until after the Civil War that a two-story brick house was built serving as a kitchen and a girl's study hall.

When State funding was scarce, Prof. Van Nostrand would aid the State in supplying clothing and other necessities from his own income expecting to be repaid. However, he was removed from his office in the spring of 1876 by the Governor for being a Republican. He was not repaid the two thousand dollars owed him. He returned to New York and his family who he had not seen since they had left Austin in 1860. A few years after his return, he died of typhoid fever.



**Figure 16. Photograph of Professor Jacob Van Nostrand. He was the Superintendent at the Texas Institution for the Deaf and Dumb serving from 1857 until 1876, and was the second civilian weather observer in Austin, Texas, serving from January 1858 until February 1876. Source: Texas School for the Deaf archives.**

### *Sir Swante Palm*

Swante Palm was born in 1815 in southern Sweden. He grew up on a farm but was more interested in books than farming. His mother arranged for the village pastor to tutor him in reading, writing, and music. At the age of twenty he left home, serving as penman and secretary for various government officials, eventually becoming a newspaper reporter. Palm wrote some highly critical essays against King Charles IV of Sweden and in 1844, after finding disfavor with the king, he moved to Texas to join his nephew.

Settling first in Galveston he served as a bookkeeper in his nephew's retail store. Soon he was the postmaster in Galveston. Due to the importance of the Texas state capitol, the business was moved to Austin and Swante Palm took over the business. In 1853 he traveled to Panama serving as the secretary to Colonel Thomas W. Warden, the newly appointed consul to Panama. After one year he returned to Austin, marrying his Swedish sweetheart who had recently arrived in America. He returned to the business and built a home in downtown Austin. Here he began collecting books from around the world.



**Figure 17. Ink drawing of Sir Swante Palm, August 1888. Sir Palm, 1815-1899, was a weather observer in Austin, Texas, from 1857 until 1867.**

**Source: American Center for American History, The University of Texas at Austin.**

Palm enjoyed the company of other thinkers, joining several scholarly organizations. In 1858, when the Texas legislature named a group of scientists to make the first Geological Survey of Texas, Palm was chosen meteorologist at Austin. His duty was to find some formula for predicting Texas weather. After two years of fruitless study, he concluded that “the chief characteristic of weather in Texas is not variety, but surprise.”

In 1866, Palm was elected to the City Council and the Swedish government named him Vice-Consul for Norway and Sweden. He ran for postmaster in Austin in 1869 and won. In 1883 King Oscar II knighted him with the Order of Wasa, an honor not conferring the title of “Sir” but in the wilds of Texas he soon became known as Sir Swante Palm. During his visit to Sweden to be knighted, Palm purchased 4,000 books.

The one room house soon became too small to hold his growing collection of books so he added two additional rooms. At the age of 82, Palm decided to give his books to The University of Texas at Austin almost doubling the holdings of the University’s library. He spent the last two years of his life cataloging all 10,200 books so they would be more useful to the students. The Palm Library exists to this day. Sir Swante Palm died in 1899.

### ***Alexander Deussen***

Alexander Deussen was born in San Antonio, Texas, in 1882. He was educated at the German-English Grammar School and the San Antonio High School. He obtained a Bachelor’s Degree from The University of Texas in 1903 and his Master’s Degree in 1904. He became a member of the University faculty teaching geology for ten years. From 1907 through 1915, he held the position of assistant geologist, United States Geological Survey. In 1916, he opened his own consulting geologist firm in Houston. In 1924 he initiated and directed the operations of the first seismograph party that undertook to explore the Gulf Coastal Plain. He made significant contributions in the establishment of numerous Texas oil fields. He became known widely as the “dean of Gulf Coast petroleum geologists.”



**Figure 18. Photograph of Alexander Deussen. Mr. Deussen, 1882-1959, served as a weather observer at The University of Texas at Austin, 1905-1916.**  
**Source: *Bulletin of the American Association of Petroleum Geologists*, 1960.**

Throughout his adult life Deussen kept a diary. This diary revealed the author to be painstaking, precise, and detailed. It recorded each days activities fully and conscientiously; the time he arose; the weather; the business of the day; the time he went to lunch; etc. Alexander Deussen died in 1959, contributing much to the climatological history of Austin.

## **Appendix 2 - Methodology**

The primary sources of information for this study were the Austin observers' daily weather records themselves. Copies of their monthly reports were available from the National Climatic Data Center's on-line system called WSSRD. The monthly reports can be considered primary sources because they were written by the observers and not altered by subsequent readers. Station history files at the Data Center also provided details as to station and instrument history.

A variety of secondary sources held information about the city and its weather observers including the Austin History Center, The Center for American History, and the Texas School for the Deaf.

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

Street maps were generated using Microsoft's Streets and Trips software.



## REFERENCES AND DATA SOURCES

Observational forms as found in the National Climatic Data Center archives

Station history forms as found in the National Climatic Data Center files

*The Old Army in Texas, A Research Guide to the U.S. Army in Nineteenth-Century Texas*,  
by Thomas T. Smith

*History of Travis County and Austin, 1839-1899*, by Mary Starr Barkley  
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