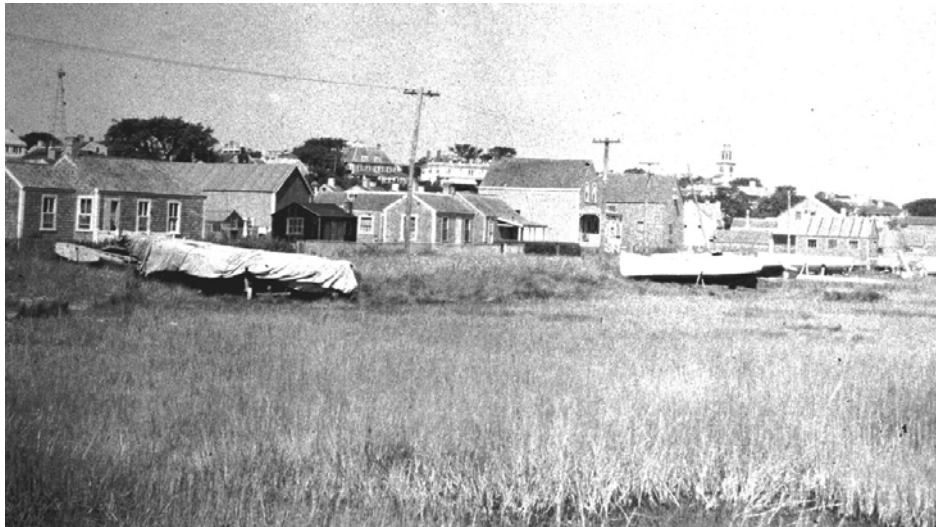


# **THE HISTORY OF SURFACE WEATHER OBSERVING IN NANTUCKET, MASSACHUSETTS, 1827-1970**



**Nantucket, MA, 1929.** From the Nantucket Historical Association (P13-85)

**MARCH 2005**

**Prepared by:  
Stephen R. Doty  
Information Manufacturing Corporation  
42 Treetop Drive  
Arden, North Carolina**

**This report was prepared for the Midwestern Regional Climate Center  
under the auspices of the Climate Database Modernization Program,  
NOAA's National Climatic Data Center, Asheville, North Carolina**

## **Executive Summary**

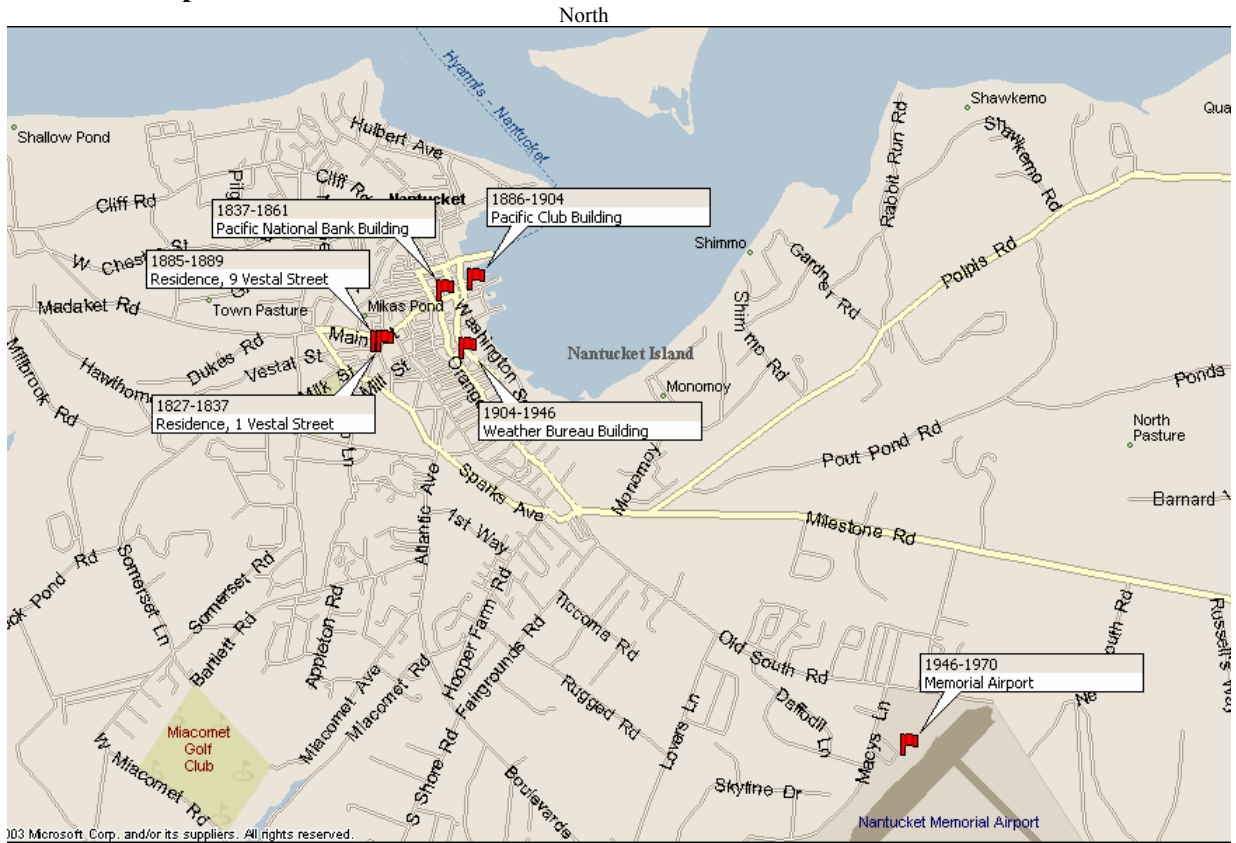
The long history of weather observing on Nantucket begins in 1827 when Mr. William Mitchell began recording systematic observations from his home on Vestal Street and later from the Pacific National Bank on Main Street. He continued this effort until September 1861. Mr. Henry Paddack picked up the duties in August 1885, continuing until February 1889, from a location at 9 Vestal Street. The United States Army Signal Service began the first formal observing program on October 18, 1886, after the island had been connected to the mainland by the first telegraph cable that had been installed earlier that year. The United States Weather Bureau assumed the duties in September 1891 remaining at the Pacific Club Building at the foot of Main Street. On November 8, 1904, the program moved to the newly constructed Weather Bureau Building at 46 Orange Street. With the growing demand for weather support for aviation, the observing location was moved to the airport on April 11, 1946. The location was moved slightly in April 1952, and the program was turned over to the Federal Aviation Administration on November 14, 1970.

## **Goal of Study**

The goal of this study is to document the primary weather observational path at Nantucket, Massachusetts, leading to the current and on-going weather observational program on the island.

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 Map



Map 1. Location of weather observing sites in Nantucket, Massachusetts, 1827 to 1970.

The following lists the chronology of weather station locations in Nantucket, Massachusetts, from 1827 until 1970.

1827 – September 1861 – Smithsonian volunteer observer (beginning in 1849) -  $41^{\circ} 17'N$   
 $70^{\circ} 06'W$  – Elevation 30 feet

- William Mitchell – Vestal Street and Pacific National Bank Building on Main Street

August 1885 – February 1889 – cooperative observer -  $41^{\circ} 17'N$   $70^{\circ} 06'W$  – Elevation 47 feet

- Henry Paddack – 9 Vestal Street

October 1886 – November 1904 – U.S. Army Signal Service/U.S. Weather Bureau -  $41^{\circ} 17'N$   $70^{\circ} 06'W$  – Elevation 8 feet

- Pacific Club Building at the foot of Main Street

November 1904 – April 1946 – U.S. Weather Bureau - 41° 17'N 70° 06'W – Elevation 35 feet

- Weather Bureau Building at 46 Orange Street (originally listed as 94 Orange Street)

April 1946 – April 1952 – U.S. Weather Bureau - 41° 15'N 70° 04'W, Elevation 48.98 feet

- Memorial Airport

April 1952 – November 1970 – U.S. Weather Bureau/National Weather Service - 41° 15'N 70° 04'W, Elevation 43 feet

- Memorial Airport, Administration Building

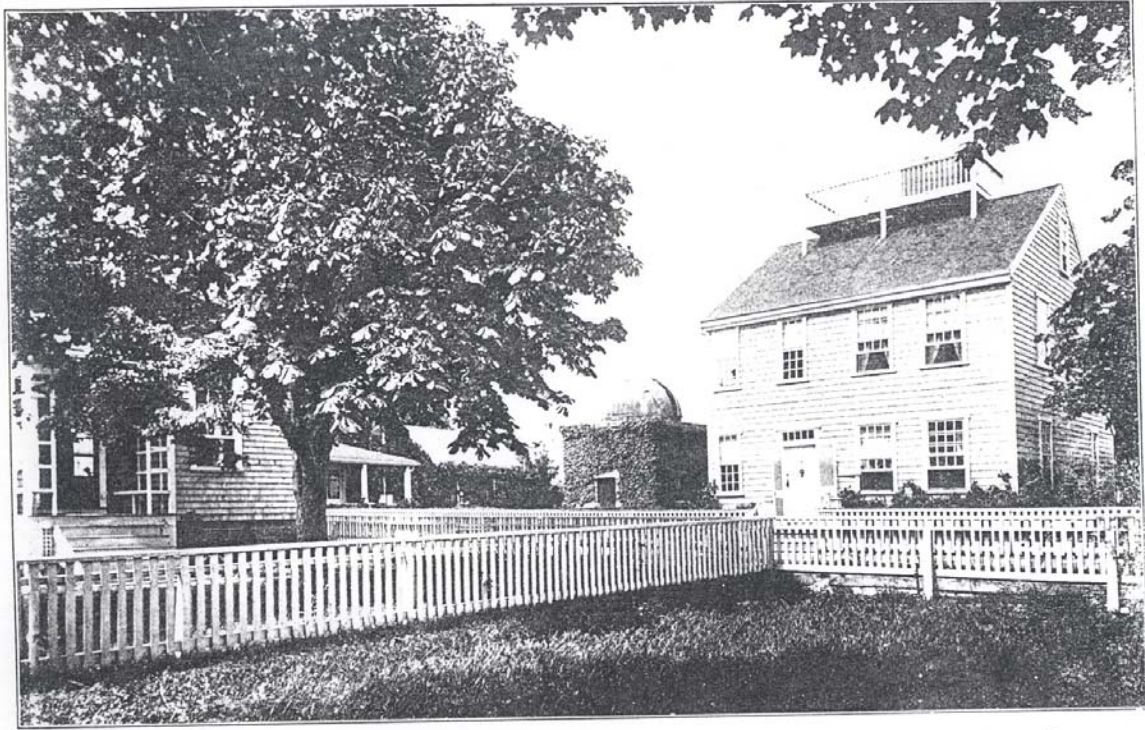
### **Location and Instrument Descriptions**

**1827 – 1861:** In 1827 William Mitchell began observing from his home at 1 Vestal Street, see Figure 1. In 1837 he moved to the Pacific National Bank Building, Figure 2, located on Main Street. He became a Smithsonian Institution volunteer observer in 1849, recording three observations per day. He listed his elevation as 30 feet above the “ocean.” His observations continued until September 1861.

Thermometer – Location and type are unknown.

Barometer – The barometer was located 5 feet above the ground.

Rain gage – Location and type are unknown.



THE MARIA MITCHELL BIRTHPLACE. OBSERVATORY AND LIBRARY OF THE MARIA MITCHELL ASSOCIATION ON VESTAL STREET.

Figure 1. The home and observatory of William Mitchell in Nantucket, Massachusetts. The Mitchell family lived in the house from 1818 until 1837. Photograph from the article *William Mitchell of Nantucket* by Helen E. Wright, Proceedings of the Nantucket Historical Association, 1949.



Figure 2. The Pacific National Bank Building in Nantucket, Massachusetts, circa 1860's. Photograph from the Nantucket Historic Association (P6501)

**1885 – 1889:** Mr. Henry Paddack, a cooperative observer recorded the weather from August 1885 until February 1889 from a location at 9 Vestal Street. This location was some 47 feet above sea level. See Figure 3 for a view of Vestal Street in the 1890's. No observational records have been found for this site as of the writing of this document.

Thermometer - Instrument shelter was located five feet above the ground.

Rain Gage – The rain gage was an eight-inch gage having the top at 3 feet above the ground.



Figure 3. Nantucket, Massachusetts, Vestal Street, circa 1890's. Photograph from the Nantucket Historical Association (GPN2407).

**1886 – 1904:** On October 18, 1886, Sgt. Benjamin A. Blundon opened the new U.S. Army Signal Service office in the Pacific Club Building at the foot of Main Street. See Figure 4. The office was located on the first floor while the instruments were placed on the roof. The elevation of the building was 8 feet and it was located some 2480 feet northeast of the previous location. Observations continued at this location until November 8, 1904. The U.S. Weather Bureau assumed the observing duties in September 1891. Mr. George E. Grimes was assigned as an assistant in the office in 1892, becoming the official-in-charge in 1900, a position he held until his retirement on November 28, 1938.

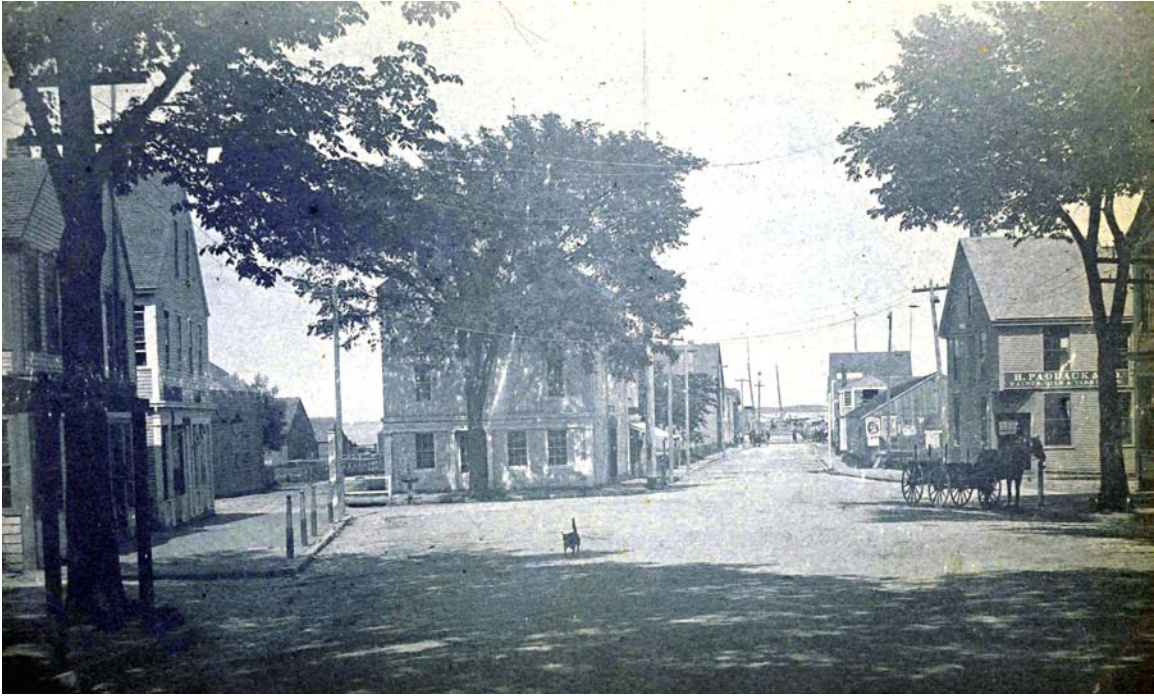


Figure 4. Main Street in Nantucket, Massachusetts, circa 1890's. The Pacific Club Building is in the center of the photograph. Photograph from the Nantucket Historical Association (P20253).

Thermometer – The instrument shelter was located on the roof of the building, 43 feet above the ground. See Figures 5-7.

Barometer – The barometer was located 12.3 feet above sea level. Barometer number 388 was changed to barometer number 188 on February 14, 1894, and changed to barometer number 248 on August 1, 1897.

Wind instruments – Wind instruments were located on the Storm Warning Tower which was mounted on the roof of the building. The instruments were 82 feet above ground. However, from the pictures of the building (Figures 5-7) it is clear that the wind instruments were moved from the Storm Warning Tower to the roof platform sometime prior 1904. The exact date is yet to be determined.

Rain gage – An eight inch and a tipping bucket gage were located on the roof of the building, 38 feet above the ground.



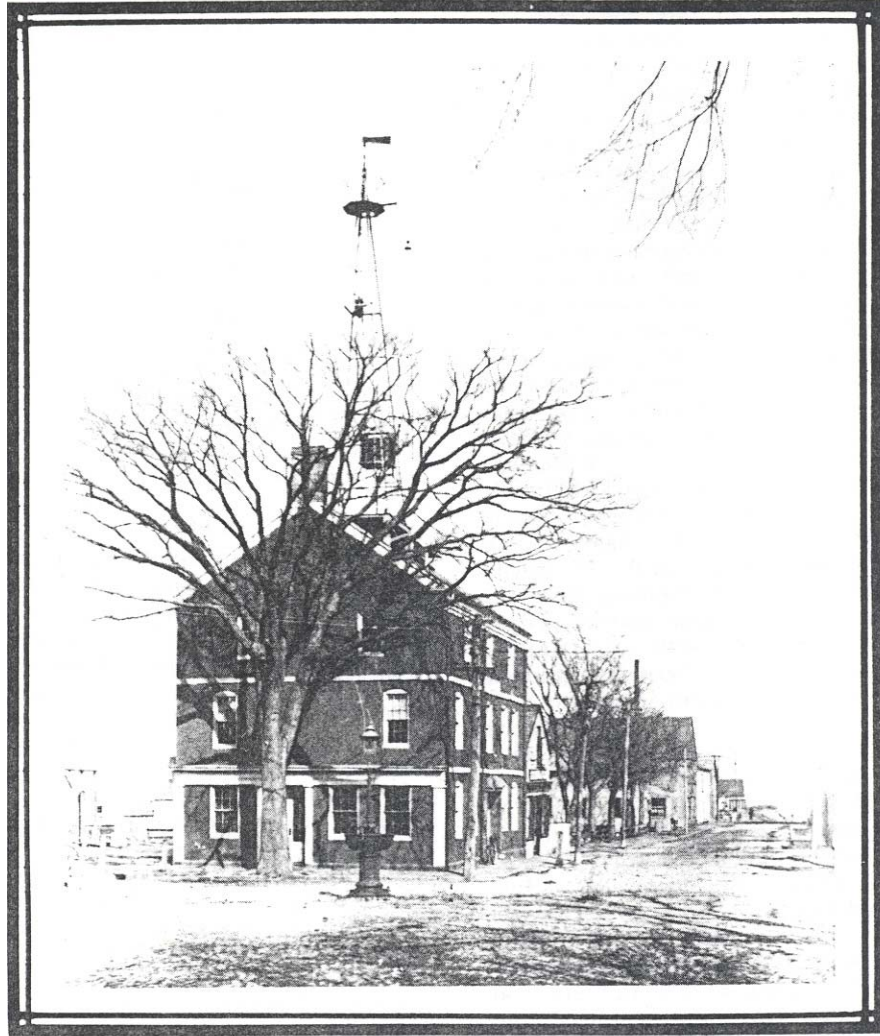


Figure 5. Pacific Club Building, Nantucket, Massachusetts, circa late 1880's. Notice the Storm Warning Tower and the wind vane at the peak. The instrument shelter can be seen mounted on the roof platform. Photograph from *Blue Hill Observatory Bulletin*, Vol. 5, No. 4, August 1986.



Figure 6. The Pacific Club Building in Nantucket, Massachusetts, circa 1900's. Notice instrument shelter and wind instruments on the roof platform. The Storm Warning Tower appears to have been removed. Photograph from the Nantucket Historic Association (P9558).



Figure 7. The Pacific Club Building (Custom House) in Nantucket, Massachusetts, circa 1900. Notice instrument shelter and wind instruments on roof platform. Also notice that electricity has come to the building. Photograph from the Nantucket Historic Association (P15479).

**1904 – 1946:** On November 8, 1904, the U.S. Weather Bureau opened a new building at 46 Orange Street. The elevation was 35 feet being located some 3000 feet south southeast of the previous location. See Figures 8 and 9. The original address was listed

as 94 Orange Street changing to number 46 in May 1909. After the move to the airport location in 1946, this Orange Street location was used to take “comparative” observations though none of these records have been located.

See Figure 10 for a schematic of the offices for the Weather Bureau Building as of March 1906. It was routine that the officer-in-charge of the station and his family would make their residence in the building. The offices would have been on the lower left of the building with the remainder of the two stories given over to the residence. Notice that the building faced west southwest. Comparative observations were taken from this location from 1946 through to the later part of the 1940’s.



Figure 8. The United States Weather Bureau Building located in Nantucket, Massachusetts, at 46 Orange Street, 1920. The view is looking southeast down Orange Street. The building is to the left with the flag above the porch. Photograph from the Nantucket Historical Association (P2428).

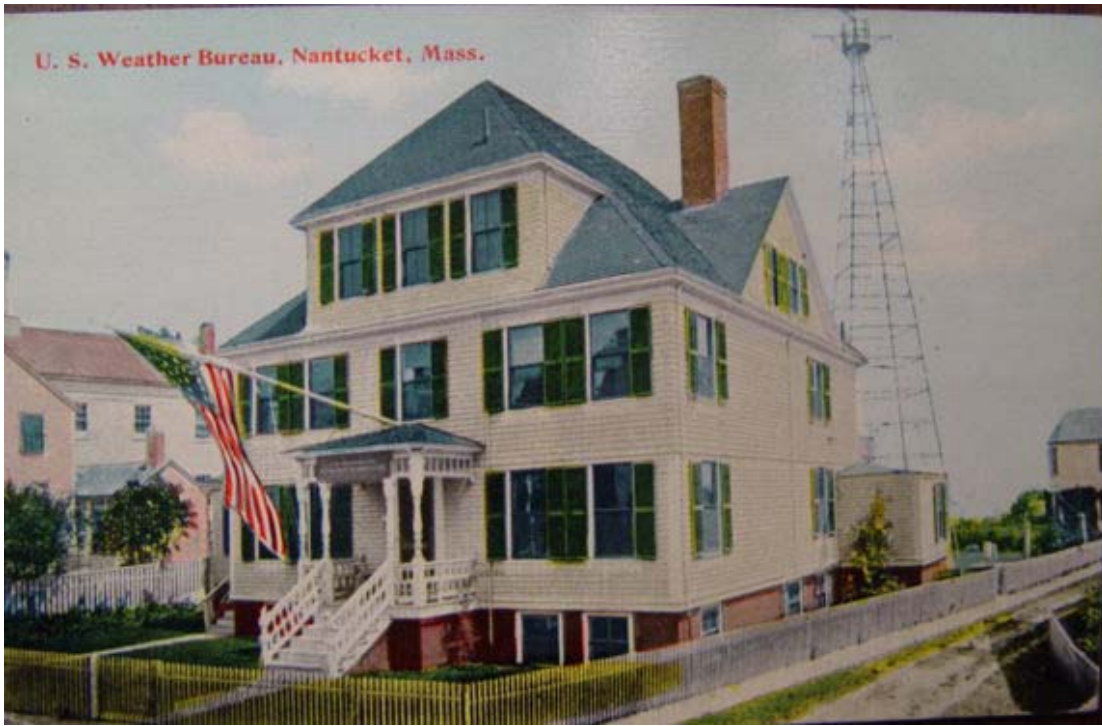


Figure 9. The United States Weather Bureau building located in Nantucket, Massachusetts, in 1909. The Storm Tower can be clearly seen at the rear of the building. From the author's personal collection of post card images.

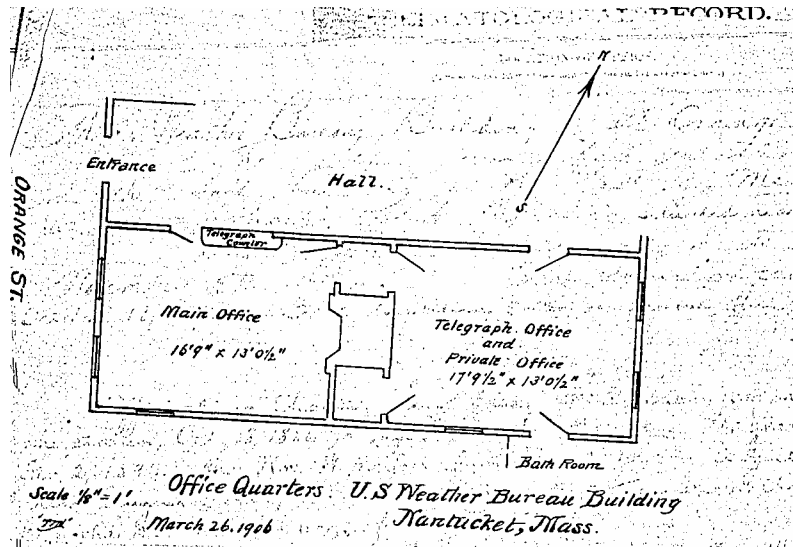


Figure 10. The layout of the offices in the Weather Bureau Building, Nantucket, Massachusetts, as of March 26, 1906. From the Climate Record Books on file at the National Climatic Data Center.

Thermometer – The instrument shelter, listed as a “large shelter,” was located in rear of building, over sod, at 13.7 feet above ground. The dry and wet thermometers were relocated from the previous location. See Figure 11. In April 1946 this shelter and the thermometers remained at this location for use by the comparative site.

Barometer – The mercurial barometer, number 248, was located 42.5 feet above sea level being moved from the previous location.

Wind instruments – The wind instruments, moved from the previous location, were located on the Storm Warning Tower with an elevation of 90 feet with a 4 foot wooden vane and a 4-cup anemometer. The Storm Warning Tower can be seen in Figure 9 and in the cover page photograph. In the cover page photograph, taken in 1929, the Tower can be seen to the far left. Beginning April 17, 1941, instruments were moved to the roof of the Weather Bureau Building with an elevation of 63 feet. See Figure 11 for a view of the instruments in 1942. In April 1946 a 3-cup anemometer and a 4 foot wind vane located 14 feet above the roof and 59 feet above the ground remained at this location for use by the comparative site.

Rain Gage – An eight-inch and a tipping bucket gage were located in rear of building at 4 feet above ground. See Figure 13. It is unclear as to the exact location of these instruments on the property. In 1946 the eight-inch gage remained at this location for use by the comparative site.

Other instruments – The station also had a triple register, a thermograph, and a 4-day barograph.



Figure 11. The location of the instrument shelter in the rear of the Weather Bureau Building, Nantucket, Massachusetts, in December 1942. The view is looking down from the PIBAL platform whose structure can be seen in the foreground. Photograph from the Station History files at the National Climatic Data Center.

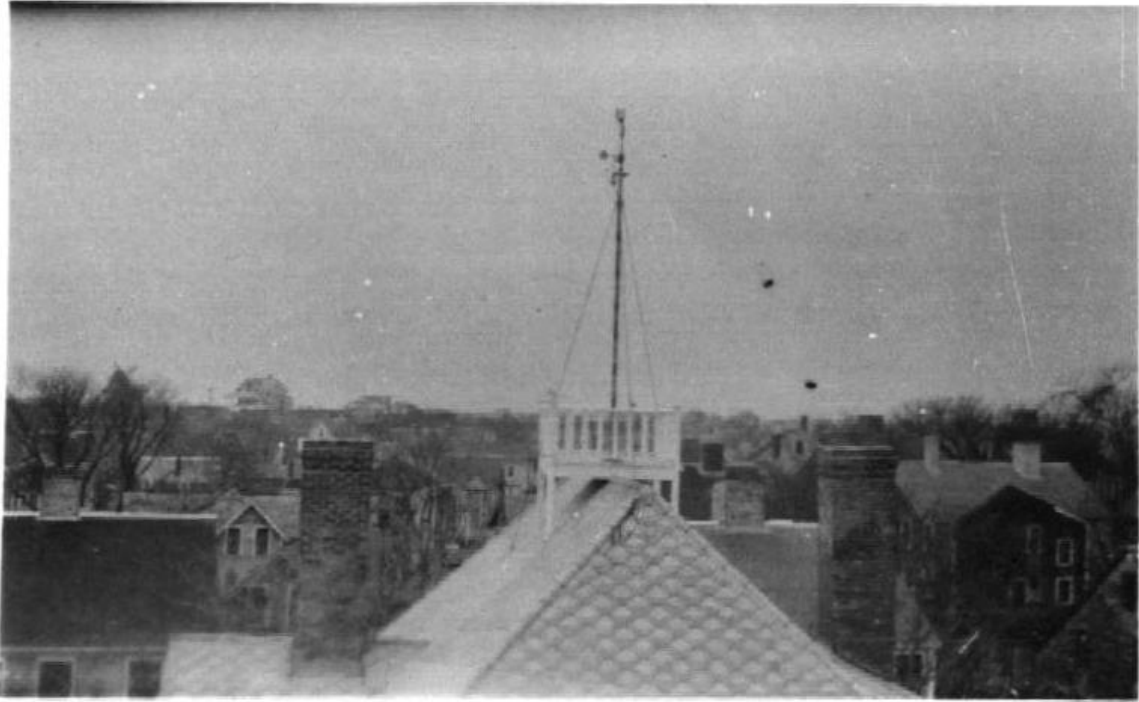


Figure 12. Wind instruments located on the roof of the Weather Bureau Building, Nantucket, Massachusetts, in December 1942. View is from the PIBAL platform. Photograph from the Station History files at the National Climatic Data Center.





Figure 13. The location of the rain gages in the rear of the Weather Bureau Building, Nantucket, Massachusetts, in December 1942. Mr. Brownlee (Left) and Mr. Hand (Right) are the Weather Bureau observers. Photograph from the Station History files at the National Climatic Data Center.

**1946 – 1952:** On April 11, 1946, the weather observing program was moved to the Nantucket Memorial Airport some 2.4 miles southeast of the Weather Bureau Building. See Figure 14. The elevation of the office was 44.98 feet above mean sea level. From the notations made on the photographs taken in January 1946, see Figure 15, and on other station history forms, it is apparent that the airport was originally a U.S. Navy facility complete with concrete runways. Pre-1946 Navy observational records have not been found.

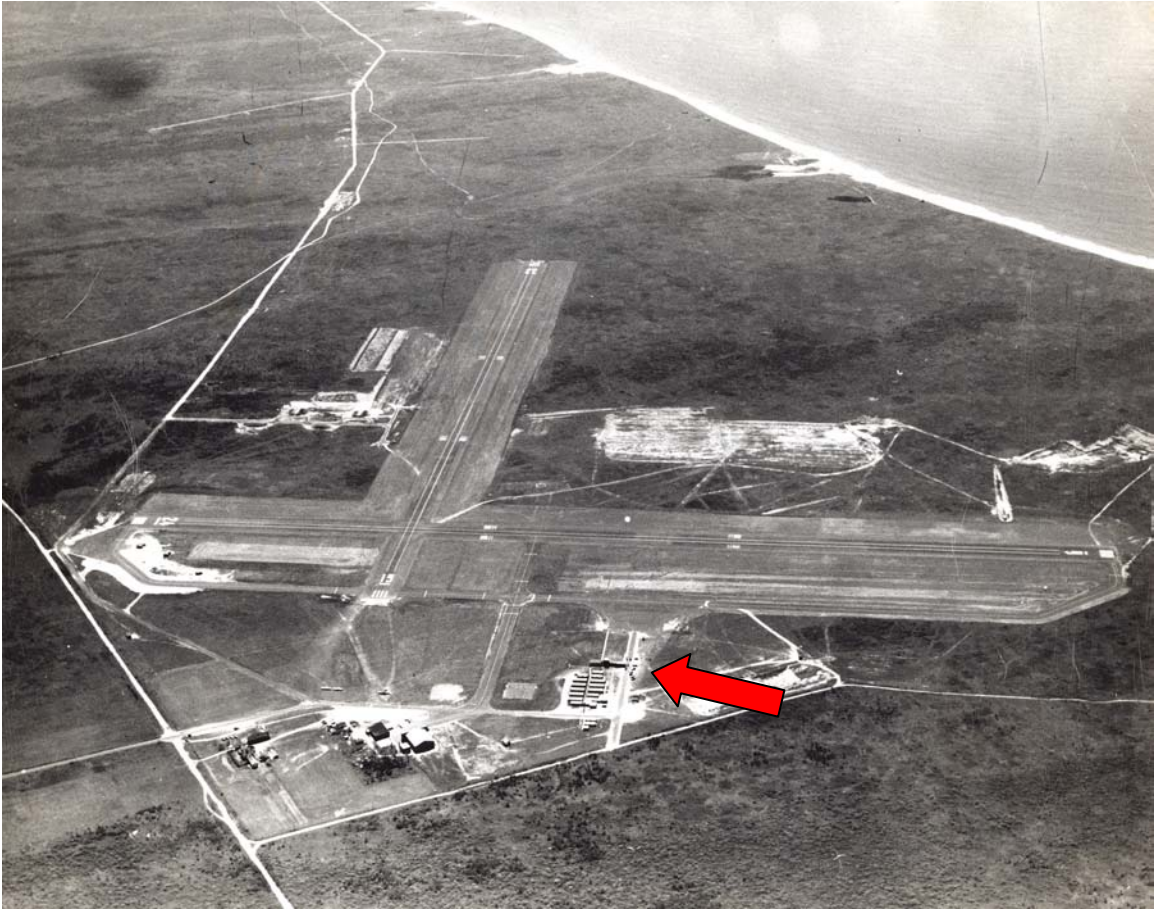


Figure 14. The Nantucket, Massachusetts, Memorial Airport circa 1940's. Location of Weather Bureau office is indicated by the red arrow. Photograph from the Nantucket Historical Association (P12810).



Figure 15. The future home of the Weather Bureau at the Nantucket, Massachusetts, Memorial Airport in January 1946. A Navy instrument shelter is in the right-hand portion of the photograph. From the Station History files at the National Climatic Data Center.

Thermometer – The instrument shelter was a Cotton Region Shelter design located 3.8 feet above sod located 68 feet southeast of the office. Exposure was rated excellent. See Figure 16. See note below.

Barometer – Barometer number 248, originally installed in Nantucket in 1897, was relocated to the airport at an elevation of 49.98 feet above mean sea level.

Wind Instruments – At the time of the move to the airport in April 1946 the wind instruments, a 3-cup anemometer and a 3-foot metal wind vane were installed on the roof. The instruments were 11 feet above the roof and 34.5 feet above the ground. See Figure 15.

Rain Gage – The rain gages were a standard eight-inch copper Friez gage and a Friez tipping bucket gage both located 3.8 feet above ground, 50 feet southeast of the office. See Figure 16. See note below.

Other instruments – The station was also equipped with a sunshine recorder, a thermograph, a barograph, a triple register and a ceiling light.

**Note:** It is unclear as to exactly where the instrument shelter and the rain gages were located in relation to the Weather Bureau office. The caption on photograph taken in May 1946 indicates instruments were northeast of office. The history form of July 1946 indicates that the offices were the nearest obstruction being east northeast of the instruments, i.e., the instruments would have been located west southwest of the office. The history form of June 1949 places the instruments southeast of the office building. The southeast direction was selected as the “official” direction since it appeared several times on the 1949 history form and again on the 1951 form. No official indication that the instruments actually moved during this period was found.



Figure 16. A view of the instrument shelter and rain gages at the Nantucket, Massachusetts, Memorial Airport on May 9, 1946. Original caption read “View looking North-east showing instrumental equipment.” From the Station History files at the National Climatic Data Center.



Figure 17. Terminal Building at the Nantucket, Massachusetts, Memorial Airport in 1947. The wind instruments are located on the roof of the building. Photograph from the Nantucket Historic Association (PH2-3-15).



Figure 18. Weather instruments located at the Memorial Airport, Nantucket, Massachusetts in 1949. Notice the instrument shelter to the left rear and the rain gages to the left front. The direction of the view is unknown. Photograph from the Nantucket Historical Association (PH2-3-14).

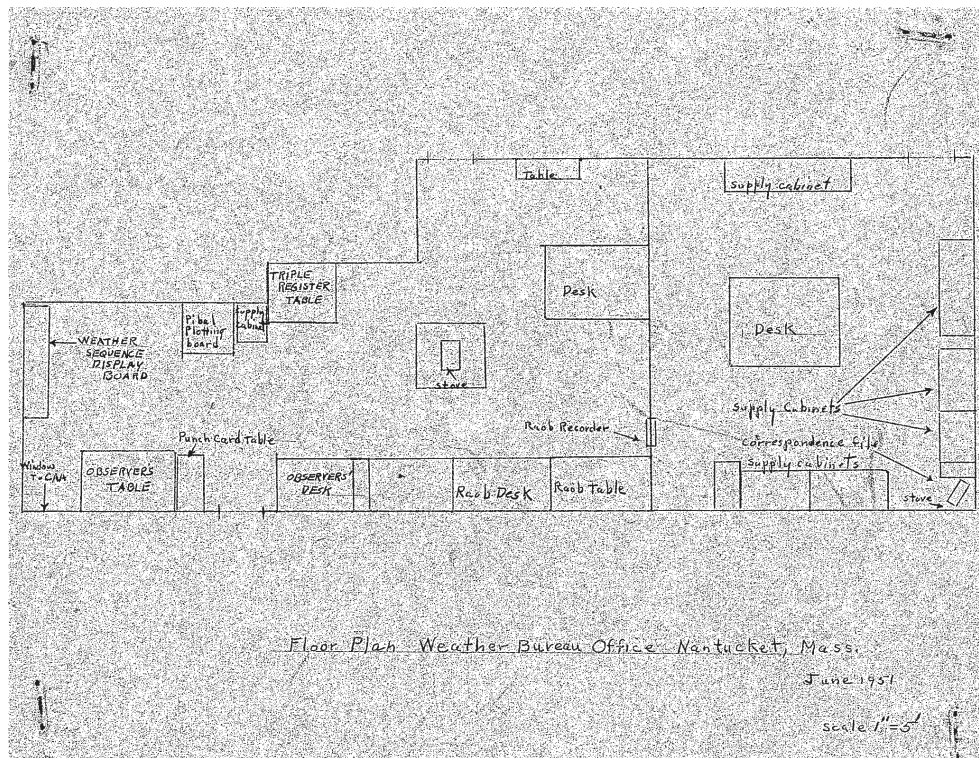


Figure 19. The floor plan for the Weather Bureau offices at Nantucket, Massachusetts, Memorial Airport in June 1951. From the Station History files at the National Climatic Data Center.

**1952 – 1970:** The office moved on April 22, 1952, to a new location some 120 feet southeast. The Weather Bureau offices were in the west corner of the new Administration Building. The elevation remained at 43 feet.

The Weather Bureau office became a part-time station on October 15, 1957, operating daily from 0530-0100 LST. Personnel from the CAA tower took over the observing duties during the period 0100-0530 LST. The station returned to full time status on April 13, 1959. On December 9, 1960, the office reverted to part-time with the hours of operation being 0530-0100 LST, resuming full time status on July 1, 1961.

On December 18, 1969, the surface observing program was turned over to the FAA's Flight Service Station personnel, though Weather Bureau personnel remained to take upper air observations.

In November 1970 the Weather Bureau station was moved to temporary quarters at the Monomoy Fish and Wildlife Center on Cape Cod. In August 1971 the National Weather Service opened a new building at Chatham, Massachusetts.

Thermometer – The instrument shelter was a Large Shelter (WB type) design whose floor was located 5 feet above sod. It was located 50 feet northwest of Administration Building. Exposure rated as very good to excellent. The height of the instrument shelter dropped to 5 feet on June 19, 1962, when the shelter type changed from a large to a medium and the location was changed to 76 feet southwest of Administration Building.

Beginning June 18, 1962, an HO31 instrument 5 feet above ground was located 76 feet southwest of the Administration Building. An HO62 was installed on the field on August 30, 1965, at a height of 4 feet.

Barometer – Barometer number 248, which served Nantucket since 1897, was replaced with number 20-64 on May 11, 1966. Barometer height was 47.10 feet.

Wind instruments – The wind instruments were located on the roof 38 feet above the ground. See Figure 20 for a view of the instruments in 1953. On December 7, 1958, the wind instruments were moved to a field site with a new height above the ground being 20 feet. This location was 750 feet southeast of the centerline of runway 6-24 and 700 feet southwest of the centerline of runway 15-33, approximately 5/16 of a mile southeast of Administration Building. It was noted that the instruments were located in a gully.

Rain gage – The eight-inch and the tipping bucket gage were located 65 feet northwest of office with the top of the gages at 3.2 feet above the ground. Exposure considered excellent. However, it was later recognized that the instrument shelter, 6 feet southeast of the gage and being 9 feet high was affecting the catch with a southeast wind. So, the eight-inch gage was moved 13 feet northwest of previous location on August 8, 1960, giving it a location 73 feet northwest of Weather Bureau office. With the change in location the gage was now 18 feet northwest of instrument shelter. The tipping bucket gage was not moved in 1960. On June 19, 1962, the gages were moved to a location 77 feet southwest of the Administration Building. The top of the gages was at 3 feet above the ground. An open steel tower was 44 feet southwest of gages rising to a height of 25 feet. There was a steel mesh platform 22 feet above the gages.

Other instruments – The station also had a 4-day Friez barograph, a Friez triple register, and a ceiling light.



Figure 20. The Nantucket, Massachusetts, Memorial Airport terminal building as of June 3, 1953. The wind instruments are visible on the roof. Photograph from the Nantucket Historical Association (P21023).





Figure 21. The Nantucket, Massachusetts, Memorial Airport as it appeared in the 1960's. From the author's collection of post card images.

### **Observers and Their Stories**

Readers are encouraged to read David M. Ludlum's book entitled *The Nantucket Weather Book* published in 1986 by the Nantucket Historical Association. The book recounts many details about the early weather observers on the island.

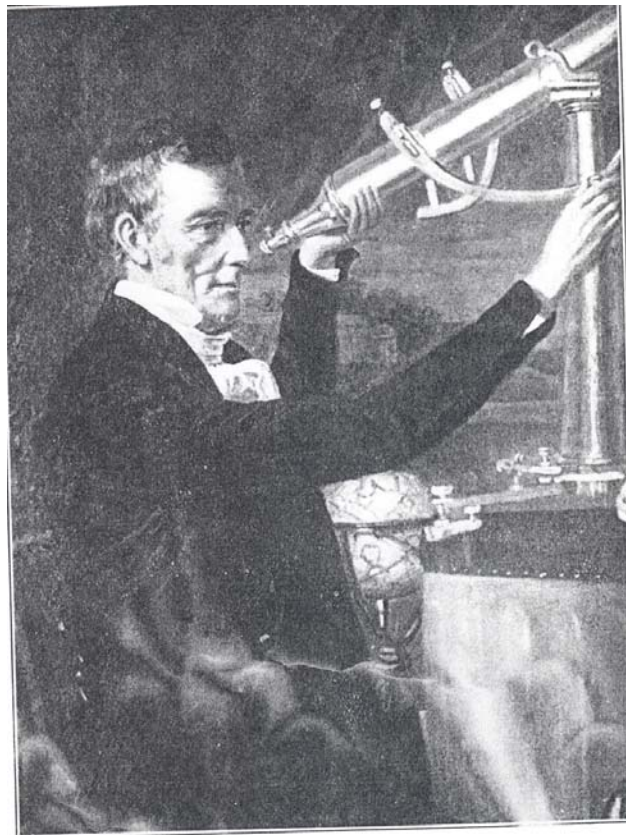
### **A Famous Natucketer – William Mitchell (1792-1869)**

The following was taken from a publication entitled *Fifty Famous Nantucketers* by Grace Brown Gardner published in March 1950. Hopefully, this narrative will help portray the life and times of Nantucket's earliest weather observer, Mr. William Mitchell. Mr. Mitchell recorded the weather on Nantucket from 1827 until 1861.

“William Mitchell is well known as the father of Maria Mitchell. He should be better known for his own attainments. Born in Nantucket in 1792 of Quaker parentage, he early manifested a deep interest in science, especially in mathematics and astronomy. He became a teacher, establishing a school on Howard Street, and devoting his spare time to scientific investigation, frequently giving lectures on his favorite subject and illustrating them by means of apparatus which he himself invented.

When the town of Nantucket in 1827 decided to open a free public school William Mitchell was invited to take charge, first being allowed to visit similar institutions of New York and other cities. He organized the school upon the monitorial system, and commenced with two hundred pupils, four hundred having applied for admission. This first public school was opened in the old Town House on the corner of Main and Milk Streets. On account of his health he was obligated to relinquish teaching after a few years and he engaged in various business enterprises. He never lost his interest in education, continuing as president of the trustees of the Coffin School.

At the time of the Great Fire of 1846 he was president of the Atheneum. Much of the burden of the rebuilding and refurnishing of the Library devolved upon him. He was tireless in soliciting books from his many scientific and literary friends, and the volumes donated were stored in this residence until the new building was in readiness.



WILLIAM MITCHELL  
From a painting by Mrs. Dassel in 1851 now at the Maria Mitchell Library

Figure 22. A portrait of William Mitchell painted in 1851 by Mrs. Dassel. From the article *William Mitchell of Nantucket* by Helen E. Wright.

For many years he was cashier of the Pacific National Bank and the family occupied the apartment above the banking room, moving there from their Vestal street house. He also served as the first treasurer of the Nantucket Institution for Savings. In addition to his work as computer for the Coast Survey, etc., he corrected chronometers for the whaling captains. The two stone pillars, one on the south side of the Pacific Bank and the other in

front of the Fair street Museum were erected by him for use in determining the town's meridian line.

The first detailed map of Nantucket is known as the Mitchell Map and is a testimonial to his knowledge of surveying. The map is now a highly prized Nantucket item."

### **The Life and Times of Henry Paddack (1838-1919)**

The following was taken from the obituary of Henry Paddack as printed in the Inquirer and Mirror, Saturday morning, December 20, 1919:

"Nantucket has lost another sterling citizen in the passing of Henry Paddack early on Saturday morning last after a long illness. His health had been gradually failing for several years, as he had been suffering from an affliction which did not yield to medical skill, and the final summons brought relief to months of patient resignation.

Henry Paddack was "a grand old man." Everybody admired and respected him, for he was the soul of integrity, a man of wise counsel, a friend to the needy. Although his latter years have been passed in retirement, owing to the affliction which prevented him from mingling with his fellow men as much as he would have liked, Mr. Paddack kept closely in touch with town affairs and his mind was alert up to a short time prior to his death.

His life had been weighted with a great sorrow, due to the loss of an only son many years ago, the little fellow falling overboard from an excursion steamer and drowning before he could be rescued. This sad event was a terrible blow to Henry Paddack and his wife, who were then in the prime of their lives, and neither fully recovered. Yet withal, there was a vein of humor and good cheer which characterized Henry Paddack in his associations with his fellow men, and he was one of the few men who could call everyone a friend."

"The deceased passed his boy-hood in Nantucket, receiving an early education in the local schools, and at the age of fifteen, after being in the High School three years, he was apprenticed to the ship painter's trade, which he followed nineteen years, In 1857 he removed from Nantucket to Fall River, where he was employed in painting ships and steamers. At one time he was also in-charge of the railroad office in that city. He remained in Fall River fourteen years and then returned Nantucket, assuming the paint business of Hezekiah and David Paddack and continuing under that name of H. Paddack & Co. for nearly twenty years. The firm name has been continued by his successors up to the present time.

Henry Paddack was elected to the legislature in 1879 and served four terms. He also served ten years on the board of selectmen, with such citizens as Allen Smith, Samuel Woodward, Henry Pinkham and John W. Hallett his associates. In 1892 he was elected town and county treasurer and filled that office most acceptably eleven consecutive years, when he decided to retire to private life."

Mr. Paddack succeeded the late Edward W. Perry as president of the Pacific National Bank in 1893 and held that position until December, 1915, when he tendered his resignation.”

### **An Extraordinary Observer – Mr. George E. Grimes**

The following narrative was found in Mr. Orloff’s manuscript, *Nantucket Island: 100 Yrs. - Observing*:

“In 1892 George E. Grimes became assistant observer at the Pacific Club office and in 1900 he took over as official in charge. The next year he witnessed one of the most memorable events in Weather Bureau history when on the evening of August 25, 1901, the first wireless message was received from an ocean liner as it passed 72 miles to the south of the island.

In 1904 a new weather station was built at 46 Orange St. and Mr. Grimes personally moved all of the equipment from the Pacific Club to its new location. This building, while not located as close to the harbor, was much more comfortable and allowed the observer to live with his family at the weather station.

Mrs. Elizabeth Grimes Gibbs remembers her father as a dedicated observer who never missed an observation. “He was a little bit of a man” she recalled in a recent interview, who had no trouble climbing to the top of the 85 foot tower in back of the building. “At least once a week’ she said “he would scamper to the top of the tower whistling all the way.” Because of the heavy salt air he would often bring the anemometer cups down, wash them off and “place them in the oven to dry them off.” Other times, with winds howling, he would climb to the top to free the weather flags that had become tangled in the tower.

On November 28<sup>th</sup>, 1938 Mr. Grimes retired. He had observed the weather on “the island” for 46 years, without interruption, except for a few times that he “left for America on vacation.”

### **Nantucket Weather Bureau Advanced in Grade**

The following article appeared in the Nantucket newspaper on January 10, 1939:

“The U. S. Civil Service Commission has approved a re-allocation of the position of “Meteorologist-in-charge” of the Nantucket station. This action places this position in the same grade as the Providence and Hartford stations, leaving Boston and New Haven as the only New England stations in a higher grade. Nantucket is now the smallest town in the country, in population, having a Weather Bureau Station of this grade.

The local office of the Weather Bureau will test thermometers and barometers and set and make minor adjustments of aneroid barometers for anyone free of charge. Just bring them in.”

### **Observer Living Arrangements**

After the observational program moved to the airport location in 1946 the official-in-charge, Mr. Mead B. Wetherbe, continued to reside in the previous location at 46 Orange Street. The official reason being so that he could take “climatic comparisons”. This arrangement continued until at least May 1948. The care of the grounds was assumed by Mr. Wetherbe though the cost for utilities (\$754.50/year) continued to be paid by the Weather Bureau.

### **Staffing Problems Continue**

During the station inspection of January 1949 the following comments were made:

“The observational program has been, and is being, affected by frequent changes in personnel, lack of supervision (not entirely the fault of the OIC), and carelessness and apathy on the part of the observer staff. Although the various observing shifts are responsible for checking the work of the preceding shift, no system or standardized way of accomplishing this task has been in use with resulting carelessness and excessive errors. It has been suggested to the OIC that all routine tasks of an observational or records nature be definitely assigned to the various shifts or observers, and that he restrict his own activities, so far as possible, to administration, supervision, and training.”

These conditions of staffing seemed to have continued until the 1960’s based on the comments found in Charles Orloff’s manuscript:

“By the late 60’s problems with the site were becoming apparent. During the summer months there was no problem staffing the office, but as soon as the seagulls began walking up Main Street the young meteorologists wanted to be on their way back to the mainland. In addition the modern equipment at the station required constant servicing and constant supply of helium.”

The station was moved to Chatham, MA, in 1970.

### **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

*Report of the Chief Signal Officer – 1871*

Gardner, Grace Brown, *Fifty Famous Nantucketers*, March 1950

Ludlum, David M., *The Nantucket Weather Book*, 1986

Orloff, Charles T., *Nantucket Island: 100 yrs – Observing, Blue Hill Observatory Bulletin*, Vol. 5, No. 4, August 1986.

Wright, Helen E., *William Mitchell of Nantucket, Proceedings of the Nantucket Historical Association, 1949.*

Nantucket Historical Association

## **APPENDIX I - METHODOLOGY**

The primary sources of information for this study were the Nantucket 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 are 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 provided information about the city and its weather observers including the Marie (Ralph) Henke and Elizabeth Oldham of the Nantucket Historical Association, Charles Orloff's article in the *Blue Hill Observatory Bulletin*, and Kathy Elder from the Woods Hole Oceanographic Institution. David Ludlum's *The Nantucket Weather Book* contains a rich history. Other publications as cited in the References section also provided a glimpse into the history of the men who observed on Nantucket.

There was an attempt to glean information from all these sources that would allow a glimpse into the lives of the observers, the location of the observation site, and the historical environment that produced the climatic history of Nantucket, Massachusetts. Maps, drawings, and photographs were included when appropriate to illustrate the information.

The street map was generated using Microsoft's Streets and Trips software.