



U.S. Weather Bureau Station Hatteras, North Carolina

Special Historic Resource Study




Cultural Resources
Cape Hatteras National Seashore

**U.S. Weather Bureau Station
Hatteras, North Carolina**

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2007

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About the cover: photograph by Doug Stover of the Hatteras Weather Bureau Station, July, 2007.

This special history study is available for study at National Park Service, Outer Banks Group Headquarters, 1401 National Park Dr, Manteo, NC. 29959 and at a variety of other repositories, such as the Outer Banks History Center, Manteo, N.C. and a web-based format through the web site of the National Park Service. Please visit www.nps.gov.

Contents

Foreword	iii
Charter One: Introduction History of Weather	1
Chapter Two: Weather Forecasting on the Outer Banks	6
Chapter Three: Construction, U.S. Weather Bureau Station, Hatteras, NC	8
Chapter Four: The Station Keepers	11
Chapter Five: Weather Observing Tools	18
Chapter Six: Reginald Fessenden, Pioneers of Wireless Radio	19
Chapter Seven: The Wright Brothers and Weather Forecast	22
Chapter Eight: Historic Events at the Hatteras Weather Bureau Station	24
Chapter Nine: Station is Decommissioned	25
Timeline of Hatteras Weather Bureau Station	30
Appendix	32
Bibliography	35

Foreward

I am pleased to make available this history of the U.S. Weather Bureau Station. Hatteras, North Carolina. The research was undertaken to help Cape Hatteras National Seashore interpret the histories of weather on the Outer Banks of North Carolina. U.S. Weather Bureau history today can still be seen on Hatteras Island. U.S. Weather Bureau stations on North Carolina's coast played an important role in early storm and hurricane tracking, providing late 19th- and early 20th-century coastal residents with their first weather warning systems.

With the help of many sources and research material from the National Archives, Outer Banks History Center, NC State Archives, Cape Hatteras National Seashore and NOAA/National Oceanic & Atmospheric Administration.

With the help of several staff from the Outer Banks Group, National Park Service, Mike Murray, Superintendent, Cape Hatteras National Seashore, Thayer Broili, Chief of Resource Management and Judy Ryan.

I hope it will prove useful to managers and interpreters at Cape Hatteras National Seashore.

Doug Stover
Historian
Cape Hatteras National Seashore

2007

Chapter One:

Introduction, History of Weather Forecasting

Weather Proverbs Since the science of meteorology was relatively undeveloped during the late 1800s, considerable emphasis was placed on folklore. Listed are the many rules of thumb and folklore which could be used by forecasters. The list was compiled from Signal Service forecasters and observers across the United States. Listed below is a selection of the weather proverbs.¹

1. A red sun has water in his eye.
2. When the walls are more than unusually damp, rain is expected.
3. Hark! I hear the asses bray, We shall have some rain today.
4. The further the sight, the nearer the rain.
5. Clear moon, Frost soon.
6. When deer are in gray coat in October, expect a severe winter.
7. Much noise made by rats and mice indicates rain.
8. Anvil-shaped clouds are very likely to be followed by a gale of wind.
9. If rain falls during an east wind, it will continue a full day.
10. A light yellow sky at sunset presages wind. A pale yellow sky at sunset presages rain.
11. Livestock wandered off into the wind.
12. Shorebirds gathered up into groups.

In the 17th and 18th centuries of the United States weather was important to the country. The early settlers to North America experienced the harshness of the weather of the New World.

Thomas Jefferson bought his first thermometer while writing the Declaration of Independence and purchased his first barometer a few days following the signing of the document. Jefferson noted that the high temperature in Philadelphia, PA on July 4, 1776 was 76 degrees. Jefferson made regular observations at Monticello from 1772-78 and participated in taking the first known simultaneous weather observations in America. George Washington also took regular observations; the last weather entry in his diary was made the day before he died.

During the mid 1800's, weather observation began to expand across the United States. By the end of 1849, 150 volunteers throughout the United States were reporting weather observations to the

¹ Hughes, P., 1970: *A Century of Weather Service*. Gordon and Breach Science Publishers, Inc., New York.

Smithsonian regularly. The telegraph was largely responsible for the advancement of meteorology during the 19th century. Daily telegraphic weather reports were reported to the Washington Evening Star.

In 1870, President Ulysses S. Grant signed a joint resolution of Congress authorizing the Secretary of War to establish a national weather service. The original weather agency operated under the War Department from 1870-1891 with headquarters in Washington, D.C., and field offices east of the Mississippi River. Within the Department of War, it was assigned to the Signal Service Corps (which was organized in 1860) under Brevet Brigadier General Albert J. Myer. General Myer gave the National Weather Service its first name: The Division of Telegrams and Reports for the Benefit of Commerce.

On November 1, 1870, at 7:35 a.m. observer-sergeants at 24 stations took the first systematized, synchronous weather observations ever taken in the U.S. were made by "observer sergeants" of the Army Signal Service.

Observations, which were transmitted by telegraph to the central office in Washington, D.C., commenced the beginning of the new division of the Signal Service.²

The weather service work of the new organization demanded a large number of men familiar with observations, theoretic, and practical meteorology. The commissioned officers detailed to Signal Service work were required to acquire meteorological knowledge by studying the available literature and consulting with and receiving instruction from leading meteorologists.³

Early forecasts were made for eight large districts (which covered the entire United States), three times daily and the duration of the forecasts, as well as forecast elements were determined by the forecaster. However, beginning in October 1872, predictions were made regularly for 24 hours in advance for 9 districts, and in 1874, forecasts were made for 11 districts and 4 elements, namely weather, wind, pressure, and temperature. No changes occurred until 1885 when predictions were made for 32 hours in advance, and in 1886, forecasts were made for states. In 1888, forecast were extended to 36 hours and in 1898 extended to 48 hours.

The first Signal Service weather office in Washington, D.C. also served as the central office of the country. Weather observations from across the country were compared for errors. In addition, forecasters at the office prepared maps and various weather bulletins, including forecasts, for the eastern part of the United States. In 1871, Signal Service forecasts and other weather information were posted in the Signal Service office, the post office, and at the main office of the Western Union Telegraphy Company. Maps also were posted in the principal hotels in the nation's capitol.

The first Signal Service weather office contained a printing department to print the maps and other weather information. In addition, a separate department was available to evaluate the

² Hughes, P., 1970: *A Century of Weather Service*. Gordon and Breach Science Publishers, Inc., New York.

³ Blodget, L., 1857: *Climatology of the United States*. J. B. Lippincott and Co. Philadelphia.

weather instruments, and another for checking weather observations. To support the various departments and functions of the office was a correspondence and clerical staff.⁴

Beginning in 1873, forecasts were distributed to thousands of rural post offices (by local Signal Service offices) for display as "Farmers' Bulletins" in front of post office buildings. This dissemination method continued until 1881 when local signal flags replaced the bulletins. The flags were large (for example, the cold-wave flag measured six-by-eight feet and was white with a black center of two feet square), and were displayed over post office buildings. By the end of 1886, display flags were available at 290 cities and towns.

The Signal Service's field stations grew in number from 24 in 1870 to 284 in 1878. Three times a day (usually 7:35 a.m., 4:35 p.m., and 11:35 p.m.), each station telegraphed an observation to Washington, D.C. These observations consisted of:

1. Temperature and its 24-hour change.
2. Relative humidity.
3. Wind velocity.
4. Pressure of the wind in pounds per square foot.
5. Barometric pressure
6. Amount of clouds.
7. State of the weather.

At Washington, D.C., forecasts were made from the telegraph reports. The forecasts subsequently were distributed back to the observers, to railroad stations and to available news media. Although the forecasts did not always prove correct, they greatly aided in planning daily life in the United States.

The Report of the Chief Signal Officer in 1877-1878 described the duties of the enlisted men at the weather offices:

...they are required to take, put in cipher, and furnish, to be telegraphed tri-daily on each day, at different fixed times, the results of observations made at those times, and embracing, in each case, the readings of the barometer, the thermometer, the wind-velocity and direction, the rain-gauge, the relative humidity, the character, quantity and movement of upper and lower clouds, and the condition of the weather. These observations are taken at such hours, at the different stations, as to provide the three simultaneous observations, taken daily at three fixed moments of physical time (7:35 a.m., 4:35 p.m., and 11 p.m. Washington mean time) throughout the whole extent of the territory of the United States... Three other observations to be taken at the local times, 7 a.m., 2 p.m., and 9 p.m., are also taken and recorded at each station. A seventh and especial observation is taken and recorded at noon on each day. If at this observation such instrumental changes are noted as to cause anxiety, the fact is to be telegraphed to the central office at Washington.

⁴ Blodget, L., 1857: Climatology of the United States. J. B. Lippincott and Co. Philadelphia.

An eighth observation is required to be taken at the exact hour of sunset at each location. This observation, embracing the appearance of the western sky, the direction of the wind, the amount of cloudiness, the readings of the barometer, thermometer, and hydrometer, and amount of rain-fall since last preceding report, is reported with the midnight report...

The average time elapsing from the time at which the readings of the instruments have been taken at the stations scattered throughout the United States, to that at which the reports based on these readings have been telegraphed to the press and to the distributing-stations, has been one hour and forty minutes.

The outfit of an inspecting officer will consist of one standard mercurial barometer, two standard thermometers, one standard compass, one jar of mercury; also the necessary-blanks, stationery, barometer cisterns, clamps and screws, small screw drivers, and a tape-line.

During the early years (1870's and 1880's) of the national weather service, research studies were conducted at the central office in Washington, D.C. The first 10 years under the Signal Service with General Myer, the chief of the new agency from 1870-1880. Myer organized the agency in a effective manner. Myer stressed public service and the personnel of the weather agency knew their job was service to others. It also was becoming clear that the War Department was not enthusiastic about having oversight over the weather service. The Signal Service had been almost completely absorbed by its new mission, and should its military services ever be needed, its personnel could not be spared from their weather duties.⁵

By 1889, General Greeley became convinced of the futility of attempts to reconcile opposing factions within the organization, as well as to correct admitted shortcomings within the weather service. In 1889, President Benjamin Harrison recommended transfer of the national weather service to the Department of Agriculture. Congress agreed, and on October 1, 1890, an act transferring the weather service to the Department of Agriculture was signed into law by President Benjamin Harrison.

The enlisted force of the Signal Service, excepting those hereinafter provided for shall be honorably discharged from the Army on June 30, 1891, and such portion of this entire force, including civilian employees of the Weather Bureau shall, if they so elect be transferred to the Department of Agriculture.⁶

So on July 1, 1891, the weather stations, telegraph lines, apparatus, and personnel (military people whom were honorably discharged from the War Department and were now civilians) were transferred from the Signal Corps' Division of Telegrams and Reports for the Benefit of Commerce to the Department of Agriculture's new civilian Weather Bureau.⁷

⁵ Whitnah, D.R., 1965: *A History of the United States Weather Bureau*. University of Illinois Press. Urbana.

⁶ Abbe, C., 1893: *The Meteorological Work of the U. S. Signal Service, 1870 to 1891*. Report of the Chicago Meteorological Congress.

⁷ Weightman, R.H., 1952: *Establishment of a national weather service--Who was responsible for it?* Unpublished Report. U. S. Weather Bureau.

In 1891 to 1940, The Weather Bureau became part of the Department of Agriculture had a remarkable effect on the nation's meteorological services. Between 1900 to 1910, sixty Weather Bureau Station were built throughout the US.

In 1902, Weather Bureau forecasts were sent via wireless telegraphy to ships at sea. In turn, the first wireless weather report was received from a ship at sea in 1905. Two years later, the daily exchange of weather observations with Russia and eastern Asia was inaugurated.

In 1910, the Weather Bureau began issuing weekly outlooks to aid agricultural planning. And in 1913, the first fire-weather forecast was issued. During these times, weather forecasters began using more sophisticated methods including surface weather observations; kite experiments to measure temperature, relative humidity and winds in the upper atmosphere; and later, airplane stations.

Realizing that the Weather Bureau played an important role for the aviation community, and therefore commerce, in 1940, President Franklin D. Roosevelt transferred the Weather Bureau to the Department of Commerce where it remains today. During the late 1940s, the military gave the Weather Bureau a new and valuable tool - 25 surplus radars - thus launching the network of weather surveillance radars still in use today. In 1970, the name of the Weather Bureau was changed to the National Weather Service, and the agency became a component of the Commerce Department's newly created National Oceanic and Atmospheric Administration.

Chapter Two:

Weather Forecasting on the Outer Banks



Hurricane Isabel, North Carolina, 2003, Photo: NOAA Library

The Outer Banks are a narrow chain of barrier islands stretching more than 175 miles along North Carolina's coast. Separated from the mainland by sounds up to 30 miles wide, the area is subject to severe storms and high winds. The Outer Banks of North Carolina was an important part of the national weather network.

The U.S. Weather Bureau established several weather stations and observation posts throughout North Carolina and its coast as part of a national network of weather stations. The first coastal observation station in North Carolina was in Wilmington, established in 1871. A station at Cape Hatteras followed in 1874.

Smaller Weather Bureau observation stations on the North Carolina coast were set up over the years at Wash Woods on the Currituck Outer Banks (1878); Kitty Hawk (1875), which was moved to Manteo (1904); Portsmouth Village (1876); Cape Lookout (1876) Beaufort Inlet (1878); and other communities, although some of them were temporary.⁸

⁸ Stick David, *Outer Banks of North Carolina*, Chapel Hill, Univ. of North Carolina Press, 1958

The first US Weather Bureau Station managed by the Army Signal Service's on Hatteras Island was established at the Cape Hatteras Lighthouse Keeper's Quarter in 1874; was moved to the Hatteras Life Saving Station in December 1, 1880 and later transferred to a Hatteras Village private residence on October 1, 1883, known as Styron's Building. A few years later the Weather Bureau built a structure for the station in Hatteras village for the sum of \$250.⁹



Weather Bureau Station, Hatteras, N.C. ca 1900, photo: NC State Archives

This building was a small one-story framed structure consisting of three rooms, two of the small rooms, each about 9 by 6 feet and one larger one about 14 feet square. There was also a small attic that was used for storage.

Cape Hatteras was an important location for weather forecasting where the Gulf Stream and Labrador Current meet. Cape Hatteras is a major shipping route, and shipwrecks were common along Cape Hatteras. The Weather Bureau felt that there was a need to have a main station on The North Carolina coast was important enough for the Weather Bureau to build a station in Hatteras Village.

Residents that lived on the Outer Banks received their news by boat, or through word of mouth. Residents of isolated Portsmouth and Ocracoke Islands got word of an approaching storm in sealed tubes dropped from airplanes.

⁹ Stick David, *Outer Banks of North Carolina*, Chapel Hill, University of North Carolina Press, 1958

Chapter Three:

Construction, U.S. Weather Bureau Station, Hatteras, N.C.



Hatteras Weather Bureau, ca.1900's . Photo: National Park Service

By 1901, the U.S. Weather Bureau sought much larger quarters for the station. The land selected was acquired from W.H. Rollinson for the sum of \$110.35. The property was near the main road about three-quarters of a mile from the ocean and three hundred yards from Pamlico Sound.

On July 11, 1901, Secretary James Wilson, U.S. Department of Agriculture, requested proposals for the erection a two-story Cellar Frame and Brick building for the Weather Bureau, U.S. Department of Agriculture, at Hatteras, N.C. The Chief of the Weather Bureau, U.S. Department of Agriculture, awarded contract to C.L Harding, Architect, Washington DC. To design and supervise the first official building constructed for the U.S. Department of Agriculture, US Weather Bureau Station, Hatteras, N.C.

The cost was \$5,194 to build the station and the purchase cost of the land was \$110.35. On the back of the specification was a list of other Weather Bureau Station to be constructed, Hatteras, Taloosh, Canley, Criescent, Point Reyes, Bismarck N.D.

The Official Hatteras Weather Bureau Station was commissioned and occupied on January 1, 1902.

In 1902 the weather bureau added another forty feet of land to the property already held. One inspector of the Weather Bureau upon seeing the station for the first time thought “The building is very well situated for Weather Bureau purposes”.



Hatteras Weather Bureau, ca.1900's . Photo: NC Museum of History

The design included a prefab structure that can be delivered by railroad, and steam ship to Hatteras Island. The building was to be located at the intersection know today as Kholer and Saxton Cut Street, Hatteras North Carolina.



Hatteras Weather Bureau, ca.1900's. Photo: Homer Styron, Hatteras , NC.

The original building was a wood frame structure on masonry piling. The first floor had seven rooms including a living room, dining room, kitchen, store pantry, and three bedrooms for the weather observer and family. The second floor had a large observation room/office with a ship's ladder leading to a walk on the roof. Porches extended across the front and westside.¹⁰



Hatteras Weather Bureau, ca.1925. Photo: National Archives

Other structures include two wooden storage outbuildings with gable roofs with cedar-shingled. The storage shed was 22 by 14 feet, the other was 18 by 12 feet. On-site was a cistern, and a metal signal tower for displaying weather flags, and a privy. The Weather Bureau operated there from 1902 until 1946.

¹⁰ "Brimley Collection, Box 7, Cape Hatteras, F-10, Weather Station, Hatteras, ca. 1900" NC State Archives.

Chapter Four: The Station Keepers



Hatteras Weather Bureau, ca.1902 Photo: Mason & Vera Meekins

S.L. Doshier, Observer, (pictured sitting on the porch bench)

Doshier wife Cara, standing next to the horse, with Hugh adopted child on the horse.

The Hatteras Weather Bureau Stations was manned by an observer who lived in the station with his family and a maintenance man who lived in the community; it was equipped with telegraph communication to the District Forecast Center in Washington, D.C. The observers at the Weather Bureau stations collected weather data hourly, including temperature, pressure, wind direction, wind speed, visibility, and humidity; later they also collected information by lofting helium balloons. The information was telegraphed to Weather Bureau Headquarters in Washington DC. where it was mapped and broadcast widely via telegraph. The early weather predictions were called “probabilities” and were only for 24 hours in advance. Later the preferred term was “indications.” The term “forecast” was first used in 1889, when predictions could be made 48 hours in advance. ¹¹

¹¹ "Brimley Collection, Box 7, Cape Hatteras, F-10, Weather Station, Hatteras, ca. 1900" NC State Archives.

The Weather Station was responsible for the issuance of Coastal Forecasts and warnings for the area as well as the dissemination of storm warnings for Dare and Hyde counties. The station did not signal to passing vessels because the nearby Durrants Life Saving Station was equipped for that work. Information gathered by the Life Saving Station was sent to the Weather Station and in turn was telegraphed to Norfolk, Virginia.

Warnings were communicated by using weather flags on a pole outside the station. The storm warning tower forecasts provided a useful service to local residents, especially mariners and fishermen.



The U.S. Weather Bureau once used Coastal Warning Display signal flags to warn mariners of wind shifts or approaching storms ¹²

The Hatteras Weather Station was tolerated within the community, but not fully accepted. an inspector of the Bureau had to said in 1914. This station is, of course, of greatest importance in connection with the forecast work of the Bureau, but locally it appears to be of no consequence except as a means of communication with the outside world. The people are very peculiar, and have a code of ethics all their own, the principal element of which is a firm belief in their right to criticize the Weather Bureau and all connected with it, and to resent any criticism in return.

The present official is very capable and a gentlemanly man, and has done everything in his power to preserve peaceful relations. However, many refuse to be pacified, although, of course, others are friendly with Mr. Wilson and his family. Any other Weather Bureau man will have the same experience. The only use Hatteras has for the Weather Bureau is the money that it brings here.

¹² Town of Manteo, NC

The residents of Hatteras used the Weather Bureau Station for the telegraph and advance warnings about major storms. The Weather Bureau set up a system of a storm-warning flag tower. The flags represented different weather conditions. Starting around 1898, the Weather Bureau supplied its stations with towers on which to post warnings, using flags during the day and lights at night.

The life of a Observers for the Weather Station was routine is attested in a letter requesting transfer by Weather Observer S.L. Doshier in 1911, "The lonely life one is forced to lead... here and the ...continuous round of duty one must perform in keeping up the work alone, where there are none of the diverting pleasures of civilization to break the dull, soporific monotony of the situation, prove after a time to be a strain that depresses even the most optimistic nature, and a physical and an intellectual menace that even the most robust constitution and the strongest mentality can not long withstand".¹³

Hatteras, North Carolina, Weather Bureau Station Keepers

- Albert J. Davis, Observer, Weather Bureau, Hatteras, NC.
- Weather Bureau, Hatteras, NC. July 16, 1903 to May 14, 1911.S.L. Doshier, Assistant Observer, Weather Bureau, Hatteras, NC. July 16, 1903 to May 14, 1911.
- Joseph J. Doshier, Chief, Weather Bureau, Hatteras, NC. from April 15, 1911 to May 14, 1914.
- C.E. Wilson, 1912-1914 Weather Observer
- W.L. Wyland, 1915-1917 Weather Observer
- Mark S. Howard, 1918 Weather Observer
- F.H. Ahearn 1919 Weather Observer
- Lucy Stowe, Junior Meteorologist, worked and lived in the station from 1943-1957
- Richard Dailey, Junior Meteorologist, worked and lived in the station from 1946-1952

Manteo, North Carolina, Weather Bureau Station Keepers

- Alfred H. Thiessen, Local Forecast Official, January 18, 1901- January 22, 1903
- Alfred C. Pickels, December 26, 1901 – February 3, 1903
- William T. Lathrop, February 11, 1902 – April 6, 1902
- Louis Dorman, Observer, March 11, 1902 – December 23, 1902
- Ovide St. Marie, February 13, 1902- November 14, 1902
- Alpheus W. Drinkwater, November 10, 1904 -¹⁴

¹³ Hatteras Weather Bureau Station National Register of Historic Places, February 17, 1978

¹⁴ U.S. Weather Bureau Personnel Records, National Park Service, Manteo, NC



Hatteras Weather Bureau, ca.1943. Photo: Lucy Stowe

In September of 1938, Lucy Stowe, who was born in Hatteras Village in 1925, remembers that the locals in her day heeded the Weather Bureau's warnings.

"Absolutely, they used them," says Stowe. "You could see the top of the tower from all over the village, and the fishermen definitely paid attention to them." Lucy was employed in 1943 as a Junior Weather Observer lived in the station until 1957.¹⁵

U.S Weather Bureau hired Weather Observer most all were men, but during World War II mostly women were working at the 60 Weather Bureau Station throughout the United States as observers and forecasters.

Following is a first hand account of the storm, as related by Mr. S.L. Doshier, official Observer with the Weather Bureau on Hatteras Island.

¹⁵ Interview with Lucy Stowe, NPS/Southern Oral History Project. Amy Glass, July 15, 1988

Hatteras Devastated by Hurricane

U.S. Department of Agriculture
Weather Bureau
Office of the Observer

Subject: Hurricane
Station: Hatteras, North Carolina
Date: August 21st, 1899

Chief of the Weather Bureau,
Washington, D.C.

Sir:

I have the honor to make the following report of the severe hurricane which swept over this section on the 16th, 17th and 18th instantly.

The wind began blowing a gale from the east on the morning of the 16th, varying in velocity from 35 to 50 miles an hour....During the early morning of the 17th the wind increased to a hurricane and at about 4 a.m. it was blowing at the rate of 70 miles, at 10 a.m. it had increased to 84 miles and at 1 p.m. it was blowing a velocity of 93 miles with occasional extreme velocities of 120 miles to 140 per hour. The record of wind from about 1 p.m. was lost, but it is estimated that the wind blew even with greater force from about 3 p.m. to 7 p.m. and it is believed that between these hours the wind reached a regular velocity of at least 100 miles per hour....

At about 7:30 p.m. on the 17th there was a very decided lull in the force of the wind and at 8 p.m. it had fallen out until only a gentle breeze was blowing. This lull did not last more than half hour, however, before the wind veered to east and then to south-east and began blowing at a velocity estimated from 60 to 70 miles per hour which continued until well into the morning of the 18th. During the morning of the 18th the wind veered to the south and continued to blow a gale, with heavy rain squalls, all day, decreasing somewhat in the late evening and going into southwest. This day may be said to be the end of the hurricane, although the weather continued squally on the 19th, but without any winds of very high velocity.

This hurricane was, without any question, the most severe of any storm that has ever passed over this section within the memory of any person now living, and there are people here who can remember back for a period of over 75 years. I have made careful inquiry among the old inhabitants here, and they all agree, with one accord, that no storm like this has ever visited the island....

The scene here on the 17th was wild and terrifying in the extreme. By 8 a.m. on that date the entire island was covered with water blown in from the sound, and by 11 a.m. all the land was covered to a depth of from 3 to ten feet. The tide swept over the island at a fearful rate carrying everything movable before it. There were not more than four houses on the island in which the tide did not rise to a depth of from one to four feet, and at least half of the people had to abandon their homes and property to the mercy of the wind and tide and seek the safety of their own lives with those who were fortunate enough to live on higher land.

Language is inadequate to express the conditions which prevailed all day on the 17th. The howling wind, the rushing and roaring tide and the awful sea which swept over the beach and thundered like a thousand pieces of artillery made a picture which was at once appalling and terrible and the like of which Dante's Inferno could scarcely equal.

The frightened people were grouped sometimes 40 or 50 in one house, and at times one house would have to be abandoned and they would all have to wade almost beyond their depth in order to reach another. All day this gale, tide and sea continued with a fury and persistent energy that knew no abatement, and the strain on the minds of every one was something so frightful and dejecting that it cannot be expressed.

In many houses families were huddled together in the upper portion of the building with the water several feet deep in the lower portion, not knowing what minute the house would either be blown down or swept away by the tide....

Cattle, sheep, hogs and chickens were drowned by hundreds before the very eyes of the owners, who were powerless to render any assistance on account of the rushing tide. The fright of these poor animals was terrible to see, and their cries of terror when being surrounded by the water were pitiful in the extreme.

The damage done to this place by the hurricane is, at this time difficult to estimate,...but is believed that the total loss to Hatteras alone will amount to from \$15,000 to \$20,000. The fishing business here is the principal industry from which is derived the revenue upon which the great majority live, and it may be said that this industry has for the present time been swept entirely out of existence....

A great majority of the houses on the island were badly damaged, and 5 or 6 are so badly wrecked as to be unfit for habitation and that many families are without homes, living wherever they can best find a home. The Southern Methodist church building was completely wrecked...All of the bridges and footways over the creeks and small streams were swept away.... The roadways are piled from three to ten feet high with wreckage....

The telegraph and telephone lines are both down.... It is reported that several vessels are stranded north of [Big Kinnakeet Life Saving Station]....

A large steamship foundered about one mile off Hatteras beach...and it is thought all on board were drowned....

The Diamond Shoals Light Ship which was stationed off Hatteras, broke loose from her mooring on the morning of the 17th and was carried southward by the gale...This vessel will probably prove a total loss....

The damage to the instruments and property of the Bureau here was considerable....The office building was flooded with water to the depth of about 18 inches, and the rain beat in at the roof and windows until the entire building was a mass of water....

I live about a mile from the office building and when I went home at 8 a.m. I had to wade in water which was about waist deep. I waited until about 10:30 a.m., thinking the storm would lull, but it did not do so, and at that time I started for the office.... I got about one-third of the distance and found the water about breast height, when I had to stop in a neighbor's house and rest, the strain of pushing through the water and storm having nearly exhausted my strength. I

rested there until about noon when I started again and after going a short distance further I found the water up to my shoulders.... I had to give it up again and take refuge in another neighbor's house where I had to remain until about 8 p.m. when the tide fell so that I could reach the office....

I started to the office against the advice of those who were better acquainted with the condition of the roads than I, and continued on my way until I saw that the attempt was rash and fool-hardy and that I was certain to reach low places where I would be swept off my feet and drowned.... [T]here has never been any such tide as the one here mentioned.

....The rainfall...was as heavy as I have ever seen. It fell in [a] perfect torrent and at times was so thick and in such blinding sheets that it was impossible to see across a roadway 20 feet wide.

...[E]verything went before the fury of the gale. No lives were lost at Hatteras, although many narrow escapes occurred, several families being washed out of their homes in the tide and storm. At Ocracoke and Portsmouth, 16 and 20 miles south of this station the storm is reported about the same as at Hatteras, with a corresponding damage to property. Reliable details from these places however, being lacking. A pleasure boat at Ocracoke with a party of men from Washington, N.C., was lost and a portion of the party were drowned.

There has been no communication with this place by wire or mail since the storm, and it is not known when there will be. It is therefore requested that so much of this report as may be of interest to the public be given to the Associated Press for publication in the newspaper.

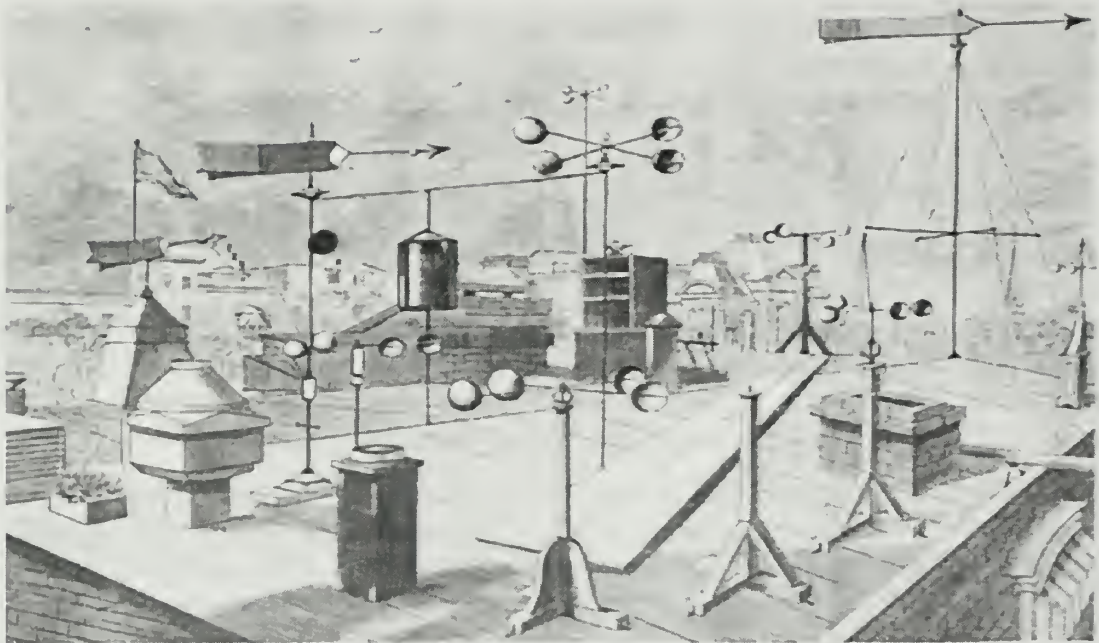
Very respectfully,

S.L. Doshier

Observer, Weather Bureau

Chapter Five:

Weather Observing Tools



Arrangement of the wind instruments on the roof of the Headquarters Building of the Meteorological Service of the United States Signal Service. In: Frank Leslie's Illustrated Newspaper, N.Y. Supplement, May 1, 1880. Call Number M/0203 U 58m.

Only within the last six centuries has the technology of weather observation been developed. The rain gauge, barometer, anemometer, hygrometer and thermometer were all invented in the years between 1400 and 1700. These instruments, improved upon through the years, remain basic observing tools of the National Weather Service and its network of cooperative observers today. However, with the advent of the telegraph system in the 1840's, the ability of meteorologists to make weather observations from weather stations throughout the U.S. and develop near real-time maps of weather systems, and then predict the future course of observed weather.

Suddenly meteorologists were able to chart the course of weather phenomena on a near continent-wide basis. Since that time communications have improved with the development of radio and telephone, new observing systems such as radar and satellites have evolved, and ever more powerful computing systems have become available to the meteorologist.

Chapter Six:

Reginald Fessenden, Pioneer Of Wireless Radio



Reginald Fessenden, Photo: N.C. State Archives

Sadly enough much of the public knows the name Marconi as the "Father of Radio." However, few know that a year earlier, on December 23, 1900, an even more prolific technologist first transmitted human speech by radio. That person was Reginald Fessenden and he did it right here on the North Carolina Outer Banks.

In 1901, Reginald Fessenden, was one of the pioneers of wireless radio. Fessenden was an inventor and he was a leader in the race to perfect wireless communication -- the forerunner of today's AM radio. Thomas Edison, called Fessenden "Fezzy" and made him his head chemist. Fessenden contributions included the radio direction finder (a type of compass), the submarine fathometer (an echo depth finder), and a turboelectric drive for battleships.

Fessenden was requested to come to North Carolina under contract with the Weather Bureau, he established his base in Manteo. Professor Reginald Fessenden created the air and publicly transmitted voice and music for the first time in history. Much of Fessenden's pioneering research occurred between Hatteras and Roanoke Islands across the open waters of the sounds of North Carolina's Outer Banks.¹⁶

Fessenden's research led to numerous wireless inventions, including; the radio pager, sonar, the gyrocompass, loop antenna, radio direction finding, the television receiver, tracer bullets, the

¹⁶ "Brimley Collection, Box 7, Cape Hatteras, F-10, Weather Station, Hatteras, ca. 1900" NC State Archives.

pheroscope, turbo-electric drive to power ships, ultrasonic methods for cleaning, electrical conduit, and the fathometer to measure the depth of water beneath the keel of a ship. He brought along his wife and son and spent more than a year and a half on the Outer Banks at the turn of the century. Reginald Fessenden is credited to have been the first to transmit wireless telegraphy by tones over a 50 mile path between Buxton, NC (Cape Hatteras) and Manteo, NC (Roanoke Island) in the year 1902. Fessenden, isolated himself from the world for two years in at an exceptionally remote corner of the seacoast to conduct his wireless telegraph experiments. He was working for the United States Government in the Weather Bureau during this time period. US Naval officials were brought in to observe and were duly impressed. This system made an astronomical leap in distributing Weather Bureau signals and in obtaining data for making forecasts. Fessenden sent the transmissions between two fifty foot high towers he had built. Eventually sending telegraphy across the Ocean to Europe, he was a leader in the race to perfect wireless communication which was the forerunner of today's AM radio.

Being that the area was so very remote, you were likely to know your neighbors and while Fessenden was in Manteo, he became close lifetime friends with two other entrepreneurs who were inventors as well. The Wright brothers, Orville and Wilbur, were experimenting with gliders in nearby Kill Devil Hills in preparation for their powered flight experiments. One year later, they too would become world renown.

His central interest, however, kept returning to "wireless" and its technology. He tried and tested a number of methods seeking improvement on the Marconi way of generating wireless signals, which did have its crude points. By 1899, he had demonstrated a range of 50 miles from Cobb Island to Arlington, Virginia, and impressed the U. S. Weather Bureau into signing him to a contract for the (then) large sum of \$3,000 per annum to develop wireless for weather information gathering.¹⁷

It was in that first year of the Weather Bureau work that he finally developed a method to get the frequency of an arc transmitter high enough to handle barely understandable speech. Modifying a phonograph cylinder with nearly microscopic slits, he was able to interrupt an arc at 10,000 times per second, and on December 23, 1900, transmit a barely readable voice message over a distance of one mile on Cobb Island, North Carolina

As well, he found contact radio detectors like the coherer too distorting and lacking in sensitivity for the reception of speech. He worked on a much more sensitive detector called the barrater, and fortuitously secured success in a second iteration by accidentally leaving a wire in an acid solution. The wire point in the cup of acid worked quite well. In fact, it worked well enough that Lee DeForest used it later in contravention of Fessenden's patent, resulting in a protracted legal battle between the two.

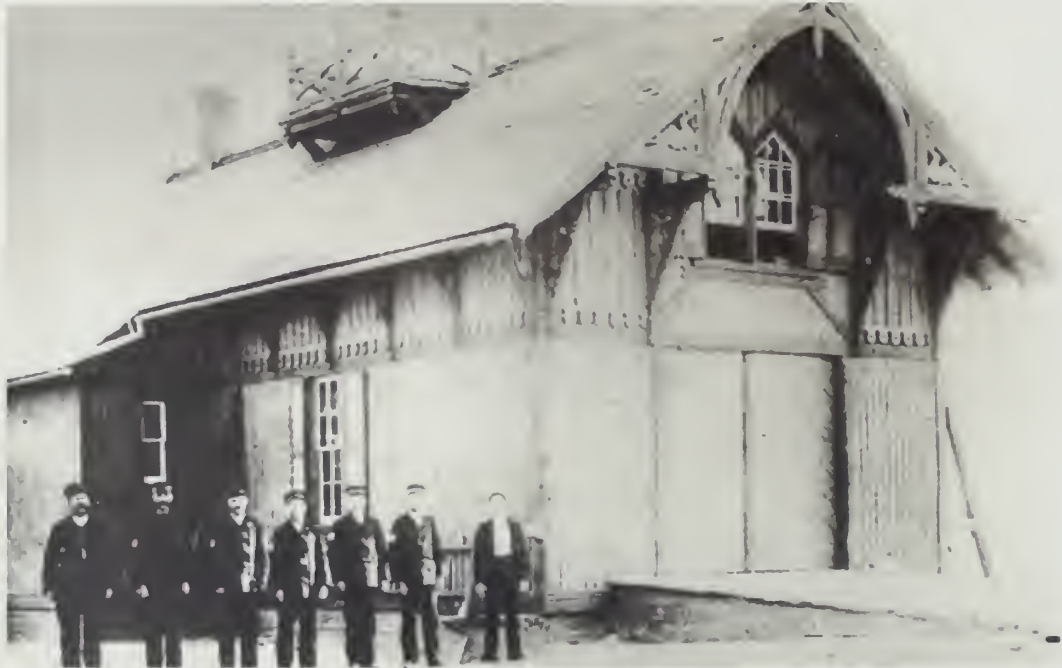
The Weather Bureau renewed his contract for two more years, and expanded the work to include extending the wireless link to Cape Hatteras, North Carolina. During this time, Fessenden set General Electric to work on producing an AC generator that would emit frequencies high enough

¹⁷ "Brimley Collection, Box 7, Cape Hatteras, F-10, Weather Station, Hatteras, ca. 1900" NC State Archives.

for use as voice-bearing wireless. The experiments were many and trying; it was only by using methods like Edison had shown in developing his light bulb that success occurred, bit by bit.

By 1902 General Electric had managed to produce a 10 kHz alternator for Fessenden. It was used to transmit telegraphy by tones over a 50 mile path between Buxton, NC (the town located at Cape Hatteras) and Manteo, N.C. Unfortunately, Fessenden got into a dispute over ownership of the ideas with Federal employees and he resigned the job in order to keep his personal inventions.

Chapter Seven: The Wright Brothers and Weather Forecast



The Weather Bureau Office in Kitty Hawk Photo: National Park Service

A second Weather Office was set up at the Kitty Hawk Life Saving Station from January 2, 1875 to 1904. It was established for the purpose of facilitating the repair of the telegraph line connecting Cape Hatteras and Cape Henry.

At the time the Wrights were looking for a site for their experiments, Kitty Hawk consisted of a few houses, a post office, a U.S. Lifesaving station to aid shipwreck victims, and a U.S. Weather Bureau station. According to Weather Bureau records obtained by the Wrights, Kitty Hawk was the sixth-windiest station in the country in 1903. After receiving assurance from local residents that the surrounding area offered wide open flat beaches, tall sand dunes, and privacy, the brothers decided that this would be the best place to test their glider.

When the Wright Brothers received weather data from the US Weather Bureau and found Kitty Hawk had the winds they were looking for, they wrote to the weather office at Kitty Hawk. Joseph J. Doshier at the Kitty Hawk Weather Office answered the Wright Brother's letter and had a good relationship with them for three years. Orville walked to the Kitty Hawk Weather Office late in the afternoon of December 17, 1903 and sent a telegraph to his father detailing the successes of the day.¹⁸ U.S. Weather Bureau Observer, Doshier maintained a good relationship

¹⁸ Stick David. Outer Banks of North Carolina, Chapel Hill, University of North Carolina Press, 1958

with the Wright brothers for three years during their tests. In fact, the telegraph which alerted the world to the historic first flight came from the Weather Bureau. Orville walked to the Kitty Hawk Weather Office late in the afternoon of December 17, 1903 and sent a telegraph to his father detailing the successes of the day.

Letter from the Weather Bureau Office in Kitty Hawk, that Orville Wright wired his father to announce the successful flights of Dec. 17, 1903.¹⁹

Mr Wilbur Wright
Dayton Ohio

Dear Sir,

In reply to yours of the 3rd, I will say the beach here is about one mile wide clear of trees or high hills, and islands for nearly sixty miles south. Conditions: the wind blows mostly from the North and Northeast September and October which is nearly down this piece of land. Giving you many miles of a steady wind with a free sweep. I am sorry to say that you could not rent a house here. So you will have to bring tents. You could obtain frame.

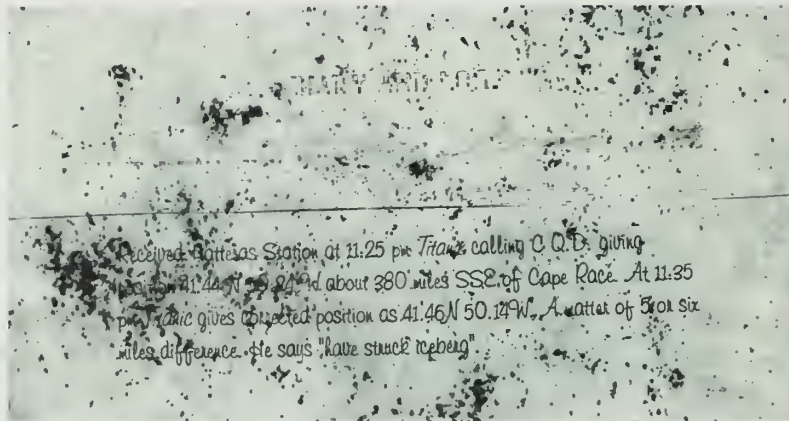
The only way to reach Kitty Hawk is from Manteo Roanoke Island N.C. in a small sailboat. From your letter I believe you would find it here like you wish. Will be pleased at any time to give you any information. Yours very respectfully

JJ. Doshier

¹⁹ Letter, Library of Congress

Chapter Eight:

Historic Events at the Hatteras Weather Bureau Station



On April 14, 1912 Titanic sent a distress call in which the Hatteras Weather Bureau Station receives the distress call and records in log book National Park Service.



Arizona (Battleship No. 39), 1918. Photo: U.S. Navy

On December 1918 the USS Arizona sail from Cuba to Norfolk, Virginia and sent a wireless communication to the Hatteras Weather Bureau.²⁰

²⁰ U.S. Weather Station, Hatteras N.C. Log Report. dated 1918. National Park Service. Cape Hatteras National Seashore.

Chapter Nine: Station is decommissioned



Hatteras Weather Bureau, ca.1950. Photo: National Park Service

In June 30, 1940 The U.S. Weather Bureau is transferred from the Department of Agriculture to the Department of Commerce. In April 1946 Hatteras Weather Bureau Station is decommissioned and the functions transferred to the another building in Hatteras Village.

The U.S. Weather Service retained the Hatteras Weather Bureau Station as living quarters for Richard B. Daily, who was in charge of local weather observations. Between 1947-1952 alterations were made to the structure, including resurfacing of the interior walls with sheetrock and the installation and upgrade of electrical, water and sewer.

In 1952, the weather bureau station and its outbuildings were turned over to the General Service Administration as excess real property, whereby the U.S. Coast Guard acquired the property and used the station as a new Hatteras Inlet Lifeboat Station and a shelter for personnel and storage in the event of storms and threatening weather.²¹

²¹ Hatteras Weather Bureau Station National Register of Historic Places, February 17, 1978



Hatteras Weather Bureau, ca.1952. Photo: National Park Service

On July 18, 1958 the U.S. Coast Guard reported the Hatteras Weather Bureau Station as excess real property. Public Law 85-540 allowed for National Park Service to acquire additional excess property to the Cape Hatteras National Recreation Area. (later renamed Cape Hatteras National Seashore) Between 1958-1964, Cape Hatteras National Seashore permitted Dr. and Mrs. Harvey W. Wells from Duke University, Department of Zoology, Durham, North Carolina to use the building for a residence and laboratory for the studies of local marine invertebrates. On July 1, 1964 a special use permit was issued to North Carolina State University in Raleigh, North Carolina to use the weather station as a biological laboratory of the North Carolina Agricultural Experiment Station between 1964-1976.²²

²² Hatteras Weather Bureau Station National Register of Historic Places, February 17, 1978



Hatteras second Weather Bureau Station, 1957. Photo: Outer Banks History Center

Hatteras second Weather Bureau Station moved from Hatteras to Buxton, NC. in 1957. The concrete weather building in Buxton was equipped with radar, computerized instrumentation and data networking. Mr. Damon Gray Sr., who lived next to the Hatteras Weather Bureau Station, was hired to continue operating the weather flag tower and light warning unit till his death in 1980.



Hatteras Weather Bureau, ca. 1980. Photo: National Park Service

In 1979, several changes to the interior structure of the building were made to use the building for park staff resident. Adding and removing partition walls, laying vinyl tiles in the kitchen and bathrooms, upgrading of electrical, water and sewer services. Interior woodwork and hardware were replaced and sheet rock wall covered with Luan.



Hatteras Weather Bureau, Photo: National Park Service, 1990

In 2000, the National Park Service began with replacement of the second floor windows, and abatement of asbestos shingles and lead-base paint.



Hatteras Weather Bureau, Photo: National Park Service, 2001

In 2001 the National Park Service received \$345,000 for phase one and two to restore the old U.S. Weather Bureau Station. In April, National Park Service/Cape Hatteras National Seashore Preservation Crew began work on phase one to replace the foundation began with the damaged and rotting wood and deteriorating brick piers support were repaired or replaced. Phase two exterior restoration started with stabilization, numerous beams and braces replaced and repaired to support the structure and foundation. Exterior siding and paint was removed, cedar shakes installed. The front pouch was rebuilt to the 1901 historic period. The exterior cedar siding was reinstalled or replaced, within keeping of much of the historic fabric as possible. The final exterior appearance will include its original colors of yellow, green and brown. The exterior two-storage shed received exterior restoration with the replacement or repair of exterior siding and cedar shakes.

Additional funding of \$442,000 was approved to continue the restoration of phase three interior restoration, starting in January 2002. The interior restoration will be to restore the interior floor plan to the 1901 period, interior painting of the original colors, wall treatments, flooring and ceiling, restored removal of modern furnishings, interior woodwork and hardware.



Artifact Recovered during Hatteras Weather Bureau Restoration, 2001
Photo: National Park Service

Several artifacts have been recovered during restoration, under the floorboard and in wall boards. 1914-telegraph dispatch, detailing Hatteras weather condition. U.S. Department of Agriculture, Hatteras Weather Bureau memo dated 1901.

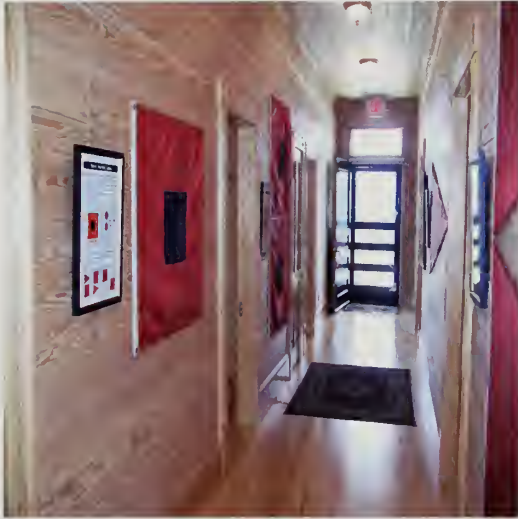
Timeline of Hatteras Weather Bureau Station

There were several minor alterations and routine maintenance repairs made to the weather station after it was built.

- 1901 – Land purchased from John W. Rollinson at a cost of \$101.00
- 1902-1946 The official building was commissioned and occupied January 1, 1902
- 1911 Observer asked to be relieved of duty at the Station.
- 1946 The station was decommissioned in April 1946.
- 1952-1958 The Station was transferred to GSA and use by the U.S. Coast Guard
- 1958 – Station transferred to the National Park Service/Cape Hatteras National Seashore
- 1958-1964 Station used by a permit from Cape Hatteras NS to Zoology Dept, Duke University.
- 1964-1976 Permit to Biological Lab, NC. State University. Marine Biology
NC State spent \$17,000.00 during their eleven year stay on the building.
- 1979-1995 Used by park Staff as a Residence.
- 1995-2001 Vacant
- 2001–2005 Restoration
- July 1, 2007 Site open to the public, a partnership between Outer Banks Visitor Bureau and the National Park Service.

On September 15, 1933 Hurricane blew the storm warning tower down,
On August 30, 1999 Hurricane Dennis damage the last of the storm warning tower.

Although there is no longer a weather station on the Outer Banks In 1967, the Weather Bureau was renamed the National Weather Service. Today, NOAA's Newport/Morehead City Weather Forecast Office serves Eastern North Carolina, issuing air, water, and climate forecast. but in the mid 1980's NOAA's National Weather Service embarked on a modernization based on new technologies. The newly developed Doppler radar was the keystone of the modernization. Newport was selected as the location to serve as the base for the new Doppler radar because Hatteras was too vulnerable to destructive tropical storms and hurricanes. Today with weather radio and televised NOAA broadcast serve as the primary communication of coastal warnings to those who live and visit the Outer Banks of North Carolina.



On July 1, 2007 the National Park Service, Cape Hatteras National Seashore partnership with the Outer Banks Visitor Bureau to operate the Hatteras Weather Bureau Station as a visitor information center.

Appendix

- Plot Plan, 4-10-1956.
- U.S. Department of Agriculture Specification for the Weather Bureau Building.
- U.S. Weather Bureau Building, Hatteras, N.C. Architectural Drawings.
- U.S. Department of Agriculture, Weather Bureau, Letter to Mr. Louis Dorman, Observer, Weather Bureau, Manteo, Roanoke Island, N.C. from Chief of U.S. Weather Bureau., August 4, 1902.
- U.S. Department of Agriculture, Weather Bureau, Letter to Mr. Alfred H. Thiessen, Local Forecast Official, Manteo, N.C. from Chief of U.S. Weather Bureau., December 29, 1902.
- U.S. Department of Agriculture, Weather Bureau, Letter to The Chief of the Weather Bureau, Washington D.C. from Albert J. Davis, Observer, Weather Bureau, March 27, 1903.
- U.S. Department of Agriculture, Weather Bureau, Letter to The Chief of the Weather Bureau, Washington D.C. from Albert Davis, Observer, Weather Bureau., May 20, 1903.
- U.S. Department of Agriculture, Weather Bureau, Letter to The Chief of the Weather Bureau, Washington D.C. from Albert Davis, Observer, Weather Bureau, May 25, 1903.
- U.S. Department of Agriculture, Weather Bureau, Letter from John Rollinson., June 5, 1903.
- U.S. Department of Agriculture, Weather Bureau, Letter to the Chief of the Weather Bureau, Washington D.C. from Albert Davis, Observer, Weather Bureau., June 24, 1903.
- Hatteras N.C., Letter to the Chief of the Weather Bureau, Washington D.C. from Albert Davis, Asst. Observer, Weather Bureau and S. L. Doshier, July 16, 1903.
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- Hatteras N.C., Letter to The Chief of the Weather Bureau, Washington D.C. from S.L. Doshier, Assistant Observer, Weather Bureau, April 19, 1905.
- Receipt, U.S. Department of Agriculture. Weather Bureau. January 20, 1906.
- Receipt, U.S. Department of Agriculture. Weather Bureau. February 20, 1906.
- Hatteras N.C., Letter to The Chief of the Weather Bureau, Washington D.C. from S.L. Doshier, Assistant Observer, Weather Bureau, March 22, 1906.

- Original Monthly Record of Observations of Hatteras. N.C. February, 1928.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, Hatteras, N.C.. From W.R. Gregg, Chief of Bureau, November 25, 1936.
- Hatteras N.C. Letter to Chief U.S. Weather Bureau, Washington D.C. from R.B. Dailey, Junior Meteorologist, December 7, 1936.
- U.S. Department of Agriculture, Weather Bureau, Washington, Letter to Official in Charge, Weather Bureau Office, Hatteras, N.C. From C.C. Clark, Acting, Chief of Bureau, December 11, 1936.
- Postal Telegraph, Observer 226 Hatteras, December 31, 1936.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, Hatteras, N.C. from W.R. Gregg, Chief of Bureau, February 2, 1937.
- Hatteras N.C. Letter to Chief U.S. Weather Bureau, Washington D.C. from R.B. Dailey, Junior Meteorologist, February 18, 1937.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, Hatteras, N.C. from W.R. Gregg, Chief of Bureau, July 22, 1937.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, from William Weber, Acting, Chief of Bureau., August 11, 1937.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, from William Weber, Acting, Chief of Bureau. August 17, 1937.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, from W. R. Gregg, Chief of Bureau., August 18, 1937.
- U.S. Department of Agriculture, Weather Bureau, Letter to Official in Charge, Weather Bureau Office, from E. M, Barto, Metlgst, September 28, 1937.
- Weston Union, to R.B. Dailey, from Reuben W. Banks, November 20, 1937.
- Hatteras, N.C. to: Chief U.S. Weather Bureau, Washington, D.C. Sir: _____, from R.B. Dailey, Junior Meteorologist, February 12, 1938.

- U.S. Department of Agriculture, Weather Bureau, Washington, Letter to Official in Charge, Weather Bureau Office, Hatteras, N.C., from William Weber, Chief of Division, March 4, 1938.
- U.S. Department of Agriculture, Weather Bureau, Message to Observer, Hatteras, N.C., March 10, 1938.
- Hatteras, N.C., to: Chief U.S. Weather Bureau, Washington, D.C. from R.B. Dailey, Junior Meteorologist May 21, 1940.
- U.S. Department of Agriculture, Weather Bureau, Message to Observer, Hatteras, N.C., August 31, 1940.

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1. POINTS A, B, C, & D ARE OUTSIDE CORNERS OF 6" x 6" WOODEN FENCE POSTS.
2. POINT M IS THE CENTER OF THE FLAG TOWER BASE.
3. N.C. STATE LAMBERT GRID COORDINATES ARE:

	X	Y
M =	2,988,179.02	551,551.68
B =	2,988,281	551,455

FIFTY NORTH, N.C.	
CIVIL ENGINEERING	
"PLOT PLAN"	
OLD WEATHER BUREAU PROPERTY	
HATTERAS, N.C.	
1" = 10'-0"	4-1910
L.S. AZA	

HICATS # 11/11 1932

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

SPECIFICATIONS

FOR THE

LABOR AND MATERIALS

TO BE USED IN THE ERECTION AND COMPLETION OF A

Two-story and Cellar Frame and Brick Building for the Weather Bureau, U. S. Department of Agriculture, at Hatteras, N. C., including preparation of site, etc., according to the plans and these specifications and under the supervision of C. L. Harding, Architect, 1316 G street, Washington, D. C., representing the Chief of the Weather Bureau.

CONTENTS:

Advertisement.
General Conditions.
Excavating and Grading.
Concreting.
Brickwork.
Stonework.
Carpenter Work.
Scaff Work.
Plastering.

Glazing.
Painting.
Metal Work.
Martels.
Range.
Hardware, Screens.
Plumbing.
Heating.
Blank Proposal.

"Sec. 2. Provided that in such case the court in which such action is brought is authorized to require proper security for costs in case judgment is for the defendant.

"Approved, August 13, 1911." (Statutes at Large, Vol. 23, page 278.)

GENERAL CONDITIONS.

The contractor shall furnish all material, labor, transportation, scaffolding, utensils, etc., of every description required for the full performance of the work herein specified, except as otherwise particularly mentioned. He shall lay out his work and be responsible for its correctness; shall keep a competent foreman on the premises; shall obtain all necessary permits to properly carry out his work, paying all lawful fees therefor; shall give to the proper authorities all requisite notices relating to the work in his charge; shall afford to the architect every facility for inspection; shall be responsible for all violations of law or damage to property caused by him or his employees, and shall properly protect his work during progress.

All materials are to be of the best of their several kinds in quality, as hereinafter specified. All labor to be performed in the best manner by skilled workmen.

The drawings referred to in this specification consist of three elevations, foundation plan, first and second story plan, and section through building, which will be supplemented by detailed drawings to be furnished as the work progresses. All these drawings are intended to cooperate with and form a part of the specification and the accompanying contract. Where the figures are given, they are to be followed in preference to measurement by scale.

Anything which is not shown on the drawings, but which is mentioned in the specification, or vice versa, or anything not expressly set forth in either but which is reasonably implied, shall be furnished and performed the same as though specially shown and mentioned in both.

Should anything be omitted from the drawings or specification which is necessary to a clear understanding of the work, or should any error appear either in the various instruments furnished, or in the work done by other contractors, affecting the work included in the specification, it shall be the duty of the contractor to notify the architect. In the event of the contractor failing to give such notice, he shall make good any damage to or defect in his work caused thereby.

At the completion of his work, the contractor shall clear out all rubbish and surplus material left by him; shall repair any damage to his work and adjacent lawns, no matter by whom caused, and leave the premises broom clean and in perfect repair and order, so far as his work is concerned.

The architect shall have full power to make any alterations during the progress of the work which he may deem necessary or advisable, and such alterations shall not affect or make void this contract.

No claim for extra work shall be considered unless the price for the same shall have been agreed upon in writing between the architect and the contractor prior to the commencement of the same.

In the case of any changes in work not considered necessary, or made to reduce cost of construction, a deduction shall be made from the amount of the contract; said deduction to be at market rates and to be agreed upon in writing between the architect and the contractor, and the time for completion of contract will be lengthened or shortened accordingly.

Should any misunderstanding or dispute arise as to the meaning of the drawings or specifications, between the contractor and the architect, the same shall be referred to the Chief of the Weather Bureau (or in his absence the Acting Chief), whose decision thereon shall be final, conclusive, and binding on the parties.

The contractor shall provide all means necessary to the protection of the work, and shall be entirely responsible for, and make good at his own cost, any damage which may happen thereto by reason of accident, design, fire, or any cause whatsoever.

The contractor shall be entirely responsible for any injury which may happen to any person or persons on or about the building, and shall pay all claims arising therefrom which may have been due to any act or default on his part or the part of any of his agents or employees.

The contractor is to have full charge of the building until completed, and must keep a reliable watchman on guard both night and day if found necessary. He will be held responsible for all property that may be injured or stolen while the building is in his care. He shall provide all necessary guards, rails, and night lights.

The drawings and specifications furnished for this work are to be considered instruments of service; are to be used for this building only; are the property of the architect, and must be returned to him immediately upon completion of the work set forth therein.

Generally, payments will be made as the work progresses, and in accordance with the terms of the contract, 10 per cent of the value of the work done being retained until the final acceptance of the work.

If the contractor fails to complete the work within the time specified in the contract, a forfeiture of \$5 will be exacted for each day's delay.

EXCAVATION.

Excavate for the cellar and foundation walls, piers, etc., of the dimensions and to the depths as shown on the drawings and required by the grade, and do any other excavating required to fully carry out the work herein specified.

The bottoms of all trenches for walls and piers are to be made wet and thoroughly tamped.

All the earth taken from the excavation is to be used for filling in and grading the premises as directed by the architect.

The grade line shown on the drawings is the established grade or line to which the ground will be graded at completion, and is to be the present grade of the lot.

Fill in around the walls and tamp the filling thoroughly. Grade the earth neatly away from the building.

Rake clear of stones and rubbish, fill in and grade the lot as directed.

CONCRETING.

Cover the entire surface of the cellar bottom with concrete floor 5 inches thick, including top dressing. The work to be performed as follows: The earth is to be wet and tamped thoroughly, upon which a bed of concrete 4 inches thick is to be laid, composed of one part "Atlas" Portland cement, three parts sharp, clean, coarse sand, and five parts of clean, broken stone all thoroughly mixed. The broken stone must be crushed to pass through a 2-inch ring. This base is to be thoroughly rammed and finished with slight grade toward rear cellar door. Finish with a top dressing of Portland cement mortar mixed in the proportions of one part "Atlas" Portland cement to two parts clean, sharp sand, free from loam and salt, properly screened and washed, to be troweled smooth.

BRICKWORK.

All walls, piers, chimneys, footings, etc., where brickwork is shown on the drawings, and unless otherwise specified, are to be laid up in dimensions as shown, with sound, hard, well-burned brick in lime mortar (except where cement is specified), with joints neatly struck. All brick are to be laid wet in dry weather.

All brickwork to be well bedded, tied in every sixth course, and worked in regular bond with full flush joints, leaving no interstices. All walls and piers are to be made level, to come to the exact height, and to have all necessary flues, channels, and openings, as shown or directed. Point up close to all sills, coping, and projections. Bed all frames solidly.

Fill the walls in solid between joist.

Put down two courses of footings under all walls, piers, chimneys, etc., the size of footings to be as shown on the plan and section.

All footing and foundation walls to height of grade, all piers entire height, to be of brick as specified above, stepped up as shown, and laid in Portland cement mortar; one part "Atlas" Portland cement and three parts coarse, clean sand, with no lime.

All walls will be 15 inches thick and piers 13 inches by 13 inches (porch piers 9 inches by 13 inches), as shown on plans. Furnish and build in a 10-inch terra cotta thimble in chimney in cellar and an 8-inch thimble in kitchen flue for smoke pipes; build in 6-inch thimbles in each flue in other rooms, 18 inches from ceiling.

Construct the chimneys as shown on the drawings. In all cases there must be 4 inches of brickwork between the inside of smoke flues and any timber or wood work. The chimney must be built entirely clear of the framing, all flues to run to the top independently. All flues to be lined their entire height with terra cotta flue lining, jointed in full bed of mortar and laid straight and clear.

There is to be a course of slate, full thickness of the wall, laid in cement mortar bed, at top of grade.

Face all of the exterior walls of the building from grade line to underside of water table, including chimney above roof, base to front porch, with red brick, laid in lime mortar with $\frac{3}{8}$ -inch joints. The joints are to be close struck.

STONEMWORK.

Furnish and set sills for all cellar windows, as shown, 3 inches thick and 2 inches longer at each end than the openings: to project 1 inch beyond wall line and to extend 2 inches under the wood subsills; to be rubbed on top, and set with 1-inch wash.

CARPENTRY.

The carpenter shall do all cutting of timber and woodwork required by the other contractors to properly carry out their work, but he shall not do any cutting which may weaken the work, without the consent of the architect.

All lumber, except otherwise particularly specified, is to be of No. 1 Virginia or North Carolina pine, sound, well seasoned, and free from any imperfections materially impairing its durability or strength, and is to be set with the crowning edge up. The girders in cellar are to be 8 inches by 10 inches, and can be made of four 2-inch by 10-inch beams bolted together; floor joists 2 inches by 10 inches, 16 inches on center. Ceiling joists 2 inches by 6 inches, 16 inches on center. Roof rafters 2 inches by 10 inches, 20 inches on center. Headers and trimmers to be doubled timbers. Studding and plates 2 inches by 4 inches, set 16 inches on center. Corner posts to be 4 inches by 6 inches with 2 inches by 4 inches spiked to side. Wall plates and sills 4 inches by 8 inches.

Braces 4 inches by 4 inches long, having a run of not less than 6 feet, are to be set at all corners of the frame in each story, and are to be framed into the timbers at each end and spiked.

The sills and plates are to be halved at the corners and spliced.

The second story is to be built up on the 2-inch by 10-inch ceiling joist of first story, carefully spiked to the same and braced thoroughly.

Bridge all floor beams with one row of 4 inch by 3 inches cross bridging to each span of beams exceeding 8 feet, cut in and nailed at each end. Bridge stud partition walls in both stories, running lengthwise of the building twice in each story, and all other partitions once in each story with 2-inch by 4-inch pieces, cut horizontally and nailed at each end.

Double the floor beams under partitions running the same way. All beams are to rest at least 4 inches on the walls, and on center partitions must lap each other, and be spiked firmly together. All girders and beams must be wedged up with slate where they rest on the wall.

Frame headers and trimmers for stair openings, and frame around chimneys and for plumber's pipes. Set the partitions, as shown on the plans, with 2-inch by 4-inch studs, set 16 inches on centers, straight and plumb. Partitions directly over girders in cellar or partitions plates below are to be run down to them and are not to rest on the floors. Provide all brick openings with rough wooden sills not less than 4 inches thick, and resting 3 inches on the walls. Construct

Slope roof in rear as shown on section, to throw water down to gutter.

Cover the entire frame and roof with Virginia pine sheathing, surfaced on one side to an even thickness, put on diagonally and nailed to every bearing. Cover the sheathing with Non-solvent red rope sheathing paper laid with not less than 2-inch lap. Line with the same paper under all corner boards, casings, etc.

Cover sheathing on first story to top of window heads, as shown, with No. 1 Virginia rustic siding 6 inches wide, nailed to every bearing, with nails set in for putting.

The balance of the frame including the roofs, and excepting deck to second story over office, to be covered with sawed cypress shingles, laid 6 inches to the weather, with narrow open valleys and with a capping course run up the hips and over the other shingles. All shingles are to be dipped by the painter before put on.

Cover the deck over office on sheathing, with Paroid Roofing Felt (manufactured by F. W. Bird & Son, East Walpole, Mass.), laid with 2-inch lap, with joints in elastic cement and tightly nailed to sheathing. Flash and counter flash under Paroid Roofing and over all window and door heads, valleys, chimneys, etc., and wherever needed with redipped IX tin, painted both sides before put on.

Put on a ridge roll and finish of galvanized-iron to roof of front porch, as shown on elevations.

Construct a privy 4 feet by 4 feet in size, in rear of building where architect directs. Build up with $\frac{1}{2}$ -inch by 10-inch matched pine boards planed on both sides. Construct a seat with two large holes and a low seat with one small hole. Form the risers $\frac{3}{4}$ -inch thick and seats $1\frac{1}{2}$ inches thick. Provide lids over the holes hollowed out at the front and hung with iron hinges. Lay the floor with $\frac{1}{2}$ -inch by 6-inch matched pine flooring. Form the roof 7 feet high at lowest point and graded to throw off water of $\frac{3}{4}$ -inch by $3\frac{1}{2}$ -inch beaded ceiling boards. Cover roof with Paroid Felt Roofing like deck over office. Provide a four-light sash in the side arranged to slide, and provide and hang a batton door 2 feet 6 inches by 6 feet with thumb latch, handle, and lock complete. Set privy on heart pine supports with proper uprights, etc., to make all a complete and strong job. Excavate pit for privy and board up sides with 2-inch heart pine planks; dig deep enough to strike water.

Construct two tanks, one in cellar 5 feet by 5 feet by 5 feet 6 inches, and one under roof 3 feet by 5 feet by 3 feet, where shown; form the bottom of two thicknesses of $1\frac{1}{2}$ inch surfaced pine plank, lapping at the corners. The parts of the tanks are to be strongly spiked together. Construct a cover of matched and beaded pine boards, with 1-inch by 6-inch battens secured to the under side. Provide handle to lift up. The tanks are to be lined with galvanized iron as specified under "Metal Work."

Form lookouts and brackets for cornice work. Build coal bins and partition to heater and tank rooms in cellar of $\frac{1}{2}$ -inch rough boards running from floor to ceiling, with boards to slide in partitions of bins, as shown, for coal opening.

Form openings to doors in heater room and tank room, as shown. Set grounds to all door and window openings before plastering is commenced.

Build the porches as shown. The flooring to be $1\frac{1}{2}$ -inch heart pine, 3-inch face, painted in tongue and groove with white lead before laid, and nailed secretly to 2-inch by 6-inch timbers. There to be 1-inch risers and $1\frac{1}{2}$ -inch treads heart pine boards, dressed both side and edges with nosing on face of treads. Form posts, balusters, and rails of stock white pine material; build all securely and fasten to wall of building. Girders to porches to be 6-inch by 6-inch timbers. Form the ceiling to rear porches level with $\frac{1}{2}$ -inch by 3-inch tongued and grooved and beaded clear pine boards. Fill in under side porches between piers with square lattice work. The columns are to be 6 inches square with moldings to form caps, etc.

The balusters are to be $\frac{1}{2}$ inches by $1\frac{1}{2}$ inches. The top and bottom rails are to be stock material. This applies to rails to balcony also. The balcony posts are to be 4 inches square as shown. The baluster work between posts is to be made of $\frac{1}{2}$ -inch by $1\frac{1}{2}$ -inch strips, as shown. Build seats as shown on front porch—open under seat. Seat to be of $1\frac{1}{2}$ -inch heart pine boards dressed both sides, arms to be of 2-inch plank sawed to shape, as shown, back to be balusters.

Furnish, and build up as shown, all the facias, moldings, bases, etc., to make work complete and satisfactory.

All work for porches, except as otherwise particularly specified, is to be of clear, white pine.

Form gutters with proper drain to each end where conductors show. The gutters are to be lined with tin and drain to the rear of the building and connect with downspout to tank in cellar. The gutters are to be made $1\frac{1}{2}$ -inch by 4-inch strips set on edge and nailed to the roof. Put up $1\frac{1}{2}$ -inch by 3 inches by 5 inches sawed pine brackets, set 4 feet apart.

The flooring throughout the building is to be No. 1, Virginia pine, $\frac{3}{4}$ inch by $2\frac{1}{2}$ inches, tongued and grooved, blind nailed to every joist, and heading joints struck off.

Fit up the closets and pantries with shelving, as shown on plans, made of $\frac{1}{2}$ -inch by 12-inch white pine boards, dressed both sides and on edges.

Furnish and set an oak dripboard around sink in kitchen. Provide heart pine saddles for all doors.

All of the exterior woodwork to be clear No. 1, white pine, and all of the interior woodwork to be clear No. 2, white pine.

The window frames are to be made for ordinary box windows 2-inch sills and $\frac{3}{4}$ -inch subsills; $\frac{3}{4}$ -inch by 5-inch molding outside casings, as shown, double sash, with $1\frac{1}{2}$ -inch jambs; the sash are to have weather-lipped meeting rail; to be rebated for glass, and divided into lights as shown. The sash are to be $1\frac{1}{2}$ inch thick. Use stock stuff for sash as near these sizes as possible, not to be over $\frac{1}{2}$ inch less. All sash in first and second stories are to be hung with Silver Lake sash cord and iron weights; the cellar sash are to be hinged and swung from top. The windows in first, and second floors, are to be fitted with outside blinds, $1\frac{1}{2}$ inch thick, stationary slats. The blinds are

rior are to have 1½-inch jambs rebated on one edge. All other jambs are to be rebated on the solid, and to be 1½ inch thick.

All doors are to be paneled and molded, and are to be well kiln dried. They are to be made in four panels, in size to suit openings. The main front door is to be 2 inches thick, molded and paneled, as shown. Other doors to be 1½ inch thick. The doors marked "glazed" are to have upper panels above lock rail left out and made to receive glass.

The contractor is to furnish all inside sills, window beads, corner beads, etc.

All interior woodwork is to be finished up perfectly clean, and is to be hand smoothed, scraped, and sandpapered.

The architraves throughout are to be 5 inches wide by ½ inch, molded, with molded plinth and corner blocks. The base throughout is to be 8 inches high, including 1½-inch base molding and shoe at floor. All closet trim is to be ½ inch by 3 inches and the base ½ inch by 6 inches, plain beveled. The apron to be same as trim, with return at ends.

Furnish and put a 2-inch by 4½-inch molded chair rail in the dining room, kitchen, and office, the top of rail to be 3 feet from floor, except in kitchen which is to be 4 feet 6 inches from floor.

All mill work, so far as possible, to be stock stuff and sizes.

STAIRWORK.

Construct the stairs as shown on scale drawings. Support properly, and secure in position. The carriages are to be 2 inches by 12 inches—2 to each flight. The risers are to be ¾-inch Virginia pine and treads 1½-inch North Carolina pine, tongued and grooved together. The treads are to have a nosing on edge, with a cove under. The wall string to be 1½ inch, molded on top edge to correspond with adjoining base. The front string is to be 1½ inch, carried around well holes. The rail is to be 2½ inches by 3½ inches, double molded, and bolted together and to all posts. The balusters are to be 1½ inches, square top and bottom and turned in shaft, set 3 to a tread. The main newel to be as shown, 6 inches square, and turned in shaft. Landing newels to be 4½ inches square, boxed, with square-turned cap and drop. All stairwork, except risers and treads, to be clear No. 1, Virginia pine, ash, or cabinet oak. Form and make a tongued and grooved spandrel under main flight in first story, as shown.

The stairs to roof will have no risers, but treads must be let in front, and wall strings with cleat underneath each end of same. The cellar stairs will have no risers, but treads to be like other stairs, carriages to be rough 2 inches by 12 inches. All stairwork to be made from stock material, designs to be selected by the architect.

The finish work of stairs is to be put up after plastering is completed and plumbing and radiators are up on second floor.

PLASTERING.

Whitewash all of the brick walls and partitions in cellar with one good coat, using Rockland lime and plaster of paris.

The plasterer is to lath all frame partitions and ceilings of every description in first and second stories, and under stairs on first floor, with sound, dry lath, put on ¾ inches apart, with joints broken every 18 inches. No lath to be put on vertically nor to run from one room to another.

Plaster all work which is lathed after the method known as "laid on" work, as follows: Put on two coats of mortar, a scratch and brown, composed of thoroughly slacked pine lime strained through a ½-inch mesh screen, and clean, sharp sand, free from loam and salt, the scratch composed of ½ bushel of goat hair and 1 barrel of lime to 3 barrels of sand, and the brown coat of ¼ bushel of cattle hair and 1 barrel of lime to 6 barrels of sand. All hair is to be well beaten, soaked, and thoroughly mixed in. Stack the brown mortar at least 10 days, and the scratch 3 days before using. The brown coat is to be laid on over the scratch immediately after the scratch is applied. The brown coat is to be thoroughly dry before the finish coat is applied. The ceiling of the cellar is to have one coat of plaster floated up smooth.

Finish the rough plaster with a coat of hard finish, composed of lime, putty, white, clean sand, and plaster of paris, finished and troweled to a smooth and polished surface, free from defects or brush marks.

Run beads on angles to all arches. The plaster in all cases is to run to the floor. Do all patching of plaster work required after other mechanics have finished, repairing all cracks and broken places, and leave the plastering in a first-class condition.

The kitchen is to be plastered 4 feet 6 inches high in cement mortar, using Keene's Victoria or Adamant cement plaster, white finish, and blocked off to imitate 3 inch by 6 inch tile.

GLAZING.

All sash throughout the building are to be glazed with first quality, single thick, American glass. All doors, where marked, are to be glazed with Chance's figured rolled glass, "Maze" design.

PAINTING.

All of the materials are to be of the best of their several kinds in quality as herein specified; all labor is to be performed in the best manner by skilled workmen, and both are to be subject to the approval of the architect.

and ceilings of the porches with three coats of pure linseed oil and pure white lead. Paint all metal work with one coat of Prince's metallic paint, and three coats of pure linseed oil and pure white lead.

Paint all of the interior wood work of every description, except hard wood of stairs and shingles, with three coats of pure linseed oil paint in such colors as the architect directs.

The hard wood of stairs to be filled with a paste filler and thoroughly rubbed, and three coats of best hard oil rubbed after each coat.

The shingles are to be dipped three-fourths their length in Cabott's emerald shingle stain before put on the building, and receive a brush coat after work is completed. The shingles to roof to be colored with No. 225 (red) and the shingles on side of office and those forming frieze to first story under eaves to be colored with No. 227 (brown) stain. The clapboards are to be painted colonial yellow, all trimmings, cornices, etc., white.

MANTELS.

There is to be a mantel in parlor and one in dining room, with cabinets, mirrors, etc., at a cost not to exceed \$20 each, with tiling and fireplace work in dining room. The contractor is to furnish these mantels and set in place, the same to be selected by the architect.

RANGE.

The contractor is to furnish and set in place, where marked in kitchen, a No. 88, Thatcher portable range, with left-hand oven, water back, etc., complete and with warming closets and boiler above. Range is to set on sheet of zinc which is to run from wall to points indicated by dotted lines. Zinc is to be neatly tacked to floor.

HARDWARE.

All the following hardware is to be furnished and put on by the contractor. The goods are to be Russell & Erwin Manufacturing Co.'s make, unless otherwise specified, and numbers here given refer to their catalogue. All hardware is to be properly put on with screws in finish to match. The finish throughout is to be oxidized copper on iron, except front door hardware, which is to be oxidized copper on genuine bronze.

All sash in first and second stories to have Ives patent sash fasteners, two flush lifts, No. 154, to each sash. All cellar sash to have two iron hinges $2\frac{1}{2}$ inches by 3 inches, two iron buttons, and one steel hook and staple.

The outside blinds are to be hung with steel parliament blind hinges and fastened with Zimmerman's latest and most approved shutter bar and sill catches.

The front door is to have mortise lock with oxidized copper face, No. P-1256, with three keys complete; three 5-inch by 5-inch hinges No. 61, and combined rose and escutcheon No. 301, with knob No. 931, design Wayne. All other doors to have each two $4\frac{1}{2}$ -inch by $4\frac{1}{2}$ -inch hinges No. 7050, mortise locks with villa door set No. 5218.

The closet doors to have mortise knob latches No. 047, with metal knobs and escutcheon like other doors.

The doors leading from hall to kitchen, and from kitchen to dining room, to be equipped with Bommer double acting spring hinges, japanned on steel finish, with 3-inch by 15-inch push plates.

Fit up all closets and pantries with necessary number of hooks, brackets, drawer pulls, etc., complete, and any other articles necessary to make building complete.

SCREENS.

Furnish and set in place to all windows and outside doors in first and second stories, fly screens made by the Barrow's Screen Company, of Portland, Me., or the Higgins metal screen. The wire is to be copper or made impervious to salt air. The screen doors are to correspond in panels to other doors.

STEAM HEATING.

DESCRIPTION.

The work covered by the specifications embraces the furnishing and putting in of steam-heating apparatus in Weather Bureau building at Hatteras, N. C.

The apparatus will be arranged for a one-pipe, low pressure, circulating system. The steam is to be derived from the boiler located in cellar and to be furnished to the radiators through a system of piping.

The apparatus when completed must have a perfect circulation of steam and return water from all parts with one-pound pressure, and be entirely free from all hammering and cracking noises when in operation.

BOILER.

The contractor will furnish and set complete in all respects, one sectional cast iron, steam-heating boiler for hard or soft coal as directed, of not less than 475 square feet capacity, equal to the model manufactured by the Model Heating Company, Philadelphia, Pa. Boiler to be provided with the necessary castings, including base, grate, fire door and frame, soot doors, check draft for chimney, shaker, etc.

Grates.—The boiler will be provided with improved rocking and damping grates of heavy pattern, furnished with lever handle.

Protection.—All work and material must be properly protected, and before the heating plant is accepted the contractor is to be put every portion of the work in first-class condition, at his expense, and will make good all damage to building caused by his workmen, and will remove all rubbish from the premises.

Furnish and attach to boiler all necessary fixtures, consisting of:

Steam gage.—One 5-inch, brass case, American pattern, improved, full Bourdon, spring steam gage, with black dial and light figures, and provided with gage-cock and siphon.

Water gage.—One 3-inch by 10-inch water gage, with finished square body, four guards, bottom waste cock, top and bottom valves, and hardwood wheels.

Gage cocks.—Three gage cocks, with soft metal seats, stuffing boxes, and hardwood handles.

Safety valve.—One 1½-inch all brass, improved pop safety valve, with side outlet, set for 15 pounds pressure.

Automatic damper regulator.—One improved damper regulator, with adjustable weight, to be attached to boiler above water line, provided with brass gate-valve and cast-iron drum trap and drip cock. The regulator to have brass chain and pulley, and be so adjusted as to regulate the draft and maintain the required pressure without attention.

Tools.—One full set of stoking and firing tools, consisting of a poker, one suitable steel brush with jointed handle, one scoop, one straight-handled shovel, and one 3½ pounds poil pick.

Water connection.—One ¾-inch brass steam cock, with hose connection.

Blow-off.—Provide and connect to the boiler a 1½-inch blow-off pipe, with hose connection.

Boiler test.—The boiler will be tested to 100 pounds cold hydrostatic pressure before leaving the shop. Certificate of test to be given the officer in charge.

Smoke pipe.—Connect the boiler to the chimney by means of a smoke pipe made of No. 14, galvanized iron of suitable dimensions, and place in pipe a shut-off damper with lever handle and automatic adjustable attachment.

CONNECTING PIPES.

The above-described boiler will be connected to the radiators throughout the building by means of a one-pipe circulating system. Run steam main from top of boiler along ceiling of basement, graded in direction of flow of steam not less than 1 inch in 10 feet. Drop main to basement floor as soon as practicable. All the branches to be taken off from the top of steam mains, with elbow and nipples. The connections between radiators and risers to be made above floors, where possible, with a good fall toward risers. All pipes to be graded toward outlet without forming any traps.

Valves on mains.—Provide suitable brass gate valves for feed and return pipe.

Expansion of pipes.—All pipe work will be so constructed that it will be free for contraction and expansion, so that it will not damage any other work or effect injury to itself.

Pipe supports.—All steam and return pipes will be suspended with suspension pipe hangers of approved pattern.

Flanges and unions.—All risers will be put on with right and left couplings. At suitable places on the main supply and returns locate right and left couplings or flange unions; couplings can be used on all pipes up to 2 inches in size, all over must be made up with flange unions, made tight with asbestos gaskets. Arrange these connections so that any part of the apparatus can be disconnected without injury to the balance. Eccentric fittings to be used in steam mains where necessary to insure unobstructed flow of water condensation.

Risers.—All risers will be run with off-set fittings, so that the pipes will be about 2 inches from the wall.

Insulation.—Where pipes pass through floors and through wood partitions they will be provided with Vosburg adjustable cast-iron floor thimbles (manufactured by N. O. Nelson Manufacturing Company, St. Louis, Mo.), with floor and ceiling plates, nickel plated, and where they pass through brick partitions, with neat galvanized-iron sleeves.

Pipe covering.—All exposed steam and return pipes, and fittings in basement, and where risers pass through space between first floor ceiling and office floor, to be covered with best quality magnesia sectional covering, containing not less than 50 per cent magnesia, or with 4-ply air cell covering, composed entirely of asbestos paper, with all cells regular and clearly defined. All coverings to be covered with 6-ounce canvas and put on with pure sheet brass straps, not less than 1 inch wide or more than 18 inches apart. It must be put on true and even in the most workmanlike manner and all joints made tight with plastic asbestos. All magnesia covering to be molded in two sections.

Boiler covering.—Boiler to be covered with 3-ply asbestos air cell covering put on with 1½-inch brass straps, otherwise as specified above.

Pipes.—All pipe used will be new, of best make, and of standard weights and sizes, all over 1½ inches to be lap welded; all pipes must have burr removed from ends.

Fittings.—All fittings used in this work will be of standard size and weight, fine-grained, gray cast iron, with double lead and clear cut taper threads, without a malleable fitting, lock nut or running thread in any part of the apparatus.

Joints.—All screw joints to be made with taper threads, iron into iron, and perfectly tight without the use of red lead or cement of any kind; all flange joints to be made with best quality packing.

column Boco radiators of approved pattern and standard weights, 42 inches high. Sections to be put together with heavy right and left cast-iron screw nipples in heat in center. Radiator in heat to consist of four 7-foot sections of wall radiators equal to the Fowler & Wolf, put together as above.

Size of radiator.—Location of radiators to be as directed. Where bidder thinks more surface is required for exposed position, he will add the amount needed to furnish the required amount of heat, and state in his bid the cost of the extra.

Valves on radiators.—Each radiator or heater will be operated by one Jenkins Bros. diaphragm brand valve, with unions of proper size, which shall be of the best steam metal, extra heavy, finished with rough body heavily nicked and provided with polished hard wood handles. All radiator valves to be offset or corner valves where required, and will be connected to the heaters by ground brass, nickel plated unions, so that any one radiator can be disconnected without reducing the steam pressure or interfering with the balance of apparatus.

Air valves.—Each radiator will be provided with perfected duplex automatic air valve (manufactured by the Monash Younger Manufacturing Company, Chicago, Ill.), full nickel plated. All valves must have the above-named stamp on outside.

Painting.—All direct radiators will be finished in aluminum bronze. All exposed pipes, castings, etc., to be painted with galvanic varnish, manufactured by the Chicago Fireproof Covering Company. All pipes exposed in rooms will be painted to match radiators.

Cutting.—Do all cutting to admit work, and make same good again, and any damage done to the building during progress of the work to be made good at contractor's expense.

Carpenter work, etc.—The contractor will do all cutting and replacing of woodwork. Where joints are cut to allow for passage of flues, they will be properly trimmed. All plastering and finish soiled or damaged by operations of contractor to be thoroughly replaced.

Workmanship.—All work to be done in a neat, substantial, and workmanlike manner, and the apparatus when completed to be thoroughly tested and left perfect in its working, to the entire satisfaction of the officer in charge.

The sizes of branches and risers to radiators and radiator valves to be in accordance with tapping list for one pipe system on page 66, American Radiator Company's catalogue.

METAL WORK.

Furnish to the carpenter for flashing all the redipped tin necessary to properly flash around all window and door heads, chimneys, cornice tops, etc. The tin work is all to be painted both sides before put in place. The wood gutter on roof to be lined with tin forming proper grade to rear of building. The scuttle top to be covered with tin and sides of scuttle to be tinned and extend under finished roofing at least 6 inches, as is also the cornice top. The back of cornice on rake of deck to be tinned and flashed and counter flashed, and thoroughly soldered and made water tight. There will be two 2-inch down spouts in rear from gutter to run into tank in cellar from outside of building, and of galvanized iron. Furnish and set on ridge of porch roof a ridge roll and finish, as shown, with galvanized iron.

The valleys to roof to be lined with tin 20 inches wide, well soldered and nailed to sheathing.

The tanks are to be lined with heavy galvanized iron and made water tight, all joints to be well soldered.

PLUMBING.

Furnish and set in kitchen, where shown, an 18 inch by 32 inch galvanized-iron sink set on galvanized-iron brackets, with two faucets, lead waste, connected with tank under roof, and boiler over range with $\frac{3}{4}$ -inch galvanized-iron pipe, with all fittings, etc., complete. The boiler will come with the range as specified but the plumber is to make all connections between range, boiler, sink, and tank so that sink can be supplied with both hot and cold water. The waste from sink to have S trap and run down through cellar and to a point outside of the wall of the building at least 50 feet, under ground and below frost line.

The plumber is to furnish and set in place, where directed by the architect, a force pump, of approved make and guaranteed, which is to be connected with both tanks, and force water from tank in cellar to tank under roof. He is to furnish both tanks with $\frac{3}{4}$ -inch galvanized-iron overflow pipes, run through the roof and side wall, as the case may be. All work to be strictly first-class, complete, and guaranteed.

PROPOSAL FOR A TWO-STORY AND CELLAR FRAME AND BRICK BUILDING FOR THE WEATHER BUREAU, U. S. DEPARTMENT OF AGRICULTURE, AT HATTERAS, N. C.

Place

Date, 1901.

THE HONORABLE
SECRETARY OF AGRICULTURE
Washington, D. C.

SIR :

The undersigned hereby agrees to furnish all labor and materials required for the erection and completion of the frame and brick building for the Weather Bureau, U. S. Department of Agriculture, situated at Hatteras, N. C., in strict accordance with the specifications and drawings prepared by C. L. Harding, Architect, Washington, D. C., for the sum of \$.....

.....
.....

Time to complete

[Signature]

Members of firm : [Address]

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.....
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Accepted, 1901.

.....
Secretary of Agriculture.

REGULATIONS FOR THE SERVICE.

HEATING.

The work covered by the specifications embraces the furnishing and setting in of steam-heating apparatus in Weather Bureau building; A

The apparatus will be arranged for a one-pipe, low-pressure circulating system. The steam is to be derived from the boiler located in cellar and to be furnished to the radiators through a system of piping. The heated air to be exhausted through the fireplaces, or through vents.

The apparatus when completed must have a perfect circulation of steam and return water from all parts with one-pound pressure, and be entirely free from all hammering and cracking noises when in operation.

BOILER.

The contractor will furnish and set complete in all respects, one ranging, or equal, wrought-iron, steam-heating boiler for hard or soft coal, of not less than 400 square feet capacity. Boiler to be enclosed in a casing of galvanized iron with a sheathing of heavy asbestos. Boiler to be provided with the necessary castings, including base, fire door and frame, foot doors, check draft for chimney, ashker, etc., and to have fusible plug in crown sheet.

GRATES.- The boiler will be provided with improved rocking and dumping grates of heavy pattern, furnished with lever handle.

PROTECTION.- All work and material must be properly protected and before the heating plant is accepted the contractor is to put every portion of the work in first-class condition, at his expense, and will make good all damage to building caused by his workmen, and remove all rubbish from the premises.

BOILER FIXTURES.

Furnish and attach to boiler all the necessary fixtures, consisting of:

STEAM GAUGE.- One 5-inch, brass case, American pattern, improved, full scale, or equal, spring steam gauge, with black dial and light figures, and provided with gauge cock and siphon.

WATER GAUGE.- One 5/8 X 20-inch water gauge, with finished square body, four joints, bottom waste cock, top and bottom valves, and hard-wood wheels.

GAUGE COCKS.- Three gauge cocks, with soft metal seats, starting boxes, and hard-wood handles.

SAFETY VALVE.- One 1 1/2-inch all brass, improved pop safety valve, with side outlet, set for 15 pounds pressure.

AUTOMATIC DAMPER REGULATOR.- One improved damper regulator or equal, with adjustable weight, to be attached to boiler above water line, provided with brass gate valve and cast-iron drum tray and drip neck. The regulator to have brass chain and pulley, and be so adjusted as to regulate the draft and maintain the required pressure without attention.

TOOLS.- One full set of stoking and firing tools, consisting of a poker, one suitable steel brush with jointed handle, one scoop, one straight-handled shovel, and one 5 1/2 pound pull pick.

WATER CONNECTION.- One 3/4-inch brass steam cock, with hose connection.

BLOW-OFF.- Provide and connect to the boiler a 1 1/2-inch blow-off pipe with hose connection.

BOILER TEST.- The boiler will be tested to 100 pounds cold hydrostatic pressure before leaving the shop. Certificate of test to be given the officer in charge.

SMOKE PIPE.- Connect the boiler to the chimney by means of a smoke pipe made of well galvanized iron of suitable dimensions, and place in

General Notes.

The boiler shall be connected to the radiators through the building by means of a one-inch copper line which will run from top of boiler along ceiling, or ceiling, provided in situation of floor of steam not less than 2 inch in ten feet. Drop down to base of floor as soon as practicable. All the branches to be taken off from the top of steam mains, with elbows and nipples. The connections between collectors and risers to be made above floors where possible with a good fall toward risers. All pipes to be ground tested until with out leakage.

VALVES OR TAPS.-Provide suitable brass gate valves for feed and return pipe.

PIPE SPEC. OF PIPES.-All pipe work will be so constructed that it will be free for contraction and expansion, so that it will not damage any other work or subject injury to itself.

PIPE SUPPORTS.- All steam and return pipes will be suspended with suspension pipe hangers of approved pattern.

COUPLINGS AND FITTINGS.- All risers will be put on with right and left couplings. At suitable places on the main supply and returns locate right and left couplings or flange unions; couplings can be used on all pipe up to 2 inches in size, all over rest be made up with flange unions, made tight with asbestos gaskets. Arrange these connections so that part of the apparatus can be disconnected without injury to the main. Eccentric fittings to be used in steam mains where necessary to insure unobstructed flow of water condensation.

BRASS.- All risers will be run with off-sets, so that the pipes will be about 3 inches from the walls.

INSULATION.- Where pipes pass through floors, and through wood partitions, they will be provided with Veasby or equal (manufactured by H.O. Wilson & Co., St. Louis), adjustable cast-iron floor thimbles, with floor and ceiling plates nickel plated, and where they pass through brick partitions, with best galvanized iron sleeves.

PIPE COVERING.- All exposed steam and return pipes, and fittings in basement, and where pipes pass through closets in upper floors, to be covered with best quality magnesic sectional covering, containing not less than 50 per cent magnesic, or with 4-ply air cell covering, composed entirely of asbestos paper, with all cells regular and clearly defined. All coverings to be covered with 6-ounce canvas and put on with pure sheet brass straps not less than 1 inch wide or more than 18 inches apart. It must be put on true and even in the most workmanlike manner and all joints made tight with plastic cement. All magnesic covering to be moulded in the sections.

PIPE.- All pipe used will be best of best material of standard weights and sizes, all over 1 1/4 inches to be lap welded; all pipes must have burr removed from the ends.

FITTINGS.-All fittings used in this work will be of standard size and weight, fine grained, gray cast-iron, with double head and clear cut taper ends, without a malleable fitting, lock nut or running thread in any part of the apparatus.

JOINTS.-All screw joints to be made with taper threads, iron into iron, and perfectly tight without the use of red lead or cement of any kind; all flange joints to be made with best quality packing.

HEATING SUPPLIES, ETC.

All rooms will be heated by direct radiation.

DIRECT RADIATION.- The direct radiation will consist of ornamental cast-iron 5 column Bocco radiators, or equal, of approved pattern and standard weights, 35 inches high. Sections to be screwed together with heavy right and left cast-iron nipples in best manner.

TYPE OF RADIATORS.- Location of radiators to be as directed. Where bidder thinks more surface is required for exposed position, he will add the amount needed to furnish the required amount of heat, and state in his



Office,	1 direct Rad.	60 sq.ft.	53 sq.ft.
Bedroom,	1 direct Rad.	26 sq.ft.	20 sq.ft.
Bedroom,	1 direct Rad.	26 sq.ft.	20 sq.ft.
Bedroom,	1 direct Rad.	26 sq.ft.	20 sq.ft.
Dining Room,	1 direct Rad.	33 sq.ft.	26 sq.ft.
Bedroom,	1 direct Rad.	26 sq.ft.	20 sq.ft.
Family Room,	1 direct Rad.	53 sq.ft.	46 sq.ft.
Hall.		3-7 ft.sections of	2-7 ft.sections
		Wall Radiators.	of Wall Radiators.

VALVES ON RADIATORS.- Each radiator or heater will be operated by one Jenkins Bros.diamond brand valve,or equal,with unions of proper size, which shall be of the best steam metal,extra heavy,finished with rough body heavily nickeled and provided with polished hard wood handles. All radiator valves to be off-set or corner valves where required,and will be connected to the heaters by ground brass,nickel-plated unions,so that any one radiator can be disconnected without reducing the steam pressure or interfering with the balance of apparatus.

AIR VALVES.- Each radiator will be provided with a Perfected duplex automatic air valve (manufactured by the Monash Younker Manufacturing Co. Chicago,Ill.),or equal,full nickel-plated. All valves must have the above name stamped on the outside.

PAINTING.- All direct radiators will be finished in aluminum bronze. All exposed pipes,casting,etc.,to be painted with galvanic varnish,manufactured by the Chicago Fire-proof Covering Co.,or equal. All pipes exposed in rooms will be painted to match radiators.

CUTTING.- Do all cutting to admit work,and make same good again, and any damage done to the building during progress of the work to be made good at Contractor's expense.

CARPENTER WORK,ETC.- The Contractor will do all cutting and replacing of woodwork. Where joints are cut to allow for passage of flues, they will be properly trimmed. All plastering and finish soiled or damaged by operations of Contractor to be thoroughly replaced.

WORKMANSHIP.- All work to be done in a neat,substantial and workmanlike manner,and the apparatus when completed to be thoroughly tested and left perfect in its working,to the entire satisfaction of the officer in charge.

The sizes of branches and risers to radiators and radiator valves to be in accordance with tapping list for one pipe system on page 66, American Radiator Co.,catalogue.

Relief pipes must be put in at each offset in steam main or wherever water of condensation is liable to obstruct the free flow of steam.

The sizes of steam mains to be not less than given on schedule below:

Size of Steam Mains.

- from 150 to 250 to be 2 inches.
- from 250 to 450 to be 2 1/2 inches.

U. S. Department of Agriculture,
Division of Accounts and Disbursements.
(Weather Bureau Branch.)

WASHINGTON, D. C., , 190

Basement door

at ~~Heather~~

to be
at least 3 feet

wide

Basement door at

Heather

Tatoosh

Chadway

Crescent

Point Reyes

must be 3 feet wide.

Basement door at

Bramorix, N.D., must

be 4 feet.

U S WEATHER BUREAU BUILDING
 HATTERAS N. C.
 C. L. HARDING ARCHITECT 1316 G ST.
 WASHINGTON D. C.



FRONT ELEVATION

SCALE 1/4" = 1'-0"

Present breezy has no cellar or basement

*Some up stairs
 under main
 on 2nd fl.*

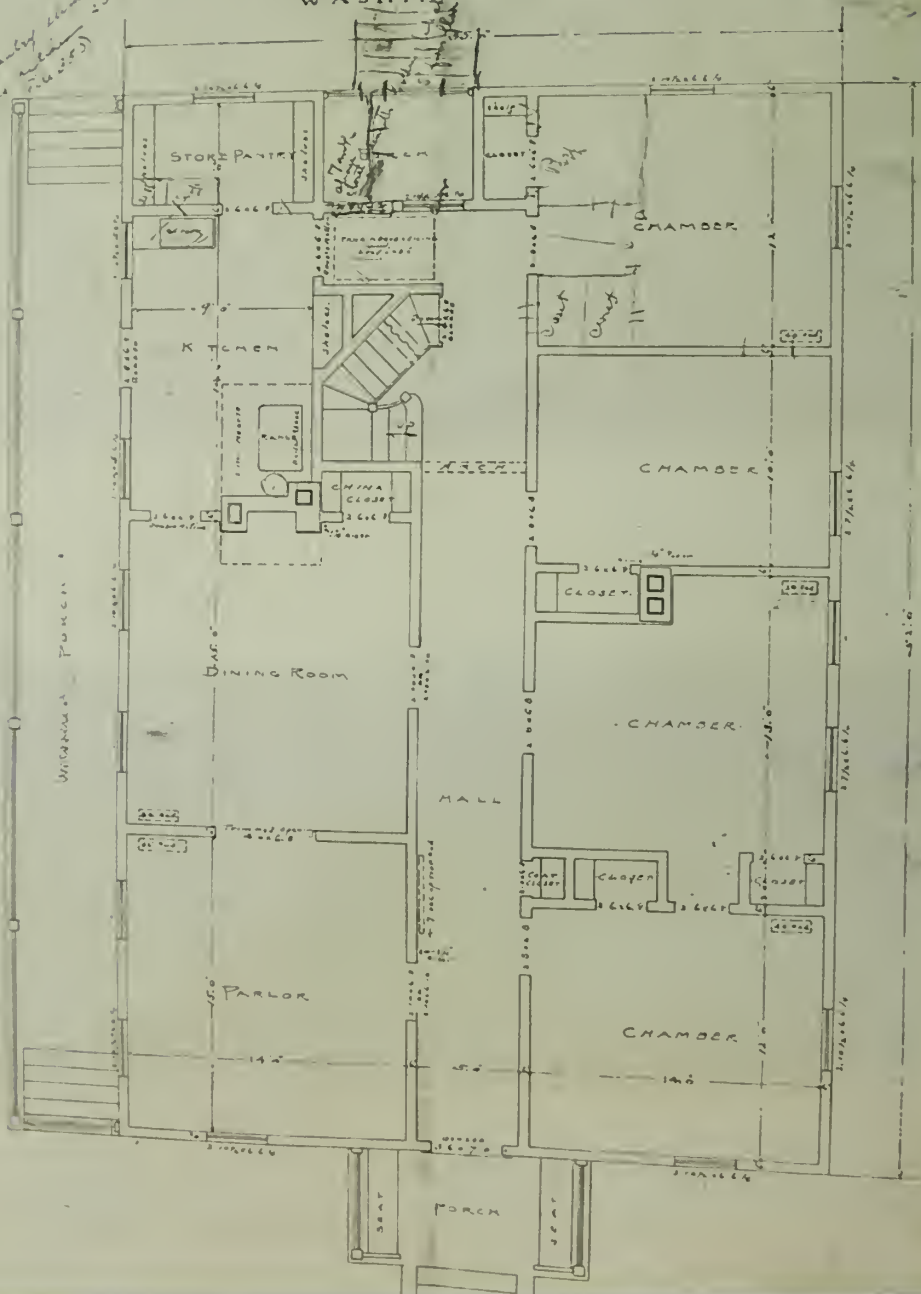
*new
 stairs
 angle*

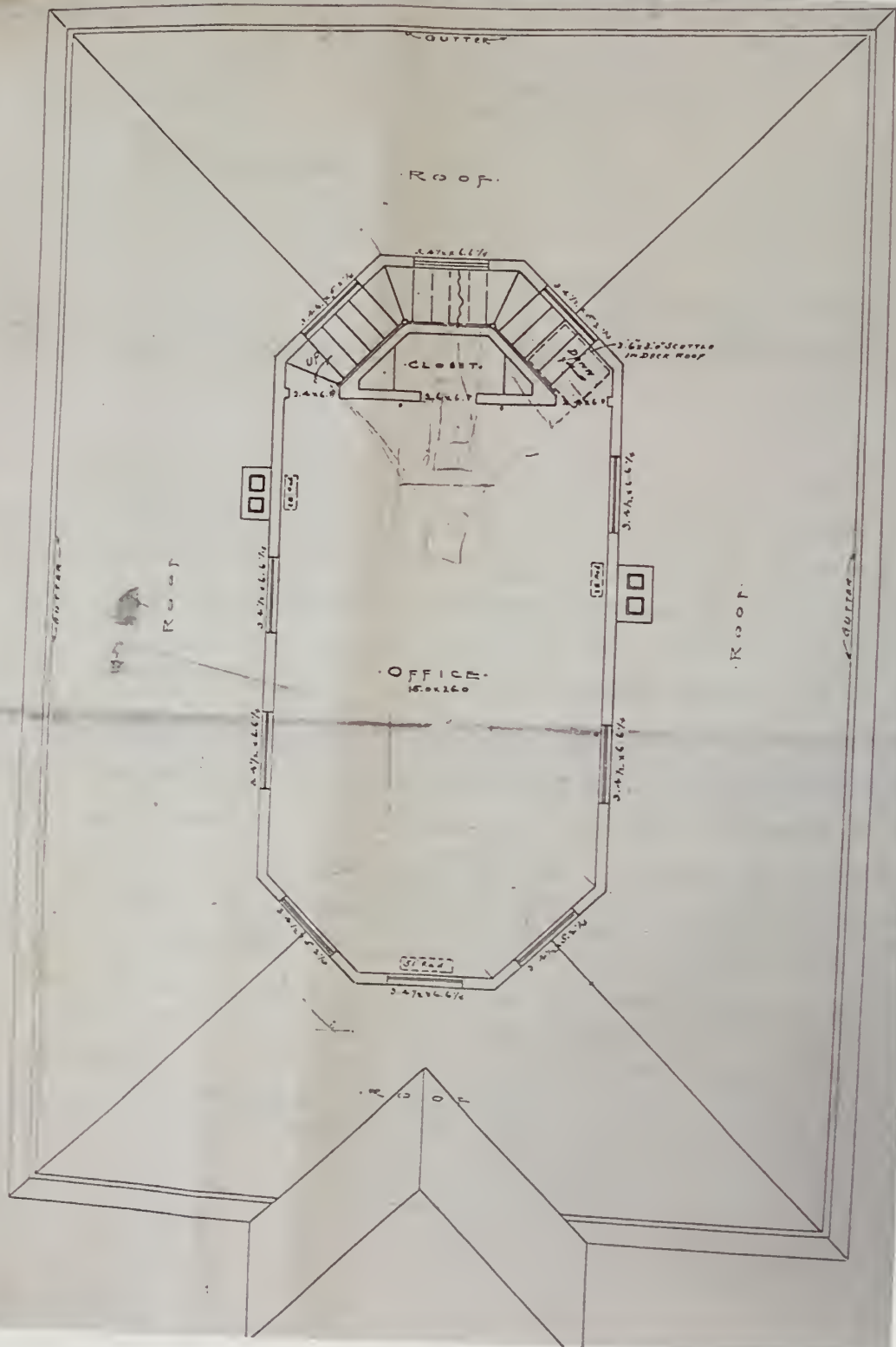
*put in
 hand*

U S WEATHER BUREAU BUILDING
 HATTERAS N C
 L. HARDING ARCHITECT 1316 G ST.
 WASHINGTON D C

Interiors
 H. C.

Handwritten notes:
 This plan shows...
 1916. 10. 25





L.R.12946 - 1906
WLM

Be

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU,
OFFICE OF THE CHIEF,
WASHINGTON, D. C.

December 29, 1902.

Mr. Alfred H. Thiessen,
Local Forecast Official,
Manteo, N. C.

Sir:

In answer to your letter of the 26th inst., making recommendations concerning the work in experiments in wireless telegraphy, you are hereby directed to arrange to close the station at Manteo. Sell at public auction such property as, in your opinion, is not worth shipping here; the other property you will have boxed and sent to this office. What do you recommend in regard to the disposal of the flagstaff? Could we get a bid on it if it were put up at public auction? The services of Mr. Wilson, the laborer, will be dispensed with. When you have closed the station, you and Mr. Pickels will report to this office for temporary duty while awaiting assignment. You can hire such temporary help in the boxing of property and in transporting the same to the steamboat

wharf as, in your judgment, is necessary. *If you wish to make a test between Manteo and Cape Henry before closing the station you can do so. I am very pleased with your work*

Very respectfully,

Will L. Moore
Chief U. S. Weather Bureau.

Recd APR 9 1903
L. R. 11-1903

Anemometer circuit.

U. S. Department of Agriculture,
Weather Bureau.

Tatters, N. C. Mar. 27, 1903.

To
The Chief of the Weather Bureau,
Washington, D. C.

Sir:-

I have the honor to report as to anemometer circuit.

Upon taking charge here last April, the large battery required on this circuit was noted, but as long as it worked well, nothing was done to disturb it. New instrument case arriving this month caused a change all around. Each circuit was tested in the most positive manner and all have worked well except the anemometer which requires no less than seven large gordon cells. The trouble has been located in the magnet or fine connecting wires.

If your office considers action necessary, it is believed the observer can take off present magnet and armature and put on a new set.

Very respectfully,
Albert J. Davis
Observer, Weather Bureau.

Cir. Chief Clerk May 15-03.

U. S. Department of Agriculture,
Weather Bureau.

Wetters, N.C. May 20, 1903.

To

The Chief of the Weather Bureau,
Washington, D.C.

Sir:-

I have the honor to acknowledge receipt of Circular, dated office of the Chief Clerk, May 15, 1903, relative to changes of title of officials of this bureau, and to say in reply to last paragraph of said circular, that the only one affected by the change at this station, is the undersigned.

In regard to taking the oath, it is doubtful if the observer will be able to comply, as there is no one here at present with authority to administer oaths. There is an official several miles distant, to whom the observer can apply, if authority to incur expense of horse hire is allowed.

Very respectfully,

Albert J. Paris.

Observer, Weather Bureau.

Stranded Vessel.

U. S. Department of Agriculture,
Weather Bureau.

Ytteroy, E. C. May 25, 1903.

To
The Chief of the Weather Bureau,
Washington, D. C.

Sir:-

I have the honor to report that about 1:30 a.m. the 23d, four masted schooner Inez. N. Carver went ashore two miles south of New Inlet L. S. Station.

A heavy thunder squall was in progress with wind from all directions estimated 70 to 90 miles per hour.

Vessel was light, bound from New York for Brunswick, Ga. Crew of 8, who remained on board ship, there being no danger.

Life saving crews from New Inlet and Chicocomico boarded her 2 a.m. and remained on board till she was ready to float, which took place 3 a.m. 24th, inst.

Very respectfully,

Albert J. Davis.

Observer, Weather Bureau.

U. S. Department of Agriculture,
Weather Bureau.

Waters, N. C. June 8th, 1903.

We, the undersigned, owners, agree, to sell, transfer and convey to the U. S. Weather Bureau, Department of Agriculture, a strip of land adjoining present Weather Bureau property on Northwest side, extending full length, 112 feet along Northwest line and 35 feet in width, for the sum of seventy five dollars (\$75.00).

Also in consideration of this sale, they agree to give roadway from this piece of land to the boat landing for the of landing freight and supplies for this station, forever.

John M. Rollins
W. H. Rollins

Witness: *F. J. Walz*
 Chief
Witness: *Albert J. Davis*

wreck.

U. S. Department of Agriculture.
Weather Bureau

Hatteras, N. C. June 24, 1905.

Chief of Weather Bureau,
Washington, D. C.

Sir:-

I have the honor to report stranding of four masted schooner
"Lucy H. Russell" half mile south of Gull Shoals, L. S. S. about 2 a.m.
21st, inst. during a heavy thundersquall and northeast gale.

Vessel was bound from Boston, Mass. Light, for Brunswick, Ga.

Capt. Burgh and crew of 10 men remained on board till daylight,
as there was no immediate danger, then came ashore.

The vessel has since suffered by reason of easterly winds and
bounding on the bar so that she is filled with water and will
probably become a wreck.

Very respectfully,

Albert J. Davis

Observer, Weather Bureau.

station.

Hatteras, N.C. July 16th, 1903.

Chief of the Weather Bureau,
Washington, D.C.

Sir:-

I have the honor to report that paragraph 6, page 10, Instruction to Observers, 1895, relative to transfer of station, has been complied with in the transfer of this station to Mr. S. E. Doshier.

I have informed Mr. Doshier as to the location of all Government property, -introduced him to such citizens here as are interested in the work of the Bureau, and given him all the information possible so as to enable him to intelligently take up the duties of the station.

Turned station and property and records over to Mr. Doshier this 10 a.m.

Very respectfully,



S. E.
Asst. Observer, Weather Bureau.

Assistant Observer, Weather Bureau.

REQUISITION

FOR THE QUARTERMASTER'S OFFICE, U.S. ARMY

27th

November

1944

QUARTERMASTER

Quartermaster

2	Bands, rubber, gross	X	13	Pencils	X
10	Books, blank, assorted	X	2	Penholders	X
3	Brushes	X	1	Ribbon, record	X
4	Chimneys	X	1	Sealing wax, sticks	X
12	Connectors, battery	X	36	Soap, cakes	X
1	Duster, feather	X	1	Stick, measuring	X
70	Elements, recharging	X	2	Tacks, packages	X
236	Envelopes	X	2	Tacks, oz.	X
1	Eradicator, ink	X	6	Towels	X
1	Eraser, rubber	X	6	Tumblers, glass	X
1	File, Shipman's	X	6	Waste, cotton, lbs.	X
1	Ink, quarts	X			
1	Ink, red, bottle	X	1	Eraser, steel	Y
72	Matches, boxes	X	1	Seat, leather, chair	Y
1	Mucilage, quarts	X	1	Shears, pair	Z
10	Nails, lbs.	X			
1	Oil, bottles	X			
12	Oil board, sheets	X			
18	Paper, blotting, sheets	X			
12	Paper carbon, sheets	X			
6	Paper, clip, packages	X			
5	Paper, legal cap, qrs.	X			
5	Paper, letter, quires	X			
1	Paper, manila, lb.	X			
2	Paper, note, qrs.	X			
1	Paper, wrapping, qrs.	X			
2	Paper, dup., ream	X			

The above property taken upon Property, Return for receipt and

Dec. 31st 1944

Station

S. R. Dasher
Asst. Chg., Quartermaster

Be sure and fill up, sign, and return: and especially be sure to sign the invoice with these on the invoice. When Y and Z property is received for fill in date, signing when received.

Hatteras, North Carolina,

April 19th, 1905.

Chief U. S. Weather Bureau,

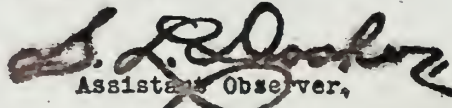
Washington D. C.

(Thro. Chief Operator, Norfolk, Va.)

Sir:-

Referring to the wreck of the schooner Blance Hopkins at Gull Shoal life saving station, 30 miles north of Hatteras, on the 12th instant, I have the honor to enclose herewith copy of wreck report made to the Chief Operator at Norfolk at the time of the stranding of the vessel. This vessel received assistance from this station in the way of sending and receiving reports and in making arrangements with the wrecking companies at Norfolk for aid. The vessel, however, was in such a position that she could not be floated, and after being stripped by the Merrit Wrecking Company, of Norfolk, was finally abandoned.

Very respectfully,


Assistant Observer,

Weather Bureau.

RECEIPT.

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,
DIVISION OF SUPPLIES.

Received in good order and condition at Hatteras, N. C., this 20th
day of January, 1906, from F. M. CLEAVER, Chief, Division of
Supplies, by Mail the following-named articles of property:

Quantity	Description	Group	Number	Articles	Group
2	Flags, 8-ft., red, storm	Y			
2	Pennants, white	Y			
2	Pennants, red	Y			
1	Flag, American, Ensign	Y			
4	Paper, letter, quizzes	X			

The above property taken upon Security Return for inventory Dec. 31, 1906.

Station

S. P. Dasher
Asst. Observer

Be sure and fill up form and return, and especially be sure to compare the entry of the articles with those on the invoice. When Y and X property is received for, fill in date showing when taken up.

264

Form No. 2023-Supplies. Invoice Book, vol. _____

RECEIPT

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU,
DIVISION OF SUPPLIES

Received in good order and condition at _____ Hatteras, N. C., this 20th
day of February, 1906, from F. M. CLEAVER, Chief, Division of
Supplies, by Mail, the following named articles of property:

Number	Articles	Quantity	Group
1	Book, Pope, Telegraphy	Z	
1	Book, Ayres, Verbalist	Z	
1	Book, Bowser, Algebra	Z	
1	Book, Cobbett, Grammar	Z	
1	Book, Crockett, Trigonometry	Z	
1	Book, F. & W. S. S. Dictionary	Z	
1	Book, Johnson, How Crops Grow	Z	
1	Book, Crew, Physics	Z	
1	Book, Mill, Realm of Nature	Z	
1	Book, Todd, Astronomy	Z	

1 Binder, Instructions. X

The above property is hereby acknowledged as received by _____ Dec. 31st 1906

Station _____
S. L. DeLoach
Asst. Observer

Be sure and fill up sign and return, and especially be sure to compare the list of the articles with those on the invoice. When Y and Z property is prepared for, fill in places showing where it came up.

Hatteras, North Carolina,

March 22nd, 1906.

Chief U. S. Weather Bureau,

Washington, D. C.

(Thro. Chief Operator, Norfolk, Va.)

Sir:-

Referring to the stranding of the English sail-ship Clyde at Chicamcomico life saving station on the 9th instant, I have the honor to report that this ship received assistance from this station in the way of sending and receiving reports and in making arrangements with the wrecking company at Norfolk for aid. Prompt assistance was rendered the ship through the medium of the reports from this station, and every effort is being made to float the ship.

This report has been held with a view that the ship would be floated and that a complete report could be made, but as there seems no immediate prospect of getting her off, the report is made now.

Very respectfully,

S. P. Decker
Assistant Observer,

Weather Bureau.

70
10/1

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

ORIGINAL MONTHLY RECORD
OF
OBSERVATIONS

AT
Hatteras, N. C

For the Month of Jan, 1928

*Station is supplied with a barograph, thermograph, sunshine recorder, and self-recording rain gage.

†No. of dry thermometer in use, _____; No. of wet thermometer in use, _____; No. of maximum thermometer in use, _____; No. of minimum thermometer in use, _____

‡Elevation above ground of the dry thermometer, 5 feet; rain gage, _____ feet; anemometer, _____ feet.

If the office has been moved during the month, give date _____; amount of change in height of barometer, _____ feet (higher or lower)

No. of extra barometer, 645; sum of corrections, -0.10; date and observation upon which use of station barometer commenced, Oct 17, 1923

8 am observation, station elevation, 11 feet; actual elevation, 26 feet.

Location of office: Number U.S.W.B. Bldg street, room 2nd floor; first observation taken in present office, 8.9 a.m.

Jan 1, 1928

*Cancel words that are not appropriate.

†To be entered only in December unless changes are made during the year. Changes made during the year will be noted in the appropriate months.

4-154

New standard instrument shelter⁽¹⁾ erected Feb 7, 1928. Same location as old one. Instruments moved to new shelter 5:00 pm

Number of Station barometer, 625; sum of corrections, -0.13 inch.

DATE	BAROMETERS				THERMOMETERS				WIND		PRECIPITATION		CLOUDS		Initials of observer.	DATE				
	Altimeter number	Observed reading	Final correction	Station (Corrected reading plus total cor.)	Reduct. to sea-level	Dry	Wet	Wet-bulb depression	Relative humidity	Wet-bulb depression	Max.	Min.	Dir.	Velocity			Dir.	Am't	Kind	Dir.
	In.	In.	In.	In.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
1	55.0	30.161	-0.08	30.076	30.09	40.6	39.7	3.9	93	237	42.3	40.5	NE	2	0.3	3	sc	W	Cloudy	RB
2	54.0	30.422	-0.03	30.339	30.35	39.1	36.0	3.2	74	180	44.9	38.2	NW	10	0.1	0	0	0	Clear	HT
3	49.0	30.564	-0.69	30.445	30.51	44.8	42.4	2.4	83	247	44.8	38.5	NE	5	0.1	2	sc	W	Clear	RB
4	60.5	30.593	-1.01	30.494	30.50	50.0	48.0	2.0	87	310	57.6	50.0	W	6	0	5	st	W	Cloudy	RB
5	61.0	30.363	-1.02	30.261	30.27	46.5	53.3	5.1	81	373	57.1	53.8	SW	10	0	10	st	SW	Cloudy	RB
6	50.0	30.461	-0.72	30.284	30.40	47.9	45.0	2.9	80	266	49.0	46.6	NE	2.0	0.3	1.0	st	W	MISTING	RB
7	59.0	30.431	-0.97	30.334	30.34	55.9	52.0	3.9	77	374	55.9	48.2	SE	1.0	0	4.0	st	SE	Cloudy	RB
8	64.0	30.066	-1.09	29.957	29.97	42.6	41.4	1.2	94	526	62.6	58.8	S	1.6	1.12	10	st	S	SPRINKLING	RB
9	67.0	30.000	-1.04	29.946	29.91	53.7	51.3	2.4	85	347	59.6	53.7	W	1.8	0	0	0	0	Clear	RB
10	54.0	30.213	-0.82	30.131	30.14	42.3	38.0	4.3	67	180	52.1	42.3	N	10	0	2	sc	W	P Cloudy	RB
11	51.0	30.040	-0.74	29.966	29.98	41.1	37.0	4.1	68	172	45.3	35.5	NW	1.7	0	0	0	0	Clear	RB
12	44.0	30.209	-0.60	30.149	30.16	38.9	34.1	4.8	60	143	47.2	37.5	N	2.3	0	0	0	0	Clear	RB
13	46.0	30.418	-0.61	30.357	30.37	44.8	37.0	7.8	57	157	42.8	34.6	NE	10	0	4	sc	W	Cloudy	RB
14	61.0	30.157	-1.01	30.056	30.07	56.9	53.4	3.5	80	373	58.0	45.2	SE	1.6	0.2	10	st	SE	Cloudy	RB
15	64.0	29.904	-1.09	29.795	29.81	50.9	48.0	2.9	82	248	57.8	50.9	W	1.8	0.2	0	0	0	Clear	RB
16	57.0	29.867	-0.90	29.777	29.79	46.6	45.9	0.7	95	248	52.2	46.6	NW	1	2.8	10	st	W	SPRINKLING	RB
17	65.0	30.121	-0.89	30.042	30.05	47.0	46.1	0.9	94	298	51.3	45.2	NW	3	0	4	sc	W	Cloudy	RB
18	62.0	29.572	-1.02	29.470	29.48	51.1	50.1	1.0	94	347	60.2	49.5	W	1.4	0	4	sc	W	Cloudy	HT
19	41.5	30.200	-0.49	30.251	30.26	33.6	29.0	4.6	56	108	43.9	37.0	NW	4.6	0	0	0	0	Clear	RB
20	47.0	30.332	-0.64	30.268	30.28	41.2	36.6	4.6	64	164	41.2	38.0	SW	1.6	0	0	0	0	Clear	HT
21	49.0	30.466	-0.69	30.397	30.41	40.4	36.1	4.3	69	164	49.0	38.2	NE	1.4	0	1	sc	W	Clear	HT
22	44.5	30.581	-0.71	30.510	30.52	49.2	44.0	5.2	66	228	49.2	40.0	NE	1.2	0	1	sc	NE	Clear	RB
23	66.0	30.066	-1.14	29.952	29.96	58.0	57.2	0.8	96	465	63.1	58.0	SW	1.2	1.44	10	st	SW	P Cloudy	RB
24	64.0	30.086	-1.09	29.977	29.99	57.8	56.1	1.7	90	432	59.0	55.8	SW	1.2	0.2	5	sc	SW	Cloudy	RB
25	52.0	30.221	-0.77	30.154	30.16	45.4	41.3	4.1	71	211	52.9	45.4	NE	2.2	0	10	st	NE	Cloudy	RB
26	40.0	30.345	-0.44	30.351	30.36	33.4	29.2	4.2	59	113	37.6	33.4	N	2.6	0.6	4	sc	N	P Cloudy	RB
27	42.0	30.354	-0.50	30.304	30.31	36.7	32.1	4.6	68	150	36.7	32.6	SW	3	0	5	sc	SW	P Cloudy	RB
28	51.0	30.151	-0.74	30.077	30.09	44.0	40.1	3.9	72	205	46.3	42.6	N	1.1	0	5	sc	SW	P Cloudy	RB
29	52.0	30.126	-0.79	30.057	30.07	50.0	44.9	5.1	66	247	50.0	36.5	SW	8	0	6	sc	SW	P Cloudy	RB
30																				
31																				
SUM.....	(a)	(a)		574.282	374.60	258.422	155.278	7.62	(a)	(a)	(a)	381	(a)	(a)	2.95	160	(a)	(a)	(a)	(a)
MEAN.....	(a)	(a)		30.148	30.154	46.8	42.7	3.8	76.8	263	(a)	(a)	NE	3.1	(a)	(a)	5.5	(a)	(a)	(a)

Reference letters in this form refer to paragraph 121. (1) By dial when self-register is out of order. (2) T indicates trace of precipitation. U, upper clouds. L, lower clouds.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

OFFICE OF THE CHIEF

November 25, 1936.

Official in Charge,
Weather Bureau Office,
Hatteras, N. C.

Sir:

A quite extensive 6-hourly weather reporting system is being organized during the current fiscal year under appropriations granted by the last Congress. In this connection, it is desired to have 6-hourly reports from your station. These 6-hourly reports at 2 a. m. and 2 p. m., E. S. T., from your station, will be in addition to your regular 8 a. m. and 8 p. m. SGL Danda reports.

It is realized that it would not be possible for your present station force to take these observations and in order to obviate this difficulty, it is planned to authorize you to employ an airway observer at 65 cents an observation for taking the 2 a. m. observation daily, and such of the 2 p. m. ones as may be necessary on Saturday afternoons, Sundays, and holidays. You are requested, therefore, to look into the matter of securing a suitable observer and to make recommendations to the Central Office for his or her employment on Form 4076. A supply of this form is inclosed herewith, in the event that none are available at your station.

The 2 a. m. and 2 p. m. observations will, of course, conform with the rules laid down for their taking and transmission in the revised Weather Code, 1936, copy of which has been sent to your station. The observer should be selected as promptly as possible, in order that he may be trained in the taking of observations prior to January 1, 1937, when it is anticipated that the new program will go into effect.

Your prompt cooperation to secure a suitable person for the compensation outlined above, and making report of this to the Central Office as promptly as possible, are requested and will be appreciated.

The type of observation required at 2 a. m. and 2 p. m. is similar to the SGL Danda reports now sent from your station and accordingly, the observer selected should be of sufficient intelligence to make certain that he will be able to take and encipher the message in code properly.

It is requested that you advise whether or not it will be practicable to transmit observations at 2 a. m. and 2 p. m. by telegraph from Hatteras. If not, advise to where they could be telephoned in order to be placed in the Western Union or Postal systems.

A complete circular on the matter of the 6-hourly service will be issued to all stations concerned within the near future, which will contain further instructions for your guidance.

A copy of this letter is being forwarded to the Official in Charge of the Weather Bureau Airport Station at Atlanta, Ga., who will furnish you additional information concerning this arrangement upon your request to him.

Respectfully,

W. R. Gregg,
Chief of Bureau.

Copy to Atlanta, Ga. and Airport Station.

Hatteras, N.C.

December 7, 1936.

Chief U. S. Weather Bureau,
Washington, D. C.

Sir :

Reference is made to letter from Chief of Bureau, dated November 25, 1936, relative to the new 6-hourly weather reporting system which is to go into effect with the 2 a.m. observation January 1, 1937, and particularly to the employment of an airway observer, as outlined in the second paragraph of that letter.

As directed, I have given this matter a very thorough study, and as strange as it may seem to you, there is but one individual in this entire community whose services could be secured, and who is also sufficiently intelligent to ever learn to take and encipher the messages in code properly, and that happens to be the young man, Mr. Marvin M. Robinson, who is already working for us at this station as Emergency Assistant. I am therefore recommending that Mr. Robinson be employed to take care of this work, in addition of course, to the duties which he already performs.

For your information perhaps I should explain why it is so difficult to secure satisfactory clerical or office assistance in this locality. Nearly all the people are fishermen, and very few have been able to send their children away to high school. It is true that for the past few years the high school here has been on the accredited list, however it is far below the standard high schools on the mainland. Furthermore, a great many of the young people here, even now, leave the school before they graduate. It is exceedingly rare also, that even one of the graduates is sufficiently intelligent to be relied upon to assume any responsibilities worth while. I had one of them working for me here for a year or more, as janitor, and tried every possible way to get him where he could take an observation, but he never could. In fact, Mr. Robinson is the only young man out of the four who has worked for us since July 1929, who has ever been able to assist me at all, even in an emergency, with the observation work. He is very good and is improving all the while.

Mr. Robinson is employed as Emergency Assistant under L.A. 66-W, dated July 1, 1936, and his present duties are as follows:

Each week day except Saturday he works one hour, performing our regular janitor and labor duties. Every Saturday p.m. he works four hours, relieving me for the afternoon, or perhaps mowing the lawn or taking care of some similar necessary work. Approximately half of the Sundays he works eight hours, relieving me, (the \$400.00 per annum allowed for his employment is not sufficient to allow me to take every Sunday off) also eight hours each holiday. He also relieves me while I am absent on annual leave.

Mr. Robinson is paid 50 cents per hour for his services, not to exceed eight hours on any one day, or \$400.00 per annum.

With our increase in annual leave the \$400.00 is not sufficient to take care of the employment of Mr. Robinson. I referred the matter to the Central Office under date of June 19, 1936, requesting a flat monthly salary for Mr. Robinson of \$40.00 per month, for which consideration he would continue to perform all the duties as enumerated above and relieve me during my entire leave period, when and as I saw fit to utilize it, as well as taking one of the regular observations for me, a privilege I have not had since July 1, 1929. In a letter from the Assistant Chief of ~~Department~~ June 23, 1936, he advised it would not be practicable, as a salary of \$40.00 per month would require an appointment status. He advised however, that I could employ Mr. Robinson as needed and later on in the fiscal year, should I find that an additional \$80.00 would be needed, and so advise the Central Office, same could be authorized. This was very highly appreciated by me and solved my problems very nicely. I made this plain to Mr. Robinson and he has been taking one of the regular observations for me for quite some time, which has certainly been a great relief. I merely mention these facts, in order that you will understand that while the authorization covering the employment of Mr. Robinson as Emergency Assistant for the present fiscal year only permits an expenditure of \$400.00, it is understood that in order for me to use my annual leave, and Mr. Robinson relieve me, and carry on his other regular duties at the station, an additional \$80.00 will be authorized.

In addition to ~~Mr.~~ Mr. Robinson's present duties, he is very anxious to take on the extra work incident to the 6-hourly reports. That is, all the 2 a.m. observations, and such of the 2 p.m. ones as may be necessary.

According to ~~my~~ estimate Mr. Robinson's total compensation would be approximately \$720.00 per annum.

Perhaps you would prefer to give him an appointment, if practicable, where his total duties would aggregate around \$60.00 per month. It would somewhat simplify matters.

As directed, I am forwarding Form 4076, recommending the appointment of Mr. Robinson as Airway Observer at 65 cents per observation. If however, under the circumstances and duties explained, it is deemed better to give Mr. Robinson an appointment carrying some other title, surely it is agreeable to both of us.

It is not practicable to transmit observations at 2 a.m. by telegraph from Hatteras. We do have direct telegraph line connections with the Western Union system in Norfolk, but due to the present unsatisfactory condition of the line, the signals will simply just not carry over the line. I have understood unofficially, that the Coast Guard is now contemplating installing new No. 8 wire for the telegraph line. When that is done, I have every reason to believe, we will be able to transmit any or all of our messages direct to the Western Union system in Norfolk.

The 2 p.m. observations, daily except Saturday afternoons, Sundays and holidays, we can give to our Cape Henry Office by telegraph, for relay to Norfolk, as we now do with our 8 a.m. and 8 p.m. observations. Our Cape Henry Office does not have an operator on watch Saturday afternoons, Sundays nor holidays; neither do they have any one on watch at 2 a.m.

We have a very good telephone connection through the Cape Henry Coast Guard Station, direct with either the Postal or Western Union system, by which we will be able to effect prompt delivery of our 2 a.m. messages, and such of the 2 p.m. ones as may be necessary, direct to either of those systems in Norfolk.

You may rest assured we will be prepared to put the program into effect with the 2 a.m. observation January 1, 1937.

Information is requested as to which of the systems mentioned it is desired that the messages be given.

Respectfully,

R. B. Dailey,
Junior Meteorologist.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

OFFICE OF THE CHIEF

December 11, 1976.

Official in Charge,
Weather Bureau Office,
Watterus, N. C.

Sir:

This will acknowledge receipt of your letter dated December 7, 1976, relative to the employment of an airway observer for six-hourly work at your station.

In reply, you are advised that it will not be practicable to employ Mr. Robinson as both airway observer and emergency assistant, for reason that this would constitute dual employment. However, Mr. Robinson can be employed as airway observer at \$2.00 a day and his services can then be utilized for taking all the 2 a. m. six-hourly observations daily and the 8 p. m. six-hourly observations on Saturday afternoons, Sundays and holidays. Also, he can relieve you in the taking of other necessary observations, the changing of sheets and entry of data on forms, on such days as you deem this necessary. This plan would, of course, provide all the assistance that you now have and also provide for the taking of the six-hourly observations.

With reference to laboring work at the station, the observer should not be required to do this. Instead, it is suggested that you issue invitations for bids for this work at a stated rate per hour and after replies are received, forward these to the Central Office with a Purchase Requisition and Project sheet, with recommendations for award.

In connection with the appointment of Mr. Robinson as airway observer at \$2.00 per diem, this appointment will be at a rate of over \$45 a month and, therefore, it must be approved by the Secretary of Agriculture prior to his assuming these duties. Therefore, under no circumstances should you permit Mr. Robinson to begin work until you have been notified from the Central Office that his appointment has been approved.

Please advise immediately whether or not the above plan will be satisfactory. If so, action will then be taken here to recommend Mr. Robinson's appointment at \$2.00 per diem, effective January 1, 1977, to the Secretary of Agriculture for approval, basing such recommendation on your

Form 4076 of December 7, 1936. A new Form 4076 for Mr. Robinson is unnecessary as we can charge the same rate on the form already submitted.

Your prompt advice is requested.

Respectfully,

J. C. Clark,
Acting Chief of Bureau.

RECEIVED AT

Postal Telegraph

THE INTERNATIONAL SYSTEM

This is a full rate Telegram, Cablegram or Radiogram unless otherwise indicated by signal in the check or in the address.

DL	DAY LETTER
NL	NIGHT LETTER
NM	NIGHT MESSAGE
LCO	DEFERRED CABLE
NLT	NIGHT CABLE LETTER
WLT	WEEK END CABLE LETTER
	RADIOGRAM

Commercial
Cables



All America
Cables

Mackay Radio

RXWA140 18 WEA

PSO WASHINGTON DC 31 450P

1936 DEC 31 PM 5 02

OBSERVER

266 HATTERAS NCAR

APPOINTMENT ROBINSON AIRWAY OBSERVER TWO DOLLARS PER DIEM

APPROVED BY SECRETARY EFFECTIVE JANUARY FOUR

GREGG..

NO. 940 TO 1015 daily
 BY 1711 AT 530P TO BE 44.00
 CALLS 52550
5389

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

OFFICE OF THE CHIEF

February 2, 1937.

Official in Charge,
Weather Bureau Office,
Hatteras, N. C.

Sir:

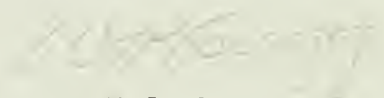
Beginning February 10, 1937, it is requested that in addition to your present procedure of telegraphing these reports to "Observer, Chicago, Ill.", you also telegraph your 1:30 a. m. and 1:30 p. m., E. S. T., six-hourly reports to "Airway Observer, Atlanta, Ga.", and "Airway Observer, Newark, N. J."

Beginning March 1, 1937, it is requested that you discontinue telegraphing your 1:30 a. m. and 1:30 p. m., E. S. T., six-hourly reports to "Observer, Chicago, Ill." and telegraph them on and after that date only to "Airway Observer, Atlanta, Ga.", and "Airway Observer, Newark, N. J."

The above arrangements are being made in order that the Atlanta and Newark Airport Stations may receive the necessary reports from your station for use in forecasting work earlier than is possible under present procedure.

Your cooperation in the matter is requested and will be appreciated.

Respectfully,


W. R. Gregg,
Chief of Bureau.

Copy to Atlanta, Ga. and Airport Station
Chicago, Ill. and Airport Station
Newark, N. J. and New York, N. Y.

Hatteras, N.C.

February 18, 1937.

Chief U. S. Weather Bureau,
Washington, D. C.

Sir :

Information is desired as to what procedure should be followed in the way of accounting with the telegraph company in the handling of our 1:30 a.m. and 1:30 p.m. E. S. T., six-hourly reports.

In the past we have never done any accounting whatever with the telegraph companies in connection with any of our weather messages.

In "Instructions for Six-hourly Airway Service, Beginning January 15, 1937," from Office of the Chief, dated December 15, 1936, it appears to me that we are to prepare an abstract for accounting with the telegraph company. We have no forms on the station for this purpose however, and the book-keeper in the Western Union Telegraph Office, Norfolk, Va., with whom I have talked regarding the matter, advises that she is under the impression that their General Accounting Office, where her statement has been forwarded, will handle the matter directly with our Central Office in Washington. This however, does not seem to me to be the correct method of handling the account.

Our regular SGL D&A reports, (7:30 a.m. and p.m.) we continue to give to our Cape Henry office on the telegraph line, as we have always done in the past, and that office relays them to the Western Union in Norfolk. Our 1:30 a.m. and 1:30 p.m. reports, however, are given to the Western Union Company in Norfolk, Va., direct, over the Government telephone line.

If those messages are to be abstracted by this office, which it is assumed they should be, kindly forward a supply of the necessary forms, together with instructions.

Respectfully,

R. B. Dailey,
Junior Meteorologist.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

OFFICE OF THE CHIEF

July 22, 1937.

*Received
Hatteras, N.C.
July 24, 1937
R.B.D.*

Official in Charge,
Weather Bureau Office,
Hatteras, N. C.

Sir:

Beginning on or as soon after September 15, 1937 as possible, it is desired to have reports telegraphed from your station daily at not later than 4:30 and 10:30 a.m. and p.m., E.S.T. to "Airway Observer, Arlington, Va.". These reports will consist of a regular airway report (see Paragraph 4 of Circular N, 1935 for elements included in a regular airway observation) in plain English followed in order by code word for 3-hour pressure change and characteristic, using words for 0 to 100-degree temperature, and a code word or words for clouds.

It is realized of course that you will not be able to furnish these reports without additional assistance and the Central Office has in mind the assignment of a Junior Observer to your station for this purpose. However, if you feel that the work could be handled more satisfactorily by the employment of an airway observer, the Central Office will give consideration to this.

It is requested that you consider the matter and forward your recommendations concerning the personnel and organization of this work at your station at the earliest possible date together with any comment that you may consider advisable and necessary. You should outline fully any circumstances which might require the telephoning of any of the reports to some other point for telegraphing or require them to be transmitted entirely by telephone to their destinations, giving costs involved, routings, etc.

Your cooperation in the matter is requested and will be appreciated.

Respectfully,

W. R. Gregg,
Chief of Bureau.

By:
Acting Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

Office of the Chief

August 11, 1937.

*Rec'd
Aug. 13, 1937
RBD*

Official in Charge,
Weather Bureau Airport Station
Arlington, Va.
Atlanta, Ga.
Burbank, Calif.
Chicago, Ill.
Cleveland, Ohio
Dallas, Tex.

Kansas City, Mo.
Newark, N. J.
Oakland, Calif.
Portland, Oreg.
Salt Lake City, Utah

Weather Bureau Office,
Atlantic City, N. J.
Dodge City, Kans.
Williston, N. Dak.
Huron, S. Dak.

Grand Junction, Colo.
North Head, Wash.
Tatoosh Island, Wash.
Hatteras, N. C.
Eureka, Calif.

Sir:

Reference is made to letter dated July 22, 1937, relative to organizing three-hourly reporting service from selected off-airway stations.

In this connection, the Bureau of Air Commerce advises that their revised teletype circuit line-up will not be installed until October 1, 1937. In view of this, the beginning date of the three-hourly service will be October 1, 1937, or as soon thereafter as possible, instead of September 15, 1937, as given in our letter of July 22, 1937. If the work is organized at any station, prior to this date, it will be satisfactory to have the reports telegraphed to the general supervising station, but these will not be placed on the teletype circuits until beginning on October first.

For the further information of the general supervising stations, it is now planned to have three-hourly reports from Sault Ste. Marie, instead of Houghton, Michigan.

Respectfully,



William Weber,
Acting Chief of Bureau.

Copy to Bureau of Air Commerce.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

Office of the Chief

WASHINGTON

August 17, 1937.

*Received
Hatteras
Aug 20
W. B. W.*

Official in Charge,
Weather Bureau Office,
Dodge City, Kans.
Williston, N. Dak.

Hatteras, N. C.
Eureka, Calif.

Sir:

With further reference to our letter dated July 22, 1937, and your reply thereto, relative to inaugurating three-hourly observations at your station, you are advised that action is being taken to appoint a new Junior Observer to your station to carry out this program.

Respectfully,



William Weber,
Acting Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

Office of the Chief

August 18, 1937.

*Received
Hatteras, N.C.
Aug. 20, 1937*

Official in Charge,
Weather Bureau Office,
Hatteras, N. Car.

Sir:

Reference is made to previous correspondence relative to the organization of 3-hourly reporting service at your station, particularly concerning the time.

In this connection, it has now been decided that it is advisable to have these observations taken beginning at 4:10 and 10:10 a.m., and p.m., E.S.T., and filed at about 4:30 and 10:30 a.m. and p.m., instead of taken beginning at about 4:30 and 10:30 a.m. and p.m., and filed at about 4:50 and 10:50 a.m. and p.m. Accordingly, if and when this service is inaugurated at your station, the observations should be begun at 4:10 and 10:10 a.m. and p.m., E.S.T. and filed at 4:30 and 10:30 a.m. and p.m., E.S.T.

Respectfully,



W. R. Gregg,
Chief of Bureau.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU

Airport station

Arlington, Vir.

Sept. 28, 1937.

Official in charge,
Weather Bureau Office,
Hatteras, N. C.


Dear Sir:

This office has a note from the Official in charge, Weather Bureau Airport station, Cleveland, Ohio calling attention to the fact that there is quite a spread between the NLA and the PMA barometer reports. He states that the difference has been noted due to the fact that NLA is used on auxiliary charts because it is usually in sooner than the PMA report. He suggests that the idea on the lower half of page 419 of the last copy of Topics be applied.

While assigned to the Atlanta airport station, the writer saw a copy of a letter from the Weather Bureau to the Navy requesting that mercurial barometers be installed at NLA and NCL and it was thought that this was one. It is barely possible that the difficulty is not so much instrumental as it is personnel.

If you can assist in any way in bringing about better readings at NLA and NCL, it will be appreciated by this office.

Very truly yours,


E. W. Larto,
Meteorist.

Received Hatteras, N C
Sept. 30, 1937

HA = ...
JNA = ...
V-L = ...

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable symbol above or preceding the address.

WESTERN UNION

R. B. WHITE
PRESIDENT

NEWCOMB CARLTON
CHAIRMAN OF THE BOARD

J. C. WILLEVER
FIRST VICE-PRESIDENT

SYMBOLS

- DL = Day Letter
- NM = Night Message
- NL = Night Letter
- LC = Deferred Cable
- NLT = Cable Night Letter
- Ship Radiogram

The filing time shown in the date line on telegrams and day letters is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination.

Received at

5CF F 10

XC BAYBORO NCAR 940A NOV 20 1937

R B BAILEY

CARE R F BAILEY

APPOINTMENT RECEIVED ARRIVE HATTERAS TONIGHT WIRE CENTRAL OFFICE
AND HATTERAS

REUBEN W BANKS

1040A

Handwritten:
155 W
N Bailey
1400

WESTERN UNION GIFT ORDERS ARE APPROPRIATE GIFTS FOR ALL OCCASIONS

Hatteras, N.C.

February 12, 1938.

Chief U. S. Weather Bureau,
Washington, D. C.

Sir :

Since our new Junior Observer, Mr. Reuben W. Banks, is now taking and transmitting both regular and airway observations unassisted, it seems in order to establish a definite schedule of hours of duty for each employee, whereby the maximum amount of work may be performed in the most systematic and regular manner.

It is seldom necessary that more than one man must be on duty at the same time, although with the inauguration of our three-hourly observation work; that is, the 4:30 and 10:30 a.m. and p.m. observations, in addition to those which we are already covering, it will practically require a continuous watch. In fact, in order that there will be no possibility of delay in taking and transmitting any observation, that all work may be kept fully in hand and right up to date at all time, and that the regular 39 hours of duty per week for each employee may be closely observed, the following schedule to be put into effect March 1, 1938, is submitted for your approval:

Monday to Friday of each week, I will come on duty at 8 a.m. and remain until 4 p.m., with one hour off for lunch between noon and 1 p.m. At 4 p.m. Mr. Banks or Mr. Marvin M. Robinson, the Airway Observer, will come on duty and remain until midnight, with one hour off for dinner between 6 and 7 p.m. The other to come on duty at 1 a.m. and remain until 8 a.m. Mr. Banks and Mr. Robinson to alternate their watches each month. Each Saturday I am to perform 4 hours duty between 8 a.m. and noon, but no Sunday or holiday duties. Between the hours of 1 a.m. Saturday and 1 a.m. Monday, as well as on holidays, Mr. Banks and Mr. Robinson are to be exempt from all duties except the taking, transmitting and recording, observations and changing record sheets, which duties they may alternate weekly or monthly. This schedule will just about as nearly embrace a 39 hour week for each of us as I am able to fix.

It will be noted from the above tentative schedule that I will not take either of the ^{7:30} regular observations. If you feel that this is at all objectionable, surely I would just as soon come on duty at 7 a.m. instead of 8 a.m. In that case I can take the regular 7:30 a.m. observation.

My reason for recommending that my hours of duty begin at 8 a.m. is because it seems to me that the hours recommended would work out in a more regular and systematic manner, affording the best opportunity to properly get in the desired and required number of hours regularly. We have an observation at present which we have to start at 1:10 a.m. The man who comes on duty at 1 a.m. would be just in time for that. He would complete his 7 hours of duty, practically, with the completion of the 7:30 a.m. observation. Likewise, we will have an observation to begin at 4:10 p.m. The man coming on duty at 4 p.m. will be just in time for that.

Mr. Banks and Mr. Robinson occupy a house together and the one of them going off duty at midnight will call the other who will report for duty at 1 a.m. I feel that in the realization of the fact, that an observation must be started promptly upon reporting for duty at 1 a.m. and 4 p.m. might prompt almost any one to be more regular than if it were felt that perhaps no great hurry was essential.

Any changes or suggestions you care to offer will certainly be entirely satisfactory to us.

Respectfully,

R. B. Dailey,
Junior Meteorologist.

UNITED STATES DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
WASHINGTON

ADMINISTRATIVE DIVISION

March 4, 1938.

Official in Charge,
Weather Bureau Office,
Hatteras, N. C.

Sir:

Reference is made to your letter dated February 12, 1938, relative to a schedule of duties at your station.

Your letter has been considered carefully and it is believed that the plan which you outline is satisfactory. It would, of course, be preferable if the 7:30 a. m. and p. m. observations were taken by one of the Weather Bureau commissioned personnel at the station, but it appears that to do so would require an extensive change in the proposed schedule, particularly with reference to the matter of one observer waking the other at midnight.

In view of the foregoing, it is suggested that you proceed to place the schedule outlined into effect.

Respectfully,



William Weber,
Chief of Division

Received
HATTERAS, N. C.
MAR 10 1938
R.W.D.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU.

PAM:Co.

NO.

TIME FILED

CHECK

PAID WEATHER

Send the following message:

March 10, 1938

193

To
Observer,
Hatteras, N. C.

Of Isal in Charge Airport Arlington, Virginia advises
three-hourly observations not yet being received from your
station Stop Advise all personnel now available and trained
at Hatteras request taking and transmission of three-hourly
observations be begun immediately in accordance with in-
structions outlined Central Office letter dated July twenty-
second nineteen thirty seven Stop Advise.

GREGG

()

Copy to Hatteras, N.C.
Arlington, Va.

Hatteras, N.C.

May 21, 1940.

Chief U. S. Weather Bureau,
Washington, D. C.

Sir:

Reference is made to previous correspondence, particularly to our letter dated April 16, 1940, and reply from Aerological Division dated April 25, 1940, relative to probable employment of an airway observer at our station, in addition to the present station personnel, in order that we may take advantage of the regular 39-hour week, with Sunday and holiday privileges; also to relieve members of the station force when on sick or annual leave.

A tentative working schedule is submitted below, for your consideration:

My shift, Monday to Friday inclusive, 7:00 a.m. to Noon and 12:30 to 2:30 p.m. Saturday, 7:00 a.m. to Noon. This gives me a total of 40 hours per week regularly, with no duties on Sundays or holidays.

Mr. Byrum's shift, Monday through Friday, ⁹10:00 a.m. to Noon and 1:00 p.m. to 5:00 p.m. Saturday, 1:00 p.m. to 2:00 p.m. and 4:00 p.m. to 5:00 p.m., also on Sundays and holidays 4-5, 7-8 and 10-11 p.m. This gives him a total of 40 hours per week.

Mr. Gaskins' shift, Monday through Friday, 7:00 p.m. to 2:00 a.m. Saturday 1-2 a.m., 7-8 p.m. and 10-11 p.m. Sunday and holidays 1-2 a.m. This gives him a total of 39 hours per week. He is off duty continuously however, from 2:00 a.m. Sunday morning until 7:00 p.m. Monday evening.

Mr. Byrum and Mr. Gaskins propose to alternate their shifts each month. This is entirely satisfactory to me and is therefore recommended.

Mr. Stowe, the proposed new airway observer will get the 4:30 a.m. airway observation every day, including Sundays and holidays. Sundays, (also holidays) he will get the 4:30 a.m., 7:30 a.m., 10:30 a.m. and 1:30 p.m. observations. This will give him an average of 10 observations each week.

During the absence of one of the regular members of the station force Mr. Stowe's services would be needed for probably 3 observations each day.

We are enclosing a rough sketch showing the tour of duty for each member of our force, as well as for the proposed new airway observer, as outlined in the foregoing.

If the proposed working schedule does not seem to you to be entirely in order, surely we will be very glad to make any changes you suggest.

If the employment of Mr. Stowe can be approved as recommended; that is, for an average of 10 observations regularly each week, with continuous employment in the case ^{of a} member of our station force, I feel that our relief problems will be solved. Recommendation is made that compensation for Mr. Stowe's services be fixed at 50¢ for each observation taken.

Respectfully,

R. B. Dailey,
Junior Meteorologist.

1 inclosure

NO.	TIME FILED	CHECK	INITIALS

Send the following message:

August 31, 1940 194

To Observer
 Cape Henry
 Norfolk
 Baltimore
 Hatteras
 La Guardia

On account hurricane centered this morning 225 miles southeast of Hatteras request for continuous duty as may be necessary and prompt and adequate service your station for possible emergency your station over weekend and holiday.

COPY

RECEIVED

Confirmation Copy

