

THE HISTORY OF SURFACE WEATHER OBSERVING IN HARRISONVILLE, MISSOURI, 1859-1984



Cass County, Missouri Court House in Harrisonville. Photograph by author in June 2004.

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Executive Summary

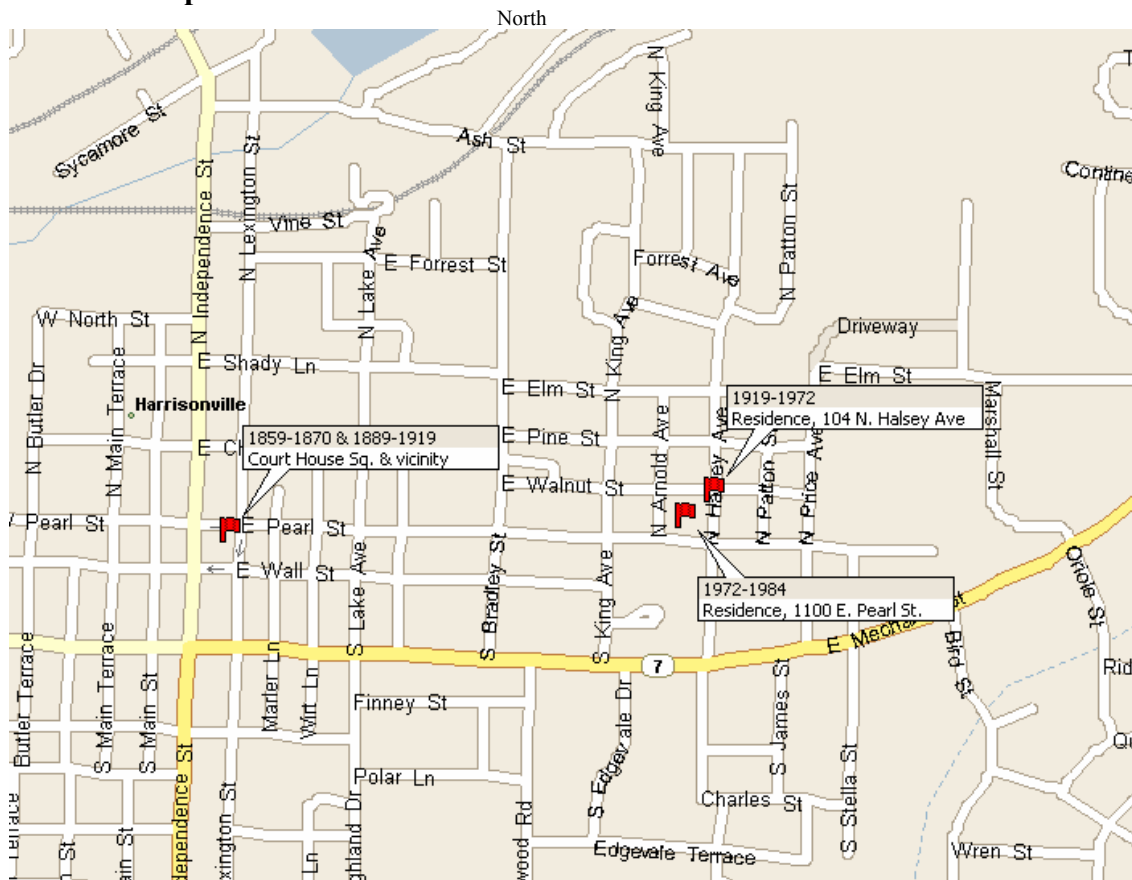
Weather observations in Harrisonville, Missouri taken since 1859 seem to have been made within a very short distance of each other over the entire 125 year history. This cannot be stated with perfect confidence as the location of the observing site from 1859 through 1870 is not known with certainty but it would be assumed that the observations were taken near the courthouse. The observations were taken near the courthouse beginning in 1889, moving just a few blocks east in 1919 to the home of the Jefferson's. The instruments were then moved just a few hundred feet to a neighbor's home in 1972. The National Weather Service observing program terminated in 1984.

Goal of Study

The goal of this study is to document the primary weather observational path at Harrisonville, Missouri. This path unfortunately terminated in 1984 after a one hundred and twenty five year presence in town.

Throughout the research for and preparation of this study, the goal was to produce a document that future studies can use to evaluate the validity of the data that were collected here, judge the trustworthiness of the observers who collected them, and determine the climatological significance of the whatever variability may be discerned.

Location Map



Map 1. The location of weather observing sites at Harrisonville, Missouri, 1859- 1984.

The following lists the chronology of weather station locations in Harrisonville, Missouri, from 1859 until 1984:

June 1859 – December 1870 – Smithsonian volunteer observer

- John C. Christian - exact location unknown but probably near courthouse square

July 1889 – August 1919 – U.S. Army Signal Service and Weather Bureau volunteer observer - $38^{\circ} 39' 19''$ N $94^{\circ} 21' 02''$ W – elevation 912 feet (values as entered in 1897)

- Abia Joseph Sharp – North Independence Street

September 1919 – September 1972-Weather Bureau/National Weather Service volunteer observer - $38^{\circ} 39'$ N $94^{\circ} 20'$ W – elevation 904 feet

- John H. and Jeffrey B. Patterson-104 5th Street (later known as North Halsey Avenue)

November 1972 – April 1984-National Weather Service volunteer observer- 38° 39' N
94° 20' W – elevation 904 feet

- Billy E. and Viola Weddington – 1100 East Pearl Street

Location and Instrument Descriptions

1859 – 1870: John C. Christian began observing in Harrisonville in June 1859 as a Smithsonian Volunteer observer. No information has been found to date that would provide evidence as to the exact location, though one might speculate it was near the center of town and the courthouse square. Mr. Christian ended his observations in December 1870.

Thermometer – Location and type are unknown.

Wind instruments – Location and type are unknown.

Rain gage – Location and type are unknown.

1889 – 1919: In July 1889, Abia Joseph Sharp began observing the weather as a U.S. Army Signal Service volunteer observer. He became a Weather Bureau volunteer observer in September 1891. His address was listed a North Independence Street which borders the courthouse on the west. A picture of the courthouse in 1890, see Figure 1, shows a wind vane on the roof of the building, which might indicate that Mr. Sharp was observing at that location or that his residence was close. In 1897, the instrument shelter was northeast of the “house” indicating that he indeed was observing from his home on North Independence Street. Or perhaps this was a temporary arrangement as the new Cass County Courthouse was being demolished and then rebuilt at the same location in 1896-97. A photograph from 1900, see Figure 2, shows the east side of the square and the building used as the temporary courthouse several years earlier with a wind vane still mounted on the roof. Mr. Sharp observed until August 1919.

Thermometer – In 1892, Mr. Sharp reported that his thermometer was 2 feet above the ground. The next location detail was not given until 1897 when the thermometers were located in a Weather Bureau instrument shelter which was located 15 feet northeast of house, four feet above the ground. In 1906, the location was noted as being over sod, ten feet north of building with trees to north and east. The shelter was 4 feet above the ground and the door opened to the south.

Wind instruments – No wind equipment was mentioned in official Weather Bureau station history reports but observations were being made and photographic evidence clearly shows a wind vane mounted on the courthouse roof in 1890 and on the temporary courthouse roof in 1900. The vanes appear to be about 20 feet above the

roofs; however, the total height above the ground at the temporary courthouse is much higher, being a three story building, than the location on the original courthouse.

Rain gage – In 1897, the rain gage was a “Weather Bureau” gage located 25 feet northwest of house. In 1906, the gage was described as being 3 feet above the ground and 10 feet to building north and 20 feet to trees south.



Figure 1. The Cass County Missouri Courthouse in Harrisonville, circa 1890. The wind instruments can be clearly seen rising above the building. Photograph courtesy of the Cass County Historical Society.



PH26 City:Harrisonville Street Scene:Square, South Side 1900 after Feb. fire BW

Figure 2. The Cass County Courthouse Square in Harrisonville, Missouri in 1900. The three-story building in the center of the photograph served as the temporary courthouse during the construction of the “new” courthouse in 1897. The wind vane can be seen mounted on the roof of the building. Photograph courtesy of the Cass County Historical Society.

1919 – 1972: In September 1919, the weather observing duties were assumed by John H. Patterson at his residence at 104 5th Street at the corner of 5th and Walnut Streets. Jeffrey B. Patterson began observing in October 1945 from the same location. The address had been changed to 104 North Halsey Avenue by this time however. This was a move of some 2500 feet east. Observations ceased at this location on November 16, 1972. See Figure 3 for a photograph of what the yard looked like in June 2004. The instruments would have been originally located in the area that is now paved. For further insight into the instruments and the observer see the Observers Stories section at the end of this report.

Thermometer – The shelter was 30 feet south of residence to a side yard covered in turf. The floor of the shelter was 4 feet above the ground and the door opened to the north. This shelter was moved from the previous observer’s location on August 29, 1919. A new lock was installed, loose slats were nailed, a new strap on the minimum-support

was installed to hold thermometers in a better position and the thermometers were cleaned. Mr. Patterson was to repaint the shelter and new heavy oak post supports. In 1937, the location and exposure was listed as being over sod, about 30 feet south of residence which was about 25 feet high; a garage 10 feet high was 25 feet south of shelter. The shelter doors opened to the north and floor was 4.0 feet above ground.

Rain gage – The eight-gage was located 40 feet south of the residence with the top being 3.2 feet above the ground. The shelter was located 20 feet to the west, a low peach tree 30 feet to the south and a tall maple tree 35 feet to the east. In 1937, the location and exposure was listed as being on the ground, 10 feet south of shelter, 40 feet south of residence about 25 feet high, about 15 feet north of garage 10 feet high. Top of gage above ground was 3.2 feet.

Note 1: At the time of the installation of the equipment in 1919 the exposure was rated a fair, being the best obtainable at the location. There was also a row of tall maple trees to the north along the street.

Note 2: In October 1970, the station history forms indicate a move of the instruments of some 66 feet to the southwest at this location at 104 Halsey Avenue. No further definitive information on the move was found.



Figure 3. The residence at 104 North Halsey Street, Harrisonville, Missouri as taken in June 2004. Photograph was taken looking southwest from the corner of Haley and Walnut Streets. The weather instruments would have been located in the area to the rear and left of the house. Photograph by author.

1972 – 1984: Beginning on November 19, 1972, Billy E. Weddington began observing from his home at 1100 East Pearl Street. Mr. Weddington continued observations until November 20, 1979. His widow, Viola Weddington, took over the observing duties on November 28, 1979. This was only a short move to the southwest as the Weddington's backyard cornered the Patterson's back yard. See Figure 4. The last observational form received for Harrisonville was for April 1984, the station was declared inactive in November 1984, and it was officially closed on August 2, 1989. For a closer look at the change of observer see the Observer Story section at the end of this report.



Figure 4. The backyard of 1100 East Pearl Street in Harrisonville, Missouri as of June 2004. Photograph was taken looking southeast. The weather instruments would have been located in this yard from 1972-1984. Photograph by author.

Thermometer – The maximum and minimum thermometers were housed in a Cotton Region Shelter located in the backyard.

Rain gage – The gage was a standard eight-inch Weather Bureau gage located in backyard.

Observer Stories

Mr. Abia Joseph Sharp’s Obituary of October 31, 1940.

The following is extracted from the local newspaper, obituary of Mr. A.J. Sharp who died September 21, 1940, in Portland, Oregon at the age of 87:

“Abia Joseph Sharp was born August 3, 1853, near Bloomington, Ill., his parents being David and Susanah (Joder) Sharp, native Pennsylvanians. When A.J., as he was

generally called here, was 14 years old, the family moved to Cass County, settling on a farm southwest of East Lynne.”

“A. J. Sharp attended the public schools in Illinois and Missouri. Following his fundamental education he entered the University of Illinois at Champaign, where he took a course in civil and mechanical engineering, being graduated in 1882. He then entered the employ of the Memphis Railroad Company at Kansas City as a draftsman. One year later he resigned and came to Harrisonville, where in 1883, the firm of A. J. Sharp and Brother (I. M. Sharp) established the Harrisonville Machine Works. Five years later, in 1888, a foundry was added to the plant. In October of that year the first casting was made – the flywheel of an engine then under construction.

The partnership of A. J. Sharp and I. M. Sharp continued twenty years, the former retiring in 1903, but continuing as consultant and assistant to his brother. On September 22, 1903, the plant was destroyed by fire, the loss being total because the firm carried no insurance. The cupalo and the foundry floor remained as the only assets, and with these and nothing but the sky for a roof, several outstanding contracts were completed.”

“Abia J. Sharp and Miss Maggie Jane Wright were united in marriage October 4, 1888. She died in 1892 and on April 3, 1893, Mr. Sharp and Miss Sarah E. Wright, sister to his first wife, were united in marriage. She died at the family home on North Independence Street April 29, 1903, leaving three children.”

“Many years A. J. Sharp had been weather observer here for the U. S. Department of Agriculture. He resigned this important post in 1919 and John H. Patterson became his successor. In that year Mr. Sharp and his three children moved to Champaign, Ill., where they entered the university - their father’s alma mater. Portland, Ore., next became their place of residence where Mr. Sharp made good use of his knowledge of mechanical and civil engineering. He continued in this profession until advancing age forced his retirement.”

A Switch of Observers in 1919

The following account was filed by the Weather Bureau inspector, Mr. O.R. Rogers, on August 29, 1919.

“Inspector reached this station the afternoon of the 28th in severe thunderstorm and heavy rain. Showers occurred intermittently during the remainder of the day and night. The observer, Mr. A. J. Sharp, was found to be in Urbana, Ills. where he had gone to settle permanently, and the family was busy packing and crating the household effects preparatory to shipment to the new home at Urbana. A daughter, Miss Mary Sharp, was continuing the observations during the absence of her father. All equipment was in good condition, and records were being entered on the Form 1005 daily.

Since all members of the family of the observer would be leaving the town in a few days, it was decided to secure another observer and make a transfer of the property during my stay there.

Mr. John E. Patterson was highly recommended as an appointee and he was willing to continue the work. He holds the position of wire chief of the local telephone company, a place he has held for twenty years with a record of "not a day missing" according to the manager of the company. He is permanently located, owning his own home at the address given. Instruments were transferred the morning of the 29th, after the morning observation was taken."

"A son, 17 years of age was instructed as a substitute observer".

Upon a return inspection of Mr. Roger's in 1924 he recorded the following:

"This station found in good condition. New thermometers had been issued but a few months before the visit. The observer has a bad record in breaking thermometers, however, and stress was made on this visit on proper care in handling them. No other work done. Mr. Patterson is nicely fixed, and makes a good worker for us. He states much interest shown by local interests in work."

After a gap of 13 years, the station was once again visited by a Weather Bureau inspector, this time Mr. Roscoe Nunn. His report of November 16, 1937, follows:

"The maximum thermometer was broken, and had been broken for some time, and the observer had been getting highest for the day from observed readings in the afternoon. Evidently, he deferred reporting the broken instrument because of his rather unsatisfactory record for broken thermometers.

This station had not been visited, or inspected, for 13 years. The instrument shelter is worn out, not worth repairing, although giving fairly complete cover for the thermometers. The observer seemed anxious to have a new shelter.

The exposure of the instruments was good, except that the rain gage was too near the shelter. A place for the gage was selected and the observer promised to move it. Weather conditions at the time were unfavorable for working outdoors.

The work was discussed with Mr. Patterson and Mrs. Patterson. Mrs. Patterson evidently takes a good many of the observations. She showed interest in the work and is fairly well informed. A new book of "Instructions" has been sent them."

"For once I failed to test the rain gage for leaks. Getting into interesting conversation, this detail was forgotten. However, I had asked Mr. Patterson about the condition of the gage and he said it was not leaking. He had melted the snow catch that morning and measured it. The gage was well set up, the box being fitted with iron legs that extended

into the ground.”

The Change of Observers from Mr. Patterson to Mr. Weddington in November 1972.

The following account concerning the change in observers in November 1972 was found in the station history files as filed by Mr. Louis O. Withrow, the Weather Bureau inspector:

“I had received a letter from Mr. Patterson letting us know that he is moving and wanted to give up the Observer job here. I visited with him and his mother, they are really getting up in years now. I located a new Observer that is just moving in across the back yard from Mr. Patterson. I relocated the equipment and trained the new observer today. Mr. Billy (Bill) E. Weddington, 1100 East Pearl, Harrisonville, Missouri 64701, works for the Bob Johnson Appliance store on the square. At the present time he is also Chief of the Fire Department here in Harrisonville, he appears to have a real interest in weather and I think he will make a good observer. “

References and Data Sources

Observational forms as found in the National Climatic Data Center archives

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

Cass County Historical Society, Ms Carol Bohl, Director

APPENDIX I - METHODOLOGY

The primary sources of information for this study were the Harrisonville observers' daily weather records themselves. Copies of their monthly reports were available from the National Climatic Data Center's on-line system called WSSRD. The monthly reports can be considered primary sources because they were written by the observers and not altered by subsequent readers. Station history files at the Data Center also provided details as to station and instrument history. The Cass County Historical Society co-located with the county library provided valuable information about the city and its residents.

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

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