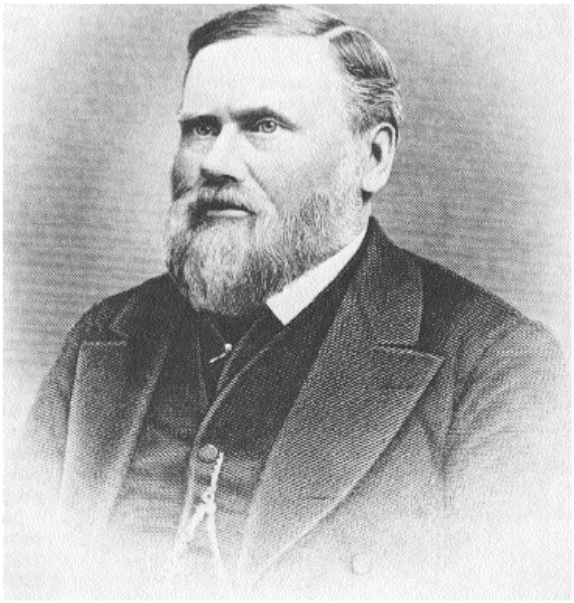
THE HISTORY OF WEATHER OBSERVING IN LUNENBURG, VERMONT, 1859-1892



From Vermont Geological Survey's web site
www.anr.state.vt.us/dec/geo/cutting.htm

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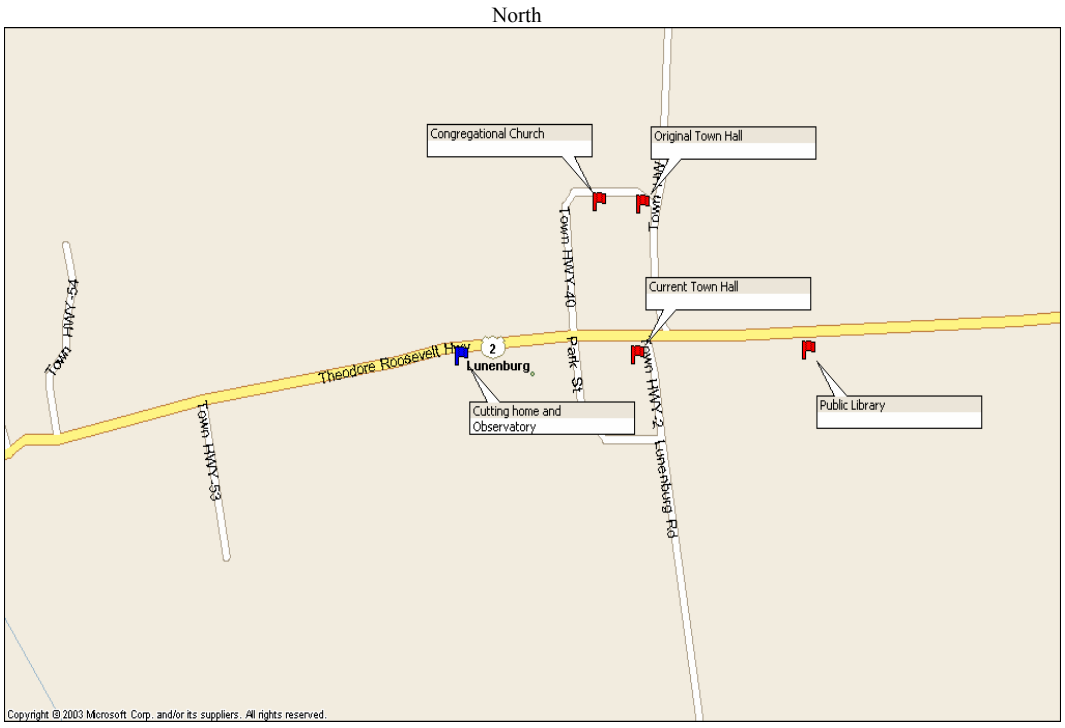
Executive Summary

Weather observations in Lunenburg, Vermont, were taken by Dr. Hiram Adolphus Cutting from 1859 until 1892 from his store and observatory. From late 1872 until early 1873, Edson S. Cassino also took weather observations in Lunenburg. Many of the details on locations and instruments for both of these observers have been lost to antiquity. Unfortunately, weather observations in Lunenburg ceased upon the death of Dr. Cutting in 1892 and have not been restarted since then.

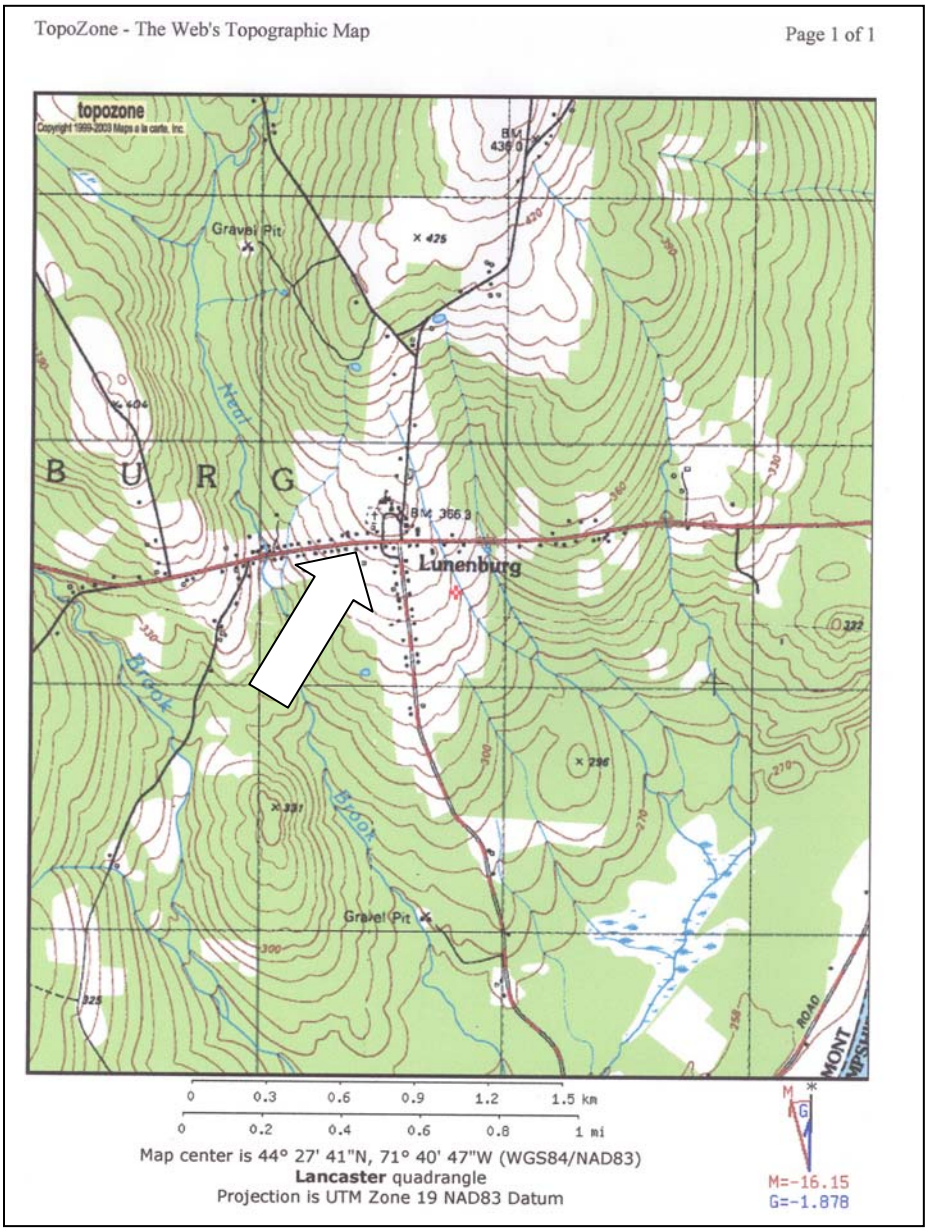
Goal of Study

The goal of this study is to simply document the Lunenburg, VT, weather observers, their location and surroundings, and the instruments they used. 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 whatever variability may be discerned.

Location Map



Map 1. Lunenburg, Vermont, showing the location of the Hiram A. Cutting home and observatory plus other buildings as of 2004. The location where Edson S. Cassino took observations is not known.



Map 2. The topography of the Lunenburg, Vermont area. The arrow indicates the location of the Hiram A. Cutting home and observatory, 1859-1892. Map from Topozone.com.

The following lists the chronology of weather station locations in Lunenburg, Vermont, 1859 until 1892:

Hiram A. Cutting, observer:

February 1859 – November 1872 – Elevation 1,124 feet – 44° 27’ 46” N, 71° 41’ 06” W
Cutting store and/or observatory, Route 2, just west of town hall

December 1872 –February 1892 – Elevation 1,210 feet – 44° 27’ 46” N, 71° 41’ 06” W
Cutting store and/or observatory, Route 2, just west of town hall

Note: Elevations are as recorded by observer, location was determined from Topozone.com

Edson S. Cassino, observer

September 1872 – February 1873 – Elevation 986 feet – 44° 28’ N, 71° 42’ W
- Exact location in the community is unknown.
Note: Elevation and location are as recorded by observer.

Location and Instrumentation Descriptions

1859 – 1872: Hiram A. Cutting began taking weather observations as part of the Smithsonian Institution volunteer observer program in February 1859. He recoded these observations from his mercantile business which was located just a few hundred yards west of the Lunenburg town hall. His home was next door to the store. In 1866 the store was consumed by fire but he quickly rebuilt including the addition of an observatory. The County Gazetteer states that the observatory was built on top of the store but Figure 1 shows contrary. In addition, in a 2004 interview with the present owner of the house, he indicated that the observatory was once located at the rear of the house not at the store next door. See Figure 2. The observatory was fitted with a complete set of Smithsonian meteorological instruments. The elevation for this location was listed very faithfully each month on his forms as being 1,124 feet.

(MUSEUM AND OBSERVATORY.)

Figure 1. The Cutting Observatory in Lunenburg, Vermont. Date of photograph is unknown. From Lunenburg Historical Society.

Thermometer – Smithsonian, no other details are known.

Barometer – Smithsonian, no other details are known.

Wind instruments – Smithsonian, no other details are known. Observations of wind force used a ten point scale.

Rain gage – Smithsonian, no other details are known.

1872 – 1892: Dr. Cutting, awarded his Doctor of Medicine in 1870, began recording a new elevation of 1210 feet on his observational form of December 1872. No details of a move have been discovered as to what prompted this 86 foot change in elevation. The store's elevation was lower than the house and the observatory. Did he move from his store to the top of the observatory? We may never know.

Dr. Cutting switched from being a Smithsonian volunteer observer to being a United States Army Signal Service volunteer observer in 1876.

Thermometer – The only indication as to the type thermometer was recorded in February 1892. Dr. Cutting recorded that he had a J. M. Green maximum, minimum, and wet bulb thermometer, numbers 2780A, 2781A, and 2782B respectively.

Barometer – In February 1892, Dr. Cutting recorded that he had a J. M. Green barometer located at 1210 feet about sea-level.

Wind instruments – No details are known.

Rain gage - Dr. Cutting recorded that he had a six-inch Smithsonian rain gage.

Figure 2. The Cutting house and store, Lunenburg, Vermont as they appeared in October 2004. The original house (now clad in vinyl siding) is to the left and the location of the store was next door to the right. The original store burned in 1943. View looking southeast. Photograph taken by author.

Figure 3. Looking west from the Lunenburg, Vermont City Park in October 2004. The building occupying the site of the original Cutting store is visible between the two vehicles. Notice the sharp drop in elevation just to the west of the site. Photograph by author.

1872 -1873: Mr. Edson S. Cassino, a Smithsonian Institution volunteer observer, recorded the weather in Lunenburg from September 1872 through February 1873. He indicated his location as being at 986 feet and at 44 ° 28' N and 71° 42' W making this location somewhat lower and to the west of Dr. Cutting's location. No other location or instrument details are available.

Observer Stories – Hiram A. Cutting

Born in the neighboring town of Concord, Vermont on December 23, 1832, Dr. Hiram A. Cutting was a man of boundless energy, interests and determination. At 14 he was a land surveyor and by age 16 was teaching in a district school in Essex County. His passion was medicine and although he began these studies at 15, ill health among other factors caused him to put them aside until 1870. On November 3, 1870, he was presented with the diploma of M.D. from Dartmouth College after his professor (E.E. Phelps) declared that Cutting was more knowledgeable than he. An honorary Doctor of Philosophy degree

followed in 1879 from Norwich University in recognition of his scientific merits. An avid scientist with wide ranging interests from botany, human anatomy, agriculture, entomology, geology and the atmosphere, Dr. Cutting's legacy includes texts on "Plant Growth and Fertilization," "Ventilation of Farm Homes," "Climatology of Vermont," and "Notes on Hailstorm in Concord." Among the many positions that he held, Dr. Cutting served as a Notary Public, an Examining Surgeon, the State Curator of Natural History, a State Geologist, and a member of the Board of Agriculture as well as chairing the Fish Commission of Vermont.

At the age of 23 he partnered with his uncle to establish a mercantile business in Lunenburg. He became sole owner of the business in 1880 but not until after a fire destroyed the store and other buildings in July 1866. Dr. Cutting lost about 1,000 volumes and a cabinet containing more than 25,000 specimens. The store was quickly rebuilt. In addition to his store he also owned and ran a provender mill, shingle-machine, tub factory, cider-mill, and several other small machines and planers, all of which were of great benefit to the people of the town.

Dr. Cutting married Maranda E. Haskell of Lennoxville, Canada, on February 3, 1856. She died of capillary bronchitis on March 3, 1886. The couple had an adopted son. Hiram Cutting died on April 18, 1892, at the age of 59.

On his March 1892 observational form, completed just 18 days before his death, he noted that "Robins seen 28th." It would seem safe to assume that Dr. Cutting would have loved to have experienced yet another spring, a time to observe and experiment.

References and Data Sources

Observational forms as found in the National Climatic Data Center archives

Vermont Geological Survey web site at www.anr.state.vt.us

Men of Vermont: Illustrated Biographical History of Vermonters and Sons of Vermont. Biography available at www.rockvillemama.com/essex/cuttinghiramadolphus.txt.

County Gazetteer and Directory, Gazetteer of Caldonia and Essex Counties, Vermont, published by Hamilton Child, Syracuse, New York

Lunenburg Historical Society, Mr. Charles Tatro, President

Bibliographical Encyclopedia of Vermont of the Nineteenth Century, 1885

APPENDIX I. METHODOLOGY

The primary sources of information for this study were the Lunenburg observers' daily weather records themselves. Both of the observers in Lunenburg's history were volunteers. Copies of their monthly reports were available on-line through the National Climatic Data Center's WSSRD system. These monthly reports can be considered primary sources because they were written by the observers and not altered by subsequent readers.

There were a few secondary sources that held limited information about Lunenburg including the Lunenburg Historical Society, web-sites and books. The State Climatologist for Vermont, Dr. Lesley-Ann Dupigny-Giroux and her staff aided in the research. The author visited Fairbury in June 2004 in order to make local contacts and to visit the actual observational site.

All of 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 Lunenburg, Vermont. Maps, drawings, and photographs were included when appropriate to illustrate the information.

Microsoft's Streets and Trips software and Topozone.com were used in location analysis.