

11 - Blue Hills History – The Observatory

We see the observatory when we hike, but did you ever wonder how it came to be there? What it actually does? (And has done over the years?) Let's take a look, and we'll start by going back to 1884.

Abbot Rotch (1861–1912) was Harvard's first professor of meteorology, and he built the original Blue Hills Observatory, with his own funds, in 1884. (It was designed by his brother.) The original observatory had a two story, stone, tower. It was built of stones from near the summit of Great Blue. The original unit consisted of the tower and a two-story unit containing two bedrooms, a kitchen and a dining room.



[i]



Original Observatory, in 1887, with two of the kites that were used to raise instruments into the sky. [ii]

February 1, 1885.

Precipitation.

Kind	Snow
Time of beginning	AM 10:55
Direction of wind at beginning	S.E.
Time of ending	P.M. 6:40 P.M.
Direction of wind at ending	W.
Changes in direction of wind	Veered from S.E. to W.
Amount of rain	
Amount of melted snow by gage	.09 in.
Amount of melted snow by section.	
Estimated depth of snow	1½ in.

Self Registering Thermometers

7 A.M.	Minimum thermometer	18.1
	Corrected minimum	18.1
	Minimum thermometer	15.7 by Exposed.
	Maximum thermometer	30.4 by Exposed.
	Corrected minimum	15.7
11 P.M.	Corrected maximum	30.4
	Range	14.7
	Minimum after setting	15.0
	Maximum after setting	15.8

Wind

Maximum velocity	
Time of maximum velocity	
Minimum velocity	
Time of minimum velocity	
Changes in direction	NE veering to W
Number of miles in 24 hours	420

Miscellaneous.

and Velocity of 36 miles noted at 8 P.M.
 " " " 42 " " " 8.30
 " " " 48 " " " 10

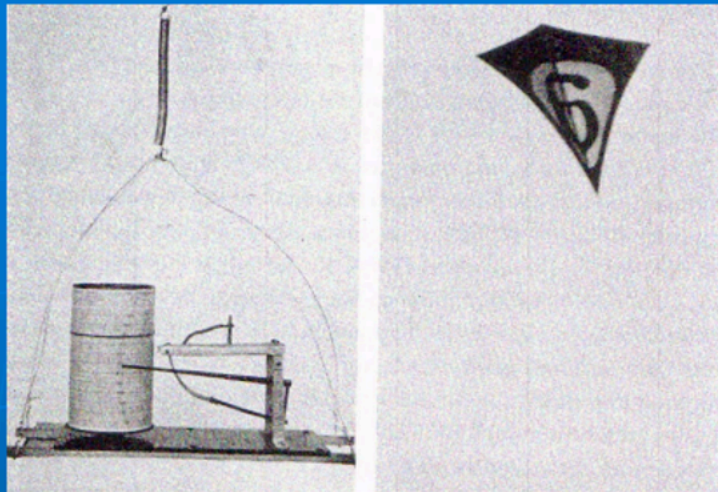




Starting February 1, 1885, the Blue Hill Observatory was occupied and has recorded atmospheric temperature readings continuously ever since. These written records, as opposed to just anecdotal stories, provide the kind of long-term *data* needed to allow evaluation of climate change. The Blue Hills Observatory “is the foremost structure associated with the history of weather observations in the United States.”^[iii]

In 1890 an east wing addition was added to house additional research space and a library.

During the 1880 and 90s they flew kites to carry weather instruments into the sky and collect data on wind and clouds, the first time that had been done. On October 8, 1896, a record of 8740 feet (2,665 m) was achieved for a weather kite.



On 4 August 1894 using a series of Malay tail-less kites, a thermograph was carried aloft to an altitude of 1,400 ft.



Those of us that hike in NH know that as you go up in altitude the temperature drops. Experiments such as these helped prove that, and quantify the effect of altitude on temperature.

In 1902 a west wing addition was also added. In 1908 the original tower was removed and replaced, as the vibrations from the instruments on the roof, combined with the high winds the tower endured, had led to it developing leaks. It was replaced by a three story concrete tower.



During the hurricane of 1938 they recorded the highest wind speed ever directly measured during a hurricane at 186 mph.^[iv]

In 1980, the observatory was listed in the National Register of Historic Places as "Great Blue Hill Weather Observatory." On 12/20/1989 it was declared a National Historic Landmark.

Harvard operated the observatory until 1959, when it was turned over to the National Weather Service.^[v] While the National Weather Service continues to operate automated equipment at the summit, the observatory itself has been turned over to "Blue Hills Observatory and Science Center", a non-profit which currently operates the observatory.^[vi] Their Mission? "The mission of the Blue Hill Observatory and Science Center is to foster public understanding of and appreciation for atmospheric science, while continuing to maintain a meticulous record of weather observations and long-term study of climate." You can find them at bluehill.org. When things settle down, they will again be open for tours.

Next to the observatory is the Rotch Memorial, an engraved stone marker that was donated in 1914 in honor of Abbot Lawrence Rotch by his widow.

The memorial was originally located at the junction of the summit and the circumferential roads, and was moved to the current site in 1968.^[vii]

The observatory wall, a poured concrete wall with capped piers and segments that connects to an iron fence to make a complete enclosure around these three resources, was constructed in 1905.

CLIMATOLOGICAL DATA

1885 — 1984

BLUE HILL METEOROLOGICAL OBSERVATORY

ELEVATION 635 FT. MSL

TEMPERATURE °F

AVERAGE 47.1

HIGHEST 101 8/10/49, 8/2/75

LOWEST -21 2/9/34

PRECIPITATION IN.

AVERAGE 47.44

24 HR. MAX. 9.93 8/18-19/55

STORM MAX. 12.77 8/18-19/55

MONTH MAX. 18.78 8/55

YEAR MAX. 65.51 1972

MONTH MIN. 0.06 3/15

YEAR MIN. 26.96 1965

SNOWFALL

AVERAGE 60.1

24 HR. MAX. 28.2 2/24-25/69

STORM MAX. 38.7 2/24-28/69

MONTH MAX. 65.4 2/69

SEASON MAX. 136.0 1947-48

SEASON MIN. 12.6 1936-37

GREATEST SNOW DEPTH ON THE GROUND IN.

42.0 1/25/48

ATMOSPHERIC PRESSURE MSL

HIGHEST 1052.4 MB (31.08 IN.) 2/13/81

LOWEST 962.8 MB (28.43 IN.) 3/7/32

PERCENT OF POSSIBLE BRIGHT SUNSHINE

AVERAGE 52

MONTHLY MAX. 76 6/71

MONTHLY MIN. 21 4/10

WIND DIRECTION AND SPEED MPH

AVERAGE W. 15.4

HIGHEST (5 MIN.) S 121 9/21/38

HIGHEST (CALCULATED GUST) S 186 9/21/38

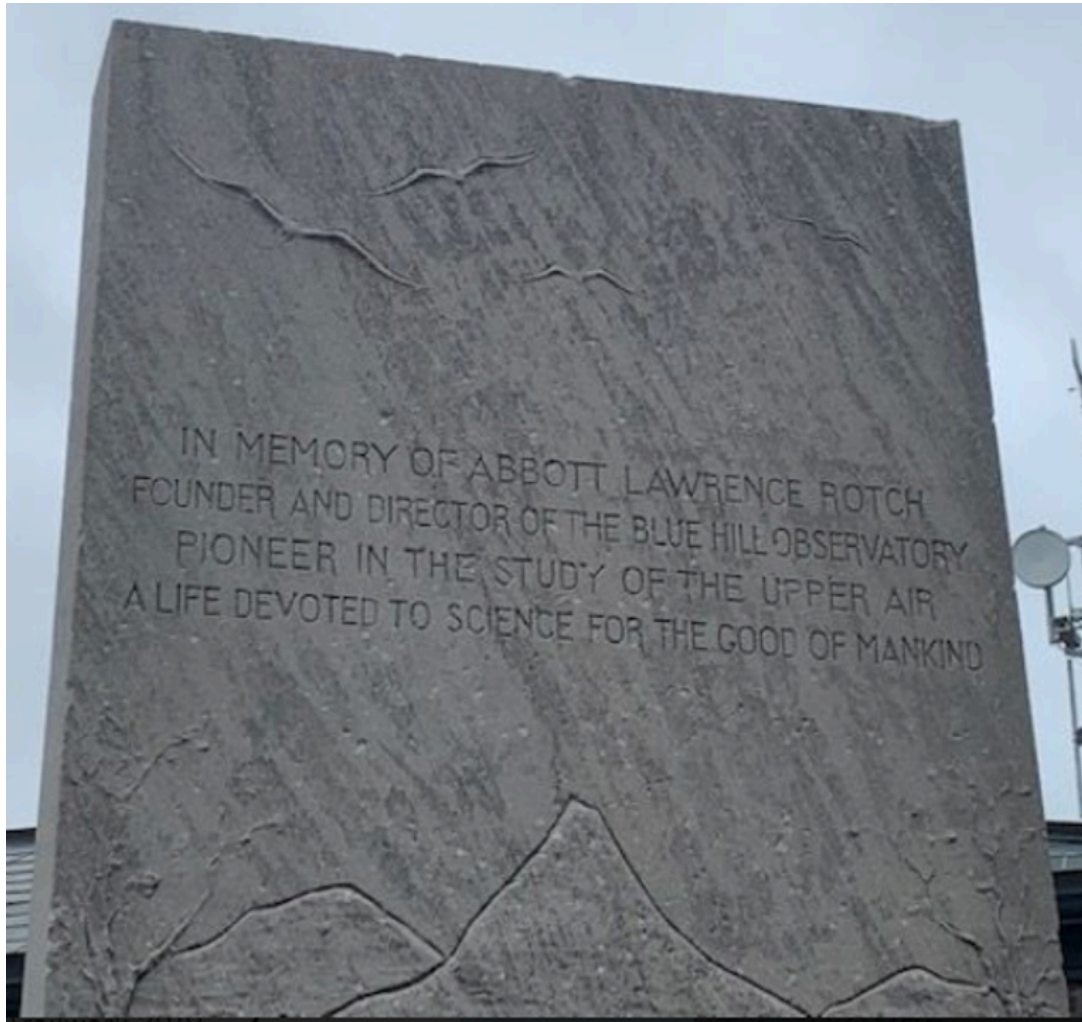
} HURRICANE

REDEDICATED TO ABBOTT LAWRENCE ROTCH

AND ALL WHO FOLLOWED

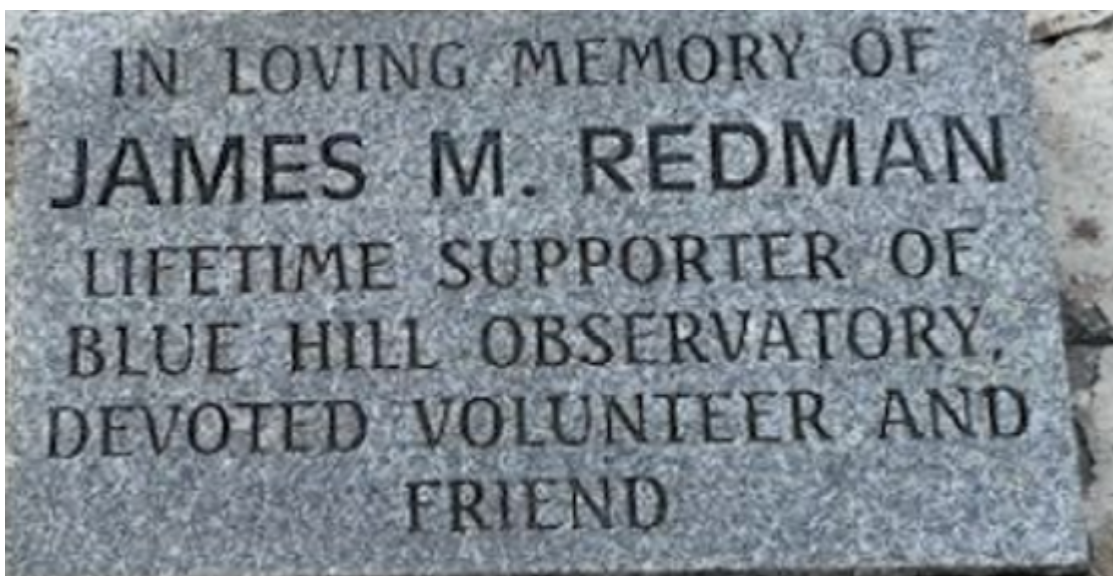
ON THE CENTENNIAL OBSERVATION DAY

FEBRUARY 1, 1985



[ix]

Bonus1: Flagpole plaque at the Observatory.



[x]

If you remember in the last article we read about the “Redman Farmhouse”, at the Ponkapoag Golf Course. I don’t know the connection between James and that farmhouse but... I would guess there is one.

Bonus2: Summit Road.

The summit of Great Blue Hill is reached by Summit Road, constructed sometime between 1871 and 1884. ^[xi] While as hikers we tend to avoid the road, it is frequently used by both runners and bikers, as in the greater Boston area it’s a good place to get some elevation (about 400’) and if you do multiples it adds up. “Everesting” is a thing (<https://29029everesting.com/>), and if you are really committed you can ride or run up and down the road 70 times (equaling 29,029’ of elevation gain) like Jim Purtell from Somerset did on his bike in 2015. See: <https://www.southcoasttoday.com/article/20150605/news/150609544?template=ampart>

Bonus 3: Pumphouse

On Accord Path, more or less across from Brookwood Farm, is a small stone building. If you’ve hiked past it you might have wondered what it was. I say ‘was’, because looking at its present condition you can quickly tell it doesn’t do anything useful anymore. Looking inside you may have figured it out, there are all the clues you need.



Pumphouse, built in 1913



Electrical Panel



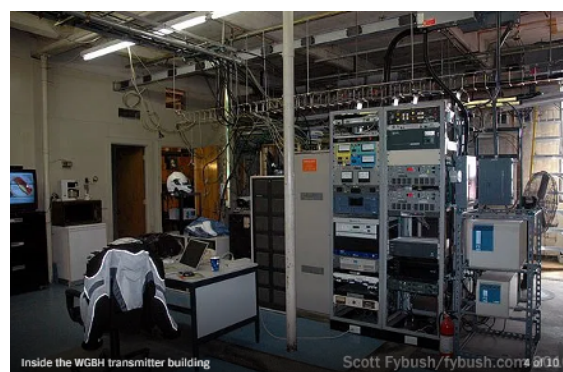
View in the door Pump (center rear), Motor (right rear), w/ pipes foreground

This pumphouse was constructed to provide water to the observatory. ^[xii]

Bonus 4: WGBH Building/Tower

Not everything on the summit is associated with the observatory. The WGBH (W Great Blue Hill... *in case you never thought about those initials and where they came from!*) building and tower are located there too. WGBH FM signed on in October 1951, and from 1955-60 WGBH TV also broadcast from there. If this subject interests you, and you want more information, Scott Fybush has 'all the info' you could ever want at:

<https://www.fybush.com/site-of-the-week-8242012-wgbh-fm-boston/>.



^[xiii]



Until next time, take care and be safe,
Bob Vogel

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- [i] http://www.bluehill.org/history/History_of_Blue_Hill.pdf
 - [ii] https://en.wikipedia.org/wiki/Blue_Hill_Meteorological_Observatory#/media/File:Bho_summit01.jpg
 - [iii] https://en.wikipedia.org/wiki/Blue_Hill_Meteorological_Observatory
 - [iv] Ibid.
 - [v] http://www.canton.org/canton/Canton%20Mass_%20Historical%20Society,%20Canton%20Bicentennial%20Book,%20Chapter%201.htm
 - [vi] <https://bluehill.org/observatory/about-us/history/>
 - [vii] <https://www.mass.gov/files/documents/2016/08/mz/sections1-4.pdf> p. 40
 - [viii] <https://bluehill.org/observatory/2013/03/blue-hill-observatory-rotch-memorial-monument/>
 - [ix] Bob Vogel photo
 - [x] Bob Vogel photo
 - [xi] <https://www.mass.gov/files/documents/2016/08/mz/sections1-4.pdf> p. 40
 - [xii] <https://www.mass.gov/files/documents/2016/10/mz/section-2-blue-hills-reservation.pdf> P. 2-19
 - [xiii] <https://www.fybush.com/site-of-the-week-8242012-wgbh-fm-boston/>