

Sheldon Vermont Spring Trip. Nov 7, 2017

On Tuesday, Nov. 7th, we (Dallas Abbott and Bill Menke) met with Harold Smith, Gerald Dexter and Andy Crane at 9 A.M. at the Sheldon Springs Vermont town hall. Harold Smith is the town historian. Gerald Dexter is an expert on sites of commercial bottling of spring water. We then left to visit four historical springs in Sheldon.

The first spring was the Vermont Sulphur Springs (Figure 1), located on E. Sheldon Road on the farm of Daniel and Susan Lussier. The historically recorded temperature of this spring was 45°F. The historical flow rate was 7 gallons per minute. The spring is located at 44.90060°N -72.92352°W and an elevation of 411 ft. The spring forms a small pond with a maximum temperature of 7.6°C (45.7°F), in excellent agreement with the historical temperature. Because there was no restricted outflow zone from the pond, we were unable to estimate the present day flow rate.



Figure 1. Vicinity of Vermont Sulphur Springs. The springs are located on the south bank of the Missisquoi River. They are south of Sheldon Junction and are the closest springs to Sheldon Junction.

The second spring was the Missisquoi Spring (Figure 2), formerly site of the Missisquoi Hotel. Missisquoi is the name of a subgroup of the Abenaki tribe. Their homeland is in northern Vermont and southern Quebec. At the time of European incursion, they lived along Lake Champlain. Their name Missiassik, from which "Missisquois" is derived, means "place of flint" in the Abenaki language; or alternatively, from "Masipskoik" a word that means "place where there are boulders", more specifically "boulders point."

The Missisquoi spring was located in a stream crossing on RT 78 next to the hill where the hotel had been located. This land is now part of a working farm. The location of the Missisquoi Spring is characterized as Sheldon Junction on an old bottle owned by Gerald Dexter. The spring had a nice springhouse that is shown in old pictures. The historical flow rate of the spring was 2 gallons per minute and the substrate was glacial clay. The spring at Sheldon Junction was described as forming a slimy mineral deposit.

Sheldon Springs was originally known as Olmstead Falls. Sheldon Springs Vermont once rivaled Saratoga Springs, New York. There were 7 or 8 hotels in Sheldon Springs where people came to be cured by drinking the spring water. The high point of Sheldon Springs only lasted a few years as the Missisquoi Springs Hotel burned down after three years.

We found a possible spring beneath the roots of a tree in the stream valley. The water temperature was 7.5°C (45.5°F). Because the spring was so close to the level of the stream, we were not able to estimate its flow rate. The possible spring is located at 262 ft., 44.9144°N, 72.95633°W. The stream valley is filled with silt and bushes and it is difficult to be completely sure that we located the original spring site. Soil erosion and fertilizer runoff may be contributing to the dense vegetation and silt that is rapidly filling the stream valley. The original springhouse and its foundation may be buried beneath this more recent material.



Figure 2. Google Earth image of vicinity of Missisquoi Spring (white open square). The spring is located close to the north bank of the Missisquoi River. Sheldon Junction is south of Missisquoi Spring.

The third spring we visited was the Congress Hill spring (Figure 3) on Shawville Road. The spring is located in a steep valley behind the parking lot of a church. We made two measurements of water temperature, one on the hillside and one at the bottom of the valley. There is a concrete basin in the valley that houses the spring. The temperature of the water in the basin was 9.7°C (49.46°F), somewhat higher than that of the first two springs. The surface of the water appeared to contain a floating coating, which might represent the growth of mineral loving bacteria. We have seen similar floating material at other springs where we know that the water is clean and potable. This floating coating may be the slimy mineral deposit described by historical sources as occurring on top of the spring water in Sheldon Junction (Missisquoi Spring). Because there was no outlet to the enclosed basin, we could not estimate the flow rate of the spring. The Congress Hill Spring is located at 326 ft., 44.90525°N, 72.97858°W.



Figure 3. Congress Hill Spring (white open square) on Google Earth. We also sampled a stream on the hill. The large building at center right is St. Anthony's Rectory at 117 Shawville Road.



Figure 4. Vicinity of Central Spring (white open square), Sheldon Vermont. The poorly vegetated areas near and below the spring are areas of intense water seepage.

The fourth spring we visited was the Central Spring (Figure 4) at 276 Central St. in Sheldon, Vermont. The spring is on a working farm. This spring had many diffuse outlets. There was a large area that was flooded from 6 inches to a foot in depth with tufts of grass sticking up through the water. We found a concrete basin near the base of the flooded area, where we measured a temperature of 8.0°C (46.4°F). Because the basin had no spigot, we could not assess the flow rate. However, the large lateral extent of the flooded

area uphill of the basin implied that water was seeping out of the ground at numerous locations. We found many sites uphill of the basin that contained warm water seeping out of the ground. At the site with the most rapid flow, the water temperature was 10.3°C. (50.5°F). At the higher temperature site, we filled about 1/5th of a 21-liter bucket in 4 seconds for a flow rate of 19.2 gallons per minute. This site was located at 440 ft., 44.9061°N, 72.97763°W.



Figure 5. Water bottle from Missisquoi Spring collected by Gerald Dexter.

Link to other images of our trip:

http://www.ideo.columbia.edu/users/menke/slides/public/17/springwater117/springwater117_0.html