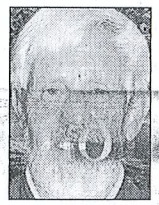
Six Mile Creek has storied history in community

Guest Viewpoint

ROXANNA JOHNSTON



DAN KARIG

Ice Age landforms figure prominently in the history of Ithaca's water supply. The last glaciation covered this area with ice, concentrating the flow into valleys like that of Six Mile Creek, where a thick layer of clay-rich till was deposited beneath the ice. After the ice retreated, the creek was left "hanging" above the more deeply gouged Cayuga valley and has been eroding down into this till. In some places, the stream has even cut into bedrock, forming gorges. This removal of till and lowering of the stream elevation were a natural process and will continue for centuries as the stream elevation approaches that of the Cayuga valley.

Enter the settlers

The natural stream progression was sharply modified by the effects of 19th-century agricultural practices of land clearing. Soil was eroded and carried into stream channels where it eventually settled in floodplains or was transported to the lake. Six Mile Creek was once again left higher and straighter as a result of the increased sediment load.

Abandonment of agriculture in most of the watershed and the resulting reforestation of the hillsides reduced the load to the stream, leading to a natural return of the stream system to its former condition through degrading/downcutting and increasing sinuosity. This process is still actively under way in Six Mile Creek and its tributaries. The stream is moving toward an equilibrium that will result in much less erosion, but this will take time to achieve.

Geology, history, drinking water

Three different reservoirs were created on Six Mile Creek between 1892 and 1911, after groundwater sources proved too costly or insufficient to meet the growing needs of Ithaca. All three impoundments took advantage of the geologic history by damming the post-glacial gorges along the stream.

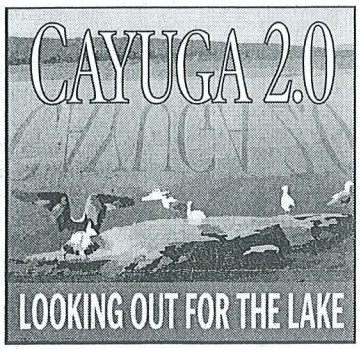
Provided Photo

In this undated photo, men work on the Six Mile Creek dam.

The first was a mill dam at Van Nattas (current Giles Street stream crossing) purchased by the Ithaca Light and Water Company to bolster existing water sources. As the population grew, more upstream sources were needed to provide low-cost water, so in 1902, the Ithaca Light and Water built the 30-foot dam upstream of Van Nattas in a second gorge.

A typhoid epidemic broke out after the 30-foot dam was built and was generally blamed on unsanitary conditions during construction. Around the same time, several storms resulted in turbid drinking water for residents. There was a growing sentiment that the city should own its water system. In March 1903, the city voted to take ownership of the water system from the IL&WC and built the first treatment facility.

To acquire more storage capacity and to reduce the cost of pumping water, the current 60-foot dam, or Potters Falls Reservoir, was put into service in December 1911. During the following years, it was noted that the 60-foot dam was filling in with sediment, so in 1925 the Silt dam was constructed as a pre-settling basin.



ABOUT THIS SERIES

Cayuga 2.0 is a series of monthly guest viewpoints about the health of the Cayuga Lake watershed and the challenges and opportunities related to it. The viewpoints are provided by the Tompkins County Water Resources Council.

▶ **Next month's installment:** The Floating Classroom experience.

ON THE WEB

For more information about Six Mile Creek and Ithaca's water supplies:

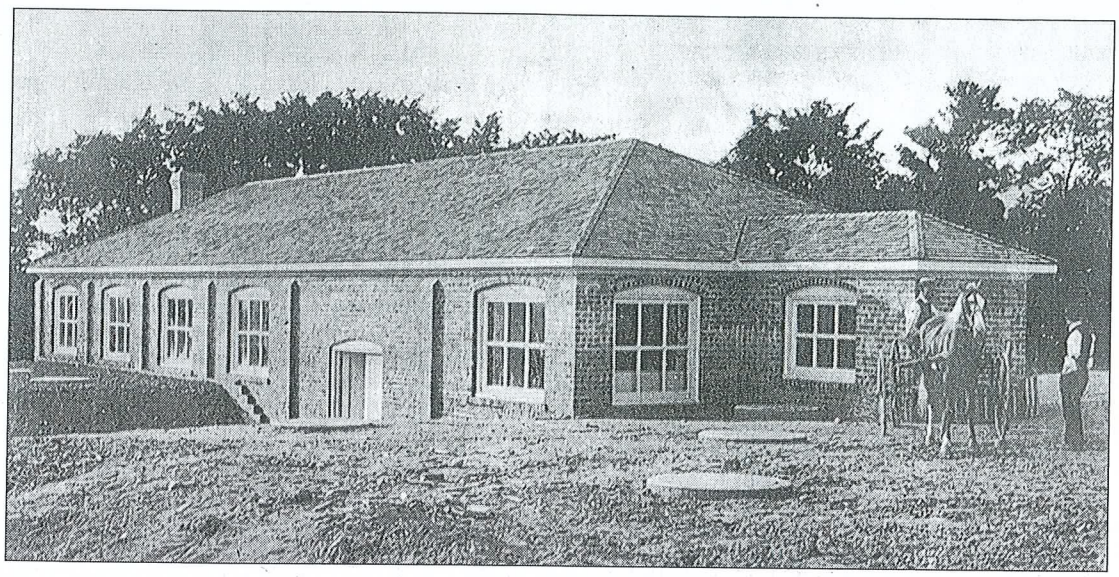
▶ **www.cityofithaca.org.** Search on "watershed information" and "history." You will find more about the creek and a history of Ithaca's water and sewer systems.

▶ **www.communityscience.org/mapsdata.html.** Search on "Six Mile Creek." You will find a watershed map, sampling locations and data.

The system today

The original reservoir system is still operating essentially as it was originally designed, taking advantage of gorges and gravity for water storage and delivery. Sediment loads and erosion remain a topic of discussion, though modern land management practices have done much to reduce outside influences on the natural stream processes. The legacy sediment resulting from the glacial deposits and historical land management will be with us for some time, but if land is developed with an appreciation for the balance between land use, water and erosion, we can minimize those impacts.

Roxanna Johnston is chairperson of the Monitoring Partnership. Dan Karig is a member of the Water Resources Council and professor emeritus of geology, Cornell University. This article is a compilation of information from "History of Ithaca's Water & Sewer Systems," 1965, and "Six Mile Creek, A Status Report," May 2007. Both are available on the City's Web page www.cityofithaca.org.



Provided Photo

This undated photo shows what the old Ithaca Water Treatment Plant looked like.

EBB AND FLOW OF ITHACA WATER SUPPLY

Saturday, September 5, 2009