



# The Mud Ring

The Newsletter of the Cinder Sniffers Inc.

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## PRESIDENT'S MESSAGE

As I write this Fall has not officially begun but one can hope. We have had a couple of good runs this Summer thanks to the weather. The club diesel is maturing under the capable hands of Ed and Carl. The club has sent a letter to the manufacturer but the reply was wholly inadequate. Steve has agreed to write another with perhaps a little more emphasis. How a company can remain in business selling such a poorly constructed engine for as long as they have is amazing to me? It doesn't say much for the hobby's expectations from it's suppliers.

The article on the Hamilton Water Works occurred to me based on a trip my family took this summer and we ended up in Hamilton Ontario by chance. I strongly recommend visiting the Hamilton area as there is much to see including the Royal Botanical Gardens and Dundern Castle. Information came from various internet sources and a booklet printed by Hamilton Civic Museums and pictures are my own.

## Hamilton Water Works

A major factor limiting development in the industrial revolution was the health and well being of the population of workers. Diseases like Cholera became endemic, wiping

out whole groups of the population. If a town was to become a major manufacturing center and prosper it needed to provide the inhabitants with a clean and plentiful supply of "good" water. Take a moment and think how we take potable water for granted in our daily lives but things haven't always been that way. The movers and shakers of the 19th century were willing to go into great debt to build water systems that met the needs of people and industry. The City of Hamilton wanted to become an industrial center but found that due to Cholera the population was falling instead of growing and one thing 19th century industry needed was lots of cheap labor. The answer to Cholera and a lot of other problems lay in a plentiful clean water supply. The City hired an engineer named Thomas Keefer to design and build a water system. The system he designed took water from Lake Ontario and pumped it uphill to a reservoir where it flowed by gravity down to the City of Hamilton. To pump the water he used an engine design from a Cornish engineer named Arthur Woolf. Woolf had designed the Woolf Compound, Rotative, Double Acting beam engine to pump water out of the mines in Cornwall and to power British Textile mills. The engine used steam twice, first in a high pressure cylinder then in a low pressure cylinder. The result was a power-

ful, long lasting efficient engine design which was copied throughout the western world. Examples of these engines can be found still working in museums and represent the finest in Victorian splendor with massive cast and forged parts nicely complemented with polished brass and German silver.

There are several YouTube videos showing Woolf Compound engines working at steammuseum 01. These videos will give you some idea of the presence of this type of engine.

John Gartshore built the two pumping engines based on the Woolf design as drawn by Keefer's son. These beam engines were designed to run at very low RPM's. The pair in the Hamilton works operate at 15 RPM. The flywheels are 24' in diameter and weighted 22 tons each. Boiler pressure was originally 30 psi but raised to 60 in 1882 when replacement boilers were installed. It was raised again in 1892 to 70 psi to meet the additional demand for water. The water pumps were Bucket and Plunger type with 48" stroke, 30" diameter and pumped 1.6 million gallons per day uphill 190 feet to the reservoir.

The water works started operation in 1859 and the engines worked full time until 1910 when they went on standby until 1938. Their service life is typical of beam engines built in this era and maintained by their own engineer. His job depended on the availability of the engines 24 hours a day 365 days a year. The engines were only shut down when the pumps were replaced in the 1880's.

Oiling was done once an hour and consisted of over 100 points with most of them moving up and down or around in a circle.

The chief engineer, James McFarlane, came from the company that made the engines. He was sent to oversee the installation and was persuaded to stay. He stayed for 51 years until the engines were put on standby in 1910. There were 3 people per shift on two shifts. The hours were 11 for the day shift and 13 for the night shift. The stoker had the worst job with temperatures in boiler room up to 140 degrees. He shoveled 600 lbs of coal an hour for which he was paid about dollar a day. The oiler's jobs was much less rigorous but more smelly as mut-ton fat was the base for the oil. He also had to clean the engine while operating. Housing was provided on site for the workers and their families. I can't find any details but it was considered an important perk of the job and the jobs were considered desirable.

For a steam engine enthusiast these large stationary waterworks engines are a treat. They were typically housed in a substantial building protecting them from the elements, maintained by the cream of the mechanical trade with a high degree of pride. All of their features were very large, easily seen and appreciated. Do yourself a favor and visit one or two of them before it is too late and they are gone.

*Vincent*

*Safety First, always*

# Hamilton Museum of Steam and Technology



In the foreground is the boiler room which originally contained four Cornish Boilers, later rebuilt with single horizontal Return Tube Boilers and now contains a series of Technology displays including operating miniature steam engines and a gift shop. In the left rear is the out of use 150 foot chimney on a stone foundation with brick upper portion. The stone building behind contains the two Gartshore Beam Engines along with the condensers and pumps. Unseen in the right foreground is the coal storage shed. In the left rear distance can be seen a miniature railway with its associated buildings not in operation at the time we were there. The brick building in the right rear is the electric powered pump station which superseded the steam pumps in 1910. The steam pumps remained on standby until 1938.

# The Royal Botanical Gardens Rock Garden



The Rock Quarry Garden is very large and is well developed with spiral paths winding down into the bottom level. There are many vistas to enjoy and it reminds me of a Japanese garden. Yes that is a tea house in the background.

There are many formal gardens with an amazing variety of trees, flowers and shrubs. Unfortunately my lack of knowledge in these areas prohibit better descriptions but the colors are amazing.



One thing I found enlightening was the encouragement to sit and touch.

The herb garden has a large section with the medicinal usages of each of the herbs, both in the past and in today's prescription drugs.