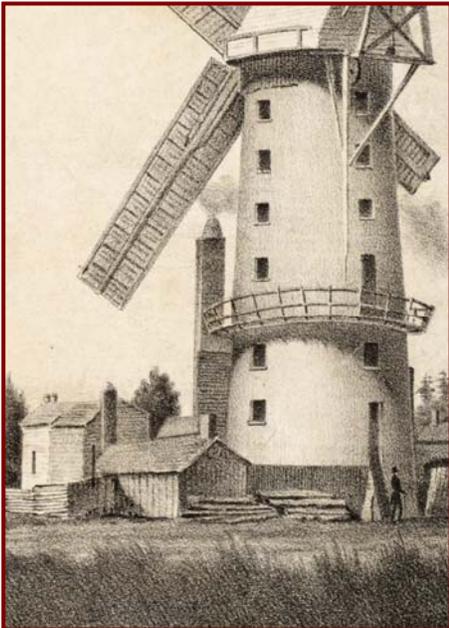
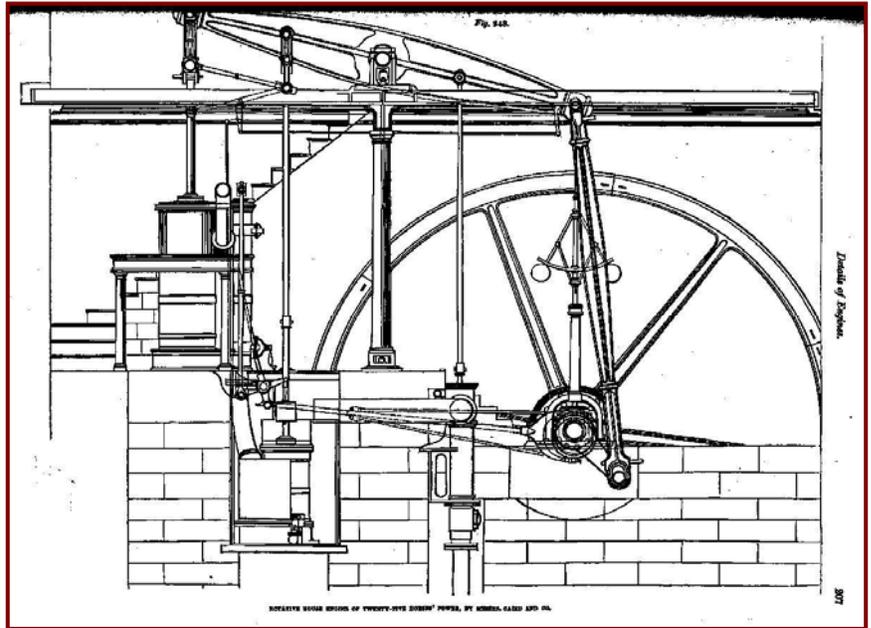


## Steam power



**Windmill & power-house chimney  
by Thomas Young ca. 1833 TPL**



**Diagram of an 1840s, 25-horsepower steam engine  
from *Treatise on the Steam Engine* by John Bourne, 1849**

Steam power came early to Worts and Gooderham's windmill by the lake. Less than a year after their windmill starting grinding grain, it was clear that wind power alone would not work. York was not Norfolk. Lake Ontario's winds were simply too unpredictable: sometimes too much and sometimes too little. So, exactly 175 years ago, the enterprising duo purchased one of the first steam engines manufactured in Upper Canada, initially to assist and then to replace wind power altogether. Thereafter, the company repaired, refined, and replaced steam power as required until the 1990s.

The steam engine developed and patented by [James Watt](#) in the 1760s is widely credited with propelling Great Britain into the Industrial Revolution – powering steamboats, railways, pumps, mills, and other enterprises. For little York and North America generally, the summer of 1833 was “mighty early” for stationary steam technology, as curator Franz Klingender of the Canada Agriculture Museum has commented. Sadly no plans, sketches, or detailed descriptions of Worts & Gooderham's first engine have survived. What follows is based on skimpy records — such as early newspaper articles, comments by [E. B. Shuttleworth](#), and exterior views of the windmill — and educated guesses. Perhaps more will emerge as a result of this article.

What we do know is that Worts & Gooderham purchased a steam engine in the spring of 1833. According to *The British Colonist* of April 16, 1850, it was the third stationary steam engine manufactured in Upper Canada. (Two basic types of engines at the time were marine and stationary land engines.) W & G purchased it from former blacksmith Charles Perry, who had recently won £50 from the Legislature of

the Province for having built the first steam engine in the province. (Perry is also notable for having manufactured early marine engines and printing presses.) According to that same 1850 newspaper article, it was a 16 horsepower engine.

It's hard to imagine the excitement felt by residents of York when steam engines came to town in the 1830s. After all, citizens of the 21<sup>st</sup> century regard steam locomotives, paddle-wheelers and fire-pumpers as impossibly romantic. But, just as computers have changed modern life, steam power transformed Victorian society. Something of this excitement was expressed by the *Colonial Advocate* reporter who visited York's two steam-engine manufacturers in July 1833: Charles Perry, Upper Canada's first and the still somewhat mysterious steam engine builder; and the larger, and somewhat dubious, Sheldon, Dutcher & Company.

**COLONIAL ADVOCATE.**  
YORK, THURSDAY, JULY 4, 1833.

**STEAM ENGINES.**

The various purposes to which these useful and powerful pieces of mechanism may be applied are so obvious that any recommendation we could bestow upon them would be perfectly superfluous. The generation of steam for various manufacturing purposes appears to be increasingly appreciated in the vicinity of this town. So much has this subject excited our capitalists, that a laudable competition has been entered into, not only amongst those who are engaged in the building of the numerous steamboats with which our navigable waters are daily becoming more splendidly supplied, for the convenience and comfort of the traveller and the accommodation of commercial interests, by facilitating our numerous exports and imports,—but also for the purposes of domestic manufactures.

For instance, there are now two excellent in Cupola Furnaces propelled by Steam Engines in this town, which were but a few months ago propelled by horse power, in which castings of every description are made with the greatest expedition, inferior to none in America.

There are, also, two Steam Engine manufactories in successful operation in the town, viz. Sheldon, Dutcher & Co's and Charles Perry's; the latter of which we lately visited and was particularly struck with the superiority of the workmanship of a Steam Engine now preparing for Messrs. Worts and Gooderham's Windmill near this town. It strikes us very forcibly that we never saw any thing of the kind wear the appearance of a more superior finish. From Mr. Perry's superior Steam Engine Factory we took a turn down to a Steam Saw Mill, recently erected near the Windmill for the purpose of examining its Engine recently manufactured by Mr. Perry, and to say the least of it we are decidedly of opinion that very few such pieces of workmanship are to be met with in North America.

**July 4, 1833 article**

*The generation of steam for various manufacturing purposes appears to be increasingly appreciated in the vicinity of this town. So much has this object excited our capitalists, that a laudable competition has been entered into, not only among those who are engaged in the building of the numerous steamboats with which our navigable waters are daily becoming more splendidly supplied, for the conveniences and comfort of the traveler and the accommodation of commercial interests, by facilitating our numerous exports and imports,— but also for the purposes of domestic manufacturers.*

**Forb Foundry**  
 AND  
**STEAM ENGINE MANUFACTORY.**



**THE** Foundry Business, Manufacturing Steam Engines, Mill Machinery, and all other business, as heretofore carried on by Wm. B. Sheldon, F. R. Dutcher, and Wm. A. Dutcher, on Yonge Street, a few doors north of King Street, will in future be carried on under the firm and style of Sheldon, Dutcher & Co., which firm now consists of Messrs. Wm. B. Sheldon, F. R. Dutcher, Wm. A. Dutcher, Samuel Adams, and J. & E. VanNorman. The proprietors of this establishment take this opportunity to inform the public that they intend carrying on the above business more extensively than it has ever been carried on in the Province, and with more punctuality and despatch; and they pledge themselves that no pains shall be spared in executing all orders in their line.— They will keep constantly on hand a general assortment of

Hollow ware, Stoves,	Cart and Wagon Boxes,
Mill Gearing of all kinds,	Clothiers' Plates;
69, 56, 30, 22, 15, and 7	Mill Stone Screws,
pound Weights, Clock, and	Plough Castings & Ploughs
Each Weights, of every	of every description,
Single Axes,	Bar Iron,
Auditors,	Steel,
Cranes,	Sheeting Copper,

AND A GENERAL ASSORTMENT OF  
**DRY GOODS, GROCERIES AND HARDWARE,**  
 all of which will be sold at very low prices.  
 The above business will be under the management of  
 F. R. DUTCHER & W. A. DUTCHER.

Wm. B. SHELDON,  
 F. R. DUTCHER,  
 Wm. A. DUTCHER,  
 SAMUEL ADAMS,  
 J. & E. VANNORMAN.

(Signed)

N. B.—Cash paid for old Iron, Copper and Brass,  
 York, January 20, 1833. 458c

**Sheldon & Dutcher ad**

The reporter first visited Perry's works at George and Duchess (later Duke) Street where he inspected Messrs. Worts and Gooderham's steam engine. Not only was he "particularly struck with the superiority of the workmanship," but he was also struck "very forcibly" by the "superior finish" of the engine. He concluded

*It is certainly paying a compliment far below Mr. Perry's merit, to say that he is every way deserving of public patronage, - the fact is, he manufactures a superior article which needs only to be seen and put in motion to be admired.*

The reporter's visit to the larger Sheldon, Dutcher & Company works provided more vivid details about foundry operations:

*Goodness, what a hammering and tinkering they keep; -- why it is almost deafening. We counted five blacksmith's forges all in active operation, one forge where tin, copper and sheet iron was manufacturing into the various utensils appertaining to cooking stoves; and besides all this, castings were*

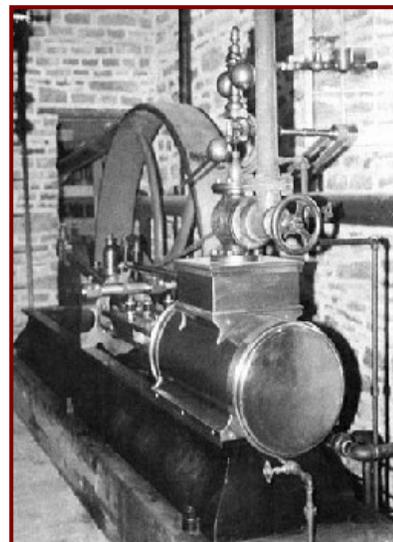
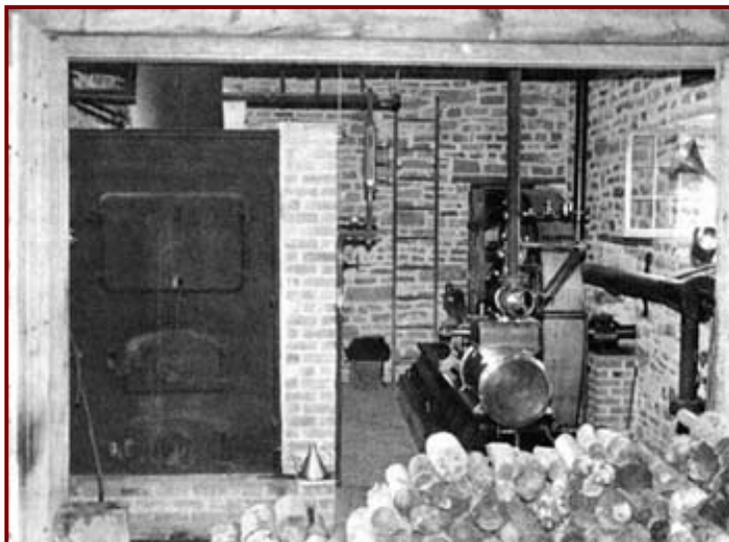
*going on, by the use of the Cupola furnace, at no small rate Bless us, what a brilliant sight to see great kettles full of iron reduced to red hot porridge turned into various moulds, - the stubborn metals thus yielding to the superior force of art and taking such shape as the workman pleases to prescribe for it.*

According to long-lost account books inspected by E. B. Shuttleworth early in the twentieth century, Worts and Gooderham paid Charles Perry two to three hundred pounds for the new engine, a large investment at that time.

Worts & Gooderham's new engine would have been hauled down to the windmill site by horse-drawn cart and installed by Charles Perry, perhaps assisted by mill engineer Sam Clarke. Architect Thomas Young's contemporary drawing of the windmill shows the wooden building with a tall brick chimney, just west of the mill, where the steam engine was housed.

Steam engines may seem a bit intimidating to the non-mechanical layperson. Think of it as a heat engine that performs mechanical work using steam as its working fluid; or as an engine that uses the expansion and contraction of steam to generate power. It has two fundamental components: *the boiler* that creates steam, and the *motor unit* itself. In the case of a simple steam engine, heat is obtained from fuel burnt in a closed firebox. The heat is transferred to the water in a pressurized boiler, ultimately boiling the water and transforming it into steam. The steam is transferred to the motor unit that uses it to push on piston(s) to power machinery, such as Worts and Gooderham's millstones.

A steam engine, therefore, had several basic requirements that would govern where and how it was installed: *water* (readily available from the nearby lake); *fuel* for the boiler (either wood or coal); a *structure* to house the boiler and engine that was separate from the mill with its highly combustible grain and grain dust (commonly known as an engine house or a boiler house); and a method of *transferring power* from the engine house to the mill. The boiler and the engine would have sat on a stone or brick foundation; a fuel box would have been located near the firebox; and the engineer's tools would have been stored nearby.



**Engine House, Sam Bellamy's 1860 Flour Mill, Upper Canada Village, 1985**

Although we can't know precisely what Worts and Gooderham's first steam engine and power house looked like, we know approximately where they stood (in Distillery Lane between the Stone Distillery and Buildings 32 and 25); can imagine both the excitement and the frustrations attendant on keeping this early machinery in working condition; and can almost hear the hissing, thrumming and whirring of Charles Perry's wondrous machine.

Sources include: "Steam Engine Manufactories in York," *Colonial Advocate* (York), July 4, 1833; "Messrs. Gooderham & Worts, City Steam Mills and Distillery," *The British Colonist* (Toronto), April 16, 1850; E. B. Shuttleworth's 1924 *The Windmill and Its Times*, *passim*; Edith Firth's 1966, *The Town of York, 1815-1834*, pp. 80-82; Walter Lewis, [The First Generation of Marine Engines in Central Canadian Steamers, 1809-1837](#). Lewis identifies Perry as the earliest and still relatively unknown manufacturer of steam engines in Upper Canada; and characterizes the larger firm of Sheldon & Dutcher as being the "most notorious Upper Canadian steam engine manufactory in the period," becoming involved in many legal wrangles. For animations of various steam engines, see [Matt Keveney](#). For more detailed animations and explanations of Watt's improved 1788 steam engine, see [London Science Museum](#). See also "[Steam engine](#)" in Wikipedia.

Thanks to archaeologist and industrial heritage expert Chris Andreae for sharing the 1849 diagram of a steam engine reproduced here. Thanks also to curator Franz Klingender of Canada Agriculture Museum/Musée de l'agriculture du Canada for explaining early steam engine technology in Canada. And thanks to *SteamTraction.com* for permission to reproduce the 1985 photographs of the Bellamy Mill steam engine at Upper Canada Village.

Please send your comments or questions to Manager of Heritage Services, Sally Gibson, [sg@thedistillerydistrict.com](mailto:sg@thedistillerydistrict.com).

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