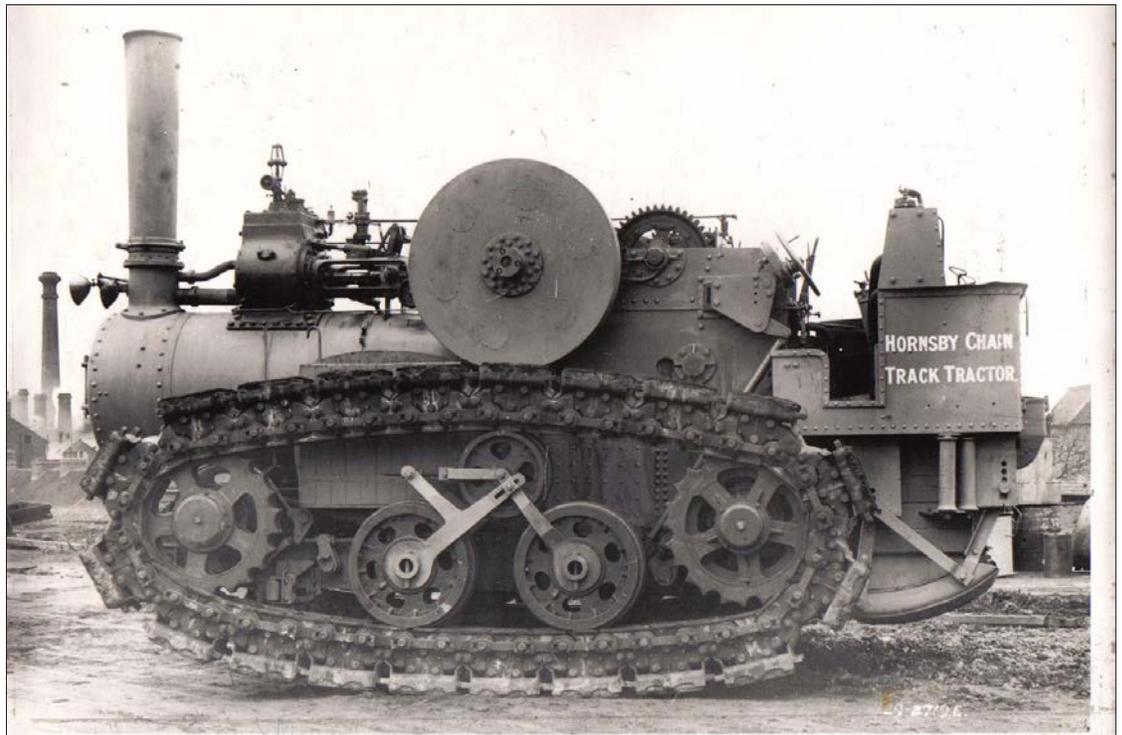


Regional District of Mount Waddington  
**Statement of Significance *for the Hornsby Steam  
Crawler***

December 2014



<https://sites.google.com/site/hornsbysteamcrawler/home>

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## Historical Chronology

<b>Time Frame</b>	<b>Concurrent Events</b>
1815	<p>Richard Hornsby &amp; Sons, a large manufacturer of steam engines and agricultural equipment, is founded in Grantham, Lincolnshire.</p> <p>Lincolnshire is an industrial heartland, home to mills, malt works, drainage systems, farms, factories and engineering workshops, while the city of Grantham held well-known industrial firms such as Ruston &amp; Hornsby, Aveling &amp; Porter machine works, British Manufacture and Research Company and others.</p>
1890	<p>Herbert Akroyd Stuart and Charles Richard Binney begin producing engines that operate by vaporizing air and fuel during the suction stroke of the engine. Easily operated, the engine could run continually on paraffin and lamp oil to provide power anywhere.</p>
1891	<p>Hornsby &amp; Sons enters into an exclusive contract with Herbert Akroyd Stuart to construct the Hornsby-Akroyd oil engine.</p>
1892	<p>The first Hornsby-Akroyd oil engines are manufactured to great success and Hornsby begins selling them world-wide, building a reputation for quality and reliability.</p> <p>Later in the year a prototype high-pressure version of the engine is built at Hornsby &amp; Sons. Ignition was achieved entirely through compression; it may be the first known diesel engine.</p> <p>The company phases out the manufacture of steam engines to focus on oil-driven engines.</p>
1896	<p>George Carmack and his companions discover gold on Bonanza (then Rabbit) Creek in Yukon, near the confluence of the Yukon and Klondike rivers, and the Klondike Gold Rush begins.</p>
1897 - 1898	<p>100,000 prospectors set out for the Klondike goldfields at the height of the gold stampede; 30,000 - 40,000 arrive.</p>
1899	<p>Dawson City is a thriving town of 30,000, with all of the comforts and lavish lifestyles of a contemporary city.</p> <p>The best gold claims are already being worked or have been exhausted, and the gold rush begins to wane. New technology is needed to keep working the existing claims.</p>
1904	<p>David Roberts, managing director of Hornsby &amp; Sons, patents a new form of “endless track.” The company develops and patents the first track steer machines, fully tracked crawlers. The links of the tracks locked together to form a solid rail on which the internal wheels ran.</p> <p>The Holt Manufacturing Company of Stockton California is also experimenting with the manufacture of track crawler machines.</p>

Time Frame	Concurrent Events
1905	<p>Akroyd Stuart's oil engine patent elapses.</p> <p>Hornsby &amp; Sons makes minor improvements to the design of the engine, resulting in the Type 1905 Hornsby oil engine.</p>
1905	<p>Consolidation of the gold mining companies occurs in Yukon, attracting large corporations including the Canadian Klondike Mining Company in 1905 and the Yukon Gold Company a few years later.</p> <p>Large dredges are brought in to work Bonanza and Eldorado Creeks and sawmills, power plants, water supply and other infrastructure is constructed.</p>
1907	<p>A prototype vehicle using Roberts' endless tracks are successfully tested before British War Office observers, including Winston Churchill, but the tractor proves not commercially viable.</p>
1909	<p>The Northern Light, Power and Coal Company constructs a power plant on Coal Creek, 20 kilometres from Forty Mile, in Yukon. The facility is to supply electricity and heat to Dawson City, and power to the dredges working the mining claims.</p> <p>The company places an order for a steam tractor with caterpillar tracks to haul coal from the Coal Creek mine to a distribution point at Forty Mile over rugged terrain in the winter. Oil is scarce and expensive but abundant wood and coal is available to power the steam engine.</p> <p>The Hornsby Little Caterpillar is ordered by the War Office for military use.</p> <p>Holt changes the name of his company to Holt Caterpillar Company, trademarking the name Caterpillar in 1911.</p> <p>Hornsby &amp; Sons, having given up the production of steam engines to focus on oil, engages William Foster of Lincoln to supply engine no. 12459 to be combined with Hornsby &amp; Sons chain track tractor.</p>
1910	<p>The Hornsby Steam Crawler arrives in Dawson City via New Westminster, Skagway, the White Pass &amp; Yukon Railway to Whitehorse, then down the Yukon River to Dawson. It arrives in "knockdown" condition and is moved to bunkers for assembly. The Foster wheeled wagons that were shipped with the Crawler are inscribed with Northern Light Power and Coal Co. Ltd. Yukon.</p> <p>The huge new Northern Light, Power and Coal Company power plant starts up.</p> <p>The Holt Manufacturing Company produces a crawler tractor that is steered by a single wheel at the front and with tractor tracks at the rear. The company will later refute the Hornsby and Sons and David Roberts connection to the development of the crawler tractor technology, taking claim for the invention.</p>

<b>Time Frame</b>	<b>Concurrent Events</b>
c.1911	The Hornsby Steam Crawler appears in a promotional film produced by the British War Office. The film shows the process and provenance of the track steer technology, linking Hornsby and Sons directly to its invention.
1913	The Northern Light, Power and Coal Company goes bankrupt due to hydroelectric power competition from the North Fork Power Project. It is taken over by the Canadian Klondike Mining Company.
1914	Roberts' crawler track patent is sold to the Holt Manufacturing Company for \$8,000. The company eventually becomes Caterpillar Inc.
c.1914	With the abandonment of the crawler tractor technology by Hornsby and Sons, during World War I, the British War Office orders track steer versions of the crawler tractor from the Holt Caterpillar Company which are then converted to tanks.
1917	The Northern Light, Power and Coal Company plant is dismantled.
1918	Hornsby & Sons merges with Ruston, Proctor and Company to become Ruston & Hornsby Ltd.
c.1928	The Hornsby Steam Crawler is acquired by the Port Alice Pulp Mill to be used to haul pulp along Holberg Inlet. After falling into disuse, the boiler is removed to be used for heat at the floating Spry logging camp located near Port Alice.
1932	The Hornsby Steam Crawler is shipped back to New Westminster.
c.1950	The machine "falls off the barge" in Apple Bay.
1936	Ruston-Hornsby of Grantham, among other engineering firms, is given an educational order for tanks by the British government, intended to give them experience of tank construction to meet increased demand as the international situation deteriorates.
1966	English Electric takes over Ruston & Hornsby. Ruston Turbine Division.
1968	General Electric Company takes over English Electric.
1976	The Regional District of Mount Waddington establishes a bylaw to designate the area near Apple Bay on Holberg Inlet containing the Hornsby steam crawler as a heritage site.
1981	The RDMW gives Coal Harbour residents permission to move the steam crawler to a secure place for display while plans are made for a permanent exhibit. Fisheries restrictions prevent the movement of the steam crawler and it remains in place.
1982	The North Island Heritage Society makes plans to salvage the Hornsby steam crawler and exhibit it to the public, citing the importance that the machine remain in the local community.  The Society plans to establish a museum at Beaver Lake to collect, restore and display large equipment. Plans are completed by Hawthorn and Towers architects.
1983	The Hornsby steam crawler is moved to the barge ramp at Stephens Bay using local volunteer labour, machinery and equipment.

Time Frame	Concurrent Events
1987	<p>A Canada Works grant assists in the construction of a shelter for the Hornsby steam crawler near the Seven Hills golf club. BC Heritage Branch assists the North Island Heritage Society with proper preservation and exhibit of the artifact.</p> <p>Consideration is given to the return of the artifact to Dawson City where it was used to haul coal trains.</p>
2005	<p>The Historical Construction Equipment Association of Alberta requests the loan of the Hornsby steam crawler for three months to display at an international convention.</p> <p>The Association considers the machine to be of “sufficient rarity, technological interest and historical significance” that its story is of interest to an international audience. The RDMW and the North Island Heritage Society agree to the loan.</p>
2012	<p>The Hornsby steam chain tractor is returned to Coal Harbour in the Regional District of Mount Waddington, to be housed in a shelter provided by the North Island Heritage Society.</p>

## Statement of Significance

### Hornsby Steam Crawler

Fabricated 1909

Current Location: Coal Harbour, BC



Hornsby Crawler at field trials in Grantham, UK c.1909 (sites.google.com/site/hornbysteam-crawler/. Used with permission.)



Hornsby Crawler on barge for relocation to Coal Harbour

*Other names for the Hornsby Steam Crawler<sup>1</sup>:*

Roberts-Hornsby Chain Track Crawler

Hornsby Steam Chain Crawler

Steam Engine No. 12459

Hornsby Chain Track No. 35086

Hornsby Mammoth

<sup>1</sup> Appeal for the Hornsby Steam Crawler

### Description

The Hornsby Steam Crawler consists of the remains of a large, tank-like, iron vehicle consisting of the track, chassis, engine and firebox of a fully tracked crawler machine. The artifact has massive elliptical dual chain tracks consisting of a system of interlocking iron links. The chain tracks are connected by the remains of the chassis. Internal wheels are located within the chain tracks and a large firebox is located at one end. The iron has rusted, giving the artifact a copper patina.

The Hornsby Steam Crawler is located in Coal Harbour in Electoral Area C of the Regional District of Mount Waddington.



(sites.google.com/site/hornbysteamcrawler/. Used with permission.)

### Values

The Hornsby Steam Crawler is significant for its historical, industrial and community values, its rarity and its distinctive design qualities.

Fabricated in 1909 in the city of Grantham, England, the Hornsby Steam Crawler is associated with an important era of industrial design and manufacture in Lincolnshire county, the industrial heartland of Britain. It is particularly significant for its design and assembly by Richard Hornsby & Sons, a large and innovative manufacturer of steam and oil engines and

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William Foster coal wagons supplied with the Hornsby Crawler. (sites.google.com/site/hornsbysteamcrawler/. Used with permission.)



Dredge on Coal Creek. (U.S. National Park Service)

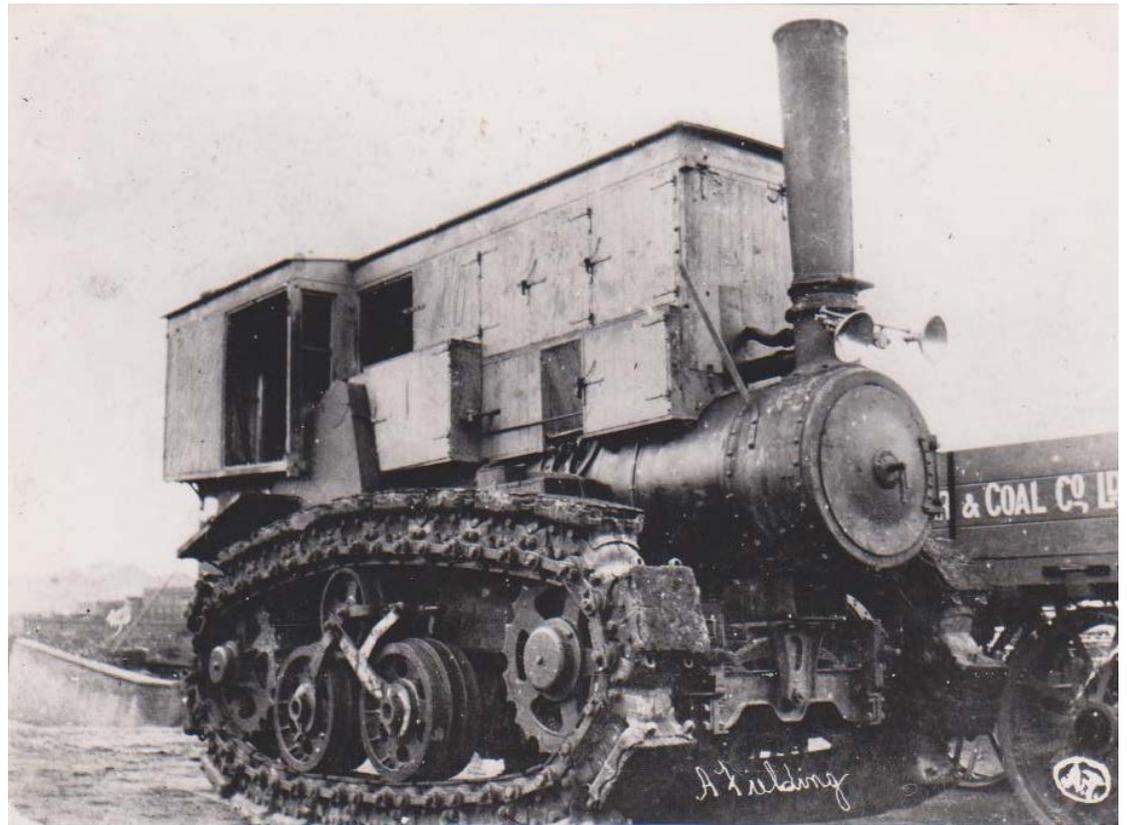


1898 map showing Dawson City, Forty Mile and Coal Creek. (U.S. National Park Service)



agricultural equipment. In 1904, Hornsby & Sons' managing director David Roberts developed and patented a new form of "endless track," replacing earlier awkward tracked-vehicle steering mechanisms and leading to the manufacture of the first tracked crawlers with the steering function fully integrated within the track system. This break-through technology would lead to the development of the military tank for use during World War I, the bulldozer and other modern tracked vehicles.

Yet an initial lack of support from the British War Office resulted in the end of tracked vehicle production by Hornsby & Sons, the sale of the patent to U.S.-based Holt Caterpillar Company in 1914, and the subsequent loss of the tracked vehicle industry in Britain.



The Hornsby Steam Crawler in Yukon c.1910 showing the cab enclosure established for warmth and protection. (sites.google.com/site/hornsbysteamcrawler/. Used with permission.)

Purpose-built for use in the harsh conditions of Yukon Territory, the Hornsby Steam Crawler is important for its connection to the 1897 Klondike gold rush, which began on Bonanza Creek near the confluence of the Yukon and Klondike rivers. With the best gold claims becoming exhausted, new dredging technology was required to work more marginal claims and needed a power source. In 1909 the Northern Light, Power & Coal Company established an electrical power plant on Coal Creek, a tributary of the Yukon River near the community of Forty Mile.

The Hornsby Steam Crawler is a superb example of British engineering ingenuity resulting in a vehicle specifically adapted to transport coal from Coal Creek to the power plant. A unique combination of steam engine and crawler tracks, the Crawler used locally plentiful wood

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rather than scarce oil for fuel, had a custom winter cab to protect crew and machinery from the extreme cold, and an extra wheel within the track to reduce vibration over Yukon's rough terrain.

Closer to home, the Hornsby Crawler is significant as a unique machine type adapted for local industry through its use after 1928 by the Port Alice pulp and paper mill on northern Vancouver Island to haul pulp along Holberg Inlet. Barged to Apple Bay c.1950, the Crawler in its present Coal Harbour location is valued for its rarity as the only tracked vehicle ever to exist on Vancouver Island.

The machine is important for its industrial design and function, its physical presence and the symmetry of its complex, interconnecting parts, including its still-evident scale, original weight of 40 tons, massive 80 horsepower engine, large three-foot diameter boiler, and immense firebox.

Social value is found in the importance of the Hornsby Steam Crawler to the people of Mount Waddington, through the work of the Coal Harbour Community Club and the North Island Heritage Society to achieve a permanent display of the machine in Coal Harbour. Its role as a display attraction by organizations such as the North Island Heritage Society and the Historical Construction Equipment Association shows the machine's "rarity, technological interest and historical significance" to be of interest to an international audience.

The Hornsby Steam Crawler has significant intangible values through stories, mythology, and the intense interest of a wide range of people. Archival and photograph collections held by institutions and individuals, corporate records in the Lincolnshire Archives, and related artifacts in local and international museums further attest to its significance, while a c.1911 promotional film is valued for providing a comprehensive historical context.

### **Character-defining Elements**

#### **Site:**

- Location in Coal Harbour on Holberg Inlet on northern Vancouver Island
- Trailer associated with the Hornsby Crawler

#### **Hornsby Steam Crawler:**

- The physical presence of the Hornsby Steam Crawler artifact
- The intact remaining parts of the Steam Crawler including the tracks, chassis, engine and firebox
- Massive elliptical dual chain tracks with interlocking iron links
- Internal wheels
- Bolts, nuts, pins, machine parts, attachments and other mechanisms and connection details
- Copper rust patina acquired through the Crawler's years of use and transport

#### **Intangible:**

- The stories and mythology surrounding the Hornsby Steam Crawler
- Film dated c.1911 about the Hornsby Crawler and its provenance
- Archival collections, photographs and other ephemera relating to the Crawler held by institutions and individuals



Holberg, 1967



Drive sprocket.



Brake.



Road wheel.

Hornsby Crawler details  
([sites.google.com/site/hornsbysteamcrawler/](https://sites.google.com/site/hornsbysteamcrawler/). Used with permission.)

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