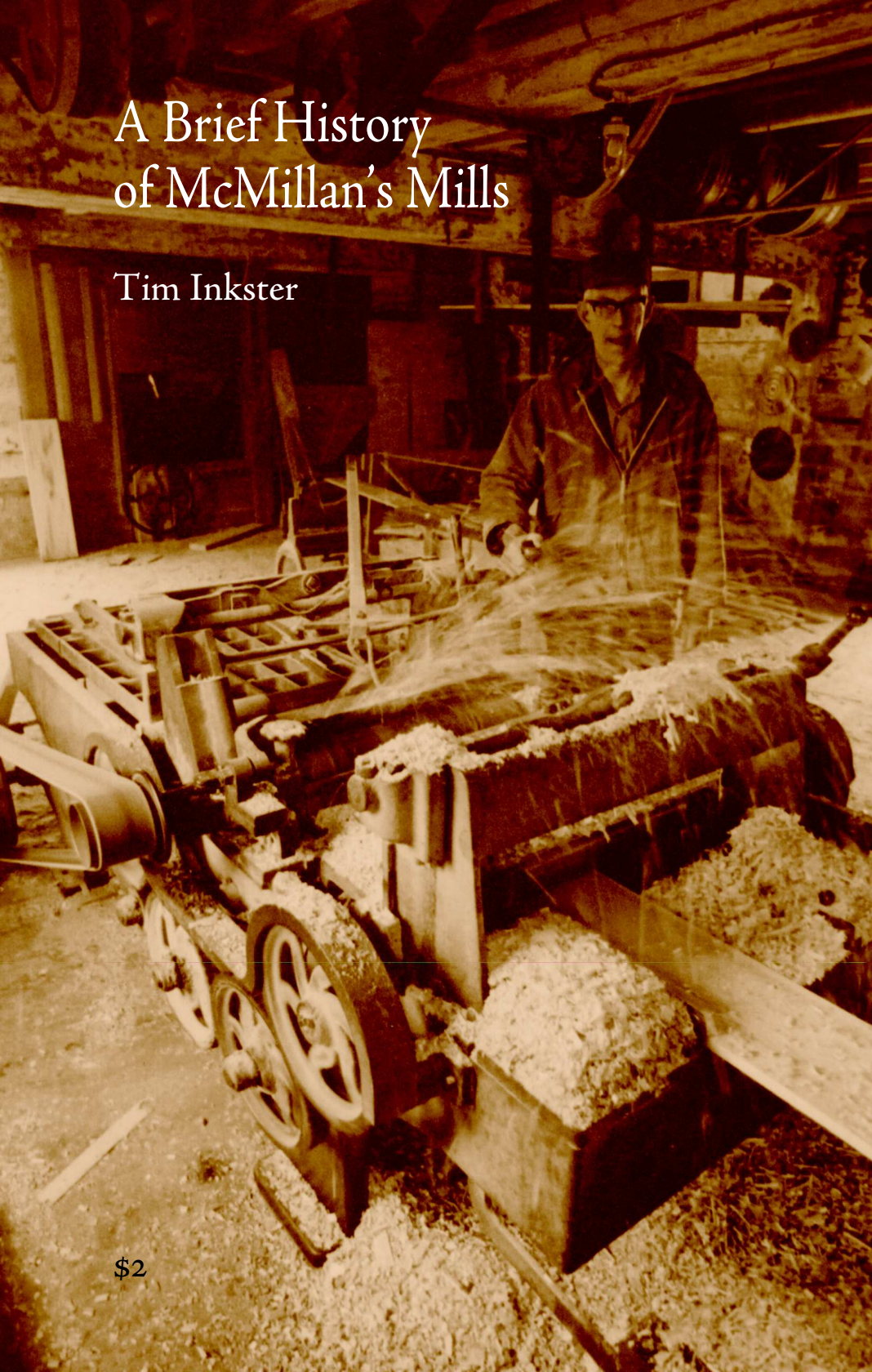
A Brief History of McMillan's Mills

Tim Inkster



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The cover is after a photograph by George Beshiri taken in 1975 of Stan ('Slim') Howlett in Mundell's (1838) Planing Mill.

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The gently rolling succession of hills above and to the west of Erin Village are very probably the residue of glacial advances into the valley of the West Credit River during the Wisconsinan glaciation that covered much of North America towards the end of the Pleistocene era and just prior to the appearance of human beings in the area, perhaps some 25,000 years ago.

From the top of 'Milk Snake Hill', we can see the sharply-defined edge of the Niagara Escarpment in the far distance – this would be on the horizon and just about forty-five degrees to the right of the frame of the photograph (above) which features Daniel McMillan's (1849) grist mill (centre, right), the tallest edifice in the village, and also Mundell's planing mill, with its dark façade at the extreme centre-right.

International recognition for the Escarpment was assured in 1988 after the discovery of small, gnarled Eastern White Cedar trees growing at the cliff edges and on the cliff faces of the precipice. With some specimens approaching the millenia of their germination, these dwarf trees are the oldest in eastern North America.

As recently as 1990, the Niagara Escarpment was designated a World Biosphere Reserve by the United Nations, one of only twelve such biosphere reserves in Canada, and part of a network of 507 such reserves in 102 countries. The UNESCO designation puts Ontario's Niagara Escarpment in the company of other internationally-renowned biosphere reserves such as the Galapagos Islands, Africa's Serengeti and the Florida Everglades.

After the War of 1812 ended, there was a concerted push of settlers north from land that had been purchased from the Mississauga (Anishnaabe) First Nation as early as 1805 (the 'Old' Purchase). In 1818 the Mississaugas surrendered the balance of their territory together with water rights to the Credit River.

The recorded history of Erin Village begins in 1826 when Henry Trout dammed the river and built a sawmill at Charles Street (the ruins of which are seen above, as they were about 1880). Trout opened a small store and sold potash for the making of soap. Wm. Chisholm supplied the store with goods, taking potash in payment, but Trout soon fell into arrears and ownership of the property passed from his hands.

Daniel McMillan was the oldest son of Donald McMillan and his wife, Catharine Miller, who had emigrated from Argyleshire, Scotland in 1819 when Daniel was seven. As a teenager, Daniel McMillan rented the Trout mill from Chisholm, but soon realized that the saw cut slowly. The father tried to dissuade his son, but eighteen-year-old Daniel was not to be thwarted, and completed his purchase of the sawmill in 1829, for the sum of $700. Daniel then cleared three acres of land and renovated the building which had been gutted by fire.

Not long after the sawmill returned to production, Daniel McMillan hired a manager and was able to establish a steady trade in lumber for $4 and $5 a thousand feet, then proceeded with plans for a small grist mill which he erected in 1834 at the south-west end of the sawmill, the same power being used for both. He obtained stones for the mill from lot 12, later known as Shingler's Lime Stone Quarry (Long Lane Farm) and he dressed them himself. They were said to have been 34 inches in diameter. Also in 1834, Daniel McMillan built the first house in the village, a few rods east of the sawmill, possibly on the site of the current 'Waterfall' house. Here, in 1835, he brought his bride, Mary McLaughlin, daughter of Daniel McLaughlin of Caledon.

Daniel McMillan was something of a compulsive entrepreneur. In 1838 he built an oat mill (photo, above) on the east side of Main street opposite Trout's sawmill, using water power supplied by a race from the Lower Dam at Charles Street (map, p8). He also persuaded his friend William Cornock to build an adjacent distillery – to take advantage of the tailings from grain delivered for milling and considered unsuitable for flour, but adequate for the sort of cheap whisky that retailed at twenty-five cents a jug or a dollar a keg.

Cornock's distillery was closed in 1860, some time before discriminating tastes changed preferred drinking habits in the 1870s.

In 1840, McMillan built a second grist mill further downstream from the Village, the flume for which can just barely be seen at the bottom of the map on page nine. The mill boasted three run of stones, and also made oatmeal. Ten years after its construction the mill was converted to a 'carding' (woollen) operation where wool, cotton and other fibres were 'combed' and prepared for spinning. This would have been very shortly before the Erin Agricultural Society staged their first annual Fall Fair (1852) in an adjacent meadow, before the Fair moved in 1866 to its current location on Main Street opposite the old Public School.

The photograph (above) was taken about 1900. In it, mill workers of all ages pose in front of the mill with the mill owner's house behind. Wooden forms used to shape the woollen garments are leaning against the picket fence.

In 1845 McMillan built a sawmill, the second in Erin Village, beside a new dam (the Upper dam: see map p9, top right) he had constructed a quarter-mile upstream from Henry Trout's first dam at Charles Street. In 1845 McMillan also built a palatial new home for himself on Main Street which eventually became the Globe hotel (1866-1945).

The Globe, along with the Queen's and the Station House, was one of three hotels in the village that would be destroyed by fire. The shell of the Woollen Mill was deemed to be unsafe, and was levelled in 1995.

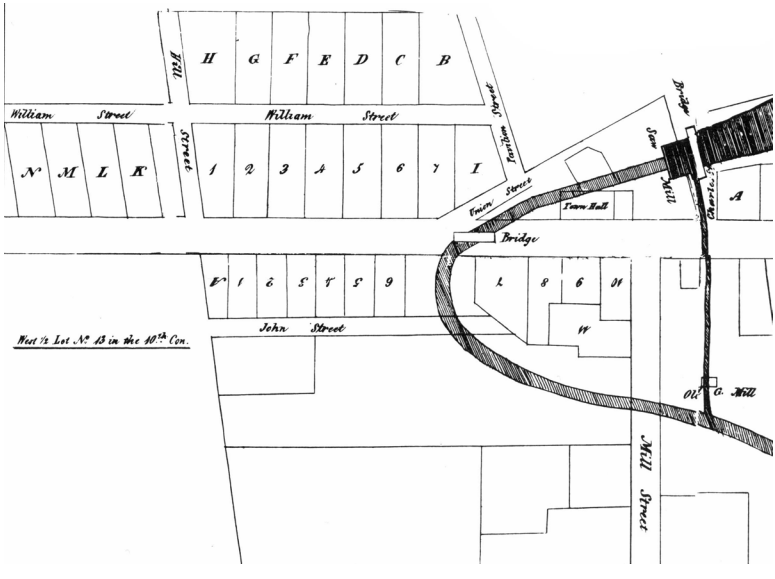
In 1849 the irrepressible Daniel McMillan began construction of his most ambitious project, designed to service an increased demand for flour in Britain and to exploit a favourable tariff for wheat with the United States. He imported a hundred stonemasons from his native Scotland to erect the walls. And he engaged another hundred labourers to dig a remarkably lengthy millrace from the upper, Church Street dam, south along the east bank of the river behind the present-day Valu-Mart, abruptly east where Deborah's Chocolates fills a gap between two more substantial structures at 98 and 102 Main Street, thence under a bridge and on down to the mill.

The work was well and speedily completed and the mill appeared set to become the crowning achievement of Daniel's business career. In the final days of construction, however, McMillan pierced his hand with a large splinter. Unattended, the wound quickly festered, gangrene took hold and within three days Erin's master builder of mills would die an agonizing death at the early age of thirty-eight. Two years later the original name of the village, MacMillan's Mills, was changed to Erinsville (1851) and then to Erin in 1880.

Daniel McMillan is interred in Erin Pioneer Cemetery.

Charles Kennedy completed a Plan of the Village of Erin in 1852, just three years after the death of Daniel McMillan. The plan locates the site of Henry Trout's original sawmill on Charles Street, and the site of McMillan's 1838 oat mill just to the north of Mill Street.

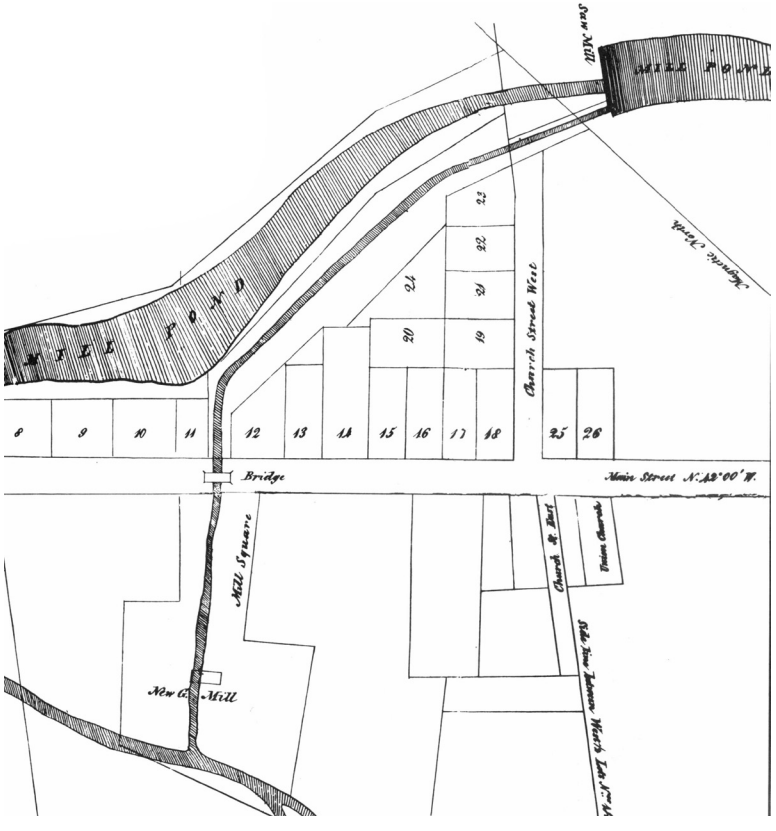
If Daniel McMillan was a compulsive entrepreneur, he was also something of a visionary when it came to civil engineering as can be seen from the location of the flume he dug (to the right of Mill Street, below) from the Charles Street dam to power his oat mill and then return the water to the meandering course of the West Credit.



The water in the flume develops an amazing thirty horsepower as it drops seven metres from the dam at Charles Street to the small reaction turbine (a waterwheel mounted horizontally, rather than vertically) a hundred yards to the north-east. Few such mills in Ontario were sited as cleverly to take advantage of local topography.

Downstream from the oat mill we can see a fork (at the very bottom of the map, opposite) in the Credit River where McMillan dug a second flume to power his 1840 grist mill, now known as the 'Woollen Mill', which is just beyond the edge of Kennedy's Village Plan.

Kennedy's plan also locates the site of the second (1845) sawmill McMillan built at Church Street, and finally, the longest flume in Wellington county which McMillan had excavated by hand from the Church Street dam to power the 'New' (1849) grist mill at the eastern extremity of Mill Square.



Typically, mill owners tended to prefer to keep their flumes as short as possible. The waterworks presented constant maintenance problems, and were prone to freezing in winter. No one in Wellington County, before or since, ever constructed a flume as long as this one. Add to these identifiable achievements the fact that we know McMillan added a smallish grist mill to Henry Trout's sawmill at the Charles Street dam in 1834, and may also have built a grist mill opposite the 1845 sawmill at the Church Street dam, and you have a remarkable legacy for a man who started in the development business at the tender age of eighteen and died just twenty years later.

The typical water-powered mill* of the late eighteenth and early nineteenth century (of which the village grist mill, carding mill and sawmills built by Daniel McMillan in Erin Village are certainly no exception) was designed to perform operations that were both uncomplicated and very repetitive. As a consequence, the power source could conveniently be (and was!) connected directly to the requisite machine by means of primitive wooden shafting supported by iron journals and driven by wooden gearing.

This rudimentary system of power transmission was soon to be replaced by a superior sort of cast-iron gearing and shafting developed in England at the start of the nineteenth century.

The substitution of cast iron for wood was certainly deemed to be an improvement of some magnitude, though the transition was burdened mightily by the weight of the castings required to overcome the relatively brittle nature of the iron available for casting.

The British firm of Fairbairn and Lillie is credited with pioneering the move from cast-iron to wrought-iron shafting as early as 1815.

The adoption of the lighter alloy facilitated not only a major reduction in the physical mass of the gearing but also a significant increase in running speed and hence efficacy of power transmission. The shafting, however, was still directly geared to the single power source and was dependent on the use of a heavy vertical main shaft that bore a marked tendency to heating and consequently to the tedium of attentive lubrication.

Toward the middle of the nineteenth century, the typical water-powered mill designed for isolated and local production (of the kind that Daniel McMillan knew so very well) gradually gave way to the industrial mill or factory operation that required a more elaborate set of mechanics designed not only to convey power from the waterwheel,

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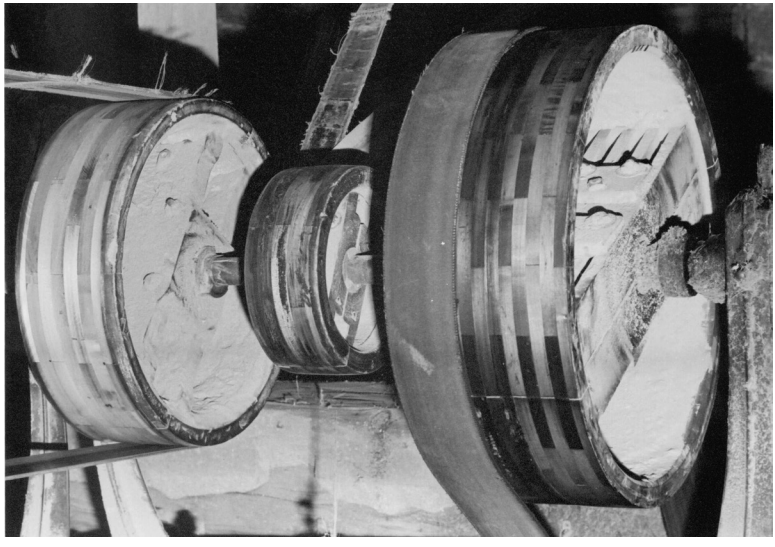
* Much, if not most, of the technical information that follows is based on a chapter from *Survivals: Aspects of Industrial Archaeology in Ontario*, by Dianne Newell and Ralph Greenhill. Boston Mills Press, 1989.

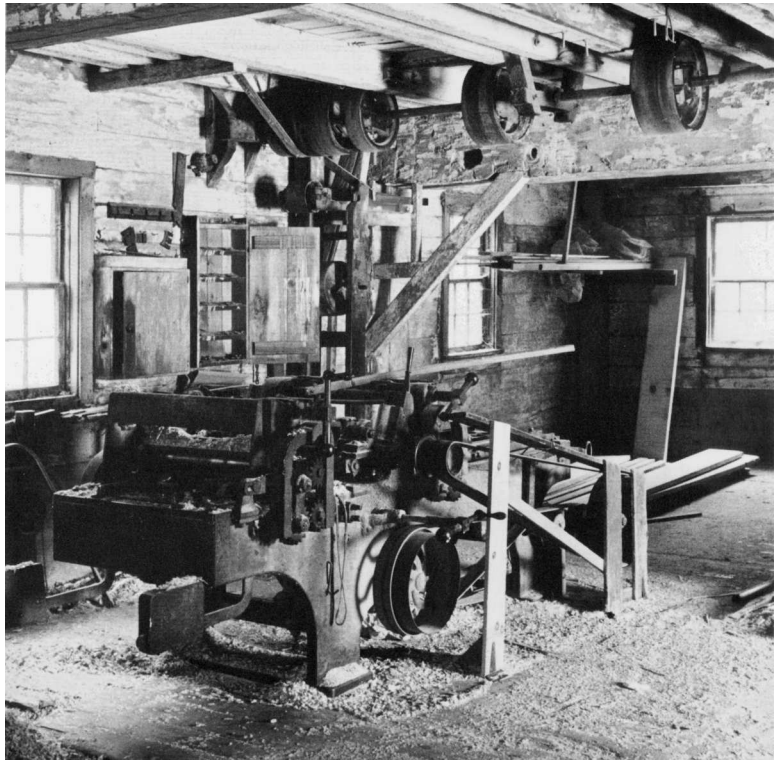


steam engine, or hydraulic turbine but also 'to subdivide the aggregate power into parcels of energy as were required to place each machine, large or small, in motion at the rotating speeds required for the operation or operations performed.'

It was in New England, in 1828, that belting was first adapted to the main drive to replace the weight of the English system found in all other American mills at the time. The belt drive system ran more smoothly and quietly, cost less, and was more easily installed and repaired than the traditional gear drive.

Tightly stretched belts were the norm until Ithamar Beard published a paper in 1837 advocating the use of loose-running belts. Frictional losses were reduced and there were fewer breakages as a result.

By 1860 the improved belt drive was the common form of power transmission in use throughout North America. The Europeans were slower to abandon their cherished gear drives, but in time they, too, followed suit. The introduction about this time of lighter and more true cold-rolled shafting, at first of wrought iron and later of low-carbon steel, further improved the rotational speed and efficiency of belt transmission.



One major difficulty encountered with line shafting lay in the critical alignment of both shafting and bearings. The settling of a mill's foundations, or the contraction and warping of its wooden frame, could play havoc. Several machinists independently 'invented' the universal hanger with self-aligning bearings to counteract this issue. The production not only of line shafting but of its many components soon became a major industry; in Canada the Dodge Manufacturing Company of Toronto was one company that specialized in the manufacture of transmission systems. A related industry developed around the production of belting and the equipment needed to repair and service it such as belt tighteners, clamps, awls, punches and laces.

When the belt main drive that originated in New England was married to the British system of high-speed shafting during the second half of the nineteenth century, the result was the emergence of a sophisticated technology for the transmission of power.

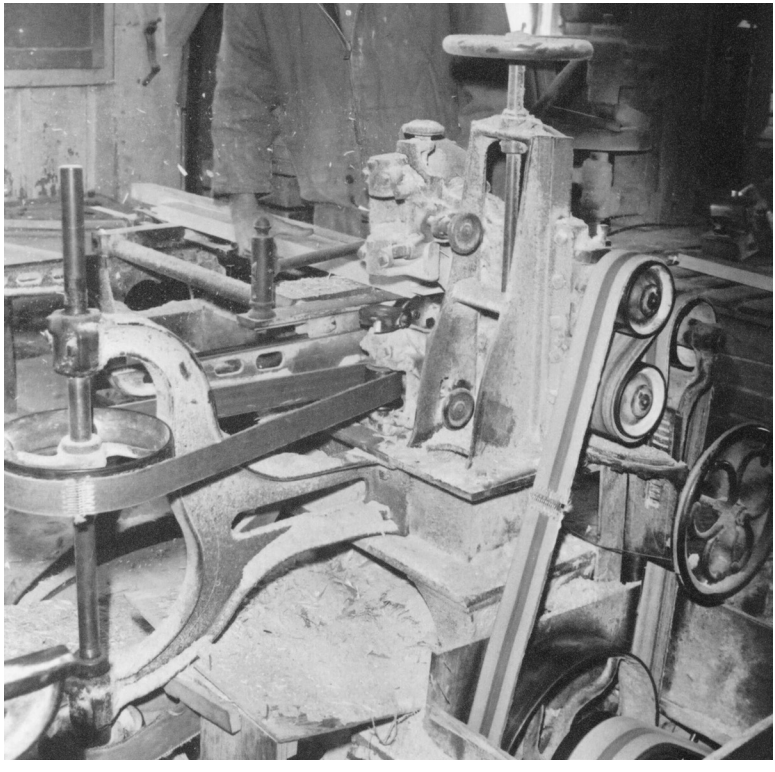
The four-storey, water-powered, belt-driven mill of the Mundell Lumber Co. is the last of what were once countless similar water-powered mills in operation in the Credit Valley watershed. For this reason the mill is a rare, and cherished, example of its type.

Upon his death in 1849, Daniel McMillan's 1838 grist mill and, more importantly, the 999-year lease on water rights that had been granted in 1847, passed through several hands before Ben Mundell bought the property in 1896 and re-tooled it as a planing mill and lumber business.

Benjamin's son David took possession in 1918 on his return from service overseas. David's eldest son Bill joined the firm at the close of the Second World War, and Bill's younger brother Jim (for many years Reeve of Erin Village) signed on in 1952.

Mundell Lumber is currently owned by Bill's eldest son, and Benjamin Mundell's great-grandson, Dana, who also currently owns McMillan's 1849 grist mill, which is unfortunately no more than an empty shell.

As recently as 1980, however, the planing mill retained and still found occasion to use the ornate nineteenth-century woodworking machines that Benjamin Mundell had acquired from foundries such as MacGregor & Gourlay in Galt and J. R. Williams in Toronto.



A rip saw, band saw, thickness planer, boring machine, and sticker for specialty mouldings and trims, were all belt-driven at speeds ranging from 1,200 to 2,500 rpm. Other machines from the same period, notably a sander and a tenoner, have also survived but are not currently in use, possibly because such antiquated equipment has been described by one unsettled operator as not only unsafe, but also scary.

The equipment on the ground floor of the mill remains as it was installed in the 1890s, belt-driven and powered by water. The waterwheel is kept in relatively good repair because it provides an inexpensive source of power, and because Mundell Lumber also controls the hydraulic system, including the Charles Street dam which abuts a cottage that was built by Benjamin Mundell.

The turbine requires some maintenance, especially on cold, winter days when ice must be chopped away from the water gate by hand.

Other than the seasonal issue of ice (fourth-generation mill owner Dana Mundell is pictured [above] in 1975), the mill's water-powered transmission system is relatively simple to operate.

On the ground floor, the crank of a wheel opens the water gate below.

Water flowing via the headrace from the millpond above Charles Street hits a small reaction turbine and causes it to rotate. As the turbine begins turning, it develops about thirty horsepower, and delivers the power to a canvas belt from a pulley on its shaft. The belt drives a second pulley located on the main shaft along with several other pulleys, each of which is capable of driving a machine on the floor above.

The machine operator (in this case long-time Mundell Lumber employee Stan Howlett, photographed in 1975) can engage or disengage a specific machine from the line shafting by moving a wooden lever which slides the moving belt from an idler pulley onto a drive pulley located beside it on the same countershaft.

The unmistakable low rumbling and gentle slapping sounds typical of belt and line-shafting transmission can be heard throughout the mill.