MILLING AT WINNIPEG.

By D. Wylie Buchanan.

SOME time ago I furnished the MECHANICAL AND MILLING NEWS with a brief sketch of the early history of milling in Manitoba, from the grinding of wheat by hand power with the aid of both stones and ordinary coffee mills, as it was done by the early Red River settler, to the date of the establishment of the first steam mill in what is now known as the Province of Manitoba. This first steam mill was described in the sketch referred to, but for present convenience it may be well to recall the dates. It was established in the year 1856, and was located on the Red River, within the present corporation limits of the City of Winnipeg. This mill, as noted in my previous letter, was destroyed by fire in 1862.

The second steam mill established in the Red River country was built by Andrew McDermot about the time of the destruction of the first mill by fire. It was also located within the present corporation limits of the city of Winnipeg, and occupied a location near McMillan's mill, which was burned a few months ago. McDermot's mill has been erroneously described by a recent writer as the first steam grist mill established in the settlement, whereas it was built at least five years later than the first use of steam in grinding wheat. To the late Mr. John Intester, father of the present sheriff, belongs the credit of introducing steam gristing, he having been instrumental in forming a company to build the first mill.

The machinery for the second steam mill was brought in by the same tedious overland route from St. Paul. This mill, like its predecessor, was intended for both grinding wheat and sawing lumber. The following particulars were learned regarding the McDermot mill from A. R. Chisholm, who had it leased during the years 1871, 1872, and 1873. Chisholm, who came to Winnipeg from Glengarry, Ontario, took charge of the mill in the spring of 1871. The mill had two run of stone. It was the only mill running that summer, and consequently business was rushing. People came from Pembina to the north and Portage la Prairie to the west to have their gristing done. There were several other mills in the settlement by this time. Robert Tait had in the meantime established a steam mill at Silver Heights, on the Assiniboine river, just outside the present corporation limits of the city, but on account of some damage to the machinery, it was not running that season. E.H. G. G. Hay had also established a small steam grist mill a short distance below Winnipeg, on the Red River, which was also idle at the time. The Hudson's Bay Co. had a water power mill at Lower Fort Garry, near Selkirk, which was idle on account of low water. Thus it was the entire Red River settlement was dependent upon the McDermot mill, with the aid of the wind mills, which were now going out of use with the increasing population. Only one grade of flour was manufactured, or rather, everything turned out was simply flour, regardless of grade. This flour brought the unvarying price of $6.50 per 100 pounds, or just about six times the prices at which low grades of flour can now be purchased here. For grinding wheat the miller charged 25 cents per bushel, or half the price which the farmer now receives for No. 1 Manitoba hard. Wheat was quoted in 1871 at $1.50 per bushel, bran at $1.50 per hundred, and shorts at $3 per hundred. There was plenty of wheat in the settlement, and the crush for gristing was so great that engagements were made two months ahead. Farmers were obliged to store their wheat till it could be ground, and for this purpose several buildings or sheds were used.

About this time several new mills were established in Manitoba. Two mills were established at Portage la Prairie by Wm. Smith and Logan and Edgar, respectively. Tait's mill was supplied with new machinery, and started running. A little later C. P. Brown built a mill at Gladstone. Chisholm retired from the McDermot mill in the fall of 1873, and shortly after it was burned down. Tait's mill was also burned. This latter mill was kept running during the Red River rebellion, by order of Riel. Flour was brought in from Manitoba during the first grasshopper plague, the crops having been eaten up. This was in the year 1867-68. At this time wheat for seed sold for 12 shillings sterling per bushel. with the influx of immigration after the rebellion, there was not enough wheat grown in the settlement to supply local requirements, and flour commenced to come in freely from Minnesota. The common way was to float it down the Red River in flat boats. Flour prices were somewhat reduced by these importations.

The next important move in connection with milling in Winnipeg was in 1876, when two mills were erected in the city. These were the Hudson Bay Co.'s mill and McMillan's mill. The history of the former mill is somewhat eventful. The machinery for the Hudson Bay Co.'s mill was purchased from Noye & Co., of Buffalo, N. Y. It was brought down the Red River in flat boats, and first taken to a point about twenty miles up the Assiniboine river from Winnipeg, known as White Horse Plains. The timber was taken out for the mill, but it was decided to change the location. The machinery was again loaded on rafts and floated down the river to Selkirk, twenty miles below Winnipeg. This was in the year 1871, the machinery having been brought in during the previous year. Again the machinery was loaded up and brought back to Winnipeg. It was finally sold to J. W. McLane, who erected the mill in 1876. This mill was then looked upon as quite a giant enterprise. The building was made very strong and was 58 feet long, 38 feet wide and four stories high. It had four run of stone and claimed the most powerful engine (150 horse-power) north of Minneapolis, with all the latest improvements. At this time flour was coming in freely from Minnesota, and the competition was keen—so keen that the mill did not prove a paying speculation to the proprietor, and it was taken over by the Hudson Bay Co. two years later. Several other smaller mills had been established in the country, and at this time the number of steam mills was said to be about ten. Gristing had been reduced to 15 cents per bushel, and wheat was worth about $1.00 per bushel. In 1884 roller process machinery was put in the mill, the construction of other mills on the roller system having cut off the trade. The Pray M'fg Co., of Minneapolis, was employed to do this work. At first only the partial roller system was used, but in 1886 the mill was again overhauled by the Pray Co. with a complete roller system. The mill now has a capacity of 200 barrels daily. An elevator was built in 1886, and in 1885 a switch of the C. P. Ry. was built to the mill. The output of the mill is largely made in the company's extensive trade throughout the West, and exportation to Eastern Canada is also carried on. In the history of the Hudson's Bay mill, nothing was heard of frozen wheat previous to the year 1883, and again in 1885.

McMillan's mill, as previously stated, was established in 1876 by D. H. McMillan. Mr. McMillan came from Collingwood, Ontario, in 1870, in command of a company of volunteers, under Colonel Wolseley. The mill was on a small scale at first, consisting of two run of stone but was gradually increased in capacity, until in 1880 it had five run of stone. In the spring of 1881 the mill was changed to the roller process, and given a capacity of 250 barrels. In the following year an elevator was erected, with a capacity of 50,000 bushels. In 1882 W. W. McMillan was taken into partnership, under the firm name of D. H. McMillan & Bro. Mr. McMillan is often looked upon as the pioneer miller of the present school. The mill was kept going steadily and a good trade was done both for local consumption and export up to last fall, when the mill was destroyed by fire. The firm built a roller mill at Qu'Appelle in 1885, which was for a time the furthest western mill in the prairie region. Since then a mill has been established at Regina, 40 miles further west. The Qu'Appelle mill is used mainly for the British Columbia and western trade of the firm. The firm have several elevators and grain warehouses at purchasing points throughout Manitoba, and since the destruction of their Winnipeg mill, they are using these in doing a grain shipping business.

In August, 1881, work was commenced at the large Ogilvie mill at Winnipeg. The mill was completed the following summer, about the same time McMillan's mill was ready for operating under the roller system. This fine mill, with a capacity of about 1,000 barrels daily was fully described in a previous number of the MECHANICAL AND MILLING NEWS.

The year 1882 it will be seen marks the introduction of roller process milling into Western Canada. From the small beginning of milling in Winnipeg, the industry has been briefly followed to the introduction of roller milling. But it has been within the last few years that the milling industry has made such great strides in this western country. New mills have been established at points all over the country, until now there are some twenty-five roller mills in the country, and several in course of construction. Probably not less than ten new mills will be erected during the coming summer. Between the year 1876 and the introduction of roller process milling, a considerable number of stone mills were established at points throughout the settled districts of Manitoba. Some of these stone mills are still in use, at points distant from the railways. Where the new process flour has been introduced, the stone mills have generally been obliged to close down. The machinery from some of these mills has been removed to distant interior points, where it will again do duty until communication by railway is opened up. Away in the far north Saskatchewan country and even beyond, some of these old stones are now doing duty, and serving a very useful purpose. In Manitoba milling is by far the most important industry carried on, and it bids fair not only to maintain, but to increase its lead before all other manufacturing industries.

ROOM FOR IMPROVEMENTS IN MILL MACHINERY.

PERHAPS no startling "revolution" in milling should be expected in the next two or three years, unless the Cochrane system of driving rolls, recently described in the *Milling World*, should answer all the expectations of its inventor and advocates. The success of that system would not properly constitute a "revolution" in processes, as it contemplates no change in the present modes of reduction and purification, but it would be a most important "revolution" in the essential of cost; it would not be a "revolution in milling" so much as it would be a revolution in the expenses of milling. Occasionally a bumptious and ill-informed writer insists that perfection is reached and that milling machines can not be further improved. These same writers a few years ago insisted that buhr milling was perfect and that the proposed change to rolls would result in costly disaster, but their ridiculous position then was shown in a strong light by the victory of the rolls, and our memory of their stupidity in the past leads us to suspect that they do not know it all now, any more than they knew it all then. Milling machines have reached a high degree of excellence and efficiency, but every practical miller knows they are not perfect, even now. Improvement is still needed and is still possible. Every time I visit a mill this fact is thrust upon me. The miller finds defects in the various machines, from separators to packers, and the wise man, who considers the machinery "perfect" and incapable of any improvement, should visit a dozen mills and make pointed inquiries about the work of the machines. In the majority of cases he will find that millers do not consider milling machines "perfect," even the best machines made by the best manufacturers' —*Milling World.*

HOW TO CONCENTRATE THE POWER OF SMALL STREAMS.

AT the Niagara mill of Bainton Bros., at Buchanan, Michigan, the stream does not furnish water at all times for their 25 horse power wheel, but the Firmus rope transmission enables them to utilize the water again by a second dam 1,100 feet down stream from the first, where a 25 H. P. wheel has been placed. A pulley is placed on the shaft of the last named wheel, and from this the rope travels first to a pair of mule pulleys on the tower, set on rising ground just above the bank of the pond. From these mules the rope passes in a straight line to the main transmission pulley on a countershaft at the mill, and intermediately supported on six sets of bearers. This countershaft is belted to the main line shaft and is provided with a cluton, so that the transmission mae be connected or disconnected at will.

This example shows that it is easy to use the water over and over, and that the lay of the ground is of small importance. It is advantageous, of course to carry the transmission rope in a direct line all in one vertical plane, but deviations of direction are not of large importance. In the case illustrated, the rope was carried away laterally to the mules, in order to avoid setting one or more of the bearer towers in the lower pond, where they might be difficult of access in winter. The resistance encountered is that due to the weight of the rope on the bearer journals and the aerial friction on the rope. These are quantities so small that a man can, with one hand, move this transmission from a state of rest, when disconnected from the line shaft. A change of direction increases the journal pressure of the mules, but the rope may go over hills or down into valleys without other effects than increasing its length. Practically, however, inequality of the ground may generally be neutralized by putting the several bearers on the same level or nearly so.

The figures of this transmission are as follows :

Power to be transmitted 25 H. P., distance 1,100 feet, velocity of rope 3,125 transmitting 25 H. P.

would show the tension to be $\frac{33000 \times 25}{3125} = 264$ × 80 lb. (one half of the tension weight) equals 334 lb. total strain on rope, but there being two wraps, hence the strain will be divided by two, thus :

$\frac{325}{2}$ = 142 lb., which is about 5 per cent. of the breaking strain of a half inch Firmus rope. The breaking strain of Firmus rope is about 25 per cent. greater than manila. —*Power and Transmission.*