

Farm Machinery in Frontier Minnesota

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ONE OF AMERICA'S main contributions in agriculture has been the invention and development of laborsaving devices which have enabled farmers of the United States to cultivate more land per man than has been possible in any other country. The story of this development is a fascinating one. The easing of the toil of the farmer, better farming, the displacement of horses and mules, the freeing of acres formerly devoted to forage crops, the relation of farmer and machine agent, improved machines—these are only a few of the topics related to the history of farm machinery. It has been marked by almost constant improvement and development, and one of its most amazing features has been the fact that most of the action has taken place during a little over a hundred years. It was only in July of 1831 that Cyrus McCormick tested his reaper before a little group of interested, if skeptical, spectators on a Virginia farm. Before that date agricultural mechanization had made little advance, but it has since proceeded to such an extent that practically every farm job can be done by a machine. Playing a role by no means passive in this drama were many pioneer Minnesotans of the 1840's and 1850's.

Little is known about the agricultural implements used by Minnesota pioneers of the 1840's, but one student of local agricultural history believes that "most of their implements were made of wood." It is quite possible, however, that metal tips and other small pieces of metal were used to reinforce the wooden parts. William R. Brown, who farmed near Red Rock on the Mississippi River in the 1840's, recorded in his diary on May 20, 1846: "Davis plowing. Struck a Bolder & broke 2 inches off the point of the Boston plow ground it & went to work." Again, on May 30, Brown wrote: "yesterday Harrison commenced plowing for potatoes & Rutabagas plows 10 to 12 inches deep. . . . We hoed the Beets parsnips & Carrots." And on June 1 he recorded: "Sold my Large Prairie Plow to B. L. Rockwood

he agrees to Break next year between the 20 of May & 20 June 8 acres for me for the Plow.”¹ Thus it is evident that some crude machines were used in Minnesota in the 1840's, notably a breaking plow, perhaps a smaller plow, and a hoe. In addition to these implements, Brown and the other farmers of his day probably had sickles or cradles, spades, wagons, flails, and a few other primitive agricultural devices to aid them in their efforts to wring returns from the land. On the other hand, a lack of adequate tools was undoubtedly a real handicap.

Few of the earliest settlers in any part of the state had many farm implements when they arrived. Lurett Whiting, who left Fremont County, Iowa, early in the summer of 1865 and reached Clitherall, Minnesota, on July 31, gives an interesting account of farm machinery in the middle sixties, but the essentials of his story will fit the case of many Minnesota farmers of earlier decades. Whiting and his party took with them only a few plowshares, one breaking plowshare, a small set of blacksmith's tools, and some carpenter's tools. For plow beams and handles they were dependent upon their own skill, fashioning them out of wood cut in the forest. Their breaking plow “had a large beam about six feet long made of wood, with a piece framed into the back end of the beam to fasten the plow-share to. There were four-and-a-half-inch rods bolted above the share to take the place of a moldboard, and a wooden axletree about four feet long. To this was fastened the plow with two wagon-wheels attached to the axletree and a gauge made out of wood, so arranged that one could set it at any depth desired. Two yoke of oxen were hitched to this plow. It would run without being held up by hand and worked fine, all our land being broken in this way.”²

The drags used by Whiting's group were made of wood, teeth and all, as iron teeth were not available. One was called the A drag, and it was hinged in the middle so that it could be cleaned by raising only half of it at a time. One member of the group fashioned a drag

¹ Rodney C. Loehr, ed., *Minnesota Farmers' Diaries*, 15, 78, 80, 81 (Minnesota Historical Society, *Narratives and Documents*, vol. 3 — St. Paul, 1939).

² Hallie M. Gould, *Old Clitherall's Story Book: A History of the First Settlement in Otter Tail County*, 18 (Battle Lake, 1919).

from a forked tree and drove teeth about twenty inches long into holes which he bored through the two prongs of the fork. "This was surely a comical looking affair," Whiting recalled, "and on account of its being so narrow and high it would often upset on the side-hills. This drag was drawn by oxen, and they had to work very steadily all day to smooth up an acre." Sometimes, when Whiting used it, he "let it run lying on its back . . . for it did just about as good work that way." Another invention used at Clitherall was a corn cultivator, which "never gave satisfaction. It went twice in a row and was never known to scour. After using it a while" the colonists "decided to call it a 'corn aggravator' for it lived up to that name to perfection." For cutting their grain, the Clitherall settlers used cradles with which "a man who was good at it" might cut five or six acres a day. After the grain was cut it was raked with a hand rake and bound by hand into bundles with straw. One other device mentioned by Whiting was a pair of wool cards, used in the process of getting wool ready to be spun into yarn.³

Such inventions as Whiting used and difficulties as he encountered probably were typical of the experiences of thousands of other early farmers. He mentions threshing with a horsepower machine, but even earlier, in the 1840's and 1850's, horses or oxen were commonly used to tramp out the grain.⁴ Edward B. Drew, who farmed near Winona in the early 1850's, tells of the latter method in his reminiscences: "We stacked our wheat of course," he writes. "We wanted our winter wheat threshed for seed. We knew the primitive way was to tread it out with oxen. We had never seen anything of the sort done, except shelling out corn in Indiana by horses treading it out on the barn floor. . . . We fixed a place by the side of the stack, smoothing off a circular piece about twenty feet in diameter, and making the ground as smooth and hard as we could by using a maul made for that purpose. We made a temporary fence around it to keep the cattle off from it. . . . We were not long in threshing out the stack and it was very satisfactory too. But when it came to

³ Gould, *Old Clitherall's Story Book*, 18, 19.

⁴ Loehr, ed., *Minnesota Farmers' Diaries*, 17. J. S. Minor used cattle to thresh his oats, according to the *Minnesota Pioneer* (St. Paul), October 16, 1851.

cleaning the grain without a mill it was very poor business. . . . We watched for a windy day. We heard of a fanning mill in Winona. A man had sold his farm . . . and brought his mill to Minnesota. I found the man and borrowed or hired the mill. It was a streak of good luck." ⁵

Another common method of threshing was to beat out the grain with a flail. This instrument was composed of two rods of hardwood of varying lengths, one about four and the other about two and a half feet long, fastened together at one end with a cord or a piece of rawhide. The operator held the loose end of the longer piece in his hand, whirled the shorter piece over his head, and brought the flail down upon the grain. In order to perform this task a person needed a certain amount of skill to avoid hitting himself over the head. A Mower County pioneer recalled that as a boy in 1858 he did not know how to use a flail, so he and his brothers and sisters "took the grain by the handful and whipped it out on the sides of a wagon box, letting the grain fall in the box." ⁶

But hand labor on the part of the frontier agriculturist was not confined to threshing time. Most of his work had to be performed by hand. He often cut his hay and grain with a scythe, sickle, or cradle; he raked his hay and grain by hand; he bound his bundles in the same way, and shocked them without benefit of machine; his corn was planted, picked, husked, and often shelled by hand; and his fences, home, and barn were the products of his ingenuity and skill. Such tasks could and did become deadening, but they might also provide occasions for co-operative effort and social get-togethers. Cabin raisings and husking bees were common. In speaking of the latter, a Minnesota newspaper of 1858 remarked that they "have been in vogue, of late, and were the means of enlivening the spirits of old and young. On several occasions within a fortnight, and especially at the mansion of our neighbor Clayborne Chandler, one evening last week, the men had no occasion to sigh and wish they were

⁵ Edward B. Drew, "Pioneer Days in Minnesota," 102. This is an unpublished reminiscient narrative; the Minnesota Historical Society owns a typewritten copy.

⁶ Leo Rogin, *The Introduction of Farm Machinery*, 178 (University of California, *Publications in Economics*, vol. 9 — Berkeley, 1931); *History of Mower County*, 213 (Mankato, 1884).

boys again, for they were apparently young, in feeling at least . . . the ladies, too, were all young equally with those of 'sweet sixteen.' Better corn; ladies with healthier bloom upon their cheeks; gentlemen more worthy to be — ahem! — sweeter kisses; better people — cannot be found elsewhere.”⁷

The village blacksmith was a mighty figure. He was very necessary to the farmer, not only as a maker of implements, but as a repairman as well. As late as 1925 one Minnesota pioneer liked his old shovel plow, made in 1856 by David Smith, a Belle Plaine blacksmith. This plow was similar in shape to a cultivator shovel, but was much larger and more convex. A strip of iron sharpened on one side was attached to the beam perpendicularly ahead of the plow to cut the sod. It was recalled that in his shop Smith turned out hundreds of farming implements for the early settlers of the Big Woods area.⁸

Neither the inventiveness and ingenuity of the farmer himself nor the hammer and anvil of the blacksmith, however, were sufficient to meet the needs of Minnesota's growing rural population in the late 1840's. The earliest territorial newspapers frequently mention the importation into the region of agricultural implements. One rather typical item notes the fact that a certain Irishman who traveled up the Mississippi by boat had on board three plows brought from Ireland. With them he expected to break the prairie, and they were made of iron — beam, handles, and all. “Such plows will be of no manner of service breaking prairies,” was the newspaper comment. And some early settlers recall in their reminiscences that the river boats transported many implements to Minnesota, Iowa, and Wisconsin in the early 1850's. One pioneer recalled “seeing grain cradles carried off the boat” in 1852.⁹

An essential implement was the breaking plow with which the tough prairie sod was made ready for agriculture. Sometimes, also, city lots were broken. Drew recalls that he “started the breaking-plow” at Minnesota City early in May, 1852. “We made it quite a

⁷ *Glencoe Register*, November 6, 1858.

⁸ *Minneapolis Tribune*, May 17, 1925.

⁹ *Pioneer*, November 15, 1850; Drew, “Pioneer Days in Minnesota,” 30.

business breaking city lots for members [of the Western Farm and Village Association], or half a lot for some," he writes. "We got \$3 per acre for breaking, and called a lot two acres." It was no easy job to cut the prairie sod, and sometimes as many as ten yoke of oxen were used to pull one giant breaking plow. Another difficulty was the failure of many of the plows to scour in the rich prairie soil. Joseph Haskell and James Norris, probably the first farmers in Washington County, used wooden and cast-iron plows which would not scour; so the plowmen had to carry paddles with which to clean the plowshares frequently.¹⁰

Another implement prized by the farmer fortunate enough to possess one was a reaper. There seems to be some doubt as to the exact date on which the first reaper made its appearance in Minnesota, but it probably was not later than 1854. In February of that year George W. Farrington of St. Paul wrote to Cyrus H. McCormick of Chicago, stating that the prospects were favorable in the vicinity of St. Paul for an increased demand for the latter's reaper. By talking to farmers during the winter of 1853-54, Farrington was led to believe that several of them planned to order reapers in the spring. Later in the spring J. C. Burbank and Company of St. Paul wrote to Norton and Hempsted of Chicago about obtaining reapers. The Minnesota concern had orders for two reapers manufactured in 1853 without mowers attached and for two complete machines. And in August, 1854, Farrington complained to McCormick that he had received a bill of lading for a McCormick machine which had been shipped from St. Louis but had arrived too late to be sold that year. This was regrettable, as Farrington had had many earlier opportunities for disposing of it. "Shall I pay charges on it and hold it until next season?" he asked. The freight charge incidentally was \$55.95. The first reapers were crude machines designed for cutting both grain and hay, the hay mower being optional on a reaper. The reaper proper in 1854 was still rather crude, though it was equipped with

¹⁰ Drew, "Pioneer Days in Minnesota," 41; Loehr, ed., *Minnesota Farmers' Diaries*, 11, 15; William A. Benitt, "Introduction to the History of Agriculture in Southern Washington County," 9. The latter is a manuscript narrative in the possession of the Washington County Historical Society, Stillwater.

seats for both the driver and the man who raked the cut grain from a platform to the ground. The grain was bound by hand.¹¹

It is thus apparent that McCormick early invaded the Minnesota market. Farrington acted as his agent at St. Paul as early as 1854, and other agents were appointed at various places in the 1850's and later. These agents wrote numerous letters in longhand to the McCormick Harvesting Company of Chicago, giving not only details of sales, but also information on market conditions, rival machines, weather, and a host of other matters. In return came replies from McCormick urging the agents to expand their business, telling how to keep books, directing the disposition of machines neglected by incapable agents, and giving other information and advice.¹²

But McCormick did not have the Minnesota reaper business all to himself in the 1850's. James J. Hill later recalled that a Manny reaper was used in the territory at an early date. Mention is made of this reaper in Illinois in 1851, but no record has been found to tell when the first Manny machine appeared in Minnesota. The Manny reaper seems to have been crude, however, until 1854, when a greatly improved machine was placed on the market. Another reaper and mower that competed with McCormick's machine was the Esterley. George Esterley originally patented a header in 1844, but in the early 1850's he abandoned that device and began to manufacture a combined reaper and mower. A good deal of rivalry existed among the agents representing the various implement manufacturers. In 1858, one of McCormick's agents complained that other agents had the advantage over him. It was claimed that the McCormick machines were older and that they ran harder than the Manny and Esterley

¹¹ Rogin, *Farm Machinery*, 89-91; G. W. Farrington to C. H. McCormick, February 22, August 22, 1854; J. C. Burbank and Company to Norton and Hempsted, April 15, 1854. The letters are in the papers of the McCormick Harvesting Company, in the possession of the McCormick Historical Association of Chicago. Film slide copies of all letters from this collection used in the preparation of this article are owned by the Minnesota Historical Society.

¹² On May 31, 1856, for example, McCormick wrote to G. W. Farrington: "As we have now little time to look please advise us whether you will be able to sell machines this season. Will it be safe for me to ship you any and if so how many?" And on December 15, 1856, he wrote to William Constance: "I . . . trust you can make large sales. Can't you make arrangements and canvass Minnesota or part of it thoroughly?" See also McCormick's letters to Timothy Chapman, March 21, 1857, and W. H. Harrington, April 17, 1858, McCormick Harvesting Company Papers.

reapers, and the writer noted that the latter especially had taken well during the season just past.¹³

In addition to the reaper, other implements found their way to Minnesota in the 1850's. A Fillmore County pioneer enumerates the various farm machines owned by the farmers of his neighborhood in that decade. He lists "lumber wagons, bob sleighs of home manufacture, sleds with long runners of home manufacture, 'A'-shaped harrows, wood beam crossing and breaking plows, cradles to cut the grain, scythes to cut the grass, hand rakes to rake the hay and the grain from the swath, single and double shovel corn plows, spades, shovels, axes, hoes, iron wedges, bettles or mauls used to split rails for fencing, frows to rive out the shakes or clapboards to cover the log cabin, and a limited number of carpenter tools." Often "five or more settlers would own a fanning mill to clean their grain, and in the first few years of settlement an eight-horse sweep power separator threshed all the grain grown in two or more townships." Corn was dropped by hand, covered with a hoe, and plowed with a one-horse shovel plow; the weeds in the cornfield were kept down with a hand hoe; and when the corn was picked the stalks were cut by hand and then shocked.¹⁴

Although many of the plows were homemade or were fashioned by the local blacksmith, some were factory made. By 1860 cast-iron plows were being made in numerous foundries and factories in the Middle West; and steel plows, which would scour, though they were often brittle and inclined to warp, were being manufactured in various places, notably by John Deere at Moline, Illinois. Breaking plows manufactured in Galena, Illinois, were extensively used in Minnesota in the early 1850's. Gradually, plow factories began to

¹³ James J. Hill, "History of Agriculture in Minnesota," in *Minnesota Historical Collections*, 8: 278; Rogin, *Farm Machinery*, 77, 103; W. H. Harrington to McCormick, August 26, 1858, McCormick Harvesting Company Papers. Two machines manufactured by John H. Manny were purchased in St. Paul and taken to McLeod County in 1859, according to Franklyn Curtiss-Wedge, ed., *History of McLeod County*, 272 (Chicago, 1917).

¹⁴ See William Willford's narrative, in Franklyn Curtiss-Wedge, comp., *History of Fillmore County*, 1: 117, 118 (Chicago, 1912). The *St. Croix Union* of Stillwater for January 16, 1855, offered for sale "Salmon's Improved Patent Grain and Grass Seed Separator," which won the first premium at the New York World's Fair and the New York State Fair of 1852. In Minnesota it was sold by McCloud and Brothers of St. Paul.

appear in Minnesota itself. The date of the first one is unknown, but in 1856 a St. Paul newspaper mentioned the fact that a plow factory was in operation at Cannon City in Rice County. This plant was owned by Honeyman and Andyke, and its breaking plows were said to be better than those made in Galena. The factory, however, unfortunately could not supply half the demand for plows in its vicinity. New developments in plows were being made constantly, some practical and some not, and many people had visions of great and rapid future progress. Governor Henry H. Sibley, in an address before the Dakota County Agricultural Association at Nininger, on October 8, 1858, predicted that the steam plow would soon supersede all others. Though his prediction was incorrect, there was an element of truth in it. On farms today steam is not the motivating power for plows, but another force, gasoline, furnishes fuel for the tractors that pull many Minnesota plows.¹⁵

Another machine that reached Minnesota in the 1850's was the mechanical thresher. Although the West lagged behind the East in the use of the threshing machine, the Case thresher was manufactured at Racine, Wisconsin, as early as 1844, and the better-known Pitts machine, at Alton, Illinois, in 1847. In 1852, the Pitts Company produced machines at its new plant in Chicago. Thus, the thresher became easily available in the West at about the same time that Minnesota was beginning to fill in with settlers.¹⁶

According to James J. Hill, the first threshing machine in Minnesota was operated by John Cormack, a river raft pilot, at Eden Prairie, back of Fort Snelling. Another pioneer, however, recalled that the first threshing machine brought to the territory arrived between 1853 and 1855, and belonged to Leonard Aldrich. Whether either is correct is uncertain, but it is probably true that the thresher made its advent about the same time as the reaper, in 1853 or 1854. The Pitts Company was early in the Minnesota field, and Hill's company made a contract with it "to try to sell three threshing machines."

¹⁵ Rogin, *Farm Machinery*, 30, 33; Benitt, "Agriculture in Southern Washington County," 9; *Weekly Pioneer and Democrat* (St. Paul), May 29, 1856, November 4, 1858.

¹⁶ Rogin, *Farm Machinery*, 165.

Hill was asked if he thought he could set up a thresher, and after going to Eden Prairie to watch Cormack's machine run, he was convinced that he could. Soon he had a customer near Shakopee.¹⁷

Most of these early threshers were little horsepower treadmill machines, which separated the grain and the straw, but threw them out together. Then all the straw had to be pitched on to a stack by hand, and the grain had to be cleaned with a fanning mill. Still this was better than using a flail. The Pitts thresher, however, from the first combined the three operations of threshing the grain, separating the grain and the straw, and winnowing the grain. Gradually other machines added shakers, which separated the wheat from the straw, to the cylinders; and then fanning mills, which cleaned the grain of chaff, became integral parts of the threshers. Nearly all machines seem to have had winnowers attached by the early 1860's.¹⁸

Many a farmer, however, did not have access to an improved thresher. Small machines provided with separators were much more common than the larger type. Before grain was fed into the cylinder, the bands on the bundles were cut by hand. Then the bundles were thrown into the machine by a feeder, who wore goggles to protect his eyes from stray kernels of grain flying from the cylinder. The feeder's task was considered the most laborious of all the operations connected with threshing. To operate the early threshing machines, from one to eight or ten horses were used. In the late 1860's, threshers "with from one to four-horse powers" were generally used in the East, but at the same time and even earlier, in Minnesota, eight and ten horsepower machines were frequently employed.¹⁹

Operating a horsepower machine was not always easy, as Lurett Whiting later recalled. "I well remember that the first threshing done in Otter Tail County was with a second-hand horsepower ma-

¹⁷ Hill, in *Minnesota Historical Collections*, 8: 278; Franklyn Curtiss-Wedge, *History of Dakota and Goodhue Counties*, 1: 649 (Chicago, 1910).

¹⁸ Curtiss-Wedge, *Fillmore County*, 1: 118; Rogin, *Farm Machinery*, 168-171; *Caledonia Journal*, October 2, 1929; *United States Census*, 1860, *Agriculture*, 23. John R. Cummins, a pioneer farmer living near Eden Prairie, made the following entry in his diary on August 20, 1858: "Threshing machine came today and threshed out 102 bus of winter wheat. This machine threshes and cleans at the same time, using 8 horses at a time." The Cummins Diary is owned by the Minnesota Historical Society.

¹⁹ Loehr, ed., *Minnesota Farmers' Diaries*, 18; Rogin, *Farm Machinery*, 171, 174, 175.

chine which Uncle Lewis Whiting bought near Sauk Center," he writes. "As we had only a few horses we hitched in two yokes of oxen and started up, but the merry-go-round, so to speak, was too much for the oxen and they would get dizzy after two or three rounds and lie down, so we took them off and managed to thresh out what little we had with the horses by feeding the machine light. After a year or two farmers began to settle all around us, and we were then able to get all the horses we needed."²⁰

The introduction of a thresher into a pioneer community was heralded with delight. Typical was the notice of the purchase of a machine at Glencoe: "This is an institution that was required, it being the second one introduced into the county. The proprietors will find plenty of work for their machine. We hope to hear it 'rattle' before another month rolls around. There will be some fun in threshing grain this year. It will not be all chaff."²¹

Another device much needed by farmers who did not live near an adequate water supply was a well-drilling machine. In Fillmore County in the 1850's, for example, some farmers hauled water five miles or more before well drillers became available. Finally, in 1858 and 1859, a drilling machine was put in operation on a local farm. "It consisted of a kind of spring pole arrangement and was operated by the foot. The hole drilled was about four inches in diameter, and about twelve inches a day constituted a day's work drilling." When water was reached, only about four pails a day could be drawn.²²

As the decade of the 1850's came to a close, the United States government, for the third time through its census bureau, inquired into the status and progress of agriculture in each of the states. By studying the census findings it is possible to gain at least a rough picture of the place occupied by farm machinery in Minnesota's agricultural pattern in the decade. The total population, according to the census of 1860, was 172,023, as against 6,077 in 1850, a gain of 2,730.7 per cent. In the same decade, the rural population increased 3,119.4 per cent; the number of farms, 11,364.4 per cent; the value of

²⁰ Gould, *Old Clitherall's Story Book*, 20.

²¹ *Glencoe Register*, July 23, 1859.

²² Curtiss-Wedge, *Fillmore County*, 1: 116, 117.

farms, land, and buildings, 16,884.4 per cent; and the production of field crops, 12,248.4 per cent. Thus the number of farms, the value of farm property, and the total volume of field crops each increased four or five times faster than the total population. Although the average value of agricultural implements per farm decreased from \$102.00 in 1849 to \$56.00 in 1859, farm machine values for the state as a whole increased by 6,271.2 per cent in the same decade. Nearly all the farm machinery used in the state was imported at heavy expense from the East, for only such simple utensils as plows and fanning mills were manufactured in Minnesota in 1860. All grain cradles, horse rakes, forks, spades, shovels, straw cutters, and hoes were imported, and only about thirty of the thousand reapers sold in Minnesota in 1861 were manufactured there. This represented expenditures amounting to about \$150,000, a "pretty large sum to go out of our State in one year for a single implement used by the farmer," according to the state's leading farm journal, which asked, "When will these machines be made at home?"²³

Fifteen years later the state had many farm implement plants, and manufacturers from other localities had developed elaborate distribution agencies in Minnesota. Then loud complaints from Granger orators, debt-ridden farmers, and crusading editors were voiced against the machine manufacturers and agents. Some urged that the farmers scrap their machinery and return to the cradle and the hoe. But whatever the evils associated with the production, sale, and distribution of farm machinery, one thing is certain — man's, and later woman's, lot was eased and the constant fear of famine was removed by the invention, production, and use of mechanical devices on the farm. Even today we may be only on the threshold of agricultural mechanization, and a century hence observers probably will consider our farming methods just as primitive as we do those of 1850.

²³ Edward V. Robinson, *Early Economic Conditions and the Development of Agriculture in Minnesota*, 45, 55, 56 (University of Minnesota, *Studies in the Social Sciences*, no. 3 — Minneapolis, 1915); R. W. Murchie and M. E. Jarchow, *Population Trends in Minnesota*, 7 (University of Minnesota, Agricultural Experiment Station, *Bulletins*, no. 327 — 1936); *Minnesota Farmer and Gardener* (St. Paul), 1: 120, 267 (February, September, 1861). The latter publication notes that a plant in Winona manufactured threshing machines.



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