

A Glimpse of Early Styles in Farm Implements

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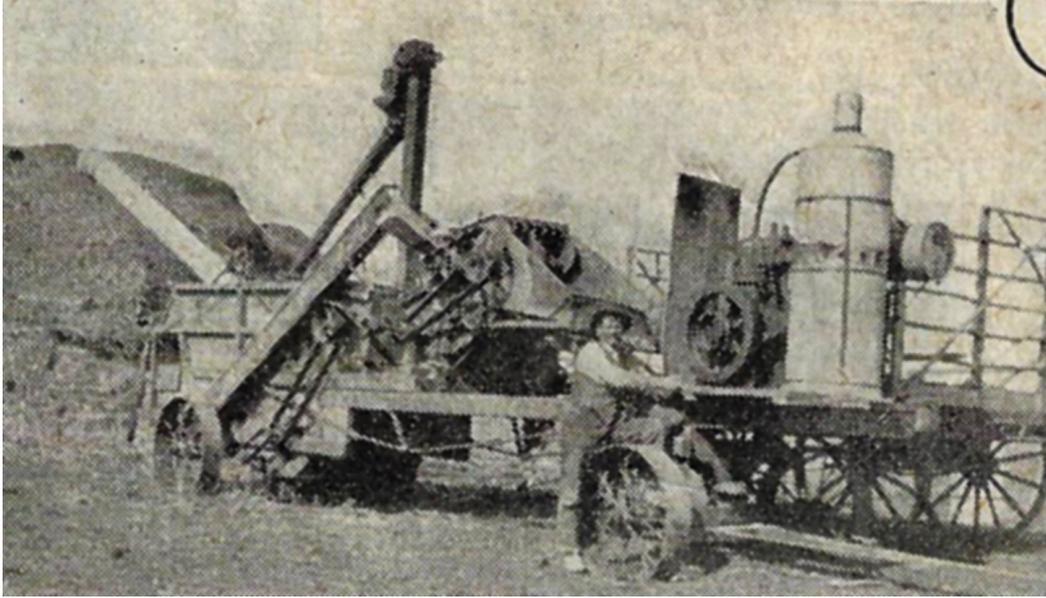
The Virgin Prairie of Western Canada Brought About Mass-Production in Huge Tractors and Has Since Been An Important Factor in the Farm Implement Business On This Continent.

“Bunga, Bunga, Bunga,” such is the word imitation given by Clayton Rooney of thunder-like noise that started citizens of the community near Marshall, Sask., some time ago when an attempt was made to start a long deserted, sixty-horse power, two-cylinder, kerosene-burning tractor. The attempt was successful, so states our friend from northeast Saskatchewan, and when the “bunga, bunga, bunga” exhaust became audible for miles around, lots of people said, “For gosh sakes that must be frank’s Rumely.”



(Above) An old time Big 4 tractor pulling five eight-foot binders on the F. A. Bean Farm, Young, Sask., back in 1914. There were seven of these tractors on this thirteen-section farm. Six of them are shown plowing in the lower picture. Their size can be compared with the mule and buggy. Photos by courtesy of N. Francis, Gunton, Man.





(Above) A threshing machine with engine mounted on the extended thresher frame. The popularity of this machine was short lived but the present day combine employs the same principle of design. Photo sent in by David Payne Colonsay, Sask.

This realistic description of the “awakening of the dead” recalls the whole panorama of events that characterized the opening up and development of Western Canada. It brings to mind giant steamers that blackened the sky as they crawled across the prairies pulling from ten to fifteen breaker bottoms. Of threshing crews of from fifteen to twenty-five men that would eat a farmer out of house and home if a rainy spell happened at the wrong time. Of the homesteader and his oxen that turned their fair share of prairie sod previous to 1910. Of crowded elevators and long waits and long hauls over treacherous winter roads. Of prairie fires, of sickness and births without doctors, telephones or automobiles. All such things as are filled with adventure, romance and tragedy in a new land.

And yet it is not long since the first kerosene tractor made its appearance in Western Canada or anywhere else. “Kerosene Annie” was her name – a Rumely-produced tractor that made her appearance at the 1910 Winnipeg tractor trials. Hart-Parr also had kerosene tractors at the same trial, but neither were allowed to compete because their costs would not be comparable to the tractors using gasoline.

Did you know that the first tractor trials held in America, were held at Winnipeg in 1908, under the auspices of the Winnipeg Industrial Exhibition? Only five manufacturers of gasoline tractors competed and five of steam. The Kinnard Haines, popularly known as the Flour City, won the highest award, which was the first indication of the supremacy of the gas tractor over steam; but it was another decade before the arguments over the advantages of the respective forms of power was satisfactorily settled in the bunk cars of the threshermen of the West.

It is of interest to record here that the first gas tractor sold in Western Canada was a Kinnard Haines. I. E. Fairchild sold it to a man at Clearwater, Man., back in the very early part of the century. Mr. Fairchild is still living in Winnipeg, a man of eighty.

C. W. Hart and C. H. Parr of Charles City, Iowa, constructed in the winter of 1901 what may be considered the "daddy" of all present-day internal combustion tractors. "It was a cumbersome two-cylinder, oil-cooled, slow-speed, two-cycle tractor, which was sold during the following summer to an Iowa farmer. It astonished all concerned by its ability to operate." So writes Cyrus McCormick, grandson of the inventor of the reaper that bore his name. "Comparatively few tractors were built by anyone before 1906 when the large-scale tractor industry was born . . . There were no more than 500 tractors in use upon American and Canadian farms when simultaneously eleven companies began the manufacture of tractors."

The gas tractor depended for its motive power upon the development of the internal combustion engine. The Otto engine of 1876 was the first internal combustion engine produced on which both the automobile, tractor and several other industries have been built. Just why Otto's name has not been heralded around the world for his, the first production, is not clear unless it is because there is no commercial reason for making his name famous.

Steam, of course was the forerunner of gasoline for power. The steam engine is a century and a half old but its development and use for farm power rose and fell within the last fifty years. Watt's first patent of 1874, utilizing steam for power, was applied to a road carriage, but it was Stephenson who produced the first railway locomotive in 1817. This without doubt was the genesis of the present-day tractor, but it was a long weary road from that day to this.

One of the early difficulties experienced in applying power to wheels was to allow for turning as obviously the outside wheels have to travel much further than the inside ones. The differential gear was not perfected until 1870 and the friction clutch followed closely after, which added still further to the easy manipulation of the tractor. From 1875 on, the development of the steam tractor was very rapid. Their first farm use was for belt work. The portable steam outfits had been in use for some years. It was not until just preceding 1890 that the steam tractor was seriously considered for plowing. These giants with plows to match added to the romanced of breaking prairie sod. They almost filled the place of the railway locomotive in the imagination of the small boys, and some larger ones.

Mountains of Hardware

It may have been because the first steam tractors were large and heavy due to the necessity of carrying large boiler that tractor operators believed that a tractor to be of service had to be a giant. When gasoline tractors first came on the market, farmers demanded that they also must contain plenty of heavy hardware, and they continually got bigger and heavier up until the war years. At the Winnipeg show of 1912 the

average brake horse power of all contestants exceeded fifty. Everyone else clamored for them to be smaller, including editors of farm papers, but the public wanted them big. There may have been other reasons, such as the large threshers in general use at the time, a legacy of the steam age; and the breaking of prairie sod, that required much power. Western farmers thought they were doing something when they pulled from ten to fifteen plows behind a tractor. Canada was new and distances were great. Mile-long furrows were the rule, and in many places two and four-mile were not uncommon. Up until 1910 or 1912 Western Canada purchased fully two-thirds of all tractors produced in America and therefore dictated tractor fashions.

Setting Tractor Fashions

Ellis and Rumely in their book "Power and The Plow" give a very interesting story and vivid word picture of the tractor trials held at Winnipeg over twenty years ago. Few people today know or realize what an influence those demonstrations had on the whole farm-equipment industry. Telling about the people present and their actions the following incidents are related: "Influential men from the largest oil corporations in the world are present, keenly interested in the question of mechanical power on the farm as affecting the market for liquid fuels. The largest independent maker of automobiles prepared to spend untold amounts in developing his ideas of a light farm tractor, is here to study and criticize. He finds a kindred spirit in the old patent expert who illustrates his conception of the light tractor by the story of a cat chased up a tree by a dog. 'The cat,' he says, 'didn't have traction.' An unsympathetic bystander suggests that if a brick had been tied to the cat's tail, corresponding to the plows behind a tractor, the dog would have put the cat out of business."

The Bull Tractor Company put out the first popular small-sized tractor in 1913, and the next year put out a slightly larger one called the Big Bull. It, like most other tractors of the day, was not a mechanically sound tractor but it just about swept the field. Other manufacturers at once started to build smaller tractors, and the war years gave a great impetus to the tractor business. Two hundred tractor companies came into existence overnight, and most of them disappeared almost as quickly.

With Henry Ford's announcement in 1915 that he was going to build a tractor and his sale of six thousand to the British Government in 1917 and their appearance almost everywhere in Canadian and United States farms in 1918 marked the beginning of a new type of tractor which all other manufacturers have more or less adopted. Henry Ford brought all the knowledge gained in the rapidly developing automobile business into the tractor field. Others at once did likewise. Just why one branch of industry is so slow in learning from another similar industry is difficult to explain, but it seems to be the way of man. The veterinarian is slow to learn and utilize the discoveries in modern medicine. The annual breeder lags away behind the plant breeder and seldom calls on him to answer questions that would not be difficult for him to explain or at least to set about to discover an answer. A farmer will experiment with things that are already

common knowledge to someone else if he would only enquire. But such are the manifestations of man's independence and peculiarities.

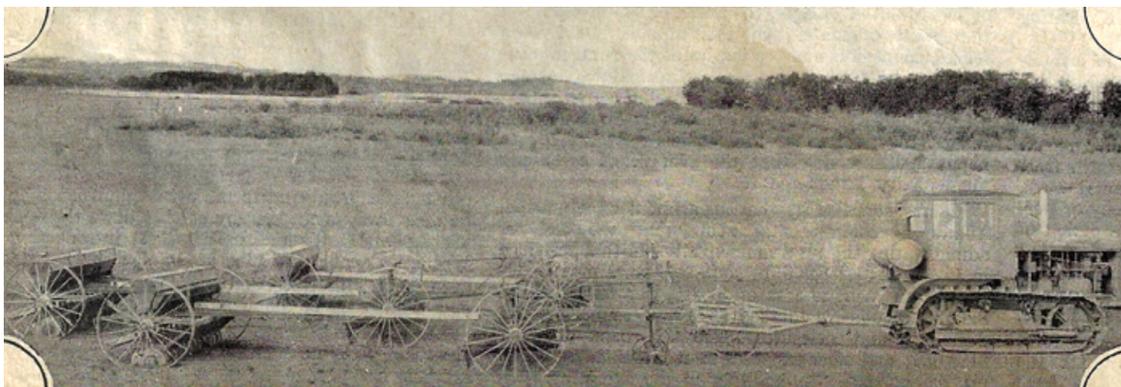
The present tendency in farm tractor design is for more compact and powerful units, many of the tracklaying or crawler type.

Progress in Agriculture through the ages has waited upon the development tools to till the soil and machinery to seed and harvest the crop. The development of agricultural tools has waited on the development in the use of metals and particularly in the use of steel. The Bessemer process, discovered by Sir Henry Bessemer and patented in 1855, for the blowing of air through a mass of molten pig iron completely revolutionized the iron and steel industries of the world as well as the mechanical and engineering construction, as it made possible the manufacture of excellent steel in immense quantities at a low price.

Man has made more agricultural and industrial progress in the last fifty years than in all previous world history, but most of the discoveries on which this progress has been founded was made in the previous fifty years. The plows that were in use one hundred years ago showed little improvement over those in use fifteen hundred years before. The reaper and harvester had been born then but not developed.



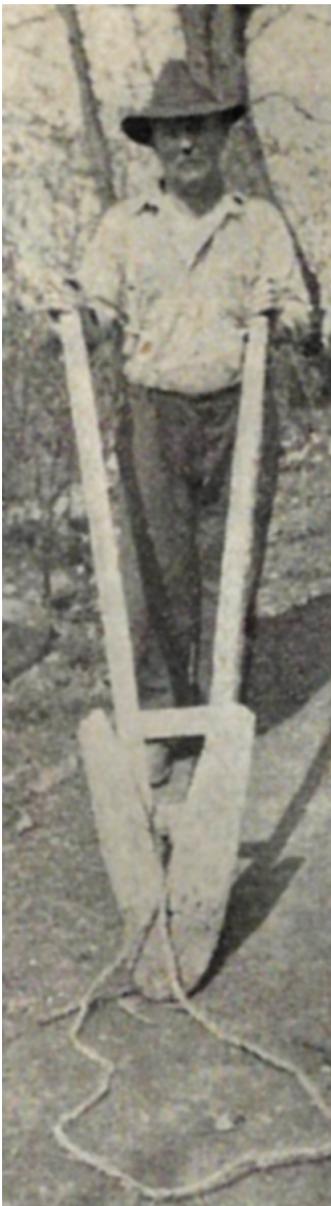
(Abovet) An old portable steam threshing outfit used in the early days near Blackwood, Sask. North of Sintaluta. It required 18 men to keep things going. Photo sent in by W. B. Dicken, Blackwood, Sask.



(Below) a modern outfit consisting of three twelve-foot cultivators and three 2-run drills, utilizing a special hitch cart and drawn behind a sixty horse power crawler type tractor operated by one man.

“Prosperity Follows the Plow”

The improvement of the plow was slow up until John Lane, of Chicago, in 1833, took three lengths of steel cut from an old saw and fashioned a mouldboard. He continued to buy up old saws for several years from which to make plows, and finally had a piece of steel rolled a special width of twelve inches so that he could make a mouldboard in one piece. Cast iron shares and mouldboards had been used before Lane’s day.



John Deere, a blacksmith at Grand Detour, Ill., built three steel plows in 1837, one of which is still in existence. He was more fortunate than Lane as he obtained an old sawmill saw from which he was able to form his one-piece share and mouldboard. By 1849 he was making 10,000 plows annually. In 1843 T. D. Burrell of Geneva, New York, first used an inclined wheel to reduce the friction of the landside. His plow was not a success, but the principle he thought of is utilized to this day. H. Brown in 1844 combined several plow bottoms in a gang supported on wheels. A single bottom sulky was patented in 1856 by Mr. Furley, and in 1884 G. W. Hunt patented the first of the three-wheel riding plows that are now found in every farmyard.

James Oliver of South Bend, Ill., was probably the first man to harden the wearing parts of a plow without making them too brittle. He started his work in 1853 and received a patent on the chilling process in 1868 and perfected it near the close of 1873. His name is still association with chilled plows the world over. It is interesting to note that in the April, 1884, issue of The Nor’-West Farmer the following editorial comments were made: “There seems to be an early prospect of solving the difficulty of successful breaking of our Prairies by steam. Mr. Ingleton, an engineer of large experience in steam ploughing in England, has patented and is having made at the Vulcan Iron Works, at Winnipeg, a plough which will be tested this spring on the farm of Capt. Colquhoun, at Stony Mountain.

“We reserve a detailed account of the plough until the

The first plow on the shores of the Kootney Lake, B.C. An all-man-power all-wood plow. The nose-piece is made from a solid block of yew. Kept as a relic of old times by S. J. Cummings, Boswell, B.C.

test has been made. Meantime the thanks of the farmers are due to the parties named for the enterprise shown and all wait eagerly that result of the trial, seeing so much of the future of farming in the prairie country depends on its success.”

In searching subsequent issues of the “Farmer” we were unable to find a detailed account of the plow as promised, but there was a short comment on a trial held at Regina which indicated that the plow gave much promise and the parties who had the courage to undertake the building and demonstration of this machine was warmly congratulated by the editor. Other farm equipment followed closely on the development of the plow. All manner of tools were invented for special operations but only a few have survived and these are very much standardized in this day and age. We will discuss this more fully under tillage tools a little later in our story.

From Reaper to Combine

HARVESTING tools took form in almost the identical manner and at the same periods as the plow. We read of old of their "reaping hooks and staves." Then came the scythe and cradle, and the flail for threshing.

Man had long visioned a machine that would take the backache out of harvesting and speed up the work. It was mentioned by Pliny, the elder, over 1800 years ago. To William Pitt of Pendleford, England, is accorded by some the honor of constructing the first successful ground-operated reaper. Others previous to Pitt had endeavored to construct power-operated scythes but without success.

Many improvements were added to the principle embodied in Pitt's reaper but it remained for Ogle and Brown in about 1820 to invent the straight projecting beam which carried fixed guards over which a reciprocating sickle operated. This implement was the first that embodied the principle that is used today in the cutting of hay and grain.

In 1831 Cyrus Hall McCormick, of reaper fame, built his first machine, and to him goes the credit of first manufacturing and building reapers for sale to others. He founded the harvester business and was the father of present-day factory mass production and nation-wide sale organizations.

About the same time as McCormick developed his reaper Hussey developed a similar implement that more resembled our present-day mower. There was bitter strife between these two men for the supremacy of their inventions.

Probably the next important step from the reaper was the harvester developed by the Marsh brothers, two farm lads, who in 1863 brought out a machine that cut the grain, elevated it by means of endless canvas aprons up over the top of the main bull wheel and dropped it on a table where men rode and bound it into bundles.

In 1872 Charles B. Withington developed a wire binder which he sold to McCormick who put them on the market in 1877. E. H. Cammon, a former Methodist minister, came into the scene as a distributor of Marsh machines and ultimately took over the Marsh factory at Plano, a suburb of Chicago. He took as his silent partner, William Deering, a wealthy dry goods merchant of Maine. In 1879 Gammon died and Deering took charge. About this time John E. Appleby had invented the twine binder and Deering bought his patents and in 1880 he made and sold 3,000 of these new machines which established him in the front rank of the great implement manufacturers of the day.

McCormick, Deering, Osborne, Champion, and other harvester manufacturers carried on a ruthless commercial and legal war during the last half of the last century until finally after several unsuccessful attempts the larger of them amalgamated into the International Harvester Co. in 1902.

In September of 1882 an account appears in *The Nor'-West Farmer* of the first binder of which we have record as being used in Western Canada. The report is in part as

follows: "On Wednesday last a reporter of the express was invited by Wm. Forsythe, Esq., agent for the Harris and Son Company, agricultural machinists, to drive out to the farm of E. Winkler, Esq., about one mile from West Lynne, where he intended to start an Osborne self-binding machine. Mr. Forsythe is an extra good man about machinery and therefore, the binder was quickly put in readiness for a start. A very large field of oats was selected in which to test the machine. The oats were extraordinarily heavy and somewhat green. The binder, which was drawn by only two horses, after a little readjusting, worked splendidly and gave the best of satisfaction." The item stated that Mr. Winkler was formerly an old and esteemed resident of Emerson, Man.

In the August issue of 1887 a full page is devoted to a shipment of 87 binders from the Massey Manufacturing Co., of Ontario, to their agent at Brandon. A special parade was held and farmers came in from miles around and several prominent men took part who were not identified with the implement business.

A historical sketch of the company is given in the same article and we quote from it as follows: "The firm this year celebrates its fiftieth anniversary having been established at Newcastle, Ont., in 1847. In 1879 they removed to Ontario and the company ceased the manufacture of all implements other than hay and grain harvesting machinery, their trade in these lines having assumed such magnitude as to command their whole attention. The Massey Company enjoy the reputation of being the first Canadian firm to engage in the manufacture of harvesting machinery and in introducing the first practical self-rake reaper. In 1877 their experiments were commenced on wire and cord binders and three years after (1880) the "Toronto" was introduced and is now acknowledged superior in durability and equal to the requirements of the farmers."

The Massey Co. and the a. Harris & Son Company joined forces in 1891 as the Massey-Harris Company. Since then this organization has absorbed a number of other implement companies which corresponds to a like history of practically every implement manufacturing company in business today.

The first power driven thresher of the stationary type was patented by M. J. Gregg. It had a belt-type feeder and a rotary cylinder. Other inventions and patents followed fast on this one of Greggs showing improvements all along. The Parson's patent was issued July 2, 1836. He used a toothed cylinder and a toothed concave, a system of rotary straw carriers and separators, a cleaner of the fan type and a bulk grain bin.

Those who think the combine harvester is of recent origin as compared to other farm equipment will be surprised to learn that Moore & Hascall built and operated the first combine harvester in 1834, in the state of Michigan. It was drawn by horses hitched to the front end and operated by bull wheels 7 feet in diameter that were geared to the header and separator mechanism to furnish the power to operate the machine.

Other men further improved the combine harvester but Daniel Houser patented his combine in 1885 that had all the elements in its make up that are found in our combines today.

The first record of a combine harvester operating in Western Canada appeared in the September issue, 1898, of *The Nor'-West Farmer*. A two column write up gives a full description of the trial and a very good picture shows five horses hitched to it, three behind and two in the lead. The whole machine is driven from ground wheels. The opening paragraph of the item has this to say about it. "Those of our readers who attended the Winnipeg Industrial Exhibition this year will remember seeing a curious looking machine, part binder and part threshing machine, near the stock buildings. This was Conroy's Combined Harvester and Thresher. It consists of a cutting table and an elevator, which passes the grain into a small threshing machine, which threshes, cleans the grain and bags it. It is made at Dechene, Ottawa Co. P.Q., where Mr. Conroy states a small number of these machines have been in use three years. His machine has been at work on the farm of Mayor Evans, of Brandon."

Harvesting Equipment

Despite this early introduction of the combine in the West it has only been in general use during the past five years. In the districts where the humidity of the air is low; where the crop as a rule ripens before the equinoxial storms of September, where farmers adapt their farming practices to meet the requirements of the combine and where the individual uses some judgment and good mechanical sense in its operation, the combine harvester has proven to be a profitable piece of farm equipment. In other districts men are developing methods that in some measure may compete with the combine in economy of harvesting their crops. The barge idea has made some progress in a few districts. If the individual who builds the stack on the barge understands his job the stacks will stand a great deal of bad weather without deterioration. It is largely a question of keeping the centre high and hard so that when the stack settles it will shed water.

All manner of mechanical stokers have been built and some companies have spent large sums in an effort to produce something satisfactory but none so far have proven efficient under varying crop conditions. With the development and wide use of the combine the need for a mechanical stoker has been largely eliminated.

Present day farm equipment may be divided into several groups, such as, seeding machinery, tillage implements, harvesting equipment, and farm power including horses as well as tractors, engines and motors. In addition we have our vehicles of transportation such as wagons, trucks and automobiles, seed cleaning machinery and in some cases special mechanical equipment such as milking machines and the like besides a great array of small tools required on every farm.

Drill Changes Have Been Normal

Seeding machinery has not undergone so many radical changes in its development as has harvesting machinery. The evolution from the old shoe and hoe drills to the single and double disc was quite a natural one. The greatest changes have come about in size of implements. Where the 20 run grain drill was the maximum size a few years ago

it is now considered something of a minimum. Special conditions have created a desire for suitable types of seeders to meet these requirements and we have the furrow drill developed for dry land conditions; the seeder plow for light soils and the press drill for loose land. Recent developments are along the line of combining the seeder with a tillage implement such as a one-way disc with seeder box attached. The same idea has been used on a large 21-foot disc by Filyk Bros., of Glidden, Sask., with apparently very satisfactory results.

Just a few years ago the plow and the harrow were considered the most important and in many cases were the only tillage implements found on the farm. At the present time the drag harrow is fast going into the discard and the costly job of plowing with a mouldboard plow is being reduced from year to year. Now the duckfoot cultivator and the one-way disc are succeeding all other tillage tools in the great plains area with the rod weeder a favored implement in many districts, and while the large single-disc meets the needs in others. A changed conception of what constitutes good tillage and the necessity of speeding up tillage operations to keep up with faster methods of seeding and harvesting have brought about this change in tillage implements. The present tendency is to use fewer implements in the production of farm crops. In some districts it is now possible to farm grain land with three implements and power, namely, a one-way disc and seeder-combine, a duckfoot cultivator and a combine harvester and thresher. In some cases the duckfoot cultivator might be eliminated.

Apparently the day of the bonanza farm is over. You can count all that are left in Western Canada on one hand and none of them are really very large. Most of them have disappeared or have been broken up into smaller units and no new ones have sprung up in their place in Canada, although it is reported that Hickman Price is cutting a "wide swath" down in Texas. All this seems contrary to the reasonable development in the use of modern efficient farm equipment. The very large farms have almost disappeared but the size of the family operated farm is steadily increasing. This is particularly true in some districts.

There are those, of course, who blame all of our present difficulties such as unemployment and so-called over-production on to the use of machinery. No one can deny that the introduction of new labor-saving machinery does not in many cases create new problems. The locomotive put the old stage coach out of business and in turn the bus, truck and automobile have caused the railroads some embarrassment. Such is the penalty of progress. The introduction of the reaper and self binder displaced more laborers than probably an invention brought to the farm but it made possible the rapid expansion of agriculture in the west and the end result is that no one would willingly go back to the days of the cradle and the flail.

An Engineer's Viewpoint

L. J. Fletcher, president of the American Society of Agricultural Engineers, speaking before a large gathering of eminent agriculturists gathering at Winnipeg, recently made

some rather interesting observations on this much debated question. The following are extracts taken from his address, "We have heard occasionally said that the machine age ruined the wheat farmer; if he could have stayed with the more simple machine, or even hand production, it would have been far better for there would have been no surplus either in wheat or men. If this logic holds true, how about the great cotton crop of the Southern United States. Here, there is practically no machinery; the simple plow, calking cultivator and one-row drill being less complicated than the machines used by the Russian peasant. Picking is entirely by hand. Yet this crop is suffering fully as much from low prices as wheat. It is entirely possible that if all the people in the United States were tomorrow furnished with the simple hand tools of agricultural production, which were in common use not much over a hundred years ago, within less than five years this country would not produce enough to feed ourselves. The American farmer today utilizes animal and mechanical energy to the extent of at least 110,000,000 horsepower hours per day during the one hundred busiest days of his tillage, planting and harvest seasons. This is so much more power than it would be possible for all the able-bodied inhabitants of the United States to daily produce with their own muscular energy, that the result would be such a reduction in food supply that the entire nation would be constantly bordering on starvation. With a hand economy in agriculture requiring the work of everyone on the farm there would be no need for cities, railroads, banks, insurance companies or colleges, yet this is the end point of the back-to-the-farm movement and subsistence farming. Those most loudly advocating this plan would be the last to go out and cast their lot with the man with the hoe.

"Previous civilizations have been based on hand labor and the slave. This civilization is based on the machine which is the willing slave of the man, but can never become his master. There are a few whose minds like to toy with the idea that the machine is ruining us. But the author of those ideas, after writing his daily column, is not willing to ride in the labor-saving elevator, drive his car to a home in the suburbs, turn on a light, a fan or a heater, with a push of a button, and enjoy the world news from a paper which is the result of the utilization of every modern means of communication and mechanical production.

"There is ahead a great period of development in agriculture. The people of the world are not going to condemn themselves to a life of slavery to the soil. In the great scientific age ahead people will learn to live together, to trust and not to hate. The engineer through transportation and communication has brought the world together so quickly that the neighbors have not yet become accustomed to seeing each other over the back fence. While the first impulse is to build the fence higher, soon people will realize that they will be happier if the fences are removed. It is said that science knows no geographic boundary. It is, therefore, the double task of men engaged in scientific work to bring forth new facts and through their desire and willingness to co-operate and help their fellows, regardless of race or tongue, to point the way toward true neighborliness among nations."