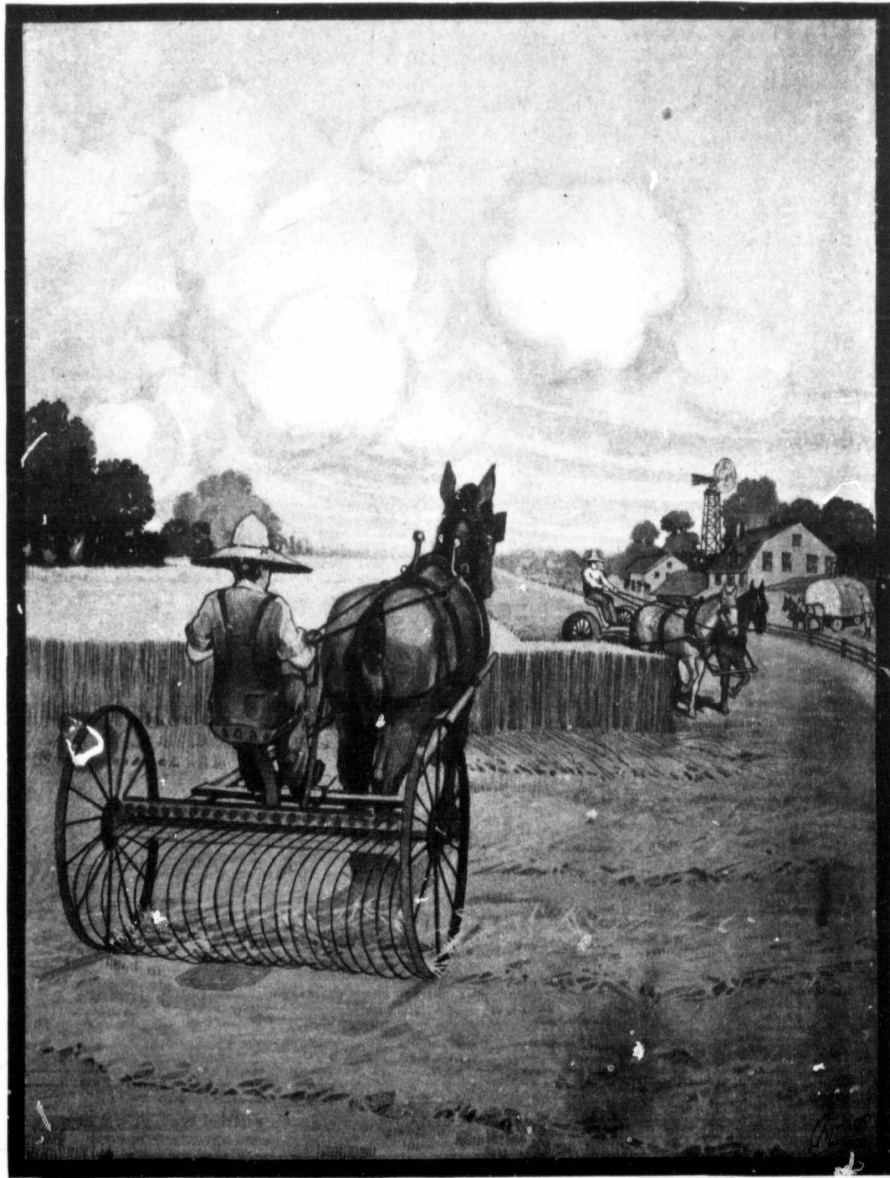


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# THE CANADIAN THRESHERMAN and FARMER

CANADA'S FARM MACHINERY MAGAZINE  
WINNIPEG · CANADA

JUNE, 1911



E.H. Heath COMPANY Limited Publishers

# John Deere Engine Plows

## WITH QUICK DETACHABLE SHARES

Insist on an Engine  
Plow with the  
John Deere  
Quick  
Detachable Shares.

With Quick Detachable  
Shares

Furnished on rod or  
moldboard breaker  
bottoms or on  
stubble bottoms.  
Don't waste  
the valuable time  
of a big plowing outfit  
changing shares  
the old way.

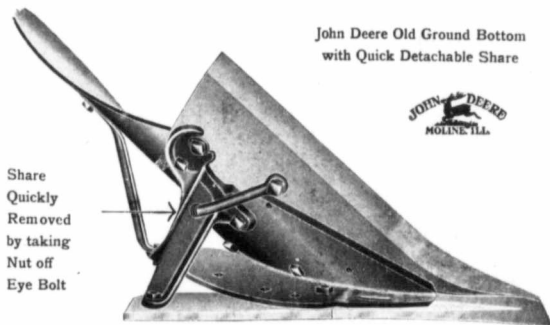


But one bolt to  
remove.  
Saves 80 per cent.  
of time in  
changing Shares

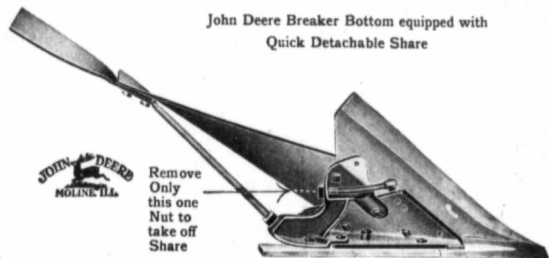
See this bolt  
It's the only one you  
have to remove

- SIZES:
- John Deere Little Engine Plow  
4 and 6 Bottoms
  - John Deere Jr. Engine Plow  
6 and 8 Bottoms
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8 and 10 Bottoms
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10, 12 and 14 Bottoms
- With Quick Detachable Shares

Ask your John Deere Dealer about these plows, or write us for Engine Plow Book. This book contains all available valuable information on Engine Plowing



John Deere Old Ground Bottom  
with Quick Detachable Share



John Deere Breaker Bottom equipped with  
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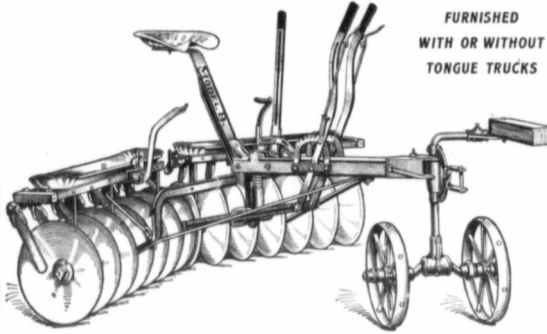


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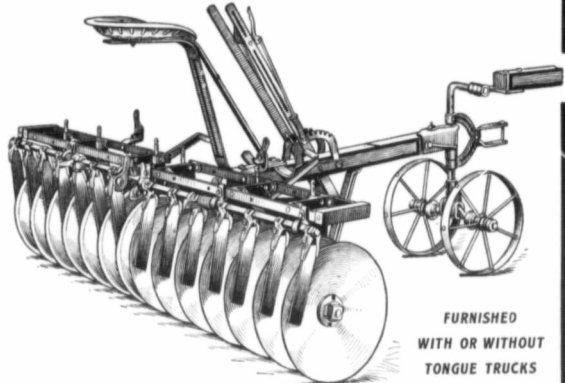
# DISC HARROWS

## Deere Model B Disc Harrow

## Deere Model K Disc Harrow



FURNISHED  
WITH OR WITHOUT  
TONGUE TRUCKS



FURNISHED  
WITH OR WITHOUT  
TONGUE TRUCKS

### It is the Only Real Flexible Harrow

PROGRESSIVE Farmers know how much more satisfactory our Model "B" Disc Harrow does its work of pulverizing the soil evenly—without skipping rough places in the "middle"—because our Third Lever With Spring Pressure Yoke and controlled draw bars enables you to govern your discs. They can't push up in the centre, as with ordinary machines. You pull the lever and it locks automatically with discs working through dead furrows or over ridges, always cultivating thoroughly. Special features besides superior malleable iron parts and extra durable construction are: Easy, Double-Spring Seat—High Frame out of dust—Adjustable Disc Scrapers—Lighter Draft, etc.

A STRONG, substantial two-lever harrow, slightly lighter than Model "B," but having many of its points of superiority. The Frame is made from a single piece of heavy steel. The frame bars, crossbars and braces are all steel, very securely riveted and bolted together. The Scrapers are of the improved oscillating style, and can be easily removed or replaced. Hard Maple oil-soaked bearings are used on this harrow. Disc Blades are made of the very best quality steel, thoroughly polished and sharpened. Double Angling Levers on this harrow ensure a convenient machine for lapping lands and for hillside work.

Both of the above styles of Disc Harrows are excellent tools to pull behind a John Deere Engine Gang

# Brockville Vehicles

The Wrought Iron Line

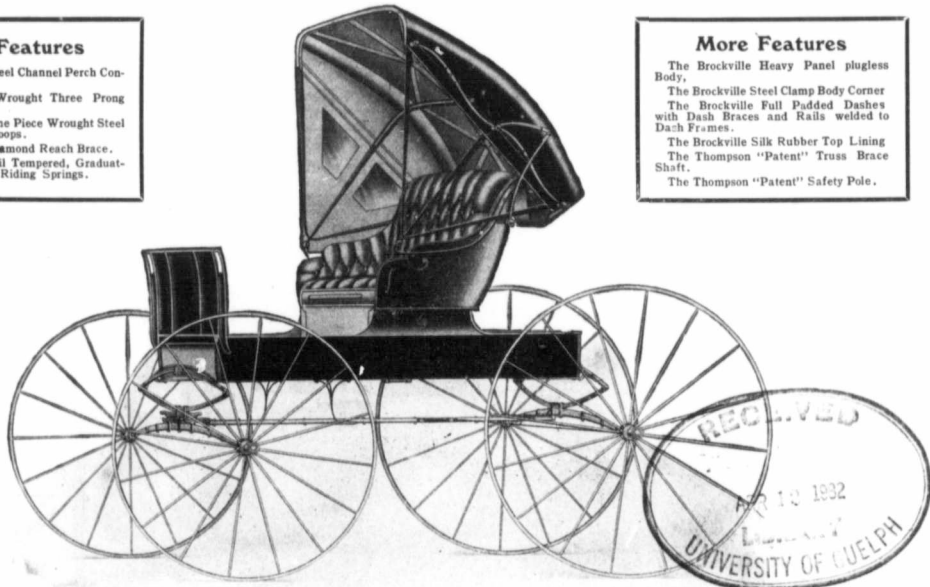
The Brockville Wrought Iron Line embodies more special features and strong points than any other line of Vehicle offered to the Canadian Farmer

### Some Features

- The Brockville Steel Channel Perch Construction.
- The Brockville Wrought Three Prong 12 Inch Circle.
- The Brockville One Piece Wrought Steel Continuous Body Loops.
- The Brockville Diamond Reach Brace.
- The Brockville Oil Tempered, Graduated Cast Steel Easy Riding Springs.

### More Features

- The Brockville Heavy Panel plugless Body.
- The Brockville Steel Clamp Body Corner.
- The Brockville Full Padded Dashes with Dash Braces and Rails welded to Dash Frames.
- The Brockville Silk Rubber Top Lining.
- The Thompson "Patent" Truss Brace Shaft.
- The Thompson "Patent" Safety Pole.



No. 548 "BROCKVILLE AUTO SEAT AND TOP."

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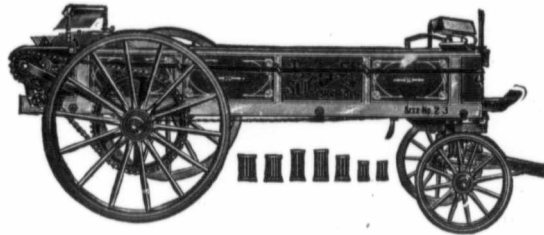
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# The Success Manure Spreader

## TAKES ANOTHER STEP IN ADVANCE

Seven Sets of Roller-Bearings settle the matter.



Frame Made Entirely of Hard Wood — Not Pine



My Boss has the SUCCESS Spreader"

FOR many years the "SUCCESS" has been considered the typical manure spreader. It was first in the field. It had choice of necessary features. It tested and proved and patented for its own exclusive use all of the worthiest devices. And now it takes another step—a most important step—in advance of all other spreaders.

By its equipment with seven sets of roller-bearings—one set in each wheel, one at each end of spreading cylinder and one in cylinder driving mechanism—there is no question but that the Success

### Runs a Horse Lighter than any other Spreader

All 1911 "SUCCESS SPREADERS" will be equipped with these roller-bearings. It is a feature we have been working on for years and its value to spreader users cannot be over estimated. The cold-rolled steel roller-bearings at the same time

### Save the Horses and Save the Machine

The roller-bearings do away with all friction and wear in the working parts; they lessen the shocks and strains from driving over rough, uneven ground; the entire machinery runs with less power, consequently with less breakage; they cause the Spreader to run almost as smoothly and evenly as a stationary machine.

WRITE FOR CATALOGUE



"My Boss has the other fellers"

# NEW DEAL WAGON

## New-Deal Wagon

Is made of air-seasoned lumber.

Is equipped with double collar skein.

Skeins are dust-proof, therefore will hold grease longer and run easier than others.

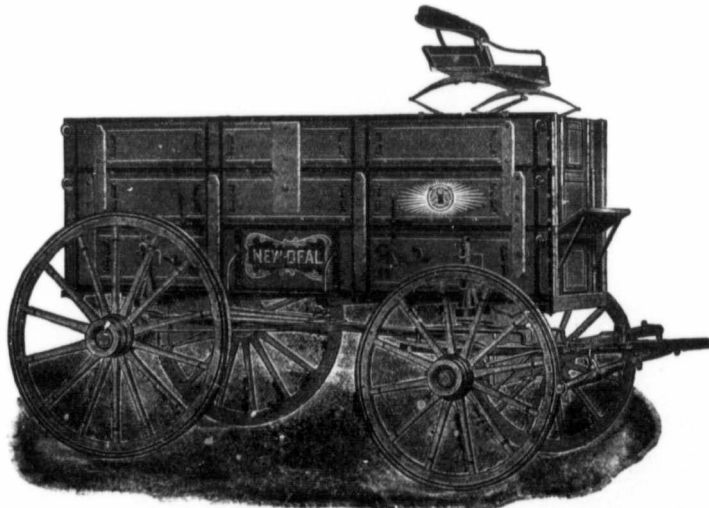
Skeins are heavier; bell is longer and larger, taking more axle.

Has riveted grain cleats (not nailed or screwed).

Bottom of box is reinforced both front and rear.

Has clipped gear, both front and rear.

Box is made flax tight



## New-Deal Wagon

Spring seat with 3-leaf springs (not single leaf).

Steel bolster stake plates on side of box.

Neck yoke 48 in. long (not 42 in.)

Has trussed tongue, cannot break or warp.

Has channel iron reach really indestructible.

Is extra well painted, striped and finished

Possesses a great many distinctive features of merit.

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**Hillcrest  
Steam Coal  
Will Plow  
More Land  
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Per Ton  
Than Any  
Other Coal.  
Try It  
Next Time  
You Need  
Coal!**

**Hillcrest Collieries,  
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HILLCREST, ALTA.**



**Don't Forget  
This is the  
Last Month  
to Get That  
Renewal In  
on Our Big  
WHEAT  
GUESSING  
CONTEST.  
Neglect May  
Cost You  
a \$1,200.00  
Automobile.**



**To the Threshermen of Canada.**

TALK No. 4

**W**HEN we first began these little talks to the Thresherman of Canada we had no idea of continuing them, but we have heard so many favorable comments, and we have enjoyed them so immensely, that we have decided to make them a feature of this publication.

The editor is dictating the manuscript for this article with what is known as a Business Phonograph. It is a machine very similar to the ordinary phonograph. The human voice is recorded on a rubber roll and this in turn is reproduced to the stenographer, who transmits it to her typewriter keys, and from them to the printed paper. It is a modern invention, it is a time saver. Its installation has given us an idea that we might say a few words this month to the Threshermen of Canada upon the modern attachments that have been provided for his use.

In the old days it was largely a problem of getting the work done no matter what sort of machinery. In this day and generation it is not so much a problem of getting it done as it is to get it done quickly and in the most efficient manner. In the old days the cradle and flail did the work. Next came the low down horse power and the separator that no company at the present time would care to be called the manufacturer of. Next we had the portable engine and it was a wonder in its way, together with the crude separator. Then came the crowning glory of all—the modern steam engine with sufficient power to drive a 40 or 44 inch separator complete with band cutter, self feeder, and wind stacker.

The new attachments that were provided from time to time for grain separators were not always received by the threshermen with the greatest amount of enthusiasm. When the self feeder was first introduced it was looked upon as something that was gotten out by the manufacturer to release the thresherman of his hard earned money, and not as something that would add materially to the efficiency of his threshing outfit. True it is that the first self feeders that were placed upon the market were anything but perfect. They gave a large amount of trouble and did not always feed the separator without plugging the cylinder. The manufacturer, however, with the aid of inventive genius, did not allow the matter to rest here, and it was not long before a self feeder was produced that would feed a cylinder without slugging it, and, at the same time, would put through all the grain that it was possible to get to the machine in a reasonable length of time. To-day you will travel a long way before you will find the threshing outfit that does not have a separator equipped with the modern self feeder.

The same thing was true of the wind stacker. It was unfortunate that it was introduced at first into localities where the farmers were desirous of saving their straw. The wind stacker is not noted as a straw saver but rather as an apparatus to get rid of the straw. The result was that it had to introduce itself under extreme difficulty and the thresherman who purchased one at first

felt that he had been handed more or less of a gold brick.

The next notable attachment to be introduced for the benefit of the thresherman was the high tagger and the weigher. This machine met with considerable more success than its predecessors, owing to the fact that the farmer believed that with such an apparatus he was getting a much squarer deal than under the old system of handling the grain from the machine.

Numerous other labor saving and money spending devices have been introduced from time to time, but they are all of minor importance as compared with the three above mentioned. They have all, however, contributed to the labor saving portion of a threshing outfit and in return they have cost the thresherman a considerable amount of money. It is right at this point that we want to say a few words to the thresherman of Canada as we feel that the time is now opportune because of the fact that the threshermen are just beginning to seriously consider their 1911 wants.

As we stated above, all these attachments have cost the thresherman money and the question is how much have you gotten out of them. The self feeder cost you in the neighborhood of \$325.00. The wind stacker cost you about \$250.00 and the high bagger approximately \$125.00.

It is true that you can increase the speed of your threshing outfit with these attachments but at the same time can you increase it enough to make up for the amount of money that you have put into them. You certainly have increased your cost of production in so far as expense of your threshing outfit is concerned and in fairness to yourself you must increase the product of the threshing outfit in order to make up for this expense.

Do you get any more in proportion than you used to with the old horse power outfit? Do you thresh any more per day in proportion to the number of men, teams and increased expense that you have provided? Unless you do we believe that you will agree with us when we say that your game is a losing one. You make it possible for the farmer to have his job threshed in a much shorter time than formerly, thus reducing the cost of the farmer's unthreshed grain to a minimum. You make it possible for the farmer to load his cars direct from the threshing machine, thus affecting a considerable saving of time to him and putting him in a position where he can demand a higher price for his grain.

All of this increased efficiency demands a higher price. The farmer is getting the service and it is up to him to pay for it. The modern outfit threshes cleaner, threshes faster, threshes quicker; consequently it makes more money for the farmer. The average threshing outfit in a neighborhood is an indispensable thing, for without it, it would be impossible to harvest the crop. Just figure the matter out for yourself; figure out what it has cost you for your outfit; figure out the probable number of bushels per day, the cost of running your outfit, and then see just what you have got to charge per bushel in order to take care of interest, depreciation, wear and tear, etc. Think it over; in fact, talk it over with your customers. They are business men, and will appreciate a good fair statement.



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Why not make yourself an Expert Engine Operator?

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teaches you by mail. A school for the beginner as well as the experienced engineer. The Lessons are easily and quickly mastered, and make very interesting, fascinating study.

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The School is conducted under the auspices of The Canadian Thresherman and Farmer, which publication guarantees its reliability and power to develop practical engineers.

Let us send you our free booklet explaining the Heath system in detail and with reduced drawings of some of the plates. Simply fill out coupon below and send to

**E. H. Heath Co.  
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Gentlemen: Please send, without cost to me, one copy of the booklet fully describing The Heath School of Traction Engineering (by correspondence).

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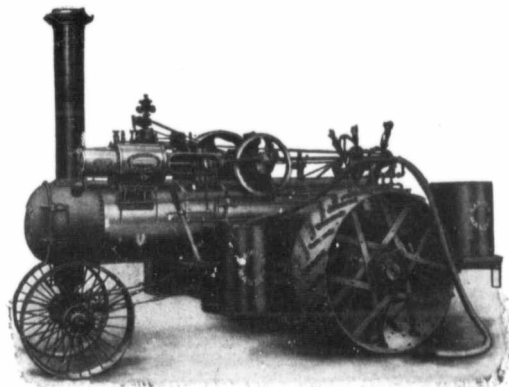
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# Who Would Not be Surprised at What we Can Do?

LISTEN!

We are Sawyer-Massey's 1911 Improved Steam Engine and Separator

We can earn you money and a whole lot of it

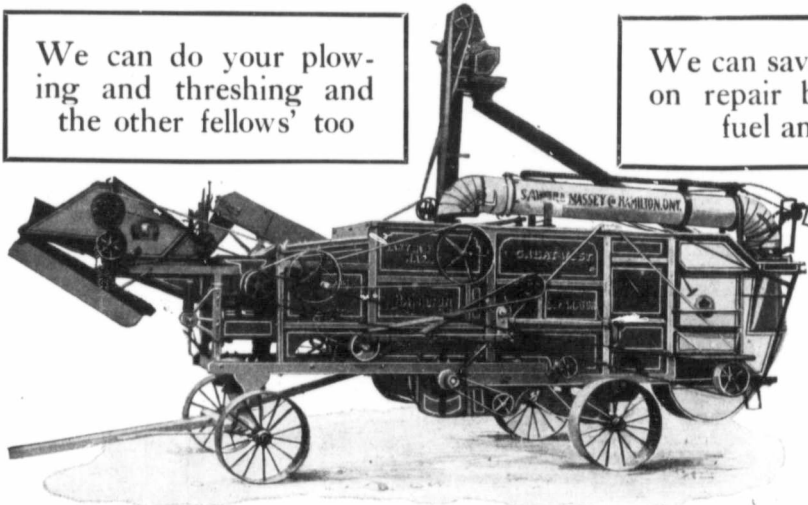


We can make you the most popular plowman and thresherman in your district

"I am Built in 5 Sizes: 22, 25, 27, 30 and 32 h.p."

We can do your plowing and threshing and the other fellows' too

We can save you money on repair bills, and for fuel and water



"I am the Great West, Built in 7 Sizes"

We Can Make You Happy, Contented, Prosperous, and Successful, Just Like the Many Satisfied Owners Who Loudly Sing Our Praises in the "Thresher's Song" Presented Herewith

We find it pays in our best days,  
A good line of machines to test,  
And we now know, and tell you so,  
SAWYER-MASSEY Goods run best.

The engines are right, the boilers tight,  
The threshers well built and classy,  
Wherever you go you are sure of a show,  
If you use a SAWYER-MASSEY.

Chorus: The S-M LINE, THE S-M LINE,  
An all Canadian endeavor,  
We surely are proud and say it out loud  
SAWYER-MASSEY goods live forever.

Tune: The Maple Leaf Forever (with apologies to the author).

# SAWYER-MASSEY CO.

Winnipeg, Man.

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The Largest Engine, Thresher and Road Machinery Manufacturers in Canada



A MAGAZINE FOR THE FARM AND HOME

THE CANADIAN THRESHERMAN AND FARMER

Vol. XVI.

WINNIPEG, CANADA, JUNE, 1911.

No. 6.

The Culture of Alfalfa in Saskatchewan

By JOHN BRACKEN.

History.

Alfalfa is one of the oldest cultivated forage crops known to man. It was domesticated in Central Asia many years before the Christian era; was grown by the ancient Persians and later the Grecians, from whom it was obtained by the Romans; it spread to France and Spain and northern Europe and from these sources it was first introduced to America. From Spain it was carried, following the Spanish invasion of South America, into Mexico, Peru and Chili, and eventually reached the south-western part of the United States, from whence it spread rapidly throughout all the Western States.

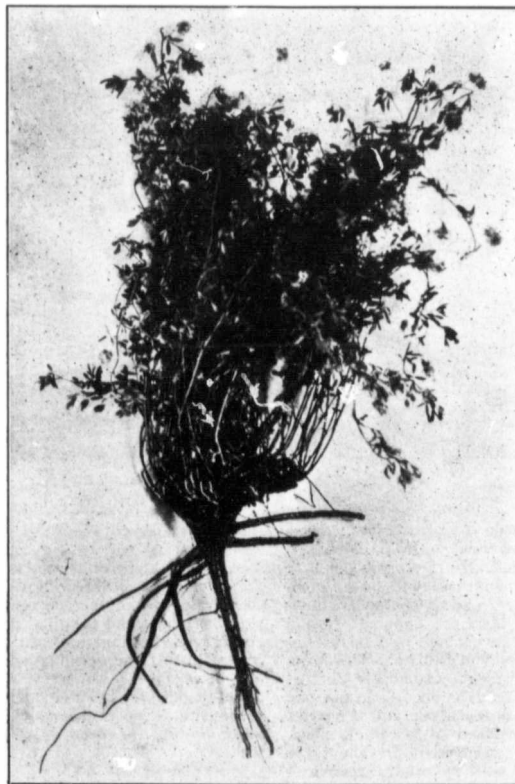
Alfalfa, or lucerne as it was first called, was brought to the eastern portions of America by the settlers from north-eastern Europe. Its culture in the east, however, was not so successful as in the West, where, on account of its adaptability to dry conditions as well as to irrigation, the crop became very popular. It is now considered by far the most valuable forage crop in the corn belt as well as in the semi-arid plains and the irrigated regions of the Western States.

Previous to 1904 it was almost unknown in Saskatchewan. At that time arrangements were made to investigate its possibilities at the Experiment Farm at Indian Head. The results of this investigation may be seen on another page. At about the same time the Provincial Department of Agriculture commenced the distribution of alfalfa through the co-operation of agricultural societies. These efforts mark the beginnings of alfalfa culture in Saskatchewan and already it has shown its power to yield well under conditions of drought and to withstand our cold winters better than any other biennial or perennial legume. What its ultimate place will be in Western

Canadian agriculture cannot at present be definitely stated, but even now it promises more as a forage crop than any other that has yet been used and we are of

Suitable Soils.

Alfalfa thrives on a great variety of soils, but like other crops it is more suited to some soils than to others. It will not do



The Alfalfa Plant Fully Developed.

the opinion that as a soil improver it will be found, as the practice of agriculture in the West grows older, to be of almost inestimable value.

well on either acid or alkali soils. In Western Canada there is very little acid soil but considerable alkali land. For success with alfalfa the latter should be avoided

as far as possible. Soils on which the water lies for a portion of the season are also objectionable, since the alfalfa on such will be found to be partially or completely killed out after the water leaves. The above are the three soil conditions to be avoided in alfalfa production. Alfalfa will grow and do well on sands, loams and clays, but the general experience has been that a well-drained loam will give better satisfaction than any of the others. For success it is not so much a question of kind of soil as it is of tilth and freedom from weeds. On account of its long tap root alfalfa requires a subsoil that is well drained and permeable. Most wheat soils, whether they be sand, loam or clay, will be found satisfactory if the surface is in good condition and the sub-surface free from "hard pan" and free water. While it is wise that low lying alkali or wet lands should be avoided, we do not mean to say that the highest elevations are necessarily the best. Bench lands, which are far enough above the high water level of streams to be free from alkali and free from the danger of flooding are often found to give better returns than either of the other extremes, since such benches frequently furnish opportunity for an abundant supply of water from below without the danger of flooding. Most upland prairie in Saskatchewan will be found suitable for this crop if put into right conditions by tillage.

Soil Preparation for Alfalfa.

Alfalfa should be sown on land that has been in summer-fallow or hoed crops the year previous. Some fairly satisfactory stands have been secured in Saskatchewan from sowing on fall and spring plowed stubble, but this plan cannot be recommended for general practice in all parts of the province. On land prepared in

this way there is, under average conditions, very little moisture and plenty of weeds and both of these conditions tend to prevent the crop establishing itself sufficiently well to withstand the adverse conditions of dry summer and cold winters that must follow. Even now land which has been broken and backset is not entirely suitable. Native grasses are almost sure to be present and the young alfalfa can make but a poor showing against them. Those perennial grasses having underground stems should be thoroughly killed out and new land at best will not be absolutely free from these. The seed of alfalfa is costly and the crop, if a proper stand is secured, will remain so long that a man is justified in taking time to prepare the soil thoroughly. The most favorable conditions of heat, air and moisture are necessary for best germination. The soil should be so tilled as to secure these conditions as near the surface as possible without permitting too great loss of moisture by evaporation. If the soil is so loose that the moisture does not come near the surface, it should be very firmly packed so as to facilitate its rise. If, on the other hand, the soil is firm to the top, it should be surface cultivated so as to form a mulch and thereby lessen evaporation. It should be the object of the cultivation to bring the moisture to within about an inch of the surface. This condition may be secured in a firm, rich, mellow seed bed following fallow or hoed crops. In light soils deeper sowing and in heavy soils shallower sowing should be the rule.

**Varieties.**

The strains that have proven most hardy in the Canadian west are Grimm's and Turkestan, but in discussing varieties or strains or types of alfalfa it is well to keep in mind that as yet our experience with these is very limited and others may be found which will equal or surpass the ones now known to be successful. Those most suitable for us in Western Canada are the ones which have been grown under relatively dry and cold conditions for a long time. The strain known as "Grimm's" is perhaps the hardiest that has yet been introduced into the West. It has been grown for some fifty years in northern Minnesota and is, therefore, thoroughly acclimatized and well suited to our conditions. The "Turkestan" alfalfa is not quite so hardy. When ordering this variety it is well to remember that Turkestan is a large country having very cold, as well as mild climatic conditions within its borders, and that seed produced in the warmer parts will not give as hardy plants under our conditions as that produced in the colder regions. This fact should also be kept in mind when ordering American grown Turkestan, or any other variety for that matter. Next to the two varieties mentioned, the strains of common alfalfa which have been grown in

northern climates are found to be most successful here. Saskatchewan growers should satisfy themselves that the seed they purpose to sow has been harvested from crops that have been grown under extreme conditions of dry weather and cold winters for a number of years. In other words, locally grown seed, or seed which has been produced in the adjoining provinces or states, is to be preferred to that produced under less trying conditions than are found here.

**Selection of Seed.**

There are two dangers that should be avoided as far as possible when purchasing alfalfa seed. The first is the presence of noxious weeds; and the second

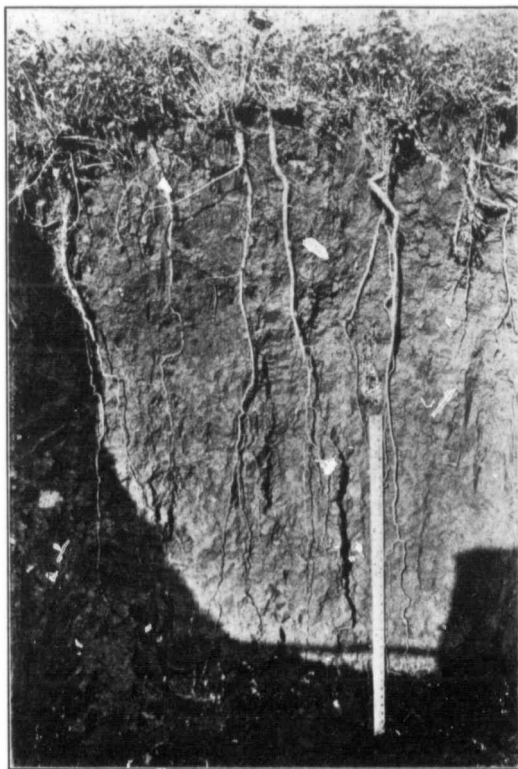
Adulterations, while not frequently found, are occasionally met with and growers should be on their guard for this trouble. Yellow tree foil and bur clover are two of the most common adulterants used.

The vitality of alfalfa seed is often variable and should be tested before the seed is sown. A simple method for testing the germination power is to take an ordinary dinner plate and place in it a moistened blotter of about equal size. On this count out 100 seeds and lay over these another moistened blotter, covering the whole with another inverted dinner plate. Pains should be taken to keep the blotters moist and to see that the plates are left in a room about the

recommended. The smaller amount is sufficient when the seeds are all viable and every condition of soil and season satisfactory. As the most favorable conditions for growth are departed from, the amount of seed to be sown should be increased. Under the conditions that prevail in Saskatchewan it has been found that the best time to sow is just prior to the rainy season, or some time between the middle of May and the middle of June as a general rule. Given good seed, well prepared soil, and a rainy season following the sowing, there should be no difficulty in securing a good stand of alfalfa.

**Seeding.**

There are many different ways of seeding alfalfa, each of which, under certain conditions, has merits of its own. On the University farm we have secured very satisfactory results from seeding with a grain drill. To sow in this way it is necessary that the seed be increased in bulk by mixing with it ground barley or wheat, or even sifted soil, in order to bring it to such bulk that it will pass through the drill at a sufficiently slow rate. If the drill is set to sow three-quarters of a bushel of flax per acre and it is proposed to use 15 pounds of alfalfa per acre, then each 15 pounds of alfalfa should be increased in bulk to slightly more than three quarters of a bushel by using some material such as soil or ground barley. Two things to be avoided when sowing with the grain drill are sowing too deep and an uneven distribution of the seed. The first may be overcome by packing the soil very thoroughly immediately prior to seeding, and then removing the pressure from the drill so that it will sow as shallow as possible. By packing the soil thoroughly before seeding we put it in such condition that the moisture is brought quite near the surface and then by removing the pressure from the drills we place the seed as near as we can about one inch below the top of the soil. An even distribution of the seed is secured by having the particles of the bulk material of a uniform size, as near the size and shape of the alfalfa seed as possible. After thorough mixing good results are secured when ordinary intelligence is used in seeding. For two years this has given us a very thick stand when using 18 or 20 pounds of seed per acre, and in future it is our intention to sow only 15 pounds per acre under the same conditions. This method permits the sowing of inoculated soil with the seed, thus insuring better and quicker inoculation. The use of soil in the drill is objectionable to the extent of the wearing and cutting of the iron in the feed boxes by particles of sand. The use of a seeder having a grass seed attachment will be found to have all the advantages of the former method and lacks some of its disadvantages. Where neither of these methods are available, the seed may be sown with an



Showing the Deep Rooting Qualities of Alfalfa.

poor quality in the seed itself. The seed is so small that it takes approximately 200,000 to weigh a pound. If 15 pounds per acre is shown there will be approximately 75 seeds per square foot. It is therefore apparent that a small percentage of noxious impurities will badly infest a farm. The presence of one per cent. of weed seeds is enough to put one weed on each one and a quarter square feet of a whole field. Many weed seeds are about the same size as alfalfa seed and therefore difficult to remove except with the most up-to-date machinery. Plantain, dodder, dock, Cinquefoil, Rocket salad (eruca sativa), lambsquarters, Russian thistle, and wild carrot are frequently found in large numbers.

average temperature of a living room. In four days most of the stronger seeds will have germinated, and in eight or ten days all the viable seeds will have sprouted. From this the percentage of vigorous seeds and the total percentage of germination can be computed. If the germination is low or weak the sample should either be discarded or the amount sown per acre increased enough to make up for the dead or weak seeds.

**Amount to Sow**

The amount to sow will depend upon the viability or germination power of the seed itself, the condition of the soil with respect to moisture and tilth, and the method of sowing. From 10 to 20 pounds per acre is usually

ordinary wheel-barrow grass seeder and then harrowed in. With this method more seed should be sown per acre than with either of the others, since many of the seeds will rest in the dry surface soil and not germinate. Drilling the seed in has the advantage of putting it where it is most likely to grow and where a wind storm cannot blow it away, a result that sometimes follows the broadcast method. A "nurse crop" should not be used in starting alfalfa, except in special circumstances such as light soil which is inclined to drift. A light seeding of oats may be of assistance in holding the soil until the alfalfa has started. It should then be clipped off. A "nurse crop" in semi-arid regions is a "thief crop" in the disguise of a name that even in humid countries it merited none too well.

**Inoculation.**

Alfalfa, being a leguminous crop, has the power through the aid of minute organisms living in the soil, to take hold of the nitrogen of the air which is not otherwise available to plants and store it in the nodules on its roots in compounds that on decay often leave the soil richer in nitrogen than before the crop was grown. The alfalfa alone has not this power any more than wheat has, but requires the co-operation of the alfalfa bacteria. They furnish the alfalfa with such supplies of nitrogen as it cannot get from the soil, in turn receiving other food from alfalfa for their own growth. By this co-operation nitrogen is constantly being stored in the alfalfa roots which on decay leave the soil rich in this important fertilizing element. Alfalfa bacteria are not present in all soils, and when not present alfalfa has been found to be less thrifty and less productive for the simple reason that the available soil nitrogen is usually not sufficient for the needs of a large crop. In poor soils this is particularly true. Highly nitrogenous soils need inoculation less promptly than those poor in nitrogen, since the alfalfa can for a time at least secure the nitrogen needed from the soil itself without requiring to draw upon the supply in the air. Quite often very little difference can be observed between inoculated and uninoculated areas the first year, but, except on treated land the second and later years invariably show a great difference in favor of the former. In poor soil noticeable differences may be observed even the first year. It cannot be learned except by trial what soils in Saskatchewan possess these bacteria, but in practice it has been found that in a district where alfalfa has not been successfully grown, it is a wise policy to inoculate the seed or the soil. This may be done by using either a pure culture or inoculated soil from a healthy alfalfa field. Practice has demonstrated that the latter plan is more successful on the whole than the former.

The soil may either be sown broadcast over the field or mixed with the seed and sown with it. The inoculated soil should not be allowed to dry out completely and it should not be left in a hot sun for too long a period before using. Best results will be secured if the inoculated soil is placed in the ground with the seed, since contact with the plant roots is at once assured and the multiplication of the bacteria under these favorable conditions will be more rapid. If sown on the surface, the soil should be immediately harrowed in before the sun dries it out or the winds blow it away. After a good stand of alfalfa has once been secured on a small area, soil from this may be used to inoculate other larger areas. As the crop becomes more general in a locality the need for soil inoculation will become less, since the winds and ordinary traffic will carry the bacteria from place to place and sooner or later reach most of the

fields. It is quite possible that bacteria may be carried on the seed itself and in time inoculate small spots here and there in a field. Indeed, this is the only explanation that can be offered for the presence of nodules on plants in certain areas. While such is possible it is obviously unwise to risk the chance of slow uneven inoculation from this source, so that for the present at least, the man who inoculates his fields in the ordinary way when starting to grow alfalfa will be found to be playing the part of wisdom. Pure cultures, as prepared by private or public institutions, are often wholly satisfactory, but in the co-operative experiments carried on during the past five years by the Saskatchewan Department of Agriculture, inoculated soil was found to give better results on the whole. The table following gives the result of some trials with and without inoculation:

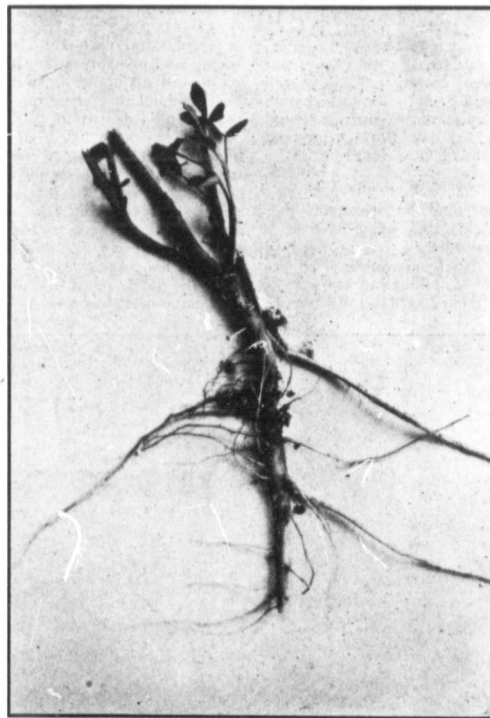
later time. It has been found best to clip off the growth once or sometimes twice during the first summer, the objects being to prevent weeds from seeding, to form a mulch, and to prevent the young plants forming seed, which process lessens their vitality and renders them less able to withstand the hard winter and dry spring following. In clipping, care should be taken to raise the mower bar so that no injury to the crowns of the young plants may result. Clipping may be done when the plants are from 5 to 8 inches high and the tops should be left on the ground to form a mulch, unless found to be so thick that the plants underneath will be smothered. In deciding when and how often to clip it should be borne in mind that the plants should go into the winter at from 6 to 12 inches in height.

The illustrations show two portions of the same field. One of these went into the winter with a stand of about 15 inches high, the other having been cut to the ground early in September after which only a very short growth resulted. The former came through the winter in perfect condition—the tops were dead, but new growth from the crowns came on quickly and by the last of June covered the ground thickly with a crop 24 inches high. The other appeared to be all dead in the spring, but after the June rains it was found to still contain life, new lateral shoots arising from the roots 2 or 3 inches below the surface of the soil. This portion of the field, however, produced no crop that year and was found to be too thin to let stand, so arrangements were made for reseeding. The tops held the snow, which prevented excessively deep freezing, and in the spring the deep snow covering remained later, thus helping the crop over the period of cold nights and dry winds, at the same time providing more moisture for its use.

Under special circumstances it may be found advisable to harrow the field just after the plants are up. It occasionally happens, although not often on soils in good physical condition, that a rain will pack our heavy soils so hard that the tiny plants have difficulty in making their way through the later formed crust to the surface. Besides this physical difficulty, evaporation is hastened. Under such circumstances a careful harrowing with a light harrow having the teeth well slanted back, will be found very beneficial. Stock should not be allowed to pasture the alfalfa the first year it is sown. Besides the danger of too close pasturing, the fields become cut up and the young plants more or less injured.

**Harvesting and Curing.**

In harvesting alfalfa three things should be remembered: First, that its feeding value is greatest if cut just after blooming has commenced; second, that the leaves which fall off with the



Alfalfa Root and Plantlet.

**ALFALFA**

**Inoculation Vs. No Inoculation**

Treatment	Date sown	Date harvested	Yield per acre	1st cutting		2nd cutting		Total		Where grown
				Tons	lbs.	Tons	lbs.	Tons	lbs.	
Inoculated	1907	1908	2	160	1	1040	3	1200		Lacombe
Not inoculated	1907	1908		1900		560	1	520		Lacombe
Inoculated	1908	1909	2	856		954	2	1810		Lethbridge
Not inoculated	1908	1909	1	1499		488	1	1987		Lethbridge

**First Year Treatment.**

It is not advisable to take a crop from the field the first year of its growth, even if the season is such that a good crop is produced. Alfalfa is a perennial—that is, it grows year after year from the same root without re-

seeding. One can, therefore, afford to give it the best possible start in life, particularly so since the first year is the most critical time in its history. During that year the hot winds, the weeds and the cold winter will each exact a greater toll than at any



slightest provocation when dry, contain by far the most valuable part of the crop; and third, that rains not only discolor and make less palatable and digestible the whole crop, but at the same time remove in solution much of the nutritious portion of the fodder.

The crop should not be cut while wet nor when dew lies upon it. After 10 per cent. or thereabouts of the plants are in bloom, cutting should commence. It has been observed that if cut later than this, the second crop is reduced in yield over what it would otherwise have been, due no doubt to the clipping back of the new sprouts which ordinarily appear at this time. Since quick drying in the sun makes the leaves brittle and causes them to break off easily, it has been found advisable to rake shortly after cutting and cure it in the cock. If left in the winrow the outer layers become dry and brittle, causing great loss of leaves and deterioration in quality. This is better than leaving it in the swath, but not so good as curing in the cock. The latter takes more time and labor than when cured in the swath or winrow, but always gives a much superior quality of hay. It is often advisable to turn the cocks over a few hours before stacking or drawing to the barn in order to dry out the lower layer next the ground. The practice of curing in cocks may have some disadvantages in exposed locations in windy weather, but when the alfalfa is raked before too dry, it will be found to settle down well and except in the heaviest winds give very little trouble. Under no circumstances should damp alfalfa be placed in the cock. Green alfalfa will cure in the cock if there is no dew or moisture on the outside of the stems and leaves.

Another method of curing that has proven successful is to store the alfalfa in sheds the same day it is cut. This plan requires that sheds be built in such a way that the alfalfa does not rest upon the floor nor upon the ground, but sufficiently far up to allow of a good circulation of air underneath. The alfalfa that is cut in the morning is drawn in the afternoon of the same day and spread out to a depth of three or four feet over the shed floor. It must not be tramped, but should be spread as loosely and evenly as possible. The next day another layer may be added and so on till the shed is filled. In this method some precautions are necessary. Among these the most important is to be sure no alfalfa having dew or moisture on it is put in the shed, otherwise molds will result. Nor should any packing of the green alfalfa in the mow be allowed. This retards the passage of air up through the hay, without which molds develop and improper curing and poor quality results. This plan will require a little experimenting on the part of farmers before being used extensively, but it will be found, when thoroughly understood, to give a better quality of hay than any other.

It is doubtful if on the average it will pay Saskatchewan farmers to cut alfalfa more than twice a year. Under normal conditions of precipitation and good treatment two cuttings should be expected, in all save the dryer portions of the province. In a very dry season it may be found advisable to remove but one crop, in view of the necessity of sending the field into the winter with a good growth covering the ground. On the other hand, in those portions of the province where rainfall is

conditions the same large yields that are secured in humid areas must not be expected. It is well that we remind ourselves of this fact at the beginning, since reports from other lands may have caused us to expect the impossible from this crop. Given a good stand of alfalfa free from grass and weeds, the yield will be in proportion to the moisture stored and conserved. How we shall make the best use of the precipitation has yet to be worked out. Harrowing and light cultivation with the disc

When animals other than the ruminants become accustomed to it and are not allowed to gorge themselves after being absent from the crop some length of time, very little trouble is likely to occur. Pigs do well on alfalfa pasture but may injure the stand if allowed to eat it too close.

Cattle and sheep should never be turned on alfalfa pasture when it is wet with dew or rain. When turning them on for the first time or after they have been on other pasture for a time care should be taken that they have a good fill of old grass or hay. This will prevent their eating too much. The greener and more juicy the crop the greater is the danger of "bloating." When cattle and sheep are allowed the run of alfalfa pasture they should have access to a grass pasture as well. They will then feed from one to the other, and this is thought to lessen the probability of bloating. Mixtures of alfalfa and some other grass such as Western rye, brome and timothy make a good pasture. But the crop will be found to have its greatest value as cured hay or as a soiling crop.

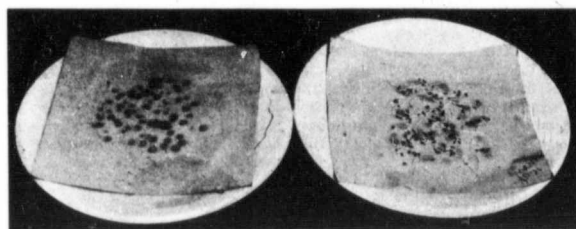
**Yields.**

The tables following give the yields from a few of the varieties of alfalfa that have been tried at western experimental farms. They will also serve to compare the yields of alfalfa with some of the other hay crops as grown separately and in mixtures on the same farms. These tables are taken from the last four reports of the Dominion experimental farms. The yields secured may be larger than the average farmer will get, but they are not larger than he may produce.

\*See page 11 for table.

**Summary.**

1. The history of alfalfa proves it to be a valuable forage crop, one suited to dry conditions, and adaptable to cold climates.
2. It thrives on all normal soils, but dislikes alkali and acid soils, "wet feet" and "hard pan."
3. Summerfallow or a hoed crop should precede alfalfa as a general rule.
4. The "Grimm" and "Turkistan" strains have proven to be the hardest in the tests that have so far been made.
5. In selecting seed two things to be avoided are noxious impurities and seed of low viability.
6. Sow from 10 to 20 pounds per acre, depending upon viability of seed, condition of soil and method of sowing.
7. Drilling the seed is preferred to broadcasting. If a grass seed attachment for drill cannot be secured use ordinary grain drill with precautions.
8. Inoculate with soil in preference to commercial "pure culture." But inoculate.
9. Don't take a crop the first year but "clip" once or twice and leave a good growth in fall.
10. Cut just after blooming commences, save the leaves and cure in cocks.
11. Experience in other lands teaches that surface cultivation



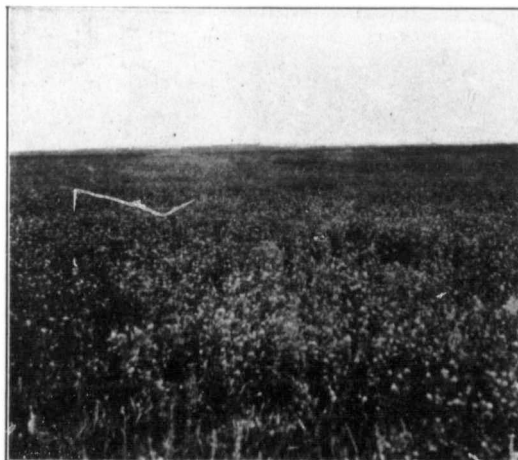
A Method of Testing Alfalfa Seed.

greatest, it may be possible in exceptional seasons to take three cuttings. In any case, it is well to leave a growth of 6 to 10 inches in the fall, and the cuttings should be regulated both in time and number to insure this result.

**Later Treatment of Alfalfa Fields.**

Concerning the treatment of alfalfa fields after they have been once established, we, on account of our brief experience with the crop in Saskatchewan know very little from actual observance.

or the alfalfa renovator in the spring and possibly after the first crop, will no doubt be found to be beneficial in conserving moisture and destroying foreign growth, just as it has been found beneficial in those older countries where alfalfa has been most successful. It must be our aim to get the moisture that falls as rain and snow into the land and then keep it there for the use of the crop. This means that we must keep the surface soil in condition to receive moisture and, as far as



Looks Pretty Doesn't it? It is More Profitable Than it Looks.

While there are many small plots throughout every section of the province, there are very few fields, and these have been so recently laid down that little opportunity has been given to study different methods of management upon them. It is our opinion, however, that the yield, the greatest factor in determining the success or non-success of any crop, will be increased or kept up just in proportion to the amount of moisture we are enabled to store and conserve in the soil. Under dry con-

ditions possible, with a crop on the land, endeavor to maintain a mulch to prevent evaporation.

**Hints on Pasturing.**

Pasturing alfalfa tends to shorten the life of the crop. It should never be pastured the first year and never closely at any time, as the crowns of the plants may be injured by this practice and the crop spoiled. Pasturing is also attended with some risk to the animals, particularly to the ruminants—cattle and sheep.



with harrow, disc or "renovator" is advisable. We expect to find it so in Saskatchewan.

12. Alfalfa yields more than any other hay crop we have yet found in Saskatchewan.



Alfalfa requires careful handling after cutting.

INDIAN HEAD

Variety	Year sown	Year harvested	1st cutting yield	2nd cutting per acre	Total yield per acre	Remarks
			tons	lbs.	tons lbs.	
Western Rye Grass	1901	1906			2 1400	
Western Rye Grass	1905	1906			1 1840	
Awnless Brome Grass	1900	1906			0 1745	
Awnless Brome	1900	1906			0 1100	
Awnless Brome	1899	1906			1 1000	
Timothy	1905	1906			1 1500	
Meadow	1904	1906			1 940	
Turkestan alfalfa	1904	1906	0	1800	0 1940	1 1740
Common alfalfa	1904	1906	0	960	0 1020	0 1980
Common alfalfa	1905	1906	cut for weeds	0	1370	0 1370
Common alfalfa	1905	1906	0	1620	1 756	2 376
Minnesota (Grimm)	1905	1906	2	180	1 930	3 1110
New York	1905	1906	cut for weeds	1	500	1 500
Samarkland	1905	1906	cut for weeds	1	560	1 560
Nebraska	1905	1906	cut for weeds	1	450	1 450
Western Rye	1901	1907			2 1000	
Western Rye	1905	1907			1 604	
Western Rye	1906	1907	Fall '06	1/4 ton hay per acre	4 308	(root ground manured)
Western Rye grass and Red Clover	1906	1907	Fall '06	1/2 ton hay per acre	2 360	(oat stubble—spring plowed)
Red Clover	1906	1907	Fall '06	1/2 ton hay per acre	1 752	oat stubble—spring plowed)
Awnless Brome Grass	1899	1907			1 1620	(renewed by shallow plowing 1904)
Turkestan alfalfa	1904	1907			1 1163	
Common alfalfa	1904	1907			1 1520	
Common alfalfa	1905	1907			1 470	
Common alfalfa	1905	1907			1 1900	
Minnesota (Grimm)	1905	1907				Threshed for seed
New York	1905	1907			3	
Samarkland	1905	1907			3 143	
Nebraska	1905	1907			2 472	
Western Rye grass	1906	1908			2 1536	
W. Rye grass and Red clover	1906	1908			2 360	
W. Rye grass, clover and Timothy	1907	1908			2 1875	
Meadow Fescue	1904	1908			0 1122	
Timothy	1905	1908			1 1100	
Brome Grass	1899	1908			1 8 00	(renewed by shallow plowing 1904)
Turkestan alfalfa	1904	1908	2	346	1 153	3 499
Common alfalfa	1904	1908	2	1120	0 1540	3 660
Common alfalfa	1905	1908	1	1000	0 1540	2 540
Minnesota (Grimm)	1905	1908	3	90	1 955	4 1045
New York	1905	1908	3	705	1 1227	4 1932
Samarkland	1905	1908	2	1636	1 1023	4 659
Nebraska	1905	1908	2	368	1 358	3 726
Common	1905	1908	2	1640	1 45	3 1685
Turkestan	1904	1909	1	1270	used for ensilage	1 1270
Common	1904	1909	1	980	used for ensilage	1 980
Minnesota (Grimm)	1905	1909			4 870	
New York	1905	1909	2		2	
Samarkland	1905	1909	1	1910	used for	1 1910
Nebraska	1905	1909	1	1090	ensilage	1 1090
Grimm	1908	1909			2 1398	
Idaho	1908	1909			2 1400	
Montana	1908	1909			2 1830	
Dry Land	1908	1909			3 1303	
French	1908	1909			2 1480	
Turkestan	1908	1909			3 1388	

Variety	Year sown	Year harvested	BRANDON			Remarks
			1st cutting yield	2nd cutting per acre	Total yield per acre	
			tons	lbs. tons	lbs. tons lbs.	
Timothy	1903	1906			1 100	
Timothy and Alsike	1903	1906			1 940	
Awnless Brome	1902	1906			1 1080	
Hard Fescue	1900	1906			1 470	
W. Rye Grass	1902	1906			1080	
Red Top	1903	1906			900	
Alfalfa	1903	1906			1 800	
Alfalfa	1902	1906			1 400	
Alsike and Timothy	1903	1906			1 940	
Common Red Clover	1902	1906			1 420	
Alfalfa I. H.	1907	1908	2	600	1 700	3 1300
Alfalfa	1907	1908	2	300	1 800	3 1100
Common Red Clover	1907	1908	1	1800	1 1000	3 800
Alsike	1907	1908	1	1600	1875	2 475
Timothy	1907	1908	1	1700		1 1700
W. Rye Grass	1907	1908	2	1050		2 1050
W. Rye Grass and C. Red Clover	1907	1908	2	875		2 875
Timothy and Alsike	1907	1908	1	1900		1 1900
Timothy and C. Red Clover	1907	1908	1	1850		1 1850
Alfalfa (I. H.)	1907	1909	2	300	1 1800	4 100
Alfalfa	1907	1909	1	1800	1 1250	3 1050
Grimm's Alfalfa	1908	1909	2	800	1 1725	4 525
Turkestan	1908	1909	2	350	1 1450	3 1800
Alfalfa and Timothy	1908	1909	1	1600	1 1800	3 1400
Alfalfa and W. Rye Grass	1908	1909	1	1450	1 1550	3 1000
Red Clover	1907	1909				1725
Alsike Clover	1907	1909				1825
Timothy	1907	1909				1870
W. Rye Grass	1907	1909				1 575
W. Rye Grass and Red Clover	1907	1909				2 575
Timothy and Red Clover	1907	1909				1 725
Timothy and Alsike	1907	1909				1000
Orchard Grass	1908	1909				850
Red Clover	1908	1909				1600
Alsike	1908	1909				900
Brome Grass	1908	1909				1 1050
W. Rye Grass	1908	1909				2 250
Timothy	1908	1909				1 440
Alfalfa	1908	1909	2	856	954	2 1810
Alfalfa	1908	1909	1	1499	488	1 1987
						Inoculated
						Not Inoculated
Timothy and Alsike	1908	1909				2 632
Red Top Grass	1908	1909				1 1972
Brome Grass	1908	1909				1 1702
W. Rye Grass	1908	1909				1 972
Red Clover	1908	1909				1 552
Timothy	1908	1909				1 474
Can. Blue Grass	1908	1909				1 16
Orchard Grass	1908	1909				1 12
Ken. Blue Grass	1908	1909				1625
Turkestan Alfalfa	1908	1909				1020 (inoculation failed to take)
Common Alfalfa	1908	1909				winter killed
Meadow Fescue	1908	1909				seed poor; no crop
Alfalfa	1907	1908	2	160	1 1040	3 1200
Alfalfa	1907	1908		1900	560	1 520
						not inoculated

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# Agricultural Problems of To-day in Manitoba

By E. WARD JONES

In Canada in general and in Manitoba in particular the development of agriculture, as is the case in all recently born regions, is still passing through a series of

houses and buying more land. Eight out of every ten pioneers in this province will tell you that they have been made well to do, not by the profits sold from the

sums of hard-earned dollars to build up herds; he must acquire knowledge of the principles of feeding and breeding and of the proper management of live stock. Fortunately, in these matters, science is ready to extend aid. But in the question of how to maintain soil fertility even the scientist is as yet in the dark on many important questions. We know that to keep live stock, raise only roughage and buy the concentrates will build up the soil rapidly and maintain it at a maximum of productivity. But this type of live stock farming has its very apparent disadvantages, a few of which I will take up a little further on in this article.

To-day in Manitoba, if it is pardonable to again use the term, we know and are still being taught a great deal about the effect of legumes on the soil. It appears that on almost all soils the first deficiency is in humus and nitrogen and this can be made good by growing legumes, es-

man who grows it successfully there is most probably almost as large a fortune in store for him as there was for Thos. Bates when he made the Duchess cattle popular the world over. I am inclined to believe that alfalfa and clover will in future occupy an exceedingly important place in the agriculture of Western Canada. Wherever tried out alfalfa has shown a remarkable effect in increasing yields of other crops. To our neighbors at the south of us we must look for considerable information regarding the growth and advantages of legumes. I find that in Nebraska and Kansas where corn was planted on adjoining plots one preceded by wheat, the other by alfalfa, there was a great difference in yield. In every case an advantage was shown in favor of the alfalfa and in several cases the average increase in yield of corn on alfalfa sod as compared with wheat stubble has been as high as 75 per cent. Many run down farms have been built up by the use of legumes, especially alfalfa and Red Clover.

How long a proper use of alfalfa or clover will keep up the fertility of the soil has not yet been determined. Careful experiments along this line are much needed and would prove very instructive as well as form a guide for future procedure in agricultural work.

I referred to the system of keeping live stock, raising roughage and buying concentrates. This is a system which as yet has not been much practised in even the older settled districts of Manitoba. It has, however, been tried a little in some parts of Ontario, has been practised a good deal in some of the States and is almost universal in England, Germany and Denmark, and most other European countries. Such a system is possible only when there are large areas of virgin soils somewhere in the world that can be farmed exploitively and which can afford to sell plant food in the products which are sent to market. What

Continued on page 87



Inspecting a Good Yield of Alfalfa.

stages. The first of these has been that of settlement and experiment. The farmer soon learns which of the standard crops his soil and climate are adapted to and which will bring him the most income under the conditions which exist at the time. This point having been determined, an exploitive system of farming is developed, based upon the one or more crops which prove to be most profitable. Almost universally in Manitoba this crop has been wheat, next coming oats, while in a few of the districts oats have always been the money-making asset. In either district, however, usually we have, under such circumstances a single crop system of farming or something closely approaching it. After considering the question thoroughly we have to decide that it is entirely logical that such should be the case. In fact, in the beginning of agriculture in any region such a system of farming is nearly always the most profitable. The system continues either until changed economic conditions and consequent change in prices render a change necessary in the system or until the soil becomes so impoverished that the system is no longer profitable. Then begins a period of readjustment in which more conservative types of farming are gradually developed. The new type is nearly always more intensive than the old, requiring more equipment and greater knowledge on the part of the farmer of the scientific principles involved in his business.

In Manitoba to-day, and especially in the older districts, we are approaching the end of exploitive farming. During the era, for we must term it an era, which is now fast drawing to a close, comparatively little knowledge of the principles of agriculture have been necessary for success in farming. The farmer simply plowed, sowed and reaped and used his profits in building better

land but by the rise in value of their acres and they had the virgin soil at their disposal. While the above mentioned type of

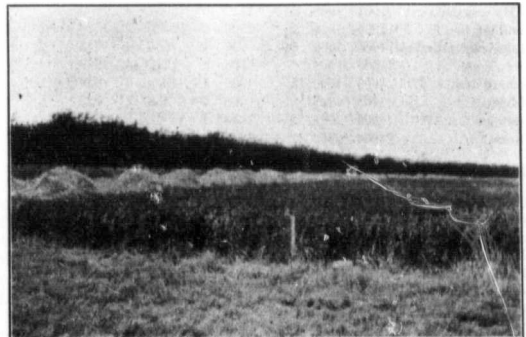


Two Good Crops.

farming prevailed those who were familiar with agricultural history have continued to warn us of the certainty of soil exhaustion but with little result; but now that the original fertility of the soil is beginning to be exhausted the farmers' needs must fill the requirement of more knowledge. The work of the agricultural scientist is appreciated now as it never was before. To-day in our province the time has passed too, when the f6ol of the family was only suitable for the church or the farm.

We must understand that it is no small matter to change a system of farming. This is especially true when the change is from an exploitive system to the more conservative live stock farming. The farmer must build new buildings and outlay large

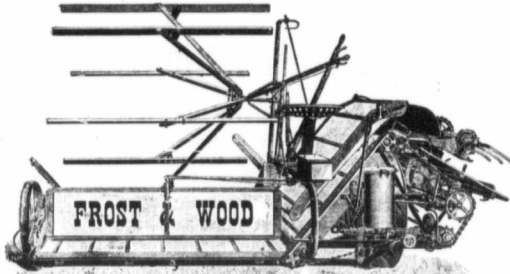
pecially alfalfa in those sections where it thrives. Do not say that alfalfa will not grow in your district, for it likely will and to the



Alfalfa at the Indian Head Experimental Farm.

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The best and quickest harvesting can be done with the famous Frost & Wood light-draft binder. It has roller bearings throughout. It is perfectly balanced. A child can operate it during cutting. It saves grain and ties tight sheaves.

The elevator is a GRAIN SAVER in light crops, when every kernel is needed. There are three rollers in the upper canvas so arranged that the two canvases run close together. If there are only a few straws they are clamped firmly by the two canvases. They cannot roll over or fall back to thresh out the grain, but are carried up in a steady stream to the knottor.

In a heavy crop the canvas raises accordingly. This construction allows more than the ordinary amount of room in the elevator.

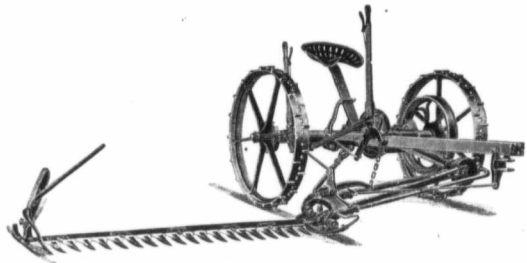
The elevator is also a FORCE FEED, the two canvases clamping the grain firmly between them, under all conditions, and the top roller being placed so far forward forces the grain till it is on the downward drop.

The Frost & Wood Binder runs steadily, giving high speed cutting. The tie of each sheaf demands extra power, and in ordinary binders this power slows down the binder at each sheaf. In the Frost & Wood, long sprocket spokes give this power without affecting the draft on the team, by using the increased leverage of spokes instead of increased power on short spokes.

This makes a tight sheaf, well-tied, and gently dropped, with the binder going at full speed.

The main frame of the Frost & Wood has power shafting and gears aligned very strongly and with roller bearings. This means light running, no binding of gears and long wear.

See the Cockshutt Dealer for a single binder or a battery of Frost & Wood binders for tractor hauling. Ask for the Binder Book.



### Frost & Wood Mowers

Avoid trouble by an inside-pinion Frost & Wood Mower, because the inside pinion, taking power from the inside edge of a rack has two teeth engaged with three rack teeth. This divides the wear and prevents lost motion. The Frost & Wood mower knife moves the second the mower wheel turns.

The result is easy draft, steady cutting, knives never broken, no choking of machine, light wear on all parts of mower, and long service.

The main frame is in one solid piece and keeps roller-bearing shafts and gears in perfect alignment.

The front-cut construction allows more to cut around corners without stopping the machine, keeping cutting speed up and saving time.

The foot-lift for cutter bar allows entire cutter bar to be lifted over a snag or rock without removing hands from reins or stopping mower.

The long special-wood pitman reduces noise, and stops wear of bar at knife head.

All levers are within easy reach, and bar is held up by special device when the mower is not in use.

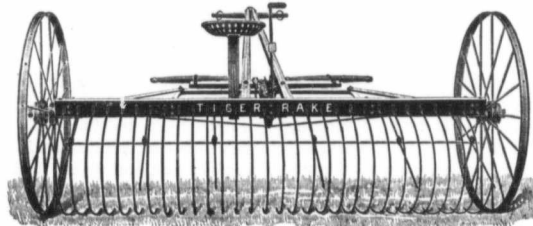
The Frost & Wood ball bearing machines, including this mower, are noted for their easy draft, long wear and the great saving they effect by their great working capacity through saved power.

It will pay you to secure a machine of this perfect design and excellent material, as you are purchasing from a firm that has been making agricultural machines for 70 years, and is thoroughly acquainted with the proven needs of their machines, and the best means to meet them. In other words you can't make a mistake, because there's no chance for any mistake to be left in any machine made by a firm of 70 years' experience.

We are sole Western Agents for Frost & Wood machines, and Cockshutt Dealers will gladly show you the machines themselves.

We suggest this: write for the Mower Book, and the Cockshutt Dealer's name. Do it to-day.

### THE RAKE FOR "BUNCHING"



### Frost & Wood Rakes

First among all rakes, the FROST & WOOD 'TIGER' is nearly all metal, except the convertible pole and shafts. This means strength and wear—a time-proof machine, and a machine that will stand the hard test of bunching windrows of heavy clover or alfalfa.

Steel wheels with wide bearings, well-dished, large and strong.

Rake main bar supported by a truss at center, and teeth seated in metal sockets. No sagging at center to fill clover with dirt from scraping rake teeth.

Rake teeth of best steel, set to slide over the ground and spring around stones.

An inside cleaner-bar that cleans teeth instantly. No 'ropes.'

A high-lift foot dump, elevating the rake to the highest point. Easy to operate as it works on teeth in the steel axle, not by friction. A touch dumps the rake. 9-foot and 10-foot widths.

Write us for the Rake Book, and we will also send you the name of the Cockshutt Dealer.

**COCKSHUTT** PLOW COMPANY LIMITED **WINNIPEG**

BRANDON

REGINA

SASKATOON

CALGARY

EDMONTON





# The Canadian Thresherman and Farmer

CANADA'S FARM MACHINERY MAGAZINE

PUBLISHED MONTHLY BY  
**E. H. HEATH COMPANY LIMITED**  
 WINNIPEG - CANADA  
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**E. H. HEATH**  
 PRESIDENT AND MANAGER  
**E. W. HAMILTON**  
 SECRETARY  
**F. C. BRAY**  
 TREASURER



"Everything begins and ends with the soil."

## Better Farming Calls for Better Methods; Better Methods Bring Better Crops

**OUR GUARANTEE**

No advertisement is allowed in our columns until we are satisfied that the advertiser is absolutely reliable and that any subscriber can safely do business with him. If any subscriber is defrauded E. H. Heath Co., Ltd., will make good the loss resulting therefrom, if the event takes place within 30 days of date advertisement appeared, and complaint be made to us in writing with proofs, not later than ten days after its occurring, and provided, also, the subscriber in writing to the advertiser, stated that his advertisement was seen in "THE CANADIAN THRESHERMAN AND FARMER." Be careful when writing an advertiser to say that you saw the advertisement in "THE CANADIAN THRESHERMAN AND FARMER."

On May 30th the first Good Farming Train to operate in Western Canada will start out under the auspices of the Agricultural Department of Manitoba. It is proper and fitting that Manitoba should be the first province to inaugurate such a thing. She is the oldest province of the three in so far as agriculture is concerned. Her land has had greater drains made upon it than have the lands of Saskatchewan and Alberta; consequently, there is more need for education along the lines of better farming.

This train, which is operated indirectly under the auspices of the Provincial Department of Agriculture and directly under the Agricultural College, is a means of bringing the College itself to the farmers where the farmers cannot go to College.

We have arrived at a day and generation where the farmer is keenly alive to anything that will aid in the production of better crops. The day of the "man with the hoe" is past. The day of the scientific farmer is here. The term "scientific" has been the cause of considerable animosity on the part of the farmers themselves. It has been received by a great many farmers with the idea that it is a beautiful bit

of theory worked out by a few men who hold Government jobs, men who are working wholly and solely for results, regardless of the profit side of these same results. This is true to a certain extent. These same investigators and so called professional agriculturists have been the means of spending large sums of money in order to get at certain things. They have evolved certain theories and have followed them out to the end to find out that they were wrong; all of which costs money, but they did not stop there. They back tracked and began anew, until finally they have discovered a great many things that are of real practical value. They have worked them out in such a way that they can be applied to the small farm as well as the large one. They have never allowed guess work to enter into their methods of operation. The scale of Government standard has weighed results and what is more, these results have been weighed in comparison with the old time methods of farm operations and the contrast has been clearly set forth.

When Professor Holden of Iowa first approached the Rock Island Railway in Chicago and asked for a free train to cover their respective lines in the interests of better farming he was looked upon as a man that was somewhat visionary. However, he had mapped out his plan of work so thoroughly and was able to demonstrate so clearly by actual figures just what the results would be that the Rock Island Railway granted him his request, with the result that the State of Iowa today is raising thirty bushels of corn more per acre than it did before Holden carried his "Corn" message to the Iowa farmers. He taught the farmers how to prepare their land to the best advantage. He taught them how to save their seed corn, and he taught them how to put this same seed corn through germinating tests that would insure them the highest possible percentage of germinating efficiency.

It looked very simple at first, so simple in fact as to be scarcely worth the trouble. Only a small percentage of the farmers tried

it in the beginning, but wherever tried, it so thoroughly demonstrated its practical value that thousands were converted through the results secured by their neighbors.

The farmer is no different from any other individual. Like the business man he is apt to get into a rut. Before modern systems of cost keeping were inaugurated, thousands of our merchants and business men were enjoying large turn-overs in their business every year, but at the same time they were losing money. They were handling certain lines of goods upon which they were making good profits and at the same time they were handling other lines of goods upon which they were making enormous losses, with the result that in the end their balance sheets were always on the debit side. Systems of cost keeping were able to show them where these leaks were and so they were able to cut out the unprofitable line of goods, or handle them in such a way that they were made profitable.

It is just so with the farmer. He plows large tracts of land and he gets a crop, but in the end he does not make the amount of money that he should. There is a reason why. He is not farming right.

The Good Farming Train is not capable of laying down any hard and fast rules along which you as a farmer can work. That is not its purpose. It simply tells you what has been done in the way of better farming and it is up to you as a farmer to take what is given you and digest it thoroughly. In other words, if you get into the true spirit of the thing, it will teach you to think, and after all, good, hard, sound thinking is the corner stone of all success, no matter what the business may be.

The Good Farming Train, as put out by the Provincial Department of Agriculture, is being worked on a little broader scale than anything before attempted. Most of the Good Farming Train that have been put out heretofore, have worked along certain special lines. The Manitoba train, however, will be very diversified in its plan and scope of work. It will initiate you into the mystery of your soils, the proper methods of handling them, the kind of crops to raise on these soils, with the good seed propaganda ever in mind, and further than this, it will give you by lecture and object lessons, most valuable information regarding your live stock.

It is the duty of every farmer in Manitoba who can make it at all possible to get to these trains, to do so. We will guarantee you that you will not be taught anything misleading. Any information that will be given will be such as you can use and use with safety. The men who will handle the lectures and the talks are men of thorough experiences and recognized as authorities in their particular branches. They are sincere in their work and you can never realize how much good your attendance at these lectures will do them. It will bring out the very best that they have to offer.

In another part of this paper is published a complete schedule of the train. Look it up and see just when the train is due to arrive at your town and make it a point if it is at all possible to be there.

**SUBSCRIPTION RATES**

Postage prepaid, Canada and Great Britain, \$1.00 Per Year.  
 Postage prepaid United States and Foreign Countries \$2.00 Per Year.

Failing to receive paper, you should notify the office at once, when mistakes, if any, will be corrected immediately.  
 All Subscriptions must be paid for in advance and are positively discontinued at date of expiration unless renewed.

Advertising copy in order to secure good position should be in our hands not later than the 15th of the month preceding date of issue.  
 Advertising rates furnished on application.



# THERE'S A RIGHT WAY AND THERE'S A WRONG WAY TO DO EVERYTHING



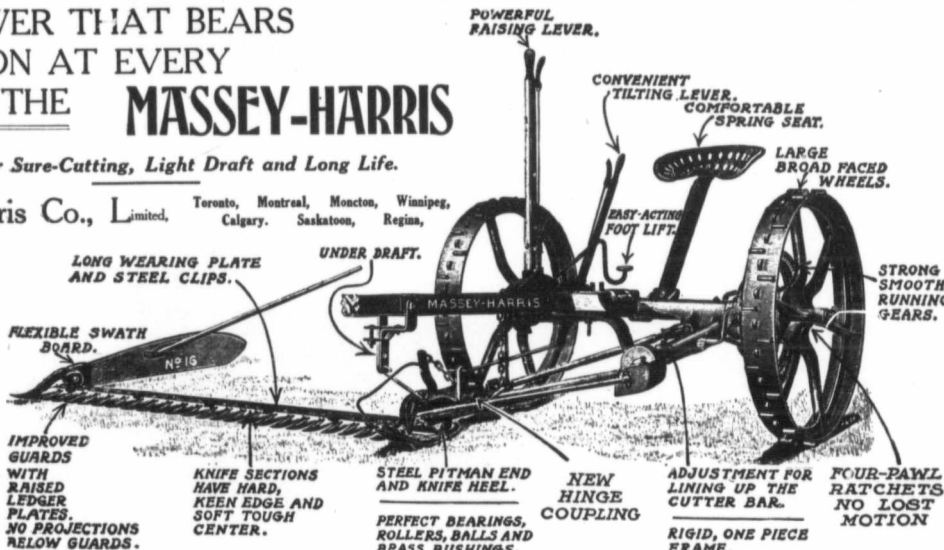
MAKE SURE THAT YOU HANDLE YOUR 1911 CROP THE **RIGHT** WAY BY USING

THE MOWER THAT BEARS INSPECTION AT EVERY POINT IS THE **MASSEY-HARRIS**

*Famous for Sure-Cutting, Light Draft and Long Life.*

Massey-Harris Co., Limited, Toronto, Montreal, Moncton, Winnipeg, Calgary, Saskatoon, Regina,

Cutter Bar has perfect freedom of movement, allowing it to conform to uneven surfaces and cut smooth and clean.

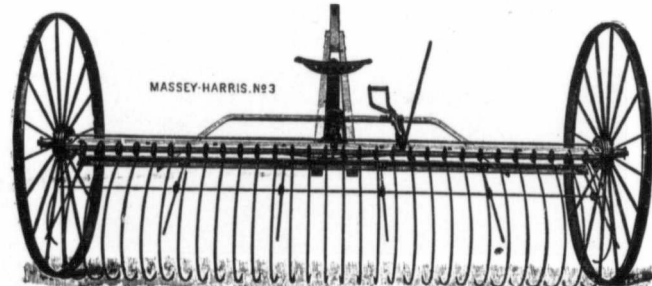


AND

## THE MASSEY-HARRIS NEW No. 3 RAKE

SAVES ALL THE HAY

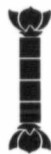
Well Braced Angle Steel Frame.  
Oil-tempered Steel Teeth with Shoe Points.  
Each Tooth has a Coil Section giving Flexibility and Preventing Damage.



Strong Steel Wheels, Large Diameter.  
Automatic Dump.  
Has Great Capacity. Basket is Large.  
Teeth lift well above Windrow.  
Nearest agent has sample of Mower and Rake.

# MASSEY-HARRIS COMPANY, LIMITED

BUILDERS OF THE WEST'S MOST SATISFACTORY FARM MACHINERY  
A THOUSAND LOCAL AGENCIES IN WESTERN CANADA



## Three Years' Program for the Cultivation and Equipment of a Half Section in Manitoba

By JOHN G. RAYNER.

First Prize Essay, 3rd Year Student, in the Canadian Thresherman and Farmer Contest, by Students of the Manitoba Agricultural College.



In order that the man who is commencing farm operations for himself, especially one who is unfamiliar with American agriculture, can reap the full benefit of this article he must get a clear conception of the conditions as they exist in the locality brought before his notice herein. Then, knowing the conditions prevailing in his own district, he must work out by comparison the system of farming most suitable to these new conditions. The chief points to which due consideration should be given are climatic conditions, the adaptability of the soil and climate for exclusive grain growing, stock raising or a combination of the two; and lastly, though not least, the value of the land and the capital to be invested. The planning and operating of the farm should be so carried out as to give a maximum of profit for the capital invested, having in view the improvement of the home and its surroundings and the maintenance of soil fertility.

On the new main line of the C.N.R. just at the point where it crosses the Pipestone river and about twenty miles southwest of Virden, Manitoba, lies the fast-growing village of Cromer and in the immediate vicinity of this village I will select the half section with which to work out my plan. In this locality the soil is a clay loam and the average quotation for uncultivated land is at present about twenty dollars per acre. This being a high price for virgin soil necessitates the investment of a considerable amount of capital, which in this case I will set at three thousand dollars.

Owing to the adaptability of the soil for the purpose, the plan will be laid exclusively for the growing of cereals. I believe that more money can be made by devoting all the energies for at least the first three years to grain growing, and gradually increasing the number of live stock than by following a system of mixed farming from the beginning. Some method of mixed farming, however, will eventually be very necessary if the business is to be a permanent one, because such a system would be necessary for the utilizing of what would otherwise be waste products, for aiding in the maintenance of soil fertility, for the establishment of a recognized system of crop rotation, and for the equalizing of labor throughout the entire season.

One of the chief factors to be considered by the prospective buyer when choosing the location is his personal ambition. If he intends to follow a system of strictly grain-growing he must choose such land and in such a lo-



A Massey-Harris Working in Pairs.



A Froot & Wood Rake Making Hay



A Noxon Mower Capturing the Prairie Hay Near Neepawa, Manitoba.

cation as is well suited for that purpose, if, however, he desires to go largely into stock-raising he must locate in a place where there is abundance of feed and water and where natural shelter can be obtained for the animals when out. There are also other factors which should be taken into consideration, such as nearness

to a railroad, etc. All these matters should be carefully weighed over in the mind before making a purchase.

In the locality mentioned above the system of farming followed is largely that of grain growing. The soil being rich in humus and the rainfall fairly high for the West the growing of cereals is

followed almost entirely and where if the land is properly cultivated to conserve the moisture and fertility large profits are obtained. Being near to a station the wheat is usually teamed from the threshing machine and loaded directly into cars. By this means the farmer saves the expense of erecting bins for the storing of the grain, and gets his grain shipped early, thus getting the first price in the fall which is almost invariably the highest price paid during the season.

On the other hand some farmers go into stock raising to quite an extent and make money at it. Starting with a few cattle, it is surprising how rapidly a large herd will accumulate if all the females are kept for breeding purposes. By following a system of mixed farming a better system of crop rotation can be established by the growing of clovers, roots, etc., all of which make excellent feeds and add to the fertility of the soil. Also more nourishment will be returned to the soil in the form of manure and there will be a more complete use made of the straw produced. Again mixed farming is an important factor in equalizing the labor throughout the winter and summer, permitting the engagement of men for the whole year, which proves more satisfactory to both employer and employed. Another point in favor of mixed farming is that the income is distributed more evenly over the year and is more certain. With an entire grain system there may come a total loss from hail or frost, whereas with a system of mixed farming there are always some fat cattle or hogs to fall back on. Some people make a strong plea for dairy cattle on the farm and they certainly have good reasons to do so. By systematically weeding out the poor producers a very good herd can be built up. Dairy cows bring in revenue during the entire year and give large profits if properly handled. At least a few milch cows should be kept on every farm but the extent to which the industry is carried on depends largely upon the adaptability of the location and the personal ideas of the farmer.

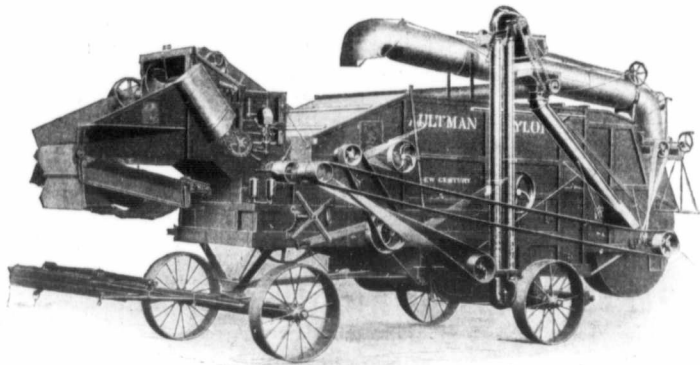
On the particular farm under discussion I intend to follow a purely grain growing system for at least the first three years, as I consider that more money could be made by devoting all the energies to the cultivation and cropping of the soil till it is all under cultivation and then gradually increase the number of live stock and incorporate them into the system of crop rotation. Also I have not enough money to spare to purchase cattle till I have the

# Here is the Machine You Have Heard So Much About **WHY IS IT SO POPULAR?**

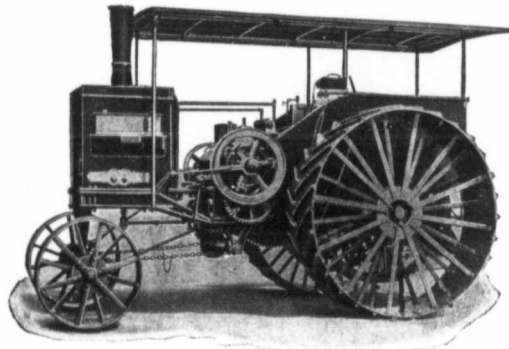
Ask the Man Who Owns One — Ask the Elevator Man — Ask the Farmer

## *There Are Many Reasons:*

It is **RIGHTLY CONSTRUCTED**. A No. 1 **MATERIAL** is USED THROUGH-OUT. It has **MORE CAPACITY** than any other. It is **LIGHTER, MORE DURABLE**, and can be **DEPENDED UPON** to do **MORE AND BETTER WORK** in a **GIVEN LENGTH OF TIME** than **ANY OTHER MAKE** of **SEPARATOR**.



*No Other Separator Can be so Successfully Operated by Gasoline Power  
The Life and Success of Your Gasoline Engine Demands Your Using a*



## **"New Century"**

"We have used one of your 27-42 New Century Separators for the last two seasons with a 20 h.p. Gasoline engine, and although we had had no previous experience with separators it has given great satisfaction. We can thresh up to 2,400 bushels of oats per day, and make a clean job. We can recommend it as a well built and light running machine."

Yours truly,

STEVENSON BROS.

Per Robert Stevenson.

*Write for Information as to What This Engine Can Do*

"The Aultman & Taylor Separator purchased by us has given first-class satisfaction. It is a clean thresher, and the 27-42 size will handle from 2,000 to 2,500 bushels of oats per day of ten hours. The 20 h.p. International gasoline engine drives the separator easily."

Yours truly,

McTAVISH BROS.

Stratheona, Alta., Canada



**The International Harvester Co. of America**

*Canadian Sales Agents for "New Century" Separators*

**The Aultman & Taylor Machinery Company**  
**Mansfield, Ohio**

*Sales Agencies: Minneapolis, Minn.; Calgary, Alta., Canada*

farm equipped with machinery, horses, etc., and could not go to the expense of erecting fences to pasture the stock.

To some buyers twenty dollars an acre for virgin soil would seem a rather large price, but in a fairly well settled community near a railroad it cannot be secured for less, therefore, I am commencing operations with the fairly large sum of three thousand dollars. This does not exceed the purse of the average land seeker who prefers to purchase land in a fairly well settled district instead of migrating farther west and becoming a pioneer on a homestead.

Great caution should be exercised, especially with a new farm, to buy seed that is absolutely free from noxious weed seeds. Flax and grass seeds usually contain noxious weed seeds and should be very carefully selected: It is much easier to prevent the introduction of noxious weeds than to eradicate them after they have once got a hold on the land. Therefore, it would be wise to pay extra for good clean seed at the commencement of farm operations than to hand pull the mustard, etc., afterwards.

One of the most active agents in the distribution of weed seeds is cattle, roaming from field to field, gathering seeds in their tails and hoofs, scattering them wherever they go. For these reasons it is advisable to fence the fields as soon as circumstances will permit so as to prevent cattle straying over the farm and scattering such destructive agents as weeds. Live stock are one of the most potent factors in the distribution of weed seeds and the sooner this is universally recognized the sooner will farmers improve their locality, aid their neighbors and themselves to keep their farms clean by fencing and preventing animals of all kinds from straying.

For the cultivation and equipment of the half section no hard and fast rules can be laid down, owing to the many circumstances that affect farming. Commencing in the spring with three thousand dollars and everything to buy, there is presented a rather difficult problem as to what is best to do first and in how far to invest. On the twenty acres already broken I propose to sow oats, leaving a small patch in which to plant potatoes. If the oats give an average yield of forty-five bushels per acre, I would have sufficient grain to feed the horses the next summer and also be provided with seed oats for the next spring. Some people might advocate flax as a very desirable cash crop for the twenty acres of new land, as it invariably commands a high price on the market, but when the cost of buying feed and seed and also the deterioration in fertility of the soil is deducted from this the argument loses weight. Also, as previously mentioned, it is very difficult to procure clean flax seed, therefore this should be sufficient reason to prevent the sowing of such seed which would probably

inoculate the farm with noxious weeds, entailing great loss, both of time and money.

One of the first things to be thought of is the erection of suitable buildings. A small two-roomed house would be sufficient for the first few years and a barn about 26 ft. x 30 ft., capable of stabling ten animals. Two double stalls and one single stall on each side. A small loft would be convenient and would mean very little extra cost as it costs just as much to roof a building whether

should be exercised in buying these horses to see that they are young and sound, as they prove a very expensive investment if incapable of doing the work required. Good substantial working harness would have to be bought for these horses, costing between thirty and forty dollars per set. I would also purchase a good milch cow, as it would be very easy to keep, especially during the summer months and would amply repay for the care in milk and butter. I would try and procure a

the first implements that would have to be purchased as it is indispensable around a farm. Also other necessities for the stable. It would be advisable to pay cash for these articles.

For the cultivation of the land the implements necessary would be a disk harrow to cut up and pulverize the soil, a drag harrow to level it and form a dust mulch, and a packer to act as a clod crusher and to stimulate capillary action. A drill could be hired for a day to sow the oats, two bushels per acre, so that a drill need not be purchased until the following spring.

I purpose having one hundred and sixty acres of land broken the first summer with traction power, also counting on breaking forty acres myself with the four horses on a sixteen inch sulky plow, the price of which, including both stubble and breaker bottom being about seven-y-five dollars. The usual quotation for breaking virgin prairie is three dollars and seventy-five cents per acre. This land should be packed immediately after breaking as it aids greatly the rotting of the soil, also it conserves the moisture to a large degree. After the sod has rotted sufficiently I would have it all disc harrowed; this does not give as good results as back-setting, but is much more economical, both in time and expense. The number of discings depends entirely upon how well the sod is rotted. Three times with the disc should be sufficient, followed by two strokes of the drag harrow. This work would, I am calculating, keep the one team busy till freeze-up, after putting up sufficient hay, would could be obtained on the prairie, and harvesting the oats. I consider the wisest plan would be to purchase a mower and rake instead of hiring, as they are very necessary implements and are not very expensive. A binder could be hired for a day to cut the oats; these would be stooked, usually twelve in a stook, and when ready, threshed. The cost of threshing, including other expenses, would probably amount to seven cents per bushel. A small portable bin would have to be erected to store these in. As soon as possible after harvest the potatoes could be dug and stored in the cellar. After harvest the team could be kept busy working on the newly broken land, the twenty acres of oat stubble being left till the following spring.

Thus, at the end of the first summer I would have two hundred and twenty acres of land under cultivation, with everything I purchased paid for in cash, except the principal on the land and five hundred dollars on the horses on which I paid seven per cent. interest per annum. Also I have on hand nine hundred bushels of oats, sufficient to supply seed and feed for next year. The cultivation of the two hundred acres of breaking would keep the team busy till freeze-up, but as there would be no other work to do the one team could manage, thus saving the expense



A Massey-Harris Mower doing nice work.



A Massey-Harris Haying Outfit.



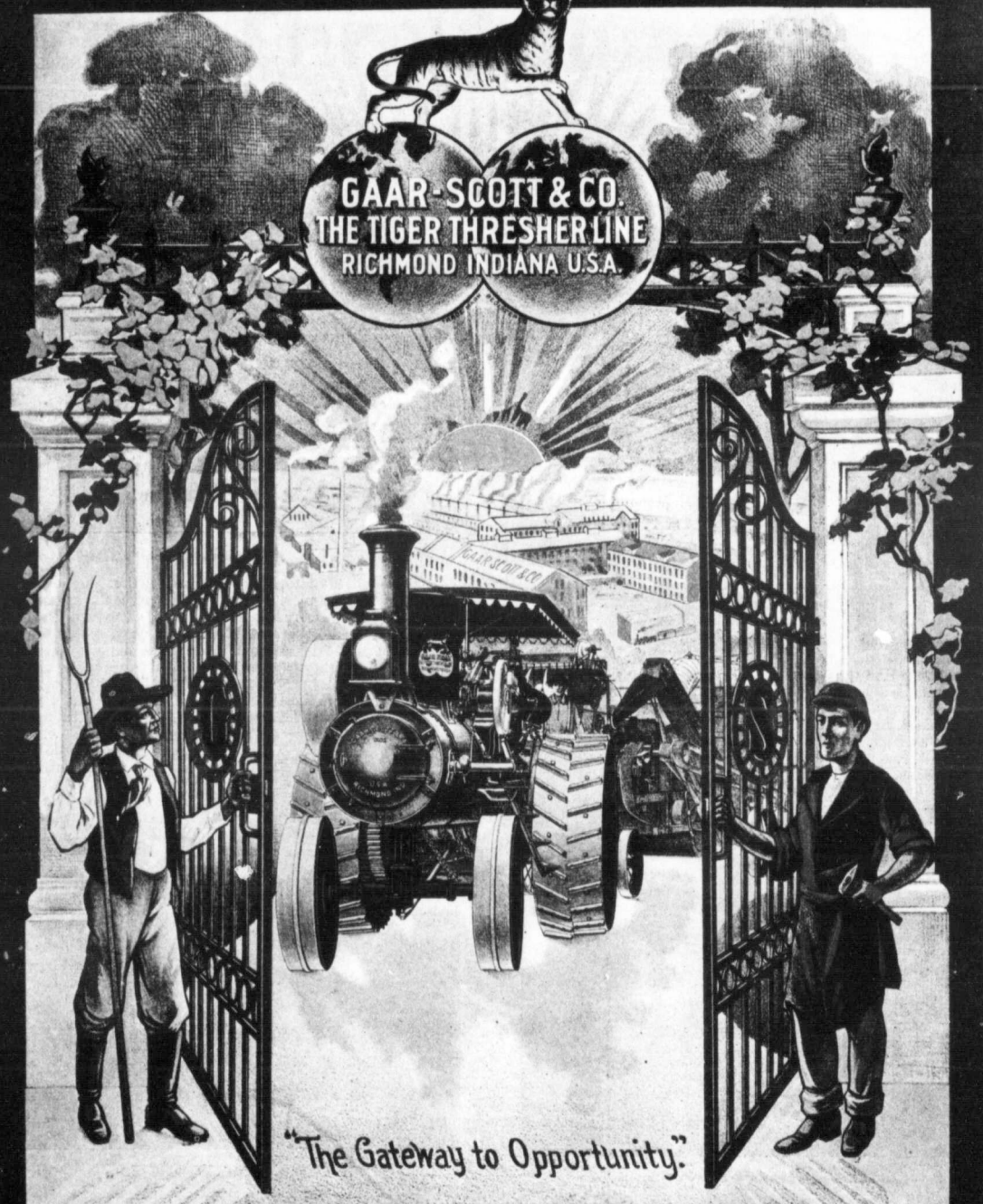
A Frost and Wood Mower and its young operator.

high or low. The cost of erecting these buildings, including lumber and labor, would amount to about six hundred dollars. A good well, convenient for both house and stable, should be dug as soon as possible, as good water is very essential both to man and beast.

For the first summer four horses would be sufficient; a fairly good team of four could be obtained for one thousand dollars cash, mares would be preferable if they could be obtained. Care

should be exercised in buying these horses to see that they are young and sound, as they prove a very expensive investment if incapable of doing the work required. Good substantial working harness would have to be bought for these horses, costing between thirty and forty dollars per set. I would also purchase a good milch cow, as it would be very easy to keep, especially during the summer months and would amply repay for the care in milk and butter. I would try and procure a





"The Gateway to Opportunity."

Traction Engines.  
Saw Mills.

Uncle Eben says "Mos' folks doan' hea' opportunity knock 'cause dey is snorin' too loud."  
 Wake up and write right now for the 76th Annual Catalog of the Opportunity Line.  
 We will send along the most convincing bunch of proofs that prove, ever collected, and printed in 20 nicely colored Tiger Truth folders, covering grain growing America.  
 They will make you sit up and TAKE TIGER TONIC.

Threshing Machines  
Clover Hullers.

of buying another team till the next year. Following is a cash account showing the detailed expenditure during the first summer, amounting roughly to about three thousand dollars.

CASH ACCOUNT FOR FIRST SUMMER		Dr.	Cr.
April	Cash on Hand .....	\$3000 00	
	Paid on horses .....		\$500 00
	House and barn .....		600 00
	Paid for one cow .....		150 00
	5 tons hay @ \$7.00 .....		35 00
	One wagon .....		90 00
	2 sets of harness .....		70 00
	Well dug .....		40 00
	One sulky plow .....		80 00
	Disc harrow .....		50 00
	Drag harrow .....		35 00
May	Packer .....		125 00
June	160 acres broken @ \$3.75 per acre .....		600 00
July	Mower and rake .....		90 00
Sept.	Portable bin for oats .....		40 00
	Interest on land and horses .....		240 00
	900 bush. oats threshed @ 7c .....		63 00
	Hiring binder and drill .....		15 00
	Sundries as twine, forks, hens, etc. ....		117 00
		\$3000 00	\$3000 00

20 Acres of Oats	40 Acres broken with team	160 Acres broken by traction power
Potatoes		
95 Acres prairie		
Farmstead		

Plan of farm at end of first summer.

The second spring I propose putting one hundred and eighty acres into wheat and the remaining forty into oats. The seed wheat should be purchased early and cleaned if necessary. One and one-half bushels per acre would require about two hundred and eighty bushels, usual price eighty-five cents. The oats would also have to be cleaned, eighty bushels being necessary for the forty acres, a small patch of the oat land being left for potatoes again. There is great diversity of

busy season of the following spring.

A four-horse drill would have to be purchased. After once harrowing in the spring the land would be ready to seed. Sow one and one-half bushels per acre and put the seed down to the moisture, two inches deep is sufficient if the soil is moist. After sowing I would run the packer over the land, this would be chiefly to act as a clod crusher, also it makes the land smooth, thus making cutting a much pleasanter job in



A Noxon Mower in the Tame Grasses of Western Canada.

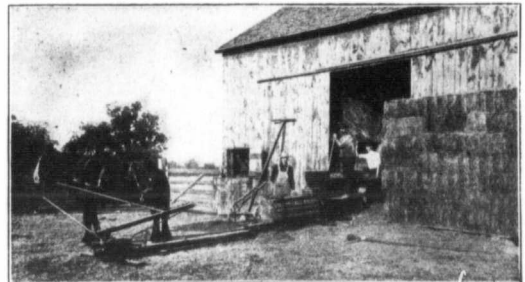
opinion as to how many bushels of oats to sow per acre, but I have always obtained the best results with two bushels per acre. The seed wheat and oats should be treated for smut with formaldehyde. I propose buying another four-horse team the second spring as one team could not manage all the work during the summer. These would be mares if possible, two of which I would breed. It would not be advisable to get more than two in foal as they may be unable to work the

fall, as rough land is very disagreeable to run the binder over. After packing two strokes of the drag harrows should form a very desirable dust mulch. The twenty acres of stubble would be plowed and again sown to oats together with twenty acres of the new land, as twenty acres would not supply sufficient oats for the next year's feed and seed. A patch of potatoes would be put in again as near the house as possible. It would be necessary to engage a man for the summer

months, the usual wage being thirty-five dollars per month. I would purchase a fourteen-inch gang plow and during the summer break up the remaining ninety-five acres with five horses on the gang plow and three on the sulky. Five acres would be left for the farmstead. As in the previous year I would immediately pack the land after breaking and when well rotted disc and harrow as time permitted. As the land would be all broken up it would be necessary to get a permit for hay which could be secured at twenty-five cents per load. A sufficient quantity would

threshing. The total threshing bill, not including hauling, amounting to \$499.60. Two more portable bins would have to be erected, one for the extra oats and one to store about 500 bushels of wheat for seed the next spring.

The wheat for sale would be teamed from the threshing machine and loaded directly into cars. Extra teams would be necessary for this but it is much the more satisfactory system if near a railroad, saving as it does the expense of erecting bins and enabling the shipper to obtain the first price, which is almost in-



An I. H. C. Hay Press Getting the Hay Ready for Market

be put up toward the latter part of July.

When harvest was ready I would invest in an eight-foot binder, the usual cost is about one hundred and eighty-five dollars. A six-foot binder would be large enough to cut this crop but a half section would be a little too much for it so it would be advisable to purchase an eight-foot at the start. Twine, at the rate of two pounds per acre, would be required for the average crop. During harvest I would engage another man to do the stooking and keep my first man with the other team cultivating the break-

variably the highest. With eighty-five cents as an average price and 5,280 bushels for sale, the income would be \$4,488. After the harvest the potatoes would be ready to dig again.

After all the breaking was well disced and harrowed I would set the two plows on the stubble and plow up as much as possible that fall packing after plowing and harrowing at least once. Some people claim that it is better not to harrow the land in the fall, their argument being that the land holds more snow when unharrowed and consequently having more moisture in the spring.



An I. H. C. Sweep Rake getting into the Game

ing. I would need the stooker for about twelve days, the wages at this time of year of late have been about two dollars and fifty cents a day.

For an average year the average yield for new land would be thirty-two bushels per acre, amounting to 5,780 bushels of wheat, the cost of threshing usually seven cents per bushel. The oats should yield forty-five bushels per acre, amounting to 1,800 bushels, five cents per bushel being the usual price for stook

It will be found, however, that unharrowed land holds very little extra snow, and by harrowing in the fall the moisture already in the soil is retained. The retaining of what moisture we have in the soil is of much more importance than trying to capture it in the form of snow, etc. At the end of the second year the grain would bring in about \$4,500, enabling me after all other expenses were paid to make a \$1,000 payment on the land.

Continued on page 78

# You Thresh for Profit

You want to make money.

How are you going to make sure of doing this?

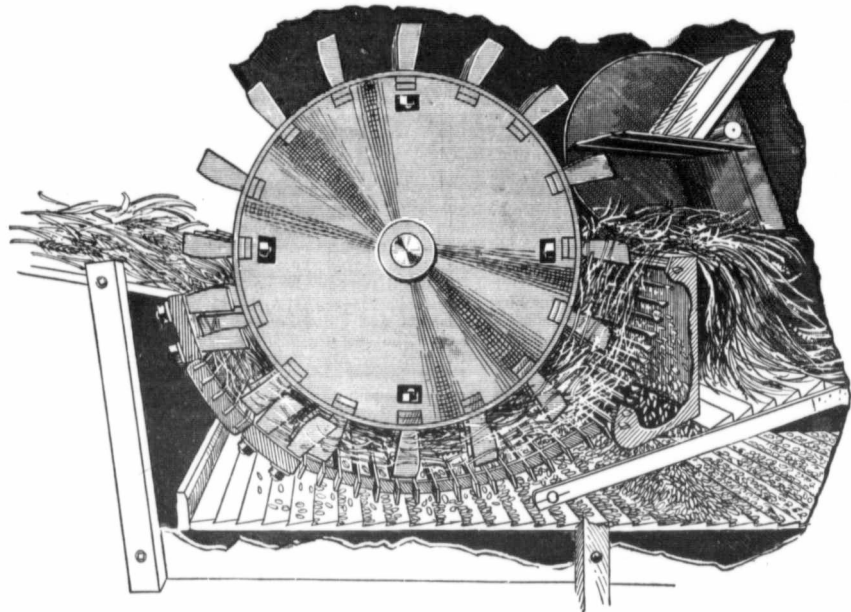
By buying and running an outfit which best pleases the farmer, your customer.

You have got to please the farmer if you get the best jobs.

You have got to please him if you would get the longest run.

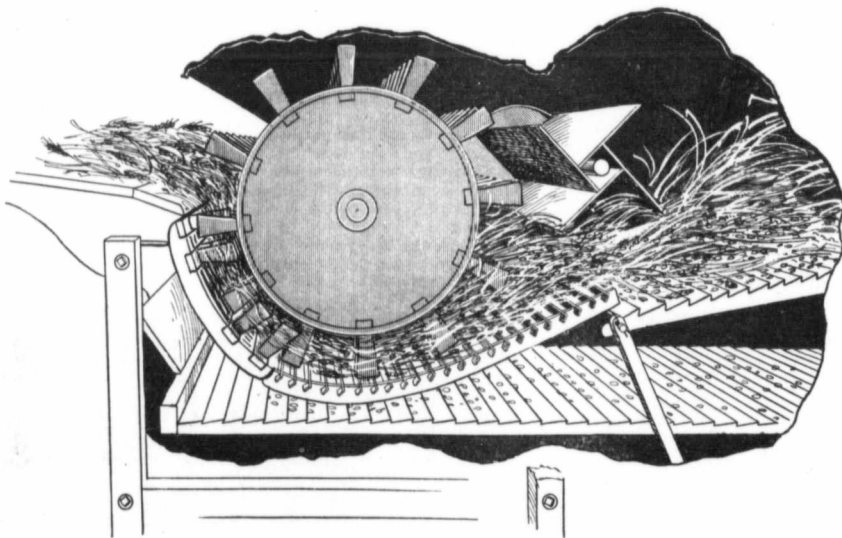
You have got to please him if you get the highest price for threshing.

The farmer wants his threshing done by the



## Red River Special

The Cylinder in the "RED RIVER SPECIAL" drives the straw and grain against the grate and beats the grain out right there



The Cylinders in the other machines throw the straw and grain over the grate. There is little separation in this method. Try it yourself with a pitchfork

He knows it has the only true principle of getting the grain out of the straw.

It **Beats** it out just as you would do by hand with a pitchfork—all other makes depend upon the grain dropping out.

The farmer wants all his grain saved and none wasted. He knows the **Red River Special** with its **Big Cylinder**, its **Man Behind the Gun**, the up-lifting shakers and adjustable chaffer will put all his grain in the granary and none in the straw pile.

He knows **It Will Save His Thresh Bill**.

He will hire a **Red River Special**.

Equip yourself with one so you will please the farmer, get the big jobs, get the longest runs, get the highest prices and make you the most money.

It costs you no more than the other kind.

Write for catalogue and note our full line of Threshing Machinery and Traction Engines.

**NICHOLS & SHEPARD COMPANY, Battle Creek, Mich., U.S.A.**

Branches with complete stocks of Machinery and Repairs constantly on hand at the following cities: CALGARY, ALTA, CANADA; WINNIPEG, MAN., CANADA; REGINA, SASK., CANADA



# TRACTION PLOWING

## AS TOLD BY THE MEN WHO DO IT

On this and the following pages will be found a number of letters from traction plowmen in Canada West, the originals of which are on file in our office. We have inserted the letters just as they came to us, and we will, therefore, not hold ourselves responsible for any of the opinions or criticisms contained therein. Should anyone disagree with the statements made, we would be pleased to offer them the use of our reading columns for the purpose of criticism, etc.—Editor.

### Thinks Tractioning a Special Business.

Regarding experience in traction plowing, I might say much which might be of benefit to those who expect to go into the business, but few men profit by the other fellow's experience. It seems to be a business of itself, very unlike any work I ever tackled. It is a different proposition altogether from that of threshing.

Now about our outfit. We own a 32 horse power Cross Compound American-Abell engine with the single wheel in front and also a Cockshutt ten-furrow plow on wheels.

It took to run the outfit an engineer, fireman, plowman and two men for water and coal. I had quite a long haul for water, but the coal hauling did not require much time as I am fairly well located, being near the railway.

I find it does not pay to work shorthanded, as one man's pay at \$40 per month and board is only a small item.

I did not get started to break until May 20th, on account of my outfit being late; I had to take my turn with the companies in filling their orders. I was compelled to operate day and night for a time, which proved a very good thing for me as I got practically twice as much work done at considerably less than twice the cost of one gang. I hired a blacksmith and I found it was cheaper than paying 40c. per share for sharpening in town. He could keep all the shears sharpened up. One cook could cook for both gangs; I needed no night watchman; no loss of fuel in firing up every

morning or banking fires at night. The only stops we made were for coal and water, which the teamsters put on the engine while the engineer oiled and the fireman took care of his fires, or helped the plowman change his shears. We owned our own horses, which is much cheaper than hiring.

We used different kinds of coal. The re-screened Clover Bar coal of Edmonton gave the best satisfaction for that class of coal, but the Hill Crest in my estimation is the cheapest, provided you are located on the C.P.R. line; their freight rates are less than those on the G. T. P. where we are located.

The amount of coal we used per day depended largely upon the kind used and amount of work we did. Work cost from 70c. per acre to \$1.00 or more.

We did considerable plowing after the ground got very dry, but always handled the same number of plows. Ten plows going 4½ to 5 inches deep and hauling packer are no load for this engine. I would recommend all traction plowmen to use the packer as it is certainly a great benefit in more ways than one.

I had the practical experience of using a light engine, a 26 horse power simple, hitched to five and six plows along side the large engine and I soon found that it cost as much to operate this as it did the large one, with not half the work being done. I had had this engine four years for threshing so tried it out with the above results.

Our land is near Scott where a great many land lookers and travellers stopped last summer. We had hundreds of visitors,

many of them being Americans, who were surprised at seeing the work. Most of them seemed to think steam plowing was only an experiment, but they were convinced after visiting the outfit, that it was the only system, as one of them expressed it. Those who said anything about the work said it was splendid. I might add that we have this land disc'd and harrowed and will sow it to wheat this spring. We have 600 acres to break, which we expect to sow to flax if all goes well.

Yours truly,  
C. B. Smith,  
The Ann Arbor Realty Co.,  
Scott, Sask.

### Plows Timber,

Regarding steam plowing, I have only been at it during the past two seasons and my work so far has been largely experimental. I am very well satisfied with my engine and plows. My land is heavily timbered, not merely scrub but large poplar trees, lots of them measuring from eight to fourteen inches on the stump.

My engine is a 26 horse power steam Simple American-Abell 1910 model and my plows are three twenty-four inch John Deere scrub plows. These plows I had to have extra heavily ironed off before I could use them. I had a very heavy brace put from bottom of standard to back end of beam. One man can operate the three plows, as they have trucks under front end and do not need to be held. I use the heavy plow hitch which I got from the American-Abell Company.

Four men can operate my outfit, engineer, fireman, plowman and waterman, also one tank man. A cord of seasoned poplar will run the engine for twelve hours. We cut the wood off the ground to be plowed the winter before, also split it and when we are ready to start plowing, our wood is right where we need it and dry enough to burn good. About four or five large tanks full of water supplies us one day.

It stands to reason that plowing is harder on an engine than threshing, but my engine is heavily built and built to stand where the strain comes on it. I can plow in the roughest of land about 8 or 9 acres per day.

Statement of wages paid my men 1910

Engineer, per day	.....\$3.00
Fireman (boy) per day	..... 1.00
Waterman, per day	..... 3.00
Plowman, per day	..... 2.00
Wood (cost)	..... 2.00

\$11.00

I think \$1.50 per acre is about actual cost, of course not allowing anything for wear and tear on my engine.

The shares I always hammered cold myself, until they got too hard; then I draw the temper a little. A share hammered cold will run much longer than one heated and then tempered.

I will try and send you a photo of my plow at work this coming summer. So far I have no experience with drill or harrow hitches.

Yours truly,  
Robert Pedin,  
Rossburn, Man.

Continued on page 81





and to wear longer and cost less for repairs than any Feeder manufactured by any other Company in the World.

any kind of grain in any condition whatsoever, BOUND, LOOSE, STRAIGHT, TANGLED, STACK-BURNED, WET or DRY, without

THE RUTH SELF FEEDER is warranted to feed any make or size of Separator to its full Capacity with



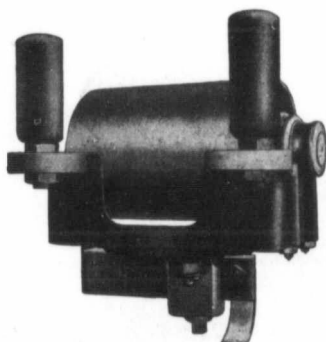
# RUTH



## WARRANTY

The Ruth Feeder is warranted to feed any make or size of Separator to its full capacity, with any kind of grain in any condition whatsoever, bound, loose, straight, tangled, stack burned, wet or dry without slugging the separator cylinder or loosening a spike, and to do a faster, cleaner, and better job of feeding and to wear longer and cost less for repairs than any feeder manufactured by any other company in the world. THE MAYTAG CO.

## This Set of Fours Will Beat the Other Fellow



### Success Belt Guide

IS ENTIRELY AUTOMATIC.  
SAVES TIME, MONEY AND THE BELT.

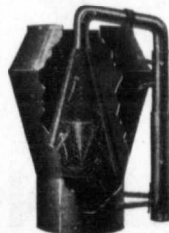
The main pulley of the Belt Guide, with its two small perpendicular rollers, is mounted on a pivot directly in front of the separator cylinder pulley.

It is very sensitive, and the wear on the drive belt is not perceptible. The engine may be several feet out of line or the wind blow the belt, which would ordinarily throw it off, but with the Success Belt Guide the trouble and annoyance are entirely overcome. Sold under a positive guarantee.

### The Gullick Spark Arrester

IS AS GOOD AN INSURANCE POLICY AS THERE IS

In ordering, state the height and exact inside diameter of smoke-stack to which the Arrester is to be attached. State also what kind of an engine the Arrester is wanted for, that is, the name, and whether it is stationary or traction, direct or return flue, and what kind of fuel is used.



Please make a note of this.— That for the convenience of our customers in territory tributary to Regina, we have placed quite a complete stock of Repairs and Extras for Self Feeders at Regina, with Mr. H. A. Knight, to whom orders may be sent.

We carry a Full Line of

### Madison-Kipp Oil Pumps and Lubricators

Also the Repairs

EVERY PUMP FULLY WARRANTED



Style B.—Force Feed

NOW is a good time to order any Repairs you are going to need. Order now and be ready for business the same time business is ready for you.

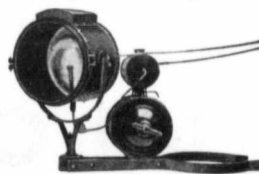
### The "GLARE" Acetylene Gas Headlight

This Headlight is mounted on a pivoted bracket with chains extending back to the engineer's platform, which gives him full control of the light, as he can throw the light from right to left at will, lighting up the road ahead of him to a distance of 300 feet or more, and enabling him to locate bad places, turn corners, etc.

The lamp and generator are mounted on the same bracket which makes it very convenient to attach to an engine and also to light.

These lights are furnished with different styles of attaching brackets so that they may be neatly attached to any make or style engine without difficulty, and in a very few moments' time.

The cost of operating them is less than one cent. per hour, therefore it is the cheapest headlight on the market to use, for the amount of light produced.



## The Maytag Company Ltd.

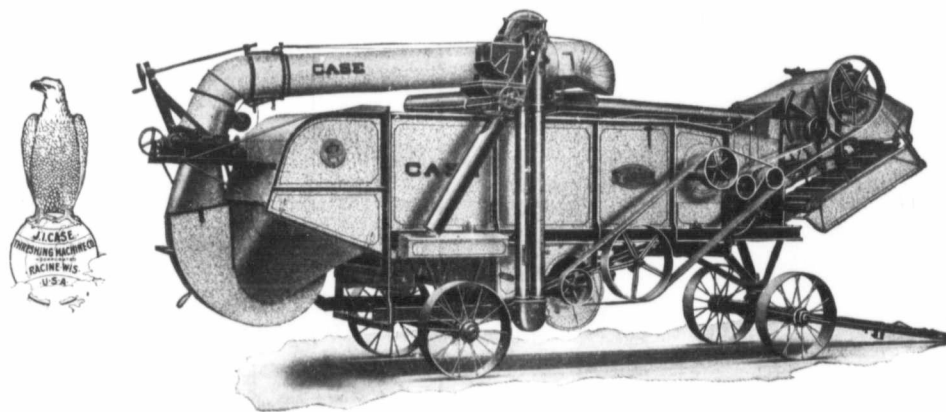
SUCCESSOR TO

The Parsons Hawkeye Manufacturing Coy.  
753 Henry Avenue  
Winnipeg



slugging the Separator Cylinder or loosening a spike, and do a faster, cleaner and better job of feeding

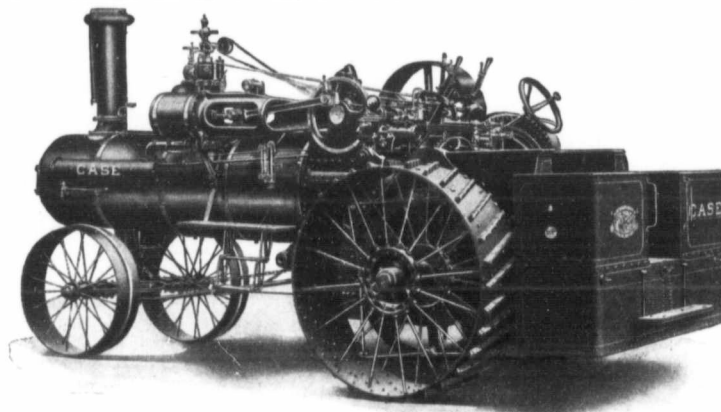
**"THE TIME TO  
CASE  
ALL STEEL THRESHING MACHINES  
ARE GRAIN SAVERS**



*Do you know, Mr. Thresherman that  
CASE STEEL THRESHING MACHINES  
are fireproof and stronger and more  
durable than wooden ones? Why then buy  
one that can burn up or one that does  
not have capacity or save the grain?*

**J. I. CASE THRESHING  
INCORP  
RACINE.  
CANADIAN BRANCHES - TORONTO,**

**"BUY IS NOW"  
CASE  
REAR AND SPRING MOUNTED ENGINES  
GIVE GREATEST ECONOMY IN OPERATION**



*All CASE engines stand for  
ECONOMY, STRENGTH and LASTING  
QUALITIES. They have more general  
uses than any one engine built.  
In every instance they excell and  
give Satisfaction.*

**MACHINE COMPANY  
ORATED  
WIS. U.S.A.  
WINNIPEG, REGINA, CALGARY.**

*Chicago  
1911*

# GASOLINE TRACTION ENGINES

## A DEPARTMENT FOR THE USER

We want every owner of a gas tractor in Western Canada to give us his experience. The owners of gas tractors to-day are in a sense pioneers. They are working out the data and compiling a record of work done that both manufacturer and farmer alike the world over are watching with intense interest. Don't keep what you know under your hat, but let us have a story of your gas tractor work. We will reward every such story with a copy of "Plain Gas Engine Sense," one of the best handbooks we know of on the gasoline engine. Don't neglect this matter but let us have your experience at once.—(Editor.)

### Can Pull Two More Plows when Soil is Damp.

We did not get our plowing outfit until the 16th of May last year. It consists of a 45 h. p. Hart-Parr gas engine. I had had no experience with one of these engines, but unloaded it and took it home about 2½ miles on the 17th of May. We had only a little gasoline, but nevertheless, we hooked on our 8-bottom frame with six fourteen inch bottoms Cockshutt plow and made four miles. Then we received our gasoline and the expert came and was with me two days. He would not stay any longer, so I and my man were left to fight the battle alone, as we thought.

By the 17th of June we had broken 250 acres, disced it all twice and floated it and seeded it and harrowed it.

Now, I had two two-way discs and they pulled straight behind the engine, a piece of timber resting on the back post of disc to carry drill tongues. The float was made out of three twelve-inch planks and pulled it behind the disc and ahead of drill under tongue. Harrow was fastened to the frame of drill at back end and followed the drill and it worked fine, making no trouble at all.

There were just two of us to do the work. We had four young horses and used them to do other seeding and to haul gasoline and water. The heaviest load I pulled was six fourteen-inch plows and one two-way disc. The ground was very dry and this made a load for the engine. Then as the ground got drier we took off one plow and only pulled five plows.

After we stopped breaking we got a fine rain in August. So the man and I put on seven fourteen-inch plows and the engine handled the seven as easy as it did the five when it was dry.

Then I started to get ground ready for spring. I took a piece of timber 22 ft. long fastened to the rear of engine; took two Cockshutt single discs with 16, 16-inch discs and fastened one at each end of the timber with a couple of strands of wire running from each end of timber to the front



A Buffalo Pitts Gas Tractor pulling an 8-bottom John Deere Engine Gang

of engine, and then the two-way discs directly behind engine with a piece of steel pipe on the discs to carry the chains clear off the discs from the float to the engine.

Now the float was made out of 4 x 4 set on the corners and bolts through them to hold in same position all the time. My float was in two sections, one ten feet long, and the other twelve with plank on top in order to load to give the desired effect. In my opinion the float is the finest thing out to put the ground in good shape.

As close as I can estimate it took 1½ gallons of gasoline to disc an acre twice and float it

once. One man can run the outfit alone very easily. But I think it gives one man too much to do to look after everything and keep it in good shape. It is better to have two men.

Now in breaking it takes about 45 gallons of gasoline a day, and as an average I did 19 1/11 acres per day with six plows, taking water three times. We have to give water at the same time we do gasoline as it gives more power and keeps cylinders cooler.

It has not cost me over \$3.50 for repairs last season, breaking 577 acres and double discing and floating 950 acres. I must say that I cannot see that it is any harder

on the engine to run over the ground plowing or seeding than to be stationary running, excepting the gear portion which is used when plowing. When discing I averaged 35 acres per day, using 41½ gallons of gasoline.

Regarding the hitch for drills, etc., behind the engine. My way of hitching worked very well last year but I have a better way in mind, especially for drilling. Take a bar of iron and make a half circle, fastening the ends to the rear of engine with a hinge coupling. Put a wheel under the centre of the half circle so as to carry it up high as the horses would carry the tongue. Then put on a cross piece long enough to reach each side of the centre of the outside machines. Use single tongues on all machinery that need tongues. Have

the timber on a pivot in centre with chain or cable running from right of centre timber to left of front axle and from left of centre to right front axle so that all machinery will come in line in turning.

Yours respectfully,  
George C. Long,  
Irricana, Alta.

### Better than Steam.

I now own an I. H. C. 20 h. p. gasoline engine and a five P. & O. stubble bottom plow, also four breaker bottoms, besides an Aultman & Taylor separator.

Last season I had my first experience with a gasoline rig, and I can say that I had a whole lot of experience crowded into the space of 40 days. I believe the gearing on engines should be enclosed in order to protect same from the damp and dust.

When threshing I employed six bundle teams, separator man and engineer. But I found out along with the rest of my experience that one must have two good men at least, an engineer and separator man. No one man can run both ends successfully. My first engineer was a would-be-machine man. He scared a horse attached



Hart-Parr and the Horses There will doubtless be no Horses another year.



# "Hello, People,"

shouts the

## Big Four "30"



**With One Accord Canadian Farmers Answer :  
"Mighty Glad To Know You"**

**Canadian Farmers** heartily cheered THE BIG FOUR "30" as winner of The Gold Medal and Grand Sweepstakes in the 1910 Winnipeg Agricultural Motor Competition. Perhaps you were among the great crowd that saw this splendid, gasoline-driven, steel "Giant Horse" in its brilliant, record-smashing performances. Perhaps you then made the acquaintance of this real all-purpose farm power. But whether you did or not—here is THE BIG FOUR "30" in its first appearance in these columns, saying to you in accents clear and strong, "HELLO" secure in the knowledge that you and your brother farmers, realizing the importance of an early and lasting acquaintanceship with it, will promptly answer—"MIGHTY GLAD TO KNOW YOU."

### A Word About Ourselves.

Beginning June 1st we shall actively promote the sale of THE BIG FOUR "30" in Canada, taking over the manufacturing plant and fixed assets of the Gas Traction Co., Ltd. We were the first and are today the largest builders of four-cylinder farm tractors in the world. Back of each engine we build stands a highly competent Service Organization whose one aim is to keep THE BIG FOUR "30" producing profitable results every minute its owner has use for it. We shall duplicate in Canada not only THE BIG FOUR "30", but also the Service Organization and the many other sterling features that have done so much in the United States to make the name "Gas Traction Company" truly one to conjure with.

### Our "Golden Rule" Guarantee and Shipment on Approval Sales Plan.

THE BIG FOUR "30" is backed by the strongest, most liberal warranty ever given on a traction engine. Every move of the engine on your farm is thoroughly covered. The number of breaker and stubble plows the engine must pull—the size separator it must drive—the fuel consumption—the unerring accuracy of the automatic guide—all these features are incorporated in our "Golden Rule" guarantee. Neither do you pay anything nor make settlement of any kind until the engine in a thorough day-after-day free trial test in your own field on your own farm fulfills this guarantee in every detail. No other traction engine builder has ever dared back an engine in this way, but we have the GOODS and are mighty glad to show them at AT OUR RISK.

### Gas Traction Sense Pays—Yours For The Asking Free.

Gas Traction sense is simply knowing how effectively you can use THE BIG FOUR "30" for every form of traction or stationary farm work. Just put down your name and address on a post-card or slip of paper and mail to us and we'll immediately send you a free copy of our beautifully illustrated 112-page catalog "The Book of Gas Traction Engines"—cramped from cover to cover with straight-from-the-shoulder facts and figures on gas traction operation. Make yourself more fully acquainted with THE BIG FOUR "30" by sending for this book at once. It's free. Ask for it TODAY.



This Trade Mark on a Traction Engine is a Guarantee of satisfaction or No Pay.

## Gas Traction Company, First and Largest Builders in the World of Four-Cylinder Farm Tractors

Offices and Show-Rooms : 156 Princess Street, Winnipeg, Man.

Factory : Elmwood.

General Offices and Factories : Minneapolis, Minn., U.S.A.



to a buggy, damaged to the extent of \$7.50, and after running several bolts, oil cans and such like through the separator and once nearly upset the rig in a badger hole, he pointed the engine at a wind mill, succeeded in hitting it in the centre. Experience—new windmill, \$80.00; expert to put it up, \$15.00; work on anchor posts, \$5.00; team work, \$4.00; lawyer's advice, \$5.00.

After all this was settled we were shortly threshing again with a crew of my neighbor's and did fine, considering the dry season. The best wheat I threshed made 12 bushels per acre. I threshed 30,000 bushels of wheat in 33 days threshing.

I used gasoline for fuel, about 20 gallons every ten hours. For plowing it takes more when you pull the engine nearly to its limit. It handles five stubble bottoms fine, three and four on tough sod.

I use about 1½ barrels of water every ten hours. Gasoline costs laid down here about 28c, per gallon. It takes three men for plowing, engineer, plowman and one to sharpen shares and do the running around.

It cost me clear per acre for my backsetting about \$1.50 for sod. I consider my rig ahead of a steamer. One usually has enough help of his own on the farm to run a gasoline engine and it does not make so much work for our wives.

I do not know what hitch is commonly used. I have just a common one that anyone can rig up. A log, say six inches through at small end, fastened in two places by log chain, and both ends to come together at the drawbar. One can pull three discs, three drills or one binder and two discs. Make the log any length you wish according to the number of implements you wish to use. One only needs two horses for plowing.

I consider plowing harder on the engine than threshing as the sand and grit get into the gearing.

I have been reading my fellow tractioners' experiences in your paper and consider them most interesting and of great help to me.

Yours truly,  
L. O. Hart,  
Clareholm, Alta.

**Thinks Hitch Necessary.**

I have a 30 horse power Flour City gasoline engine which I can say I gave a good test in regards to plowing and discing. Just before the drought set in last June I purchased an eight frame John Deere engine gang with six bottoms. I had just got started to break sod when we had to give up on account of drought. We had to give up for about three months. I then started up again and plowed out my contract of 385 acres with the assistance of two four-horse teams. I was about 40 days on this job owing to several stops. I had as good an engineer as could be had and paid him 60 cents per hour, but I seemed to have trouble. My engine did not seem heavy enough to stand the strain.



**"NINE LIVES" "XCELL" DRY BATTERIES**

Our batteries have proven the very best where a reliable, hot, blue, long spark is required. Particularly adapted to either Stationary, Portable or Traction, Gasoline or Kerosene Engines. Long-lived—produce a sure strong spark. We are now prepared to make prompt shipments of absolutely fresh cells from our Winnipeg Factory.

ASK FOR OUR PRICES

**The Canadian Carbon Co., Ltd.**  
The Largest Manufacturers of Dry Cells in Canada  
WINNIPEG TORONTO

THE Battery Reliable

For plowing I employ engineer, plowman and one to do cooking, hauling the gasoline and water. I keep a light team of horses around handy in case I may have to make a trip to town if anything is needed. This man and team hauls gasoline once a week and hauls a tank of water and leaves it in a convenient place where they can get water for the engine when needed. I use about two barrels of water per day and about 30 gallons of gasoline per 10 hours' work.

I consider plowing much harder on an engine than threshing, for the reason when plowing your engine has to labor just as hard while travelling over the rough ground. My estimated cost per acre was \$2.40. I had to pay considerable for repairs.

I made a hitch for disc harrows last spring that works satisfactory. I took axle of an old drill about 6 feet long and put two old mower wheels on to carry up frame for disc hitch. I can pull five four horse discs and six sections of harrows on this cart and I never had to stop five minutes on account of anything going wrong. I double disc 400 acres.

Yours truly,  
Neil McLeod,  
Champion, Alta.

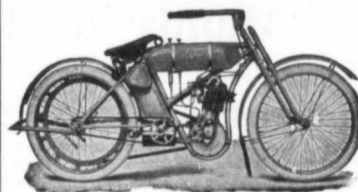
**Broke 100 Acres.**

Our experience in connection with traction plowing only commenced last season. Our outfit consists of a Hart-Parr kerosene engine 22-45 h. p., and a John Deere engine gang of eight bottoms.

At the start we had some trouble with the water (used to feed with kerosene) owing to the valve stems and seats getting

Continued on page 58

**This 4 Horse Power Wagner**



Was designed, built, and tested for the

**FARMER MERCHANT TRAVELER**

and others who needed a safe, speedy, and economical machine for use on COUNTRY ROADS, where

it has since earned a NATIONAL REPUTATION. It is easy to buy, easy to run, perfectly balanced, and COMFORTABLE. Always ready for a quick trip anywhere.

**WE WANT AGENTS NOW**

The roads are good, and the days long, and those fellows in your neighbourhood who would like to ride will come across if you can show them what the machine can do. You can have one of these fine machines at Agent's Price if you will show it. Our plan will help you. The machine will do the rest. If you are interested, write to-day

**CANADIAN WAGNER AGENCIES, LTD.**  
188 MARKET STREET, WINNIPEG, MAN.

**The Occidental Fire Insurance Co.**

Head Office: WAWANESA, MAN.

A. NAISMITH, President R. M. MATHESON, Vice-President  
A. F. KEMPTON, Sec. and Mgr. C. D. KERR, Treasurer

Subscribed Capital \$500,000.00  
Security to Policy-holders 591,123.88

Full Deposit with Dominion Government.  
Agents wanted in unrepresented districts.

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**The WAWANESA MUTUAL INSURANCE COMPANY**

HEAD OFFICE: WAWANESA, MAN.

A. F. KEMPTON, Secretary-Manager

Amount of Insurance in force Dec. 31st, 1909 \$24,136,616.00  
Assets over Liabilities 374,682.43

THE NUMBER OF FARMERS INSURED 18,193

Over 16,316 Farmers Insured. The Largest Agricultural Fire Insurance Company west of Lake Superior. Agents wanted in unrepresented districts



While the *Oil Pull* Tractor will perform nearly every operation that is done with horses, on a farm, it is, at the same time an

## Ideal Power for Threshing



It furnishes steadier and smoother power than any steam engine, requiring only one man to operate it, thus, over steam outfits, it saves one man's labor. As the *Oil Pull* Tractor automatically takes care of any and all variations in load and uses only enough fuel to take care of the immediate requirements, it saves power and fuel.

The sensitive throttling governor automatically adjusts the engine to the load and an *Oil Pull* Tractor when threshing requires no attention, except necessary daily oiling. One operator can care for both engine and separator. This eliminates the labor of one man.

Ten hours fuel supply carried right on the engine. This saves the labor of water and coal hauling.

It is easy to operate. Working parts are simple and accessible. Any intelligent farm hand can quickly learn to run it. This is a big convenience for the owner.

The always present danger of fire from sparks, when threshing with a steam engine, or an explosion when using a gasoline engine, are done away with in the *Oil Pull* Tractor which burns a low grade of kerosene, which is the safest liquid fuel known.

Built in three sizes. Type "E", 30 Tractive, 60 Brake; Type "B", 25 Tractive, 45 Brake; Type "F", 15 Tractive, 30 Brake. Type "B", 45 Brake, is especially adapted for threshing purposes.

The *Oil Pull* Tractor will save time, labor, worry, expense and trouble while the Rumely Ideal Separator will save the grain, cut out frequent waits, cut down repair expenses and give your customers perfect satisfaction. To be prosperous this season, get an *Oil Pull* Tractor, the Ideal Power, and the Ideal Separator.

Besides threshing, hulling, etc. the owner can make good use of his engine and make big money, besides, doing custom plowing during the Fall and Spring seasons. An owner can find use for his *Oil Pull* Tractor nearly every month in the year.

### Ideal Machine for Threshing.

Will be found in the Rumely Ideal Separator as the self-feeder is automatic and positive in its action, cylinders large which furnish excellent suction, entire machine runs smoothly and easily.

Chain rake construction and grates back of cylinders insure greater separating capacity than found in any other machine. In the Rumely Ideal Separator you get

### 95% Separation at the Cylinder.

The extra long 7½ foot chaffer and extra length of the machine provide a large amount of extra cleaning surface not found in other machines.

Every movable part and adjustable part is on the outside. Oiling and necessary daily adjustments can be made while the machine is in motion. It is built in six sizes.

The Rumely Ideal Junior is built along the same lines as the Ideal and can be had in three sizes. These two separators give a range of sizes from 18 in. cylinder, 40 in. separator up to 40 in. cylinder and 64 in. separator.



M. RUMELY CO., 1961 Rose Street, Regina, Saskatchewan.



## Course in Gas Engineering

This Course will consist of a series of practical talks on the theory and practice of the gas, gasoline and oil engine. They will be simple, illustrated when necessary, and of such a nature that the gas engine owner may easily adapt them to his daily engine work.

### LESSON VIII.

#### The Various Efficiencies.

We shall now take up the first consideration as noted in Lesson VII, namely, the heat in the fuel. In the English system the energy in the fuel is expressed in British thermal units or B. t. u. A. B. t. u. is the quantity of heat necessary to raise the temperature of one pound of water one degree Fahrenheit. At first thought this quantity of heat appears somewhat small but the fact is, one British thermal unit is equivalent to 778 ft. pounds of work. Now 33,000 divided by 42.4 or, in other words, where one horsepower exerted continuously and transformed into heat energy the quantity of heat so obtained would only be capable of raising the temperature of 42.4 pounds of water one degree Fahrenheit per minute, provided there was no loss.

With respect to fuels the heating value is usually given per pound. The value for gasoline is found to be about 18,000 B. t. u. per pound. Of course, this value is variable with the different gasolines but the above is a fair average.

The method of obtaining the heating value is by means of an instrument called the calorimeter (heat measurer). The fuel is burned in a closed vessel and the heat so produced is employed to raise the temperature of water which circulates through the apparatus. Knowing the heat value per pound it is then a simple matter to transform to the liquid measure, the unit of which is the gallon. The density of the gasolines vary quite largely from the light volatile oils of a few years ago to the heavy naphthas almost down to kerosene. As uniting however, a gasoline of 68° Beaume; this will have a specific gravity of .71 or, in other words it is .71 as heavy as water. Water weighing 62.5 or 44.35 pounds per cubic foot. A U. S. gallon contains 231 cubic inches so that a cubic foot contains 1728 divided by 231 or 7.48 U. S. gallons. The weight per gallon will be 44.35 divided by 7.48 or 5.92 pounds. The heating value per gallon will be, then, 5.92 times 18,000 or 106,560 British thermal units.

Again referring to the engine previously discussed, it was found that the fuel consumption per developed horsepower hour was .112 gallons or, in other words, it required .112 gallons of gasoline to develop one brake horsepower for one hour. The heat units supplied per d. h. p.—hr. were, therefore, .112 times 106,560 or 11,935. This represents the quantity of heat that was put into the engine.

Now, one horsepower represents 33,000 foot pounds per min-

ute or 1,980,000 foot pounds per hour. Since the mechanical equivalent of one B. t. u. is 778 foot pounds the equivalent of 1 horse power expressed in thermal units will be 1,980,000 divided by 778 or 2,545. This represents what is obtained from the engine as useful work.

Efficiency is defined as the ratio of the energy produced by a piece of mechanism to the energy supplied. The power or energy produced is expressed as a percentage of that supplied and this is termed the efficiency. There are of course, efficiencies of different kinds; if it relates to the transmission of heat it is termed thermal efficiency, if to the transmission of power, mechanical efficiency, etc. In this particular case we are discussing the transformation of heat units into developed horsepower so that the efficiency will be known as the thermal efficiency per developed horsepower to distinguish it from the thermal efficiency per indicated horsepower.



#### TRACTOR EFFICIENCIES.

Now for 2545 heat units developed we are forced to supply in the form of fuel 11,935 B. t. u.:

The thermal efficiency per developed horsepower hour was therefore, 2545 divided by 11,935 or 21.3 per cent.

The developed horsepower was 43.64 and the indicated was 54.9 so that the efficiency of the engine as a mechanism for the transmission of power at the cylinder to power at the engine shaft was 43.64 divided by 54.9 or 79.5 per cent. This is called the mechanical efficiency.

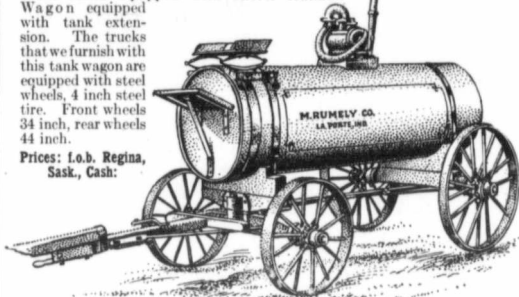
The thermal efficiency per indicated horsepower is the thermal efficiency per developed horsepower divided by the mechanical efficiency or, in this case, 21.3 divided by .795 or 26.8 per cent. This can be easily proved by returning to the heat units produced in the cylinder. These were evidently greater than those produced

Often the source of fuel supply for internal combustion engines is a long distance from the work. This necessitates that tank wagons of large storage capacity be a part of each outfit.

## THE Rumely Oil Tank Wagon

Fulfills this want adequately and inexpensively. It consists of a tank wagon made of No. 12 gauge metal, both heads and shell, with all seams welded by our special process. It is 30 inches in diameter and 10 feet long, and has a capacity of 510 gallons. This tank wagon is equipped with a spring seat hopper, necessary pipe connections, and so arranged that it can be mounted on any standard wagon truck. Front wheels equipped with swivel feature. Wagon equipped with tank extension. The trucks that we furnish with this tank wagon are equipped with steel wheels, 4 inch steel tire. Front wheels 34 inch, rear wheels 44 inch.

Prices: f.o.b. Regina, Sask., Cash:



Kerosene Tank only ..... \$70.00 Steel Truck, with Doubletrees and Pump with Hose ..... 22.00 Neckyoke, only ..... \$72.00

This tank is built substantially and durable, and carries the Rumely guarantee to fulfill to the fullest extent the requirements for which it is designed.

Cash with order shipments can be made the day they are received. This tank is just what you have been needing. Here is your opportunity to secure a strongly built tank wagon just to suit your needs.

### M. RUMELY CO.

1963 Main Street - - LaPorte, Ind.



## DO YOUR PLOWING AND THRESHING WITH A "Flour City" Tractor

The "FLOUR CITY" FOUR CYLINDER ENGINE is free from vibration, and will deliver an absolutely steady motion to your separator; no jerking of the belt as obtains in the single and double types.

It will do your plowing at a fuel expense of one and one-half gallons per acre.

It will operate with Kerosene equally as well as with gasoline.

It is of the most modern construction, and has not a weak point in it.

IF INTERESTED SEND FOR CATALOG.

### ONTARIO WIND ENGINE & PUMP CO.

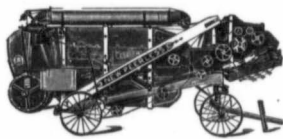
TORONTO, WINNIPEG, CALGARY, or

KINNARD-HAINES CO., 828 44th Avenue North, Minneapolis, Minn.



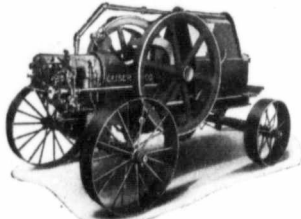
# "Geiser" Celebrated Sieveless Separators and Threshing and Plowing Engines

Are the latest and most up-to-date machines on the market.



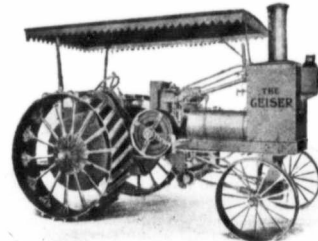
"Geiser" Sieveless Separator

The new system which has revolutionized the whole process of threshing and cleaning grain. What is known as the "Grain Plate and Roller System and Automatic blast." The simple invention eliminates the sieves or riddles and practically revolutionizes the old and antiquated method of threshing. Built in all sizes from 25x29 to 40x60. Special sizes built for Gasoline Engine Power.



"Geiser" Portable Gasoline Engine.

This Engine is specially built for threshing purposes and is the most modern on the market. LEADING FEATURES—Vertical Valves, Electric Igniter, Centrifugal Fly Ball Governor, and patent Match Starter.



The Geiser 4-Cylinder Gas Tractor has more New Features and more Good Points than any other machine on the market to-day. Let us tell you about it

## Burrige, Cooper Company Limited

303 Owina Street, Winnipeg, Man.

Regina, Sask., Branch: 1840 Dewdney Street

at the shaft in the ratio of 54.9 to 43.64 so that the efficiency would be greater in the same proportion. Combining the data on the engine test, we have.

Brake horsepower, 43.64.  
Indicated horsepower, 54.9.  
Gasoline used, 68° Beaume.  
Heating value of gasoline, 18,000 B. t. u. per pound.  
Fuel Consumption, .112 U.S. gallons per d.h.p.-hr.

**Efficiencies:**

Thermal efficiency per d.h. p.-hr., 21.3 per cent.  
Thermal efficiency per i. h. p.-hr., 26.8 per cent.  
Mechanical efficiency, 79.5 per cent.

**Engine Applied to Tractors.**

When the engine is mounted as a tractor there is a certain loss of power from the engine shaft to the drawbar. This loss of power is occasioned by the friction of the gear teeth, the rotating shafts, the slippage of the wheels, etc. A large proportion of this loss is used to propel the tractor itself. In the table published in Lesson I, the efficiencies were calculated for all the tractors entered in the Winnipeg Motor Contest. This was given under column r. It will be noticed that there was a wide variation, from 36 to 73.8 per cent. However, these efficiencies are not strictly applicable but only serve as a comparison with the various loads pulled. It will be noticed that the drawbar horsepower at the time the plowing contest occurred was divided by the maximum horsepower developed during the half-hour brake test. Now there is no reason to assume and it is not true that all the engines at the time they were plowing were developing their maximum power. All tractors have somewhere near the same number of gears and the relative weights do not vary greatly so that it is not reasonable to suppose

that the efficiency will vary as greatly as that shown.

This efficiency was called the efficiency of transmission or, it might also be spoken of as the tractive efficiency since the losses are entailed in the transmission or tractive parts.

To work out a concrete example, we shall assume that the engine under discussion was mounted as a tractor and, when developing 43.64 horsepower at the engine shaft, the drawbar pull, by means of a traction dynamometer, was found to be 5,740 pounds, the tractor at the same time moving at the rate of 1.95 miles per hour. The old rule must again be brought into use that, work equals force times space.

1.95 miles per hour equals 1.95 times 5280 divided by 60 or 171.6 feet per minute. The work per minute, therefore was 5,740 times 171.6 or 985,050 foot pounds. Dividing by 33,000 we have 29.85 as the drawbar horsepower.

The efficiency of transmission was 29.85 divided by 43.64 or 68.4 per cent. Under column q, Lesson I, was given the thermal efficiency per drawbar horsepower. To get the efficiency of a piece of mechanism we multiply the efficiency of the various parts. Multiplying the thermal efficiency per d.h.p.-hr., 21.3, by the efficiency of transmission, 68.4, we have 14.6 per cent.

If the tractor were considered as a whole, that is, if the engine and truck were taken as one piece of mechanism it would be plausible to speak of the loss from the cylinder of the engine to the drawbar. We should then divide the drawbar horsepower by the indicated horsepower and would have 29.85 divided by 54.9 or 54.4 per cent. This latter efficiency might be called the mechanical efficiency of the tractor

Continued on page 65

## Quit Doing This → Get a GOOD Spreader



EVERYONE knows that if soil is not fertilized it will soon wear out. The barren condition of thousands of farms in this country proves this statement. A large percentage of this number could be improved if manure were spread judiciously.

Field experiments prove that eight tons of manure evenly spread are as good as twice that number spread in a haphazard way. Hand spreading requires at least twenty loads to cover an acre. With a manure spreader, eight loads will cover the same amount of ground more evenly, but—

Your problem of soil fertility is only half solved when you decide to get a manure spreader. The other half—of equal importance—is in deciding just which spreader is best for you to buy.

If you investigate thoroughly and decide carefully, you will select a spreader that thousands of other progressive farmers are having great success with—one of the

## I H C Manure Spreaders

The simple design and unusual strength of all working parts of I H C Spreaders account for their long life and light draft.

The method of transmitting power from the wheels to the beater is simple and direct. There are no unnecessary parts to wear. The beater is large in diameter and the teeth are long, square, and chisel pointed. By using this style of tooth, the manure is thoroughly pulverized and is thrown out before it wedges against the bars. By using a square tooth, rimming of the bars is overcome.

The apron is supported by steel rollers and the slats are placed close together, so that manure does not sift down and interfere with the movement of the rollers. The steel wheels have ample strength to carry many times the weight they will ever be called upon to bear. The rims are flanged inwardly to prevent cutting and rutting of meadows and accumulation of trash. Z-shaped lugs give the wheel a practically continuous ground-bearing surface and do not jar the machine to pieces. There is no reach to prevent short turning.

In the I H C line, you have choice of these two famous styles—

### Cloverleaf Corn King

All are simple, strong, and durable—all are easily and instantly adjustable to spread light or heavy, as the soil requires, and all three are made in sizes suitable to any size farm. See the I H C local agent—and get catalogues from him, or, write nearest branch house.

CANADIAN BRANCHES—International Harvester Company of America at Brandon, Calgary, Edmonton, Hamilton, Leithridge, London, Montreal, North Battleford, Ottawa, Regina, Saskatoon, St. John, Verden, Winnipeg, Yorkton.

INTERNATIONAL HARVESTER COMPANY OF AMERICA  
Chicago (Incorporated) U.S.A.





## Questions and Answers For Gas Engine Operators

This month we begin a new department for gas engine operators similar to that which we have so successfully carried on for the past few years for those interested in steam. We invite your questions and will give them our best attention. Just tell us your troubles or ask us about any point upon which you desire information. We have secured the services of a competent expert who can handle gas engine queries intelligently and to the complete satisfaction of all concerned.

**C. B. Q. A.** What will be the horse power of a gasoline engine with a piston 6 inches in diameter and 6 inches stroke?

**B.** How close to the cylinder head should the piston be when at the compression end of the stroke?

**C.** What is the rule for calculating the latter? I would like to have you assume such dimensions of the engine as I have not given, and that are necessary for the solution of the above questions.

**A. A.** Assuming that the engine is of the four-cycle type, and that its speed is 250 r.p.m., the horsepower that would be delivered at the pulley would, under the best conditions, be 3 h. p.

**B.** This distance depends entirely upon the shape of the compression space in the cylinder. If the valves open directly into the cylinder, this distance should be about two inches.

**C.** The general rule is to make the volume of the compression space from one-half to one-fourth that of the piston displacement.

**G. R. Q.** Please inform me through your inquiries how to make an effective muffler for a gasoline engine with a 3-inch bore and a 3½ inch stroke.

**A.** Take a 12-inch length of each of the following sizes of gas pipe: 1-inch, 2-inch, 3-inch, 4-inch. Cast two heads with grooves in each that will fit the ends of the pipe when placed one within the other. Then drill eighteen ¼-inch holes near one end of the 1-inch pipe, eighteen ½-inch holes in the opposite end of a 2-inch pipe, eighteen ¾ inch holes in the opposite end of the 3-inch pipe and forty-four ⅝-inch holes in the opposite end of the 4-in. pipe, if it is practicable to exhaust directly from the side of the muffler into the atmosphere. The holes should be so placed that the gases must pass the full length of one compartment of the muffler before entering the next one outside, the exhaust from the engine being carried direct to the 1-inch pipe and entering at the end opposite that in which the holes are drilled. By making the end flanges large enough the muffler may be held together with four ⅜-inch bolts.

**L. A. Q. A.** What is the principal objection to a jump spark?

**B.** Can the ignition be timed as accurately as with make-and-break?

**C.** Will dampness cause sparking without closing circuit?

**A. A.** The principal objection to a jump spark is that, owing to the poor electrical engineering which is employed in connection

with the installation of the apparatus and its design, it has given considerable trouble. The troubles are short-circuiting of the secondary, breaking down of the coil, burning off the contact-points on the interrupter, owing to insufficient capacity in the condenser and in many cases unreliable ignition because of attempting to use a long, thin spark in the secondary rather than a short, fat one.

**B. Yes.**

**C. We do not understand this question, but take it to mean, "Will dampness cause sparking without making a dead short circuit?" If this is what is intended by the question we would say that dampness may close the circuit and cause a spark at an undesired time. Dampness will also cause trouble by short-circuiting in the secondary, allowing the high-tension current to leak from one wire to another, and thus prevent a spark from passing between the plug terminals.**

**G. M. Q.** What is meant by lead of a spark? Should it be before or after the piston leaves the upper dead centre?

**A.** The lead of the ignition means igniting before the piston gets to the top of the stroke. When the igniter fires the mixture at the dead centre it is said to have no lead. After the piston has started on its downward stroke it is said to have negative lead.

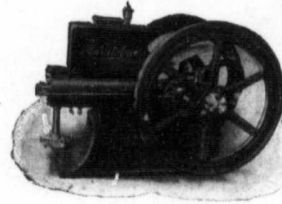
**J. C. Q.** At what temperature F. may kerosene be converted into gas and used in place of gasoline?

**A.** Kerosene vaporizes at from 300 to 575 degrees F. It is not, however, necessary to bring the kerosene up to this temperature for use in the engine. After an engine has got hot by starting on gasoline it will usually run successfully on kerosene, and even some of the other distillates. Ordinarily kerosene engines draw in the air from around the exhaust pipe or air shaft surrounded by hot water from the engine.

**J. A. Q.** How can I stop the noise of the exhaust in a 6 h. p. gas engine? The muffler does not give satisfaction, and I propose digging a pit so that I may invert a barrel in it and let the exhaust go from the muffler into the pit. Would this plan be a success?

**A.** A good plan to lessen the noise of the exhaust is to dig a pit for this size engine about five feet deep and four feet in diameter, and to lead the exhaust to the bottom of the pit. After the pipe is in place fill the pit with loose stones.

## The Manitoba Gasoline Engines are Great Labor Savers on the Farm



They are always ready for work, in winter as well as summer, are not affected by cold weather as every engine is Hopper Cooled. No large separate water tank with small connecting pipes and circulating pump to freeze up or leak.

Have a perfect Cold Weather Automatic Mixer that requires no priming to start.

The Gasoline Supply tank is carried in the base below the intake valve. No possible chance of Flooding the Engine, Leakage or Waste, as with gravity feed engines.

The hopper, cylinder and base are all cast separate; in case of an accident can be repaired at very small cost. Quite different to those that have these parts cast all together; the latter method cheapens the first cost but not the last.

All small wearing parts are case hardened tool steel (never wear out). Has automatic battery and fuel cut out which insures long life to the batteries and economy in fuel consumption.

Write today for free catalog giving complete description of all sizes from 14 to 25 H.P. We also manufacture a complete line of Power and Pumping Windmills, Grain Grinders, Pumps, Saws, etc.

OUR FACTORY IS IN THE WEST

**The Manitoba Windmill & Pump Co.,**  
LIMITED  
BRANDON, MAN., and CALGARY, ALTA.

## DEALERS! HAVE YOU PARSON'S AGENCY

AN ENGINE WITH A WORLD WIDE REPUTATION IF NOT, WHY NOT

Farmers want good Engines — PARSON'S ARE BEST FOR ALL FARM PURPOSES.

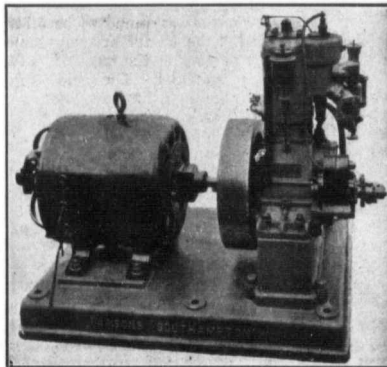
The admiration of all for Design, Material, Workmanship.

DURABLE  
RELIABLE  
ECONOMICAL

Simple to operate.  
Gasoline or coal oil.

BRITISH MAKE

Quality tells and sells.



You will have no complaints from purchasers if you sell them Parson's Four-Cycle Magneto Ignition. No batteries or coil required. Phosphor-bronze bearings throughout. No rabbit timing drive on magneto. Very economical on fuel. Will run all day at maximum power. Made in sizes from 7 h. p. to 180 h. p., and from 1 cylinder to 6 cylinders. Applications wanted for agencies in unrepresented districts. Write for territory, terms and booklet. Canadian Agents: BRITISH-CANADIAN MOTOR CO., 317 PORTAGE AVE., WINNIPEG

## SAFE LOCK STEEL SHINGLES

Galvanized

Painted

Absolutely **Proof**

WIND RAIN  
FIRE HAIL  
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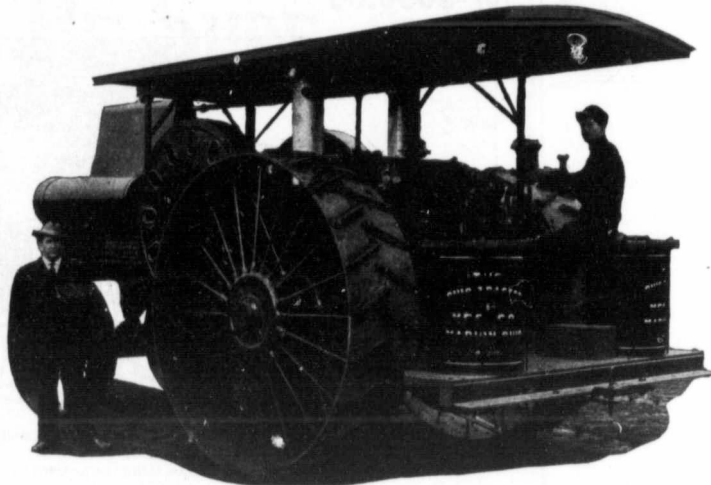
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246 Princess Street

WINNIPEG

## MEN OF THE COUNTRY: WE ASK YOU---



Built in three sizes: 30, 45, and 70 Brake Horse-Power

Two Features alone make the OHIO superior to any other on the market:—

1. THE PATENTED FRICTION DRIVE relieves all sudden strains and delivers power alike from both fly wheels
2. THE PATENTED FRICTION STEERING GEAR removes all hard work from the operator. A few pounds pressure on the steering lever is sufficient to turn or guide the machine any way desired

Write and let us have an opportunity to give you many more good reasons why you should have this Engine on your Farm

**Sawyer-Massey Company, Ltd.** 611 Union Bank Building, Winnipeg, Man.

Are your present farming methods satisfactory to you?

Are you killing yourself, your farm help, your horses following the plow from daylight to dark?

Are you getting the best results and the biggest returns for the work you are doing?

Do you consider in this age of invention when machines are relieving men in every walk in life of the slavery of olden days, that you are not making a serious mistake in not taking into consideration the opportunities offered you in the Ohio Gasoline-Kerosene Tractor? The Engine that for many reasons—is making money—and making it fast—for the men who now own them.

The Engine that has all others outclassed for Ease in Handling

The Biggest Dollar's worth of Engine ever offered for Sale

L. G. Q. The igniter points of our 20 h. p. gasoline engine burn out in about three or four months. We use five cells of Edison's primary type R. R. Our igniter is on top of the cylinder in a small hood bolted to the cylinder and is not cooled except by the surrounding air. It is a make-and-break spark. The platinum alloy points are brazed and are flat points, being  $\frac{1}{8}$  inch in diameter at the points. These are in contact about 90 degrees in a revolution. They are covered with small heads or globules and the electrode burns hollow. Then I have to emery it again to get a good spark. Of course this is very expensive and undesirable. I have tried changing the direction of the current every few days,

but it does no good. The engine is overloaded at times and the hood gets quite hot. Can you suggest a way to overcome this difficulty?

2. Another point I wish to ask about is misfires. Our load varies considerably and when the engine is set to run smoothly with full load I find that when the load is light the first charge after it has cut off two or three impulses will not explode and the next time will be a heavy explosion. This will stop it if I turn on a little more gasoline when the engine is next thrown on but the engine does not give as much power as before. This requires a change in the fuel value quite often.

A. The method of locating the igniter in a pocket is the poorest

practice imaginable. In the first place, no electric igniter should be set in a pocket. You might overcome your troubles by using "casalloy" or "meteor wire" 3-16 inch diameter for your points, but we doubt it. We suggest that you put a plate on instead of the hood. Tap the plate with a  $1\frac{1}{2}$  inch pipe tap, secure a mica plug with platinum points and use jump-spark ignition. See that the spark points of the plug extend well into the compression space. Of course, if the small hood you speak of is required for other purposes it will be impractical to change it. In this case drill through into the cylinder wall, and if necessary to pass the water jacket, you should use a stud large enough to allow the opening

for the plug, making sure that the points project into the cylinder, and do not put your igniter plug in a pocket.

2. We believe that the change in position of the igniter will overcome the difficulty with the misfires. If not, the vaporizer is at fault.

### From Track to Stack.

The above is the title of a most beautiful booklet gotten out by the M. Rumely Company. It is a clear and excellent exposition of their steam tractors. It shows the machines in construction and at work. The book in itself is a work of art and is well worthy of your attention.

Address the M. Rumely Company of Regina, Sask., for the copy, mentioning this magazine.

# OILDAG

REGISTERED TRADE MARK

## For Lubricating Gas Engine Cylinders and all Machinery

Deflocculated Acheson-Graphite—DAG—and oil

To make graphite remain uniformly suspended in oil, it must be deflocculated—that is, separated into molecular particles much finer than the finest powder. The best oil will not carry powdered graphite in suspension, no matter how finely ground. Edward G. Acheson, S.C.D., who invented the process for making graphite over 90 years ago, in the electric furnace has also discovered a process which does accomplish deflocculation.

The deflocculated graphite particles soon fill in the uneven places on the piston rings and cylinder walls, giving more perfect compression. The Special Graphite Committee and the Technical Committee of the Automobile Club of America reported that Oildag

After being deflocculated, the graphite must stand the test of passing through standard filter paper. This molecular condition is believed to be the finest subdivision of particles possible. Pure deflocculated Acheson-Graphite mixed with sufficient oil to form Oildag (condensed) is sold in packages of various sizes for mixing with a specified quantity of mineral oil where the graphite remains in uniform suspension as Oildag.

The Special Graphite Committee and the Technical

**Increases efficiency of the engine. Decreases smoke from the exhaust. Decreases quantity of lubricating oil. Retains compression in cylinders**  
**SAVE 50 PER CENT. OF THE COST OF LUBRICATING OIL AND GET 10 PER CENT. MORE POWER**

We are General Agents for high-grade lubricating greases compounded with Disintegrated Acheson-Graphite under the trade name of

**GRETAG**

Made by the International Acheson Graphite Co.

Write for booklet 77B or send \$3.00 for a dozen No. 1 C cans, OILDAG (condensed) sufficient to mix with 12 Imperial gals. of oil.

**ACHESON OILDAG COMPANY**

Factory at Sarnia, Ont., Can.

Port Huron, Mich., U.S.A.

## Investigation of the Economic Principles of the Internal Combustion Engine

By L. K. BROWN.

Boyle, Gay Lussic and others discovered the laws or most of them, and gave them to the world which enable us to analyze the methods of producing power by the use of the internal combustion engine.

Omitting all algebraic formulas, the theory may be graphically shown by the use of an ideal cylinder, and for the purpose we will suppose the cylinder to have an area of 144 sq.in. x 14 ft. long and the walls to be perfect non-conductors of heat. Suppose a perfect fitting piston head to be placed one foot in the clear from the closed end of the cylinder and that the one cu.ft. of space between the piston and cylinder head is full of air at atmospheric pressure and at a temperature of 40° Fah. which equals 500° above absolute zero. If this one cu. ft. of air be heated to 540° Fah. or 1000° above absolute zero the cu. ft. will be increased double in bulk and will move the piston out to 2 feet in the clear while the pressure remains at one atmosphere as before. If the piston had been held stationary the pressure would have been doubled. If the absolute temperature is doubled again, raising it to 2000° Abs. the piston would be moved out to 4 ft. if the pressure remained the same, or if the piston were still held at 1 ft. in the clear the pressure would be raised to 4 atmospheres absolute. That is: At constant pressure the bulk increases as the temperature from absolute zero is increased, and at constant volume the pressure is increased as the temperature is increased.

The compression diagram supposes an ideal cylinder having 144 sq. in. area by 14 ft. long filled with a fuel mixture of one volume of gas to seven volumes of air at a temperature of 40° Fah. or 500° Abs.

The gas or gasoline vapor in this charge is supposed to contain 1050 British Thermal Units (B. T. U.) of fuel or 600 units to the cubic ft. of gas. A thermal unit is the amount of heat it takes to raise one pound of water one degree Fah. (I have chosen this size cylinder because 14 cu. ft. of this fuel mixture at 500° Abs. and at atmospheric pressure weighs approximately one pound). One thermal unit will raise the temperature of one pound of air nearly 6 degrees but will only raise the products of combustion of this fuel mixture about 5 degrees so if the combustion is complete the 1050 B.T.U. in this charge will raise the temperature 5 times 1050 or 5250 degrees.

If the piston head be forced back compressing this 14 cu. ft. of

gas and air down to two cu. ft. the pressure would be 7 times 14.7 lbs or 102.9 lbs. if the temperature remained at 500° Abs and the compression pressure would follow the isothermal line as shown to 102.9 lbs. Abs. but it has been found by experiment that 772 ft. lbs. of work will produce one B.T. U. of heat. As the piston is forced back the 1 lb. of charge must necessarily absorb the heat produced by the compression and the compression will follow the upper curve.

This added heat caused by the compression will add 560° or more to the temperature of the charge and raise the pressure to about 224 lbs. to the sq. in. and the absolute temperature of compression will be about 1060 degrees. Firing the charge fired at this point adds 5250 degrees to the T. making the total temperature (T.) about 6 times as much as the compression T. and raises the pressure in the same proportion to 1,333 lbs. per sq. in. as shown in the table. This gives a mean effective pressure (M.E.P.) of 248 lbs. and in pushing the piston out 12. ft to the end of its stroke produces 428,544 ft. lbs. of effective work, which divided by the 1050 B.T.U. used in the charge gives 408 ft.lbs. of effective work for each B.T.U. in the charge used.

Suppose the compression stopped at 6 cu. ft. the Abs. compression would have been 48 lbs. the T. of compression (Com.) 692° Abs. the Abs. Pressure (Pres.) of the explosion 415 lbs. the M.E.P. 194 lbs. and the ft. lbs. of effective work (E.W.) per B.T.U. would be 212°.

In practice part of the heat is wasted through the walls of the cylinder, and some of the power wasted in running the engine and the balance of the power may be used for useful work.

In summing up from the table:—

1. Inspection of lines 7, 11, 16, & 21, shows the economy of the fuel depends entirely on the amount of the compression.

2. The presence of a part of a previous charge of burnt gases in the cylinder does not affect fuel economy if combustion is complete.

3. Increasing the temperature of the charge does not affect the fuel economy.

4. The speed of the engine may be governed by increasing or decreasing the amount of fuel in the charge within the range of complete combustion without affecting the fuel economy.

5. The power the engine will develop, is decreased as the temperature of the charge is increased compare lines 2 and 17. If 14 cu. ft. of charge at air pressure and

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Made to fit any make of engine. Send for description and sample of screen to

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# Red Cross Thresher Belts

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Threshing time will soon be here. It's a good time now to take stock. Let us know your wants.

## Goodyear Tire and Rubber Co. Limited

41 PRINCESS ST. - WINNIPEG, MAN.

500° Abs. weighs on pound 14 cu. ft. of charge at air pressure and 700° Abs. will only weigh 5/7 of a pound, therefore only 5/7 as much fuel can be used and the temperature of compression will run higher as there is only 5/7 as much fuel to absorb the heat produced by the power used in compressing the charge. The compression is the same no matter what the temperature of the charge is provided, it always starts at the same pressure. 6. (Though not apparent in the table). In an engine built with a small compression space for high compression reducing the compression for governing by throttling the charge does not affect the fuel economy as the distance to which the gases are expanded remains the same, providing the explosion is complete and on time.

To trace theoretically where the waste heat of the engine goes off or is expanded we will trace the operation of the compression and power strokes of this ideal engine for one revolution.

Suppose the piston to be out to 14 ft. in the clear and the 14 cubic feet behind the piston to be charged with air containing 1050 British thermal units of gasoline vapor, the charge being at air pressure 14.7 lbs. per square inch and at a temperature of 40 degrees Fah. or 500 degrees Absolute temperature on the Fah. scale. It may be seen in the table in line 1 that it takes 50 1/4 pounds per square inch absolute M.E.P. to compress the

14 cubic feet of charge into 2 cubic feet.

As the area of the piston is 144 square inches and the compression stroke is 12 feet it takes 50 1/4 lbs. multiplied by 144 multiplied by 12 = 86616 foot pounds of power to compress the charge. A B.T.U. is the amount of heat that it takes to heat one pound of water one degree Fah. and equals 772 ft. lbs. of energy. One thermal unit will heat this one pound of fuel mixture 5 degrees Fah. or 1/5 of 772 foot pounds = 164 2/5 ft. pounds of energy will heat the charge 1 degree Fah. Dividing the compression energy 86,616 ft. lbs. by 154 = 560 degrees the charge will be raised by the power used to compress it.

If the temperature remained at 40 degrees Fah. while the charge was being compressed into two cubic feet or 1/7 of its size the pressure would be 7 times 14.7 pounds or 102.9 pounds but 560 degrees of temperature has been added to the charge by the energy of compressing the charge. As the pressure rises in proportion to the rise of temperature from absolute zero the compression pressure should be according to these figures 218. lbs shown in the table as 224 lbs.

Firing this charge containing 1050 B.T.U. of fuel at this point adds 5250 degrees of temperature to the charge which added to the 1060 degrees absolute temperature of the charge, starts the work stroke with nearly 6

times the absolute temperature and pressure the compression had and the total mean effective pressure for the work stroke would be nearly 6 times the M.E.P. of the compression stroke. The M.E.P. for power of engine would be nearly 5 times, hence in working out to the end of the stroke nearly 6 times as much heat would be converted into energy as there was energy converted into heat by the compression stroke, hence the temperature would fall nearly 560 degrees multiplied by 6 = 3360 degrees or to about 6 times 500° = 3000 degrees, this would show a pressure of about 86 lbs. absolute at the end of the stroke to go into the exhaust pipe. To trace this heat from the point at which the exhaust valve begins to open, suppose the cylinder were 35 feet longer so the charge could be worked out to atmospheric pressure before it exhausted, the M.E. P. (absolute) for this 35 ft. would be 33 1/3 pounds as can be seen from the table line 3, 33 1/3 lbs. multiplied by 144 multiplied by 35 = 168,000 ft. lbs., which divided by 154 2/5 ft. lbs., gives 1087° of the heat of the charge would be changed into energy and the temperature of the burnt charge reduced to 1900° absolute temperature according to these figures but according to theory should only be 1750° absolute or 1290° Fah. Hence in this ideal cylinder the economical investigation shows that of the 5250 degrees of heat

in the fuel about 2750° are converted into effective work, 1087° are wasted expanding through the exhaust, and 1290° go into the air of atmospheric pressure, when the exhaust takes place at the 14 foot position. But cylinders are not non-conductors of heat and the heat that goes off through the cylinder cooling system is deducted from these items and affects the economy considerably.

Mr. E. N. Percy's articles in Gas Review show that all it requires to use kerosene in a gasoline engine is to heat the air considerably as it enters the carburetor.

The question would arise as to what limit would have to be made in the compression in order to avoid preignition of the charge as lines 4, 8, 12 and 17 in the table shows that increasing the temperature of the charge increases the temperature of the compression very materially.

This question of the proper limit for the compression when it is necessary to heat the charge as it enters the cylinder is an important one, as the lower the compression the less the fuel economy, while on the other hand if a cheaper fuel can be used by heating it in the carburetor and lowering the compression to avoid preignition it might be good economy to do so.

I note that some maker of internal combustion tractors are put into the Winnipeg Motor Cont-



est year after year that have a much lower fuel economy than some of the others. There must be some reason for this that is not brought out in the reports of the Contest nor in the advertisements of the manufacturers.

They don't seem to take the public into their confidence.

What the farmer wants to know when he is looking for a tractor is what kind will do the best and most work for the least cost, whether it be steam gasoline or kerosene is of minor importance.

**The Agricultural College Special**

Where it is not possible for the farmers and their sons to secure the advantage of a college education, the Manitoba Agricultural College proposes to take the college to the farmers.

Beginning May 30th and ending June 28th an Agricultural College Special, consisting of seven cars, four of which will be especially equipped for teaching, will practically cover Manitoba.

This, to say the least, is a most commendable piece of work and should be patronized by all the farmers. It is an opportunity to come and see and listen, and go home and put into practice.

The work outlined on this trip is as follows:

**THE HOME**

One car will contain equipment of special interest to women. It will include appliances calculated to lessen labor in the home. Demonstrations will be given in cooking, in the selection of meats for the table, and in the care of house plants. In this car lectures will be delivered on many subjects relating to the home including the maintenance of health, and the care of the sick, foods best adapted for our work, the management of the laundry, germ life in the home, and water for domestic purposes.

**LIVE STOCK**

A palace stock car will contain representative specimens of cattle (beef and dairy) sheep, swine and poultry (horses will be secured at local points). Lessons will be given in the selection, judging, breeding and management of these animals, and farm poultry; special emphasis being placed upon their economical production.

**CULTIVATION AND CROP GROWING**

Another car will contain a variety of exhibits of interest to those who wish to know more about mixed or diversified farming. Among these will be shown the rate of movement of water in soils of different textures, methods of controlling moisture in the soil, noxious weeds, powers of seeds to germinate, habits of plants, etc. Lectures will be given on this car on such subjects as the best methods of cleaning dry land and the most profitable crops to grow. Farmers are invited to bring for identification weeds with which they are not familiar.

**DAIRYING**

The dairy car will be equipped with dairy utensils, and charts providing instructive lessons in the economical production of milk. Demonstrations will be given in butter making, and lectures delivered on such subjects relating to dairying as may be of most interest in the different localities through which the train will pass.

**GARDENING TREE PLANTING AND INSECTS**

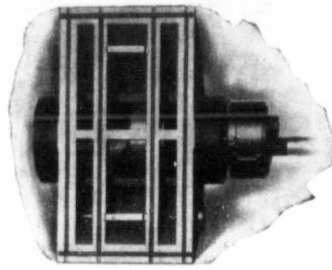
Demonstrations will be given in the judging of vegetables for table use, ac-

companied by lectures showing how to grow and hold in storage such supplies as can be produced in a farmer's garden. Demonstrations also will be put on in the planting of trees and instruction given in the growing of small fruits, and the beautifying of the farm home.

Specimens of insects injurious to farm crops will be shown and methods of killing them outlined.

The "Agricultural College Special" will be at C.P.R. Stations in Manitoba as follows:

May 30	Morris	9.00	12.00
" "	Rosenfeld	13.30	17.00
" "	Winkler	19.00	22.00
" 31	Morden	9.00	12.00
" "	Manitou	13.45	17.00
" "	Pilot Mound	19.00	22.00
June 1	Mather	9.00	12.00
" "	Cartwright	13.00	17.00
" "	Killarney	19.00	22.00
" 2	Ninga	9.00	12.00
" "	Boisevain	13.15	17.00
" "	Deloraine	19.00	22.00
" 3	Lyleton	9.00	12.00
" "	Waskada	13.30	17.00
" "	Goodlands	19.00	22.00
" 5	Pierson	9.00	12.00
" "	Melita	13.30	17.00
" "	Napinka	19.00	22.00
" 6	Hartney	9.00	12.00
" "	Pipestone	14.00	17.00
" "	Sinclair	19.00	22.00
" 7	Souris	9.00	12.00
" "	Carroll	14.00	17.30
" "	Nesbit	19.00	22.00
" 8	Methven	9.00	12.00
" "	Treesbank	14.00	17.00
" "	Glenboro	19.00	22.00
" 9	Cypress River	9.00	12.00
" "	Holland	14.00	17.00
" "	Treherne	19.00	22.00
" 10	Elm Creek	9.00	12.00
" "	Carman	13.15	17.15
" "	Starbuck	19.00	22.00
" 12	Otterburne	9.00	12.00
" "	Dominion City	14.00	17.15
" "	Emerson	19.00	22.00
" 13	Teulon	9.00	12.00
" "	Balmoral	14.00	17.15
" "	Stonewall	19.00	22.45
June 14	Rosser	9.00	12.00
" "	Marquette	14.00	17.15
" "	Poplar Point	19.00	22.00
" 15	Portage la Prairie	9.00	12.30
" "	Burnside	14.00	17.15
" "	Bagot	19.00	22.30
" 16	Austin	9.00	12.30
" "	Sidney	14.00	17.15
" "	Carberry	19.00	22.00
" 17	Douglas	9.00	12.00
" "	Chater	13.00	17.15
" "	Brandon	19.00	22.00
" 19	Alexander	9.00	13.30
" "	Griswold	14.15	18.40
" "	Oak Lake	19.15	22.15
" 20	Virden	9.00	13.15
" "	Elkhorn	14.30	18.15
" "	McAuley	19.15	22.00
" 21	Kenton	9.00	13.00
" "	Bradwardine	14.30	18.00
" "	Wheatland	19.15	22.00
" 22	Miniota	9.00	13.00
" "	Hamiota	14.15	17.30
" "	Rapid City	19.15	22.00
" 23	Minnedosa	9.00	12.30
" "	Strathclair	14.15	18.30
" "	Shoal Lake	19.15	22.00
" 24	Birtle	9.00	13.25
" "	Binscarth	15.00	18.30
" "	Russell	19.00	22.00
" 26	Neepawa	9.00	12.30
" "	Arden	14.00	17.15
" "	Gladstone	19.00	22.00
" 27	Westborne	9.00	12.30
" "	Macdonald	13.30	17.15
" "	McGregor	19.00	22.00
" 28	Wellwood	9.00	12.30
" "	Brookdale	13.30	17.15
" "	Moorpark	19.00	22.00



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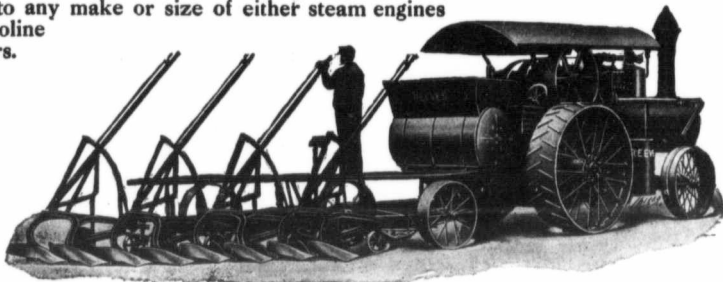
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# REEVES STEAM LIFT <sup>AND</sup> HAND LIFT ENGINE PLOWS LEAD THEM ALL.

The Reeves Hand Lift Plow is adapted for attachment to any make or size of either steam engines or gasoline tractors.



The Reeves Steam Lift Plow may be used with any size or make of Steam Traction Engine. To get the most satisfactory results a good engine is necessary—There are no other engines as good as the Reeves Cross Compound—Double Cylinder Plowing Engine.



Reeves Engine Gang Plows, both hand and steam lift, have flexible frames—permitting the plow frame and the plow bottoms to conform to the irregularities of the surface; the plows are attached to frame in pairs, each plow reinforcing its companion and adding strength. Each pair of plow bottoms are carried on wheels producing light draft. The attachment of the plow to engine is pivotal, permitting the engine to control the direction of the plow—A spring releasing device insures against breakage when plows strike a stone, stump or other obstruction. With the Reeves Plow turns to right or left can be made without lifting plows from ground.

The plow follows the engine—it is not a case of the "tail wags the dog", the engine controls.

The Reeves Plow attached to the engine by its pivotal connection makes an ideal plowing outfit—controlled at will by the engineer. Don't make a mistake—get a Reeves Flexible Frame Engine Gang Plow and be in line for a profitable run of work in fall plowing. The Reeves plow is unlike others—many of which are simply dragged on the ground by chains, like a lifeless log, capable of movement only as it is pulled by the chain or rope attaching it to the engine.

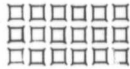
The Reeves Flexible Frame Engine Gang Plow—either style, hand or steam lift—will do more and better work than any other Engine Gang Plow made. They cost more than others, but then you know the best is the cheapest—the Reeves is the best. Write for special catalog which tells all about it.

## REEVES & COMPANY

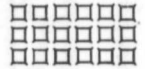
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CANADIAN BRANCH: REGINA, SASKATCHEWAN



# The Men Who Make No. 1 Hard



## Cleared \$1.150 over all Expenses.

I have enjoyed very much reading the letters of the different threshermen which have been published in your magazine from time to time, and will just give you a little of my experience in threshing.

I have been in the threshing business for six years. I own and operate a 26 h. p. Sawyer-Massey engine and a 40 x 60 Nichols and Shepard Red River Special with all attachments.

My first fall's threshing with a rig of my own was in 1905. There was a good crop in this part but the summer-fallows were tangled badly and long in the straw. I had at that time a 36 x 56 Battle Creek Advance separator and a 20 horse power Case engine.

Well, we did not get along very fast. The outfit was a little up in years and I did not have experience enough to suit the requirements and to make things worse I put a green man at the separator. I ran the engine myself and did not have much bother with it. We averaged about 1,000 bushels per day, mostly all wheat, but made practically no money that season.

In the summer of 1906 I went to the Winnipeg fair and traded the old separator off for a Nichols and Shepard 40 x 60 and it arrived about three days before we were ready to start threshing.

Well, we started threshing and everything went off fine. The machine ran good, but it kept the

fireman and myself busy all the time to furnish power enough to keep the 40 x 60 going. After we had threshed about four weeks, one day when everything was going fine the disc on the engine broke. It had had a crack in it for some time but never seemed to get any worse. It broke the crosshead and the piston went back and broke the divisional head between the cylinders and stuffing box and bent the piston rod.

Well, that finished things for that season. I sent for the repairs and sent for a new disc, but we got back word that a new disc would be no good without a main shaft and that it could not be put on the shaft except in the shops. So they sent the shaft and disc complete, and as soon as I received the repairs I put them on and steamed up and the engine ran like new.

We did crushing off and on through the winter and in the summer of 1909 traded for a Sawyer-Massey 26 horse power engine, which had power enough. I will say right here to anyone intending to buy an engine, be sure and get enough power. It is far better to have power to spare than to be working your engine to its limits.

In the fall of 1907 we threshed 24 days and cleared \$1,300 over wages and running expenses.

The season of 1908 we threshed 24 days and cleared \$1,150 over expenses and in 1909 did about as well. But the season of 1910 was

no good. We did not have much crop in this part owing to the shortage of rain. Men were scarce and I went to Winnipeg and got a crew and had to pay \$2.75 per day. The season only lasted fifteen days. I generally use eight stook teams, six field pitchers and spike pitchers.

Yours truly,  
E. Dobson,  
Kenton, Man.

## \$79.25 per Day for Help.

I will try and give you some of my experience in threshing. I have been threshing now for twenty-one seasons. I started in Nova Scotia on a two-horse tread mill and often we used to thresh four hundred bushels a day, receiving \$5.00 per day for myself, team and machine. At the time I thought that I was making good money.

From there I came to Manitoba and threshed there for a number of years and then I came to Saskatchewan. Five years ago I went into partnership with another man and bought a new rig, a Robert Bell outfit complete. And right here I want to say that I found it a splendid all round engine.

Last year we purchased a new separator, 40 x 60 Nichols and Shepard, and it is a dandy. I never had a minute's stop with it all fall. It is easy to handle and a first-class grain saver.

We threshed 38 days and made an average of 4,100 bushels a day.

My prices for threshing were as follows: Wheat, 7c. per bushel; barley, 5c.; and oats, 4c.

We paid the stook teams and the farmer boarded the crew. Next year we are thinking of putting on a cook car and charging for wheat 9c.; barley 7½c., and oats 5c. The wages paid my men last season were as follows:

Engineer .....	\$ 6.00
Fireman .....	2.75
7 field pitchers at \$2.50	17.50
2 spike pitchers at \$3..	6.00
9 stook teams at \$4 ...	36.00
Tank team .....	5.00
Myself .....	6.00
	<hr/> \$79.25

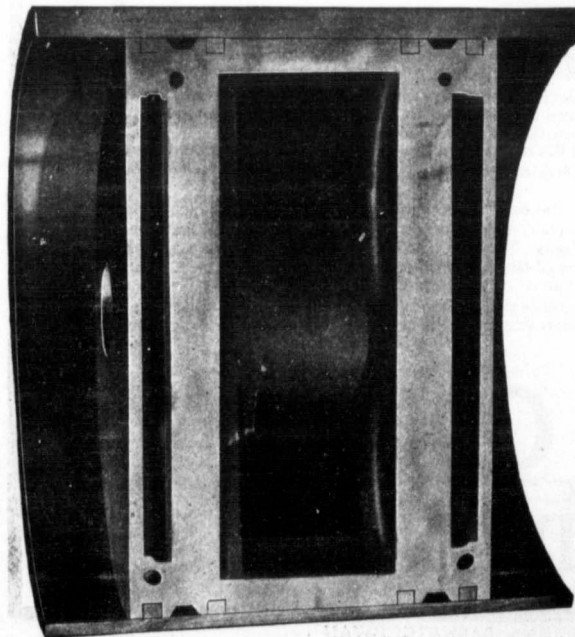
So you see that every minute a man is stopped is costing him 20c. a minute. But there is no need of any stops. Employ good men regardless of the wages. It pays in the end.

Yours truly  
John McLaren,  
Rokeby, Sask.

## An Old Timer.

I own a Waterloo 24 h. p. traction engine and a J. I. Case separator. I have remodelled the separator some. My outfit works well but I want to sell my entire outfit and retire from threshing.

I can remember when the flail was used to thresh peas in Ontario fifty years ago and the open cylinder to thresh grain. The straw was shaken out by hand with wooden forks. The grain



WE make the

## Gould Balance Valve

to fit any make of engine using a common "D" slide valve, and carry valves in stock for over five hundred different makes of engines.

WE fit engines using a plain "D" slide valve or one using Auxiliary ports.

We fit Cross Compound and Tandem Compound engines.

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No measurements necessary with order.

We can ship the day the order is received.

Our Catalogue gives complete information. Send for it.

## GOULD BALANCE VALVE CO.

Kellogg, Iowa.

GEO. WHITE & SONS, LTD., London, Ontario,  
Manufacturers in Canada.



and chaff moved to one side and afterwards separated with fanning mill. Then came the apron machine which was supposed to be an improvement in the hand separator, and it certainly was a good deal faster. I settled here in Southern Saskatchewan in the early pioneer days when there were no railroads. In the year 1891 a road was built. That year the crops were very heavy, some of the wheat going 40 bushels and over to the acre with long straw and as winter set in rather early the threshing was perhaps not half done when snow fell and some grain was not threshed till after seeding the next spring. There were not machines enough to do the work and none in stock with the dealers.

I got hold of a second hand separator which looked as if in good order. It was a 32 x 46 hand feed and 18 foot straw carrier, no bigger. Then I bought a new 12-horse power mounted engine of the Pitts pattern and got ready to thresh. I was laughed at by old threshers, as the separator that I was going to use was condemned. The straw would wind around the cylinder and it was a horse killer. I was not an old thresher; that is, I never ran a separator before.

To make a long story short. Before I started I took the grate from under the drum cylinder and fastened slatwork to the decks. This gave the straw a trap and more room to get away from the drum. Later I made the grate between cylinder and beater (or drum cylinder). This was a decided improvement and our separator worked well, but we needed more power. Twelve horses could not drive it and feed separator to full capacity. However, we did the best we could and saved a good deal of grain.

In the year 1892 our crops were light, about 10 to 12 bushels to the acre and straw about half as long as the year before. I threshed my own grain only that year, as my separator was a horse killer. I knew that it was not the horse power that made it run heavy; it was the separator. I thought if I could take the belts off the cylinder shaft and let the cylinder run without driving everything that I would gain power, but did not know how this could be done. At last I came across a gear that was of the same mesh as my spur gear on the beater shaft. The cylinder pinion had 17 calks to drive cylinder and the one that I put on the beater shaft had 45 calks. This left the speed of the beater the same as before only an inch and a half closer to cylinder. The cylinder made five revolutions when beater made about three. I drove all the separator from beater shaft, made wooden pulleys on beater and crank shaft. I set up my machine and after having hauled a load of sheaves alongside of separator, hitched only five horses to a twelve horse power machine and started to thresh, one man pitching the load and I fed, cutting my own

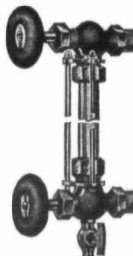
**KING**



**Sight Feed Lubricator**

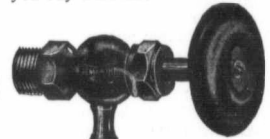
We have made some decided improvements on the KING Lubricator this season. You will note the filler has a wood handle, thus preventing the engineer from getting his fingers burned. We have put a lipped shaped extension on the filler opening so that the cup can be filled with a coffee pot or can with a large spout. Does away with the use of a funnel, and saves oil as well. The glass can be taken out easily without the use of any special wrench. The KING Lubricator will give the best of satisfaction if rightly used.

**Our Water Gauges and Gauge Cocks will Pass Inspection**



**Plain Steam Whistles**

They give a clear, full tone. Our Trade Mark is cast on the valve body. Look for it when you buy whistles.



We make extra heavy Water Gauges and Gauge Cocks that have been accepted by the Governments of Alberta and Saskatchewan. Specify the PEN-BERTHY make when you buy.

TRADE MARK  
**PEN-BERTHY**  
MARK

**OUR Brass Goods are Stocked by all Leading Jobbers and Dealers throughout Canada, and Used by Engineers Everywhere**

*"To get the best say Penberthy"*



bands. The sheaves went through as fast as a man could give them to me. The five horses gave us plenty of power. I threshed my own crop and one neighbor also, who found the horses for the power. To thresh for this neighbor some of the horses were only ponies.

Another neighbor brought a load of sheaves with an ox team. On arrival he said that he need not have brought the load until the next day as I did not appear to be ready for him. But I said I would be through by four o'clock. This same man was to cut bands for us and he claimed that he could cut them as fast as any horse power could thresh, but he soon gave it up, putting his knife in his pocket. We stopped the machine and I got another man to help me to feed, both cutting our own bands and feeding from both sides and about 4 o'clock we had all threshed out, ox load and all. After all expenses were paid I had \$14.00 clear profit in three-quarters of a day.

I was always engaged in June in 1894 to thresh that fall. We threshed that fall 31 days, clearing \$300, charging 2c. for oats and 3c. for wheat. Our crew consisted of five men and four teams. The farmer found the other two teams and men. There was no kick about horses sweating.

In 1895 the crops were hauled out in our district. That year I threshed sixteen days in another district. In 1896 my neighbor persuaded me to buy a portable engine as with the horse power

threshing it took so long to drive stakes and pull them that there was so much land broken up every year. I then bought a Champion engine with sectional upright boiler from the Waterous Engine people, which I have used for a number of years for threshing and crushing. The horse power outfit I traded for a second-hand Sawyer-Massey separator.

As my letter is already too long I must close, hoping this will be some use to someone.

Yours truly,  
Ernest Bierwirth,  
Meridian, Sask.

**Does Not Believe in Individual Outfits.**

I might state that I have taken your paper ever since its inception. The small individual outfit seems to get considerable boosting now. Apparently some of the people think that money paid to the custom's thresher would go a long way toward paying for a small rig, so that each farmer could do his own; forgetting sometimes, however, that half and sometimes more of the threshers' charge goes in wages to do the work which the farmer would still have to pay for if he did own a machine himself. To my mind, the average farmer will find it easier to pay the thresher a few hundred dollars to put the grain into his wagons than to make a third part payment on a machine and also do the work himself.

Let me say to the inexperienced man to weigh well his particular situation before deciding on an outfit for himself and if he can get a thresher in reasonable time to do his work he will save himself a lot of trouble and money by letting him do the job. Some farmers are induced to buy without considering whether they have enough grain to thresh to warrant the step, the cost of machine, interest on money lying idle, depreciation and how long it will probably last, and his ability to successfully operate it. Machine men make a big talk for the small rig because probably it opens up a bigger field for them.

I started in the threshing business in the fall of 1905, buying a Waterloo outfit, 25 h. p. engine and 36 x 56 Advance Champion separator with Ruth Feeder and other attachments. This outfit has given me every satisfaction, being still in first-class condition and no new attachments required. The earnings for six years are \$14,693.60 with wage bill of \$6,997.

Last season and 1907 were poor crops and earnings were less than average. The land in my district is slough and the fields are small. This makes a lot of waste time moving but one just has to figure out the best he can. I usually charge 7c. for wheat and 5c. for oats from the stook, supplying men and stook teams. Stack prices are 5c. for wheat and 4c. for oats.

I prefer to stook thresh, for when once expenses are earned, profits come quicker, owing to the



Conducted by Professor P. S. Rose

# Practical Talks to Threshermen

Talk No. XLVI.

We mentioned the matter of balancing separators in the last lesson and pointed out the importance of a good balance of the entire machine. This begins, as previously stated, with the balancing of the cylinder and extends to all other parts of the machine. Where reciprocating racks are made use of, as in most of the machines discussed, it is necessary to balance one against another, and proportion their weight and speed to each other with considerable exactness. If the work is carefully done the machine will be in balance when running at its normal speed when threshing, but not necessarily at a very slow speed or even at its normal speed when running empty. The reason for the better-balance when loaded is found in the fact that the load is also in motion and adds just that much to the weight of the moving parts, and increases their momentum, all of which is taken into account by the designer. Unbalanced forces not only cause serious shocks to the machine, which do serious injury to the frame and bearings, but also cause the entire machine to rock back and forth on its wheels, thus stretching and slacking the main drive belt, and consequently disturbing the steadiness of running of every part of the whole machine.

Even pulleys require balancing, especially if they are required to run at high speed. All threshing machine pulleys are thus balanced by riveting a piece of metal on the under side of the rim on the light side. The amount of metal required for balancing and its proper location on the pulley rim are obtained in a very simple manner. Two straight edges, five or six feet long, are prepared and placed in a horizontal position both at the same level and a few inches apart. The pulley is mounted on a short shaft whose ends rest on the straight edges while the pulley is free to turn between. The pulley is then given a slight push and when it comes to rest a chalk mark is made on the upper side. This operation is repeated and if the same side stops uppermost, it is evidence that it is the light side. A lump of putty is then stuck on the under side of the rim and the operation is again repeated. After several trials the right amount of putty can be determined. This is then weighed and an equal amount of iron is riveted in its place. A pulley that is not balanced runs with an unsteady motion and causes the shaft to hammer the bearings.

There is another class of machines which we have as yet not considered, in which the problem of balancing is somewhat simplified, due to the reduction of the

number of oscillating racks and the substitution of raddles or revolving belts which act as straw and chaff conveyors. These move at a relatively slow rate of speed and, furthermore, since the motion is a rotary one there is practically no vibration to contend with. There are only a few such machines now on the market although at an earlier date they were quite common.

In figure 85 we are showing a raddle machine made by the Gilbert Hunt Company, Walla Walla Washington. The separation is effected mainly by the use

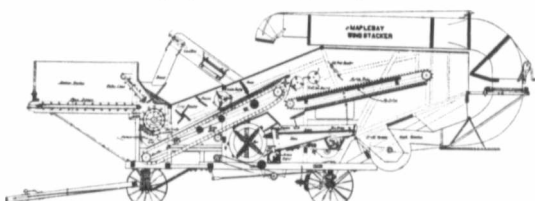


Fig. 85. Raddle Machine built by the Gilbert Hunt Co., Walla Walla, Wash.

of beaters, pickers and the violent agitation given to the straw between the first and second raddles. The grain which falls upon the first raddle is carried upward in pockets or buckets in the conveyor belt which carries it to the rear of the machine, while other machines drop the grain on the grain pan and cause it to roll back to the shoe. The first mentioned method is said by the manufacturer to deliver the grain in a cleaner, better condition. This machine is used quite largely on the Pacific Coast and has given

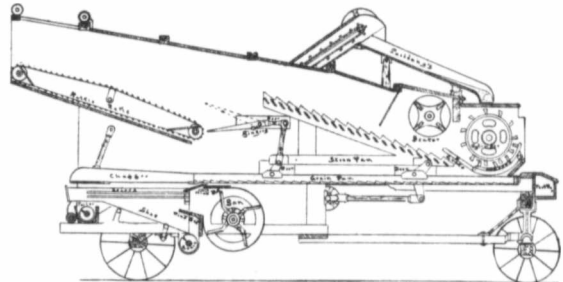


Fig. 86. The Winneshiek Separator.

satisfaction. The fact that practically all the grain in that country is headed is a decided advantage to this type of machine. It is very well adapted to chaff and short straw but would probably meet with difficulty in handling large quantities of long, heavy straw such as is met with in the middle sections of the country. It might be stated in passing that this machine is the only thresher made in this country, so far as the writer has been able to learn, which makes use of the raddle idea exclusively.

The Winneshiek separator made at Waterloo, Iowa, and shown in figure 86 is another machine which makes use of the raddle idea. In addition to the raddle there is a vibrating rack and a set of vibrating fingers between the rack and the raddle. The action of the fingers in this machine is a very good example of the pitch-fork idea mentioned in earlier lessons. The straw is delivered on the fingers from the rack. It is obliged to break sharply over the upper point of the rack and is then caught by the fingers and vigorously tossed.

After leaving the fingers it is caught by the "rattle rake" and conveyed to the rear of the machine. An eccentric is provided to give the raddle a vibratory motion which serves to agitate the straw and complete the separation. Just how much good this roller does is not easy to determine, but it probably has some value because it is still retained on all raddle machines.

Pickers, Beaters, etc.—An inspection of some of the illustrations which have appeared in this and preceding issues will reveal

the fact that a large number of machines make use of pickers and beaters, not only close to the cylinder but at various points along the body of the machine. The object of these pickers is to tear the straw apart, and loosen the bunches of straw and otherwise agitate the mass as much as possible. In figure 85 these devices are depended upon to do practically all the work of separation, but here the straw blanket consists in general of short straw and chaff. In some of the older threshers, pickers, worked by means of mul-

tiple cranks, are suspended from the upper part of the machine and constantly stir the straw. All of these devices are undoubtedly of value and are an aid in agitating the straw. We have no means of making comparison among all of these devices and can only present conditions as they exist. These devices were much more common on the older types of machines than they are at the present time. The growth of the industry seems to have proven that the vibrating rack alone is able to perform the work in a fairly satisfactory manner if properly designed.

We have now covered the different methods of separating devices used on the various machines, beginning with the cylinder and the grates and proceeding with the rear of the machine. There is only one other device to be considered and that is the use of an auxiliary blast. We will take this matter up in our next lesson and then proceed to a discussion of the grain pan, shoe and cleaning devices.

### For Every Thresherman in Manitoba.

A great many of the threshmen operating in the Province of Manitoba may not be aware that there is a special provision in the Noxious Weed Act that applies to them.

Section 6 of Chapter 42 of the Statutes of Manitoba provides as follows:

It shall be the duty of every person owning or operating a threshing machine, immediately after completing the threshing of grain at each and every point of threshing, to clean, or cause to be cleaned, the said machine, together with all wagons and other outfit used in connection with such threshing, so that seeds of noxious weeds shall not be carried to or on the way to the next place of threshing by the said threshing outfit.

(a) Any person not complying with the provisions of this section shall be liable to a penalty of not less than twenty-five dollars, nor more than one hundred dollars, together with costs of prosecution, and in default of payment to one month's imprisonment.

(b) A printed copy of this section shall be affixed and kept affixed to every threshing machine while being operated in the Province.

(c) No lien under "The Thresher's Lien Act" shall enure to any person owning or operating a threshing machine and outfit unless such copy is affixed to the threshing machine with which the work was done for which such lien might otherwise be claimed.

# IMPORTANT

To all Persons Buying and Using

## WIND STACKERS



THIS

### TRADE-MARK

Is For Your Protection as Well as Ours

See that it is on the Wind Stacker You Buy, and then no one Can Cause You Trouble

**The Indiana Manufacturing Co.**

Indianapolis, Indiana, U.S.A.

## The Thresherman's Question Drawer

Answers to Correspondents

### The Tractor and the Man.

By Chas. L. Coldrick.

'Twas a sweltering day in July,  
And hot enough to bake;  
As farmer Ned sat on his plough  
With ten more rounds to make.

Ned's horses were a-steaming,  
And it went right to his brow;  
To see their flanks a-heaving  
And compelled to make them start.

And Ned he sat and pondered,  
The sweat stood on his brow;  
If the horses were of iron he  
thought,  
How easy I could plow.

Ah! I've struck a notion,  
He exclaimed with great de-  
light,

A gas tractor I'll surely buy,  
I'll buy this very night.

So he saddled up, and hit for town,  
And soon got down to business,  
His contract signed, his order  
good,

He was proud as a dozen  
princes.

In course of time, upon the scene  
Came the tractor and a man,  
Who understood like ABC  
The way the Creature ran.

Eight big plows they hitched be-  
hind,  
Said Ned this ends my toil;  
They ran her till they could not  
see,  
She ran like oil in oil.

That night the expert went his  
road,  
The tractor all O.K.;  
And Ned resolved he'd "up and  
at it"  
Before the break of day.

The sun was barely rising,  
But Ned was at his post;  
He swore he'd show his neighbors  
The 'how' to do the most.

That day she ran without a slip,  
For fourteen hours or so,  
When suddenly her music ceased,  
She just refused to go.

Thought Ned I'll try the hand-  
book,  
The pages he made fly;

Ah! compression, that's the  
trouble,  
'Twas the first that caught his  
eye.

Next day the piston and the  
valves,

Were taken down and seen to;  
Ned cleaned them, oiled them,  
put them back,

He'd show 'em where they be-  
longed to.

His hopes were high as he turned  
the wheel,

But his hopes died with the  
engine;

It would not run, it would not  
budge,

What he said I will not mention.

He tried the spark, the firing  
points,

The battery and connections;  
but of no avail, and poor Ned sat  
Brooding sad reflections.

He worked all day, he worked all  
night,

The mystery to unravel;  
Springs and wrenches scattered  
round,

A man could scarcely travel.

"I'll get the expert," Ned ex-  
claimed,

"Though I know he cannot fix  
it,"

The dog gamed thing is made to  
sell,  
And that is all there's to it."

Along came he, the company's  
man

To 'vestigate the trouble;  
While away to the house for his  
handbook

Poor Ned went at the double.

The expert turned his attention  
first

To the gasoline pump—and lo!  
He pumped, and pumped, and  
pumped, and pumped,  
But could not get a flow.

With a grin he looked to the oil  
tank,

'Twas dry as the prairie ground;  
As he filled it came Ned with his  
handbook

And a sneer that would stagger  
a hound.

"Alright! give her a turn," yelled  
the expert,

And Ned gripped the spokes  
once more;

With a puff and a snort she was  
off again,  
Nearly hurling poor Ned to the  
floor.

The expert turned, as he smoled  
a smile

As broad as the Atlantic;  
While the look on poor old Ned-  
dy's face,

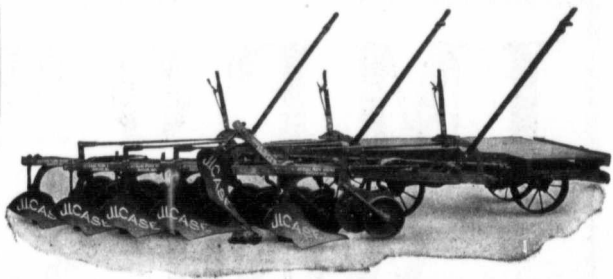
Well it surely was pathetic.

Said Ned: "Tell me what caused  
the thing

To play that little prank?"  
And the expert turned and gently  
whispered:  
"No gasoline in the tank."

**P. A. Q.** My heater is limed  
up and is useless. The pump is a  
Marsh and the exhaust steam is  
turned into the feed water after  
the pump is started. Would it  
injure the boiler any to feed the  
water in some other place and not  
use the heater? Please explain  
this fully.

**A.** It will be to your advan-  
tage to clean out your heater as it  
is more economical to force the  
water through an exhaust heater.  
The boiler will not be injured by  
not using a heater. The proper  
place to put the water into the  
boiler is on the side, near the  
front head.



## Buy a J. I. CASE ENGINE GANG AND GET 100 PER CENT. EFFICIENCY

One dealer sold 9 J. I. Case Engine Gangs this Spring and every one is giving complete satisfaction. Read this paragraph from their letter:

"They do perfect work, pull easier than any plow of the same weight we have had a chance to observe, and they are remarkably free from breakage. The rock dodging device (Break Pin) is perfect, and, though we have had several gangs operating in stony ground, there has not been a single instance of a broken or sprung beam or bottom so far."

These dealers have handled many other makes of Engine Gangs, but they like the J. I. Case "by far the best."

Write us for Circular No. 235 and copy of their letter with name and address.

Every  
Genuine  
J. I. Case



has the  
Plow and Hand  
Trade-mark

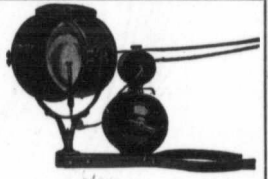
Write for Circular No. 235

**HARMER IMPLEMENT CO., Winnipeg, Man.**  
GENERAL SALES AGENTS

**J. I. CASE PLOW WORKS**  
RACINE, WIS.

### Accidents Will Happen

and in order to prevent them as much as possible, every device for safety is used by those interested. Mr. THRESHERMAN you should be awake to the danger of plowing or moving with your engine after dark unless you have it equipped with the



### GLARE HEADLIGHT

which has solved the light problem for the traction engine.

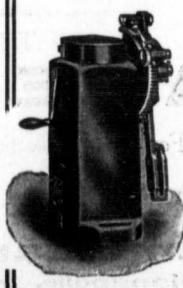
**The Gullick Spark Arrester** will prevent fire. **The Pope Adjustable Flue Cutter** will remove your defective flues.

Catalogue upon request. DO NOT DELAY. ORDER NOW OF

**The Maytag Co'y, Ltd., Winnipeg, Man.**

Estate of E. M. POPE, Watertown, S. Dak., U.S.A.

## A MADISON-KIPP Pays for Itself IN LESS THAN TWO MONTHS



One of our customers recently wrote us that he had saved oil enough with a **MADISON-KIPP OIL PUMP** to pay for it in 48 days. Oil costs money. What you want is a pump that will use as little as possible and yet keep your cylinders lubricated.

### THE MADISON-KIPP IS A POSITIVE FEED PUMP

It always works. It makes no difference whether the temperature is 30 degrees below or 100 degrees above, and it "Saves Your Oil Bill." Over 50,000 in use, and as many thousands of satisfied users.

Write for prices on a pump for gas tractors with all fittings, attachments, etc., necessary to readily and easily attach to the engine in the field.

### THE MAYTAG CO., LIMITED

Sole Agents for Canada WINNIPEG, Man.

Manufactured by MADISON-KIPP LUBRICATOR CO., Madison, Wis.



# The Neepawa Gearless Wind-Stacker and Chaff Blower

is the Thresherman's Favorite and the real "Farmer's Friend"

Before purchasing that Threshing Outfit you want you to investigate the merits of the **Neepawa**. It is the outcome of years of experience of practical threshermen. Our "Chaff Blower" is a winner and is alone worth more than the price of the Wind-Stacker. The **Neepawa** has several new and winning features not found on any other Wind-Stacker

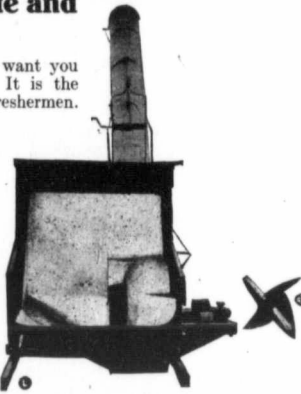


Side View Without Chaff Attachment

### What You Should Know Before Ordering a Wind-Stacker

This is the way the operators of the Neepawa Wind-Stacker answer the questions:

1. Has it any back draft? No.
2. Does it allow the dust to accumulate in the separator? No.
3. Will the chute work at any point in a full circle? Yes.
4. Is it hard to handle? Can be folded with one hand while machine is in operation.



Looking into the Stacker Showing Fan



Side View Showing Chaff Attachment

5. Is the straw cut up by the fan? No. The construction of the fan will not allow the straw to go through it.
6. Can you open the door to examine the shoe without being smothered with dust? Yes. The construction of the fan is so arranged that it will not blow the chaff out of the side door.
- Does the stacker run light? Yes. The lightest on the market.
8. Will it fit any make of separator? Yes, and can be taken off one and put on another.
9. Has it a bevel gear, chaff auger or rakes? No. We drive with a straight belt from the cylinder shaft to the fan shaft without any gear.
10. Has it a belt tightener? Yes.
11. What is the weight? 650 pounds.
12. What is the material used in its manufacture? Galvanized sheet steel, seasoned oak and maple.
13. How much power does it take to run it? Less than any other stacker built in Canada, doing the same work.

## The Neepawa Manufacturing Co., Ltd.

Successors to GARDNER BROS.

NEEPAWA, MANITOBA

**P. R. Q.** Why does a pop safety valve open wide, reduce the pressure in the boiler and then suddenly close down?

**2.** Why does the water in a glass gauge register higher after it is blown out than it did just before?

**A.** There is a flange or lip on the valve which is larger in diameter than the hole in the seat and when the steam raises the valve to let the steam escape the steam strikes this flange or lip and drives the valve still farther up against the spring until the pressure is reduced enough to allow the valve to start down to the seat and as soon as the flow of steam is reduced the spring snaps the valve to its seat.

**2.** This is more noticeable in winter when the temperature of the atmosphere is low. When the water is cold in the glass it registers lower than it is in the boiler on account of it being heavier; and when the water is blown out of the glass and hot water is allowed to come into it, the hot water being lighter will fill up higher in the glass.

**T. B. Q.** The flywheel on my engine has a straight face and when it is windy weather it is hard to keep the belt on the pulley. I would like to know if there is some way to make an oval face pulley out of it without sending it back to the factory? Also, do you know how pulley covering is in wet weather? Does it get slip-

pery, so a belt will not stick, or is it all right?

**A.** If the flywheel has a straight face, a crowning face may be had by covering the wheel with leather. Drill holes in the rim and rivet a leather belt to the face. First put a narrow strip in the centre of the wheel, skived down on each edge, so that when the covering is put on it will make the proper crown. Another way to get the shape is to wrap tightly the face with cord until the desired crown is had; the covering with the leather belting together with the rivets will hold the winding of cord in place.

There is nothing that will make a better driving contact for a belt than a leather covering.

**G. O. B. Q.** We have a Crosby steam gauge on our engine. When we pulled in and cleaned out the pointer stood at O, but since then the pointer has traveled completely around the gauge, stopping within one-half an inch of the pin. Would it be all right to set the pointer on other side of pin or let it go at that?

**A.** Your gauge must have been full of water and has been frozen up. It is very likely bursted; which you will find out the next time you steam your boiler. The part which is strained is the spring which is made of a flat tube; and even if this spring does not leak, the mere setting back of the hand will not do, as there is a pinion on the hand

shaft, which engages into a sector, and the position of the hand would indicate that the pinion is about to the end of the sector. If the spring is strained by frost it should be put back to the original shape; this will bring the pinion to the right end of the sector. To get the gauge to register accurately again it should be tested and adjusted, and if there is much out of place about it the best plan would be to send it to the gauge factory where they will make it as good as new for a very small sum of money.

**G. M. Q.** Which is the best, hard or soft babbitt for the wrist box on the engine?

**A.** Genuine babbitt which is soft is believed to be the best all around babbitt. It being rich with tin and therefore soft. Copper hardened genuine babbitt will stand a greater pressure, but does not have the anti-friction qualities. Metals rich with lead are good anti-friction metals, but wear faster and do not stand as much pressure. It cannot be decided which is best, whether hard or soft metals, as both kinds are sometimes bad and good. Your best plan is to get a good grade of babbitt, if you cannot get genuine babbitt metal.

**E. W. Q.** What is the best way to splice an endless Gandy drive belt about seven inches wide?

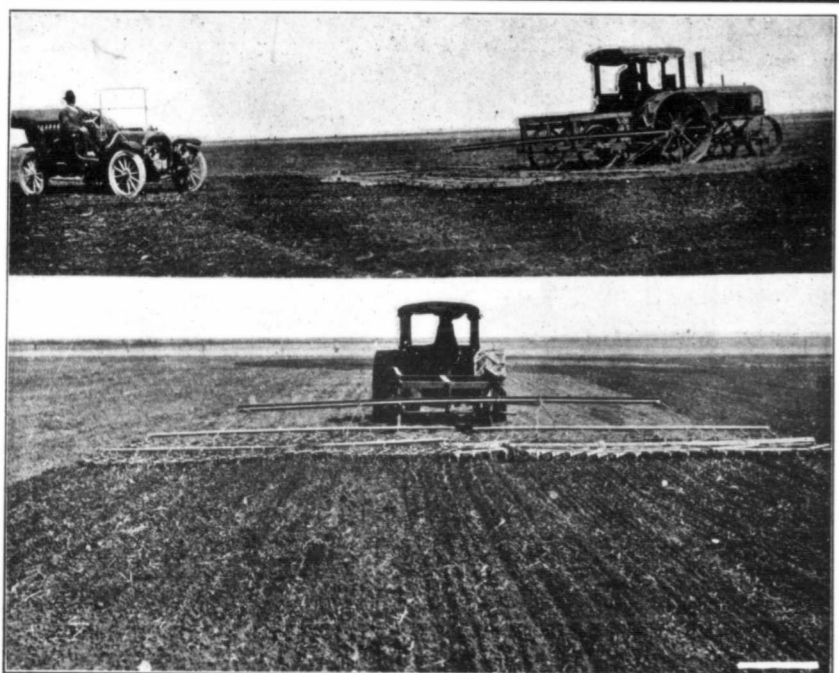
**A.** Make the length of the splice four times the width of the

belt. Divide the splice into as many equal parts as there are plies in the belt. Cut one ply or layer off the entire length of the splice, then cut off each layer one space less so that the end space will be but one layer or ply thick. Do this on each end and fit it together so that the thin part of the one end comes to thick part of the other end of the belt. Then sew the belt with a strong waxed thread, such as shoemakers would use to sew on a sole. Run the seams lengthwise of the belt about one inch apart.

**A. G. Q.** Why would it not be a good plan to have the front wheels of a traction engine driven as well as the rear wheels? Would it not pull better?

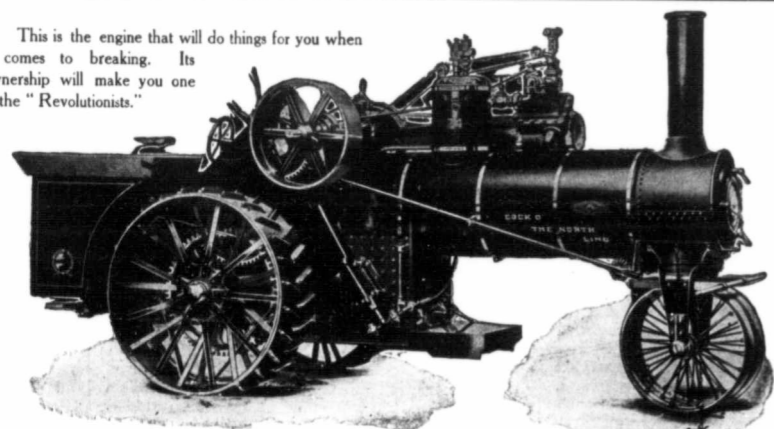
**A.** There would be some advantage on the pulling but the additional cost of the engine driven this way would not warrant it. In pulling a load the weight of the engine is thrown on the rear wheels and the front wheels would do little good as a driver. However, in backing a load the weight would be thrown to the front wheels and here is where it would be of the most service. Since an engine is used so little for backing it, it is not worth considering. Another point is that the engine would be made much heavier by this arrangement, as the gearing and axle would have to be made strong, for in case of backing a load the work might be as severe as on the rear wheels going forward.

# Farming in Western Canada is the Greatest Industry in the World



This cut shows one of our American-Abell Universal Farm Motors Double Harrowing 100 Acres per Day on the Kenilmeaky Farm, near Headingly, Man. Doesn't the above look good to you as a farmer with broad acres to till? Doesn't it look like business? Doesn't it look as if the crop would get in on time, and one man is doing it all? This is but one step in the "Revolution," and the AMERICAN-ABELL UNIVERSAL FARM MOTOR is the main factor

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is the requirement today. That is why the

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has won such a warm place in the hearts of the farmers of Western Canada. There is *power* for every *purpose*—for every farm operation, big or little, as the case may be.



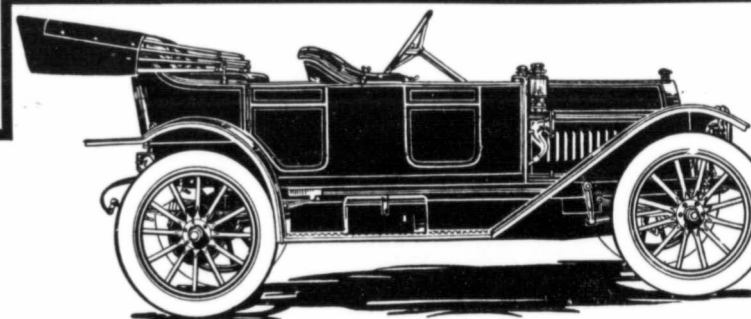
Two American-Abell Engines "Revolutionizing" Farming near Scott, Sask. It's Easy With the "Cock o' the North Line." Ask us About it.

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### POULTRY.

By J. R. Cote.

#### Brown or White Eggs Richer.

Many people write to ask whether there is any difference in the relative richness of brown shelled and white shelled eggs. Personally I think the difference is very small, though many do claim that the brown eggs are richer than the white for the following reasons:

White shelled eggs are, as a general rule, laid by those small bodied, non-sitting breeds which commence to lay at a very early age, and keep right on, day after day, but with occasional intermission. On the contrary, brown shelled eggs are laid by the larger breed of fowls, which do not lay so many eggs in the course of a year, and seldom lay at the rate of more than two eggs in every three days, and which, moreover, spread their laying operations over almost the entire year. Although it has not been proved whether this theory is right or wrong one is inclined to the belief "that there is something in it," for the reasons given above.

#### Fattening Fowls.

It is well to bear in mind when considering the best methods of fattening fowls cheaply and quickly that what tends to produce flesh with human beings will have a similar effect on chickens. Among these conditions I might include, first, a restful, undisturbed existence with the least amount of exercise necessary for good health, and second, a sufficient feeding of a fattening ration, together with an abundance of clean water.

Some prefer to handle chickens for fattening in individual coops, and this is the best way if you wish to push them ahead very fast and get your results quickly. If this is not done the chickens to be fattened and sold should be separated from the others, the males kept separate from the hens, so that the latter will not be interfered with and fed as much fattening food as possible. Restrict their run so that they can not exercise away the fat as fast as they put it on.

Do everything you can to give the chickens a contented life, for contentment as much as additional food will put meat on their bones.

In selecting hens for fattening pick out the undesirables, the hens that are too old or that have proved themselves poor layers. Surplus cockerels should also be

fattened, as it is useless to waste feed and care on so many of these.

The matter of feed is an important one, but there are so many different rations used by different poultrymen that it would be vain to enter into any discussion of them here. Corn is perhaps the best fattening feed for chickens, so that a liberal supply of this should be included in every ration compounded for fattening fowls.

#### Sprouted Oats for Chickens.

There seems to be a great deal of interest being shown by chicken raisers just now in sprouted oats for feed, and as it is seasonable I will give the readers of this paper a few suggestions regarding these.

One advantage of sprouted oats added to the ration is that they provide the fowls with a supply of green feed, slight as this may seem.

The idea seems to have come to us from foreign countries, where sprouted oats have been used as a feed for many years. To produce them, place the grain in a tub or some other watertight vessel and just about cover it with lukewarm water, leaving the oats in this water for about twenty-four hours. The water should then be drawn off and the grain placed where it can drain freely.

Every morning and evening they should be sprinkled with hot water and in about a week and a half they will have sprouted and be ready for feeding.

Some poultry keepers make racks in which the grain can be kept after removing from the tub. This is a convenient way of handling it, as it will not only drain better but space will be saved.

#### How to Raise More and Better Flax Seed.

By H. L. Bolley.

It is becoming apparent that there is to be considerable difficulty in keeping up the world's supply of linseed products unless new methods are practised in the care and cultivation of the flax crop. It has apparently been the custom of farmers to rely upon new lands for the production of flax. However within late years the demand for linseed has become so enormous that the seed which comes from new land areas is insufficient. The building of enormous buildings, the extensive construction of modern homes, of machinery, etc. call for supplies which have a slight parallel in previous years of construction. It

## Do You Keep Your Dairy Cows for Fun or for Profit?



The best dairy cattle in the world may regularly give their best, but you cannot extract the best from their product unless you have a

### "Magnet"

to draw it. There are a lot of blanks and a few prizes in the Dairy end of Farming, but the profit or loss—the prize or the blank—largely depends on the Separator you use. The

## Magnet Cream Separator

has no equal in the whole range of dairy economy. You cannot get the maximum profit from your cows without it. Extracting the last particle of foreign matter, the one-piece skimmer in the large specially shaped steel bowl of this machine, delivers absolutely clean cream, and every ounce of it, that can be obtained from the milking. Most rigid and the most easily operated machine made, and the greatest value in the market.

We will prove every point we claim for the superiority of the MAGNET, on your farm, at our own expense.

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is not probable that there will ever be found a reasonably good substitute for linseed oil: and the by-products of the crop are recognized as of even greater value than the oil. In most countries, linseed cake is considered as having the highest merit for stock feed and, as land becomes high priced, there can be slight doubt but this valuable product will be largely used in this country.

It is evident from these considerations that there will be annually a call for a much larger supply of flax seed than the world has ever previously produced.

**Disease of the Crop:** Studies conducted at the North Dakota Experiment Station have clearly demonstrated that the reason why the crop has always of necessity been grown upon new lands rest not in any peculiar use of soil fertility by the flax crop but is due to parasitic diseases which are conveyed to the soil by spores carried on the seed. The diseases are further distributed by various types of farming implements and are wind and water borne from old areas. Thus, as the crop tends to become more general, larger and larger areas of ground become infected until a region which once produced the crop can no longer produce it remuneratively. These features have led the farming public to believe that the crop is hard on land, and, when the farmers have once ceased to grow it in a particular state or country, they have not taken up with it again. Thus the present seed supply is coming wholly from the small amount of seed which is furnished by the fibre crop plus that which is grown upon new lands.

The crop must be grown on old lands as well as new: It is evident that the time must soon come when the supply of linseed will be much less than it is, unless farmers can learn to grow the crop on the old lands. The writer, through his experiments and observations, is convinced that old farming lands will produce as good a crop of seed flax as can be grown upon the virgin soils but that the method of working and caring for the ground must be different than the careless methods used on new lands. It is the same careless methods of handling the seed and of caring for the crop that have so speedily reduced the value of new lands for the production of the crop.

**Improve the Variety and Quality of Seed:** The fact of that no proper attention has been paid to seed selection, seed grading and seed breeding. "Any flax seed does for sowing" has been the rule with the result that all of the various weeds and diseases which accompany the flax crop are immediately placed in the new lands. If the flax crop is to become profitable, all this must change for modern methods of cropping. The essentials of such methods may be stated as follows:

1. Proper preparation of a firm seed bed.

2. Selection of a good strain or variety of seed.

3. Selection of seed of full strength, free from internal diseases.

4. Grading the seed which has been selected until only approximately perfect seed remain, blowing or screening out all bits of straw, chaff, and dust possible.

5. Seed Disinfection—treatment of the seed by formaldehyde solution in such manner as to destroy all germs of flax diseases that may rest on or be sticking to the individual seed.

6. Sowing the seed at essentially the proper date.

7. Drilling the seed at the proper depth.

8. Pulling or in other manner destroying scattering weeds in the crop, the seeds of which are difficult to remove from flax seed after it is thrashed, as for example mustard, false flax, French weed.

9. Harvesting the crop at the right date so that the seeds shall be mature and plump, but not lost through shelling or injured by weather.

10. Cut it with a binder wherever possible.

11. Thrash it at the first opportunity after the holes become dry.

12. Previous to harvesting, select the proportion of the field which is most evenly ripe, harvest, thrash and save it for your own seed and for seed for selling to others.

13. Store the seed so that it shall remain dry and cool.

14. Conduct a decent, long series rotation on your farm. Do not think of sowing flax more often than once in five to seven years on the same land.

15. At least one well cultivated crop and one crop of hay and pasture should intervene between flax crops.

16. In using barnyard manures never use any uncomposted manure which has been made out of flax straw or by animals which have been fed flax screenings.

17. All growers should observe these rules, for an infectious disease is a community affair.

**Use the Fanning Mill:** In order to arrive at the above essentials the first great step is to procure good, bright, plump flax seed and use the fanning mill so as to thoroughly clean the seed, removing everything but the plumpest, brightest colored seed.

**Improve Varieties:** As quickly as possible procure a variety or strain which is known to be a good yielder in your own community. Such a variety should in its pedigree date back to a individual plant of strong yielding quantities. A mixture of the different strains and varieties of flax seed can never be relied upon to produce even ripening and a proper grade of seed. A pure variety originating in a single strain may be relied upon to give an even ripening crop under proper culture conditions.

**Test your seed:** For those who have done the work of selecting, grading and curing their seed pro-



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Don't think because you have not bought a De Laval Separator that you are not paying for one. As a matter of fact, the man with six cows and no separator pays the price of a De Laval every year in loss of butter, not to mention time and energy.

Everyone having cows intends to buy a cream separator sometime, but while delaying the purchase from month to month a large percentage of its cost is literally thrown away. The delay is solely due to failure to realize that the separator is not to be paid for out of capital but from increased profits.

If you have two or more cows, don't delay another day. Have the De Laval agent place a New Improved De Laval Separator in your home at once for free trial. This will be done without expense to you, the purchase of the machine to be conditional upon its producing at least 25 per cent. more butter from the same cows. If you don't know our agent's name, write us direct.

De Laval Separators are used exclusively in 98 per cent. of the world's creameries, and are sold subject to a guarantee of unqualified superiority.

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## Red River Loan and Land Co.

913 Union Bank Building, Winnipeg

THOMAS GUINAN, President

E. C. COMPLIN, Manager

perly there will be no need of testing it, but for those who are careless and who think any seed will do, a good rule is to test the seed and see if it will grow. Seeds which will not grow are not only a loss in themselves but injurious to the land, for, if they have not been injured by moisture or temperature the reason they do not grow is that they contain disease producing fungi which kills the young plants. Any seed which shows up mouldy in the germination pan should never be sowed on the land.

**Crop Rotation:** Different kinds of land demand different kinds of crops, and different kinds of farmers make success of different sorts of rotation, but it is certain that a good crop rotation should be practised. Our experiments show that it makes considerable difference what this rotation is. No ordinary rotation will prevent the introduction of disease, if flax crop follows flax crop much oftener than once in five years. Flax does particularly well on properly cultivated corn ground and has a great partiality for sod lands, and should either follow grass and pasture lands or corn or other cultivated crop. In the case of the corn or cultivated crop, the good results come from the through packing which the ground receives the previous year, due to the tramping of the horses and the persistent shallow cultivation. The ground should not be plowed or worked deeper than it was worked during the corn cultivation period. On the sod lands the plowing should be as deep as possible and yet have the furrows lie over flat. If possible, before the sod is plowed it should be thoroughly disced on the surface ahead of the plow to loosen up some fine dirt to make the connection between the sod and the sub-soil. After plowing the sod should be disced and harrowed and sub-surface packed until it is certain there is a good connection established between the sub-soil and the furrow slices.

**Preparation of the Seed Bed.**

In preparing the seed bed for flax every effort should be made to make it as firm as possible and as shallow as possible leaving only enough mulch to cover the seed so that the drill working at about one half to three-fourths of an inch deep will strike moist, firm earth. This means that the previous cultivation should be such as to conserve the moisture. Flax can stand lots of punishment and can produce a crop of seed with perhaps less rainfall than any other of the small grains, provided it can first get well rooted in a moist, firm seed bed.

**When to Sow:** Sow as early in the spring as possible yet avoid having the young plants frosted so that the crop may ripen before the hottest days of summer, or else, in the warmer regions, sow sufficiently late that the maturing processes may take place in the cooler autumn months and yet

avoid frost in the fall. Excellent crops are raised under both conditions but the crop is never very successfully grown when the crop must do its main developing during the hottest weather.

**Rate of Seeding:** For seed production, sow not to exceed fourteen quarts of good flax seed on any soil. If all the seeds grow, sixteen to eighteen pounds will give plenty of plants on a properly prepared seed bed. They will be sturdier and give better seed production.

**Seed Treatment:** No matter how hard one works on the seed bed or how carefully he selects the seed, if he does not disinfect the seed before planting, the work will be largely lost, for in a few years the ground will become infected so that, regardless of good methods, a crop cannot grow.

**Treatment:** Treat the seed with formaldehyde, using standard formaldehyde at the rate of sixteen ounces avoirdupois to forty gallons of water. Use a spray pump which will throw a forceful, misty spray. After the seed is all cleaned in the fanning mill, throw it down on a tight floor or canvas and rake or shovel it over while it is being sprayed with the solution. Rake, spray and shovel slowly until you have put on at least one half gallon of solution for each dry bushel of seed. Pile the seed up in a pile, cover with a canvas and it will be right to sow in approximately two hours. Treat in the morning that which you wish to sow in the afternoon. Treat in the afternoon that which you expect to use in the morning.

**Caution:** While the flax seed is being sprayed be sure to stir it thoroughly and, if it happens that you cannot seed it, then it must be spread out to prevent heating.

**Harvesting and Threshing:** The crop in dry regions often grows very short but this is no sign that there is not a large production of seed. The flax crop may readily be cut ten or twelve inches high and yet produce fifteen to twenty bushels per acre. This means that careful arrangements must be made for harvesting. In regions where there is sufficient moisture the crop will grow sufficiently tall to be cut with a binder and this is then the proper method, for the bundles can be stood erect, so as to avoid moisture on the seed boles. It will thus be ready to thresh within two or three days after being cut, avoiding chance of injury by rain-fall. If the crop is short it is usually cut by means of a reaper which throws the bundles of flax to one side where they should be gathered up as soon as dry and threshed. The habit of leaving these bundles lying on the ground for several weeks to mould is one of the most destructive processes in flax growing, filling the seed coats with disease producing fungi, eventually resulting in thoroughly infecting the ground with diseases from the mouldy straw. Any flax seed which has once been mouldy

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PAXTON, ILL., U.S.A.

The Plow doesn't mind it a bit—neither does your team.

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In the preparation of the seed bed it combines all the functions of the disc, harrow and packer. The Kramer is so light running and easily operated that you don't know it's following your plow and doing half the work of preparing the seed bed.

The introduction of the Kramer HERCULES MODEL comes as a boon to all farmers. It is sufficiently strong and powerful to chop up all manner of soil conditions. Next to yourself, the Kramer Attachment is by far the best thing ever put on your plow. When you are ready to sow or

plant, your neighbor, not owning a Kramer HERCULES MODEL, will be wearing out himself and team harrowing in the old way.

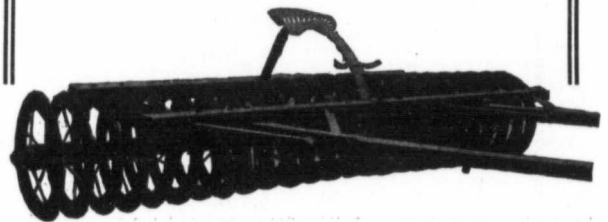
This model is especially well adapted for back setting, summer fallowing or stubble breaking. The Attachment is sold under a strong guarantee to do good work by both the undersigned companies.

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It is built expressly for the purpose intended, and always does it right. The horses are hitched closer to their work than with any other, making easier draft. Made in the West for Western people

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# Tell Us How You Did It

You may win a prize by doing so

**S**UPPOSE your friend Bob Wilson, on the next concession, "pulled up" at your front gate on the way back from market and asked about that silo or barn foundation you built, you would be glad to tell him, wouldn't you? And it wouldn't take you long, either, would it? And, as a matter of fact, you'd find as much pleasure telling him as he would in listening—ain't that right?

First you would take him over to view the silo or barn foundation. Then you would start to describe it—its dimensions—the kind of aggregate used—the proportions of cement used—number of men employed—number of hours' working time required—method of mixing—kind of forms used—method of reinforcing, if any—and finally, what the job cost. So that by the time you finished, neighbor Wilson would have a pretty accurate idea of how to go about building the particular piece of work which you described.

Now couldn't you do the same for us, with this difference—that you stand a good chance of getting well paid for your time?

In Prize "D" of our contest, open to the farmers of Canada, we offer \$100.00 to the farmer in each Province who will furnish us with the best and most complete description of how any particular piece of concrete work shown by photograph sent in was done. The size of the work described makes no difference. The only important thing to remember is that the work must be done in 1911 and "CANADA" Cement used.

In writing your description, don't be too particular about grammar or spelling or punctuation. Leave that to literary folk. Tell it to us as you would tell it to your neighbor. What we want are the facts, plainly and clearly told.

Sounds simple, doesn't it? And it is simple. And surely it is well worth your while when you think of the reward in view.

Now sit right down, take your pen or pencil—all out the at-

tached coupon—or a post-card if it's handier—and write for the circular which fully describes the conditions of this, the first contest of the kind ever held in Canada.

Every dealer who handles "CANADA" Cement will also be given a supply of these circulars—and you can get one from the dealer in your town, if that seems more convenient than writing for it.

Contest will close on November 15th, 1911—all photos and descriptions must be sent in by that date, to be eligible for one of these prizes. Awards will be made as soon as possible thereafter. The decisions will be made by a disinterested committee, the following gentlemen having consented to act for us, as the jury of award: Prof. Peter Gillespie, Lecturer in Theory of Construction, University of Toronto; Prof. W. H. Day, Professor of Physics, Ontario Agricultural College, Guelph; and Ivan S. Macdonald, Editor of "Construction."

Having decided to compete for one of the prizes, your first step should be to get all the information you can on the subject of Concrete Construction on the Farm. Fortunately, most of the pointers that anyone can possibly need, are contained in our wonderfully complete book, entitled "What the Farmer Can Do With Concrete." A large number of Canadian farmers have already sent for and obtained copies of this free book. Have you got your copy yet? If not, you'd better send for one to-day. Whether you are a contestant for one of our prizes or not, you really ought to have this book in your library. For it contains a vast amount of information and hints that are invaluable to the farmer.

Please send full particulars and book.

Name.....

Address.....

**Canada Cement Company, Limited, Montreal**

in the bundle should never be used for sowing purposes.

**Flax Seed as Forage:** In the Northwest the flax straw is commonly used as rough feed for cattle during the winter. Many farmers report great success in using it in combination with other straws and hay. Some few cases of stock poisoning have been attributed to feeding upon flax screenings and flax chaff. As such crops, however, are often grown upon new lands, it is very possible that this poisoning is due to the presence of some of the seeds or parts of poisonous plants such as

hemlock or pink cockle. Flax seed is a quick acting laxative and a part of these troubles may readily be due to eating the seed in too large quantities after a steady diet of dry wheat straw, etc. As indicated under the paragraph on essentials, when cattle are fed flax straw the manure should never be used for fertilizing purposes until it is thoroughly composted. To spread such manure while fresh, not composted, upon lands intended for flax culture is a sure means of destroying the crop.

### Harrowing vs. Praying for Rain.

"If I were to come into your farm and set 750 teams to work for a week hauling water into a quarter section at the rate of four tons a day I would then only put on as much water as evaporates in a week when there is a good moisture content in the soil. This is the striking illustration that President Worst of the North Dakota Agricultural College gives of the tremendous amount of water that escapes by evaporation.

He then concludes: "a thorough harrowing will stop this evaporation and save that amount of water."

The cost of milling Durum wheat is 3¼c. more per bushel than for the common wheat, due to the extra power and time required. Prof. Ladd in the 21st report of the North Dakota Experiment Station also brings out the fact that the Durum wheat makes about two per cent. less flour.



**Alfalfa.**

The rapid increase in the cost of our concentrated feeds, especially is this true in feeds rich in protein, with these facts before us, it is no wonder that the farmers are turning their attention to studying the conditions and growing alfalfa to meet their wants as a protein feed as it shows the same analysis as wheat and bran.

The original home of the alfalfa appears to be in the southwestern part of Central Asia and from there it has been carried to practically every part of the world. It is now one of the staple forage crops of every continent of the Old World and easily takes front rank as the most important leguminous forage crop.

The name alfalfa is of Arabic origin and means the best fodder. In the southern part of Europe it is known as lucerne. It was formerly applied to the plant of the United States but this name has given way to alfalfa. It was introduced into the western part of the United States in 1864, and has been gradually extended eastward and the chances of its success increase as the special requirements for its production are understood and provided for.

It may be briefly described as being a deep-rooted, long lived forage plant belonging to the botanical family of leguminous or pod bearing plant. Its flowers are violet, oval shaped and borne in compact oblong crutches. One of the most important characteristics of alfalfa is its long capped root often extending fifteen or twenty feet into the soil, this making it a most valuable forage plant to withstand drought which would be fatal to a shallow forage plant.

The wide distribution of alfalfa indicates a remarkable adaptability to various climates and conditions. As far as climate is concerned, alfalfa can be grown in every State of the Union. It is however, exacting as to soil treatment. Although the adaptability of alfalfa, is great yet if area is not perfectly suited to the production care is necessary to provide the very favorable conditions required by the young plants in order to overcome the natural drawback. A deep fertile, well drained soil rich in lime and reasonably free from weeds is necessary. The lack of any one of these essentials is apt to be the cause of a failure. A deep soil should be chosen if possible as alfalfa is naturally a deep feeding plant which sends its roots down many feet to obtain plant food materials and moisture; although in some limestone sections it is successfully grown where the soil is but eighteen inches deep, underlain with limestone.

Alfalfa through the nodules form bacteria within its roots adds nitrogen to the soil and in this way increases its fertility to that extent but the large yields which we obtain draw heavily on the other elements of the soil so that it is

necessary that the richest and best drained soil our farms contain should be selected.

There is risk in selecting bottom land as there are two things alfalfa cannot stand—wet feed and weeds, and on land not well drained these are almost sure to give trouble.

No other forage crop requires so much lime in the soil as alfalfa. It is apparently necessary that the soil acidity be neutralized by the lime. An analysis was made of the mineral contents of certain crops and it was found that the percentage of lime in the alfalfa ash was forty per cent., red clover twenty-one per cent. and timothy five per cent.

The tender nature of the young alfalfa plant requires that the soil be in excellent tilth at planting time. The seed bed should be fine on top but thoroughly settled. As a rule about six weeks are required for plowed land to settle enough for alfalfa seeding. It is important that the preparation be uniformly good as the poorly prepared soils are apt to fail. It may be difficult to establish alfalfa on soils that are so sandy they drift. When bare, the young plants are apt to be cut off by drifting unless protected. On this kind of a soil a thin seeding of grain such as oats or barley would be good for protection and clipped when the alfalfa has a good start.

Plow the ground intended for alfalfa seeding early in the spring giving thorough cultivation until the last half of May or the first of June, destroying all seed growth and giving a fine seed bed, then sowing fifteen to twenty pounds to the acre without a nurse crop. Without a nurse crop will give the best result, as using a nurse crop, we are apt to injure the growth of our alfalfa crop.

Originally, no treatment is necessary, except to cut the hay when the plants are coming in bloom, or when the new crowns have started. Remove the hay from the field as soon as possible in order to allow the new growth to commence uniformly over the field.

Cutting just as the field shows bloom usually gives the best results. If left until the basalt roots get too long we injure the following growth by clipping off young plants.

Alfalfa growing in Western Canada is as yet in its infancy. There is not the slightest question of a doubt, however, but that our soil can be made to yield abundant crops of this valuable forage plant. It can be made to furnish us with a large amount of the most valuable hay known and at the same time will act as a weed destroyer. It may take some little time to get our soils inoculated and at the same time get hold of seed that will be sufficiently acclimated but when once this is done we will have added to Western Canada's forage crop something that will add to her

**L**IGHTNING is a force over which the average man feels he has no control. The annual havoc wrought by this powerful agent of the elements to life and property is beyond all human comprehension. Such is its force that our largest buildings crumble before it, trees are torn up by the roots, whole herds of live stock are destroyed by a single flash, and human life is snuffed out as a candle. The force or power of lightning cannot be weakened, but it can be controlled through an efficient system of

**COPPER CABLE LIGHTNING ARRESTERS**

Such a system is based on scientific principles—principles that are absolutely correct; and while they do not in any way weaken the force of the lightning's flash, they direct it in such a way that it is transferred to the earth and no harm is done. With every thunderstorm there is sufficient lightning to devastate a whole city of buildings, but if all buildings were protected by a proper system there would be no danger whatsoever. Such is the

**Townsley System**

It is the result of years of research and investigation.

It is built to protect your buildings and your's and your family's life. You need it. It is absolutely guaranteed. Write us.

annual crop production millions of dollars.

The Government of Saskatchewan has been among the first to recognize the importance of this crop and has offered valuable prizes for its introduction into the province. It behooves every farmer to take advantage of this offer as it will not only add to his own profits but at the same time will materially increase the wealth of the entire province.

The farmer should get hold of all the literature on the subject of alfalfa that it is possible, and study the plant carefully, and get into the game with a determination to win. The results are sure to come.

**Saskatchewan Fair Dates, 1911.**

North Battleford	June 26-28
Saskatoon	June 30-July 4
Prince Albert	July 5-8
Salcoats	July 20
Churchbridge	July 21
Yorkton	July 25 and 26
Foam Lake	July 27
Wynyard	July 28
Kellier	August 2
Nokomis	August 3
Asquith	August 4
Mortlach	July 18
Swift Current	July 19 and 20
Herbert	July 21
Milestone	July 25
Moose Jaw	July 25-28
Govan	July 24 and 25
Elasto	July 26
Lashburn	July 28
Lloydminster	August 1
Zealandia	August 3
Unity	August 4
Tago	July 25
Canora	July 26
Wadena	July 27
Quill Lake	July 27 and 28
Humboldt	July 31 and August 1
Vonda	August 2
Rosthern	August 3 and 4
Indian Head	July 25 and 26
Craik	July 27
Bladworth	July 28
Hanley	July 31 and August 1
Outlook	August 3
Brownlee	August 4
Arcola	July 25
Stoughton	July 26
Weyburn	July 27-28
Alameda	August 1
Oxbow	August 2
Carduff	August 3
Gainsboro	August 4
Fort Qu'Appelle	July 26
Strasbourg	July 27 and 28
Lipton	August 1
Abernethy	August 2
Dubuc	August 3
Stockholm	August 4
Regina	July 31-August 11
Lumsden	August 15
Davidson	August 16
Carlyle	July 26
Kennedy	July 28
Wolsley	August 1-2
Windthorst	August 3
Moosomin	August 4
Fairmede	August 9
Broadview	August 10-11
Qu'Appelle	August 15-16
Francis	July 21
Creelman	August 11

**WE SEND THIS 100-PAGE CLOTH-BOUND VOLUME SEND US THE COUPON TO-DAY**

**FREE**

**YOU** only need to tear out the coupon, fill it in and mail it to us to get this book. "How to Build Rural Telephone Lines"

is a stiff-covered, cloth-bound book of 100 pages, crammed full of hard facts about the building of community-owned telephone lines. There is no theory—no clever writing in this book. It is full of nothing but actual facts. It tells the facts about the organization of numerous rural telephone companies and the success they have achieved, the facts you need to know to organize such a company in your own community, the facts about mutual-company organization and about stock-company organization, the facts about practical construction work and how you and your own neighbors can do this construction, the facts about the equipment necessary, the facts about government regulations on the matter—in short, it tells you every fact you need to know, from the moment you dream of the possibilities of a telephone system in your community, until the line is actually erected and you are able to talk over it. This is the most complete book of its kind ever published anywhere; it is the one single volume in existence that gives the farmer every detail of information he requires to organize a telephone company and construct a rural telephone line from start to finish. You owe it to yourself to know all there is to know about rural telephones. Farmers all over the Dominion are organizing companies of their own; if such a company does not already exist in your locality, it is only a question of time until one will be formed, and meantime you should be becoming possessed of the facts.



450  
**The Northern Electric and Manufacturing Co., Limited**  
Gentlemen,  
Please send me FREE, one copy of your 100 page, bound and illustrated book on "How to Build Rural Telephone Lines".  
Name.....  
Post Office.....Prov.....

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Manufacturer and supplier of all apparatus and equipment used in the construction, operation and maintenance of Telephone, Fire Alarm and Electric Railway Plants. Address our house nearest you.

**MONTREAL TORONTO WINNIPEG REGINA CALGARY VANCOUVER**

Grenfell	August 14 and 15
Sintaluta	August 16
Whitewood	August 17
Wapella	August 18
Tisdale	September 12
Melfort	September 13-14
Kinistino	September 15
Carlton	September 19
Duck Lake	September 21
Paymont	September 19
Maynton	September 20
Radison	September 21
Langham	September 22
Watson	September 26
Lanigan	September 28
Maple Creek	September 20 and 21

**Alberta Fair Dates, 1911.**

<b>Circuit No. 1</b>	
Crossfield	June 22
Calgary	June 30-July 7
Okotoks	July 11-12
Innisfail	July 13-14
<b>Circuit No. 2</b>	
Macleod	August 2, 3, 4
Granum	August 7-8

Clareholm District	August 9-10
Stony Plain	August 11-12
Edmonton	August 15-19
Rexboro & District	August 19
Wabunan	August 22
Lethbridge	August 22-25
Medicine Hat	August 29-September 1
Trochu	September 1

**Circuit No. 3**

Entwistle & Pembina Valley	September 12
St. Albert	September 13
Fort Saskatchewan	September 14
Vermillion	September 19
Vegreville	September 20 and 21
Kitscoty	September 27
Lloydminster	September 29
Innisfree	October 3-4

**Circuit No. 4**

Irma	September 22
Viking & Birch Lake	September 26
Holden	September 28
Tofield	September 29

**Circuit No. 5**

Pincher Creek	September 12
Nanton	September 13 and 14
Stavelly	September 15 and 16

Raymond	September 19 and 20
Magrath	September 22-23
Cardston	September 26-27
Taber	September 28-29
Rawdonville	October 3
Langdon & Bow River	October 4-5

**Circuit No. 6**

Strome-Killam	September 8
Leduc	September 12
Cochrane & District	September 13-14
Sedgewick	September 15
Three Hills	September 19
Milnerston	September 20
Olds	September 21-22
Wetaskiwin	September 26-27
Alix	September 27
Lacombe	September 28-29
Ponoka	October 3-4
Camrose	October 5-6

**Circuit No. 7**

Bowden	October 3
Didsbury	October 3
Priddis & Millarville	October 5
Gleichen	October 5-6

**Circuit No. 8**

Castor	September 26-27
Stettler	September 28-29

# THE FUNNY WORLD



The matter on this page lays no claim whatever to originality. The one idea is to amuse, to provoke a smile. If it fulfills this mission we shall feel amply repaid for the time and labor expended in its preparation. Have you read or heard something that has made you laugh? Has it chased dull care away for a time? Then pass it along for publication in our Funny World. Such contributions will be greatly appreciated.

The real estate firm of Solomon & O'Sullivan had lots for sale in a newly planned suburban district.

O'Sullivan—young, enthusiastic and Irish—was writing the advertisement the natural eloquence flowing from his pen. He urged impending purchasers to seize the passing moments.

"Napoleon," he wrote, "not only met opportunity; he created it!"

Mr. Solomon read this line in the advertisement slowly and carefully.

"This fellow Napoleon," he said—"what's the use of advertising him with our money?"

After he had waited outside for ten long minutes, the door was opened on the chain and a woman's face appeared at the aperture. "Good morning, madam," began the street hawker in his suavest tones. "I have here a little article of universal utility. It is called the Marvelous Mice Exterminator, and the price—"

"No use," interrupted the woman grimly. "We have no marvelous mice in this house—only the ordinary kind."

Then the door was shut and the hawker was once more alone.

"Were you ever arrested before?" asked the magistrate, whose principal business is imposing fines for speeding.

"What do you think I've been doing all of these years?" said the chauffeur, "pushing a wheelbarrow?"

Muddum—Wonder what makes the telegraph lines hum?

De Broke—I've wired dad for dough, and I guess he's talking back.

The young son had been naughty and had been sent to bed supperless.

Presently when the boy's mother wasn't looking, his father slipped upstairs and whispered through the door of the boy's room: "Son, could you eat some honey in the comb?"

"Dad," the boy said, "I could eat it in the brush."

A young lady entered a dentist's office, sat down in the chair of torture without a tremor and uncomplainingly allowed the dentist to examine her teeth. When he had poked and probed and punched and prodded to his evident satisfaction he said:

"Why, my dear young lady, every filling in your mouth is loose and two of your teeth are about to fall out."

"I know," the young lady murmured.

"May I ask what is the cause of it. I see no signs of violence or concussion."

"Well, you see," the young lady explained. "I'm a telephone operator and I have been trying to follow instructions and say three so it will not sound like any other sound on the face of the earth. We are supposed to say it this way, Thr-r-r-ree. Do you see?"

"I can't truthfully say that I do," replied the dentist, extracting a gold filling from his eye.

When a merchant in the Hill district, who had been standing in front of his store, saw two young men stop, the other day, and begin looking over his wares, he naturally was pleased and gave them immediate attention, says the Pittsburg Times-Gazette.

"I want to know," began one of them, "if you have any clean shirts ready to wear."

"Certainly, certainly" was the quick response.

"Well, then, go in and put one of them on," was the reply of the smart young man as he and his companion continued on their journey.

Eye-witnesses say that the merchant didn't laugh.

"Why do we send missionaries to the savages?" asked the man.

"To civilize them."

"What good does that do them?"

"It educates them out of habits of idleness."

"And what then?"

"They go to work."

"What do they work for?"

"To become prosperous and rich."

"What good does prosperity do them?"

"It procures them leisure and comfort."

"Which was what they had before you started stirring them up. What's the use?"

Say, do you need a boy?" queried the little fellow, as he stepped inside the door of the ice dealer's office.

"Ever been in the ice business?"

"No, sir," queried the dealer.

"Know anything about arithmetic?"

"Not much."

"What would 90 pounds of ice amount to at 2 cents a pound?"

"Eighty cents."

"Good boy! Come around in the morning and go to work."

"You know the poet says a man must be either the hammer or the anvil."

"Lots of fellows I know are more like the bellows."

Bacon—I see a patent has been granted for an attachment to rocking chairs to operate a fan to cool the occupant.

Egbert—And when a man goes into the dark room and stubs his toe against that rocker, we do not think the new attachment will cool him off any.

Mr. Lushington was meeting with heavy weather on his way homeward at 2 A.M. His course was decidedly zig-zaggy and he listed to port. Finally he ran foul of a policeman.

"I guess you need an escort, old man," said the cop, good-naturedly.

"Looksh that way," muttered Mr. Lushington. "I'd be alrigh' (hic) though, if I wuz only equipped with a gyroscope!"

A traveling salesman stopping at a hotel in a country town on circus day refused to use the wet and soiled crash towel in the lobby.

In response to the drummer's protest the colored porter said, deprecatingly: "Boss, seventy-five men has wiped dere han's on dat towl' dis mornin', an' you is de fust ter complain!"

The ever-burning question, "What shall we do with our boys?" seems to be satisfactorily answered in the following advertisement, which appears in the window of a Farrington Road Butcher's shop: "Wanted, a respectable boy for beef sausage."

"Willie," said the Sunday school teacher, "who slew the giant Goliath?"

"Why-er-lemme see," stammered Willie.

"Come, now, that's an easy question."

"Oh, it ain't the question that bothers me; it's the answer."

A newly rich couple whose early education was trivial came from New York state to visit the wonders of Chicago. They put up at Auditorium Annex. After supper Reuben left the apartments, telling his wife that he would return quickly. Hours passed and brought no husband. At last, near midnight, the wanderer came back. "Where have you been?" asked the worried woman. "Oh, nowhere. Just out in the cuspidor, walking pro and con."

"And your husband is a yachtman?"

"Yes, and he has a nice boat of his own."

"Is it a centerboard boat?"

"No no. From what I hear it is a sideboard boat."

"He saved my life," declared the millionaire. "Hand me a fountain pen, somebody."

"Going to make out a check?"

"No; going to indorse him for a Carnegie medal."

The guests at a summer hotel in northern New Jersey are laughing over the following: The proprietor of this hostelry put up a bungalow in its neighborhood last winter. Near the hotel the Morris and Essex canal winds its way through the woods, and on its bank in that vicinity is a 'general store' kept by a native who is quite a character in his way. Showing him the new dwelling after its completion, the hotel proprietor pointed out with pride the modern bathroom with which it is equipped. "Why did you put in a bath?" said the storekeeper. "Why, said the hotel keeper, "it adds so much to comfort." "Well," said the S.K., "the canal is good enough for me." "That may do in the summer, but what do you do when it gets cold?" "Why," said the S.K., "you don't suppose I'm such a—fool as to take a bath in the winter time, do you?"



# The Dependable Adaptable Speedy Gang.

No engine gang meets the adaptability, speed and reserve strength of the famous Cockshutt—the first tractor gang plow in the field that turned out good and satisfactory work in all types of land.

This is the practical tractor gang for work where every minute is precious, where the furrow mileage has to run 140 to 240 miles a day, and where a break-down is a calamity by reason of the crop losses the delayed plowing may cause.

See how well the Cockshutt Engine Gang is suited to the wide range of prairie needs.

First thing we do is to make it **STRONGER THAN NEED BE.** This is a kind of insurance policy on your profits, if you are a contractor, or an insurance policy on your crops if you are a grower.

The **SHARES** are strongly attached by 4 bolts to each plow, and are best soft-center steel of extra weight and strength. In practice this means that your shares are on to stay.

The **PLOWS** are individually attached to their own beams, making each plow independent. This means conformation to ground—**REGULAR** plowing in **IRREGULAR** ground.

The **BEAMS** are short, straight, and doubled, spreading to a wide, solid platform, hinge bearing. The shortest possible length of metal gives greatest stiffness. The doubled beam adds to this stiffness. The wide hinge bearing insures the exact position of plow at proper furrow width, and **NO SIDE STRAINS** can spring plows out of line, because a stiff beam is rigidly held right by a wide bearing.

The **DRAG BAR** is reinforced with webs and braces to keep all plows lined correctly. It is supported at both ends by wide dust-proof wheels to keep all plow beams at constant height, giving even plowing for all plows, even in soft, mushy ground,

**REFINED ADJUSTABILITY** is given by the solid construction of working parts with an eccentric adjustment of beams at hinges to prevent winging, and a set screw adjustment of plow shares at back of unit

**AUTOMATIC PROTECTION** of plows is insured by design which allows them to rise and re-set over rocks.

**SPEED** is attained by the direct pull, short hitch, flexibility of plow units, and short turn possible with the Cockshutt swiveled wheel platform

**QUALITY** of plowing is maintained by the refined adjustability and the manner in which plows automatically hug the ground, always plowing at set depth, even in hollows, tractor ruts,

**CONTRACT PLOWING** is safest with the Cockshutt, as no possible accident can tie up the tractor gang by putting the **ENTIRE** gang set out of commission. **ALL KINDS** of ground are covered easiest by the Cockshutt, which automatically keeps at uniform depth, automatically fits irregular land, and has reserve strength for hard and stony spots. You cover greatest acreage with least loss of time for stops, turns, adjustments, or changes of speed, and with no setting of plows. Owing to the easy draft, you get a greater acreage out of a Cockshutt Gang with a tractor than with a two-to-a-beam type of engine gang and the same tractor.

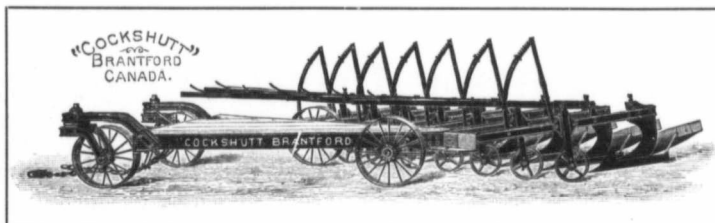
**LENGTH OF SERVICE** is attained by wide bearings and heavy parts to plows, beams and platform, giving perfect resistance to the ordinary stresses of plowing and wear and tear generally in heavy service. This means a very large total output for your investment.

**TREMENDOUS POPULARITY** is the natural result. Cockshutt Engine Gangs are sold **THREE**

times out of four in the Canadian West, so many buyers know their superiority, and know they can give a standard that few plows, if any, can attain. You can do no better in buying a gang for tractor work than in selecting a Cockshutt Engine Gang at the Cockshutt Dealer's

Write for the "Horseless Plowing" Book. It shows tractor plowing being done **ALL OVER THE WORLD** with the engine gang that is well high perfect.

Or, see the Cockshutt Dealer. We will give you his name on request.



## COCKSHUTT ENGINE GANGS

where the last plow has a tendency to sink beam deep.

The **FURROW DEPTH** is maintained by adjustable gauge wheels for each plow, which holds plows at set depth in soft ground. For hard ground, weight of plow and low line of pull keep the Cockshutt units at constant level.

The **LIFT** is high, is individual for each plow, and is operated by long levers, easy to operate. Owing to the low platform, a comparatively slight lift of plows by lever, gives them a high clearance.

The large, low **PLATFORM** is supported on swiveled front wheels, and takes the direct tractor pull on a low level, allowing a short hitch.

hard ground, soft ground, or stony ground alike, without winging, or polishing bottoms of furrows.

**INTERCHANGEABILITY** of plow units permits work to continue, if a plow unit breaks, as the last plow is removed and takes the place of the disabled unit, which goes to the repair shop. Emergency conditions, such as extra hard ground, allows less and less units to be used, a single plow being taken up at a time, till the plowing is within the capacity of the tractor.

**FANCY PLOWING** is possible with the strong and reliable Cockshutt Gang, owing to its perfect adjustment features, and flexibility. It has been the gold medal winner for years in all tractor plowing contests.

# COCKSHUTT PLOW COMPANY LIMITED WINNIPEG

BRANDON

REGINA

SASKATOON

CALGARY

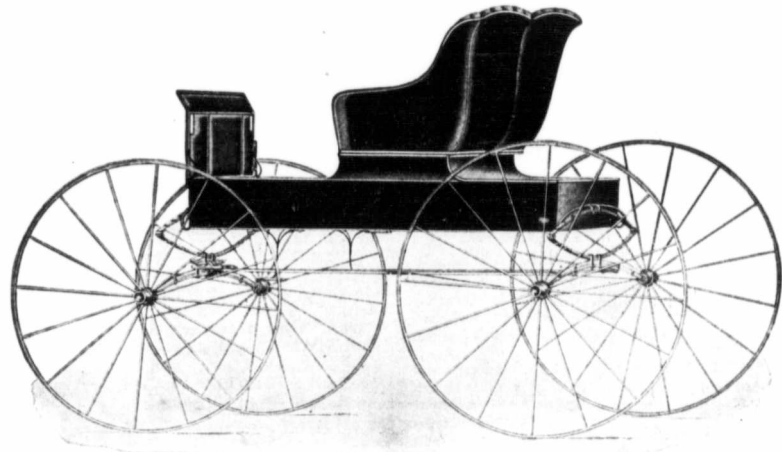
EDMONTON



# A Swell New Glengarry Job for 1911



Over 40  
Different  
Styles  
—  
Write  
Us  
for  
Information



Leaders  
in  
Style,  
Comfort,  
Durability,  
Construction  
and  
Finish

No. 220—TWIN AUTO SEAT DRIVING WAGON.

ALL REPRESENTATIVE DEALERS SELL "GLENGARRYS"

## CANADIAN MOLINE PLOW CO., WINNIPEG

Branches at CALGARY and REGINA

### Gasoline Traction Engines

*Continued from page 99*

coated with a deposit when hard water was used. When using soft water we had no trouble this way.

During the season we broke 1,100 acres of sod land, pulling six to seven fourteen-inch plows. As this season was a very dry one we changed shares every day.

In fall plowing we plowed 100 acres of stubble land, pulling eight fourteen-inch plows with five sections of harrows behind. In fall discing we discd 260 acres in eight days, using four discs, two nine-foot plankers and five sections of engine gas oil, using gasoline only to start the engine on.

We used about 50 gallons of kerosene or engine gas oil per ten-hour day in breaking sod land, using one barrel of water in ten hours. For stubble plowing our average fuel was 35 gallons of kerosene or engine gas oil per ten-hour day. In threshing we only had a short run of about 11 days. The total grain threshed was 20,000 bushels.

We consider plowing harder on the engine than threshing, as there is so much moving about. We estimate the cost of plowing sod land, counting oil, repairs, blacksmithing, etc., at \$1.25 per acre, and stubble at \$1.00 per acre.

We believe that the kerosene farm tractor is the coming farm power and a very successful way to farm on a large scale.

We usually worked in two shifts of two men each. We used one team of horses to haul oil, water, and go to town for shares, etc.

In conclusion we must say that we consider the Canadian Thresherman and Farmer second to none among the farm papers in this country, and look forward to receiving it every month.

Trusting this is satisfactory to you, we remain,

Yours truly,  
S. Dickey & Sons,  
Perdue, Sask.

### Can Break for 85c. per Acre.

My engine is an International 20 horse power type C and my plows are P. & O. five bottoms independent. One man can run my outfit but I sometimes have one man on the plows. I use on an average of 25 gallons of gasoline and one barrel of water per day.

For breaking I estimate the cost at about 85c. per acre and when I was plowing stubble it did not cost me more than 55c. per acre. When I was plowing stubble I used two sets of fours off P. & O. disc plows and they did an excellent job with only one man on the whole outfit.

I got my engine about April 15th and my plows about the middle of May and I broke 300 acres and plowed this with only four plows. I could pull five plows but I found it just a little too much for my engine. I found I made better time with the four, for I could go along steadier. I also

plowed and worked down 160 acres of summer fallow with my engine.

I pulled three sets of disc harrows, two sets attached to the frame of engine by bolting two pieces of iron on the frame and letting them project out about one foot on each side, and then by a chain I hauled the third one and a set of harrows behind. That gave it two cuts with the disc and harrowed it with once going over land.

I also plowed 340 acres with disc plows after I quit threshing. I have one section of land and I think this a very cheap way to farm, far cheaper than horses.

Wishing you success, I remain,  
Yours truly,  
Wm. Stoneman,  
Mortlach, Sask.

### Can Run with One Man.

We have been running a 20 h. p. I. H. C. gasoline engine with 5 bottom P. & O. engine. Our experience during the last breaking season is as follows:

We started on the 19th of May and broke till the 13th of July, but during two weeks of this time we were held up for the want of rain, the prairie being too dry for breaking. We were actually breaking 41 days, in which time we broke 400 acres. We also did our own repairing and share sharpening. This averages about ten acres per day, which of course means that some days we did considerably more than ten acres, as

there were several slight repairs to be done.

The only expenses for repairs we had during the whole breaking season was 70c. for a new spoke in hind wheel. The engine is very light on gasoline, using two gallons per acre or 20 gallons per ten-hour day, in which time we would break from 10 to 12 acres according to condition of land.

Some days when we were working long hours, we would take it in turn to run the outfit single handed while the other took a few hours' rest. This we would do by putting the plows in while the engine was stationary, and then putting the clutch in and taking her along to the end of the furrow, when we would leave the engine to steer itself, while we took the plows out. Then take the wheel again, turn around, stop, put plows in again and continue as before. We found this no trouble at all, so that we consider this shows how easy an engine can be managed, also the plows. Our plows never gave us any trouble whatever, and made a splendid job, with which everyone was well satisfied.

We did not employ any help but just our two selves worked at it. We used one team to haul water. Our estimated cost per acre is \$1.50 and we consider plowing harder on an engine than threshing.

Yours truly,

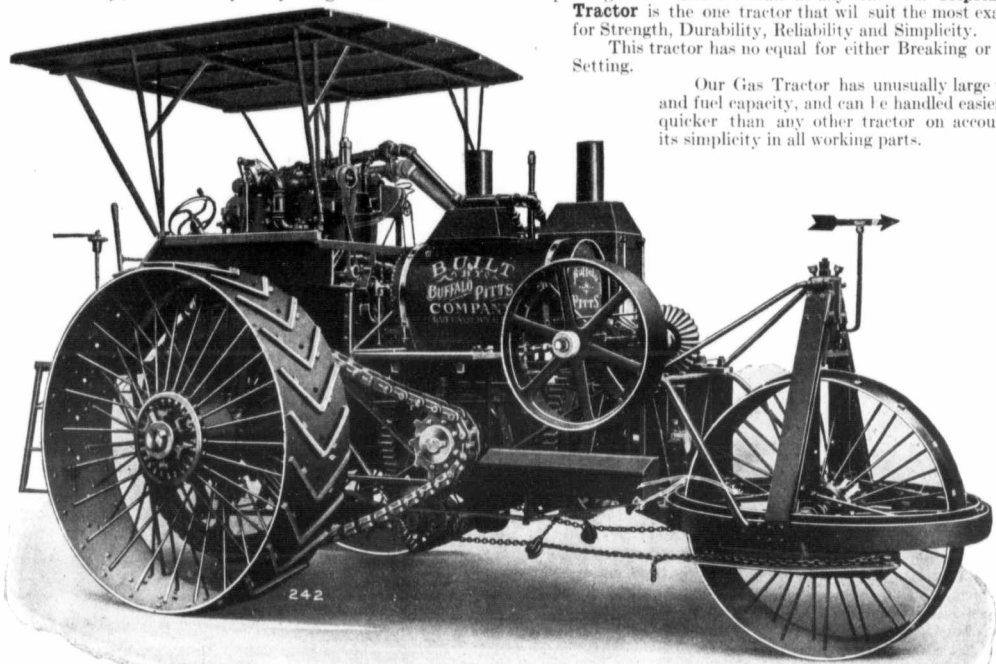
J. E. Margetts and R. Wesnink,  
Edam, Sask.

# STOP AND READ THIS AD.

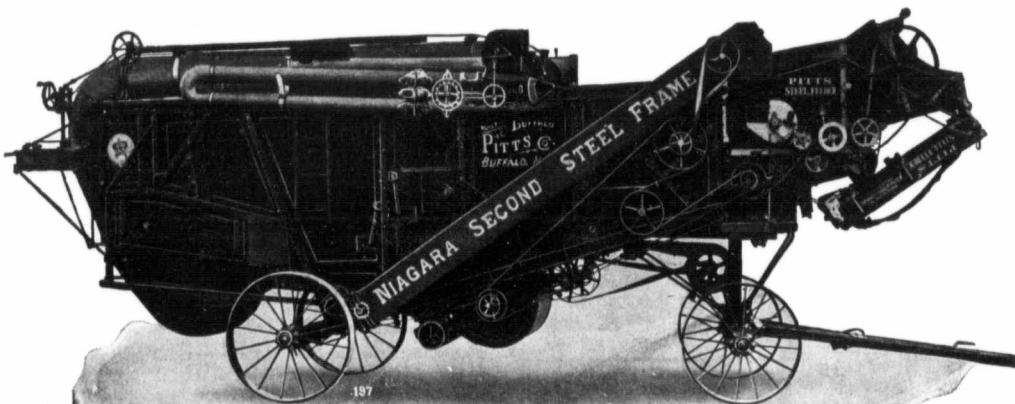
The Plowing and Threshing Machinery manufactured by the Buffalo Pitts Company, carries a longer and more successful record than can be claimed by any other manufacturer of Plowing and Threshing outfits of the world today. A Buffalo Pitts Tractor has no equal for power and durability; it has been specially designed and built for first-class plowing on an extensive scale in any soil. Our **Triplex Gas Tractor** is the one tractor that will suit the most exacting for Strength, Durability, Reliability and Simplicity.

This tractor has no equal for either Breaking or Back Setting.

Our Gas Tractor has unusually large water and fuel capacity, and can be handled easier and quicker than any other tractor on account of its simplicity in all working parts.



## The Niagara Second and Steel Frame Separator is Guaranteed to be the Greatest Grain Saver on the Market



A clean cut, clean threshing, built-for-business separator. It is the only thresher having a solid steel cylinder foundation which also forms the corner support for the solid steel frame. It will thresh faster, cleaner, and separate more perfectly than any other machine on the market.

**DON'T EXPERIMENT—BUY A BUFFALO PITTS**

Main Office: 6 Carolina St., Buffalo, New York

**BUFFALO PITTS COMPANY**

Canadian Office: 25 High Street, Moose Jaw, Sask., Canada.  
Winnipeg Office: 774 Dufferin Ave.



**Lightening Arresters**

Some Pointers given Farmers by Fire Commissioner of Manitoba

For the benefit of the farmers of Manitoba, A. Lindback, fire commissioner for the province, has the following to say:

"Very frequently inquiries come to my office as to the value and need of protecting buildings from lightning, and in many cases the inquirer evinces considerable scepticism as to the actual value of the use of lightning rods, referring to the many swindles which, no doubt, were perpetrated on the farmers and others; first, by taking advantage of those whose business sense and education was rather undeveloped, so that they could be persuaded to sign any kind of promissory note, which afterwards proved to have committed them to a different deal than what was expected or the rod itself was of inferior metal and workmanship, indifferently placed, so that within a short time it became either useless or dangerous instead of a protection.

"All this, however, has been changed of late years; the present generation of farmers has learned their lesson; their knowledge of electricity has increased and through the activity of fire marshals in the States, as well as through the mutual insurance companies there, it has been proved that barns and other isolated high buildings do not burn and are not struck during electrical storms if properly rodded, nor is people or cattle killed by occupying such buildings. But let it be noticed that I say "properly rodded," which means not only that the material from which the rod is made must be of the best, but the work requires to be done by parties thoroughly versed as to the laws governing this matter.

"The value of the material is governed, first by the conductivity of the metal used; second, by its power to withstand corrosion, and its effectiveness to protect the building depends on the ground end of the rod having been lodged deep enough so as to be always surrounded by moisture.

"Regarding the conductivity of the different metals, taking silver as a standard at 100, copper at 96, gold at 74, zinc at 16. Both silver and gold are unavailable and impracticable, while copper has long been recognized as filling the bill both as to conductivity and durability.

"The cost of rodding a barn with copper lightning rods will vary from \$50 to \$100, but the expense will only have to be incurred once; while the use of any of the inferior metals, although cheaper at the outset must be considered the poorest kind of economy, as after a few years when rust eats through such protectors, they become a danger to the building they were intended to protect.

"It will from this be seen that it behooves every one who intends to protect his buildings by lightning rods, to investigate the matter carefully before deciding."

**How a Typhoon is Formed.**

The Pall Mall Gazette reprints, from a local paper of Tongking, the following interesting account of how a typhoon is formed.

It begins in a very small way. The day is exceedingly hot and the atmosphere expands and rises. As this hot column of air rises, cooler air rushes in on all sides to take its place, and, as the heated air continues to ascend, it cools, and then presses down on the air under it, forcing the latter to rush in more rapidly to take the place of the recently ascended hot air. The ascending column of air, being acted upon by the sun's rays, increases its velocity and circumference, and in a short time it is several miles in diameter, and rushes upward at increasing speed. Then the intruding air begins to revolve, and the diameter keeps on increasing till the rotary motion extends perhaps a thousand or more miles in circumference.

At first the commotion has been almost stationary. Now it attains two motions, one round its axis and the other along a course in which the typhoon commits great havoc. So long as there are no obstacles in the way, the course of the typhoon is pretty regular; but when it reaches land, it is liable to be deflected or broken up, though a mariner knows that when he faces the wind in his locality the centre of the typhoon is then eight points or so on his right, though in the Southern hemisphere it is on his left. In the centre of the typhoon there is a perfect calm, but the wind increases farther out. Farther out still, it will not be so bad.

An instrument called a baracyclonometer has been invented, which admirably serves the purpose, for, by its aid, the accurate position and direction of the typhoon can be found.

**Motorboat Makes Nearly Mile a Minute.**

Previous to being sent to the Monaco races, the British international racer, "Maple Leaf III," is said to have attained the marvelous speed of 49½ knots (about 56½ miles per hour) which is by far the fastest time ever made by any water craft. This record was not officially timed, however, and consequently cannot be considered as a standing record.

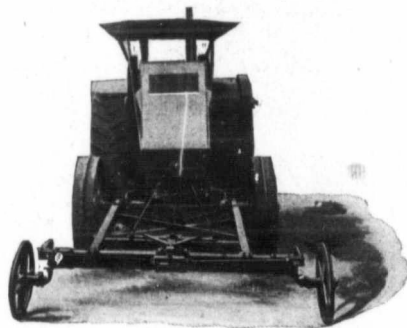
The "Maple Leaf III" is a twin-screw boat, 40 ft. long, with a beam of 9 ft., driven by two engines developing about 650 h. p.

# You Can't Make A Straight Furrow

## AND KEEP IT SO, WITHOUT A Cuddy Steering Device

The CUDDY STEERING DEVICE is for use in steering a Traction Engine while plowing. It is also a self-steering device when the engine is being used for discing, seeding or harvesting. It is adaptable to any engine and will keep it so that perfect plowing is the result. It has been tried under all kinds of tests and conditions in various kinds of land—has been used in discing, breaking—and has proven a complete success. This is the only self-steering device on the market, which can be attached to ANY engine.

When a plowing engine is used without a steering device, the strain on the man standing at the steering wheel staring at the furrow and guiding his engine, for from 12 to 15 hours a day, can only be realized by a man who has actually had this experience.



The cut shows the CUDDY STEERING DEVICE attached to a 20 h.p. International Gas Tractor. At the Winnipeg Exhibition Trial Grounds in 1910, this device was demonstrated and was unanimously acknowledged to be the solution of all engine steering troubles.

### Claims which you can Prove by Seven Days' Trial which we give to bona fide purchasers

1. It is a well-constructed, perfect steering device, is made of I beam steel, and is practically unbreakable.
2. It will follow the furrow and insure good plowing instead of continually cutting and covering. Front plows will cut full width always—thus the plowing will be straight and uniform.
3. ONE MAN is easily able to do perfect work as he has absolute control of the engine at all times. He is enabled to fill oil and grease cups, and keep grease cups screwed down, tighten all nuts, which become loose on engine and plows, and still keep travelling.
4. It is easily and quickly manipulated, as the leverage is so arranged that the engine will respond to the impression of ONE FINGER on the steering wheel. With a few turns of the wheel the engine is at its shortest turning point, which will save from 4 to 6 rods in the average round. The operator can lift the plows at the ends without stopping.
5. It is no encumbrance to the engine, as it is only about five feet from the engine axle to truck axle, thus increasing instead of decreasing the efficiency of the engine.
6. It is a great saving on the engine as it is carried in a straight line, instead of being subjected to the continual twisting and jerking of the front end. The engine is therefore more steady in motion.
7. It is reasonable in price.

REFERENCES:—The International Harvester Co., Winnipeg.  
A. G. Schreiber, Emmert Land Co., Oak Bluff, Man.

Always state type, make, H.P. and year of purchase of your engine when ordering.

Further information gladly furnished.

### Responsible Agents Wanted among Agricultural Machinery Dealers

Manufactured and Sold by

# The Western Steel & Iron Co. Ltd.

WINNIPEG

CANADA

**You Can't Cut Out A BOG SPAVIN, PUFF or THROUGHRIP, but ABSORBINE**

will clean them off permanently, and you work the horse same time. Does not blister or remove the hair. Will tell you more if you write. \$2.00 per bottle at 4 1/2 lbs or 6 lbs. 4/6. **ABSORBINE, JR.**, for man's use. 31 bottle. Reduces Varicose Veins, Varicocoele, Hydrocele, Ruptured Muscles or Ligaments, Enlarged Glands. Alleviates pain quickly. **W. F. YOUNG, P.O. Box 112 Temple St. Springfield, Mass.**  
LYMAN Ltd., Montreal, Canadian Agents.  
Also furnished by Martin Hale & Wyman Co., Winnipeg; the National Drug & Chemical Co., Winnipeg and Calgary; and Henderson Bros. Co. Ltd., Vancouver.

# Are you properly Equipped for the Important work of Spring Breaking, Or, ARE YOU STILL DOING IT IN THE OLD EXPENSIVE WAY WITH HORSES AND SMALL PLOWS?

About time you considered the many opportunities offered you in the **BRITISH COLONIAL or MARSHALL TRACTOR**.



THIS SHOWS A 70 H. P.

**Read this:**

It is a combination engine of such strength and utility as to enable the operator to earn dollars the year round. Especially designed for plowing, in which work it is supreme. It can also be used for threshing, wood cutting, grain grinding, road making, and hauling of every description.

It is practically free from vibration, is strong and substantially built throughout. Is absolutely reliable for long spells of continuous hard, heavy work. Sufficient fuel for an entire day's run can be carried in the tanks. Can be used on plowed ground for cultivating without injuriously packing the soil.

This engine either on stubble or breaking will do as much work as can be done by thirty-two ordinary farm horses.

The design, general construction, material used and workmanship is unsurpassed. When you get a Marshall Tractor you get full value for your money. It will satisfy you in a way in which no other engine will.

Write us for particulars, terms, and prices.

## Sawyer-Massey Company, Limited

611 Union Bank Building

Winnipeg, Manitoba



### GOOD GOODS WIN

The "Good Goods Win" slogan of this Company is not an idle dream but the very soul of a clearly defined and ruggedly rooted business policy



### Lion Rubber Endless Thresher Belts and Maple Leaf Endless Thresher Belts

Go Hand in Hand as Pre-eminently the Best—Ask the fellow that has one

## The Winnipeg Rubber Company Limited

Winnipeg

NOT IN ANY TRUST OR COMBINE

Calgary

# Imperial Bank of Canada

## Proceedings of the 36th Annual General Meeting of the Shareholders

Held at the Banking House of the Institution in Toronto, on Thursday, the 25th May, 1911

The thirty-sixth Annual General Meeting of the Imperial Bank of Canada was held in pursuance of the terms of the charter at the Banking House of the Institution, 25th May, 1911.

### THE REPORT

The Directors have much pleasure in submitting to the Shareholders their Thirty-sixth Annual Report and Balance Sheet of the affairs of the Bank as on 30th April, 1911, together with Profit and Loss Account, showing the result of the operations of the Bank for the year which ended on that day.

The net profits of the Bank, after making full provision for all bad and doubtful debts and for interest on unmaturing bills under discount, amounted to \$841,692.18, which has been applied as follows:

(a) Dividends have been paid at the rate of 11 per cent. per annum for the first nine months of the year, and at the rate of 12 per cent. per annum for the last three months of the year, amounting to	\$625,427.59
(b) Employees' Pension and Guarantee Funds have been credited with	7,500.00
(c) Bank Premises and Furniture Account has been credited with	71,774.16
(d) Profit and Loss Account has been increased by	136,990.43
	<b>\$841,692.18</b>

In addition to these results, Reserve Fund Account has been increased \$769,559.25 by the application thereto of the premium received upon the amount paid up upon subscriptions to the recent issue of new capital stock.

Branches have been established during the year at Sault Ste. Marie (West End), at Poreubine and South Porcupine, and at Davyville, all in the province of Ontario; at Weyburn, Sask.; at Redelliff, Alta.; and at Wilmer, in the Windermere District, B.C. During the same period the East End (sub-branch); Lettbridge, and the Gowganda branch have been closed.

The business of the Bank continues to develop most satisfactorily. The Head Office and Branches have been carefully inspected during the year, and your Directors take pleasure in expressing their satisfaction with the faithfulness and efficiency of the staff.

The whole respectfully submitted.

D. R. WILKIE, President.

30th April, 1911

### PROFIT AND LOSS ACCOUNT

Dividends Nos. 80, 81, 82 and 83, paid quarterly, for nine months, at the rate of 11 per cent. per annum, and for three months at the rate of 12 per cent. per annum	\$625,427.59	Balance at credit of account 30th April, 1910, brought forward	\$ 696,135.20
Annual contribution to Employees' Pension and Guarantee Funds	7,500.00	Profits for the twelve months ended April 30, 1911, after deducting charges of management and interest due depositors, and after making full provision for all bad and doubtful debts and for rebate on bills under discount	841,692.18
Transferred to Reserve Fund	769,559.25	Premium received on new capital stock	769,559.25
Written off Bank Premises and Furniture Account	71,774.16		
Balance of Account carried forward	833,125.63		
	<b>\$ 2,307,386.63</b>		<b>\$ 2,307,386.63</b>

### RESERVE FUND

Balance at credit of Account, 30th April, 1910	\$5,000,000.00
Premium received on new Capital Stock	769,559.25
	<b>\$5,769,559.25</b>

### Thirty-sixth Annual Balance Sheet

30th April, 1911

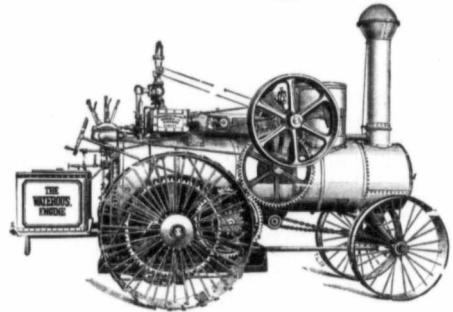
LIABILITIES	
Notes of the Bank in circulation	\$ 4,420,715.00
Deposits not bearing interest	\$ 8,769,869.49
Deposits bearing interest (including interest accrued to date)	37,734,623.00
Deposits by other Banks in Canada	46,504,492.49
Total liabilities to the public	127,246.04
Capital Stock (paid up)	\$51,032,453.53
Reserve Fund	5,769,559.25
Dividend No. 83 (payable 1st May, 1911) for three months, at the rate of 12 per cent. per annum	172,180.54
Rebate on bills discounted	113,148.25
Balance of Profit and Loss Account carried forward	833,125.63
	<b>6,888,013.67</b>
ASSETS	
Gold and Silver coin	\$63,710,026.45
Dominion Government notes	\$1,425,377.90
Dominion Government for security of note circulation	8,602,323.00
Notes of and Cheques on other Banks	\$10,027,790.90
Loans to other Banks in Canada secured, including bills rediscounted	215,241.97
Balance due from other Banks in Canada	2,918,772.57
Balance due from Agents in the United Kingdom	343,134.66
Balance due from Agents in Foreign Countries	749,693.29
Dominion and Provincial Government Securities	1,981,353.57
Canadian Municipal Securities, and British or Foreign or Colonial Public Securities other than Canadian	2,080,107.78
Railway and other Bonds, Debentures and Stocks	\$18,315,914.74
Call and Short Loans on Stocks and Bonds in Canada	\$1,381,920.02
Call Loans on Stocks and Bonds elsewhere than in Canada	74,055.80
Other Current Loans, Discounts and Advances	2,721,410.23
Overdue Debts (loss provided for)	74,577.73
Real Estate (other than Bank premises)	4,920,923.78
Mortgages on Real Estate sold by the Bank	3,576,126.71
Bank Premises, including safes, Vaults and Office Furniture, at Head Office and Branches	1,502,885.39
Other Assets, not included under foregoing heads	\$28,315,890.62
	33,571,232.17
	27,943.70
	59,770.48
	113,453.12
	1,600,000.00
	22,476.36
	<b>\$63,710,026.45</b>

D. R. WILKIE, General Manager.

E. HAY, Assistant General Manager.

W. MOFFAT, Chief Inspector.

# Rebuilt Threshing Machinery



## Special Bargain Prices

Engines and threshers are rebuilt in our own repair shops all worn parts replaced, and all machines thoroughly refitted and put in first class working condition and repainted.

Write for information, or call an I examine.

### PLAIN STEAM ENGINES

2-12 H.P. Waterous Engines with Locomotive Boilers, each	\$ 400.00
2-14 H.P. Waterous Engines with Locomotive Boilers, each	650.00
3-17 H.P. Waterous Engines with Locomotive Return Tubular Boilers, each	600.00
1-18 H.P. Waterous Engine with Locomotive Boiler	700.00
1-18 H.P. John Abell Engine with Locomotive Boiler	650.00

### PLAIN GASOLINE ENGINES

1-20 H.P. Waterous Portable Gasoline Engine, (good as new)	1200.00
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### STEAM TRACTION ENGINES

1-18 H.P. John Abell Engine with Locomotive Boiler	750.00
3-18 H.P. Waterous Single Cylinder Locomotive Return Tubular Boilers, each	750.00
1-22 H.P. Waterous Double Cylinder, Locomotive Boiler	1300.00
1-30 H.P. Waterous Double Cylinder, Locomotive Boiler, rear mounted, 39" face road wheels, f.o.b. Delisle, Sask.	2500.00

### THRESHERS

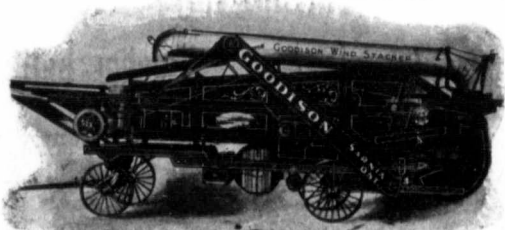
1-36x56 American Peerless, 18" carriers, self feeder, Perfection Short Weigher	450.00
1-36x60 McCloskey, side fan blower, Rich feeder	750.00
1-40 x60 McCloskey, 18" carriers	400.00
1-40x60 McCloskey, side fan blower, Perfection Weigher	675.00
2-40x60 McCloskeys, side fan blowers, self-feeders, Perfection Weighers, each	750.00
1-28x42 McCloskey, side fan blower, Perfection Wagon Loader	650.00
1-28x42 McCloskey, side fan blower, Short Glendale Weigher	650.00

### COMPLETE THRESHING OUTFIT

1-26 H.P. Waterous Double Cylinder Locomotive Boiler	
1-36x60 McCloskey, side fan blower, self feeder, Perfection Weigher, headlight, cable, S' endless belt, f.o.b. Saskatoon, Sask.	3000.00

### SUNDRIES

1-New 36" Rich Self Feeder	175.00
1-New 32" Rich Self Feeder	175.00
1-New Short Glendale Weigher	20.00
1-New Perfection Wagon Loader	55.00
1-New 7", 4 ply, 150 ft. Gandy Belt	50.00
1-Set Thresher Trucks, iron wheels, 36"x6" and 34"x6"	30.00
2-Power Jacks, pulley 18x6, each	5.00
10-Band Cutter Knife Sharpeners, 4" Emery wheel, each	1.00
2-Hamm Headlights, each	8.00
1-No. 1 Willford three roll chopper	250.00
1-No. 3 Jardine Blacksmith Hand Drill (nearly new)	25.00
1-Moore Steam Pump 3x2x3	25.00



# Waterous Engine Works Co.

Winnipeg, Man.

(Limited)



**Traction Plowing.**

On the large farms of the Great Plains and the ranches of California traction engines — both steam and gasoline—are used to an increasing extent in farming operations, especially in plowing land. The make-shift outfits formerly used for this purpose have been largely replaced by heavier and stronger engines and gang plows especially designed for this use.

The advantages of traction plowing are (1) that the work can be rushed when conditions are favorable; (2) that the work can be done with a smaller force of hands, and fewer horses have to be kept; (3) in hot, dry weather engines can be used when horses could not stand the work; (4) with an engine it is possible to plow very difficult soils, and also to plow deeper than with horses; and (5) under favorable conditions, the cost of traction plowing has been brought lower than that of plowing with horses.

The steam engines weigh from seven to twenty tons, range from 20 to 50 horse power, cost from \$1,500 to \$6,000, and will plow from fifteen to fifty acres a day.

A traction plowing outfit consists of (1) an engine; (2) the plows or disks arranged in gangs; and (3) miscellaneous conveniences for carrying supplies, making repairs, etc. The size and cost of the outfit and the amount of work it will do depend largely on the number of plows operated.

In a recent bulletin of the U. S. Department of Agriculture, much general information is given in regard to traction plowing, and its economy and practicability are discussed.

**Great Britain to Blaze on Coronation Night.**

If the proposals are carried out, great bonfires will blaze from nearly all the headlands and heights of Great Britain on the night of the coronation of King George, June 22. The committee having the plans in charge recommended that a detonation rocket be sent from every principal height of England, Ireland and Wales at 9.55 to call attention, and that at 10 o'clock a magnesium star rocket should be fired, to be followed by other rockets and the lighting of the bonfires. The program for Scotland is the same, but the time is set half an hour later, owing to the long daylight in the north.

**Winnipeg is now America's Wheat Centre.**

Winnipeg is now the wheat centre of North America, according to the latest reports from the great grain districts. The August receipts of wheat in the Canadian city show an increase of 50 per cent. over the same month last year and give her a total that exceeds those of Minneapolis, Chicago, Duluth, Kansas City and Buffalo. Exclusive of deliveries from Southern Manitoba, Winnipeg received 95,000-

000 bu.; Minneapolis receipts totalled 81,000,000 bu.; Buffalo, 61,000,000 bu.; Duluth, 56,000,000 bu.; Chicago, 30,000,000 bu., and Kansas City, 35,330,000 bu. The statistics for oats show Chicago at the head of the list and Winnipeg second with 31,000,000 bu.



**OVER 100**  
Different Lengths, Widths, and Plies of  
**GANDY**

**Endless Thresher Belts**

On hand, enabling us to ship any width or ply same day order is received

**THE GANDY BELTING COMPANY**

733 WEST PRATT STREET  
**BALTIMORE, MARYLAND**  
New York Office, 88.90 Reade St.

MADE IN CANADA

**ROYAL YEAST CAKES**

Most Perfect Made

SOLD AND USED EVERYWHERE

E. W. GILLETT CO., LTD.  
TORONTO, ONT.

A View of Main Street, Watrous

The Coming City of Western Canada

**WATCH Watrous GROW**

The Grand Trunk Pacific offers Lots to the Public in Watrous, one of its most favored divisional points, on easy terms and extremely low prices. Watrous is growing at a wonderful rate—the demand for houses exceeds the supply. Population is coming fast—that insures continued and increasing prosperity. Now is the time to buy these lots to realize the big profits.

The more lots you buy in Watrous NOW, the more profits you will make—if the past growth of Western Canada is any guide to the future. Lots in Moose Jaw that sold for \$100 a few years ago are worth from \$1,000 to \$3,000 to-day, and from \$1000 to \$10,000 in Edmonton.

Watrous has advantages no other town in Western Canada has. It is located on a great railway system near the banks of Little Manton Lake, the most wonderful body of mineral water on the American Continent. Surrounded by a rich, well-settled farming country, capable of easily supporting a city four times the size of Watrous.

**Watch Watrous Grow.**—Buy as many lots as you can and your wealth will grow as Watrous grows. You can't make a mistake and the sooner you buy, the more money you will make.

Lots 50 feet frontage—\$100 to \$125—no interest charged on deferred payments if you buy on time plan, and no taxes to pay until 1912. This is "Opportunity" wanting to start a Savings Bank for you. Write to-day for map, folders and full information. If you want to reserve one or more lots, make remittance payable to

**Land Commissioner, Grand Trunk Pacific Railway, WINNIPEG, MAN.**

If you want full particulars before purchasing, address International Securities Co. Ltd., Somerset Bldg., Winnipeg, Sales Agents for these Grand Trunk Pacific lots.

## Profitable Steer Feeding at Brandon Experimental Farm

### Inside vs. Outside

#### Straight Grain vs. Grain and Alfalfa

An experiment in steer feeding has again been carried on at the Brandon Experimental Farm this year, with very satisfactory results. Not only has it been again demonstrated that there is good money in fattening steers, but the possibility of doing so without stabling accommodation has been further established. Besides the usual comparison between outside and inside feeding an experiment has been conducted to test the value and economy of alfalfa as part of the fattening ration.

Twenty one steers were purchased at \$33.00 per head. They averaged 1053 lbs. which made the purchase price 3.13½ cents per pound. They were all rising three, and were chiefly Shorthorn and Hereford grades. They were started on feed on Nov. 15th and shipped on May 1st. Bids were received from quite a number of buyers from Winnipeg, Brandon and other points. The best bid was 6.30 cents per pound made by Mr. W. J. Burchill of Brandon, and the Cattle were consequently sold to him.

#### Feed.

The twenty one steers were divided into three lots as evenly as possible in regard to size and quality.

#### Lot 1.

Lot 1 was fed entirely outside without any shelter except the natural scrub and brush. They were supplied with water by means of a well and a large trough which was kept from freezing by means of a small tank heater. They were fed straw and, at the last, hay in large racks which were filled by the sleighload as required. The grain ration was fed on feeding tables. They were started on a ration of 2 lbs. per day of mixed oats and barley chop, this was gradually increased to 11 lbs. of chop, 1 lb. of bran, and 2 lbs. of oilcake at the finish. From Jan. 1st. on, they got 2 lbs. of alfalfa hay per day, chopped and mixed with their grain.

#### Lot 2.

Lot 2 was fed in the stable. They received 8 lbs. of straw, 35 lbs. of corn silage and 15 lbs. of roots daily throughout the experiment. They received no hay. They were started on a ration of 2 lbs. of mixed oats and barley chop on Nov. 15th and this was gradually increased to 10 pounds of mixed chop, 1 lb. bran and 2 lbs. oilcake at the finish of the test.

#### Lot 3.

Lot 3 was fed in the stable as well. They got exactly the same

feed as Lot 2, except that from January 1st. they received 3 lbs. less per day of mixed oats and barley chop and in its place received 3 lbs. of alfalfa hay. Their fattening ration besides straw, corn and roots was therefore 7 lbs. mixed chop, 1 lb. bran, 2 lbs. oilcake and 3 lbs. alfalfa hay per day at the finish of the test. The average amount of concentrated grain feed for the whole period was thus less than 4 lbs. per day.

At selling time all three lots looked equally well and were equally saleable. There was not a steer which was not in prime condition. The results obtained are given concisely in the following tabulated statement. The usual custom in balancing labor and interest against manure has been followed. So far as the results of the whole experiment are concerned this is a safe rule as the manure is certainly well worth the labor and the interest on capital involved. It is not however, a fair comparison between outside and inside feeding, as the work involved in handling a bunch of steers in a stable is much greater than it is for the outside lot.

The interest on investment in stabling accommodation is also a considerable item. These points should be kept in mind in comparing these lots.

#### Profits in Steer Feeding.

The striking results of this experiment are first, a demonstration of the opportunity for western farmers to make better use of their straw and coarse grains by fattening steers at a handsome profit.

#### Stabling Not Essential.

Secondly, it is possible to get these results without going to the expense of building stables. Though the gains are better when stabling can be used, they are not sufficient to justify heavy outlay for stables to be used for this purpose alone.

#### Feeding Value of Alfalfa.

Thirdly, probably the most striking illustration is that of the wonderful feeding value of alfalfa. The steers that had their grain ration reduced by three pounds and got in its place alfalfa hay, looked just as well as the others, and made practically the same gains. They made the gains more economically. Even though the alfalfa hay was valued at \$12.00 per ton which will seem to most people a high valuation for unbaled, undelivered hay, yet the steers fed partly on it made their gains considerably cheaper than the ones fed chopped oats and barley valued at 1 cent per pound.

## Our Customers Wrote this Ad.



Virden Mfg. Co., Virden, Man., May 19th, 1911

Gentlemen. In reply to your inquiry re the Whiteford Justice Measure will say that I have used this measure for the past four seasons on my machine, and have found it entirely satisfactory. It handles all kinds of grain under any conditions as fast as any machine can through it. Gives accurate measure and is the only possible way of handling grain from a separator so as to give a square deal alike to the thresherman and farmer. I have also found it to be a decided check on elevator weighing, and consider that no thresherman can afford to be without it, as it saves money, time, temper and reputation.

Yours truly, Geo. Sanford.

McTaggart, Sask., Nov. 23rd, 1908.

The Virden Mfg. Co., Virden, Man.

Gentlemen. It is the only thing for the threshing machine and beats the weigher all to pieces.

Yours truly, Geo. Goodwin.

Yellow Grass, Nov. 9th, 1908

Virden Mfg. Co., Virden, Man.

Gentlemen. My measure worked satisfactory in every way, and will merit as soon as I hear from you stating the amount due. Yours truly,

John Reynolds.

Lumaden, Sask., Oct. 5th, 1909.

A. E. Smith, Virden, Man.

Dear Sir, Please find enclosed draft for — for payment of measure. Might say I pulled my rig in Saturday A.M. We started out Sept. 2nd, and pulled in Oct. 3rd. Threshed 2700 acres for 30,000 bushels. Grain measure worked fine.

Yours truly, Frank Page.

Olds, Alta., Dec. 20th, 1909

This is to certify that we purchased one Whiteford Justice Measure from the Virden Mfg. Co. of Virden Man., and that when properly attached the machine will give absolute satisfaction in every respect. Yours truly,

Stevens Bros.

Fleming, Sask., Dec. 29th, 1909

The Whiteford Justice Measure Co., Virden, Man.

Gentlemen, I have tried a lot of different ways of giving the farmers what they called Fair Play. After all it takes the Whiteford Justice Measure to do it.

The Whiteford Justice Measure will pay for itself the first season, and while it is doing its work the thresher can get to rest at night for he knows what he has done, and what he will get paid for.

Yours truly, Hugh Kirby, Jr.

Nothing can be right only what is fair.

This Bagger is right and fair.

The Government Stamp proves that.

No other Bagger is right.

## The McCullough Practical Oil Pump

No other JUST AS GOOD  
Pumps Cold Axle Grease if you want it  
The Best Oil Pump ever produced

A CARD A CATALOG

The Virden Manufacturing Co.



IT REQUIRES AN

## ALARM CLOCK

To attract the attention of some—  
there are others who hear a

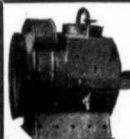
## DOLLAR BILL DROP

If you are among the latter class and therefore capable of appreciating a proposition that will drop DOLLARS into your pocket while you sleep, get our information on shipping cream and eggs. We are waiting to send it to you.

**The Brandon Creamery & Supply Co., Ltd.**

"The Old Reliable"

BOX 1023 - BRANDON, MAN.



## Acetylene Headlight for Traction Engines

Complete in one apparatus. The latest and best on the market. All the light you want whenever you want it. Wind-proof, Jax-proof. Every man who operates a traction engine should have one. Indispensable for plowing at night or moving over rough fields and bad roads. Projects a strong light 400 feet. Runs ten hours with one charge. Costs one cent an hour. Write for Catalogue.

American Acetylene Stove Co., 516 Masonic Temple, Minneapolis, Minn., CHAPIN CO., CALGARY, Agents for Alberta

Steer Feeding Experiment.

Lot 1—Outside.

No. of steers.....	7
Average weight Nov. 15.....	1042 lbs.
Average weight May 1.....	1257 "
Average gain 167 days.....	215 "
Best individual gain.....	265 "
Poorest individual gain.....	165 "
Cost of 100 lbs. gain (average).....	\$9.62
Cost 7 steers, 7295 lbs., 3.13½¢ per lb.....	\$228.57

Feed Consumed.

12 tons straw @ \$1.00 per ton	\$12.00
5 tons mixed hay @ 6.00	30.00
1596 lbs. alfalfa hay @ \$12.00 per ton.....	9.58
210 lbs. bran @ \$20.00 per ton	2.10
371 lbs. oil cake @ \$33.00 per ton.....	6.12
\$501 lbs. oats and barley chop @ \$20.00 per ton.....	\$5.01
Total food cost.....	\$144.81
Total cost.....	\$373.38
Receipts, 7 steers, 8800 lbs. less 0% shrinkage @ 6.30¢ per lb.....	\$526.08
Total profit.....	\$153.00
Profit per steer.....	\$21.90

Lot 2—Inside.

Usual fattening ration. No alfalfa.

No. of steers.....	7
Average weight Nov. 15.....	1061 lbs.
Average weight May 1.....	1285 "
Average gain 167 days.....	224 "
Best individual gain.....	250 "
Poorest individual gain.....	169 "
Cost of 100 lbs. gain (average).....	\$8.82
Cost 7 steers, 7430 lbs., 3.13½¢ per lb.....	\$232.81

Feed Consumed.

9380 lbs. straw @ \$1.00 per ton	\$4.09
39900 lbs. corn silage @ \$2.00	79.80
15725 " roots @ \$2.00 per ton	18.73
371 " oil cake @ \$33.00 per ton.....	6.12
210 " bran @ \$20.00 per ton	2.10
6737 " Oats and barley chop @ \$20.00 per ton.....	63.37
Total food cost.....	\$138.91
Total cost.....	\$371.72
Receipts, 7 steers, 9000 lbs. less 5% shrinkage @ 6.30¢ per lb.....	\$538.65
Total profit.....	\$166.93
Profit per steer.....	\$23.86

Lot 3—Inside.

Alfalfa hay as part of ration, replacing oats and barley chop, pound for pound.

No. of steers.....	7
Average weight Nov. 15.....	1056 lbs.
Average weight May 1.....	1277 "
Average gain, 167 days.....	216 "
Best individual gain.....	283 "
Poorest individual gain.....	143 "
Cost of 100 pounds gain (average).....	\$8.41
Cost, 7 steers, 7390 lbs. @ 3.13½¢ per lb.....	\$231.55

Feed Consumed.

9380 lbs. straw @ \$1.00 per ton	\$4.09
39900 " corn silage @ \$2.00	79.80
15725 " roots @ \$2.00 per ton	18.72
371 " oil cake @ \$33.00 per ton.....	6.12
210 " bran @ \$20.00 per ton	2.10
3902 " oats and barley chop @ \$20.00 per ton.....	39.02
2835 " alfalfa hay @ \$12.00 per ton.....	17.01
Total food cost.....	\$127.56
Total cost.....	\$359.11
Receipts, 7 steers, 8905 lbs. less 5% shrinkage @ 6.30¢ per lb.....	\$532.98
Total profit.....	\$173.87
Profit per steer.....	\$24.84

The Compass Needle as Heat Indicator.

In order to determine the most favorable degree of heat for hardening steel tools, an ordinary compass can be used, according to the French magazine "Cosmos."

As steel is heated, it gradually loses its magnetic properties and in different proportions for different qualities of steel, so that this phenomenon might easily be utilized to measure the temperature. It has been found that the degree of heat at which all magnetic reaction disappears, coincides exactly with the temperature most suitable for hardening of drills, chisels, planer-irons, etc. The tool is heated in the forge and held at a certain distance from a compass. If the needle deviates, it is again heated until no deviation is observed, when it is immersed in the bath as usual.

**CANADIAN INDUSTRIAL EXHIBITION WINNIPEG**  
JULY 12-22-1911  
FOURTH ANNUAL OCCASION OF THE AGRICULTURAL MOTOR COMPETITION  
THE SHOW THAT MAKES THE WHOLE WORLD WONDER

**We Want Your Cream**

We want your cream shipped by express to us, and are prepared to pay cash for it—so soon as tested—at highest prices. Is this offer not better than making your own butter and trading it at the store? Write for illustrated booklet. It will pay you.

**Crescent Creamery Co., Ltd.**

AUTHORIZED CAPITAL \$250,000.00

WINNIPEG

BRANDON

Course in Gas Engineering

Continued from page 31

as distinguishing it from the mechanical efficiency of the engine.

The accompanying diagram shows the relations existing between the heat in the fuel and the various powers, the connecting links being the different efficiencies which have been discussed. The diagram is self-explanatory.

**Acorn Quality GALVANIZED CORRUGATED SHEETS**

Guaranteed Not to Rust

For building Garages, Barns and Outbuildings

Write for Booklet

**CLARE & BROCKEST LTD.** 246 Princess Street Winnipeg





# Make up your mind to get an Avery Machine

## If you are in the market for an Engine

for any kind of Traction and Belt work you should make up your mind to get an Avery Double Cylinder Undermounted Engine.

**To furnish plenty of power** we built a double cylinder engine. We mounted the cylinders low down, in direct line with the draft of the load, to reduce friction. We made a boiler that would carry a high steam pressure and large enough to fire easily and furnish plenty of dry steam to the cylinders.

**To stand up under the hardest strains** we made this engine Undermounted. The working parts are all mounted on a separate steel frame work and the boiler is entirely free from all pulling strains. It is the only Undermounted Traction Engine built. The design is Patented.

**And this engine is the easiest engine there is to handle.** It has a screw shaft steering device. It's the easiest engine there is to steer. And all the working parts are low down so that you can reach them while standing on the ground. You don't have to do any climbing around.

In fact the Avery Double Undermounted Engine is so Powerful, Stands up so well in the field, is so Easy to handle and is so much Superior to any other engine in design and the work it will do that **it is rapidly displacing all other types of steam and gas traction engines for plowing, threshing, and general hauling.**

**And besides all this it is backed up by the strongest warranties ever placed on an engine by any manufacturer.**

**Make up your mind to get an Avery Double Cylinder Undermounted Traction Engine and you will always be glad you got it.** Sizes 18, 20, 22, 30 or 40 H. P.

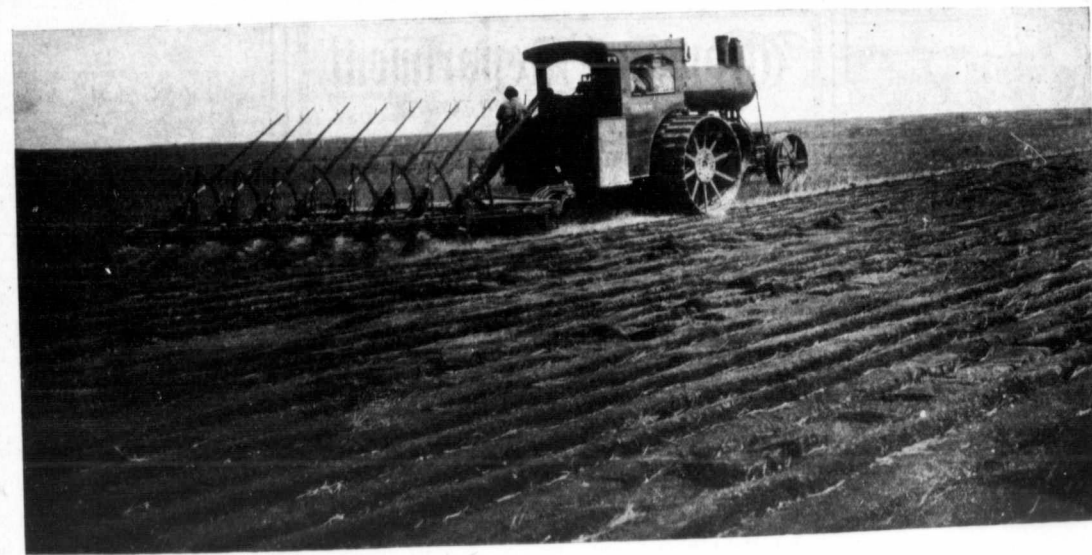
## Are you in the market for an Engine, Separator, or Engine Plow?

**If you hav'nt our complete 1911 catalog write at once representative will call and figure with you. Remember by the strong Avery Warranties. Now's the time to buy, postal to Peoria, or our nearest branch house:**

**EVERY COMPANY, 675 Iowa St. Peoria, Ill, U.S.A.**

# HAUG BROTHERS AND NELLERMÖE CO. LTD.

**Canadian Jobbers**



## If you are in the market for a Separator

just compare these features in an Avery "Yellow Fellow" with any other separator.

**It has the best proven record of grain saving that has ever been made.** Twenty-one canvas tests made in 1909 and 1910, each test made on a different machine, and in five different States, showed an average saving of over 99.9-10 per cent—an almost perfect record of grain saving.

One of the principal reasons why an Avery Separator saves the grain is because every Separator is equipped with the famous I.X.L. Grain Saving Separating Device which is the best device ever made for tearing up the bunches and getting the loose grain out of the straw.

And the grate surface is 52 inches long with an adjustable grate behind the cylinder for different conditions of the straw, and a moving grate underneath the beater.

The only Separator with the Famous Jumbo Tool Steel Cylinder Teeth that are almost unbreakable and wear much longer than others. They eat pitchforks and almost anything else and are guaranteed against breakage for life. We agree to replace every broken tooth in an Avery Machine bought since our strong 1911 Warranties went into effect.

We cannot tell about anywheres near all of the improved features in an Avery "Yellow Fellow" in the space we have here—Solid Rubber Feeder Web that saves having much cleaning up to do; our own patented conical belt guide that is so good we sell hundreds of them every year for use on other separators; a feeder with the best governor made; the only one that controls the carrier as well as the feeding parts; a no-cross-blast fan; adjustable sieve; and a wind stacker that is worth \$25.00 to \$50.00 more than any other make and that costs you only the same price.

**And all backed up by the strong Avery Warranties—much the strongest.**

**Winnipeg, Canada**



## Womans' Department

Conducted by PEARL RICHMOND HAMILTON

A HOUSEHOLD FORUM FOR THE DISCUSSION OF EVERYTHING THAT PERTAINS TO THE HOME



### LIFE IS A SONG.

By Eulalie Andreas.

God gives us life—the theme of a song—  
We make the melody all life long;  
And some sing of joy and some of love,  
And some of faith in heaven above.  
But it lies with you, with you and me,  
Whether harsh or sweet the music be.

Some have a song that ever is glad  
And some are bitter and some are sad;  
There's many a song that cheers, you  
know,  
But alas! some sing of pain and woe.  
So it lies with you, with you and me,  
Whether harsh or sweet the music be.

### THE CANADIAN WOMAN.

Her Opportunities Domestically, Educationally, Politically and Morally.

By Pearl Richmond Hamilton.

One of Canada's Western newspaper women says that "On the type of woman's worth in Western Canada I have strong convictions. In no country under God's sun is there the same chance and opportunity for woman's hand as in the new, Western world. Individual proofs of woman's worth in the West are given at every turn in the great highway. Wherever you go you find homes—built by woman's hands. Wherever you go you find bent woman shoulders and toil-worn woman hands. But the back has borne the burden nobly, grand and well; and you will find the hands out-reached in warm welcome to all who come hereafter." Cynthia Westover Alden says: "I say the place for a woman who must make her own way in life is now some place along the lines of the great Canadian railroads." She says: "I would like to conduct a trainload of women over the line and help set them up in business." Western Canada is a country of and for young people. Another woman writer says: "The Canadian West seems the opportunity of to-day, the forerunner of a prosperous to-morrow."

One from Texas said: "If the Supreme Being had anything to do with any country in the world, it certain sure is this one."

Mrs. Wallace, of Halifax, said: "The farther I travelled West the happier it made me feel to be a Canadian. There is something in the air, buoyant and joyous, that grips one, and, like red sparkling wine, sends the blood racing through the veins."

The West is the realization of hope. I mention these quotations from women because we in our busy lives let the grandeur of opportunities of this great country slip by unobserved. If we could grasp the glorious opportunities stretching out before us all clouds like those on the mountain top would as the mist pass away.

We are certainly privileged characters to have our home in a land so full of the touch of the Almighty Hand. And, as Agnes Deans Cameron says, we must "speak out in acts, the time for words is past. I will try to live my thoughts of the West."

Now let us think of some of our opportunities.

First, Domestically. In England there is a training school for girls who intend coming here. They are trained in cooking, gardening, horticulture, sewing, and other lines of work—they are trained to be practical. I am glad that our agricultural societies are becoming interested in the cause of domestic

science. Why should girls take up the profession of home making when they know nothing about it? This is a new country and the home is the important foundation of our future. As a rule the women of high rank in England are domestic. Queen Victoria required of her daughters to know how to manage the kitchen. Those before us in this country have been building for their children. They have roughed it and have made life easier for us. But we must not do less—we must have a share in the building so that we may have a part in the greatness which is fast dawning on the Canadian West.

In regard to our opportunities educationally. Our women of Canada are making great strides in this direction. In the field of medicine Dr. MacMurtry and others have recently won educational titles in foreign lands. Mrs. Coleman, of Toronto, is the first government recognized woman war correspondent in the world. Mrs. Barry an Eastern writer received the title of "Officier" in the French Academy in Paris—an honor which only two women on this continent have received. Mrs. Nellie L. McClung is one of Canada's most clever women. Her writings are full of the human touch and she is a reader of marked ability. We have in Winnipeg the only woman commercial editor on the American continent—Miss Cora Hind. She is extremely capable in her line of work, and the leading stock breeders on this continent recognize her as an authority. Miss L. M. Montgomery, author of *Anne of Avonlea*, is widely known over the entire continent, as a writer of unusual merit and beauty. Mrs. Arthur Murphy is another clever author who is receiving unusual attention in the literary world. Her new book will undoubtedly meet with great success. Miss Lillian Benyon is the Western woman's friend. Her popularity as a writer, as a speaker, and as a woman, is fast making for her an enviable reputation. Some of her articles have been recently published in *Collier's*. Our musicians, too, are receiving favorable recognition abroad. Canada's women in the educational field are commanding world-wide attention.

Women's opportunities politically are just now commanding considerable attention. We must become familiar with political conditions that concern women and children. There should be courses in the common schools that would make our boys and girls more familiar with politics. The helpless women on the farms are depending upon us for justice in those two unjust laws—the Dower Law and the Homestead Act. There should be a reform in the Child Labor Law. Yes, there are opportunities for us politically and our women realize it. I quote this: "Nine ladies of the British nobility, one of them a royal princess, have during the past forty years spent terms as mistress of *Le Beau Hall*, Ottawa, the residence of the representative of the Crown in Canada." In choosing colonial governors, the British Government has exercised great care that able statesmen should be sent to the important Canadian post, but inasmuch as empires have been won and lost through a woman's smile, equal care has been taken to see that the men selected had clever, tactful and winsome wives. These women have left behind them memories fragrant with the breath of graciousness and good deeds. By their charming per-

sonality and influence they have been a great power in the political success of the Governors General. It requires women of more than ordinary endowments to fill the position as First Lady in Canada from Lady Monach, the first who came in 1867 to Lady Grey. Canada has been most fortunate in having women of fine womanly personality in the chair of highest honor, and they have been most influential in the trend of political directions.

Now I come to woman's most important opportunity in Western Canada—her opportunity morally. We are in the midst of an unusual people, because the society here is strikingly cosmopolitan. And it is to this that our social life largely owes its charm. At a social gathering we meet people from England, Ireland, Scotland, Wales, and the various southern countries of Europe, also the West Indies, Australia, New Zealand, Japan, India and Russia. These girls who come to our midst need to breathe a moral atmosphere. These races look to us for example of model womanhood. What standard shall be set? Speak of girls in distress who take their lives because they have no friends. Opportunities morally. Look for one this week. You will find it. I wish you would write me of your experience. If you appreciate this land of opportunity—"Speak out in acts,—the time for words is past. Live your thoughts of Canada."

What we have before us is the building up in this country a strong and true womanhood which shall be the foundation of a nation, that will be an example to the world. Every woman in our great West writes her own personality on the pages of Canadian history. Let her be sweet and gracious, let her be interesting, let her radiate sympathy and cheer, let her be a genuine mother and friend—in other words let her radiate Christly graces; then in answer to the question of the future where can be found the nation of strongest womanhood?—the answer will be—in Western Canada.

### MOTHER'S CORNER

#### HER FIRST BORN.

By Howard W. Wood.

She heard the cry!  
And all the pain was brushed away,  
And all the tears were held at bay,  
And all the wonders, doubts and fears,  
The shivering dread that works for harm,  
The cares, and all the long suspense,  
Were cast aside by His strong arm.

She heard the cry!  
And all the light was gathered there,  
And all the love that God could spare,  
And all the joy and peace and faith,  
The angel smiles that come and go,  
Were radiant there in one pure face,  
For God had blessed that mother so.

The rich have more sicknesses than  
the poor because they have more time  
to enjoy them.

#### GOD WITH US.

This ray of promise falls on darkened  
ways,  
"Lo, I am with you always—all the  
days."

The bright, untroubled, glad some days  
of life,  
The days of bitterness and care and  
and strife;

The days when peace doth like a river  
flow,  
The days of grief with weary hours and  
slow.  
He goes not on far journeys. Christ is  
near,  
He leaves no day without His help and  
cheer.

As once of old "He knew what He  
would do,"  
When servants were dismayed and  
troubled too,  
So now, with infinite supplies at hand  
He walks with us, though in a barren  
land.

Some sweet surprise He doubtless has  
in store,  
Some secret that He never told before.  
For this, perhaps, He leads through  
shaded ways,  
And you will understand ere many  
days.

Dear Readers,—Several women have  
written me requesting a paper I have  
on "Helps for Expectant Mothers,"  
which I have forwarded to them. I  
shall be pleased to send this paper in  
a personal letter to any woman who  
requests it. I realize that many of  
our readers are far away from medical  
help and if this paper will help them I  
shall be pleased. This is my object in  
sending it. If my readers wish to ask  
me any question concerning this period  
and will write me I will gladly answer  
by personal letter. Some have already  
sent in such requests. Being a mother  
myself, my heart is in the subject. I  
am anxious to make this Mother's Cor-  
ner a strong feature of our depart-  
ment. Since this is really a serious  
problem with many women who are too  
far from medical assistance write to  
me. If necessary I will consult a doctor  
in your case as I did this month  
for two of my readers.

Good influences draws us upward to  
the divine; bad influences draw us down  
to the brute.

How to cultivate the good side of  
nature is the greatest lesson of life to  
teach.

Teach children that they lead these  
two lives: the life without and the life  
within; and that the inside must be  
pure in the sight of God, as well as the  
outside in the sight of men.

There are five means of learning, ob-  
servation, reading, conversation, mem-  
ory and reflection.

Knowledge is not what you learn, but  
what you remember.

It is not what you eat, but what you  
digest, that makes you grow.

It is not the money you handle, but  
that you keep, that makes you rich.

It is not what you study, but what  
you remember and reflect upon, that  
makes you learned.

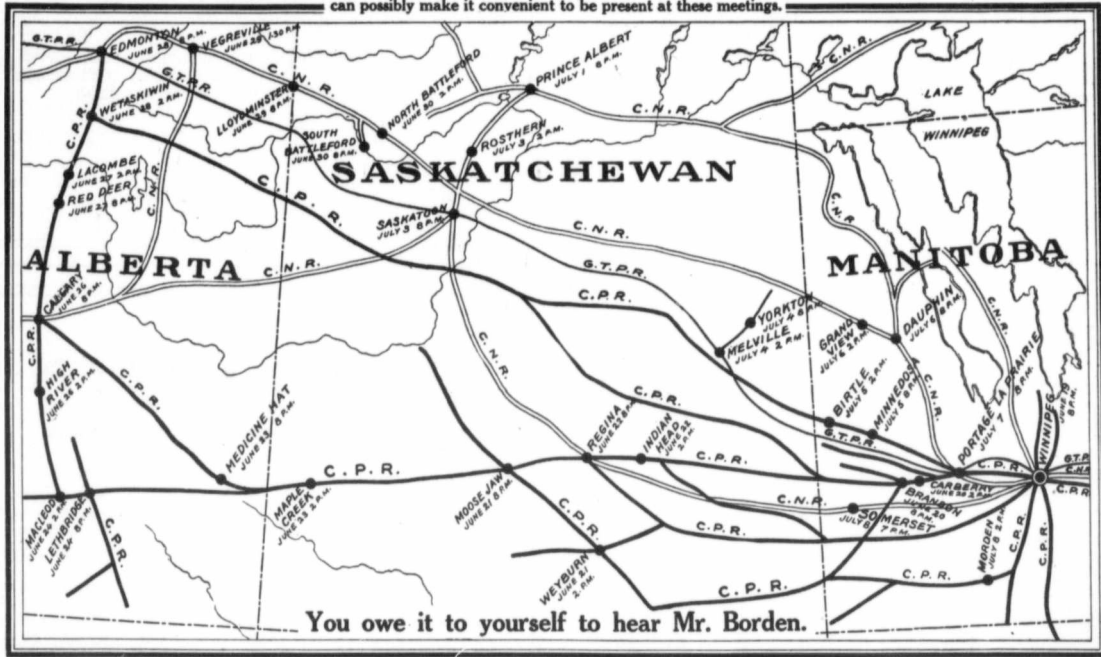
Teach your children that above  
physical courage, above wealth, and  
above fame, is moral courage.



# TOUR OF THE WEST

By R. L. BORDEN, M.P., Leader of the Conservative Party

Mr. Borden will address meetings as indicated and wishes to meet every farmer or resident of the West who can possibly make it convenient to be present at these meetings.



You owe it to yourself to hear Mr. Borden.

### Teething.

There are twenty teeth in the first set. The two central lower teeth are usually the first to appear, and come from the fifth to the ninth month, next are the four upper central teeth, which come from the eighth to the twelfth month. The other two lower central teeth and the four front double teeth come from the twelfth to the eighteenth month. Then follow the four canine teeth, the two upper ones being known as the "eye teeth," the two lower as the "stomach teeth;" they generally come between the eighteenth and twenty-fourth month. The four back double teeth, which complete the first set, come between the twenty-fourth and thirtieth month. At one year a child usually has six teeth. At one and a half years, twelve. At two years, sixteen teeth. At two and a half years, twenty teeth.

Of course children vary. Do not be alarmed if they do not come early. Some children who have beautiful teeth did not cut any until they were a year old.

In healthy children there is often fretfulness and poor sleep for two or three nights; there may be loss of appetite so that only one half the usual amount of food is taken; there is salivation and drooling and often fever (my little girl was feverish when she cut her teeth); the indigestion is often disturbed. Usually it takes three or four days to cut a tooth, but there are many who are disturbed for two or three weeks. Bad feeding causes much trouble during teething. A teaspoonful of castor oil at night and in the morning are helpful for a child suffering from fever during teething. Sometimes—not natural if the gums be hot, swollen and tender and the child is very ill, the gums need to be lanced to prevent convulsions. If a child have convulsions from teething, the first thing to be done is to freely dash water upon the face, and to sponge the head with cold water, and as soon as warm water can be procured, put him into a warm bath of 98 degrees Fahrenheit. A comfortable heat for your elbow will

be proper heat for the infant. He must remain in bath for quarter of an hour, or until the fit be at an end. The body must, after coming out of the bath, be wiped with warm, dry and coarse towels. He ought then to be placed in a warm blanket. The gums in this case should be lanced and cold water should be applied to the head. An enema, composed of table salt, of olive oil, and warm oatmeal gruel, in the proportion of one tablespoonful of salt, of one of oil, and a tea-cupful of gruel, ought then to be administered, and should until the bowels have been well opened, be repeated every quarter of an hour. As soon as he comes to himself a dose of aperient medicine ought to be given. A child in convulsions is insensible to all pain—a return to consciousness speedily puts convulsions to the rout.

Hard, unyielding substances to bite on harden the gums and by so doing cause the teeth to come through with greater difficulty. Softer substances such as a rubber ring or a piece of the best bridle leather, or a crust of bread, are of great service to the teething child to bite on. Raw, stone fruits should not be given to a baby while teething. Roasted apples are good for him. As children suffer much pain during teething means ought to be used to keep his body in a healthy condition. Plain, wholesome food, fresh air, exercise and good care will help wonderfully during teething.

Painful dentition is divided into two forms—(1), the mild; (2), the severe. In the mild form the child is peevish, fretful and puts his fingers, and everything within reach, to his mouth. He likes to have his gums rubbed and takes his food with avidity. There is a flow of saliva and his bowels are looser than usual. In the severe form, the gums are red, swollen, and hot, and he cannot bear to have them touched. His mouth is dry, and he is feverish and restless, and starts in his sleep; his face is flushed. He feels hot all over. Country air is splendid for teething children. Keep the bowels open with castor oil, or magnesia and rhubarb. If

we lock up the bowels, we confine the enemy, and thus produce mischief. Warm baths should be given. A child is subject to a slight cough during teething, called "tooth cough." It is good for it as it brings up the secretion that should be brought up. A child who is teething is subject to a "breaking out," more especially behind the ears. This is also well, as the constitution is relieving itself of impurities and preventing convulsions, or bronchitis, or water on the brain. If the "breaking out" be great, bathe it with a little warm milk and water. Keep the baby out in the air nearly all day. My little one slept out every day in her carriage.

Most of the above hints were taken from Dr. L. Emmett Holt's book, entitled, "The Care and Feeding of Children."

Many of the ills laid to the charge of teething are really due to improper diet. The same kind of food does not agree with all children. One mother told me to-day that a certain kind of prepared food nearly killed her little one and she is giving him diluted milk now—cow's milk and distilled water. I am partial to barley food as my readers know.

When the gum is inflamed and the mouth is hot and dry, occasional sips of cold water should be given, as the child suffers from thirst. A quite simple remedy is for the mother to dip her finger in fresh lemon juice and then rub the gum gently. A very easy way of "lancing" when the skin is stretched hard over the tooth and the doctor is not at hand, is to rub a piece of lump sugar over the gum. Do not lance until the tooth is just ready to penetrate the skin. It is dangerous to allow the damp from dribbling to saturate the clothes, as the child may contract bronchitis pneumonia. Make a thick bib for him.

### CORRESPONDENCE

The following letter from one of our readers is one I very much appreciate. I want our department to be of real help to our women. Notice how much this reader enjoys the letters from other women. I am thankful for the correspondence we are having, and I trust it may increase every month. Remember every woman's experience will help other women. Tell us about it. You will bless other women by so doing. This is the letter: Dear Editor, of Woman's Department,—I am a constant reader of the Canadian Threshman and Farmer and enjoy nothing better than reading your helpful pages; they are so full of help and above all—the letters seem to make one think the writers are friends that I know, and I am alone so much—seldom do I have a visitor. I am always sure of your magazine to cheer me. I am a young mother with four children. Again thanking you and those who are so good as to help along the Dower Law, I say God bless you and help you all, I remain, Your Friend,—A Mother.

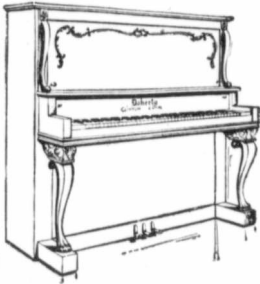
### Home Economic's Society.

The following report of the Manitou meeting was sent in by their Secretaries, Mrs. W. J. Rowe, for which we are very thankful:

The regular monthly meeting of the Home Economics Society was held Saturday afternoon and despite the fact of bad roads and other attractions attendance was good. Eleven members paid fees. The following was the programme: Piano duet, Misses R. Dales and F. McCharles; paper, house-cleaning, Mrs. Cram; talk on gardening, opened by Mrs. Gayton. Those present were given a practical demonstration of the use of the "Vacuum Cleaner" through the kindness of Mr. C. C. Parker. The different methods of house-cleaning and gardening were fully and ably discussed, and each woman gleaned some new ideas which may be put into



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every day practice. The deputation of women who waited upon the Minister of Education reported that in the near future we may hope to have domestic science taught to the Normal classes in session here, and also that the Government is prepared to pay one-half of the cost of equipping a technical school for manual training, provided the people so desire it. A competent teacher would have to be engaged at a salary of \$1,000 or \$1,200 a year, and it is recommended that three or four towns along the line club together and engage one teacher. A donation of books bearing on education along industrial lines and the rural life problem, has been received from the Education Department and distributed to members. Mrs. C. H. Brown, Mrs. Cassin and Mrs. H. H. Black provided the refreshments. The society recommend that the Agricultural Society use score-cards in judging all classes of ladies's work. If so desired an exhibition of manual training work done by the pupils in the Winnipeg schools will be sent out through the Education Department and placed in the Agriculture building while our Summer Fair is in progress. This should be a stimulus to the boys and girls of this community. Meeting closed with the National Anthem.

This letter pleased me very much:

Dear Mrs. Hamilton,—I am receiving the Canadian Thresherman and Farmer regularly and find it very interesting. It is most kind of you to wish to help the societies and I hope that I shall find something sufficiently interesting to send you before long. I don't think that our members will feel like writing papers for the next few months. Often one's mind becomes full of thoughts while there is not an opportunity of putting down on paper in their freshness, or I might have been sending you something now. It is thoughtful of you to promise not to publish names, unless requested, as in many women's lives there are often many other reasons in addition to nervousness which make them hesitate about having their names in print. I am sorry I did not make your acquaintance at the convention. I have a vivid recollection of some faces there, the owners of which I would like to meet again. I find the meetings at the Agricultural College have been a decided help in our local meetings of various kinds here. Again thanking you, Yours, sincerely,—A Member of the Home Economics' Club.

Yes, I was helped very greatly by the Convention of the Home Economics' Society at the Agricultural College. It was instructive, interesting and helpful socially. Every time I think of it I think of the beautiful personality of Miss Juniper. It seemed to me that the great success of the convention was due largely to her girls. Girls who have the opportunity of being under her guidance are indeed fortunate. To be with her inspires one to be womanly in every sense of the word. I am going to ask for her picture for this department.

P. R. H.

I should like to have some of the papers that are read in the different societies, for publication, also reports from all of the societies.

A letter from Gretna expresses appreciation of our interest in the Home Economics' Society and promises material for publication in the near future.

#### ABOUT WOMEN

That husbands and wives should take vacations from one another in order that the bird of harmony may not moult any of its gaily colored feathers is a belief not entertained by Mrs. Gabrielle Stewart Mulliner, the anti-alimony woman lawyer. She thinks they ought to stay together and really get acquainted. "A man," she says, "knows what's on his wife's head much oftener than he knows what's inside it. A woman knows the size of her husband's shirts; she frequently doesn't know the warmth of the heart beating under them."

## Calgary Industrial Exhibition

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Prize Lists and other information from E. L. RICHARDSON, Manager, Victoria Park, Calgary

## Hail Insurance

Many who read this will remember what a muddle Hail Insurance was in Western Canada eleven years ago. How certain Companies had secured patronage on promises that were never fulfilled, how insurers were sued for their premiums when they could not get a dollar of indemnity for loss, and how the Provincial and Territorial Governments were obliged to take action to straighten out the tangle.

So keen and general was the distrust of Company Hail Insurance when our plan was first introduced in 1900 that we found it most difficult to convince anyone that we had something based on sound business principles and which could be relied upon to do what we claimed for it. But we had the courage of our convictions, and under the closest scrutiny and most severe criticism, by actual demonstrations of its merits we gradually won for our plan and the manner in which we administered it, the confidence of all classes in any way concerned with Hail Insurance, with the result that when the Government system of Hail Insurance was abolished in Saskatchewan two years ago our plan was the first to receive permission to transact business in that Province, and in 1910 there was more business written on this plan than on all others combined.

Anything that could win out against such odds must have the qualities people look for in good business, and those who know the history of Hail Insurance in Western Canada and what our plan has done to put it on a sound business basis are our staunch friends, yet

#### "Fools Rush in Where Angels Fear to Tread"

and certain competitors from outside with little or no experience in Hail Insurance business, having no knowledge whatever of conditions in Western Canada, undertake to point out the weaknesses of our system and extol the merits of what they have to offer. They may win a place after a while if they make good, but in the meantime the majority of those who give thought to these matters will decide that what has been tried and proved to be all right is what they want.

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**The Saskatchewan Insurance Company**  
**The Alberta-Canadian Insurance Company**

**Patronize those who patronize this Magazine**

**Woman Overcomes Prejudice.**

Catherine Panagiotaton is the first woman to be made a member of the faculty of the University of Athens in Greece. After obtaining her diploma she worked for a time in the hospitals of Egypt, where she became famous for her successful treatment of cholera cases. When she made her first appearance as instructor in the University of Athens some of the students and some of the faculty objected and she was greeted with shouts of "Go down to the kitchen." But the majority of the students and the faculty stood by her and she is now one of its most popular members.

**Girl a Music Prodigy.**

Of course, musical prodigies are cropping out somewhere every year and now we are told that little Vida Manley, an Australian miss six years of age, has the most remarkably formed throat ever before discovered on any human being; that she can sing a Terziani and has sung sweetly since she was two years old. We shall wait for next season's press announcements that Miss Vida has emerged from the seclusion of her Australian home and is appearing on the concert stage as an applicant for prodigy laurels.

**Women Study Politics.**

The women of Washington are taking the responsibility of citizenship rather more seriously than does the average man, as is shown by the organization of the Voters' Educational Association which has recently been started in Tacoma and the Study Clubs for Voters which have been organized in Seattle and other parts of the state. These clubs are formed for the purpose of acquainting members with questions of state and municipal politics. Partisan politics has no place in the study. The Tacoma News in commenting on the interest which women have taken in state affairs says: "It is going to be hard to find the prophet who predicted some months ago that women will never take enough interest in public affairs to warrant their acquisition of citizenship."

Not many months ago a young girl in New York used to go poking around all day through tenements on the lower West Side, then come home in the evening and crawl away up toward the garret into a little room and peep on her typewriter half the night. When her articles appeared in the magazine the board of directors of Trinity Church would assume a stern look and come as near being violent as church dignitaries dare. There was a reason; the girl behind the typewriter was investigating the tenements under Trinity's control and telling the truth about them.

If she found a building on Vandam Street which Trinity controlled and the living conditions were impossible, the girl spoke her mind right out. The water got hotter and hotter for the directors, but the girl kept on shovelling in the literary coal. Then one day the lid blew off—the church hired her to be supervisor of tenements. The directors knew that she would tell the truth and that no one could accuse her of mincing words.

So, now her duty is to go around to Trinity's one hundred and fifty-four dwelling houses and make a report on the living conditions. She draws her salary for bringing soap and sunshine into Trinity's tenements. The directors are pledged to carry out her recommendations: if she says a certain dwelling is insanitary, down it comes.

The girl? Oh, yes—she is Miss Emily W. Dinwiddie, blue-eyed and energetic and from Virginia. Trinity now has ambitions to become a model landlord. One hundred and eighty dwellings have already been destroyed, and in their places are going up sanitary shops. Her method of reformation is to get the tenants to do as much as they can, get acquainted with soap and open drains, but if the case is too bad she will recommend that the building be razed. She is either going to raise the dirt or the building.

Miss Dinwiddie's appointment came after years of dogging Trinity's foot-

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steps. Her official capacity when she was making the investigations was secretary of the Tenement House Committee of the Charity Organization Society. She has been on the investigation training table for seven years. Seven years she has been prying into tenements and cubby-holes, and besides her work for the Charity Organization Society she has been investigating for outside associations. All her former salaries look like street-car change in comparison to what she gets now.

**RECIPES**

**Rhubarb Preserve.**

To three pounds of rhubarb add three pounds of sugar and the juice of three lemons. Cook for thirty minutes, then add the grated rind of three lemons and one-half pound of chopped almonds. Cook thirty minutes longer and put in glass jars.

**Strawberry Shortcake.**

Strawberry pie made like other berry pies is delicious. Mix and sift twice, two cups flour, four teaspoons baking-powder and one-half teaspoon salt. Work in one-fourth cup butter, using the tips of the fingers. Then add gradually three-fourths cup milk. Toss on a floured board and divide into two parts. Pat, roll out, and bake twelve minutes in a hot oven in buttered tins. Split, and spread out surfaces with butter. Sprinkle washed and hulled strawberries with sugar, place on back of range until warmed, crush slightly, and put between and on top of shortcakes. Cover with whipped cream, sweetened and flavored with vanilla, and garnish with a few choice strawberries that have been reserved for the purpose.

**Strawberry Cream Pie.**

Roll paste and cut in three circular pieces nine inches in diameter. From one of the pieces cut out the centre, leaving a ring one and one-half inches wide; bake paste in a hot oven. Put the circles together with cream filling between, place ring on top and fill space with fresh strawberries, sweetened to taste.

**Codfish Rolls.**

Boil four potatoes in their skins, peel and mash very fine. Work into the hot potatoes a half-box of shredded codfish, add pepper and salt to taste, and, with the hands, form into rolls or sticks about as large as your finger. Roll each of these in flour, and set in a cold place until wanted. Fry in hot lard to a good brown. Serve with a white sauce into which a tablespoonful of chopped parsley has been stirred.

**It Is For You To Say**



Try Blue Ribbon once. Then it is for you to say if you will use it after that. If you find that it is not superior to the tea you have been using you may take the packet back and your money will be refunded. But we know you will like it.

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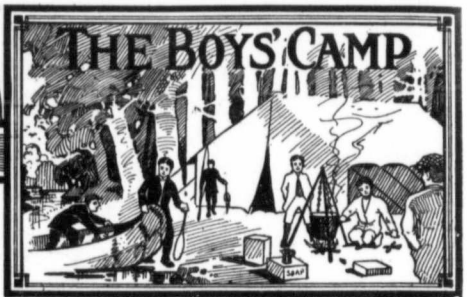
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THE  
**Girls' Cozy Corner**

**A STOLEN PEARL.**  
Pearl was a maiden, so young and fair.  
And she lived in a little shell,  
Deep down 'neath the rolling summer  
wave,  
In a leafy coral dell.  
But she was a wayward, wilful maid,  
And longed to the world to go,  
And so her mother would mourn and  
weep,  
For she prized and loved her so.  
  
Pearl was a maiden so young and fair,  
But one unhappy day,  
A diver came to her ocean home,  
And bore her far away.  
And now, ah me, for the past she longs,  
In the world's mad rush and whirl,  
And a heart is broken under the sea,  
The heart of the mother of Pearl.

**TRAINED TO ACCURACY.**  
By Arthur Crane.  
Mathematics is a branch of study many girls do not especially enjoy, and is also a branch that most girls need, because of their ingrained tendency to inaccuracy. The average girl puts much more emphasis on the need of being entertaining than on the necessity for being reliable. She likes to be interesting, even at the expense of accuracy. It would be a valuable lesson for some of you if you could compare your account of a conversation in which you have taken part with a stenographic report of same, or your description of some scene you have witnessed, with the version given by some moving picture films.  
In working an example in arithmetic or algebra, no girl flatters herself that she is near enough to correctness if her answer is five and two-thirds, instead of six and one-third. But in ordinary matters such a lack of accuracy would not trouble her in the least. Often the picturesque habit of exaggeration makes it necessary to discount her speech anywhere from a hundred to a thousand per cent. The girl who says she is starving, when she means that she has a good appetite for supper, and that she almost died laughing over some of her small brother's funny speeches, when in reality she indulged in a modest little giggle, does not, of course, expect nor wish to deceive anyone into supposing that she was at the point of death in either instance. The trouble with the habit of exaggeration is that it extends itself from unimportant matters to important ones, and tends to make all our speech inaccurate.  
A girl may be a prize scholar in mathematics, and fall short of reliability in other things, but the tendency of the study of accurate sciences is to make us more accurate in all we do and say, which is a very good reason why our schoolgirls should not neglect these branches.

**GIRL'S PRIZE LETTER.**  
Miami, Man.  
Dear Cousin Doris:—I think I will try my luck again. I saw my last letter in print. I read the Girls' Cozy Cor-

ner in your paper. My father takes your paper; he has taken it a long while. When I was reading the page, I saw that you wished some of the readers to tell if they could cook or sew. I can cook. I bake cakes. Here is the receipt I use:—Layer Cake—2 tablespoons of butter, 1 cup of sugar, 1 cup of sweet milk, 1 egg, 2 cups of flour, 4 level teaspoons of baking powder. This must all be mixed good together, and baked in layer tins, and put in the oven. The oven must be the right heat. Mama sees that the oven is the right heat for me. I have quite a time to keep my sisters and brothers from jumping on the floor or the cake will fall. When the cake is done, I put some jelly between it, and I can put some icing on it if I like. This is only one of my receipts, I have quite a few others.  
I go to school, and I am in grade five. My studies are arithmetic, spelling, reading, English history, grammar, and composition. I have two sisters and a brother going to school. Our grandfather (who lives with us) drives us to school. We live two miles from school. It is quite a piece to drive in the cold. We live three and a half miles from town. My father has a threshing machine. He threshes with it every fall. I love reading books. I like the Elsie and Mildred books, and the Hink Sash and the Lamplighter. They are all nice books. I think this is all this time. Wishing the readers and Cousin Doris every success, yours truly, Mary Corden.  
I am pleased to know you can cook, Mary. All girls should know how. Thank you for the recipe.—CD.

Sheho, Sask.  
Dear Cousin Doris:—I wrote once before, but I guess it got lost, for I saw in the Cozy Corner that you did not throw letters in the waste paper basket. I will write and tell you about a bear. My brother shot a bear. He was seventeen years old. The man who was working for us was going to fire up, for my father has a steam plow. He met the bear going up to the pig pen, where there were 19 little pigs about one month old. The man was afraid to run and the bear was, too, so they stood there. At last the man ran and came to the house and told my mother. So she said, "Willie, Joe saw a bear out by the stable." My brother was out of bed before she got the last words out of her mouth. He shot twice, with a big army gun that my grandfather sent him from the States.  
Well, I think I will say good-bye for this time. My brother is at the college at Winnipeg. I am, your loving cousin, R. Finley.

Indian Head, Sask.  
Dear Cousin Doris:—I saw my last letter in print. I thought I would write again and tell you about the bad weather we are having here now. The snow is four feet deep, and it has been very cold all this month. There have been very heavy snowstorms, then strong winds. It is almost impossible for the horses to travel through it at all. My father, after a storm, shovels his way into the stables; sometimes it is like a little tunnel. I like the winter better than summer. Well I guess I have told you all I know about the weather. I am in the fourth grade, but have not been going to school on account of the severe weather. Well, I will close, hoping your paper success, Birdie Cooper.

Trossachs, Sask.  
Dear Cousin Doris:—This is my first letter to the Girls' Cozy Corner. I am going to school all summer. I am in the third reader. The name of our school is Aisen. One of our neighbor men died last summer. He was sick for two weeks. Once he hollered from seven o'clock till eleven o'clock; he was suffering very much just then. That day there were very many people over to see him. In the night my papa and mamma went over to see him. When it was getting late at night, papa took mamma home, and went back to write out his will, but instead of papa, our teacher wrote the will. He died on August 12th. His name was Andrew Bloomquist. As my letter is getting long I will close. My papa has been taking the Canadian Thresherman for four years, and we all like it. Wishing the club success, Myrtle Swedberg.

Hayfield Station, Man.  
Dear Cousin Doris:—This is the second time I have written to the Canadian Thresherman and Farmer, which my brother takes. I did not see my first letter in print, but I hope you will think this one is worth printing. We moved into our new house for Christmas. Our school is closed for the winter months, but we expect to go again in April. My sister and I went for a load of straw and got very cold. We have three cats and they catch lots of mice and gophers. We have a pony and her name is Spotty, and we have driven her twice and expect to drive her to school next summer. We did not drive her last summer because she had a little colt. We live on a farm, and there are two stations near us. One station is three miles away from us, and the other station is a mile and a half away from us. We are milking four cows. We have got eight horses and three colts. I think I will close for this time. Alice Hopwood.

Content, Sask.  
Dear Cousin Doris:—I have just been reading the letters in the Cozy Corner. I thought I would try and write something myself. Papa takes the Canadian Thresherman and Farmer. We all like to read it. I have two little sisters, Elsie and Marjory. I go to school. My studies are reading, arithmetic, spelling, geography, history, drawing and writing. I live near the school house. I am in grade second. I am nine years old. It is quite cold here this winter. It has been 50 below. I wish to see my letter in print. May Chapman.

Elkhorn, Mar. 4th, 1911.  
Dear Cousin Doris:—My brother takes the Canadian Thresherman, and I have been reading the letters in the Girls' Cozy Corner, and thought I would write too. I would like to get a prize. I am eight years old. I go to school. I am in the second reader. The school is one mile and a half away. I have not gone since Christmas as it has been too stormy. I have two sisters and three brothers; I am the youngest. My papa and brothers have a gasoline threshing machine. I go after the cows when they are away threshing. My sister goes with me. For pets I have four dogs and two cats. I have great fun with my Kitty; when I spin my top he tries to catch it. He thinks it is a mouse. We have a phone here, and I talk to my chums on it when it is too cold to play. Well,

I guess I will close, and leave room for some other letters. Hoping to see my letter in print, your cousin, Alice Armstrong.

Dear Cousins:—Some of our girls have been asking for a letter from me. The reason I have not written to you lately, dear girls, is because I wanted the room for your own letters. You see I thought you would enjoy your own letters more than one from me. However, I appreciate the request and next month I shall write you a long letter. I am so proud of our girls—they can sew, cook, and help their mothers. Now, please, write me every one of you. With love to every girl in the Cozy Corner, I am, Sincerely,—Cousin Doris.

THE  
**Canadian Boy's Camp**

Dear Cousins:—We appreciate your letters very much. I wonder if any of our readers belong to the Boy Scouts. You remember I told you about them last year. I am very much in sympathy with the movement as it inspires the boys to be noble, manly and useful.

Your letters are very interesting. I wish I knew every one of you personally—I feel that I do. I have enjoyed the Canadian Boys' Camp. Do you know that some of our boys from an Indian Mission are going to write to us? I am looking anxiously for their letters. Let us have as many letters as possible this summer. Tell us all about your work, because you know the boys all gather round the camp fire at night to read the letters. By the way do you know you are ahead of the girls this month? Sincerely, Cousin Doris.

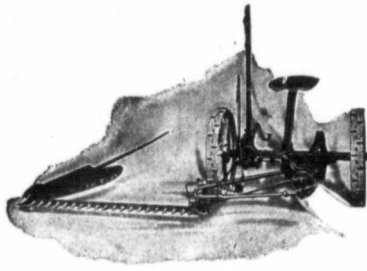
BOYS' PRIZE LETTER.

Lavenham, Man.  
Dear Cousin Doris:—This is my first letter to the Boys' Camp. My father takes the Canadian Thresherman and Farmer and I like reading the letters which the boys send to the "Canadian Boys' Camp." I don't think it fair that the boys should let the girls beat them. I think there are enough boys to beat the girls if they only tried. I saw that the editor offered a book for the best boy's letter so I thought I would write as I like reading books. I go to school every day and am going to write for entrance next June, if all goes well.

I have been trapping weasels this winter and have caught six; I intend to send them to the McMillan Fur and Hide Co., Winnipeg. I have six traps all together and have taken four up and intend taking up the other two on Saturday next. We live near the Assiniboine river so I have a good chance at trapping. My father owns fourteen horses, six cattle and about ten pigs. He also has a J. I. Case threshing machine with which he makes a considerable sum of money every year besides paying expenses.

I am twelve years old and I like driving horses. I have a good chance, as we used them to the McMillan Fur and Hide Co. last fall on a stock wagon; the job suited me fine. I have a brother ten years old; he drove a team also and liked it too. I spend my holidays with my brother-in-law who lives about four and





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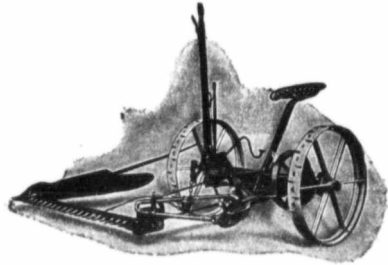
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WESTERN AGENTS

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one-half miles away. If any of the boys would like to correspond on post cards I will if they write me first. I am going to send some post cards to a girl who got her eye put out as she has an album and would like to get it filled. I am a member of three clubs but I like this one the best as it belongs to boys only. I think that there should be a button of membership given to every member. I have got two other buttons, one from Prairie Chickens and one from the Western Wigwam and would like to get one from the camp boys. It would be beating the girls if the Boys' Camp would get out a button and I would like to beat the girls and we will if the boys try. I don't see any use in being beaten if we can help it. Last fall I saved up five dollars and bought a pair of hockey boots and skates and have learned to skate a little bit but not enough to blow about.

Have any of the boys tried for a prize in the Telegram Shetland Pony Contest? I have not tried because I think I would not have any chance as there will be so many others trying. As news is scarce I will have to close; wishing the club every success. I am, yours respectfully, Clarence Dobbin.

We hope to have buttons some day, Clarence. I like your spirit of pride. I am sure the boys will not allow the girls to beat them.

Oakland, Man.

Dear Cousin Doris:—I saw my last letter in print so I thought I would write again. I walk to Oakland two or three times a week with my father to get the mail. Curling is played and I watch some games. A snowbank formed on the track not far from our place and the C.N.R. engine often gets stuck and has to be shoveled out. Once it went to the end of the railroad out to Totogan and came back as far as Oakland for her train and when she got there their coal was low and so went to Portage la Prairie for coal. It got to the bank that night and got stuck and by the time it got shovelled out in the morning both the water and coal were done. Another engine came to help it out and got stuck before it got there. About half past four o'clock a third engine came and got the two engines out and went to Oakland for the train and got to Portage la Prairie the next morning. The snow is deep in fields now. The banks are hard. I would be pleased if some one can send the words of "Under the Old Oak Tree." I will close, wishing the club every success. Yours truly, John Blair, Jr.

Sheerness, Alta.

Dear Cousin Doris:—This is my first letter to the Camp. I have been reading the letters from the Boys' Camp for about two years so I thought I would write. I have two dogs; one is Flossie and the other Sport. We have a cat, we

call him Tom. There are lots of rabbits here; I shoot six. I have two ponies I can ride. We live on Berry Creek, the creek runs through our place. I will close with a game, we call it Pump, Pump Pullaway. We have two bases; they all stand at one base. One is chosen for to go it. He stands between the bases, they run from one to the other and he catches them. When he catches one he helps to catch the rest and soon they are all caught. Wishing the Camp success. Simpson Crozier.

Russell, Man.

Dear Cousin Doris:—This is my first letter to your club. We have taken the Canadian Thresherman and Farmer for over a year. I see you are giving a prize for the best letter. We live on a farm three and one-half miles from the town of Russell. The snow is about six feet deep around here and we are having cold weather now. I have a lot of work to do at school when I go; I just go in the winter. Wishing to receive a prize, I am, M. E. McNichol.

Avebury, Sask.

Dear Cousin Doris:—My brother takes the Canadian Thresherman and Farmer and we think there is no other paper like it. I have two dogs; their names are Brownie and Rover; they are well trained for to pull my sleigh. I like to hunt and trap. I have caught three hundred muskrats this winter, although it was very cold. I have a pony, I call him Tony. I think it would be very nice if some of the boys would send in some drawings of some outdoor object, don't you, boys? Wishing success to the Camp and all of the members. Austin Smythe.

Will you tell us about your experience trapping, Austin? Yes, I think the drawings would be interesting.—C. D.

Oliver, Sask.

Dear Cousin Doris:—This is my first letter to your camp. I am 13 years old. I go to Lotus school, I am in the fourth reader. We have not had school since the 14th of October. The teacher's name was Mr. G. S. C. The nearest station is Rosetown. My brother takes the Thresherman. We have got two little calves and seven pigs. I want to tell you about an accident that happened in December. There was a man watering a team on the creek when the ice broke and they went in. He had to go down town and get a team to pull them out. They were not much chilled. Wishing the club every success, I remain, your cousin, Norman Sanderson.

Knicker—"What is a swimming-hole?"

Bocker—"A body of water entirely surrounded by boys."



CANADIAN NORTHERN RAILWAY

CHANGE IN TIME, JUNE 4th

NEW! AND IMPROVED SERVICE

**DOUBLE DAILY TRAINS**  
WINNIPEG SASKATOON EDMONTON

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THROUGH SLEEPING AND DINING CAR SERVICE ON ALL TRAINS  
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FIRE INSURANCE

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THE LIVERPOOL AND LONDON AND GLOBE INSURANCE COMPANY, LTD.

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## The Liverpool and London and Globe Insurance Co., Ltd.

"THE STRONGEST FIRE COMPANY IN THE WORLD"

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# LANDMARKS

IN THE LIFE OF **JOHNNIE LUNDIE**

"THE COMING OF THE WOMAN"

By JAMIE SOUTAR

Stories in the making of a great manhood from a poor start; told in the "Brandon Local," and elsewhere



If it is the case that the 'Man is born to trouble as the sparks fly upwards,' I suppose Johnnie Lundie go nothing but what was his predestined lot in dunts (knocks) and scarts (scratches) as he toiled through his apprenticeship in that auld shipbuildin' yard, that has sent its ships and its skilled mechanics to every corner of the civilized globe.

"But between oorsels, gentlemen, I believe that no man is born to trouble that he doesna mak' for hisel'.

'He'll hae misfortunes great and sma' But aye a hairt abune them a' if he has the spark o' manhood in him. What Saint Bernard said, boys, is as true as onything atween the brods (boards) o' the bible, and it's my ain experience to a hair line. Says he: 'Nothing can work me damage but myself; the evil that I sustain I carry about with me, and I am never a real sufferer except by my own fault'.

"As far as I know, that same man John Lundie never came by any serious mishap that could be directly ascribed to his ain negligence or folly. He has had to thole (endure) a mighty lot in his time but I don't believe he has ever suffered in the sense that he has borne the punishment of a guilty conscience. The real sufferers were the fellows who tried to do him an injury, and by gosh! some of them have paid a heavy penalty and are now forgotten or their memory rots in the great garbage pile of accumulated wickedness.

"But ye'll think I'm preachin' again, so I must tell ye at once aboot the next mishap in his pot o' luck. It's worth tellin' because it's anither instance o' the fact that oftentimes what spells like disaster turns out to be the best bit o' luck that the Almichty in His Kindness could hae sent a man. In this case it deals with the comin' of one into Johnnie's life who did more than any other influence he ever met with to make him the man he is to-day, and again it was—a wumman!

"He had completed his apprenticeship as an engine fitter and had been kept on for over a year when he got the promise of third engineer on a fine steamer, built and fitted by his folks, and that

was sailin' at that time between Dundee and Calcutta. Business had been brisk with them for a long time, and a fine iron sailing ship of 2500 tons was on the stocks almost ready for launching. They were workin' nicht and day upon her, and the day before the launch every available man was engaged clearin' up the yard and gettin' things in shape for the ceremony.

"Johnnie and three other chaps were fixin' up a donkey engine on deck that was to be used on her anchors and in the loadin' and dischargin' o' her cargo.

"The boys had had their supper and were workin' with the help o' a big flare lamp about nine o'clock when by some awful mischance in the uncertain light, Johnie tipped up on a loose plank lyin' near the main hatchway, and was pitched bodily intae the hold. He tried to clutch the edge of the hatchway as he fell, but it was impossible and he went to the bottom—a clear drop of forty feet.

"His mates could do nothing to save him, and they heard the terrible thud of his body against the cruel iron bottom of the ship. They were paralyzed for the moment, and for a time looked each other helplessly in the face, but the night watchman happened to come on the spot and lost no time in reaching the boy with a lantern.

"He was quite unconscious, lying in a heap and bleeding terribly from a big gash somewhere on the side of his head; but the watchman was a cool headed chap that had graduated in ambulance work and did good service in rendering 'first aid' to Johnnie, while the boys on deck, after they had collected their wits, telephoned to the infirmary, and got the nearest doctor.

"Very little time was spent in gettin' the lad to the hospital and he woke up just as they began to undress him in the accident ward.

"His mates scarcely dared to hope that he could live after fallin' intae that terrible hole and from such a height; but, sirs, 'A' men are immortal until their work is done', and Johnnie Lundie was a gie tough chiel (rather tough fellow) and had much to do yet before he shuffled off this mortal coil.

"His right leg was dislocated at the knee and his left arm fractured at the elbow, but although he had got a nasty flesh wound above the right temple (the mark o' sticks tae him to this day) happily there were no bones broken about the head, and the night watchman, the doctor said, by his

## HERE THEY ARE !!

The kind that have and do make good



**Hart Universal Thresher Rack**  
Dumps its load and goes right back.



**Hart Brown Wing Carrier**  
Makes all Feeders Good Feeders.  
Attaches to any separator with any Feeder.

**SATISFACTION AND PROFIT**

Were you satisfied with the results of last year's threshing? Why not save from \$30.00 to \$50.00 a day this year by using a HART-BROWN WING CARRIER and a set of the HART UNIVERSAL THRESHER RACKS? They save half of the ordinary bundle wagons and all of the field pitchers. They will pay for themselves the first year and give you a big profit.

**WARRANTY**

THE HART-BROWN WING CARRIERS are guaranteed to feed the largest separator and feeder to full capacity in bound, loose or headed grain, or in any kind or condition of grain whatsoever.

They are guaranteed to deliver grain to the band knives of the feeder in better condition than any other Wing Carrier made.

They are guaranteed to deliver grain to the band knives of the feeder in better condition than is done by hand pitching.

They are guaranteed to be constructed of the best material obtainable, and assembled in the best manner known to the science of agricultural implement construction.

They are guaranteed to be stronger, work better, last longer with less repairs, require less attention and less manual labor to do the same amount of work than other Wing Carriers.

The HART UNIVERSAL THRESHER RACKS are guaranteed to handle all kinds and conditions of grain and to unload almost instantly.

**SUCCESSFUL FROM THE START:** Read what the dealer who sold the first HART-BROWN WING CARRIER made has to say about it:—

Lester Prairie, Minn., Feb. 14th, 1911

Hart Grain Weigher Co., Peoria, Ill.

Gentlemen:—The first Hart-Brown Wing Carrier manufactured was put on a — separator. In 1909 it was used fifty-three days with an expense of three chain links. In 1910 it was used sixty-one days with no expense. I have five in use in this territory and all give the best satisfaction. They handle all kinds of grain, never clog up and never bother in moving. I would advise every thresherman to give the HART-BROWN WING CARRIERS a trial. I know they will prove satisfactory. The first one made was sold to Mr. Gust Birkholtz.

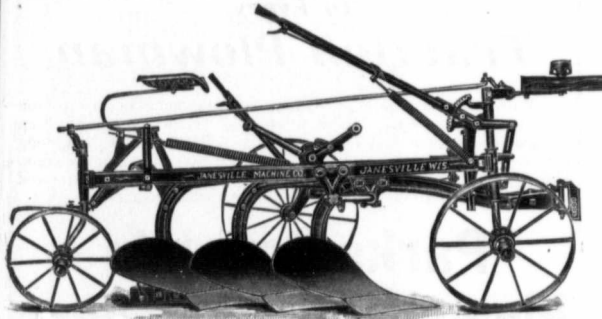
Yours truly,  
W. C. Beise.

**YOU CAN BUILD YOUR OWN RACKS:** If you do not wish to purchase them complete we will furnish you the hardware, plans, specifications and license and you may build them yourselves.

Write us giving the name and size of your separator and we will tell you just how the carrier is attached and send you our big 1911 catalog. It contains some surprises for you.

**Hart Grain Weigher Co.**  
PEORIA, ILLINOIS, U.S.A.

# The One Great Plow for the Great Northwest



## Here's the Plow that Meets Your Needs Best The Top-Notch of Plow Value

You farmers of the Northwest require a much heavier and a much stronger plow than is regularly used in other territories. You have more work and the work is harder. An ordinary plow won't stand the strain long enough to pay for itself. Besides extra strength, you must have a plow with certain distinct features, which are absolutely essential to the greatest efficiency on your land. We have made a plow just for you—a plow that meets every condition of the Northwest and every requirement of the Northwestern Farmer. It's the

### JANESVILLE NORTHWESTERN GANG

In the first place, this Janesville gang is provided with extra heavy beams—both of which extend beyond the frame in front, allowing a very long cross clevis to be attached. This clevis gives you choice of four horse abreast—or four, five or six horse tandem hitch.

King and James Streets  
WINNIPEG

**American Seeding Machine Co.,**  
(INCORPORATED)

CANADIAN  
SALES AGENTS:

Made by THE JANESVILLE MACHINE CO., Janesville, Wis.

The Janesville foot-trip horse-lift is a big feature found on no other plow. Simply trip the "lift" with your foot while riding or throw the land wheel lever while walking, and the horses will pull the plow bottom into the ground at the start and out of the furrow at the end. The point of the plow bottom always goes in and comes out first just like the walking plow, because the movement is just like your arms. In entering the ground the heel of the plow bottom is held up so the point must go down first. In leaving the ground, the heel of the bottom is held down, so the point must come out of the ground first. This Janesville feature eliminates the objections to the foot lift as compared with the hand-lift. Our self-leveling device is unequalled on any other plow made. You have absolute control of the Janesville Plow Bottoms at all points

All levers are spring balanced which makes it possible for even a mere boy to operate them. The bottoms and beams on the Janesville Northwestern Gang Plow are not held rigidly in the frame but are balanced over the single bale which permits adaptability to the unevenness of the surface of the ground, which has a great effect on the draft. The single bale feature also permits raising the Plows and leveling at the same time, which is not possible with a two bale construction.

The connection between the front and rear furrow wheel is automatic in action and in place of forcing the rear furrow wheel around in turning at the corners it simply permits it to follow along behind in the corner of the furrow. All the side and down pressure caused in turning over the soil is carried on the wheels. We use nothing but steel and malleable iron in the construction of the frame. The shares furnished on all Janesville Northwestern gangs are 1-16 inch thicker and made much stronger than the ordinary kind. The front furrow wheel is 24 in. high; the rear 20 in.; the land wheel 30 in.; all with 2 1/2 in. tire. There are so many other features and advantages of Janesville Northwestern Gangs that we want you to know them all before you decide on any plow. Let us send you

### All Janesville Books Free

We will give you the name of our dealer in your town so you can see the Janesville. We also make the famous Janesville Walking Plows, Riding or Walking Cultivators, Disk Cultivators, Disk Harrows and Janesville Corn Planters. When you write for Janesville Plow Book, say whether you are interested in any of our other implements. We'll gladly send you all the Janesville books free—postage prepaid. Send postal or letter now to

timely and efficient work had probably saved him from bleeding to death.

"It was a marvellous escape, and I tell ye that his mates who saw him fall intae the ship's hold never sent up a grander allelujah as when they heard the doctor's report and knew that there were reasonable expectations of Johnnie's complete recovery.

"The firm made a' sort o' investigations but they could blame nobody but themselfs in havin' men workin' at that time o' night in a place that was fairly honey-combed wi' death traps. But still, they did their duty by the boy while he lay in hospital and afterwards, and got that famous Surgeon Doctor Pirie (the grand old man of his day) to take the case in hand and do his best by the patient at their expense. That was him, ye know, that was known to the students as 'The Baron', and his memory is held in the deepest reverence all over the world to this day by men and women who probably owe their lives to him, and by medical men and others who are at the head of their profession and who owe their success in a great measure to his ability as a surgeon-teacher, and the fatherly counsel he gave them at Marischall College.

"The doctor threw his whole heart intae Johnnie's case and if he had been his own child, he could na' hae treated him with greater care. They fixed up the boy in a nice, cheerie, private

ward, and true tae himsel', his first thought, poor chap, on regaining consciousness was a real anxiety about his mother. The accident happened on a Friday night and he was expecting his mother and uncle Bob in next day tae see the launch. He explained this to Doctor Pirie and the big hearted auld man as he laid his hand gently on the lad's forehead, set him at rest with the assurance: "Keep your mind easy my good lad; We'll have no telegrams—they're nasty, disquietin' things, but I'm goin' out to Gawdieburn by the ten o'clock train in the morning to see a patient there, and I'll make a point to see your mother first of all, and explain things to her."

"That explanation breathed the spirit of real humanity and in-born tact. There was no shock or unnecessary alarm imported into it as there often is in an intimation o' the kind. The mother and uncle Bob were at the bedside of the boy, you my be sure, as quickly as they could annihilate the time and the space that separated them, and the sight of them did mair for Johnnie than a' the skill of the great doctor and the kindly attentions of the nurses.

"Clean blood and young bones did their part in hastening the boy's recovery, and in a comparatively short time he had practically forgotten his injuries in the comforts of his surroundings and

the friends who crowded him with attentions.

"The nurse who took charge of the case at the moment of his admission to the hospital was his night attendant, and in response to her gentleness he was able to sleep through the greater part of the night, although at times he suffered from the after effects o' the chloroform they gave him when the limbs were being fixed up.

"When he opened his eyes in the morning the place of this lady was filled by a younger nurse, a dark-eyed, dainty little lass who could scarcely have been much older than himself if she had actually reached his years. She was at his bedside the moment he awoke, and as Johnnie shyly looked up into the new face, the little woman smiled as she asked how he felt, and then informed him that it was not the first time she had seen him and that by a strange coincidence, her first introduction to him as on the present occasion, was also brought about while he was in a state of unconsciousness.

"Johnnie wanted to know when and under what circumstances she had seen him before, but the young lady playfully parried his questions and told him that information would keep till he was a little stronger and at liberty to sit up and chat to his friends. Her position in the hospital, she explained, was only that of a probationer and her first injunction

in coming into his ward had been to keep him perfectly quiet. Her superior would be in presently, and meanwhile there were certain little duties, that devolved upon her, and the first of these was to stick a little glass tube under his tongue and take it out again after a little while.

"Just as she was registering the record of her thermometer, the head nurse came in and addressed herself to the patient as if he had been in her motherly hands for months. Fortunately the case developed no complications and Johnnie's convalescence was rapidly brought about by the unremitting care of those fine women and the cheerie atmosphere in which they continually kept him.

"His mother and uncle Bob were the first visitors allowed to see him on the day after the accident, but on the followin' Monday he had a surprise visit from his old friend Peter Mathieson the Gawdieburn chief o' police.

" 'Well Johnnie, my boy', said the genial old man as he sat down by the bedside, 'you're havin' your share o' things in a rough and tumble way, but keep up your chin my lad. This is no an un-mixed calamity, and by the looks o' things, it may turn oot tae be the best kick up you've gotten yet. It has certainly landed ye in amang the gentry for I see ye've been' waited upon like a prince



and by ladies belongin' tae twa o' the best families in the country'.

"Is that so, Peter?" Johnnie inquired in a kind o' amazement. "They jist look like the other nurses I've seen about the streets afore they brocht me here. One o' them said she had seen me before, when I was unconscious, but she hasna tell'd me yet where that was'.

"O I can tell ye a' aboot that, Johnnie lad. That's Miss Norah Hallglen that was on the Dunstaffnage Castle' when you took Willie Forbes oot o' the watter. Ye remember when they got ye on deck, they put ye wi' Willie intae the chief officer's cabin. Ye was gae near played oot and I dare say ye soon lost consciousness when they put ye in atween the hot blankets tae dry and nae doobt she had a keek at ye while ye werena aware o' her lookin' on. Anyhoo, I understand she was mighty prood o' ye that day, and they tell me she was terribly delighted she has something tae dae wi' ye in here. That's her, the bonnie, little black-eyed lass that is Miss Grant's assistant'.

"Miss Grant, ye know, is one o' the Grants o' Pitskurry and has been in the nursin' job here and elsewhere since she was a wee bit lass. She got inflamed wi' the idea from readin' aboot Florence Nightingale and gae a good account o' hersel' in that first Egyptian campan'.

"Miss Norah is the daughter o' Sir Thomas Hallglen, ye know, and I believe Miss Grant is accountable for her takin' up the profession. At any rate they have been life-long friends and they're settin' a fine example to the idle young huzzies that dae little else than dress themsel's play the piana and kill time on the golf links'.

"Peter had risen to go when voices were heard in the corridor approaching Johnnie's ward, and the next moment the 'bonnie little black-eyed lass' entered, her eyes glowing with pleasurable excitement as she led her father intae the room and straight up to Johnnie's bedside.

"My father came into the hospital with a message for me, Mr. Lundie, and when I told him about you, he wouldn't leave till he had seen you'.

"That's right, my boy!" said the jovial Sir Thomas. "You may not remember me but I was on the 'Dunstaffnage Castle', on the day you went overboard a'ter that man. I saw the whole incident as I was on the bridge at the time but I daresay you've heard quite enough about that affair since it happened so I will not tell you what I thought of it and what I have been thinking of you since. I'm very sorry to hear of your accident but glad to know it isn't so serious as it might have been. I saw the account of it in the Saturday's paper but did not at the moment connect it with you and was only made aware of the fact when I came to the hospital to-day. You'll brace up and get well quick like a man,

and when you are able to get about, I want you to promise me that you'll come out to Lossiebank and get fairly fixed up in our fresh air.

"My boys will be delighted to see you, I know, and to help you to all the fun you would like until you are fit for duty again. There's lots of fine fishing at Lossiebank, and plenty of rabbits to shoot, if you are anything of a shot."

"Johnnie's eyes glistened, nae less than those of the bright little woman as she listened to her father's whole hearted invitation, and to Johnnie's modest acknowledgement of it, with his promise to spend a part of his convalescent days at Lossiebank.

"While a' this was going on, Peter retired, hat in hand into the background, but Sir Thomas quickly recognized him an' expressed his gratification at finding he was such an old and a staunch friend o' Johnnie's.

"Peter's delight at all he heard was far greater than if he himsel' had been the subject of Sir Thomas's kindness, and when the baronet and his daughter left the room, he let oot upon Johnnie jist like a great schoolboy.

"Johnnie, my lad, your fortunes made! said he if that man takes an intrest in you—and ye continue to behave yersel' as ye've done, there's nothin' that solid influence can do to help ye that ye canna get fae that same man. He's one o' the finest men in Scotland to-day, and I can tell ye from a dizzen cases I know of, that if he promises to do anything, his word is as good as his bond. The thing is as good as done already and he never was known tae hand oot a disappointment to the least significant craiter'.

"The day's sped on and when the summer was well advanced one fine mornin' Johnnie found himsel' an honored quest at Lossiebank, Roy and Allister were younger brothers of Miss Norah's and they took Johnnie intae a' theirs ploys (escapades) that he could join in as freely as if he had been their social equal and companion a' his days. Their heads were full o' his exploit in savin' Willie Forbes frae a watery grave, and if he had been the son o' a wayside tinker, it was a' the same he was a hero to them for evermore.

"That, Sir's, is a distinguishing feature of the way in which a man is taken on', as we say, in the democratic Western Country and in the Republic across the line. Here's still an awfu' condition o' caste an' class distinctions in te auld country, but I tell ye boys, that there are a few score o' oor aristocracy that are not slow to recognize things in the same way. They are no so bad as they are sometimes painted and Sir Thomas Hallglen and his people are jist a fair sample of some of our titled gentry who look out upon the world with an eye that recognises as Robbie Burns did that—

## Time is Money to Every Traction Plowman

With a large expensive outfit that costs thousands of dollars you cannot afford to stop. If you are to make money you must keep going all of the time. Did you ever stop and consider just how long it took you to remove your dul. plowshares and put them on again. Did you ever figure out just how much land you might have plowed while you were performing the job. Equip your plowshares with

## Parks-Coughlin Plowshare Fasteners



1. Spring Bolt
2. Coupler
3. Lock Box
4. Wedge Key

The time required to remove and replace plowshares that are equipped with our device is so small as not to be considered. It is an absolute necessity on every traction plowing outfit.

**The Most Talked of Agricultural Device in Western Canada**

**Fully . . .  
Guaranteed  
Saves Money  
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**EVERY PLOWMAN NEEDS IT!**

**Because**

- It eliminates burr and bolt troubles.
- It eliminates sprung share troubles.
- It works satisfactorily on engine plows as well as others.
- It eliminates the need of night man to change shares on engine gangs.
- It eliminates the need of hammer and punch to force holes in share into line with those in the frog of the plow.

**IT HAS STOOD EVERY TEST!**

It holds the share on with an iron grip, in spite of gumbo, rocks or stumps, and yet permits it to be removed so easily that your boy can do it.

**CHANGE SHARES IN FORTY SECONDS!**

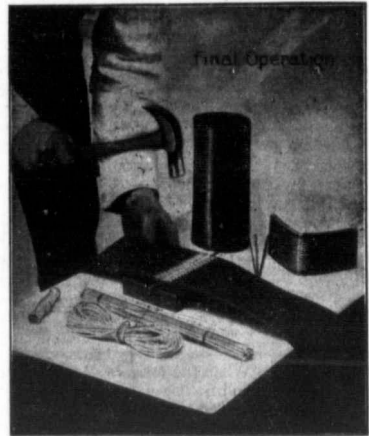
Simply lift the plow out of the ground, loosen the wedge key by tapping it at the point with your wrench, remove it, unsnap the spring bolt and lift the share off. Place the new share into position, insert the wedge key, secure the spring bolt, and drive the wedge key in with your wrench.

**IT FITS YOUR PLOW!**

The fastener is easily attached and need not be removed until the plow is worn out. The value of time and bolts saved, not to speak of shares and the better grade of work done by changing shares often, will more than pay for a set in a year. One set lasts a lifetime.

**IMPLEMENT SPECIALTIES CORPORATION, LTD.**  
45 MERCHANTS' BANK BUILDING, WINNIPEG

### Something New For Every Thresherman. Clipper Belt Lacing Outfit



Turn hands of ECCENTRIC PIN upright so that pressure is off before placing Hooks in slots alternately, long and short ends. Then insert loose pin and turn ECCENTRIC PIN from you until hooks are held firmly in place.

Any thresherman purchasing one of these outfits saves time and money. Guaranteed to save 25 per cent. of your belting bills. If your implement dealer does not handle this machine write us direct, and we will be pleased to give you full information as to price, etc. This outfit is done up in neat case 12x8x6, containing all tools required and 1000 of each size of hooks, and remember, a boy ten years old can operate it. We would be pleased to have you call at our Warerooms at any time.

For  
**LEATHER,**  
**RUBBER**  
OR  
**CANVAS**  
**BELTING**  
Made To Run As  
Smooth As  
**ENDLESS.**

### "Dreadnought" Sewn Canvas Thresher Belt.



Manufactured in England, from the highest grade cotton duck, and in accordance with specifications to suit the Western Canadian Market. Every belt guaranteed to give satisfaction. Large stock carried by the sole importers.

Threshermen, write at once for samples. Ask your dealer, if he does not handle our belt, to procure same for you.

Dealers wanted in every locality.

**The General Supply Co. of Canada, Limited**  
OTTAWA TORONTO WINNIPEG  
Woods Western Bldg., Market Street E. Winnipeg

Rank is but the quinea stamp—  
The man's the gowd for a tnat.  
But as I've said before, Johnnie's case was that of every man before his day and since who enjoyed any measure of popularity and fame. He still had to reckon with the traducers, and his cup of joy at Lossiebank wasna without its wee dreg o' bitterness.  
"For a short time while he so-journed with Sir Thomas and his family, Miss Norah was there on a brief holiday, and at the same time a young man came in about the place who was generally supposed to be a bit sweet on Norah. As a matter o' fac'he could scarcely disquise his weakness in that direction and pastered the lassie wi' his attentions until even her ever lasting patience and imbred politeness nearly broke down.—  
"He was the son of a Glasgow baillie, a business friend of Sir Thomas's, and had he become acquainted with Norah and her young friend who accompanied her that day on the Dunstaffnage Castle while they were at Hunter's Quay last year during the Yachting season.  
"He was a smart lookin' but somewhat hair brained sort of a chap who figured in some subordinate kind o' a way in his father's business as a shipbroker.  
"There could be nae doobt about it; in his personal appearance Johnnie Lundie was not one whit behind him, but when it came to a close examination of the faces of the two men, Johnnie

had him beaten hands down. A novice could see at once the mighty difference between the shallow, almost despicable leer in the one, and the perfect frankness and sincerity of the other that at the same time carried a strength of purpose that no process o' regeneration would ever put into that of the young man from Clydebank.  
"The lassie simply couldna help hersel in bestowin' all she could render Johnnie in kindly attentions. It wasna a case o' perfunctorial hospitality, but just what moved every heart in that Scottish household, a genuine, single-minded desire that their visitors, whoever they were, should have all the happiness and comfort that was in their gift.  
"But anyone could see wi' half an eye that these attentions were na a' thegither acceptable to the young Glasgow birkie. He couldna help seein' that on many occasions in the weight of respect accorded to them, there was a marked distinction in favor of Johnnie. The natural effect of this, of course, was to awaken the demon o' jealousy, and when a man becomes possessed by that arch enemy o' his kind, he is no longer himself and there's nothing in doonricht depravity he will stick at.  
"You may say that it seems ridiculous that the scion of a great business house should become inflamed wi' jealousy because of some kindly precedence that was being shown a common

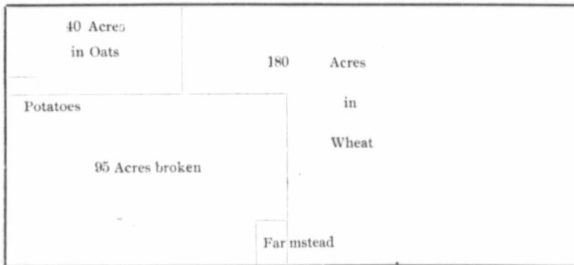
workin' lad—a low born mechanic fellow; and that that feelin' should have anything to do with the idea of supplementing him in the affections of a young lady of Norah's standing looks more than ridiculous.  
"Well, ye'll understand this a little later on, but in the meantime jist let me tell ye hoo that young whipper-snapper conducted himself toward his 'rival,' and the length he went in an attempt to discredit the lad in the eyes of his friends.  
"By some means he got to know the complete history of Johnnie Lundie and the circumstances of his birth. He certainly did not get the gossip from any of the family, for not a soul of them knew anything about it up till then. How he got it needna concern us; its enough that he had it pat, and, as usually happens in the doling out of a piece of spiteful calumny, it did not lose any of its ill-flavor in the telling.  
"The miserable little cad took the last refuge of the sneak, and instead of going straight to Sir Thomas in a manly fashion wi' any real or fancied grievance he had concerning the lad, he whispered it into the ear of young Allister with the injunction that to himself, but nae doobt it was the information was to be kept given with the hope and expectation that the young gentleman would sooner or later get it into the ear of all he wanted to know about it.

"And that's just what happened, and sooner than he expected. That very night, Allister, in keeping with a fine understanding between that father and his boys (who had no unholy secrets as between one an' the other) went straight to his father and told him exactly what their guest from Clydebank had related about Johnnie.  
"Sir Thomas was never taken unawares. He had a set of brains that seemed tae be perpetually packed in ice, and it was his life's habit to delay an unfavorable opinion about a body until circumstances forbade him to hold out any longer. He listened calmly to Allister and then told the boy what he hardly needed to be told—to keep his own council on the matter, and on no account allow it to change his attitude towards Johnnie. As a matter of fact, gentlemen, that good lad couldna hae treated Johnnie less kindly than he did had he been commanded at the pistol point to do so.  
"Well, sirs, the very next mornin' Sir Thomas took the first train that stopped at Gawdieburn station and had a long conference wi' Peter Matheson. Peter gave him all the information he wanted but was enjoined by Sir Tom that on no account was he to mention the subject of his visit to any one, and Peter could keep a secret if any man could.  
"I don't believe Johnnie ever had a suspicion of all that had  
Continued on page 81

**A Three Years' Program for the Cultivation and Equipment of a Half Section of Land in Manitoba.**

Continued from page 20

CASH ACCOUNT FOR SECOND YEAR		Dr.	Cr.
April	Bought four horse team.....		\$1000 00
	280 bush. seed wheat @ 85c.....		238 00
	One drill.....		180 00
	Gang plow stubble and breaker bottom.....		110 00
August	Twine 440 lbs. @ 9c. per lb.....		39 60
	Threshing bill.....		500 20
	Eight ft. binder.....		185 00
	1 man, 12 days @ \$2.50.....		30 00
Sept.	Sold wheat 5200 bush. @ 85c.....	\$4471 00	
	Interest on farm and horses.....		483 00
	7 months wage @ \$35.....		245 00
	Paid on first team.....		500 00
	Made payment on land.....		1000 00
	Sundries.....		10 20
		\$4471 00	\$4471 00



Plan of farm at end of second year.

The third spring I would put 275 acres of land into wheat leaving the same forty acres for oats again. I would keep the one team on the drill as much as possible and the other team preparing the land for the seed. A sufficient amount of potatoes would be sown again. A man would have to be engaged again for the seven summer months at the usual wage of thirty-five dollars per month. About 415 bushels of wheat would be required to seed the 275 acres and eighty bushels of oats for the forty acres left for oats. This grain would have to be cleaned free of all weed seeds and rubbish and treated for smut with formaldehyde. After the grain is sown it should be well harrowed. It is almost impossible to spend too much time with the harrow as it is one of the most effective implements in the forming of a very desirable dust mulch and seed bed. The harrow is also

an invaluable tool in the eradication of young weeds. By harrowing when the weeds are just showing two leaves above the ground they are nearly all killed, if, however, they are allowed to become very strong the harrow is of little use. If the land can be harrowed on a very hot day the sun can be used to great advantage as it kills the young weeds before they have a chance to take root again. The weed problem is of vast importance to every farmer and should, therefore, be very carefully studied. Various solutions are advocated for spraying to kill the weeds after they are well developed, but prevention is better than cure and our aim should be to prevent them attaining such a size as to need spraying, as when they are young is the time they are most easily dealt with. The land plowed in the spring should be packed immediately after plowing and given one

stroke of the drag harrow before seeding.

After all the seed is sown I propose to fence the half section with woven wire. This I deem very advisable as it prevents to a large measure the spread of weeds by keeping all stray cattle and other animals off the land; and prevents the straying of the owner's stock. A good fence adds immeasurably to the value of the farm, making it look more attractive and giving it an air of prosperity. If there are any stones on the land they should be neatly piled in places allotted for such and not thrown in fence corners, etc., as this detracts very greatly from the appearance of the farm and shows carelessness on the part of the operator. The five acres allotted for the farmstead would be fenced off from the rest of the field. The fence should be well and strongly erected. On the north and west side of the farmstead a wind-break would be planted, the variety of trees depending upon the climatic conditions, the soil and the personal ideas of the owner. It would be well if an acre was fenced off with trees to make a garden where fruit trees could be grown, as a good garden adds much to a farm, both in appearance, value and usefulness. The fence would be of fairly heavy woven wire, costing about 14c. yd., 5,840 yards would be required, costing \$817.60. A post every ten yards would require about 600 posts at 12c. per post, costing \$72, making a total cost of \$890, which when all gates and other necessities had been accounted for would amount to at least \$900.

The two mares with foal could be allowed to be idle till harvest. They would be bred again. The necessary amount of hay would be again put up. At harvest time I would hire a stooker for about twenty days at \$2.50 per day. There being a fairly large crop if it came in together, as it usually does, I would use both teams on the binder, changing off and keeping the binder going from early morning till late at night to prevent as much loss through shelling as possible. The twine neces-

sary would be about 630 lbs at 9c., amounting to \$57. An average yield for this crop would be about thirty bushels per acre, amounting to 8,250 bushels wheat. The oats at forty bushels per acre amounting to 1,600 bushels. The total threshing bill would amount to about \$660. As in the previous year I would load the wheat direct into cars, retaining about 500 bushels for the next year's seed. The 7,750 bushels at 85c. would bring in \$6,588. As soon as harvest was over I would set the teams plowing after harvesting the potatoes. The land would be packed and harrowed as in the previous fall. All the remains of the straw piles must be carefully burned so as to prevent any land being wasted.

The following spring I propose building a good house and barn. With a fairly good crop these could be paid for together with the balance owing on the farm. When the farm is all broken up it will not be necessary to rush the work so much so that the number of live stock could be increased. With this increase it would be advisable to include grass in the crop rotation. By using grass in the rotation bare summer fallow could be avoided. The latter proves very successful as a conservator of moisture but does not aid the maintenance of soil fertility to an appreciable extent. Grass proves a very good revitalizer of the soil and at the same time crops of hay are being produced. With an increase in the number of live stock, pasture land of some kind would be necessary. The land that had yielded a crop or two of hay would be very satisfactory for this purpose if it was fenced. An adjoining half section would be a good investment if it could be secured. With an increase in size of the farm and the production of larger quantities of grain, live stock, etc., the farm could be carried on cheaper in proportion to the production, as almost invariably a large enterprise can be carried on more cheaply, proportionately, than a small one. With an increase in the acreage of grain it would be advisable to purchase a



**You can't argue with Mr. Pig**

You know how dead-set a hog always is to get out of the field you put him in. You know how much time and bother it takes to replace broken rail and plug up breaks in the fence after you have turned your hogs into pasture. You know how obstinate swine are—how hard it is to keep them where you want them. But do you know there is a fence made especially to do that very thing?—a fence that settles the argument with Mr. Pig.

**"Ideal" Fence keeps hogs where they are put**

This Heavy, Hog-Proof "Ideal" Woven Wire Fence has all the best of it with the pigs. Each "Ideal" lock grips the upright and cross wires in FIVE DIFFERENT PLACES—grips them so they simply CANNOT SLIP—and thus the hogs cannot move the uprights sideways, nor the cross wires either up or down. The uprights are all of large gauge No. 9 wire—HARD (not soft) wire, heavily galvanized, and all in one piece. The strongest hog cannot make the fence yield. He has got to stay where he is put, when you fence with "Ideal." For it is

**The Strongest, Staunchest Fence Made**

"Ideal" Fence is as strong as it looks—no small or soft wires in it; made wholly from HARD STEEL, large gauge No. 9 wire, from top to bottom all the same. Drop us a card for neat folder and catalog telling of "Ideal" features and styles for every fence purpose. With it will come a sample "Ideal" lock. Don't buy fence till you see this. Address

**Ideal Fence Co. Ltd., Winnipeg, Manitoba**



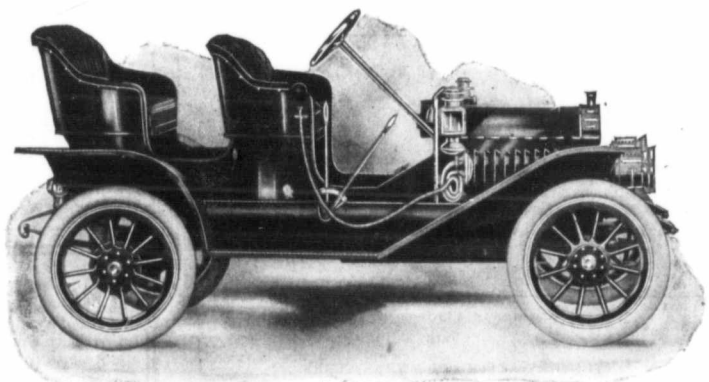
1911		JUNE					1911
SUN	MON	TUE	WED	THU	FRI	SAT	
				1	2	3	
4	5	6	7	8	9	10	
11	12	13	14	15	16	17	
18	19	20	21	22	23	24	
25	26	27	28	29	<b>30</b>		

# JUNE 30<sup>th</sup>

Closes Our Wheat Guessing Contest, and is the Last Day on which you can put in your Estimates

## Do you want this Automobile?

It is given absolutely free to the one guessing nearest to the number of kernels in 12 lbs. . . No. 2 Northern Wheat.



**DON'T LET ANYONE PERSUADE YOU THAT YOU CANNOT GET IT**

If you have been unsuccessful in other contests, don't let that discourage you, because our system of conducting contests is entirely different from others. We publish The Canadian Thresherman and Farmer, and this is the third successive Wheat Guessing Contest we have put on. The fair and square manner in which these have been conducted in the past is sufficient guarantee that you will have the same chance as anyone else when putting in your estimates this year; and we guarantee to forfeit \$2000.00 to any Charitable Institution if anyone can prove that our contest is not conducted in a fair and square manner. **GET YOUR ESTIMATES IN AT ONCE**

### THE CONTEST

The Contest is on how many Kernels there are in twelve pounds of No. 2 Northern Wheat. The Contest is open to everyone in Canada except residents of Winnipeg.

**THE WHEAT** is a fair clean sample of No. 2 Northern and was procured from the Dominion Grain Inspector's Office, Winnipeg. The wheat and bottle were taken direct from the Grain Inspector's Office to the Dominion Weights & Measures Office, and exactly twelve pounds of the wheat was weighed out and poured into the bottle. The bottle was then immediately sealed up by the Ass't. Inspector of Weights & Measures in the presence of two witnesses. The bottle was then photographed and deposited with the National Trust Co. to remain in their vaults until the contest closes June 30th, 1911, when it will be taken out and counted by a board of three judges, none of whom are in any way connected with The Canadian Thresherman and Farmer.

To secure estimates all you have to do is to send in a subscription for The Canadian Thresherman and Farmer. Three estimates are allowed with each one year subscription.

## Rush your Subscription

If necessary, telegraph your estimates in. Remember this is YOUR LAST CHANCE to get this magnificent \$1200.00 automobile. Address:

**E. H. HEATH CO., Ltd., Winnipeg**

### OFFER EXTRAORDINARY

Twelve months' subscription for The Canadian Thresherman and Farmer, three estimates on our Wheat Guessing Contest and your choice of one of the following premiums — For \$1.00 Premiums — Straight Stem Briar Pipe; Awl-U-Want Leather Sewing Awl; Self Pulling Cork Screw; Children's Paint Box; Mrs. Beeton's Cookery Book; Shaving Brush; School Pencil Box; Calf Weaner.



E. H. HEATH CO. Limited, Winnipeg, Canada.

Please find enclosed \$..... for..... year's subscription for The Canadian Thresherman and Farmer and..... (premium) to be sent to

Name .....

Address .....

My estimates on the number of Kernels in 12 lbs. of No. 2 Northern Wheat are .....

small threshing outfit as the threshing bill is a large annual expense. The threshing bill for about four years would pay for a machine. If the land was suitable the threshing engine could be used for plowing and doing other work on the farm, thus saving the keeping of a large number of work horses and enabling one man to do the work of two.

When commencing farming operations it is not well to try and develop large plans immediately but wait and see how things are going to turn out and then when a firm footing is ob-

tained large plans may be carried out and it will be found much easier to operate and make a large enterprise a success than a small one. With the increase in the population of the West farms are not going to become smaller, as many expect, but the farming profession is going to be carried out on a large scale, with the aid of traction power and all other modern appliances which are tending to place agriculture in its inevitable position as the most desirable, the most interesting and most noble profession on the face of the globe.

CASH ACCOUNT THE THIRD SUMMER		Dr.	Cr.
April	Man for 7 months @ \$35.....		\$245 00
	Sold 80 bush. wheat left from seed @ 80.....	\$64 00	
	Service of two mares.....		30 00
	Cost of fence.....		900 00
August	Twine.....		57 00
	Man to stook, 20 days at \$2.50.....		50 00
May	Seedling for windbreak.....		200 00
	Threshing bill.....		660 00
	Hauling grain at threshing.....		50 00
	Rec. on 7760 bush. wheat @ 85c.....	6588 00	
	Sundries as repairs, household goods, etc.....		200 00
	Interest on land.....		378 00
	Payment on land.....		3500 00
Nov.	Cash in bank.....		392 00
		\$6662 00	\$6662 00

40 Acres in Oats	275
Potatoes	Acres in Wheat
	Far instead

Plan at end of third summer.

INVENTORY AT END OF THREE YEARS	
320 acres of land at \$30, including buildings.....	\$9000 00
Eight work horses.....	1800 00
Two colts.....	100 00
One cow and two calves.....	70 00
Machinery costing \$500, 15% depreciation.....	785 00
500 bush. wheat @ 80.....	400 00
Sundries as harness, tools, etc.....	200 00
Cash in bank.....	392 00
	\$13347 00
Balance to pay on farm.....	\$1900 00
Net worth at end of three years.....	\$11447 00

**The West Progresses**

The activity of railways is considered a good indication of trade conditions and if this idea is correct business in Canada is certainly booming. There are but few idle freight cars, the car-building and locomotive shops are all working full time to produce rolling stock, and a tremendous amount of freight is being shipped. Other signs are not wanting. The tide of immigration to Canada's vast wheat fields began to flow a good deal earlier than usual this spring and the total figures for the year will, from present indications, show a record-breaking number of new settlers. A valuable class of immigrants is being secured by the Canadian Paci-

fic Railway Company's ready-made farm scheme, the trouble being to make a selection from the deluge of applications. From the United States come, in ever-increasing numbers, experienced farmers who are attracted by cheap and fertile land. We gather from the daily press that Uncle Sam is actually taking alarm at the proportions of this exodus and that a campaign has even now been entered with the object of checking this wholesale desertion of the Stars and Stripes.

An enormous demand for Canadian products is the natural result of such an increase in population, and the problem of supplying this demand is taxing manufacturers and merchants in every branch of business.

**LUNKENHEIMER SUPERIOR STEAM BOILER, VALVES AND FITTINGS**

Conform with The New Canadian Boiler Regulations, and are approved for use in Western Canadian Provinces, including British Columbia, Alberta and Saskatchewan

The Line approved includes Globe, Angle, Cross Gate, Blow-off and Pop Safety Valves, Water Gauges, Gauge Cocks, etc.

A complete list of Official Registration numbers covering the above will be sent upon request.

The supremacy of LUNKENHEIMER PRODUCTS is universally acknowledged, and to maintain this reputation, the highest type of skilled labor is employed, and only new material of the very highest grade is used.

We guarantee our goods to be of the very Highest Quality, and a LUNKENHEIMER GUARANTEE is a real, definite quantity, and not an empty use of the meaning of a guarantee.

All correspondence and inquiries receive prompt attention, and immediate shipments are insured, as large stocks are carried.

Our products are carried in stock by most supply houses. Those that don't carry them can get them for you, but if they will not, write us.

WRITE FOR CATALOG.

**THE LUNKENHEIMER COMPANY**

Largest Manufacturers of High-Grade Engineering Specialties in the World,

General Offices and Works, CINCINNATI, OHIO, U.S.A.

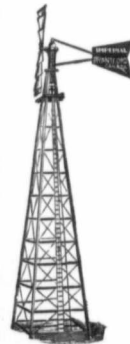
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**The Best Pumping Mill to Buy**



Is the "IMPERIAL" Wind Engine made at Brantford, Ont., by Gould, Shapley & Muir, Ltd. Under the most severe test in competition with other makes, this Wind Mill has never failed to come out top dog.

Made throughout of best quality material, and every unit is thoroughly tested and guaranteed before leaving the works.

Proof against any wind storm that will not move a town from its foundations.

Most Reasonable in Price

**THE "IDEAL" GRAIN GRINDER**

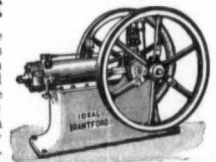
Is Canada's Standard. Built exceptionally strong and so nicely designed that it is very easy on power. Has sectional plates, and all wearing parts are lathe turned. Large hopper capacity. An endless belt can be used with this grinder.



We are also makers of GASOLINE PLOWING ENGINES from 20 to 35 h.p.

**THE "IDEAL" GASOLINE ENGINE**

Is in every respect exactly what its name indicates. It is a perfect engine for Farmers and Threshermen and there is not a job on the farm where power is required which it will not adapt itself to perfectly. This unique engine is made (Stationary or Mounted) from 1 1/2 to 50 horse power; is guaranteed in every detail to be constructed of the very best quality material, and by skilled, conscientious workmen.



Write for Catalogue and details of the FUEL SAVING of the "IDEAL."

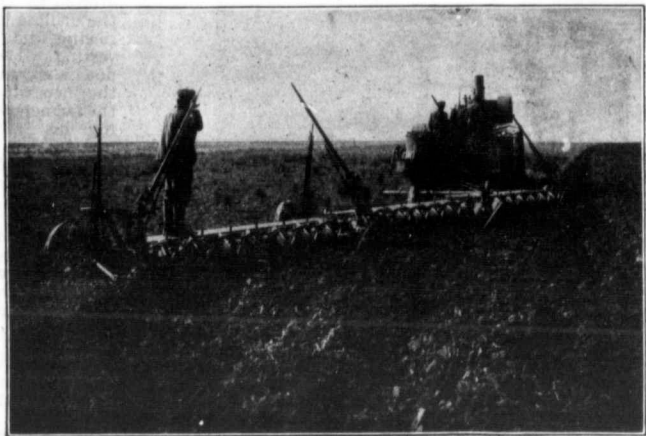
**Gould, Shapley & Muir Co., Ltd.**

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# Emerson Engine Plows



are made in sections. Buy the size best suited to your present needs, and any time you have use for a larger plow, just add to your original purchase.

No extra weight to carry around.

Will turn either right or left, and keep on plowing all the time.

## 56 Page Book Free

Send for special engine plow catalogue, which tells how to lay out a field for engine plowing and other valuable information for users of engine plows.

The book has 43 illustrations showing engine plows in actual use.

Billings, Mont., Dec. 3rd, 1910  
Emerson-Brantingham Company,  
Rockford, Illinois

Dear Sirs—I purchased your plows at the request of my foreman, myself doubting his judgment, but after breaking about 2,000 acres with them I am convinced they are all O.K. and take much pleasure in recommending them to my friends. They are undoubtedly an assured success. Yours truly, W. B. GEORGE

### Emerson-Brantingham Company

Manufacturers of Farm Machinery Since 1852 Factory at Rockford, Ill.

## TUDHOPE-ANDERSON CO., LTD., WINNIPEG

WINNIPEG

REGINA

CALGARY

SASKATOON

### Traction Plowing as Told by the Men Who Do It

Continued from page 23

#### Burns Straw Successfully,

My brothers and I bought a 25 horse power Reeves double simple cylinder engine in 1909. The latter part of June we started out to break, but did not do very well as it was a dry season and we were down by the Hand Hills breaking land called turtle back and gumbo. It certainly was hard breaking, but we pulled eight Cockshutt fourteen-inch plows. We broke 600 acres by the middle of August. The coal was poor as the mine had just opened up, but toward the last it was better. I had a fireman who had been with me three seasons before and he understands his job, but the steam would get low and would puzzle all of us. The water was poor as we had to use it out of an old hole. So we can't tell exactly just how much coal and water used per acre.

In the fall we moved to Stettler and did stubble plowing, burning straw, which proved very successful. We had no trouble in keeping up steam and pulled eight plows in backsetting.

Last spring, 1910, we started out to plow the first week in May about 20 miles east of Stettler and broke up until the middle of August. During that time we broke 1,200 acres and in the fall we plowed 200 acres fall plowing. We could have broken 1,500 acres or more but we had a couple of breaks just in the busiest season.

For the first one we were laid up a week and the next time two weeks. We could not get our repairs sent any sooner. I think all these companies should keep a full line of repairs at their branches. We just broke a bull pinion on the two occasions. We had enough experience to know that one has got to keep moving all the time.

I had five men. Two to haul coal, as we had to haul it quite a distance, one to haul water, two at the engine, as the fireman handled the plows. We had two teams hauling coal and one water.

The coal cost us \$1.50 a ton and we didn't use quite three tons a day. Our biggest day's run in breaking was from 20 to 22 acres. We used from eight to nine tanks of water per day. Some fellows brag about using so little water, but I am an engineer and believe in using plenty of water, but not so much as to waste it.

I don't consider plowing much harder on the engine than threshing if the engine is kept in good shape; but of course it is harder on the gearing and there is more strain on the boiler where the brackets are connected.

As to the cost per acre, it would be a hard job to figure that out, as I had my wife and family along cooking, and I and one of my brothers were along and we had two of our own teams and fed them most of our own oats. But the running expenses would run up to a little over a third of the earnings or about \$1.50 per acre.

We got \$3.00 to \$3.50 per acre for breaking.

We haven't had very much experience in hitching attachment, as we had none of that to do. We think the Reeves engine and Cockshutt plow a very good breaking outfit.

Yours truly,  
Read Bros.,  
Manfred, Alta.

#### Breaks for \$1.50 per Acre,

I own a Robert Bell 26 horse power plowing engine and a seven bottom Cockshutt engine plow with which I have been plowing the two last years only and then only in very tough sod. I find my outfit better and cheaper than horses.

Having plowed a considerable lot last summer. I found that I could average about 20 acres a day with four men and four horses and used between 28 and 34 hundred pounds of steam coal and about 60 barrels of water. I consider plowing harder on an engine than threshing, but with good care and management will not injure the engine whatever.

My estimated cost per acre is about \$1.50, but old land could easily be plowed for one half that expense.

I have not had any experience with hitches for drills and harrows, and I am sorry to say I have no photograph of my outfit. I have been threshing quite a num-

ber of years and have had more experience with it than plowing.

Yours very truly,  
Jacob Enns,  
Lowe Farm, Man.

### Landmarks in the Life of Johnnie Lundie

Continued from page 77

been passing and in which he was unconsciously taking the leading part. He had to stand and silently endure a mighty lot of indignity at the hands of his traducer when it could be directed at him without the knowledge of the household, but the real occasion of it I don't believe ever once occurred to him in those days.

In the end Sir Thomas called the young scandal monger into the library shortly after his return from Gawdieburn, and they were loseted for a long time. What transpired at the conference will probably never be known, but it made a change in the life of one party to it who came away a sadder if not a wiser man than when he entered the library at Lossiebank.

"There was a hurried packing of odds and ends that evening and next morning one of the guests found it very convenient to take his leave in time to catch the first south-bound train. But Johnnie Lundie remained, and if his exit was not far distant, it was made with greater leisure and under far different conditions.



## The Gas Traction Company Now Under One Head

The announcement that the Gas Traction Company of Minneapolis have purchased the Gas Traction Company, Ltd., of Winnipeg, and that beginning June 1 the Winnipeg offices and factory will be operated as the Canadian branch of the Minneapolis company, will be received with much interest by the farmers and the implement trade of Canada. The Gas Traction Company will have unexcelled facilities for making quick shipments of engines and supplies and in every way giving unequalled service to the farmers of Canada.

The company has engaged large and centrally located offices and showrooms at 156 Princess street, Winnipeg, and extensive alterations are being made in order to adapt the building to the company's requirements.

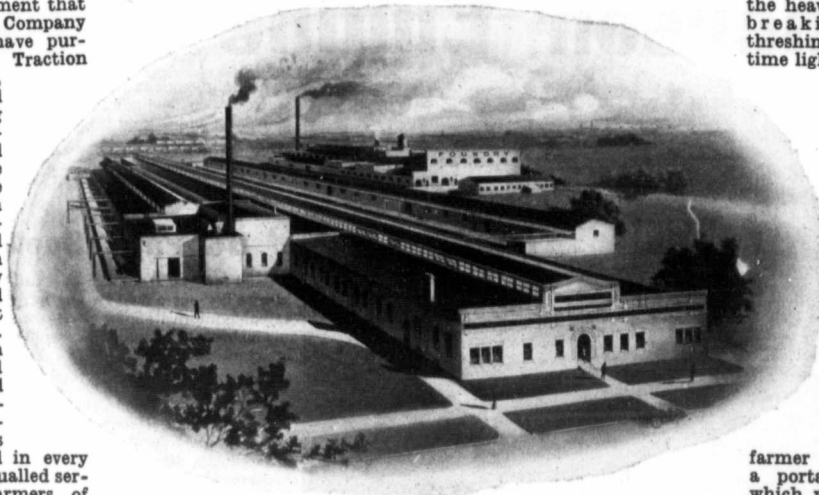
The factory of the Gas Traction Company in Elmwood, a subdivision of Winnipeg, will be crowded to its utmost capacity under the management of the Minneapolis company, and it is probable that the company's facilities for building engines in Canada will have to be materially increased in the near future. The present factory is of concrete, two stories in height and covers 25,000 square feet. It is on the line of the Canadian Pacific Railway and a spur runs to the shipping platform, making it possible to bring in material in carload lots and to make quick and inexpensive delivery of engines and supplies to any part of Canada.

Branch offices will be opened at important points and stocks of engines and supplies will be kept constantly on hand, insuring prompt shipments and doing away with the possibility of annoying and expensive delays.

The Gas Traction Company of Minneapolis are the largest builders of four-cylinder farm tractors, and the Big Four "30" is the result of years of patient and persistent experimentation in the field. Its success is attested in the fact that for two years the plant of the Gas Traction Company at Minneapolis has been running night and day without a shutdown, and even with this large output it has been difficult to keep up with the demand.

The success of the Big Four "30" in the United States attracted the attention of Canadian capitalists, and in the summer of 1909 the Gas Traction Company, Limited, of Winnipeg, was incorporated, the patent rights for Canada having been purchased from the Gas Traction Company of Minneapolis. The factory in Elmwood was erected without delay, and in March, 1909, the first engine was shipped. Since that time a great many Gas Traction engines have been sold in Canada and they have won a brilliant reputation for all-around efficiency.

The winning of the gold medal and grand sweepstakes at the Winnipeg Agricultural Motor Competition last year was a triumph which brought the Big Four "30" into still greater prominence through



Minneapolis Factory Gas Traction Co.

out the United States and Canada and bestowed official recognition upon efficiency and excellence long since demonstrated in Alberta, Manitoba and Saskatchewan—in Minnesota, North and South Dakota, Montana, Colorado, Kansas, California, Texas, Virginia—all over the United States and Canada.

An important and exclusive feature of the Big Four "30" is the automatic steering device, which automatically guides the engine, keeping its course absolutely parallel with the last furrow turned over. With this device it is only necessary for the operator to start the engine in the furrow at one end of the field and to turn it when it reaches the other end; the automatic steering device does all the rest. The device consists of a small pilot wheel which runs along in the furrow ahead of the engine and is connected with the front axle.

The Gas Traction Company are exclusive sales agents for the Hansmann Binder Hitch, a device which enables a traction engine to pull four or five binders, the engine running at the edge of the uncut grain and each binder cutting its full swath, without any side draft. This remarkable invention, which can be used in connection with any traction engine, completes the all-around service of the Big Four "30", enabling the farmer almost entirely to do away with horses in doing the work on his farm.

It is in this all-around service which it performs that the Big Four "30's" greatest value lies. While it has ample power for

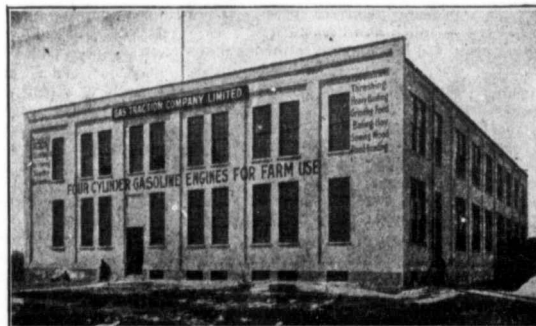
the heavier work, such as breaking, plowing and threshing, it is at the same time light enough to travel

easily over soft ground in doing the drilling, harrowing and harvesting. It thus does away with the necessity of the farmer's having his money invested in an engine and at the same time having to keep up an expensive equipment of horses with which to do the lighter work on soft ground. With the one investment in the Big Four "30" the

farmer is provided with a portable power plant which will do every thing that horses will do, and a great many things that they cannot do. The Big Four "30" immediately and greatly increases the value and efficiency of every implement formerly pulled by horses.

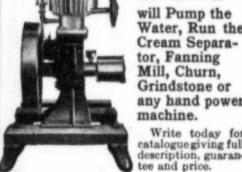
Undoubtedly one of the reasons for the excellence of the Big Four "30" lies in the fact that the Gas Traction Company make nothing else and that therefore they are enabled to turn out work of an excellence impossible in a factory where several kinds or sizes of machines are made. Manufacturing only the one machine, the company have been enabled to invest in automatic machinery which does its work with a precision and accuracy impossible with the human hand and at the same time to effect reductions in the cost of manufacture which enables them to sell their engine at the lowest possible price.

The development of the Big Four "30" was undoubtedly hastened by the fact that from the first it was handled by practical farmers, who knew better than any engineer just what a farm tractor must do in order successfully to free the farmer from the annoyance and disadvantages of horse traction. It was some twelve or thirteen years ago that the inventor of what is now the Big Four "30" began experimenting with a gasoline motor with the idea of adapting it to the purposes of a farm tractor. It was found early in experimenting that the ordinary automobile motor could not be successfully used on a farm tractor, but the motor of the Big Four "30" closely resembles the modern high grade automobile motor, having been adapted and modified so as to develop enormous power rather than high speed. It is interesting to note that the development of the Big Four "30" motor has closely followed that of the automobile motor, one cylinder having first been used, later two cylinders and finally four.



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**The MANITOBA Air-Cooled PUMPING ENGINE**



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The Manitoba Windmill & Pump Co., Ltd. BRANDON, MAN., & CALGARY, ALTA.

**More Money from the Farm by Labor Saving Implements and Machinery.**

By C. W. BARKETT.

In every field of human activity labor-saving machines have been employed to lessen man's labor in the production of food, clothing and of other comforts and necessities. There is no field of labor for which mechanical machines and devices have not been devised so as to increase the output of that field; and at the same time to do the work more cheaply and more efficiently.

Our cotton goods are manufactured to-day in the modern cotton factory at a much less cost than they were when the old spinning wheel and the old hand loom were exclusively used. Steam and electricity have made it possible to travel ten times more rapidly than on foot or on horse, and with more comfort in every way. In the modern home are now found a hundred and one comfort-giving devices that a few years ago would have been considered luxuries and out of reach of all but the favored few. The change has come about gradually, simply and unostentatiously. It is due to the change of animal and mechanical power for human power; labor-saving devices have been evolved by brain power, human thought has subdued mechanical force, and intellectual man has conquered physical man.

Agriculture the Recipient of Many Favors.

But in no phase of human activity have more labor-saving tools and machines been employed than in agriculture. Not a crop is grown, an animal raised, a field cultivated, or a road kept in repair that does not have connected somewhere with it a score or more tools and machines that have been especially designed and made for that special work. And what is the result? Human labor is lessened and human toil has been exchanged for horse or tool. The farmer of to-day grows his crops, raises his animals, and tends his soils with less physical effort than his ancestors because he uses his mind more. He now directs machines to do his bidding while his grandfather directed his muscles. The thoughts of the eighteenth-century farmer were upon manual toil; those of the twentieth century are upon increased efficiency. In olden days the physical body was injured to toil and pain; in this day it is used to secure rest and recreation and mental culture to the farmer—the man. By using team and tool the modern farmer does more work with less physical effort in five hours than his predecessor a half century ago in fifteen or twenty hours of self-labor.

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If you examine the cost of production of our leading American crops you will find a great decline in the cost of production and in



**OWNERS ARE PROUD OF I H C WAGONS**

There is a certain pride in owning a wagon that you know is built of the highest quality materials obtainable—a wagon that is not only attractively finished with the best paint and varnish, but which also gives satisfactory service, day after day, and year after year. That's why IHC owners are so proud of their wagons.

If you want to be proud of your next wagon—choose one of these two in the IHC line—

**Hamilton or Old Dominion**

Both are standards of wagon value—the most you can get for your money. The wood stock used in the construction of IHC wagons is the finest—air-dried, seasoned, and inspected at every step.

Every Hamilton wagon has box sides of box board lumber. It does not warp. Hamilton bottoms are reinforced over the front and rear bolsters. Every Hamilton wagon box has four binder rods on each side, and the bottom is reinforced by six cross sills which are riveted at each end. Other features of construction are bent oak rims, oak hubs, heavily tired wheels, oak bolsters, oak sand boards, and full clipped gears.

Old Dominion Wagons have first grade oak running gear and wheels and exceptionally heavy tires. Sides of box board, reinforced bottom, stake wear irons, four binder rods on each side, and three box rods at each end, metal grain cleats, and two pairs of spreader chains.

A considerable sum would have to be added to the selling price of any other wagons that had the features to be found in Hamilton and Old Dominion Wagons.

Why not see the IHC local agent at once about the wagon you want. If you prefer, write for folder or any other information you want to the International Harvester Company of America at nearest branch house.

**IHC Service Bureau**  
The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm, and then distributes the information. Your individual experience may help others. Send your problems to the IHC Service Bureau.

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(Incorporated)  
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the expenditure of human labor. In each case profit results because of labor-saving machines and implements that now are used in the production of the crop.

When labor-saving tools and implements came in fashion, were adapted to the special condition of the work or crop, the call went out to thousands of people asking them to come to the shops for purpose of manufacture. Thus it is that thousands of people have been permitted to take up other lines of activity than agriculture—ten thousand in a thousand directions, but all working toward "one common purpose toward which the whole Creation moves," and this has secured the prosperity of the nation and the happiness of the people.

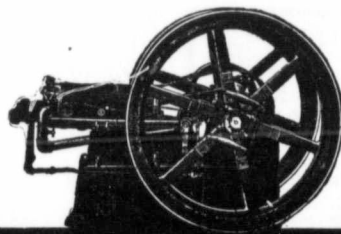
This diversification has permitted men to devote unusual talents and special training in certain directions in which they were most interested. As a result, greater efficiency followed. Not only is each individual best filling his place when he likes his work but he most certainly increases the effectiveness of his labors. From this plan of action a surplus of results flow out, leading to a distribution of all of these things that bring comfort, physical ease and happiness; and these go out to all people. To-day the average farmer lives better, has at hand more of the comforts of life, is more secure in his material possessions, and is richer in intelligence and character than was the king of a nation a few centuries ago.

**Wheat Production Example of Progress.**

Do you realize that every bundle of wheat produced in 1870 was bound by hand? Do you realize that if you go back fifty years more, every straw that was harvested had to be cut with no better implement than the sickle? With a sickle a band of seven men could cut and bind two acres a day, or two-sevenths of an acre each per day. By machinery now used in the West it has been computed that the product from 300 days' labor of one man, corresponding to a year's work, has been in some sections over fifteen thousand bushels of wheat. If the crop of 1910 had to be harvested by the method of our grandfathers, it would require the services of every man between the ages of twenty and fifty for from three to four weeks; but as the wheat crop is now handled by means of self-binders and headers there is no difficulty in harvesting the crop before damage is done it. In all of the other stages of wheat culture, including plowing, cultivation, seeding, threshing and marketing, no difficulty is experienced and no risk of quantity, or of labor to do the work is ever run.

The Farmer and the Laborer Benefited.

Not only has the farmer been benefited by labor-saving machines, but the good effect has gone out in every direction, giving to labor peculiar blessings



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For running the cream separator, churn, feed cutter, wood-saw, fanning mill, threshing pump, grindstone, electric lighting plant, washing machine—any farm machine to which power can be applied—an IHC gasoline engine is the best investment you can make. It will work steadily and economically, it will last for years, and require less attention and repairing than any other engine made. The record of IHC engines on thousands of farms is proof positive of their superiority. Their advantages in simplicity, strength, economy, efficiency, and durability are well known.

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are built right—of the best materials obtainable—by skilled workmen, in the finest equipped engine factories in America.

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In the IHC line there is an engine that meets your special needs. They are made in the following styles and sizes.

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**IHC Service Bureau**

The bureau is a center where the best ways of doing things on the farm, and data relating to its development are collected and distributed free to everyone interested in agriculture. Every available source of information will be used in answering questions on all farm subjects. Questions sent to the IHC Service Bureau will receive prompt attention.



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THE PROOF. Tens of thousands of homes protected, lightning striking all around, never one of these homes destroyed or damaged.



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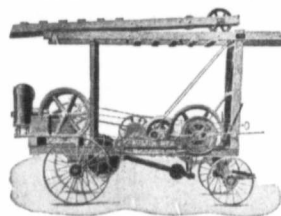
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and loading it with many bounties. That the laboring man is much better off to-day than during any time in the history of the world there is neither question or doubt, and the reason that luxuries and comforts beyond the fondest dreams of former generations have come is due to labor-saving devices that have made more effective the labor of each man. The humblest citizen shares in the rewards that have come in this way.

In the old days labor found employment but gave small service. Hence, it took a long time to do certain work. Wheat, for instance, harvested in the summer was stored in the barn or stacked in ricks and flailed and winnowed during the winter, thus giving labor work at this season of the year. And it is not surprising that labor resented the introduction of machinery on the farm; it looked a menace to its business.

When the threshing machine came, doing in a few days what had required the individual exertions of many men during the whole winter, these men thought that not only was such a machine an innovation of a time-honored custom, but as absolutely depriving them of the means of obtaining an honest livelihood. It is said that when a reaper was once introduced into a field of ripe wheat as a matter of experiment only, every one of the harvest hands deliberately marched out of the field and told the proprietor that he might secure his crop as best he could; that the threshing machine had deprived them of their work twenty years ago and now the reaper would deprive them of the pittance they otherwise would earn during harvest. These same men little realized that if labor were not demanded for reaping and threshing the grain it would be required in mills and in shops to make and manufacture the very tools that had driven them from the fields.

Reward to Women has not been Withheld.

No one has profited more by labor-saving machines than women. Her own sphere has never been more fully and ably filled than it is to-day. Education has come to her. More young women are in the schools than men; and in our high schools and colleges young women have taken their place alongside the sterner sex, assuming a new dignity, fitting themselves for greater usefulness, and contributing in a large measure to the progress of the land and of the whole world. To-day our daughters fill the school rooms; they occupy positions of usefulness in hundreds of fields and occupations that once were closed to them.

Why is all this true? Because mothers and daughters are no longer needed at the spinning wheel and the loom. The knitting needles now largely have given way to books and magazines. A hundred and one mechanical devices have been brought to the home, decreasing the manifold de-

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mands upon women, preparing the labors of the home in a tenth of the time and with a tenth of the effort. Fifty years ago effort was required to the "top-notch" of the day, and almost night as well, to spin and weave and to make the clothing. We have more clothing and better clothing now and at one one-hundredth part of the cost than our forebears a century ago. Machines have brought rest to the body and have clothed us with better and cheaper raiment.

It is well to recall these things in order to constantly appreciate the radical change in transformation that has taken place in agriculture and in the home; and due to the thought that man has put into steel and iron and wind and sun and animal and plant and soil to do his work, giving him more time to think of more ways to still further conquer the non-human things, and to adjust them that they may be of greatest use to human beings.

Human ingenuity has given the farm a rich share from the storehouse of progress; every sort of tool and implement to increase the efficiency of man in tilling the soil; in raising the crop; in managing the farm animal; every sort of device to substitute team or tool for human hand, to make the cost less, the effort more true and certain.

It is now out of the question for us to use spades and hoes for tilling our soils. That stage was left long ago. It is too costly, the work is too poorly done when finished, and the returns are not commensurate with the effort expended. And yet, in efficiency, a poor plow, for instance, compares with the best plows hardly more favorably than the spade compares with the poor plow. If improved plows are to be had, you should show your appreciation by using them, allowing the scratchy, make-shift ones to go to the museum, replacing them by the most efficient that human ingenuity can fashion.

"More Power, Less Hard Work."

What will hold the boys on the farm and multiply the wealth of our farmers? More power and less hard work.

This is the key to agricultural reform: More power and better machinery on the farm, and more accomplished in a day, heavier horses or mules and more of them. Away with the half-a-mule farmer and convert the one-mule farmer into a four-mule farmer.

During the past twenty-five years unexampled progress has been made in the improvement and manufacture of farm machinery, all of which has been given immediate trial by the progressive farmers in the most progressive sections. Plows have been improved until to-day they are perfect in form and use. Harrows and cultivators, general and special, of numerous kinds and descriptions, now perform all the labor at one time done by hand. Seed drills for grain, grass and vegetables are truer in their dis-



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OUR LINES OF WINDMILLS, STICKNEY ENGINES and WELL DRILLS are COMPLETE. Consult us before you buy.

Ingleside, Man. (Near Portage la Prairie), Nov. 22, 1910.  
Gentlemen— I beg to advise that I have plowed twenty acres per day of ten hours in breaking with 14 inch bottom plows, and plowed from 4 to 5 inches deep. The engine can pull from six to eight bottoms according to the depth we plow and the conditions of the soil. We have plowed 800 acres this season and I have made a net profit over and above all expenses of \$800.00, which is practically 20% of my investment. I would have been able to have done considerably better had the ground not frozen up so early this fall as I had a lot of contract work still on hand to be done when the freeze up came.

Regarding comparisons between cost of repairs and operation of my "Flour City" Gas Tractor compared with my Steam Tractor, I find that it is only about one-third the cost of operating a steam engine.—Yours truly (Sgd.), J. J. GRANT.

Ontario Wind Engine and Pump Co., Ltd.  
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OF COURSE it's important that the cow do her part. But after that, it's up to your cream separator. If it doesn't get highest quality cream—if it doesn't skim to a trace—you are robbing yourself of the profit that your cows have produced.

I H C Cream Harvesters get full value out of the milk, not for a few months only, but through years of constant service. They have proved their durability, close skimming, easy cleaning, and easy running advantages.

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are the only separators with dust-proof and milk-proof gears, which are easily accessible. The frame is entirely protected from wear by phosphor bronze bushings. These separators have large shafts, bushings, and bearings; the flexible top-bearing is the strongest and most effective found in any separator. The patented dirt-arrester removes the finest particles of dirt from the milk before the milk is separated. I H C Cream Harvesters are made in two styles—Dairymaid, chain drive; and Bluebell, gear drive—each in four sizes.

The I H C local agent will be glad to point out the above features and many others, or, write to nearest branch house for catalogues and other information.

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The Bureau is a clearing house of agricultural data. It aims to learn the best ways of doing things on the farm, and then distribute the information. Your individual experience may help others. Send your problem to the I H C Service Bureau.







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years or more we cannot help but see that some new system will have to be introduced by us, or, when we have finished our thirty years our Manitoba will have lost its proud distinction of the No. 1 hard province. Some may consider the matter in this article as being rather previous in relation to Western Canada, but we do not think so. The land is already failing to respond to the single system of farming, crop rotation cannot but fail, summer fallowing and single cropping never can stand, legumes never can maintain fertility indefinitely and as the farmer feeds them all, and Manitoba is an agricultural province, no movement for the maintenance of her fertility can possibly come too soon and it remains for us, the farmers, to regulate this alteration.

**The Men Who Make No. 1 Hard**

Continued from page 41

higher rate per bushel. Teams are always hard to get and some days I may only have five. I like to have seven teams and five field pitchers. My separator is not big enough for spike pitchers, although it can stand three men pitching all right. This fall for a while I had six teams with the pitcher going along with the teamster to the machine to help pitch off. This took six pitchers and I found that the two loads in would unload quicker than the others could load and if I put on two more teams to keep things going I was overcrowding the separator; so I went back to the old way of five field men and seven teams with a man at the machine to help pitch off.

I always thoroughly overhaul every part of my outfit during the slack times of the year and when threshing time comes I can pull out practically certain that with due care I can go through the season without delay. One of the greatest things about a threshing outfit is to keep things up to their places with the belts tight enough to do their work at proper speed and keep each part clear.

If these simple things were better attended to there would be fewer breaks and stops in the field. Every unnecessary stop is so much money lost. When I bought my outfit I put up a shed for it and I can now see that the life of it is just about going to be doubled. I couldn't see where I was going to make it pay if I didn't make the machine last longer than average. It is poor judgement to be buying new machinery when the old one can be made to last and run as well as new and anyway an old separator in good shape will give less trouble than a new one the first season.

Well, I guess I have drawn this out long enough. So wishing all threshermen the prosperity they deserve,

Yours truly,  
**John Wilson,**  
 Rapid City, Man.


**FARM FOR SALE**

Six hundred and forty acres, 30 miles from Winnipeg, close to three good towns; siding two miles from farm; 450 acres broken, 200 acres of new breaking, 200 acres in wheat, 100 in flax, 55 in oats, balance to be summer fallow. Soil, black loam. Barn 50x80, with 12 foot stone foundation, cement floors, will accommodate 80 head of stock; large hay loft above, with hay sings in same. Nine-room house, large buggy shed, granaries, blacksmith shop, hennery, large shed for threshing outfit, house over the well. Gravelled driveway into the buildings, which are surrounded by trees; school across the road; telephone in the house connected with Winnipeg. Crop can be arranged for, if desired, with the purchaser. Price, \$35.00 per acre.

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breaks up, pulverizes and prepares perfectly plowed soil or stubble on one operation. On summer fallow work the "ACME" keeps down the weed growth and conserves moisture. The action of the coulters is such that all trash that has been turned under by the plow is left beneath the surface. Made in sizes from 3 to 17 1/2 feet wide. Suitable for every farm. Guaranteed against breakage.

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WANTED—Position as Engineer for fall 1911, 3 years' experience, six seasons in Manitoba; certificate for Ontario, can do own repairing of a hauler. Apply stating wages to Alfred Fair, Terra Nova, Ontario.

WANTED NOW—Reliable man to sell a selected lot of hardy Russian fruit trees, ornamental trees and shrubs, forest seedlings, raspberry and current bushes, seed potatoes, varieties recommended by the Brandon and Indian Head experimental farms; exclusive territory; outfit free; and excellent opportunity for farmers and implement agents. For particulars write to the Pelham Nursery Co., Toronto, Ont.

FOR SALE OR EXCHANGE FOR AUTOMOBILE OR HORSES One 18 H. P. John Abell Simple Traction Engine. McDonald and McCrindle, Glen Ewen, Sask.

FOR SALE—Hart-Parr 22-45 Horse Power Engine with seven furrow Cokshutt gang or will exchange on land. For particulars apply D. Huse, Bradwardine, Manitoba.

LOAN COMPANY commencing business wants an experienced inspector for farm lands; good prospects. Young man aged about thirty; single preferred. State salary wanted, experience and references. Care Hudson and Howell, 13 Merchants Bank Bldg.

FIREMAN wants position on Steam Plowing or Threshing engine, preferably in Sask. In replying please state wages and probable length of run. Geo. Meikle, Blanche P. O., Que.

EXPERIENCED Licensed Engineer and Traction Plowman wants position for the coming season. Eight years practical experience in steam traction work. Will consider position in Man., Sask., or Alta. Charles Rondeau, Saint Leon, Man.

FOR SALE—One complete Reeves plowing outfit, consisting of a 32 H. P. C. C. Engine, friction steering attachment, rear tank and fuel bunker, set of oil pans, low hitch beam 12 inch extension rims, head light, mounted water tank, tank pump and hose. Reeves 12 bottom steam plow with 12 extra shares. This outfit is now on Section 27, Township 26, Range 3, West of the Third Principal Meridian, located in what is known as the Elbow District of the Saskatchewan River Valley in the Province of Saskatchewan and near the town of Elbow. This outfit is entirely new, having never been used. Will sell for cash or on the regular terms or will trade for land. Address Northwestern Ranching Company, 321 American National Bank Bldg., Indianapolis, Indiana.

BARGAINS IN TRESHING MACHINERY One 25 H. P. White traction engine, run two seasons thoroughly rebuilt, price \$1750.00. One 40 x 60 Challenge separator with all attachments, run 15 days and new drive belt \$1300. One 18 H. P. Mpls. engine return flue, thoroughly rebuilt and overhauled, one 32 x 50 Fishbe separator, with self feeder and stacker and high weigher run fifteen days, also drive belt, tank, pump and hose, price for the outfit complete \$1900.00. One Phoenix 18 H. P. traction engine thoroughly rebuilt. One 28 x 42 McCloskey separator with feeder, wind stacker and weigher, run two seasons New drive belt tank pump, and hose. Price for the outfit complete \$1200. One Case 20 H. P. Traction engine thoroughly rebuilt, price \$1000. Write for other bargains The Gardiner Machine & Motor Co. Box 306, Saskatoon, Sask.

WANTED—Experienced Shipper Threshing Machinery and Repairs and General Warehouseman. Good wages. Address N. Box 3079, Winnipeg.

WANTED—First class blacksmith on plow outfit, near Lethbridge, Alta. Can, must give reference. Address Bender Bros., 1315 North Main Str., Dayton, Ohio.

STEAM ENGINEER WANTED—Experienced Engineer and Repairer wanted to run large Case Plowing Outfit. S. G. Sims, Argyle, Man.

STEAM ENGINEER WANTED—Experienced Engineer and Plowman wanted to run large Rumely plowing outfit. A. B. Zimmerman, Oakville, Man.

FOR SALE—30 H. P. Rumely Engine only run one season, two tanks and pumps. All in good order. Snap and easy terms. Apply Campbell and Woodcock, Normanton, Sask.

\$1400 BUYS COMPLETE NORTHWEST OUTFIT—25 H. P. Simple return Flue Engine, 40 x 64 Separator, Feeder, Weigher, Blower, Tanks, Tender, Cook Car, etc. Good condition. Outfit at Gull Lake, Sask. Address Aukes Diepold, Wimbledon, N. Dak.

STEAM PLOWING ENGINEER wants position on plowing outfit the coming season, has long experience, sober and of steady habits, do own repairing, hold second class certificate for Manitoba, Sask. and Minnesota. In answering please state size, make and age of engine, also wages. Address A.C. Kaster, 188 Logan Ave., Winnipeg.

WANTED—Position as engineer on Hart-Parr, considerable experience, state wages. Apply J. H. Nugent, Caron, Sask.

FOR SALE—30 H. P. Rumely Engine. Only run one season. Two tanks and pumps. All in good shape. Snap and easy terms. Apply Campbell & Woodcock, Normanton, Sask.

EXCHANGE—For good land, good second hand Steam Threshing and Plowing outfit near Winnipeg. Box 14, Lake Wilmot, Murray County, Minn., U. S. A.

FOR SALE—Practically new 25 H. P. Case Plowing Engine, with rims, cab, headlight, tools, and tank wagon, \$2900.00. In best of condition. Has been carefully housed. C. C. Goodwin, Govan, Sask.

FIREMAN—Wishes position. One year's experience. Can make good on a Plowing Outfit. H. O. Loveday, Waseca, Sask.

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AGENTS—To sell lubricating oils, belts, hose, paint, varnish, to factories, mills, stores, threshers, outside large cities. Exclusive territory to right party. Experience unnecessary. Manufacturer's Oil & Grease Co., Cleveland, O.

FOR SALE—10-14 inch Cokshutt independent engine with breaker bottoms. Only plowed 1500 acres. In good shape. Have no further use for them as farm is all broken out. Fairview Land Co., Osgae, Sask.

ENGINEER—Wants position on a plowing engine. Will be willing to take it on for threshing; have had 3 years' experience; can do own repairing. Also graduate of The Heath School of Engineering. Chas. B. McMain, Summerville, Sask.

FOR SALE—One J. I. Case, 20 H.P. Traction Engine, only used a short time in good shape; one 32-54 J. I. Case steel separator in good shape, will sell outfit for \$1900.00. Will take stock in part payment or will trade it on a gasoline traction. Apply Box 10, Lauder, Man.

BE AN ENGINEER—The Heath School of Traction Engineering (by correspondence) offers you a thoroughly practical course in Traction and Stationary Steam Engineering for spare time home study. Send for prospectus and full information to E. H. Heath Co., Limited, Winnipeg.

FOR SALE—One Gould Balance valve for 22 or 25 H. P. Gaar-Scott engine. J. Reynolds, Yellow Grass, Sask.

WANTED—Position as engineer on steam plowing outfit the coming season in Manitoba or Saskatchewan, or Traction Engine work of any kind. R. H. Hargest, McLean, Sask.

CERTIFIED ENGINEER and Machinist with fifteen years' experience wishes position on steam or gasoline plowing engine. Can do own repairing. Apply D. Mark, Manville, Alta.

FOR SALE—30 H. P. Flour City gasoline traction engine, price \$2400.00, plowed 400 acres. As good as new. For terms, etc., write to Glenn & Rodger, Macdonald, Man.

WANTED—Position as engineer, strictly temperate, must have considerable experience and can furnish references. State wages and make of engine. Address Andrew J. Johnston, Killarney, Man.

FOR SALE—Small separator complete with all attachments. \$400 cash. Box 13, Welby, Sask.

WANTED—Engine gang six or eight bottoms; must be in good repair. Box 70, Morse, Sask.

COMPLETE PLOWING OUTFIT FOR SALE—45 H.P. Hart-Parr with six-14 in. Cokshutt Engine Gang Plow with Breaker Bottoms. Everything good as new. Only run one season. Price \$2500. J. F. Crosby, Hanlan, Man.

160 ACRE FARM FOR SALE OR TRADE—For Traction Plowing outfit. Land is quarter mile from town of Ladysmith, Man. Andrew Desta, Hanlan, Man.

STEAM ENGINEER MACHINIST—Open for position on large ploughing outfit, Ontario certificate, fifteen years' experience, three in West, six building three travelling machinist, obstainer and pusher, have Alberta and Saskatchewan applications, papers. W. B. Bayley, Hamilton, Ont., 35 Smith Ave.

WANTED—To exchange Sawyer & Massey eight horse power, mounted on trucks, complete with level rack, sweeps, tumbler rods, etc., for portable gasoline engine small portable steam engine. Will guarantee machine in first class order. A. W. Smith, Lunenburg, Alta.

"A SNAP"—FOR SALE—John Deere engine gang, 8 breaker bottoms, 1910 make, in first class condition, broke 300 acres. Apply to Neil Wright, Box 165, Wellwood, Man.

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WANTED—Position on steam plowing outfit, firing preferred, experienced. Frank Campbell, Marquette, Man.

ENGINE OWNERS write me for terms on re-tensioning and stay bolt repairing. I can save you money. I am also doing engine repairs during the plowing season. Chas. Fenwick, Licensed Engineer, Warville, Sask.

WANTED—Position as engineer on steam plowing outfit, 7 years' experience in Ontario and one in Saskatchewan. Hold a provincial certificate for Saskatchewan. Will take engine through bushing if desired. Address E. F. Sharpe, Maple View, Ontario.

WANTED—Position on steam threshing engine for fall of 1910. Am a graduate in the Heath School of Engineering. Also a graduate from short course of engineering given by the University of Minnesota. Apply stating wages and kind of engine. Address Ellery S. Post, Woodmore, Man.

ENGINEER—Wants position on engine for threshing, good practical running and shop experience. Diploma from Heath School of Traction Engineering; do own repairs. State size and make of engine. E. Coleman, 46 Kate St., Winnipeg.

FOR SALE—One 4 H.P. Fairbank-Morse Gasoline Engine, in perfect order, complete with all attachments, has been used one week. Owner having no further need of same. Apply The Winnipeg Fur Co., Limited, 181 Bannatyne Ave., East.

MACHINIST—Engineer with certificate for Saskatchewan and Manitoba and experienced with American and English engines during the plowing season. Write or wire, Alf. Sterns, General Delivery, Winnipeg, Man.

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One American Advance Separator, 36x56, with all latest attachments. One 15 inch Vessott Grinder; one 2 wheeled Engine Tender; 2-3 furrow John Deere Engine Gang. The above property for sale cheap. F. W. Hunter, St. Paul, Man.

FOR SALE

One 15 H. P. Case Traction Engine, with or without 28x50 separator. For sale or exchange with a Gasoline Traction Engine.—William Brayshaw, Kellou P. O. Man.

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- Two 25 H.P. Simple J. I. Case engines.
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  - One 18 H. P. Compound J. I. Case engine.
  - One 18 H. P. W. Case engine, not rebuilt, cheap.
  - One 28x50 steel Case separator, with wind stacker, self feeder and weigher.
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  - 1—Minneapolis Separator 44x72, rebuilt. With all connections.
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  - 2—Avery 30 H. P. double undermounted engine.
  - 1—30 H. P. Northrup engine, not rebuilt, cheap.
  - 1—J. I. Case steel, 42x60 separator complete with all attachments.
  - 1—42x70 Avery separator, will be rebuilt in time for next Fall's work.
- If you are interested in second hand goods, please write and let us know what you want as we are making deals almost every day, and feel sure that we can fix you out with almost anything you want, either in new or second hand goods. Call at 4 HAUG BROS. & NELLERMOE Co. Ltd. WINNIPEG.

WANTED—Position as Engineer on a steam traction outfit. Fully experienced. Can furnish references. Address J. E. Peatch, Clava, Man.

WANTED—Experienced man to run separator also an engineer for season's threshing. Apply stating experience and wages to W. N. Carney Haiseliff, Sask.

WANTED—By holder of second class certificate position as engineer; have also good knowledge of gasoline engines. Address care of Box 145, Oxbow, Sask.

FOR SALE—22 H.P. Port Huron traction engine, 33x54 Port Huron separator complete with self feeder, high weigher, wind stacker, tank, caboose all in good running order. Easy terms or will exchange for land. S. Platt, Redvers, Sask.

ENGINEER wants position on breaking outfit this season. Holds certificate for 80 horse power in Saskatchewan. References given, strictly temperate. Apply Mark Ketteringham, Box 43, Foxwarren, Man.

FOR SALE

- One 25 h. p. direct flue, Simple, heavy gas traction engine.
  - One 21 h. p. Compound, return flue traction engine.
  - One 15 h. p. Simple, return flue traction engine, and one 25 h. p. Compound, return flue traction engine.
- Also several others of our own and other makes. We also have several rebuilt separators of our own and other makes. GAAR-SCOTT & CO., WINNIPEG

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- 30 H. P. American-Abell Sim. Trac..... \$2500.00
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  - 36x60 Toronto Advance Sepr., 36 inch Parsons feeder, Straw carrier..... 575.00
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- These goods have been thoroughly rebuilt, painted and put in first class condition throughout and will stand up to the high reputation that our rebuilt machinery has acquired in the past. The prices quoted are f. o. b. Winnipeg.

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FOR SALE—Hawkeye Band Cutter and Self Feeder used one season. Size 36 inch. First fifty dollars takes it. G. W. Vincent, Cor. Arlington and Ellice, Winnipeg.

FOR SALE—One 20 H. P. Gasoline Breaking outfit complete with plows and tank. Has only been run one month. New rig everything in first class shape. Good ready for selling. E. E. care E. H. Heath Co., Winnipeg.

BOYS AND GIRLS—Send us your name and address on postal card. We will show you how to earn \$10 and up every month, after school hour Avalonia & Co., Inc., 2057 E. Addison Ave., Chicago, Ill.

FOR SALE OR EXCHANGE FOR LAND

Good second-hand Portable Steam Engine, 26 H.P. double cylinder separator and plows. Terms and price would be made most interesting to threshermen. Calvin Vign, Mapleton, Minn. Apply to Manitoba Bridge and Iron Works, Winnipeg, Man.

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# WESTERN CANADIAN IMPLEMENT DIRECTORY

EXPLANATION.—First find the Implement Wanted and the Number opposite will be the Number of the Concern, in the first column, that handles it.

<p><b>A—ALBERTA PORT HURON CO.</b>, Calgary, Alta.</p> <p>1—<b>AMERICAN-ABELL ENGINE &amp; THRESHER CO.</b>, Winnipeg, Calgary and Edmonton.</p> <p>2—<b>AMERICAN SEEDING MACHINE CO.</b>, Winnipeg.</p> <p>3—<b>BAILEY SUPPLY CO.</b>, Winnipeg.</p> <p>4—<b>BEAMAN MFG. CO.</b>, Winnipeg.</p> <p>5—<b>BELL B. &amp; SONS</b>, Winnipeg.</p> <p>6—<b>BELL ROBT. ENGINE &amp; THRESHER CO.</b>, Winnipeg.</p> <p>7—<b>BRANDON MACHINE WORKS</b>, Brandon.</p> <p>8—<b>BRANDON &amp; ROBERTSON</b>, Brandon.</p> <p>9—<b>BUFFALO PITTS CO.</b>, Moose Jaw, Sask.</p> <p>10—<b>BURRIDGE-COOPER CO.</b>, Winnipeg.</p> <p>11—<b>CANADIAN FAIRBANKS CO.</b>, Winnipeg, Vancouver.</p> <p>12—<b>CANADIAN MOLINE PLOW CO.</b>, Winnipeg.</p> <p>13—<b>CANADIAN PORT HURON CO.</b>, Winnipeg.</p> <p>14—<b>CANADIAN RUBBER CO.</b>, Winnipeg, Vancouver.</p> <p>15—<b>CANADIAN STOVER CO.</b>, Brandon.</p> <p>16—<b>CARBERRY IRON WORKS</b>, Carberry.</p> <p>17—<b>CARBERRY STACK CO.</b>, Carberry.</p> <p>18—<b>J. I. CASE T. M. CO.</b>, Winnipeg, Regina, Calgary.</p> <p>19—<b>CHAPIN CO.</b>, Calgary.</p> <p>20—<b>COCKSHUTT PLOW CO.</b>, Winnipeg, Regina, Calgary, Edmonton.</p> <p>21—<b>CRANE &amp; ORDWAY</b>, Winnipeg.</p> <p>22—<b>DEERE, JOHN PLOW CO.</b>, Winnipeg, Regina, Calgary, Edmonton, Saskatoon.</p> <p>23—<b>DE LAVAL SEPARATOR CO.</b>, Winnipeg.</p> <p>24—<b>EMPIRE CREAM SEPARATOR CO.</b>, Winnipeg.</p> <p>25—<b>GAAR, SCOTT &amp; CO.</b>, Winnipeg, Regina, Calgary.</p> <p>26—<b>GAS TRACTION CO.</b>, Winnipeg.</p> <p>27—<b>GOODYEAR TIRE &amp; RUBBER CO.</b>, Winnipeg, Regina, Calgary.</p> <p>28—<b>GRAY-CAMPBELL CO.</b>, Winnipeg, Brandon, Moose Jaw, Calgary.</p> <p>29—<b>HAMILTON PULVERIZER CO.</b>, Winnipeg.</p> <p>30—<b>HAUG BROS. &amp; NELLERMOE</b>, Winnipeg and Calgary.</p> <p>31—<b>HARMER IMPLEMENT CO.</b>, Winnipeg.</p> <p>32—<b>HART-PARR CO.</b>, Portage la Prairie.</p> <p>33—<b>HERO IMPLEMENT CO.</b>, Winnipeg.</p> <p>34—<b>INTERNATIONAL HARVESTER CO.</b>, Winnipeg, Regina, Calgary, Edmonton, Saskatoon, Brandon.</p> <p>35—<b>LOUDEN HDWE &amp; SPECIALTY CO.</b>, Winnipeg.</p> <p>36—<b>MANITOBA HAYES PUMP CO. LTD.</b>, Morden.</p> <p>37—<b>MANITOBA IRON WORKS</b>, Winnipeg.</p> <p>38—<b>MANITOBA WINDMILL &amp; PUMP CO.</b>, Brandon.</p> <p>39—<b>MASSEY-HARRIS CO.</b>, Winnipeg, Regina, Calgary, Edmonton, Saskatoon.</p> <p>40—<b>MAW, JOS. &amp; CO. LTD.</b>, Winnipeg.</p> <p>41—<b>McKENZIE, A. E.</b>, Brandon.</p> <p>42—<b>McLAUGHLIN CARRIAGE CO.</b>, Winnipeg.</p> <p>43—<b>McRAE, ALEX.</b>, Winnipeg.</p> <p>44—<b>MELLOTTE CREAM SEPARATOR CO.</b>, Winnipeg.</p> <p>45—<b>NEEPAWA MFG. CO.</b>, Neepawa.</p> <p>46—<b>NICHOLE &amp; SHEPARD CO.</b>, Regina, Winnipeg.</p> <p>47—<b>NORTHWEST THRESHER CO.</b>, Brandon.</p> <p>48—<b>ONTARIO WIND ENGINE &amp; PUMP CO.</b>, Winnipeg.</p> <p>49—<b>PARKS PLOW CO.</b>, Winnipeg.</p> <p>50—<b>PARSONS-HAWKEYE MFG. CO.</b>, Winnipeg.</p> <p>51—<b>PITTHE MFG. CO.</b>, Winnipeg, Calgary, Vancouver.</p> <p>52—<b>RAYMOND MFG. CO.</b>, Winnipeg.</p> <p>53—<b>REEVES &amp; CO.</b>, Regina.</p> <p>54—<b>REGENT TRACTOR CO.</b>, Regina.</p> <p>55—<b>RENNIE, WM. SEED CO.</b>, Winnipeg.</p> <p>56—<b>RIESBERRY PUMP CO. LTD.</b>, Brandon.</p> <p>57—<b>RUMELY, M. CO.</b>, Winnipeg, Calgary, Saskatoon, Regina.</p> <p>58—<b>SAWYER &amp; MASSEY CO. LTD.</b>, Winnipeg.</p> <p>59—<b>SHARPLES SEPARATOR CO.</b>, Winnipeg.</p> <p>60—<b>STEELE-BRIGGS SEED CO.</b>, Winnipeg.</p>	<p>61—<b>STEWART &amp; NELSON CO. LTD.</b>, Brandon.</p> <p>62—<b>STEVENS, JOHN &amp; CO.</b>, Winnipeg.</p> <p>63—<b>STUART, JAMES, ELECTRIC CO.</b>, Winnipeg.</p> <p>64—<b>SUB-SURFACE PACKER CO.</b>, Winnipeg.</p> <p>65—<b>SYLVESTER MFG. CO.</b>, Brandon.</p> <p>66—<b>TUDHOPE-ANDERSON CO.</b>, Winnipeg, Regina, Calgary.</p> <p>67—<b>VIRDEN MFG. CO.</b>, Virden.</p> <p>68—<b>VULCAN IRON WORKS</b>, Winnipeg.</p> <p>69—<b>WATERLOO MFG. CO.</b>, Winnipeg, Regina.</p> <p>70—<b>WATERLOUS ENGINE WORKS</b>, Winnipeg.</p> <p>71—<b>WATSON, JNO. MFG. CO.</b>, Winnipeg.</p> <p>72—<b>WHITE, GEO. &amp; SONS</b>, Brandon.</p> <p>73—<b>WINNIEG RUBBER CO.</b>, Winnipeg.</p> <p>74—<b>WINNIEG THRESHING MACHINE CO.</b>, Winnipeg.</p>	<p><b>GOULD, STAPLEY &amp; MAIR</b>..... 19</p> <p>Manitoba..... 37</p> <p>Manitowish..... 44</p> <p>Ontario..... 48</p> <p>Scientific..... 69</p> <p>Stovet..... 15-11</p> <p>Thoms..... 49</p> <p>Vessot..... 33</p> <p>Vintor..... 69</p> <p>Watson's Idea..... 69</p>	<p><b>LAND ROLLERS AND PULVERIZERS</b></p> <p>Acme Pulverizer..... 21</p> <p>Canton Land Roller..... 33</p> <p>Campbell Sub-Surface Packer..... 33</p> <p>Cockshutt Land Roller..... 19</p> <p>Cockshutt Pulverizer..... 19</p> <p>Cockshutt Combined Pulverizer and Sub-Soil Packers..... 19</p> <p>Wilkinson Land Roller..... 61</p> <p>Dale Land Roller..... 63</p> <p>Deere Land Roller..... 21</p> <p>Fleury's Pulverizer..... 21</p> <p>Fulton's Sub-Surface Packer..... 11</p> <p>Hamilton Pulverizer..... 27</p> <p>Hilborn M. Hiller..... 64</p> <p>Hilborn Pulverizer..... 64</p> <p>Moline Pulverizer..... 11</p> <p>Verity Land Roller..... 39</p> <p>Verity Pulverizer..... 39</p> <p>Watson's Flexible Pulverizer..... 69</p> <p>Watson's Land Roller..... 69</p>	<p><b>THRASHING MACHINERY, SELF-FEEDERS, WIND STACKERS AND ATTACHMENTS</b></p> <p>Advance..... 1</p> <p>American-Abell..... 33</p> <p>Aultman &amp; Taylor..... 33</p> <p>Avery..... 28</p> <p>Belle City Thresher..... 33</p> <p>Bell, Robt..... 5</p> <p>Brandon Farming..... 33</p> <p>Buffalo Pitts..... 72</p> <p>Cacaden..... 34</p> <p>Case, J. I..... 17</p> <p>Dakota Weigher (ask any Thresher Co.)..... 31</p> <p>Foster..... 26</p> <p>Gar-Scott..... 31</p> <p>Geiser..... 9</p> <p>Goodrich &amp; Massey..... 68</p> <p>Hawkeye Feeder..... 18-51</p> <p>Hartley Feeder..... 6-58-67</p> <p>Minnesota..... 31</p> <p>Monarch Feeder..... 31</p> <p>Nichols &amp; Shepard..... 46</p> <p>Northwest..... 47</p> <p>Parsons' Feeder..... 18-51</p> <p>Peoria Feeder..... 31</p> <p>Peoria Weigher (ask any Thresher Co.)..... 31</p> <p>Port Huron..... A12</p> <p>Revere..... 54</p> <p>Rich Feeder..... 68</p> <p>Rumely &amp; Massey..... 57</p> <p>Ruth Feeder..... 18-51</p> <p>Sawyer &amp; Massey..... 63</p> <p>Sylvester Auto-Thresher..... 63</p> <p>Watford..... 67</p> <p>Woodbury &amp; Massey..... 68</p> <p>Whiteford Justice Measure..... 65</p> <p>White, Geo. &amp; Sons..... 70</p> <p>Whitewings Feeder..... 51</p>
--	---	---	---	--

**BUGGIES AND CUTTERS.**

Armstrong Buggies and Cutters..... 19	Champion..... 61
Baynes Carriages..... 43	Rockville Buggies and Cutters..... 21
21 Dominion Carriage Transfer Agents..... 27	Gray Buggies and Cutters..... 27
Greer Buggies..... 62	Henry Buggies..... 62
McLaughlin Buses and Cutters..... 42	Munro-Melntosh Buggies and Cutters..... 11
Reinder Buggy..... 11	Tudhope Buggies and Cutters..... 64

**CREAM SEPARATORS.**

Blue Bell..... 33	Champion..... 64
Dairy Maid..... 33	De Laval..... 22
De Laval..... 22	Massey..... 62
Massey-Harris..... 62	Massey-Harris..... 62
National..... 53	Sharpley..... 59

**CULTIVATORS AND STUMP PULLERS**

Climax Stiff Tooth Cultivator..... 19	Cockshutt Cultivator..... 19
Deere No. 2 Cultivator..... 21	Deering Cultivator..... 21
Elk (2 horse) Cultivator..... 21	Fleury's Cultivator..... 21
Frost & Wood Suffer..... 19	Hilborn Stump Puller..... 64
K. A. (2 horse) Cultivator..... 21	McCormick Corn Cultivator..... 39
McCormick Cultivator..... 39	Paris Suffer..... 49
Verity Cultivator..... 39	

**DISC AND DRAG HARROWS**

Alax Drag..... 21	Boe Drag..... 50-62-69
Canadian Moline Boss Drag..... 11	Canton Disc..... 33
Case, J. I. Disc and Drag..... 29	Cyclone Wheel Disc..... 21
Cockshutt Disc and Drag..... 19	Cockshutt Lever and Clip..... 19
Deere Disc and Drag..... 21	Deere King Boss Drag..... 21
Deere Steel Boss Drag..... 21	Deering Disc Harrow..... 33
Defiance Jr., Disc..... 62	Economy Disc..... 11
Emerson Disc and Drag..... 64	Evans Disc..... 2
Fleury's Steel Channel Drag..... 21	Fleury's Clipped Drag..... 21
Fleury's Disc..... 21	Fuller & Johnson..... 61
Grand Detour Drag and Disc..... 69	Hoozer Wheel Disc..... 2
International Diamond and Lever..... 33	Massey-Harris Disc and Drag..... 39
McCormick Disc..... 33	Moline Flexible Drag and Lever..... 11
Norton Disc and Drag..... 64	Paris Disc and Drag..... 49
Scotch Diamond Drag..... 19	Snyder Wheel Disc..... 2
Universal Drag..... 21	Universal Tongue Trucks for Disc Harrows..... 21
Watson Drag..... 69	Wilkinson Drag and Disc..... 61
Windsor Disc..... 19	

**FEED AND ENSILAGE CUTTERS**

Cockshutt Feed Cutter..... 19	Cockshutt Pulper..... 19
Fleury's Feed Cutter..... 21	Geiser Feed Cutter and Grider..... 9
Massey-Harris Feed Cutter..... 39	Paris Feed Cutter..... 49
Watson's Feed Cutter..... 69	Watson's Root Pulper..... 69
Wilkinson's Feed Cutter..... 61	

**FEED GRINDERS**

Brandon..... 6	Challenge..... 69
Cyclone..... 9-29	Daisy..... 69
Diamond..... 64	Fleury's..... 21

**GARDEN IMPLEMENTS, INCUBATORS AND POULTRY SUPPLIES.**

Chatham Incubator..... 27	Cyphers' Incubator..... 60
Fountain Air Sprayer..... 53	Iron Age (Garden Impl.)..... 53 and 61
Marwell..... 64	Planet Jr. Garden Tool..... 41-55

**GASOLINE ENGINES**

Brandon..... 6	Buffalo Pitts..... 72
Caters..... 7	Fairbanks..... 10
Fuller & Johnson..... 61	Gale..... 9
Gas Traction..... 26	Gas Traction (Stationary Portable Traction)..... 18-30
Hart (Traction)..... 44	Ideal..... 44
International..... 33	International (Traction)..... 33
Ivel (Traction)..... 62a	Manitoba..... 37
Master Workman..... 69	"Oil Puller"..... 57
"Olio Traction"..... 58	Patent (Traction)..... 44
Stiekey..... 44	Stover..... 18-14
Sylvester..... 63	Universal Gas Tractor..... 1
Watrous..... 68	Waterloo Boy..... 61

**CLEANSERS, FANNING MILLS AND PICKLERS**

Alex Pickler..... 6-21	Beaman Pickler..... 4
Chatham Fanning Mill..... 27	Master Fanning Mill..... 69
Helgeon's Smut Machine..... 31	Hero Fanning Mill..... 31
Hero Pickler..... 32	Jumbo Grain Cleaner..... 4
Superior Fanning Mill..... 29	Wunder Fanning Mill..... 19

**HARVESTING MACHINES**

Champion..... 33	Deering..... 33
Frost & Wood..... 19	Massey-Harris..... 39
Massey-Harris Corn Harvester..... 39	McCormick..... 39
Noxon..... 64	

**HAY LOADERS, HAY PRESSES HAY TOOLS, MOWERS, RAKES, SWEEP RAKES, HAY STACKERS, ETC.**

Admiral Hay Press..... 10	Braxley Hay Press..... 43
Buffalo Hay Press..... 61	Canton Hay Press..... 33
Champion Hay Rake..... 23	Champion Trowel..... 33
Champion Side Delivery Rake..... 25	Dain Hay Loader and Stacker..... 21
Dain Hay Loader and Stacker..... 21	Dain Side Delivery Rake..... 21
Deere Hay Loader..... 21	Deering Hay Stacker..... 33
Deering Sweep and Hay Rake..... 33	Deering Mower..... 33
Frost and Wood Mower..... 19	Frost and Wood Champion Hay Loader..... 19
International Hay Stacker..... 33	International Sweep Rake..... 33
International Hay Press..... 33	Jenkins' Sweep Rake..... 2
Keystone Hay Loader..... 33	Keystone Side Delivery Rake..... 33
Louden Hay Tools..... 34	Massey-Harris Mower..... 39
Massey-Harris Mower..... 39	Massey-Harris Sweep Rake..... 39
Massey-Harris Side Delivery Rake..... 36	McCormick Hay Stacker..... 33
McCormick Sweep and Hay Rake..... 33	Rock Island Hay Loader..... 62
Success Hay Loader..... 11	Success Hay Loader..... 11
1iger Steel Rake..... 19	

**HORSE POWERS AND JACKS, SAW MILLS, WOOD SAWS AND TREAD POWERS**

Brandon Wood Saws..... 6	Caters Wood Saws and Jacks..... 7
Cockshutt Horse Powers..... 19	Enterprise Saw Mills..... 18
Fairbanks Wood Saws..... 10	Fleury's Horse Powers and Jacks..... 21
Fleury's Wood Saws and Tread Powers..... 21	Gar-Scott Saw Mills..... 26
Geiser Saw Mills and Horse Powers..... 9	Good, Shapley & Muir Wood Saws..... 19
Horse Powers, Tread Powers, Bevel Jacks..... 58	

**GANG PLOWS, ETC.**

Canton..... 33	Case, J. I. Engine Gang..... 29
Case, J. I. Engine Gang..... 29	Canton Mould Engine Gang..... 23
Cockshutt Engine Gang..... 19	Deere..... 21
Deere..... 21	Emerson Engine Gang..... 61
Emerson Engine Gang..... 61	Grand Detour..... 60
Innesville Gang..... 2	Massey-Harris Engine Gang..... 61
Maw Hancock Disc..... 61	Moline..... 11
New Clips..... 61	Paris..... 49
Paris..... 49	Railroad Clearing and Rooter Plows..... 31
Rock Island..... 32	Verity..... 39
Wilkinson..... 21	

**PORTABLE GRAIN ELEVATORS**

Acme..... 51	Carberry..... 15
Cyclone..... 21	Goodrich & Massey..... 68
North Star..... 29	Taggart..... 29
Wheat..... 29	

**POTATO AND BEET MACHINERY**

Aspinwall Potato Planters and Sprayers..... 19	Aspinwall Sorters and Cutters..... 19
Canton Potato Diggers and Beet Tools..... 21	Deere Potato Diggers and Beet Tools..... 21
Dowden Potato Harrows..... 21	Egan Potato Sprayer..... 43
Evans Potato Planter..... 2	Furka Potato Planter..... 2
Hallock Potato Digger..... 43	Hoover Potato Digger..... 19
Iron Age Potato Digger and Sprayer..... 61-55	Melroe Knecher Potato Digger..... 21
Splitstoser Sprayer..... 21	

**RIDING ATTACHMENTS, HARROW CARTS, WHEELBARROWS AND HAND CARTS**

Cockshutt Wheelbarrow..... 19	Cockshutt Harrow Cart..... 19
Deere Harrow Cart..... 21	Ellipse High Harrow Cart..... 29
Emerson Harrow Cart..... 64	Fleury's Wheelbarrow..... 21
Fuller & Johnson Harrow Cart..... 61	Kramer Rotary Harrow, Man. 21
Alta. & Sask..... 21	Naylor Harrow Attachment..... 29
Paris Wheelbarrow..... 49	P. & O. Harrow Cart..... 33
P. & O. Harrow Cart..... 33	Racine Rotary Harrow..... 29
Success Harrow Cart..... 21	Verity Wheelbarrow..... 39
Watson's Wheelbarrow..... 69	Wilkinson..... 61

**ROAD SCRAPERS AND ROAD MACHINES**

Cockshutt Scrapers..... 19	Good Roads Machinery..... 68
Indiana Road Machines..... 64	Russ' Elevating Grader..... 21
Standard Reversible Grader..... 21	Toronto Pressed Steel Scrapers..... 61
Sawyer & Massey Reversible Grader..... 68	

**SEEDING MACHINES**

Cockshutt..... 19	Deerfoot..... 33
Frost & Wood Champion..... 19	Hoozier..... 29
Indiana..... 64	Kentucky..... 2
Massey-Harris..... 39	McCormick..... 33
Monitor..... 11	Superior..... 2
Sylvester..... 19	Tiger..... 61
Verity..... 39	Watson..... 61

**THRESHERS' SUPPLIES**

Braley Supply..... 19	Brown Wing Carrier—Ask any Thresher Co..... 31
Canadian Fairbanks..... 10	Canadian Rubber..... 13
Case & Sons..... 29	Desmond Stephens..... 31
H. T. Helgeon..... 20	Western Canada by all the Thresher Companies..... 51
Mason's Lip Lubricants..... 51	Mason Oil Pump..... 70
Olio Injector Co.—Ask any Thresher Co..... 31	Parsons Injector Mfg. Co..... 51
Penberthy Injectors and Brass Goods Handled by all Leading Threshers and Thresher Companies..... 35	Goodrich Tire & Rubber Co..... 62
John Deere..... 21	Winnipeg Rubber..... 71

**WAGONS AND SLEIGHS**

Adams Farm Trucks..... 19	Adams' Lorries and Heavy Teaming Wagons..... 19
Adams' Wagons and Sleighs..... 19	Anderson Metal Wheel Trucks..... 64
Avery Wagons and Grain Tanks..... 39	Bain Wagons and Sleighs..... 39
Canadian Crescent Wagon..... 11	Chatham Wagon..... 33-69
Cockshutt Metal Wheel Trucks..... 19	Columbus Wagon..... 33
Davenport Wagon..... 21	Deere Metal Wheel Trucks..... 64
Fish Bros. (Racine) Wagons..... 64	Genouin T. G. Mandit Wagon..... 11
Grand Detour..... 69	Gray Light Farm Sleigh..... 27
Hamilton Wagon..... 33	Handbury American Wagon..... 64-69
Metal Wheel Trucks..... 21	Milburn Wagon..... 43
New Deal Wagons and Sleighs..... 21	New Deal Farm Trucks..... 21
New Moline Wagon..... 21	Northern Chief Metal Wheel Trucks..... 21
Old Dominion Wagons and Sleighs..... 33	Petrolia Wagons and Sleighs..... 33
Rushford Wagon..... 61	Stone and Gray Spreading Wagon..... 58
T. G. Mandit Sleigh..... 11	Weber Wagon..... 33
Wilkinson Wagon and Sleighs..... 61	Winona Wagon..... 61

**WELL DRILLING MACHINERY**

Brandon..... 6	Buly & Tannhill..... 48
Starts..... 10	Standard..... 48

**WINDMILLS, TANKS AND PUMPS**

Caters Pump..... 7	Caters Star Windmill..... 48
Canadian Air Motor..... 7	Chicago Aeromotor..... 29-7
Fluorin Pump..... 44	Good, Shapley & Muir Windmill..... 19
Hayes Pump..... 35	London Pump..... 14
Manitoba Pumps and Windmills..... 37	Manitoba Tanks..... 37
Mason's Pump..... 33	Ontario Pumps..... 46
Reisher Pump..... 58	