THE CANADIAN THRESHERMAN & FARMER

CANADA'S FARM MACHINERY MAGAZINE

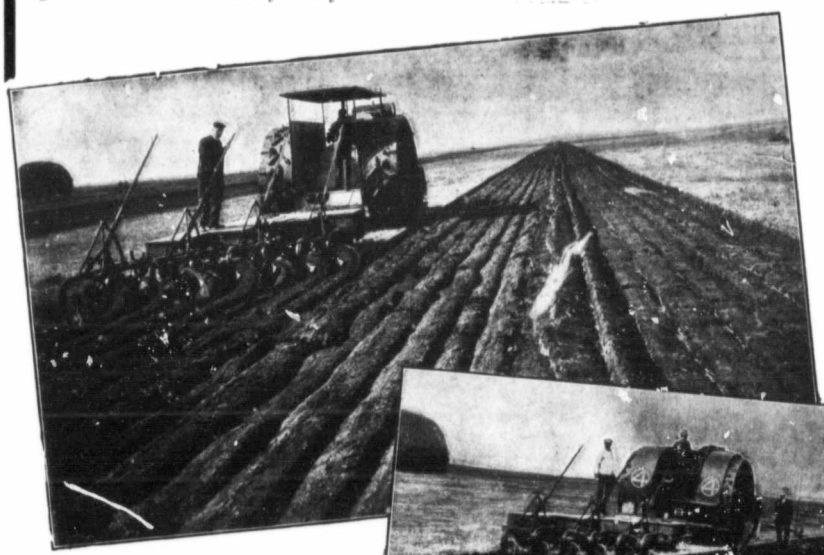
WINNIPEG CANADA

JANUARY, 1912

TRACTION PLOWING IS ECONOMICAL, SPEEDY, SURE, WITH

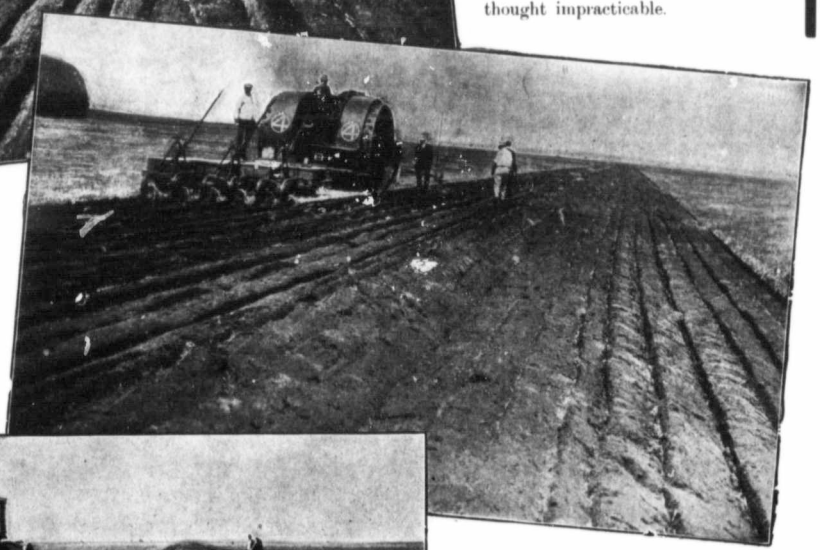
JOHN DEERE ENGINE PLOWS

The great successes of 1912 will certainly not be found among the fellows who were *"just a week late in getting the seed in."* To GET THERE IN TIME is the first step "in luck's way," whether in raising wheat or blowing up a navy. For all spring work—get a move on without a day's delay.



Why an Engine Plow?

Because horses cannot overtake the work except at an expense of time and money that filches the farm of half its profits. Horses have to be fed *all the time.* The engine only feeds *while working.* The wide range in size, and the wonderful adaptability of JOHN DEERE ENGINE PLOWS bring them not only within reach of small farmers but make them absolute necessities in places where traction plowing was once thought impracticable.



John Deere Engine Plows

JOHN DEERE LITTLE ENGINE PLOW,
4 and 6 Bottoms.

JOHN DEERE JUNIOR ENGINE PLOW,
6 and 8 Bottoms.

JOHN DEERE BIG ENGINE PLOW,
10, 12 and 14 Bottoms.

The ENGINE GANG is the plow for all day and all night work, all the year round, without fatigue. One medium sized outfit will do what several teams and many hired men could never accomplish.

QUICK DETACHABLE SHARES.

On the ordinary Engine Plow many hours of valuable time are wasted in changing shares. By our new quick detachable arrangement provided on all plows they can be changed in one-fifth of the time taken on other makes.

JOHN DEERE PLOW COMPANY, LTD.

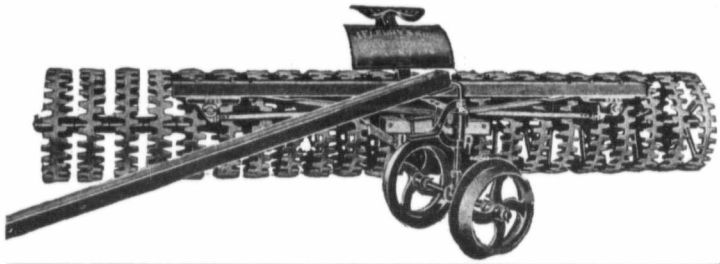
Winnipeg **Regina** **Calgary** **Saskatoon** **Edmonton** **Lethbridge**

The Fleury Pulverizer

PULVERIZES AND PACKS THE SOIL

In the world famous FLEURY PULVERIZER AND PACKER with its NEW ROLLER BEARING TONGUE TRUCK, there is not one ounce weight of needless drag on the draft horses. Note these points in this

COMPLETE DEPARTURE FROM ANYTHING ELSE MADE



The FLEURY PULVERIZER with NEW ROLLER BEARING TONGUE TRUCK, in sizes 16-22-24, sections with or without Tongue Trucks. We can also supply any of these sizes with SUB-SOIL WHEELS

1. The jolting from uneven ground which, through the old rigid poles, fell directly on the horses' necks, is entirely borne by the FREE OSCILLATING TONGUE TRUCK which automatically accommodates itself to the slightest deviation of the Pulverizer.

2. **DUST PROOF ROLLER BEARINGS** take the place of the obsolete "friction" equipment of the two main axles and the TWO DRAFT IRON BEARINGS. These ARE made absolutely dirt-proof by close-fitting washers screwed to both ends of bearing case.

3. The castings in which the roller bearings revolve are accurately BORED—not "cored," so that the bearings fit perfectly. In other makes the shafting "takes its chance" in the core of the casting. We use only the finest REELED shafting which is **clean and true throughout its entire length,** as distinguished from the common and irregular cast-shafting of competitive machines.

The effect of this revolution at these vital points of a pulverizer must be felt to be fully appreciated. The saving on draft is extraordinary—not to speak of wear and tear on machine. It means more work and better work with half the wear and sweat. It means ease and endurance in place of weight and wear.

IT will be SPRING before you know it, Mr. Farmer.

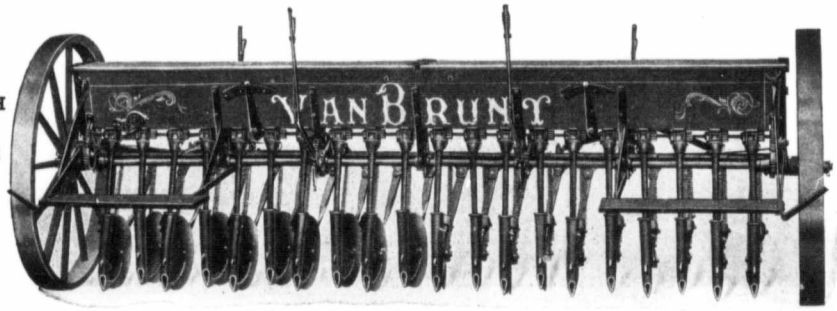
Your 1912 Crop will depend largely upon how it is planted. You can't afford to take any chances. You won't take any if you use a

VAN BRUNT DISC DRILL

LIGHT DRAFT WITH NEW BOOT DISCHARGE

★

STICKS AT NOTHING



BOOT AND DISCHARGE WITHIN INSTEAD OF WITHOUT CIRCLE OF DISC

VAN BRUNT NEW MODEL 12, 14, 16, 18, 20, 22, 24 Single, Double Disc and Shoe, Interchangeable

This is the original model from which worthless imitations have been made and foisted on the market, but the great prototype is stronger and lighter than these by from 300 to 400 pounds. The effect of the NEW BOOT DISCHARGE is to plant the seed at the exact depth for certain germination. Not a single grain is left on top of the soil or so near the surface that wind or shower can expose it.

WRITE FOR LITERATURE, PRICES AND TERMS

JOHN DEERE PLOW CO. LTD.

Winnipeg Regina Calgary Edmonton Saskatoon Lethbridge

You Will Congratulate Yourself

NEXT SPRING

IF YOU BUY YOUR PLOWING ENGINE FROM THE

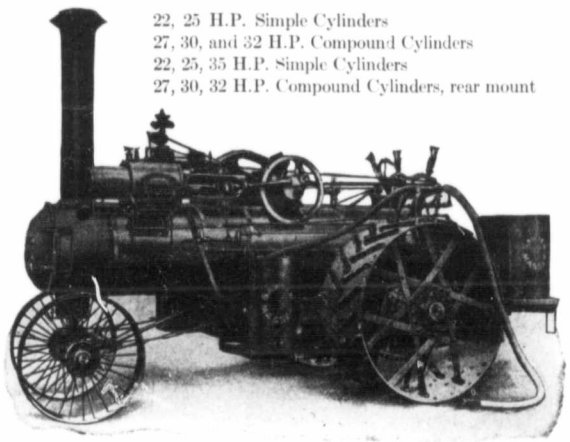
Premier Engine and Thresher Manufacturers of Canada

Men of judgment in all parts of the country are placing their orders with us, because, they realize we have been and are doing things in a bigger, finer and better way.

We are not only prepared to give you the best machines, but the best service. You get the benefit of an increased output through our factories being enlarged, and because the cost of production is thereby reduced, we are able to give you improved machines, better prices, better terms.

22, 25 H.P. Simple Cylinders
27, 30, and 32 H.P. Compound Cylinders
22, 25, 35 H.P. Simple Cylinders
27, 30, 32 H.P. Compound Cylinders, rear mount

FUEL AND WATER SUPPLY AMPLY PROVIDED FOR

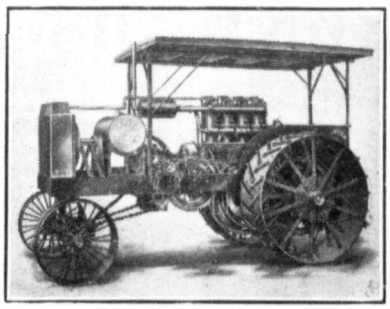


NOTE THE SIMPLE AND CONVENIENT METHOD OF FILLING TANKS, BY SYPHON AND HOSE

You get therefore the experience and knowledge of our big staff of salesmen. They are all familiar with farming conditions. They know from practical experience what you want—when you want it and how you want it. They are at your disposal to help and assist you.

We are determined to make good in 1912 and want you to do the same, because our combined successes contribute to the prosperity of this country in which we are all jointly interested.

THIS ENGINE RECEIVED THE HIGHEST POINTS FOR THE RUN ON THE MAXIMUM BREAK TEST AT WINNIPEG



THIS ENGINE RECEIVED THE HIGHEST NUMBER OF POINTS FOR BEST PLOWING AND LEAST VARIATION OF SPEED

This engine developed an average of 54 H. P. in the maximum break test, yet is only rated at 22 nominal and 45 B. H. P.

You know, Mr. Farmer, the trouble you have in getting cars for your grain. Has it ever occurred to you that we manufacturers have the same trouble during the spring rush?

Next year, owing to the great tide of emigration that is sure to come and the increase in business, the difficulties will be greater than ever.

Therefore, it is to your own interest to place your order **EARLY.** We have the engines, either steam or gasoline, that will get you the results. You should know more about them—Let us hear from you.

Sawyer-Massey Co. Limited

Manitoba Branch, Winnipeg, Manitoba **Sask. and Alta. Branch, Regina, Sask.**

A MAGAZINE FOR THE FARM AND HOME

THE CANADIAN THRESHERMAN AND FARMER

Vol. XVII. WINNIPEG, CANADA, JANUARY, 1912. No. 1.

THINGS IMPERISHABLE

"I will arise,
Though baffled and cast down
At every turn;
Still in the skies,
Behind the clouds that frown,
Hope's bright stars burn."

WHATEVER perishes with the old years, "Hope springs eternal." 1911 is now the graveyard of many bright prospects that were among the things hoped for and believed in when it started.

But whatever the old year has blighted or killed, Hope continues to wait on all men, and with the first breath of 1912 she offered to every creature a fresh draught of that life-giving cordial that has been both meat and drink to the creature all down the ages.

Did you, Mr. Farmer, of Western Canada, ever start a New Year with brighter hope, with such reasonable certainty of a reasonable fulfilment as the country and your circumstances holds out to you at the beginning of this New Year? All things considered, the people of Canada never opened their doors on a more inspiring outlook than when they undid the latch for a few moments at midnight to step over the thin border-line into 1912.

Glory in the Grind.

Ours is an age of grind, they say; but there need be no grind without its glory.

'There's a glory in the most humdrum existence that the distracted toiler may never have suspected but it is worth looking for: it is easily found—It is himself or herself all the while. 'The divinity that shapes our ends' is in ourselves; it is our very self.

The necessity to labor is one of our common and one of our greatest heritages but there's a mighty interval between the cheerless, everlasting monotony of the lot of that man who has never looked for the glory in his work and the spirit of the worker who can drop his hoe to take up his hobby and bask for a time in the glory.

"Blessed is the man who has a hobby" and thrice blessed is he who does not ride his hobby to death. That man can trust himself to return to his toil with every new day-break and take up his task with all the enthusiasm and absorbing freshness of a hobby.

In the Bonds of Peace with his Natural Enemy

The Wine of Enthusiasm.

We are all straining after success, but no success worth the name was ever reached without the divine elixer of an enthusiasm that never fags. But how can you expect "enthusiasm" from any human creature who from daybreak till long after sunset—every lawful day of the calendar—is immersed in the sludge and worry of a Western farm, any more than you can compel a whipped cur to take an "interest in his work?"

O it can be done, is being done all the time by men and women and boys and girls who have discovered the simple fact that "all work and no play makes Jack a dull boy." Everybody knows that, but the majority, even of conscientious workers, habitually forget it.

We are not forgetting, far less depreciating that compulsory element in our lives without which all mankind would sooner or later degenerate to the level of the invertebrate jellyfish. What does the world not owe to that imperious "must" — that strenuous effort which we make when driven to desperation, when all outside help has been cut off and we are forced to call upon all that is within us to extricate ourselves from an unfortunate situation?

The Inexorable "Must."

Many of the greatest things in the world have been accomplished under the stress of this impelling "must"—merciless in its lashings and proddings to accomplishment.

It is this little insistent "must" that dogs our steps; that bestirs and drives us; that makes us willing to suffer privations and endure hardships inconveniences and discomforts; to work slavishly, in fact, where inclination tempts us to take life easy. But there is no bite in this persisent barking at our heels if we take things as the Almighty intended us to take them.

Rest and refreshment, repose and recreation are the birthright of every living thing. We are not anxious about any one neglecting his or her physical rest. It is the mental attitude of our readers we are seeking to concern ourselves with, and as every child at school now knows, it is the kingdom of the mind that is supreme all over nature.

"It is the mind that makes the body rich," says Shakespeare, and "God never made his work for man to mend." Our mental attitude toward the thing we are struggling for has everything to do with our gaining it. We believe every thresherman and farmer knows that, but in a large majority of cases we believe he is depriving, not only himself, but those of his own household of all that this means—of the

Continued on page 78

Canada a Country for Fur-Bearing Animals

By G. A. Allen.

Many trappers seem to think one good way to trap a mink or other animal is sufficient. To this I take exception for several

"Why does the farmer's wife ring the dinner-bell?"

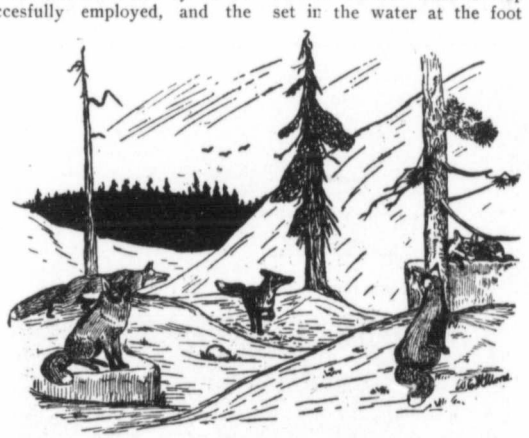
reasons. Not because I employ more than one way myself when trapping, but for the reason that one way, however good, cannot always be successfully employed in the many different places where the animal is to be found, and when we consider the conditions of these many places, it is easy for any trapper, even the beginner, who has any "trapper sense" at all, to see at a glance the utter impossibility of employing only one way successfully in these different places and under so many different conditions, therefore, it is misleading to the young beginner to endeavor to create the impression in his mind that one way is sufficient in all places. It will make him an unsuccessful trapper from the beginning.

The mink and the fox are two of the most cunning animals and whose sense of avoiding things not common to their surroundings is so well known as to become a proverbial by-word among the trappers, and we cannot better illustrate the reason why traps should be set in different ways to make trapping profitable than to call attention to the habits of these two animals.

Every experienced fox-trapper knows that a live spring is one of the best places for putting the trap to successfully catch the fox; but they also know that such springs are not numerous enough in any one locality to make it a profitable way if that method only is resorted to, even though foxes were as numerous as flies around the bunghole of a molasses-barrel in sorghum-making time down in Missouri. There are places to be found in the woods miles from any spring where foxes can be as successfully trapped as they can at the spring, but it requires an entirely different way of placing the trap, the decoy and the bait, and all successful fox-trappers who have "went to the woods" after the fox will bear witness to this statement. Then there is the mountain region where foxes are quite numerous. There are no springs, nor old logs, nor hollow trees—nothing but piles and piles of stone, with an occasional stunted bush or creeping vines. Neither of the ways used in the spring or in the woods can be employed here. Another way must be resorted to.

What Makes a Successful Trapper?

Consequently the trapper, if he makes a successful and profitable season's work, must use methods and ways as widely different as the trapping-grounds are different—no one way can be succesfully employed, and the man who persistently advocates that "only one way" idea is not an experienced trapper, or else his operations have been confined to a very limited territory and, therefore, his knowledge is just as limited.



"There is the mountain region where foxes are quite numerous"

A better illustration of why more ways than one should be employed can best be given by calling attention to the mink. It is perhaps the greatest rover of all fur-bearing animals, and will, in one night's ramble, frequent more places of a different character than all other animals in the neighborhood combined. A mink has been known to leave its den and travel from ten to thirty miles before returning, and then come back by a different route.

'Did you ever notice a mink trailing along the route'

This habit of rambling, and their propensity for exploring and investigating every nook, crevice and corner found in its pathway, admits of more ways of when, where and how to set the trap to capture him than any other fur-bearing animal. It has an exceedingly acute sense of smell which enables it to track its prey with ease and accuracy. It is also the means of luring it to certain capture, as a trap set along its haunts and baited and decoyed with the food or scent for which it has a particular fondness is almost certain to attract him to the spot, and if the trap is properly set his capture is about as sure as is the capture of the muskrat when a trap is set in the water at the foot of their much-used slides. The idea that mink are afraid of human scent and that traps must be handled with gloves is an exploded theory, for it was only a theory—a full brother to the "only one way" idea. Any trapper who understands when, where and how to set the traps, and the baits and decoys most pleasing to the taste and sense of smell of the mink, will catch as many, or more, by setting his traps barehanded as he will to wear gloves.

A trapper may have a very successful way of trapping mink by a water method—trapping in the water. It may be the only successful way he knows of. Yet he could not employ that way to any degree of success in a large pile of stone, or on the ledge of some mountain-side, nor under a hay-stack, nor by the old tile ditch out in the middle of the farm, nor where the mink enters your hen-coop to rob you of your poultry. Each of these places requires a different way of putting the trap and the baits, and the man who starts out trapping mink with only one way to catch him will find that he is not in it. And the man who tells the beginner that one way is sufficient is misleading in his statements, or lacking in his knowledge. Something some way is wrong with him.

The beginner, therefore, must study the habits of the animal and find out such places as the animal frequents most in its rambling, and also the difference between the places it frequents and the places it inhabits—and adopt ways of trapping suitable to the place in which he is putting his trap. If he can gain this knowledge from some old, experienced trapper, it may save him years of experimenting, but if he is taught that one way is sufficient, no matter how good, he will never be successful only in that one way, and his season's work will not be profitable.

For scents and baits there is nothing better than that which nature affords for all animals in both scent and bait, and if you can obtain a scent from nature itself, which comes near the scent of the animal itself, or a scent of which the animal is particularly fond, as a mink is of the scent of the muskrat or the flavor of a piece of venison, or the scent of fresh fish, then you have a scent which has sufficient power of attraction to make its use profitable. Many times a scent can be employed to very good advantage which has no resemblance to animal scent at all, as in the case of the coon. A scent composed of certain things for which the coon has a particular fondness—even greedy fondness—can best be employed and is often better than some kinds of baits.

"What an awful price for adulterated alcohol"

All Scents are Not Humbugs.

Now, a western trapper once asked me why should scent or "perfumery" be used. The same

questioner said he caught a mink in a trap baited with venison two hundred yards from the creek, and that the mink "smelled

"Put on a pair of your old scent-soaked' boots"

the bait" and climbed the mountain for it. There is the whole secret in a very small nutshell, and told by himself, and if he had only paused to think a while before asking the question and reasoned out the cause of why the mink climbed the mountain because he "smelled the bait" two hundred yards away his question would have been unnecessary and his opinion that "all scents and baits are humbugs" would have been exploded right there and then. It was the scent of the venison which decoyed or lured that mink up the side of that mountain two hundred yards from the creek. Had there been no scent or "perfumery" to that venison the mink would never have "smelled it two hundred yards away," but when the sweet perfume of his favorite dish of meat was wafted to his nostrils on the mountain breeze, he had a hankering desire to go right after it—and went and was caught by a man who says "all scents are humbugs." Such men are "buggy" themselves.

There is a peculiar scent to fresh venison which is very attractive to all wild animals and especially so to all members of the weasel family, to which belong the marten and the mink, and when I am trapping where I can obtain venison I use no other scent or bait. A trap baited with a piece of deer meat, if it is fresh, will attract a mink or marten a half mile if the wind is favorable, hence the reason that mink went up the mountain when he "smelled the bait two hundred yards away." But when trapping in sections of the country where there are no deer, I use what I know to be the next thing for scent and bait, which is sometimes a meat bait and at other times only an animal oil combined with the peculiar scent of the animal itself.

The Scent Tells a Story.

Again, why should scent be used? For an attraction, of course. Why does the farmer's wife ring the dinner bell? To let her husband know that there is something on the table to eat. This scent tells the same story to the mink or fox that the dinner bell does to the farmer. If a mink is hungry and is searching for food and gets a whiff of the scent of a muskrat, he is going to see where that scent comes from. It may be the musk of a muskrat some trapper has employed to decoy the mink to his trap. For the sake of the illustration we will admit that it is. The mink, being very fond of muskrat, pauses the moment he gets a whiff of this scent (when he hears the dinner bell ring), and being hungry he follows it up. When he gets to the trap, he finds that a piece of rabbit or fresh fish has been used for a bait, and the scent of the muskrat placed near-by as a decoy. Well, he likes to eat rabbit and is also fond of fish, and being hungry sits down to the table and begins to eat, when—snap. Another mink skin soons adorns the trapper's lodge. Had the trapper simply baited his trap with a piece of rabbit or fish and used no decoy with a far-reaching scent—and one of which the

"This habit of rambling"

mink was particularly fond—the mink would not have "smelled it" so far away, neither would the attraction have been so great, because it did not come from something for which he had a particular fondness and he would not have had his appetite whetted by the scent of that which he liked, just like a hungry trapper's appetite is whetted when he gets a whiff of the aroma of "coffee like mother used to make."

Now there is another thing I wish to call attention to, and that is baits. I will state that in all

"Did you ever see an Indian trap 'rg"

my experience, from the Sunken Lands in Arkansas to the north shores of the Lake of the Woods, in Canada, I have invariably found meat baits the best when fresh, and this range of territory covers a variation of climate in which many changes are represented. If baits were strictly fresh, they were much better. I have caught animals with the old or stale bait, but only after considerable "coaxing;" catching ten animals with bait strictly fresh to one with the old or stale bait. Now I figure it out this way. The fresh bait has all the savory juices so essential to the peculiar flavor so well liked by all carnivorous animals, while these juices dry up or evaporate more or less as the bait becomes old and dry, and consequently contains less of the flavor so attractive to the animal. If the weather is sufficiently warm to cause the bait, if left several days without renewing, as is sometimes the case, to spoil, or become tainted, sometimes badly so, the peculiar flavor is destroyed and becomes a stench, or stink. Animals do not like this any more than a human being does.

To prove the above statement, take a fresh fish and one so spoiled and tainted that you have to "handle it with gloves on," while it "smells to heaven," and set them before the house cat. How quickly the cat will select the fresh one. Set them before a tame coon, mink or otter, and the result is the same. You say these are tame animals or wild animals in captivity. Very well, here is another illustration, which, by the way, is one of the many ways of catching mink and coon. Go along the creek, river or pond, where mink or coon frequent and find shallow, rippling water, and near the bank where you see "sign" of these animals build a semi-circular pen in the bed of the creek, leaving the entrance toward the bank.

Fresh Bait Must Be Used.

Set your trap just within the entrance and get a couple of small live fish and string them on a wire or cord and secure them beyond the trap a few inches, and see if you don't catch the first mink or coon that comes along. Now get some old decayed, stinking fish and bait the same pen with it in the same manner, and see how long it will remain there before anything tackles it. It will be there when you will quit trapping if the action of the water does not carry it away a little at a time.

How often, when we are trapping, we see old dead fish lying along the edge of the shores of the streams where animals have played all around them. Catch a live fish and kill it and place it near the edge of the water a short distance from the old dead one, and see if some animal does not take it away before morning. Would they take the fresh one if they liked the old, stale and stinking fish best? Use the fresh carcass of a muskrat for mink bait, and see if you don't catch the mink inside of two days if he comes along. Take an old, decayed, stinking muskrat, and bait your trap with it, and see if the mink does not pass right on when he comes in the vicinity of your trap. He gets very "shy" about that time and you begin to wonder why mink are so hard to catch this season, and then you begin to think they are scarce in your part of the country.

Some eastern trappers (I do not know if they are trappers or not, but think they are not) put their baits in running water twenty-four hours to kill the scent of themselves, supposed to be left on the carcass while skinning or in handling, and then take a stick or pitchfork to place the bait in position near the trap. Now, I think this is wrong. The meat becomes water-soaked and is more liable to taint quicker, besides the action of the water during the twenty-four hours drives out the juices or destroys them until the peculiar flavor which animals love so well is gone, and leaves nothing but the cold, clammy water-soaked meat. Take a piece of this meat and a piece of the same kind of flesh just cut from the carcass of a fresh-caught animal and set them before your cat or tame mink, fox or coon, and see if they do not leave the water-soaked bait until they eat the fresh piece, nine times out of ten. When wild animals kill something for their dinner, they eat it while it is fresh. Everyone will recall this fact.

We wish to say something

"Such men are 'buggy'

more about the use of scents and about making scents. In our experience we have found it always best to make our own

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A THREE YEAR PROGRAMME

ON A 320 ACRE FARM IN SASKATCHEWAN

By S. U. Tourecko.

An agriculturist residing in Eastern Canada discovers that it is unprofitable for him to make better on his small farm. Accordingly he resolves to move away to a country where his capital when invested would yield a greater profit. He is informed that Western Canada has an unlimited acreage of arable virgin prairie land, which is especially suitable for diversified farming.

So in the month of September he takes a trip to Western Canada in search of a new home. After devoting a number of days to his trip in the West, and thoroughly examining the surrounding conditions, also the soil of the district, he determines to buy a half section of land lying 200 miles south of Lipton, which is a flourishing village located on the Pheasant Hill branch of the Canadian Pacific Railway.

He observes this particular farm has a good natural drainage and approximately twenty-five acres of timber, which is mostly poplar, and that it is comparatively free of stones. The surface soil is of a rich dark clay loam, indicating a copious supply of humus. This is underlaid by a deep strata of yellow clay sub-soil.

There has been during the summer twenty acres of prairie land broken which has also been backsetted and thoroughly prepared for a seed bed. Upon careful enquiry he finds that an abundant supply of wholesome water can be secured at a moderate depth. Therefore this exploration fully incites him of the properties possessed by this farm.

Immediately he procured from the land company the price list, and it was quoted under the following stipulations: Price, $12.50 per acre; $600 cash and the balance in ten annual instalments. The first instalment falls due 18 months after purchase, which was October 1st, 1906.

Table showing when the different instalments fall due:

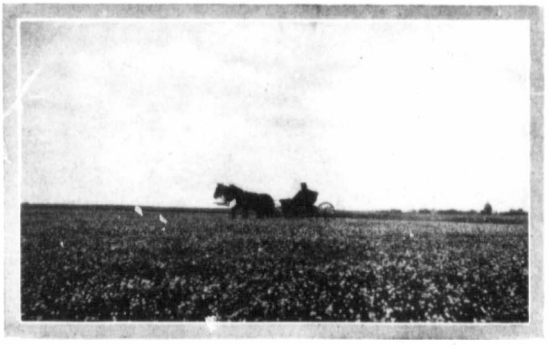
April 1, 1908	$340 @ 6%	Interest $306.00—$746.00
April 1, 1909	$340 @ 6%	Interest $183.60—$523.60
April 1, 1910	$340 @ 6%	Interest $163.20—$503.20
April 1, 1911	$340 @ 6%	Interest $142.80—$482.80
April 1, 1912	$340 @ 6%	Interest $122.40—$462.40
April 1, 1913	$340 @ 6%	Interest $102.00—$442.00
April 1, 1914	$340 @ 6%	Interest $ 81.60—$421.60
April 1, 1915	$340 @ 6%	Interest $ 61.20—$401.21
April 1, 1916	$340 @ 6%	Interest $ 40.80—$380.80
April 1, 1917	$340 @ 6%	Interest $ 20.40—$360.40

It is also provided in the contract that the purchaser can execute full payment at any convenient time and obtain full title to the land, or he may acquire the title by furnishing a mortgage for the sum still due.

This agreement was duly approved by both parties, the purchaser then departed for his Eastern home. Shortly after arriving home he disposed of his small farm on the condition that he vacate on or before 1st April the following year.

During the winter months preparations were instituted for packing his implements and household goods. About the 15th of March he had all affairs arranged for, leaving his wife and family with his friends until such befitting time as would enable him and two of his sons to construct suitable buildings on the new farm. The boys he took along with him were 17 and 14 years old respectively. They arrived at their destination after a journey of about seven days.

On arrival they secured temporary quarters for their livestock at the livery barn, the livestock consisted of six horses, five of which are mares and one gelding; two pure-bred Aberdeen - Angus cows and four pure-bred Berkshire sows. The remaining effects were also unloaded, and the horses were utilized for hauling it all to the farm. In the meantime he had plans and specifications made out for the necessary buildings that he required to erect at once.



Flax is a profitable crop on the average farm in Canada West

A dwelling house 18 feet by 30 feet by 9 feet high was constructed, with the intention that this building would be used for a granary later, and that a modern house would be built as soon as the means warranted it. A shed 16 feet by 40 feet by 9 feet high for horses, cattle and swine was built, partitioned off, so as to suit the means. Only one skilled carpenter was engaged for the erection of these buildings, and the balance of the help they furnished themselves. The entire cost of these two buildings amounted to $350, including lumber, hardware and hired help.

Their next important movement was the procuring of feeds for their livestock. Three hundred bushels of oats at 30 cents per bushel and five tons of hay at $5.00 per ton were secured from nearby neighbors.

At this period he has all of his belongings on the farm, and is prepared to commence spring work. But prior to starting his work, he takes a complete inventory of his assets and liabilities, which are as follows:—

ASSETS

Land 320 acres at $12.50 per acre	$4,000.00
Horses, 5 mares, 1 gelding	1,200.00
Harness	100.00
Cattle, 2 pure bred Aberdeen Angus cows	200.00
Swine, 4 pure bred Berkshire sows	100.00
Farm machinery	1,000.00
Feed, hay and oats	115.00
Household goods	300.00
Cash in bank on deposit	$1,707.00
	$8,722.00

LIABILITIES

Contract debt on the farm	$3,400.00
Interest on same for 6 months at 6%	102.00
	$3,502.00

Assets	$8722.00
Liabilities	3502.00
Net worth	$5220.00

Starting in a new land he exercises the necessary care, and purchases only pure seed grains, pure as to variety and absolutely free from weed seed. Twelve bushels of pure Red Fife wheat and 18 bushels of pure Abundance Oats were bought from a respectable farmer, and the grains grown from these seeds will be the chief source of seed grain for the subsequent crops. He sowed six acres of wheat about the middle of April. Following the he broke fifteen acres of prairie land, discing and harrowing it thoroughly, and during the first week of May this was sown to oats. Six acres of oats were sown on the land that was prepared when bought.

The remaining eight acres of the backsetting was planted to potatoes, rape, mangel and garden.

At this period his family came from Eastern Canada, and settled down on the new farm. Immediately they start to work on the garden plot, which had been turned over to the women folk to take care of. Six acres of potatoes were planted in the backsetting. Straight furrows were drawn out with a walking plow about five inches deep and and three feet apart. The seed potatoes are cut so as to have from three to four buds each; the cuttings were planted 18 inches apart, allowing only one piece per hill. They were covered over by the use of a drag harrow, leaving the surface smooth. Twelve bushels of seed potatoes were planted on each acre. The mangels were sown with the grain drill in rows 36 inches apart, at the rate of six pounds per acre. The mangel seed was mixed up with about one half bushel of chops (barley or oats). The one acre of rape was also sown with the grain drill in rows 12 inches apart, using four pounds of seed per acre, also mix in barley chop.

Breaking was commenced early and continued throughout the month of June, turning over about three acres of sod per day with the six horse team and a 12 inch gang plow. In all 81 acres were broken.

During June several days were spared for the cultivation of potatoes and fencing. The fencing cost $96.80 for 2420 pounds of four pointed barbed wire. The pickets were got off the bluffs on the farm. Two hay pastures were put up of woven wire convenient to the rape and mangel fields; each field consisted of 100 square rods, the total cost of these yards was $35.00. In one of the yards he kept his pure bred sows with the litter. In the other yard twenty young pigs were fed. These pigs were bought at the age of two to three months at an average cost of $3.50. During the summer time these pigs were fed chiefly on the rape with the addition of one and half pounds of oats per day for each

pig. When the rape was finished mangel were substituted, with the same quantity of oats, until the last month, when the grain rations were increased to three pounds per day. In all 150 bushels of oats were bought for the pigs. The winter hogs were disposed of at the beginning of average weight of 200 pounds, at November, when they made an $725.00, netting $290, while the pure bred pigs were fed identically the same, with the exception of getting more grain. Ten young boars and six young sows were sold for breeding purposes at $15 each, between the ages of three months and five months, netting a sum of $250; while four young sows were retained for breeding purposes. The other four pigs were condemned as breeders—they were fattened for home use. He also purchased one pure-bred boar, four months old, at a cost of $30. A pure-bred Aberdeen-Angus bull was also bought, five months old, costing $100. A small flock of pure-bred poultry is kept on the farm, and is in charge of the women.

The teams after finishing were put to statute work at 45 cents per hour, this paying the municipal tax of $17.60 for the year of 1907.

In the forepart of July thirty tons of upland prairie hay was put up into stacks. Backsetting was the next thing, which took 33 days to do. The backsetting was a little easier operation. Two and a half acres were turned over per day, packing and harrowing it before leaving the field each day.

The harvesting of oats and the wheat took nearly three days, using 81 pounds of twine in the whole crop, twine costing $7.21. The wheat yielded 30 bushels per acre, or 180 bushels in all.

The oats yielded as follows: Six acres in the backsetting, 80 bushels per acre, or 480 bushels; 15 acres on fresh spring breaking yielded 50 bushels per acre, or 750 bushels.

The cost of threshing amounted to $74 in all.

A granary, 14 feet by 16 feet by 8 feet, was constructed for holding these grains, the capacity of it is 1400 bushels, being partitioned off into bins for the different grains that were put in it.

After threshing was over the potatoes were plowed out with a potato digger, using four horse team for the purpose. Ten men were engaged to pick and shovel potatoes off the wagon into the car; three teams and wagons were also engaged for hauling the potatoes to the loading platform. It required five days to pick and haul the potatoes, which amounted to 2400 bushels, of this 2000 bushels were marketed. Two cars were loaded, each holding 1000 bushels, and sold on track f.o.b. station at 45 cents per bushel, netting a total of $900. The cash expense in packing the potatoes amounted to $167.

The other root crop of the farm had been gathered and stored away in the cellar which was dug under the house during the summer time. When winter set in he was prepared for it. During the winter time he disposed of some seed grain, 40 bushels of wheat at $1.25, 350 bushels of oats at 50 cents per bushel, were sold, netting $175.

At the end of the first year an inventory was taken again.

ASSETS

Land 320 acres at $15		$4,800.00
Horses, 5 mares, 1 gelding, 3 colts		1,500.00
Cattle, 2 cows $200, 1 bull $100, 2 calves $80		380.00
Swine, 4 old sows $100, 4 young sows $80		180.00
Machinery		900.00
Hay 12 tons at $5 and oats 200 bus. at 30c		120.00
Seed grain and potatoes		248.00
Household goods		300.00
Cash in bank		1,148.00
		$9,576.00

LIABILITIES

Contract debt on farm		$3,060.00
Assets	$9576.00	
Liabilities	3060.00	
Net worth	$6516.00	
Receipt for year ending March 1908		$1,665.00
Expenditure for year ending March 1908		2,224.00
Deficit		$559.00

The deficit was paid out of the cash on hand.

Starting the second year, he cleans his grain early, and prepares it for seeding by treating it with formalin—for wheat one pound to 40 gallons of water was used, for oats one pound for 30 bushels of grain — emersing the grain into the solution of water and formaldehyde for a few minutes. Then it was piled into a heap to dry for 12 hours before seeding. Sixty acres of wheat were sown on backsetting; ten acres of oats and ten acres of potatoes were also planted on the backsetting. On the 35 acres of old land 15 acres were sown to barley after being spring plowed; the remaining 20 acres were subdivided as follows: Sixteen acres of oats, 2½ acres of rape, half acre garden. After seeding, breaking was commenced, as usual with the gang and 16-horse team. Thirty days of breaking was put in, plowing two inches deep, turning over in all 90 acres.

During the month of June 30 grade pigs, eight to twelve weeks old, were bought from different parties for fattening purposes, at $3.00 each. They were fed same as those last year, only with the exception of getting more grain. Six hundred bushels of grain had to be bought for feed for horses and pigs, at 30 cents. Eight litters of pigs were raised this summer, comprising 44 young shoats, 24 boars and 20 sows. These were sold after attaining the ages of from three to five months, at a price varying according to the quality and age, for from $15 to $25; 36 were sold, aggregating a sum of $720.

Twenty tons of hay was cut on the farm and fifteen on an adjoining section, upon which a permit was obtained for a nominal sum. Statute work was done as in the previous year, paying off $20.80 municipal taxes.

The new breaking was backsetted just before harvest, commencing to turn the earliest broken land first, as it was decayed more, each day leaving the field packed and harrowed, taking 38 days to do it all.

The potatoes during the growing season were cultivated three times.

The harvesting of barley, oats and wheat started about the 12th August and was finished by the 1st September. Requiring 335 pounds of twine, in all at nine cents, cost $30.15.

A Load of Gold—a common sight during the Fall Season in Canada West

Two granaries were built, one with a capacity of 700 bushels, the other with 1000 bushels, costing $90. The threshing was done from the stooks, the thresher furnishing the whole crew, at a cost of six cents for oats and barley, and eight cents for wheat. The wheat yielded 33 bushels an acre, or 2013 bushels in all; 10 acres of oats, 850 bushels; 16 acres of oats, 1050 bushels; barley, 15 acres, 450 bushels. The whole thresh bill amounted to $302.04. Fourteen hundred bushels of wheat were loaded onto two small cars, selling for 86 cents per bushel net, netting $1204.00.

Potatoes were plowed out at once. Sufficient help was hired that the work was over in eight days. The yield was smaller than last year; 3500 bus. were harvested off ten acres; 3200 bushels were sold at 55 cents, netting $1760. Labor cost, for picking and hauling, $297.

No fall plowing was done because it is considered more beneficial to catch the snow in the stubble during the winter time, and then spring plow.

Thirty-two fat hogs were sold in November to a local butcher at $6.25 per cwt., 6880 pounds bringing a sum of $430. Seed grain in hand was sold; 600 bushels of oats, total $300; 400 bushels of seed wheat at $1.00—$400. Some seed was shipped out.

On the third spring he used the same precautions in treating his seed grain. One hundred acres of wheat are sown, 55 acres on new land, 45 on stubble. The stubble being burnt off first, then the field disced twice and double harrowed previous to sowing. Fifty-six acres of oats are sown, 25 acres on new land, eight acres on the land that was in crop to potatoes and roots the first year; 23 acres were sown on land that grew the first crop the previous year. The last 31 acres of land was spring plowed about four and a half inches deep; each day towards evening the land plowed during the day was packed first, then harrowed once. Thirteen acres of barley were sown, 10 acres on last year's potato field and three acres on stubble field which was plowed same as for oats.

Potatoes were planted after the 20th May, same as last year, using 12 bushels of seed per acre. Twelve acres were planted on the land that was broken when the farm was first bought, thus avoiding the necessity of summer fallowing so much land. Fifteen acres were left for bare summer fallow. In the latter part of May it was skim plowed about two to three inches deep, and harrowed down. A month later it was plowed again, one to two inches deeper. The first plowing covered the Volunteer seed grain and weed seed that were lying on the surface, causing them to germinate all at once; the second plowing covered the green growth.

Fifteen days of breaking was put in, turning over about 44 acres. The breaking was done same as last year.

Thirty-five tons of hay had been put up, most of it had been cut on an adjoining section, on which a permit was secured.

The harvesting of the grain crop commenced early in August, beginning with the barley and finishing up with wheat the beginning of September. Five hundred pounds of twine were required to bind the crop. The crop was threshed from the stooks at a cost of six cents per bushel for barley and oats, and eight cents for wheat. Four hundred and thirty-five bushels of barley, 4,265 bushels of oats and 3,050 bushels of wheat were threshed, costing $526. Two thousand bushels of wheat were hauled directly to the elevator,

Continued on page 00

JAN.

The Canadian Thresherman and Farmer

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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."

1912

1912 COMES TO YOU WITH A PROMISE OF BIG THINGS

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.

THE dawn of a New Year brings with it great possibilities. We are living in an age when things become old very quickly. The troubles of today are the pleasures of tomorrow and likewise the successes of today are tomorrow's failures. There is no established order of things. Creeds are crumbling and the Christian of yesterday is the atheist of today.

It is a glorious age yet withal a strenuous one in which to live and it is moreover the age of youth and young countries of which Canada is the leader. That portion of Canada which we ordinarily designate as West is responsible for big things. Its broad fertile open prairies are pregnant with life and progress and the inhabitants thereof cannot help but be filled with vigor and the desire to do things. The winds that blow eastward from snow-capped Rockies carry with them messages of strength, grandeur and big things. The sou'wester brings its assurance of warmth, sunshine and a growing season, while the "norther" with its chilling blast brings its message of rest and a period of peace.

There is no greater country anywhere on this mundane sphere than Canada West. It is a veritable "Land of Promise." Its acres are broad and what is more they are exceedingly fertile. Canada's No. 1 Hard is a standard for excellency in the world's wheat market. The level prairies permit of low cost in crop productions and so long have they lain sod-locked that their fertility is practically inexhaustible—provided that the tiller has a reasonable amount of common sense.

Western Canada is responsible for a new epoch in farm machinery. It has bridged the gap between the "Man with the Hoe" and the "Power Farmer"—the farmer of the furure. It is largely responsible for the development of the gas tractor and indirectly it is responsible for the present merging of some of the largest thresher concerns on the American continent into one large organization.

Western Canada is man's last natural heritage and consequently to acquire a piece of its virgin soil should be the most natural desire of every ambitious man of today. To secure it, to bring it into a state of subjugation and to hand it on down to posterity is a work worthy of any man's life time. Its soil is bursting with pent up fertility. Its air is as pure as the driven snow. Its laws are the laws of freedom and its statute books are unsmirched with the blood of wars or with crimes sanctioned only by an international criminal code. It is, in short a country where every man has a chance to make good and where the "survival of the fittest" rings true.

Let us then be up and doing in this year of 1912 A.D. There is work in abundance but it is work that brings with it a positive assurance of results.

Every rose hath its thorn and every bee, no matter how sweet its honey, hath its sting. Likewise in the working out of our destiny for 1912 the briars will be in evidence but the happiness of a work well done will be ours if our hearts be in our efforts.

Plan to make it the biggest year yet. Let every farmer plant and sow and reap in accordance with Nature's laws. Don't tickle the land, plow it. Don't play the part of the soil robber but try and husband the latent strength of God's Garden Spot. If your furrow was a mile long and a half a mile wide in 1911, make it a mile and a half by a mile in 1912 and don't forget that in 1912 you have three hundred and sixty-six days in which to work while in 1911 you only had three hundred and sixty-five and that much more is required of you.

Why not enter upon the work of this New Year with a spirit of optimism. It hurts to be pessimistic. It impedes progress and at the same time it shortens your bank account. Bring into your work the joy of living, of doing things and getting things done for by so doing you'll turn aside the bumps as the plowshare turns its furrow.

Get into the game for it is a big one and above all "Boost and don't knock."

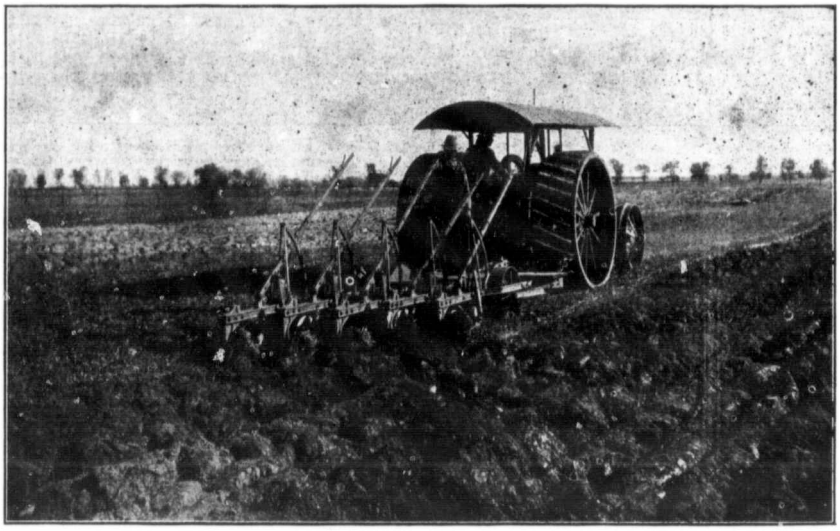
"PUSH—DON'T KNOCK"

Upon a door I saw a sign;—
I cried, "A motto, and it's mine,"
A wiser thing I never saw—
No Median or Persian law
Should be more rigidly enforced,
Than this; From verbiage divorced
It's logic's firm as any rock—
"Push—don't knock."

'Twas simply meant to guide the hand
Of those who wished to sit or stand
Within the unassuming door,
This weight of sermonry that bore.
'Twas never meant to teach or preach,
But just to place in easy reach
The ear of him who dealt in stock—
"Push—don't knock."

But what a guide for life was that—
Strong, philosophical, and pat:
How safe a chart for you and me
While cruising o'er life's restless sea:
Push, always push, with goal in view:
Don't knock—avoid the hammer crew:
This rule will save you many a shock—
"Push—don't knock."

When on that door I see the sign,
I say "Great motto, you are mine,"
No stranger sermon ever fell
From human lips: no sage could tell
The hothead youth more nearly how
To paint always his vessel's prow:
There are no wiser words in stock—
"Push—don't knock."



Cockshutt Engine Gang at work on Experimental Farm, Ottawa

Look Before You Leap!

When you come to buy an Engine Gang, insist on getting one that meets your highest expectations: Remember that an Engine Gang that does not work **perfectly right** isn't worth what you pay for it, no matter how **much** or how **little** it costs. It is **a drag on your income.**

Be it known, then, that there are Engine Gangs and Engine Gangs.

And we are making an Engine Gang refined from year to year to a state of perfection that makes its owners more enthusiastic than ever before. A better plow may come in the far future, but it is difficult to imagine. By combining great skill with painstaking workmanship and the very best materials the markets of the world afford, we produce an Engine Gang that **sheer merit** has given its high place in favour.

A life time of "know-how" is in the making.

And so we keep on advertising our Engine Gang, because the more you know about it, the more certain you are to buy one. And if **then** you do not know as much as you would like to know about it—for lack of space does not permit us to describe it in minute detail—send for our Catalogue, or see the Dealer.

Look before you leap!

The Cockshutt Engine Gang is superior in design, lasts longer, and does better work than any other Traction Plow made in this or any other country.

The triangular frame is made of heavy carbon steel of great strength: it withstands the great strain of the toughest Western sod. The beams—two to each plow—are extra heavy and straight;—unlike single-arched beams they cannot become twisted under the strain of large engines. Each individual plow is hinged to the frame between wide jaws—this with heavy beam prevents plows from winging. Each plow works independently of the others—one bottom, one lever. When clearing obstructions, only **one** plow need be raised. Should one plow become damaged it can be replaced within a few minutes with one from the end, a thing you **cannot** do with others. Each plow has sufficient weight to stay in the hardest ground. Large 13-inch gauge wheels run directly in front of shares protecting plows from stones and other obstructions. They are made solid in centre to prevent clogging in trashy ground. The hitch being directly from the centre of the platform brings the plows close up to the Engine, utilizing all the power and reducing draft considerably. Levers are easily operated by one man standing on the roomy platform.

Protect your acreage and your investment and get a Cockshutt! Write us for **FACTS and FIGURES**, and let us prove the economy of the Cockshutt Engine Gang, the gang which pays a **big return** in **bettered harvests**, with the added gain of plowing done at **lowered cost per acre.**

COCKSHUTT PLOW COMPANY, LTD.

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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.)

What a Boy Can Do.

Last summer I bought a 20 horse power International gasoline engine, which gave splendid satisfaction. I plowed between six and seven hundred acres with it. When breaking and backsetting I pull four 14-inch bottoms and on stubble five and six 14-inch bottoms. We use a P. and O. engine gang, which works first class.

Generally, two men run the engine and plows, but owing to our being short of men, about half the time the work of running both engine and plows was done by a fourteen-year old boy. He ran the engine all summer, and both engine and plows nearly one half the time. I enclose his photo when taken in harvest. He jumps off his binder in the shady side of a shock to have his four o'clock lunch. His name is Roy McLean.

When plowing stubble we generally plow twelve to fourteen acres per day, using about 50 cents worth of gasoline per acre and about two barrels of water a day. Our repairs for the whole season cost less than $3.00.

This engine has plenty of power, and is large enough for one section of land, and I think is much cheaper than horse power.

Yours truly,

D. H. McLean.

Sperling, Man.

Well Satisfied.

We bought a Hart Parr 22 horse power gas tractor last September and a six 14-inch bottom Moline engine gang, and plowed 360 acres of backsetting and stubble, averaging 15 acres per day.

We never had any experience with gas engines before, but had very little trouble and no expense outside of fuel and labor, and are well satisfied with our investment.

We are not going to boast about our engine or plows, but will say that we have never regretted getting the outfit we did. We consider six 14-inch bottoms enough for an engine of this size, if good crops and good farming is the object in view.

We used mostly kerosene for plowing, using about three gallons per acre, and gasoline for starting and roading, using about a barrel per 150 acres. We also used from one to one and a half gallons of water per acre with the kerosene.

With regard to men and horses required. Two men ran the outfit, and we had a team to bring us water and fuel about every three days.

Taking everything into consideration, viz., fuel, cylinder oil, gear oil, grease, labor and, barring breakages, we estimate that good plowing in our locality will cost from $1.25 to $1.50 per acre.

To make a success of traction plowing a man should be of a mechanical turn of mind, and give his mind entirely to his work and he should also be a hustler, but above all things, he should never be in a such a hurry that he cannot stop to fix anything which might go wrong, also to apply oil and grease when necessary.

We have not had any experience with gasoline threshing, but for a man or men who have a section of land we have not the slightest doubt but that a gasoline tractor is a first class investment.

Yours truly,

J. & W. Metcalf.

Oakville, Man.

Understands His Engine.

I must say regarding traction plowing that my experience is very limited, as we did not get our engine until just before the ground froze up last fall.

Our engine is a 20 horse power International gear drive gasoline tractor, type C, and the plow is a Parlin and Orendorff Mogul five bottom engine gang.

I am a machinist by trade and have had a great deal to do with gasoline engines, especially marine engines, and so far as I understand, our engine is a good one.

I had only a day's work out of the outfit, and plowed eleven acres, using a little over two gallons of gasoline to the acre, pulling four breakers. The expert that brought the engine out could not get it to pull more than three plows, and the excuse was that the engine was new. As soon as he had gone I started in and after a while found that the plows were not set right. Instead of there being fourteen inches between, there was one and two inches difference. After setting all the plows I started off again and the engine pulled four plows as easily as it did three before.

I had another little trouble with the engine. It lost explosions and stopped, but I found that the end of the ground wire that is fastened to the engine base was loose, and after tightening the wire it went alright.

I like engine plowing, and it did nice work. If I had to keep on with horse plowing I am afraid I would give up in dispair, as it is too slow and lots of work. For another thing I consider traction plowing cheaper.

We pay 27¼ cents per gallon for gasoline at Strathmore. After the engine has been run so that everything is worn smooth I am sure it will not consume more than two gallons of fuel to the acre, and the cooling tank takes a barrel of water, that will last for a ten hour run.

This spring we are going to do discing and seeding with the engine. We expect to use two discs, one seeder and a four section harrow behind the seeder.

I don't believe traction work is any harder on the engine than belt work, especially the way International engines are designed with springs in the friction clutch to take all jerks.

As soon as I start work this spring I will take a photograph of our outfit at work.

Yours truly,

Halverson & Inderdal.

Strathmore, Alta.

Goold, Shapley & Muir and Cockshutt making a model furrow in Manitoba Gumbo.

The Horse is Out of the Game.

I bought a 22 horse power Hart-Parr tractor (45 B.H.P.) the end of last July, rather too late in the season to give a satisfactory trial for plowing purposes. With it I bought an Emerson eight bottom 16-inch plow.

My land is somewhat stony, or of a loam with clay subsoil. I found after a short trial during the latter part of July and the beginning of august that the shares were too light, owing to the hardness and dryness of the ground. Several of the shares bent upwards and refused to turn over the soil.

After threshing I plowed about 120 acres, during which time I bent three beams, broke one casting and bent two others.

I employed one man to operate the plows and one man to drive the engine. No horses are used except to haul gasoline and fuel oil from town. I will use about 40 gallons of fuel oil and from two to four gallons of gasoline per day, on which I can plow from 20 to 25 acres stubble, five inches deep.

The amount plowed will vary in proportion to the size of my field and the amount of turning to be done. Also it affects the amount of fuel used per acre. The amount of water will vary a little according to whether the weather is cold or hot. Twenty to thirty gallons of water is as much as we used in one day. Plowing is not any harder on the engine than threshing, but for dust. I put the cost of one day's work down as follows: —

Fuel oil	$7.00
Gasoline	1.00
Gas engine and other oil	2.00
Two men	5.00
	$15.00

Read What Your Fellow-Farmers Say of the RUMELY OilPull TRACTOR

LA PORTE, IND.

Operates 15 H. P. OilPull for One-Half of What It Cost Him with Horses—Does 3 to 4 Times as Much Work

I purchased an OilPull Type "F" last August and it has given full satisfaction. Am pulling 6 furrow engine gang, plowing 5 to 6 inches deep. My 13-year-old boy operates the engine. Can run this rig for one half what it costs to run a 14-inch gang with horses and get from three to four times as much first-class plowing done per day.

J. M. Fenrite
Lac qui Parle County, Minn.

Broke and Summer Fallowed Over 500 Acres

I am the owner of a 30-60 Horsepower OilPull. I have broken and summer fallowed over 500 acres and have had no trouble.

Barney Griffith
Saskatchewan, Can.

Broke 900 Acres—Not One Cent for Repairs

In 40 days we plowed and broke 900 acres of land without a breakdown and without one cent for repairs.

Ralph W. Nauman
Potter County, S. D.

WE have hundreds of good letters from users of the OilPull—unsolicited letters—every one of them an enthusiastic recommendation of the OilPull—*the only real kerosene-burning farm tractor.*

RUMELY OilPull TRACTOR LA PORTE, IND.

Here are shown extracts from a few of these letters. Read them. They tell in plain language what the men who own and operate the OilPull think of it—what it has done for them—why they recommend it so highly to others.

Without Previous Engine Experience, Broke 850 Acres without a Skip

I did not know anything about an engine but I broke 850 acres last spring with my OilPull. Pulled 7 and 8 breakers in backsetting, 3 inches deep, a 4 horse crusher and harrow all the time.

W. G. Polchow
Stark County, N. D.

Using Two OilPull Type "E" Tractors for General Farming

We have been operating two of your OilPull Type "E" tractors this year doing general farming . . . we pulled ten plows with each in backsetting, plowing 7 inches deep, and eight plows, 5½ inches deep, in breaking.

A. C. Brink
Hughes County, S. D.

MORE PROOF—FREE

The figures on cost of animal and mechanical power on the farm as given in "Toiling and Tilling the Soil," our OilPull Catalog, are based upon actual experience. We want you to see these figures—compare them with your own cost of raising crops—read the additional proofs from the field that we will send you—then decide for yourself whether or not you can afford to do without the OilPull. Complete specifications and pictured descriptions of each size OilPull we build are also contained in the catalog.

Can't Be Beat

The OilPull is an engine I can recommend to anyone—it can't be beat.

M. H. Bahnson
Lyons County, Ia.

Logical Substitute for Horses

The OilPull will do any kind of work that horses can do—it can't be beaten for all around farm work.

G. E. Gallia
Bowman County, N. D.

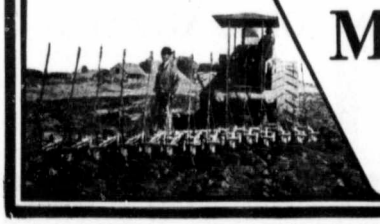
The facts are free. Better send for them today. Your name and address on a post-card or slip of paper will do the trick. Do it NOW. Address

M. RUMELY CO.

1911 ROSE STREET
REGINA, SASKATCHEWAN

also

SASKATOON, SASK. BRANDON, MAN.
WINNIPEG, MAN. CALGARY, ALTA.



Under such conditions as I have to work this expenditure should turn over from 20 to 25 acres of stubble, according to how much turning there is to do.

I might mention that my land is rolling, and the engine is capable of taking the eight plows up any grade I have on the farm.

My engine handles a 36-inch Yellow Fellow separator, blower, bandcutter and feeder, and high loader in great shape. When everything is running right the work is far superior to that done by horses and hired men.

Yours truly,
W. S. Fitzgerald.
Grenfell, Sask.

Horse Beats Tractor in Expense.

Our farming land is clean open prairie, which is a noted feature of successful traction work. Our motor is a 20 horse power International gasoline single cylinder engine, and our experience covering only one year may not be just up to the standard.

However, we can say that we have made a satisfactory record, considering our inexperience with gasoline power. From seed time to freeze up we endeavored to keep our motor at work to the best advantage.

In the spring we drilled with two 20 disc drills, and made an average of 40 to 50 acres a day.

In the breaking season we hauled four 14-inch bottoms with ease, averaging 10 to 12 acres a day.

In the summer fallow the engine handled six 14-inch bottoms, averaging 15 to 18 acres a day, plowing five inches deep.

Our plow is a John Deere little engine gang, and does its work well. One man handles the outfit while plowing, and the cost of fuel, oil, grease and repairs were about $1.00 an acre at breaking, and 50 to 60 cents an acre at plowing stubble. When cutting, we hitched two 8-foot binders and speeded up the engine, and made an average of 40 to 50 acres a day.

Would say that after figuring up the expense of the tractor and comparing it with the expense of our ten horses and six oxen, for the year was about equal, the tractor doing two-thirds of the work.

Our hitches for the drills were simple, yet good. We bolted a 6 x 6 x 16 feet timber to draw bar of engine; bolted a good oak tongue in centre of each drill, each tongue of sufficient length to clearance in turning, fastened a good clevis in the end of each tongue, then attached clevis to eye bolts in 6 x 6 timber at proper distance for the drills.

The hitch for binders is also simple. Fasten first binder by short tongue to draw bar by clevis or rings attached to back of second binder by chain from the frame of binder where the tongue is attached in direct line to draw bar of engine underneath frame of first binder; the chain being held in place by clevis or rings attached to back of frame, also front of frame of first binder.

Now, the tongue of second binder is cut short to three feet. That is the truck pole, and a two inch pipe secured to under side of it of same length, then a bar of 1½ inch iron seven to eight feet long run through this hollow pipe and fastened to table of first binder near to the grain wheel. This device acts as guide to second binder, also telescopes while turning. The same hitch for the third binder.

The operator on the binder does not have to guide his machine by steering wheel. On a hitch of this kind, however, the field has to have corners cut off so that one can go round and round.

Trusting that our information will prove beneficial to the readers of The Canadian Thresherman and Farmer, as we have been greatly benefitted by the experience of those who have contributed to your paper, we remain,

Yours truly,
Laird Bros.
Tate, Sask.

Good Work Can be Done.

Yours to hand in regard to our experience in traction plowing, and we take much pleasure in giving what experience we have at our disposal.

We have had one year's experience in our work, having purchased our outfit last spring, which consists of a 45 brake horse power Hart-Parr gasoline engine. The Hart-Parr engine uses kerosene as well as gasoline, and the kerosene used is much cheaper than gasoline. When using kerosene, however, it is necessary to start the engine on gasoline unless the weather is good and warm. We have found that it uses kerosene with as good results as with gasoline, unless the weather is cold. When it is cold the kerosene does not form a gas readily enough to obtain good results. With the use of kerosene, however, it requires a certain amount of water to be used with it, and they are mixed as they pass from the carburetor into the cylinder, using perhaps nearly half as much water as kerosene. But this does not reduce the quantity of the kerosene required. Our engine is oil cooled and does not require water for that purpose, only as it is used with the kerosene.

Our plows are the Cockshutt make, and are very good. Our outfit has proven quite a success for both plowing and breaking. We used our engine also for threshing last fall, and was a decided success.

Plowing is harder on the engine than threshing, more on account of dust than any other

reason. In traction work it is more likely to get stuck in a mud hole, which is usually not the best for its health.

When breaking we use seven 14-inch mould board bottoms. For plowing we use eight 14-inch mould board bottoms and simply attached a chain from the harrow behind. We used no special hitch for the harrow, draw-bar of harrow to rear end of third plow beam in such a manner as not to interfere with the turning of the soil. We hitched to the third plow in order to keep it from filling in the last furrow. The plow to which the harrow is hitched is apt to go a little deeper than the other plows unless set a little shallower than the rest.

We did our breaking at a depth of three to four inches and plowed from five to six inches or more deep.

I notice there are a great many who object to traction plowing because of the haphazard way in which a great deal of it is done. In turning, many tractioneers in their haste leave poor and irregular ends. This, of course, is objectionable, but should not be taken as a sample of what can be done. There is no reason why good and regular work can not be done with the traction outfit, even at the ends. We usually plow about three furrows across the ends. It takes but very little more time to lift them all out at this place and makes a much neater job. The plows are also much easier to lift out, especially when done by hand.

I am sorry we did not keep a more accurate account of our work last year, so that we could give a more accurate statement. But I will give an approximate estimation. Expect to keep a better record this year. We do our own engineering, consequently employ but one man. It requires but two men to operate the outfit.

The following is an approximate estimation per acre for breaking, considering wages for engineer.

Engineer and extra man ..	$0.35
Fuel, oil	0.50
Other oils and greases	0.05
Plow sharpening and repairs	0.10
Hauling fuel eight miles..	0.25
Board for extra man	0.25
Total cost per acre	$1.50

We consider twenty acres per day a reasonable day's work for breaking.

Yours truly,
G. H. & E. K.Potts.
Loreburn, Sask.

At the Asylum for Inebriates

"Do you treat drunkards here?"
"Yes sir."
"Well, I'm one. Where's your bar?"

An Awful Blow

Howell—Your wife's death must have been a great blow.

Powell—Yes, she was carried away by a cyclone.

"Gas Power and the Wash Tub."

The weariness of washing day is, without doubt, the worst prospect in any woman's life. How many women are compelled to face it would ever have taken on the responsibilities of a household had they known what it means before they committed themselves to the "I will," that bound them for a life time?

Most women look forward with scarcely less dread and agonizing suspense to the week's washing than does the convict who has been sentenced to twenty lashes every second Saturday night during the whole period of his incarceration.

But this may be all abolished and the dreadful prospect turned into a day of recreation. It only wants a little thought and a very little money on the part of the so-called "head of the house," to provide a power-driven washer that will relieve the woman of the back-aching process of doing the farm laundry.

The Gem Motor Company, of Winnipeg, are marketing what they claim to be and what we have little reason to doubt is the "Most complete, most effective, most economical and greatest labor saving laundry outfit made today" in their "White Lily" power washing machine.

A slight description of this fine device, which has been fitted to connect with any gasoline or other power engine, will be found on another page. Of its effectivness and labor-saving advantages there can be no doubt, and as it is being sold at a comparatively low price, in the name of suffering humanity, as well as on a point of domestic economy, we can strongly recommend it to any interested reader and say that it is "well worth looking into."

After Burbank

Shortly after a new administration took hold of a well-known Southern railroad a great number of claims were preferred a gainst the company on account of horses and cattle being killed along the line in Kentucky. To make matters worse, it appeared that every animal killed, however worthless it may have been before the accident, invariably figured in the claims subsequently presented as being of the best blood in Kentucky.

One day, in conversation with one of the road's attorney's, the president became very much excited in referring to the situation. 'Do you know," he exclaimed, bringing down his fist on the desk, by was of emphasis, "I have reached the conclusion that nothing in Kentucky so improved live-stock as crossing it with a locomotive."

POWER AND PLOWING

An Address Delivered before the 6th Day Farming Congress, at Colorado Springs, Colo.

By L. W. ELLIS.

Six hundred million tons of soil to the half-section lie in the surface foot of earth which is the workshop of the intelligent farmer. Other implements may stir this mass of productiveness, other machines and vehicles pass over it to take off the golden yield, but the work of the plow, which at least once in two years must turn this enormous weight bottomside up, is the mightiest labor of all.

I do not have to emphasize to you the vital importance, not only of proper plowing, but also of subsequent tillage. You are agreed that you must plow deeply; that you must plow rapidly when conditions are ripe; that you must pulverize the ground thoroughly; that you must again bring the soil particles into close but not cemented contact; that you must preserve a loose mulch after plowing, after seeding, after harvest, after every rain. You also know the value of rapid seeding and harvesting. You all appreciate the satisfaction of quickly turning threshed crop into cash. My mission, then, is to raise the question of how this shall be done in sub-humid agriculture, and even more prominent in the answer than the figure of the plow is the thought of power. Power shapes our modern world, and nowhere is the solution of the power problem more important than upon the farms of our vast dry-farming area.

Power on our farms is tending more and more to become mechanical in its nature. Mechanical power developed the factory system; built the city and made it attractive; and sent lines across land and sea to create a world-wide commerce. It sent back farm machinery to replace the splendid blood it drew from the country. Today it is making farm life more and more attractive by the marvellous conveniences it brings, and now, at last, mechanical power itself is pouring out upon the farmto perform more quickly and profitably the heavy tasks that cannot be transferred to the centres of population.

The stationary engine aids or replaces the dry-farmer's own muscle. The tractor comes to assist the animal as well as man. It satisfies emergency requirements. It withstands heat, flies, dust, blinding sun, and heavy, continuous service when every possible agency must be used that will save moisture. It reduces the hours of human labor for a given volume of output. It eliminates much of the enormous yearly labor of attendance. It calls for cheaper shelter for itself and fuel, and it needs only a tenth the building space required by horses of equal power and their feed. It requires no great variety of diet, and uses nothing that could be converted into human food. In the average case it is cheaper to buy and to operate than animals, more useful in times of pressing need, and infinitely simpler to maintain when not in use.

Yet for the present we shall use the tractor and the animal. Which shall be used in greater strength must depend on the requirements of the farm in question. Capacity is all-important at many critical stages in dry-farming, and the tractor's endurance then outweighs all other considerations. The number of work animals now kept is the practical minimum that can possibly plow, sow, and reap in season. Plowing already consumes 60 per cent. of the power required to raise and harvest the wheat crop. You urge deeper plowing. Increase the horse-flesh for that purpose, and presently you have still a larger number of idle mouths to feed and more team-poor farmers. Keeping brood mares for emergency work and selling their offspring to pay the cost of upkeep is an expedient possible only to a certain percentage of farmers. Neither should it be necessary for all sections to conform to the type of farming that will employ at full capacity during all seasons the number of animals now needed for plowing. With the traction engine to take care of the heavy, rush work, and look after itself the rest of the time, and with the number of horses determined by the odd jobs that need attention the year 'round, the power problem is permanently solved, and the type of farming can be chosen properly, i.e., with reference to markets, soil, and climatic conditions.

The horse reproduces, repairs and regulates itself. It is understood almost by instinct. It is more reliable than a machine, more flexible in power, and adaptable to a much wider variety of uses. Yet you cannot depend on animal power to carry out the universally deeper plowing and more thorough tillage to which

the creed of dry-farming commits you. Animal reproduction is too slow and inflexible to cope with swiftly changing conditions. It takes four or five years to make a good work horse. A modern factory can turn out a thirty horse power tractor in from three to five hours. It takes many generations to change the type of an animal, but only a few weeks to adapt a machine to a new condition.

Conceding the final triumph of mechanical power, we now come to a practical question as to its present status. From the dry farmer's standpoint the steam tractor may well be omitted from the discussion. Labor and fuel costs, scarcity and hardness of water, enormous weight and wastefulness of time all argue against it. Steam is not dead. Its days are not even numbered. Three of the leading steam tractor builders report larger sales of steam tractors this year than ever before. Yet dry-farmers are buying gas tractors freely who never were interested in steam, and these sales are increasing many fold each year without checking the development of older forms of power. Each new thing comes as an addition to our resources rather than as a complete revolution. Man, animal and steam power will perhaps show no remarkable decrease; but the dominant form of power on our dry-farms of the future will be gas power, and it is the efficiency of the gas tractor that interests us most just now.

It is easy to remember the first gas tractor; men live whose lives have spanned half the history of the steam tractor; but the present type of the horse, except for minor details, has so long been fixed that the date is only a hazy guess. Tractors, however, have improved astoundingly in five years—even in three years. One designer remarked this summer that a certain competing gas tractor had improved 60 per cent. over last years' model, and last year's model was by no means the poorest of its kind. Three years ago I knew of eight, possibly ten, gas tractor firms in this country. Eight years ago there were two. Now there are around fifty, building an average of two types or sizes each. Rivalry is standardizing and improving the output with wonderful rapidity. A three-year-old impression of the gas tractor's efficiency is obsolete. True, there is wide difference in the merit of various makes, but the majority are so perfected that responsibility for success is passing swiftly from the maker to the operator.

Two engines made the same day from the same patterns and the same batch of material; machined, assembled, tested and inspected by the same crews, and shipped to the same community, will often form the basis of widely differing reports. The great bulk of operators of a given engine are satisfied; the others are not. When the crop fails, do you blame the farm or the farmer? When the engine fails, do you say that the engine won't run, or that the tractioneer can't run it? It took the first successful builder of a gas tractor five years to convince 300 farmers of its value; but 7,000 farmers are convinced this year that some make of gas tractor is practicable. The doubling of that number next year will come about largely through the experience of this year's buyers. The success of any enterprise depends as much upon the management as the equipment. Fortunately, the right type of traction farmer is now being developed, both in the field and in the many agricultural colleges, and to this fact traction farming owes much of its growing success.

The gas tractor is here. Its lasting popularity is assured. Already it is made in a variety

Continued on page 53

Questions and Answers

For Gas Engine Operators

This is a 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.

Q. G. W. Which of the following three methods of handling the gasoline is the most reliable; the carbureter, the gravity feed or the pump feed? Which of the three systems is the most used?

A. Each of the three systems mentioned is in use, and is the best for the purpose to which it is applied. The carbureter apears to be the favorite for traction engines, because it is not seriously affected by a jar. The gravity system is the favorite for launches and the lift system for stationary engines. The reason of the preference for the lift system in the latter case is because it is practically required by insurance regulations, as they stipulate that the tank shall be underground and at a distance from the engine. We believe that the lift system is that most used.

Q. L. A. I have a four-cycle engine with a hit-or-miss governor, which controls the speed by holding the exhaust valve open during the idle stroke. The engine is fitted to operate on either gas or gasoline, and the inlet valve is operated by the suction of the piston. The engine gives little or no trouble when operated with gas, but when we change to gasoline, it cuts up various capers, principal among which are great fluctuations of speed on light roads. The trouble seems to be that engine will fail to secure an explosion for one or more cycles after the governor has let go of the exhaust valve, and this failure is frequently followed by explosions in the muffler. Can you suggest the cause and the remedy?

A. The cause of the trouble is, we believe, the fact that the inlet valve opens slightly during the suction strokes, and when the engine misses several impulses in succession, gasoline is drawn into the cylinder and the next charge drawn is made too rich to ignite. The remedy is either to tighten up the inlet spring so that it will not open, to place a locking mechanism on the stem of the inlet valve that is under control of the governor, or to place a relief valve in the exhaust pipe near the engine. The trouble usually occurs with a long exhaust pipe, and is due to the inertia of the column of gas, producing a slight vacuum in the cylinder, which opens the inlet. Placing a valve with a light spring in the exhaust pipe will allow air to enter the pipe from near the engine, and prevent the formation of this vacuum. We believe that this is probably the best solution of your trouble.

Q. E. W. Will you kindly tell me what is the matter with my engine? It gave me not the slightest trouble for the first six months that I ran it, doing duty ten hours a day, and never refusing to carry its full load. Now it runs by fits and starts, sometimes taking about a dozen impulses all right and then slowing down, to pick up again when it reaches in the neighborhood of forty turns per minute. I have tried a new battery without helping matters any, and no one about here seems able to help me out of the trouble. What do you think is the matter?

A. The cause of your trouble is evidently a case of vibrating connections or a broken wire somewhere inside the insulation. The peculiar behavior is due to the fact that when the engine is not going at a very high speed the circuit is complete, but when speeded up the loose connection is shaken apart and the igniter circuit is broken. Go over the wiring carefully, preferably with a bell and battery, and we are quite sure you can easily locate the trouble.

Q. A. M. On starting my engine it does considerable smoking at the muffler, does not seem to fire every charge properly, runs for a while, when it commences to make an awful loud report from the exhaust muffler, also seems to check, or lose speed. Can you tell me the cause, also the remedy? The engine is a pumping engine and works all right except the exhaust. It does not carry a very heavy load. Any information you can give me will be appreciated.

A. This looks very like a weak battery. It may be due to poor mixture. The exhaust explosions are always caused by misfires.

Q. J. G. I have been running a well known make of portable gas engine for about four years, and last summer decided to try kerosene, purchasing from the manufacturer what they called their kerosene attachment, but it does not work very well with the electric igniter, which is of the make-and-break type. The engine will run all right for a few moments after I change to kerosene, and while there is a little gasoline

mixed with the kerosene. Then it will commence to miss an explosion, then two, then three, and so on. It may run twenty minutes or half an hour, then the engine stops. After the engine stops it is generally found that the inside of it is well smoked. On examining the points they will be discovered to be completely covered with soot, and after cleaning them the engine will run about the same length of time and stop. I am using a small dynamo for generating current for the igniter. The engine works all right on gasoline, but that is very hard to get here. In working the kerosene attachment, the fuel is warmed by passing through the exhaust muffler. Any information you can give me will be greatly appreciated.

A. We would say, in the first place, that you do not get your engine sufficiently warmed up before you change from gasoline to kerosene. To run an engine of this kind successfully on kerosene it is necesary to heat the cylinder as nearly to the temperature of boiling water as possible. We believe that if you will keep your jacket water at a temperature of over 200 deg. you will have no further trouble. You will find your engine will work better with kerosene oil on a heavy load than when running light.

Achieving the "Impossible."

When reason and fact label the doing of a certain thing "impossible," its doing may then begin to be really worth while. There is nothing that ought to challenge the best in a man more invitingly than to be confronted by a blank wall of impossibility across a path that he counts it his duty to follow. That settles the question for him, if he had any doubt about it before: he must go ahead now because of the obstacles that forbid him. The tremendous achievement of reaching the North Pole may prove to have its greatest value in just this: it showed that men need not be prevented by conditions that had begun to seem insuperable. That great object lesson is worth more to the world than would have been the finding of a radium mine or some new kind of material wealth. The mere fact that you have failed all your life up to now to accomplish a certain thing that ought to be done is no reason why you should not yet accomplish it. The long-continued failure is only an added reason for declining to be forbidden from your goal.

Joseph Henry was the first to construct electro-magnets in a useful form. In 1832, at the Albany Academy, he succeeded in ringing a bell over a mile of wire.

Course in Gas Engineering

This Course consists 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.

The best economy in fuel consumption was made by No. 10, having a four-cylinder engine, and giving a piston displacement of 10,905 cubic inches. Now the piston displacement was practically 25 per cent. greater than No. 1, yet the fuel consumption was 23 per cent. less. If the mixture of gasoline and air had been of the same quality, both as regards amount and thoroughness of distribution, we should naturally expect the fuel consumption of No. 10 to be 25 per cent. greater than that of No. 1, other conditions being equal. All the four-cylinder motors were fitted with regulation automobile carbureters, while the single and double cylinders were supplied generally with the ordinary type of mixer, not automatically adjustable. Of course, the four cylinder engines operate on the throttling system, while the others use the hit-and-miss, but these systems of governing would not affect the results in the maximum brake tests, since the engines were loaded to the point where they are taking every possible explosion. For all conditions, operating under light and heavy loads, the ordinary mixer is unsuitable. The matter looks as if it were well worth investigation by placing the various types of carbureters upon the aforementioned engines and, if the fuel consumption could be lowered a correspondingly amount the extra cost for the equipment would not be considered by the purchaser.

The piston displacement per drawbar horse power is, of course, obtained by dividing that for the maximum brake horse power by the transmission efficiency. Taking the average efficiency obtained from the tests as 50 per cent., we should have a displacement of about 20,000 cubic inches. We find some considerably less than this and also some greater, due to the small amount of power delivered at the drawbar.

In calculating the power to be expected from any given internal combustion engine, the piston displacement figures furnish a ready means. In using these figures one's personal judgment may decide just what value to take upon investigation of the engine itself. However, from all 24 contestants, we obtain an average value of 11,260, showing about 11,000, a good figure to use for this purpose.

The selling price is given f.o.b Winnipeg, and has been reduced to dollars per maximum brake horse power and to cents per pound total weight. The price per maximum brake horse power, as might be expected, carries considerable, due to the different types of machines. Of course, the steam machines are cheaper in this respect, when the brake horse power alone is considered, this being due to their great overload capacity. Omitting No. 3, which is not strictly in the tractor class, we find the cheapest per horse power to be of the four-cylinder vertical type, for $48.3, while the highest is $93.1, of the single-cylinder type. The second rig is much smaller than the first, which accounts for the higher value, as the cost of building the truck alone would be almost the same in either case. For engines of about the same power there is little difference in price between the high and the low speed. The average price per maximum brake horse pawer was $66.6.

The price per pound brings matters to a manufacturing standpoint, and shows greater uniformity. These values run from 13.6 cents for the heaviest rigs to 23.7 for the lightest, with an average of 16.7 cents. Here, again no distinction can be noticed between the two and the four cylinder types, only between the light and heavy rigs.

In column "1" we find some very interesting figures, more particularly, perhaps, as they directly affect the pocket book of the man operating the engine. In the judges report, the fuel consumption was given in horse power hours per pound of fuel, but this has been reduced to gallons per h. p. hour, as fuel is usually sold in these units, and guarantees similarly stated. The results this year were rather surprising, and showed remarkable economy for the types and sizes of rigs competing. The best record during the two hour test was made by entry No. 15, 0.081 imperial gallons, or 0.097 United States gallons, slightly better consumption was recorded by No. 10 in the half hour maximum test. With gasoline at 20 cents per imperial gallon, this brings the cost per brake horse power to 1.62 cents. The average consumption for all the gasoline tractors was 0.095 gallons, and for the kerosene 0.119 gallons. With gasoline at 20 cents and kerosene at 12 cents per gallon,

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these average values would give a brake horse power per hour for 1.99 cents and 1.14 cents respectively.

In the plowing contest, the lowest fuel consumption per acre was 1.57 gallons, with the average for gasoline as 2.54 gallons and for kerosene 3.07 gallons. This would bring the average cost per acre for the former as 50.8 cents and for the latter 36.8 cents. The kerosene is a much more undesirable fuel to handle, both from the standpoint of general cleanliness and in operating, yet the cost is a big item, especially when 20 acres or more are being plowed per day. The kerosene is over 25 per cent. cheaper than the gasoline, and this would represent a saving in fuel for the day of $2.80, a sum not to be neglected when the tractor is to be operated day after day and for several seasons. There is no question but

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Calculated Results from Judges' Report.

CLASS	ENTRY NUMBER.	MAKER'S NAME	WEIGHTS. Total Weight. Pounds. (a)	Weight on Drivers. Pounds. (b)	Percentage of Total Weight on Drivers. (c)	Weight per Max. b.h.p. Pounds. (d)	Weight on Drivers per 1 lb. D.B. Pull. Pounds. (e)	Weight on Drivers per 1" of Face. Pounds. (f)	PISTON. Piston Displacement per Max. b.h.p. Cu. In. per Min. (g)	Piston Displacement per D.B. h.p. Cu. In. per Min. (h)	PRICE. F.o.b. Winnipeg. Dollars. (i)	F.o.b. Winnipeg, per Max. b.h.p. Dollars. (j)	F.o.b. Winnipeg, per Lb. Total Weight. Cents. (k)	FUEL CONSUMPTION. Per b.h.p.-Hr. 2 Hr. Run. Imp. Gal. (l)	Per Max. b.h.p.-Hr. Half Hour Run. Imp. Gal. (m)	Fuel per Acre. Imp. Gal. (n)	Fuel per Day. Gas, Ker.—Gal. Coal—Lb. (o)	EFFICIENCY. Thermal Efficiency per b.h.p., 2 Hr. Per Cent. (p)	Thermal Efficiency per D.B. h.p. Per Cent. (q)	Transmission Eff. D.B. h.p. ÷ 100. b.h.p. (r)	Speed of Engine in Plowing. Miles per Hr. (s)	Acres per Day of 10 Hrs. (t)	Cost per Day. Gas.—20c I. Gal. Ker.—12c I. Gal. (u)	Cost per Acre, as Preceding. Cents. (v)	a.h.p. ½ Hr. / a.h.p. 2 Hr. (w)
INTERNAL COMBUSTION. CLASS A.	1	Int. Harv.	14650	10400	71	620	4.08	260	8,730	15,960	2200	93.1	15	.098	.103	2.32	23.9	19.9	15.2	54.7	1.83	10.3	4.78	46.4	1.05
CLASS B.	2	Kinn. Hain	9100			309			10,290	16,035	2000	68	22	.093	.102	2.27	28.4	21.0	18.5	63.8	2.3	12.5	5.68	45.5	1.21
	3	Avery							14,935	32,895	2800	117		.091	.125	3.14	30.8	21.6	9.8	45.4	2.24	9.8	6.16	62.7	1.13
	4	Int. Harv.	18200	12400	68.1	574	3.94	282	9,800	17,660	2700	85.1	14.8	.096	.093	1.57	22.9	20.5	21.5	55.5	2.1	14.6	4.58	31.5	1.20
	5	Rumely	15385	10845	70.6	469	2.86	246	10,610	19,335	2200	65.6	14.3	.097	.106	2.75	40.1	20.2	12.8	54.9	1.82	14.7	8.05	54.7	1.29
Gasoline.	6	Goold, Shap	12500			477			11,930	23,255	2350	89.8	18.8	.122	.139	3.21	28.9	16.1	13.0	51.3	1.68	9.0	5.77	64.1	1.00
	7	Universal	10,971	7625	69.5	336	2.54	190	10,545	21,430	2600	79.5	23.7	.121	.132	3.28	36.4	16.2	12.3	49.2	2.01	11.1	7.28	65.6	1.06
CLASS C.	9	Kinn. Hain	13875			300			11,345	20,330	2500	54.2	18.0	.082	.086	2.35	40.4	24.1	17.9	55.8	2.14	17.2	8.08	47.0	1.08
	10	Sawyer-Mass	18500	13600	73.5	357	2.52	282	10,905	22,620	2500	48.3	13.5	.089	.080	2.83	40.5	22.0	17.3	48.2	1.73	14.3	8.10	56.6	1.44
	11	Int. Harv.	20600	14300	69.5	353	2.25	298	9,985	18,015	3200	54.8	15.5	.090	.101	1.78	46.1	21.7		55.4	1.9	25.9	9.22	35.6	1.27
	12	Gas Tract	17500	14000	80.0	302	2.41	292	11,690	20,820	3350	57.6	19.1	.101	.110	2.10	48.3	19.5	18.8	56.0	2.12	23.0	9.66	41.9	1.12
	13	Int. Harv.	19500	12000	61.6	297	1.81	250	9,255	18,255	3200	48.7	16.4	.087	.109	1.94	50.1	22.4	18.7	50.7	1.88	25.8	10.02	38.8	1.32
	14	Goold, Shap	17000			430			13,075	34,410	2825	71.5	16.7	.114	.117	3.61	46.9	17.2	8.9	38.0	1.67	13.0	9.38	72.3	1.01
	15	Ault. Taylor	22394			383			11,125	19,855	3825	65.5	17.1	.081	.091	1.93	51.3	24.2	17.8	56.0	2.24	26.6	10.26	38.7	90
Gasoline.	16	Gaar, Scott	28000	16000	57.2	360	2.94	400	14,195	37,855	3,900	50.1	13.9	.110	.125	4.95	109.1	17.9	7.5	37.5	2.01	22.1	21.88	98.9	1.12
	17	Buff. Pitts	26000			480			13,555		3550	65.5	13.6	.120	.119			16.3							.96
CLASS D.	18	Int. Harv.	14650	10400	71		4.57	237	9,780	20,505	2200		15.0	.099	.172	3.10	25.4	17.1	9.4	47.7	1.90	8.2	3.05	37.2	1.05
	19	Int. Harv.	15200	10100	66.5	502	2.53	211	11,515	21,090	2700	90.5	17.7	.169	.198	3.79	40.9	11.0	8.3	54.6	1.53	10.8	4.91	45.4	1.14
	20	Int. Harv.	18200	12400	68.1		4.60	282	9,680	18,690	2700		14.8	.113	.135	3.90	46.8	16.5	7.1	51.8	2.20	12.0	5.62	46.8	1.10
	21	Rumely	15385	10845	70.6		3.19	246	10,705	19,185	2200		14.3	.102	.151	3.36	41.0	18.3	9.8	55.8	1.99	12.2	4.92	40.2	1.27
	22	Int. Harv.	20600	14300	69.5		2.27	298	9,475	18,220	3200		15.5	.118	.115	2.44	66.9	15.8	10.5	52.0	2.00	27.4	8.04	29.3	1.25
	23	Gas Tract	17500	14000	80.0		2.82	292	14,485	23,745	3350		19.1	.119	.128	2.79	52.2	15.7	12.2	61.0	2.27	18.7	6.26	33.4	1.15
	24	Kinn. Hain	18500			324			12,740	22,955	3400	59.5	18.4	.121	.116	2.18	48.8	15.4	13.5	55.5	2.01	22.4	5.86	28.2	1.16
Kerosene.	25	Rumely	27320	20060	73.5	402	3.09	334	9,930	21,920	3500	51.5	20.2	.099	.142	3.02	71.2	18.9	9.1	45.3	1.77	23.4	8.54	36.2	1.28
STEAM. CLASS E.	26	Buff. Pitts	34500			353					2990	30.6	8.7				4940			31.8	1.95	20.9	21.0	100.3	1.2
	27	Am. Abell	44000	28000	63.6	435	4.25	378			3500	34.5	8.0				5450			36.2	2.08	28.8	23.1	80.4	1.41
CLASS F.	28	Avery	44000	33000	75.0	276	6.95	685			4200	26.4	9.5				6780			22.4	2.84	32.6	28.8	88.4	1.43
	29	Gaar, Scott	36000	26000	72.2	239	3.59	433			4200	27.8	11.6				5000			24.3	1.87	24.2	21.2	87.8	1.48
	30	Sawyer-Mass	39000	27000	69.2	270		450			4000	27.7	10.2												1.40
	31	Sawyer-Mass	20950	22800	77.3	249		380			3750	31.6	19.2												1.42

Gasoline, 18,500; Kerosene, 19,500 B.T.U. per lb.

ALCOHOL AS A FUEL

By L. H. S.

What will be the ultimate outcome of the rapid increase in the use of the internal combustion engine. For the past five years thousands of these engines of various sizes, from the huge machines installed at the high pressure pumping plant of the city of Winnipeg, down to the little half or one horse power gasoline "put-put" for a tiny motor boat, have been installed in the West, and with each succeeding year new fields have been opened for its applicatin. The principle of these engines is ever the same, whether gas, gasoline, kerosene or alcohol is used for generating the energy, so that the only question which remains is, which one of these various fuels will be the survivor in the final race for favor. Many farmers are today wondering whether within a few years the price of gasoline will have risen to a figure which will make their internal combustion engine a luxury rather than a necessity about the place. It is a recognized fact that there is a limit to the supply, and as the demand increases the price advances from time to time. Within the past five years there have been several such advances, and it is realized that the end is not yet.

Continental Europe, and to a lesser extent Great Britain and the United States, have come to a realization of the fact that, while the gasoline engine is one of the most useful inventions of the age, further expansion must be governed by the price of gasoline or petrol, and they have been looking about for a substitute. The gas engine has offered one avenue of relief, but it is not sufficiently flexible to meet all the needs of the case. For a stationary plant the producer gas outfit has many close friends, but it cannot be applied for the hundreds of thousands of small engines which are being turned out each year. So what will be the fuel for the motor boats, the automobiles, the tractors (small and large), and last, but by no means least, the multitudes of small farm motors?

Germany has solved the question, at least in part, and in the United States there has been a definite limit placed on the soaring power of the price of gasoline. And the answer is alcohol —denatured alcohol. It has been shown that alcohol can be manufactured and put on the market at a figure which will place it in active competition with gasoline, while long series of experiments have proved its efficiency in internal combustion engines. The only issue remaining is to persuade the government to remove the excise on denatured alcohol, so that its cost will depend solely upon the cost of manufacture and marketing.

Some time ago when the possibilities of alcohol for industrial purposes were being strongly pressed in many quarters, the enthusiasm of some of the persons concerned was raised to such a point that at times they overstepped the bounds of reason, and by their very unreasonableness they assisted in defeating their object, the securing of the removal of the tax from alochol. It was claimed that if the tax were removed the small farmer would be able to establish a still of his own with which he could supply himself with fuel for his motors, heating appliances and for many other purposes. Since then the matter has been gone into carefully by experienced technical men, whose findings have served to make clear many of the points formerly left in doubt. Some of the points may be summarized briefly as follows:—

To manufacture alcohol in a small way requires special knowledge and experience, and consequently such industries will not be established till men have been trained in the work.

The successful operation of such plants will depend on the utilization of waste products high in starch or sugar, which will cost practically nothing beyond the expense of handling it. Placed on the same basis with the larger concerns it would be bound to fail.

Alcohol is a much safer and more agreeable article to handle than gasoline, and will replace gasoline for heating and power purposes just as soon as the cost of the two articles is approximately the same. Even at a slight premium alcohol will be preferred.

Alcohol will prove especially able to those living on farms or in small villages, rather than to those who live in towns and cities.

Alcohol will prove especially valuable for minor heating purposes about the house and for lighting where neither gas nor electricity are available, and for small cooking stoves.

Alcohol will prove highly valuable for light engines and motor cars, and may, in the future, be used for traction purposes and for driving farm machinery.

The price of natural gas, coal and petroleum will doubtless continue to advance as consumption increases, and the natural stores grow smaller. On the other hand it is highly probable that the cost of manufacture of alcohol will decrease.

This whole subject is a huge one and should be approached most deliberately and in all fairness.

One of the most sensational announcements in connection with the manufacture of alcohol is that it can be made from sawdust at a cost of six cents a

ment of tax free denatured alcohol for the United States was first made it was greeted with paeans of joy, for it seemed that at last a solution of the fuel and light problem had been reached. That disappointment followed has nothing to do with essential fact that the government was the recipient of almost universal commendation for the step it had taken. There had been a general campaign of publicity prior to the announcement and the people were thoroughly educated as to the manifold uses to which denatured alcohol could be put. Now the statement comes that their hopes are about to be realized.

Malcolm F. McEwen and George H. Tomlinson are responsible for the discovery of a process whereby the starch and sugar contained in sawdust and mill refuse may be converted into alcohol at a merely nominal cost. They propose to install plants to utilize the waste materials of the lumber country, huge piles of which are dumped out annually. In some cases mill owners have even paid to have this stuff disposed of, and now the proposal is to put it to some practical use. There is nothing new in the discovery, which is merely a commercial application of a well known principle, but their invention is contained in the methods and chemicals employed. From every ton of sawdust, they manufacture 22½ gallons of 188 proof alcohol. They place the cost of handling the material at 50 cents a ton, or two cents a gallon and four cents for manufacturing.

The great attractiveness of the scheme is in its simplicity. The sawdust or waste is dumped automatically into a huge brick lined cylindrical digester. A special acid solution is then pumped in according to prepared formula, and live steam is introduced under pressure. This is continued for ten or fifteen minutes, when the digester is rotated for about a like period of time, while the material is being cooked. The liquid is then blown off into a special condenser where the acid is recovered and may be used again. The solid material is carried to a diffusion battery similar to that used in making beet sugar, and is there washed with water, when a solution containing about 12 per cent. of sugar is obtained. The solution is fermented and the alcohol recovered in the ordinary still. The whole process occupies about an hour, and the finished product is of very high

grade. It is claimed that the alcohol could be put on the market at 15 cents a gallon, but even at double that figure there is a great field for the process, should further operation demonstrate that it is all that has been claimed for it.

The gas engine man need not fear that he will be playing a lone hand in his battle for tax free alcohol, for there are few materials which are so universally used in the arts and manufactures. Just to enumerate a few of these will be sufficient. Alcohol is used in the manufacture of aniline dyes and colors, hats (stiff, silk and straw), electrical apparatus, transparent soaps, furniture, picture mouldings, burial caskets, cabinet work, pianos, organs, whips, toys, rattan goods, lead pencils, brushes, boots and shoes, smokeless powder, fulminate of mercury, brass beds, gas and electric light fixtures, incandescent mantels, photographic materials, celluloid and similar compounds, sulphuric ether and many of the organic chemicals. Surely this is a long enough list, and that free alcohol is a benefit to manufacturers is amply demonstrated in Germany having secured the practical control of the aniline dye manufacturing of the world because there they have tax free alcohol.

The manufacture of alcohol from grain, roots and fruit is a comparatively simple process, and on a large scale is carried on almost automatically, there being a few highly skilled men in attendance to supervise the work. The system is that of superimposed stills. A series of simple stills from 20 to 40 in number are placed one above the other, each of them carrying a charge of the material to be distilled. Heat is applied to the bottom one and the vapor formed passes upward to the one immediately above, which is heated in turn. This continues throughout the series, the alcoholic content increasing in strength with each section, till it finally emerges from the top about 95 per cent. pure. If it is below the proper strength it is passed through a small condenser called a goose, which still further reduces the amount of water contained. The whole principle of the equipment is that alcohol is vaporized at a lower temperature than water.

The more common sources of alcohol are grains, molasses, potatoes and sugar beets. Corn is most commonly used, though any grain is suitable, and the still makes a splendid means of utilizing low grade or unsaleable grain. United States distillers use large quantities of corn and molasses from both cane and sugar beet; corn is one of the chief sources in Great Britain, while in Germany large quantities of potatoes and beet molasses are put through the fermenting vats. In the United States, for the year ending June 30, 1908, a total of 71,000,000 proof gallons of alcohol were reported. These figures are large, but it is considered as but a beginning of the output which will be developed when the utilities of alcohol are more fully developed.

A bushel of corn contains roughly 70 per cent. of fermentable matter, or under careful handling 41 pounds worth of starch and sugar. This will give in the still half its weight of absolute alcohol, or 21 pounds of 95 per cent. alcohol. Theoretically a bushel of corn should yield five gallons of alcohol, but it does not work out that way in actual practise. The richer the fermentable matter, the more nearly the theoretical yield is realized in practise.

Too much importance should not be placed on the root crop as a possible source of industrial alcohol, in view of the small yield that can now be obtained thereform, and the further fact that they are at present prices worth a great deal more for food purposes than for any other use. To make alcohol from them at present prices would mean that the spirit would cost about 60 cents a gallon.

The denaturing substances used in the manufacture of commercial alcohol may be any soluble substance of the same degree of volatility as alcohol, but which carries so disagreeable an odor or taste, that when added to the spirit renders the latter unfit for human consumption. For this purpose crude wood alcohol, benzin, pyridin, camphor, turpentine, colophonium, copal resin, Manila gum, acetic acid, acetic ether, ethyl ether, acetone, methyl acetate, methyl violet, methyline blue, anilin, eosin, fluorescein, napthaline, phenylphtalein, cabolic acid, bone oil and nicotine have been used, while the total list of denaturing substances runs well over a hundred. Formulas for special purposes have been devised along a line which will not affect its usefulness in the manufactures.

Probably one of the simplest fields for the use of alcohol is in heating and lighting, where it has a vast usefulness. For instance, the chafiing dish is made possible by it, and in a great many similar fields it is to be preferred to petroleum. Were it not for the question of cost, it would supplant petroleum to a great extent. It has not the disagreeable odor. Should it catch fire accidentally it may be extinguished with a bucket of water, there is no smoke from the flame, and the proportionate heat is greater. Simple little heaters have been devised after the principle of the old time "coal oil stove," which are portable and highly efficient, while a flatiron heated with alcohol has been patented and is finding a ready sale. A blast stove, burning alcohol with a burner of any desired shape for special work, is on the market, and others are being introduced from

day to day, while the alcohol lamp is in use, and here to stay. The flame of the lamp heats an incandescent mantel similar to that used on gas jets, and a brilliant light is obtained. In fact on a final analysis the effect of the use of industrial alcohol in the arts and in the home cannot fail to be of great benefit to the prosperity and progress of the people of Canada.

Luxury.

When I behold a fashionable table set out in all its magnificence, I fancy that I see gouts and dropsies, fevers and lethargies, with other innumerable distempers, lying in ambuscade among the dishes. Nature delights in the most plain and simple diet. Every animal, but one, man, keeps to one dish. Herbs are the food of this species, fish of that, and flesh of a third. Man falls upon everything that comes in his way; not the smallest fruit or excrescence of the earth, scarce a berry or a mushroom can escape him.

—Addison.

Corn mills are often mentioned in the Bible. The original corn mill much resembles the modern druggist's pestle. Moses forbade corn mills to be taken in pawn, for that, he thought, was like taking a man's life in pledge.

The Vision and the Duty.

A preacher once said: "If the people of my congregation would but act from a sense of duty, how different and how delightful it would be! But instead I must continually pet and coax and pat them on the back to keep them from ignoring their spiritual service altogether." Had these adults in youth learned the lesson of duty they would now be practising the service habit.

Blessed the man who while yet young experiences the vision, for he shall afterwards appreciate in its true sense the word duty. If in some moment of sublime enthusiasm he can be lifted into the regions of the divine, if he can bue momentarily be exalted above himself and behold spread out before him as in a map the infinite future possibilities of which his life is capable, that vision splendid will ever remain with him—a pattern, an inspiration.

When one catches that heavenly fire, burdens fly away, one sees the other side of duty and finds it joy unpseakable, full of glory and peace that passeth all understanding. Such a vision of duty makes for faith, and faith is invincible. "This is the victory that hath overcome the world, even our faith."

The AGRICULTURAL ENGINEER

Every farmer is an engineer so to speak. He works in the biggest factory in the world and his products are world products. His usefulness to himself and to others depends largely upon the efficiency and intelligence with which he handles the tools of his handiwork. In this series of lessons which will extend over a considerable period, we propose to deal with farm machinery in detail as it applies to crop production. We trust to make this department interesting and instructive. Questions will be cheerfully received and answered

LESSON III.

In a discussion of the heat engine we come to one of the most vital factors in modern agriculture. So closely is it connected with modern crop production that a new system of nomenclature has sprung up, and today we are familiar with such terms as "Power Farmer," "Traction Cultivation," "Tractioneer," etc., etc. Ten, yes, even five, years ago these terms would have required explanation, but today they fall upon listening ears and ears that understand their full meaning, and no explanation is asked for or needed.

Power is the one thing sought for in all engines, whether air, gas, steam, solar, etc., etc., and it might be well for us to know just how this power is measured. We found out in our last lesson just what horse power meant.

In measuring the power of any motor, it is necessary to determine the force applied and the distance traveled in one minute. Thus, in measuring the power of an engine, it is customary to place a so-called Prony brake upon the belt wheel or pulley to engage it by friction. An arm of this brake is allowed to rest upon a scale, thus determining the force. The distance traveled in one minute is the circumference of the circle, of which the horizontal distance from the center of the engine shaft to the point of support on the scale is the radius, multiplied by the number of revolutions per minute.

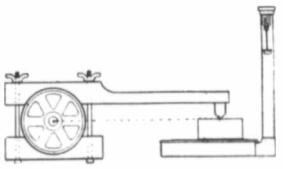
Thus, it is seen that it is not difficult to make a simple test of an engine. All that is needed is a brake, a scale, a speed indicator and a watch to determine the revolutions per minute.

Thus, if the length of the brake arm in feet is doubled and multiplied by 3.1416, the circumference is obtained of the circle in which the force must travel if released. This product multiplied by the revolutions per minute gives the total number of foot-pounds of work performed in one minute. If this be divided by 33,000, the number of horse power will be determined. This stated in the form of a formula is as follows:

$$H.P. = \frac{\text{2 x length of brake arm in feet x 3.146 x revolutions per minute}}{33{,}000}$$

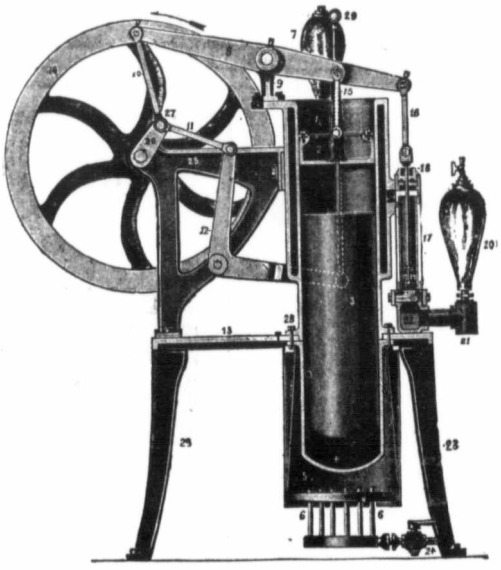
Regardless of cost, the principal source of power upon the farm is the horse, which may be styled an animal motor. Heat engines generally used for furnishing power upon the farms are the gas or oil engines, the steam engine, the hot air engine and the windmill.

The cost of power as furnished by the horse consists in the cost of feed, interest on investment, depreciation, harness depreciation, shoeing, labor, and items of lesser importance. The cost of maintaining the horse must be distributed over the working



The Prony Brake.

period, thus adding to the cost of each hour's labor. On an average, the horse does not labor for more than 100 days of ten hours each throughout the year. The cost of horse labor or power is nearly always greatly under-estimated, and the cost within recent years has greatly advanced over the cost of a few years ago, owing to the decided advance in the cost of feed stuffs.



The Rider-Ericeson Hot-air Engine.

The following estimate of the cost of labor is made up simply from general data at hand, such as the current prices for grain, etc. It is not based upon actual observation, and only serves in making a study of the subject.

Cost Of Horse Power Per Year.

Cost of feed for one year, 365 days, @ 20c	$73.00
Interest on investment, $150 @ 7%	10.50
Depreciation, 10% of $150	15.00
Harnes Depreciation, 10% of $25	2.50
Shoeing (not always required), average	.50
Labor of feeding, grooming, etc., 5c per day	18.25
Veterinary services, medicine, etc	.50
Total estimated cost per year..	$109.25

If 200 days of labor be performed, the cost will be 50 cents per day, or 5 cents per hour. If 100 days labor be performed, the cost will be $1.09 per day, or about 11 cents per hour. This estimate takes into account the fact that during the idle season less feed and less expensive feed may be used. The cost of feed during the working season will greatly exceed a cost of 20 cents per day. It is very evident that when all factors are considered, the cost of horse labor on the farm varies between five and ten cents per hour. It requires an especially good horse, much above the average, to develope power at the rate of one horse-power; yet for the purpose of this study an hour of horse labor will be considered a horse-power-hour, the common unit used in considering the cost of power.

Next to the horse, the **gasoline engine** is the most important source of power for the farm. The cost of power from a gasoline engine is made up of the cost of fuel, depreciation of engine, cost of repairs, lubricating oil and attendance.

Taking the figures of the 1911 Winnipeg Motor Competition, we find that the lowest cost for fuel for an internal combustion engine was 1.03 cents per brake horse power hour, the fuel being kerosene, and figured at 12 cents per gallon. It was also demonstrated that a kerosene engine delivered the highest draw bar horse power per unit of fuel, it being 10.95 horse power—a unit of fuel being 7.9 pounds of kerosene, or one gallon.

Experiments in the Middle Western States with gasoline and kerosene engines is reported as follows:

If an average of the fuel consumption for half and full loads be taken as obtained from this table, it will be found to be .181 gallons per horse-power-hour. It is to be noticed that the range of fuel consumption is great, and it is to be expected with large and small engines under full and part loads. Gasoline retails in the middle west for 15 cents per gallon, when a quantity is purchased. Thus the cost of gasoline per horse-power-hour, if .181 gallons be used, will be 2.7 cents.

If the average Western Canadian price of 25 cents be taken the cost per horse-power-hour would be 4½ cents.

The fuel consumption of one kerosene engine is at hand, and it was tested at full load. The fuel consumption was .197 gallons per horse-power-hour, which will cost at retail not over ten cents per gallon (in Western Canada it would be 15 cents per gallon, or 2.9 cents per horse-power-hour) or 1.97 cents per horse-power-hour. The cost of a gasoline or kerosene engine may be taken as $50.00, from which prices will vary nearly 50 per cent. each way. From this, the cost of power may be estimated as follows:

Cost of Power From Gasoline And Kerosene Engines.

	Gasoline	Kerosene
Cost of fuel, 1,000 hrs. @ 4.5	$45.00	@ 2.9 $29.00
Depreciation, $50 @ 10%	5.00	5.00
Interest, $50 @ 6%	3.00	3.00
Repairs, 5%	2.50	2.50
Lubricating oil, 4 gal. @ 40c.	1.60	1.60
Attendance, 100 days @ 5c	5.00	5.00
	$52.10	$46.10
Cost per horse-power-hour	5.21	4.61

The cost of power from a steam engine will consist in the cost of the fuel, depreciation, interest, lubricating oil, attendance, repairs. A modern steam engine will require from 3 to 12 pounds of coal per horse-power-hour, costing from 0.15 to 0.5 cents per pound. A fuel consumption of eight pounds of coal costing .3 cents per pound will make the cost of a horse-power-hour 2.4 cents.

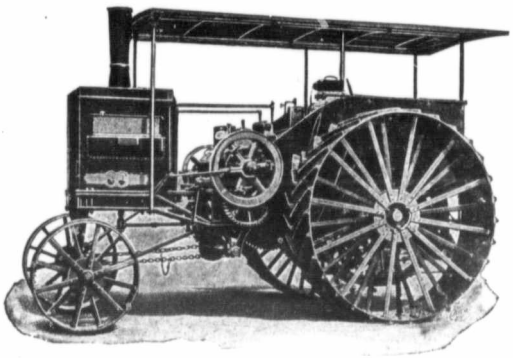
Continued on page 52

WHEN LOOKING AROUND FOR THAT GAS TRACTOR, DON'T OVERLOOK THE

Four Cylinder "Aultman-Taylor"

The Most Successful Gas Tractor Built.

NOTHING BUT WORDS OF PRAISE FROM OPERATORS OF THESE TRACTORS



MR. PURCHASER:

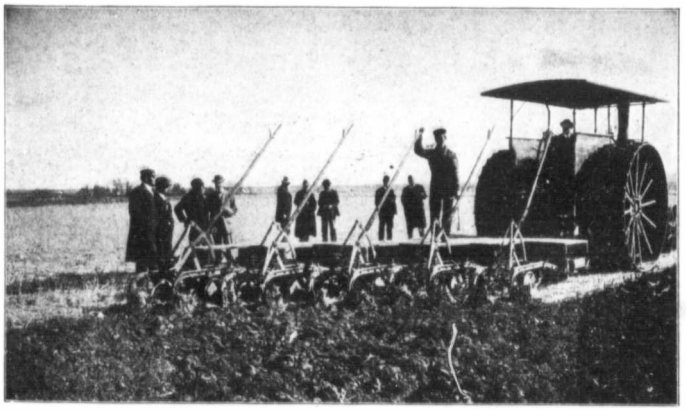
You want the tractor that will give you the very best of satisfaction with a minimum upkeep cost. The past season has demonstrated that the "AULTMAN-TAYLOR" Gas Tractor can be depended upon to do more plowing in a given length of time—with less expense and more satisfaction to its user than any other tractor built for the purpose. Don't be persuaded to buy an inferior make of engine because the first cost is less—The "A. & T." costs more—is worth more We don't ask you to take our word for it—Ask any owner of an "AULTMAN-TAYLOR"—We are willing to abide by his verdict. The constantly increasing demand for this tractor is convincing evidence of its efficiency.

Our Special Gas Tractor Circular tells all about the Wonderful Records these Engines have been making

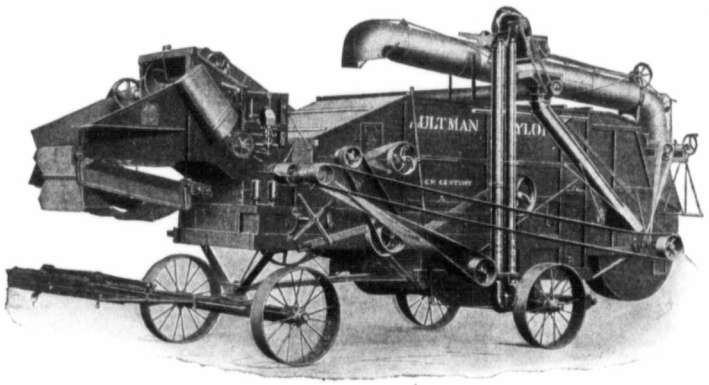
Write for Catalog of:

Steam Traction and Portable Engines, New Century Grain Separators, Matchless Clover and Alfalfa Hullers and Saw Mills.

The International Harvester Company of America Canadian Sales Agents for "New Century" Separators.



"Aultman-Taylor" Gasoline Engine on farm owned by Jacob Bruhl, Hays, Kansas



"I purchased from you the past season one of your 30-60 Gas Tractors and New Century Separators. As to the Gas Tractor, I think it cannot be beat anywhere for power or economy in fuel consumption and in simplicity. I never had much experience with a gas engine of any kind, but during the 23 days I threshed with my rig I never experienced any trouble of any kind with either engine or separator. I am satisfied that I bought the best threshing outfit on the market."

Yours truly,

GUST GARSKE,

Garske, N. Dak.

The Aultman & Taylor Machinery Company

MANSFIELD, OHIO.

Sales Agencies: Minneapolis, Minn., Calgary, Alta., Regina, Sask., CANADA

THE MARKET PLACE OF THE THRESHERMEN OF THE WORLD

J.I.CASE THRESHING MACHINE COMPANY

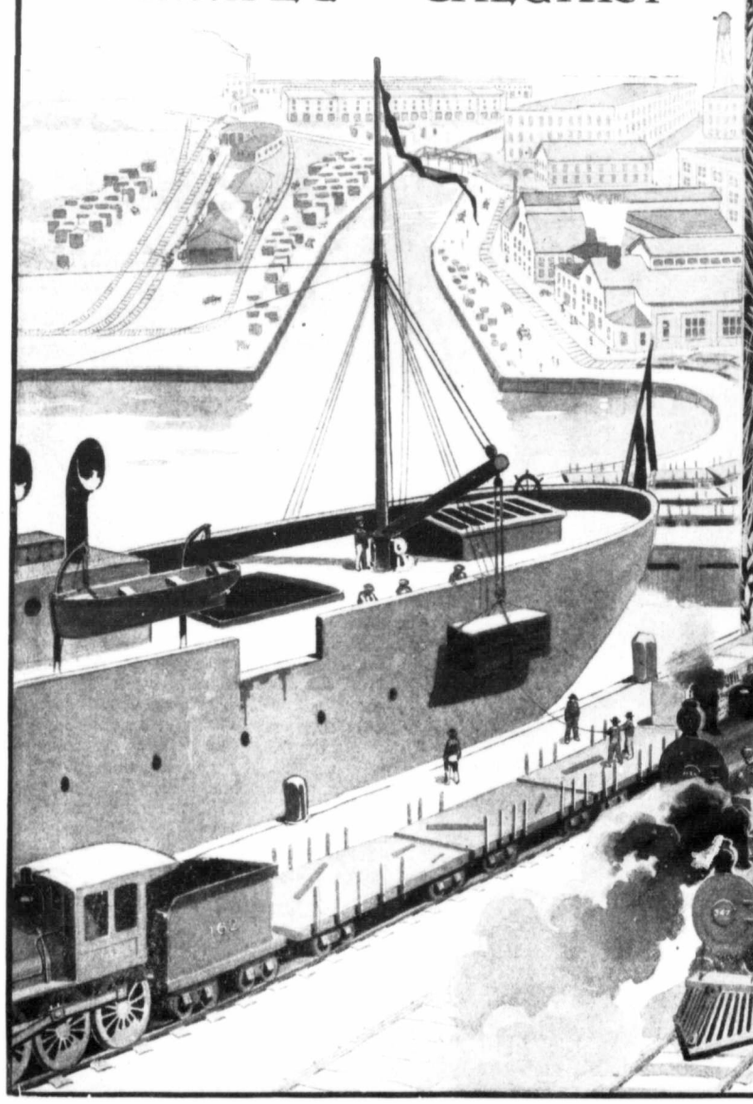
INCORPORATED

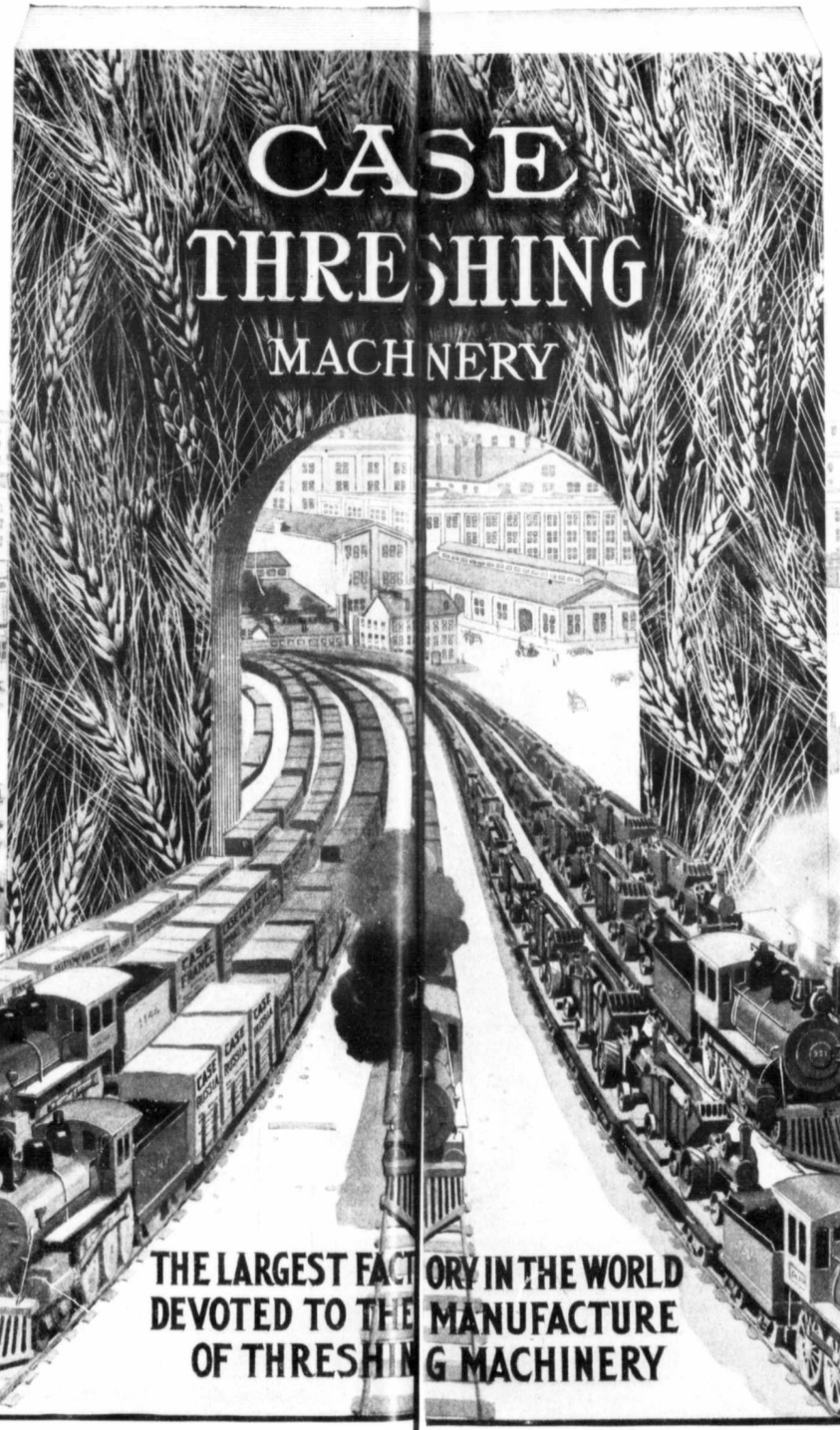
RACINE, WIS. U.S.A.

CANADIAN BRANCHES:

TORONTO ~ REGINA

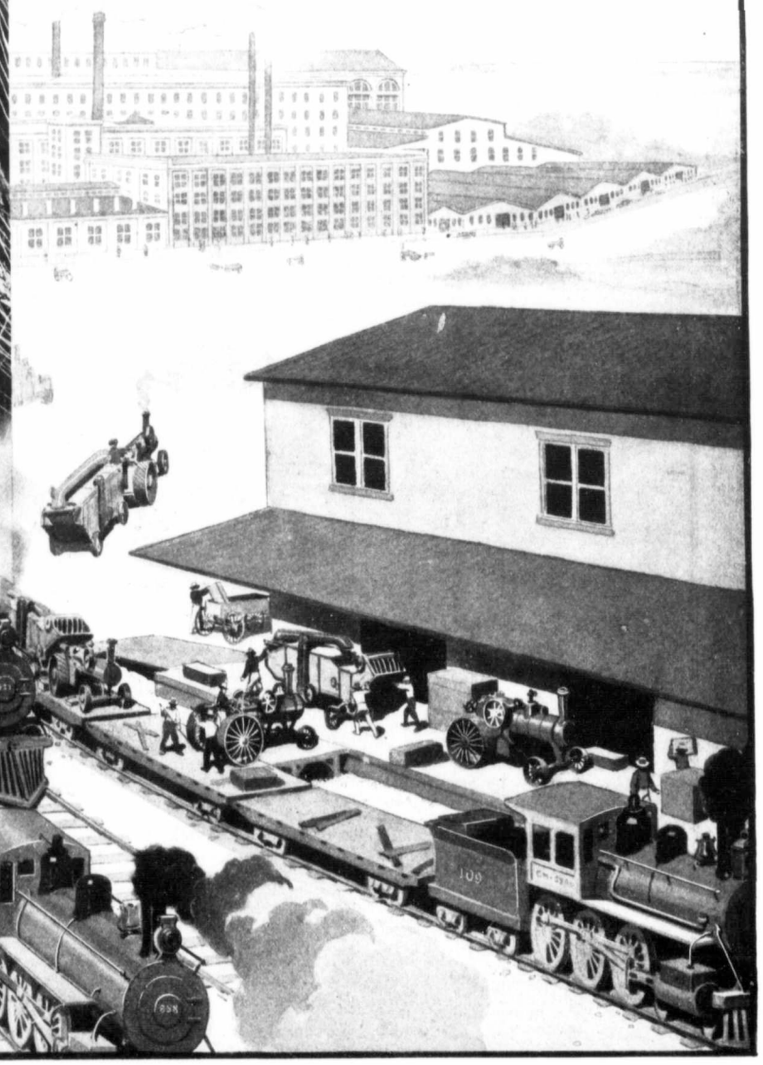
WINNIPEG ~ CALGARY





THE LARGEST FACTORY IN THE WORLD DEVOTED TO THE MANUFACTURE OF THRESHING MACHINERY

The Big 1912 Case Catalog of Threshing Machinery fully describes all the new improvements of merit. You should know them all before the new season starts, they will save you Time and Money. The Catalog is ready for mailing. We'll be glad to send you one if you say so.



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.

Did Not Have Good Luck.

I have not had a great deal of experience in traction plowing. I have had about fifteen years experience threshing with mostly all makes of outfits. I owned an American-Abell outfit, which worked very satisfactorily threshing. But I did not have such good luck plowing. I think plowing with a threshing engine is a very expensive way to plow, as mostly all threshing engines are not built strong enough. For plowing I think we need a good heavy steel and semi-steel gear, as cast gears are not as strong and do not wear as well. As there is a great strain on the boiler, we want as few studs in the steam space as possible.

I traded my outfit for a Rumely. The Rumely engine I am getting is a 30 horse power double cylinder, mounted upon high pressure boiler, this year's make. I intend to drag a ten bottom Cockshutt plow and a packer in stubble and eight or ten bottoms breaking, according to the kind of sod.

I drew six bottoms in stubble with my 22 horse American-Abell engine, and fired with wood, which is not very convenient, as it takes too much time, besides all the labor cutting it. Wood is about $5.00 a cord, and steam coal $7.00. I intend to use coal next year, as I think it is handier and cheaper.

I burned straw for threshing, and used about six tanks of water to thresh 2000 bushels of wheat. I have sixteen horses and I hire two men, besides myself to drive them.

Yours truly,
Harry Witherow.
Viola Dale, Man.

Experience Reduces Cost.

This being our first experience in traction plowing, we did not do very much along that line.

We got a new 26 horse power American-Abell engine with Alberta boiler last fall, and an eight bottom fourteen inch John Deere plow. Two men looked after the engine and plow, while one man and team hauled the water.

We used about six tanks of water 1½ tons of soft coal per day, plowing about 19 acres, which we figured cost us about $1.60 per acre to plow. But we think next year, on account of our being more experienced, it will be considerably less.

Our plowing was hard, some of it being oak scrub land, in which lots of old stumps had been left, and some of it heavy land just broken last spring, and off which we had taken a crop of flax. To give you an idea of how hard it was I might say that we strained one of the beams and broke a point or two.

We think six horses on a gang plow could not do the work we did with the engine. Our engine could have handled another two bottoms in most places. We think the plowing was harder on the engine than threshing with our 36-60 separator.

Yours truly,
A. and D. Stewart.
Westbourne, Man.

Pulls Eight Bottoms.

I have a 25 horse power J. I. Case engine, equipped with 36-inch drivers and contractor's tank. The contractor's tank holds sufficient water for three rounds on the half mile. We use from four to five ten barrel tanks of water a day, and use 100 pounds of Pennsylvania steam coal to the acre. The engine carries enough coal for twelve rounds.

We pull an eight bottom, 14-inch J. I. Case engine gang. We have only plowed 250 acres so far, but intend plowing more this year. We travel at the rate of 2½ miles an hour, plowing six inches deep. We plow 20 acres a day. The engine handles its load easily, and could pull ten bottoms if necessary in stubble land.

We employ three men on the outfit, the tankman, fireman and engineer. The fireman attends to the plows, lifting them out and putting them in at the ends. We have one man and a team on the tank, who also draws the coal to the field.

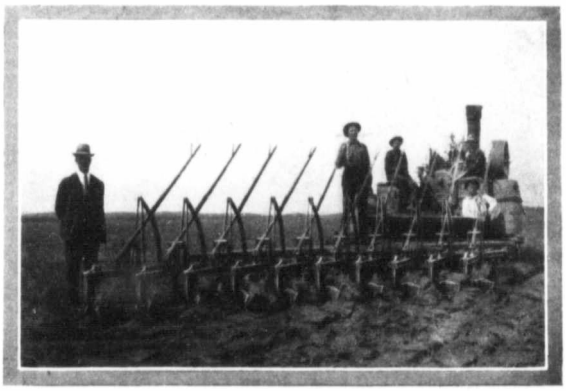
We find plowing much harder on the engine than threshing, in that it is not only harder work but so dusty, that if the gearing is not well greased it will soon wear.

The following is our estimate of expenses. We run the engine ourselves, saving the expense of an engineer.

Coal per day	$7.50
Tankman and team per day	3.50
Fireman per day	2.00
Oil and grease per day..	1.00
Total expenses per day..	$14.00

The cost per acre is 70 cents, without counting the wear on the outfit.

Yours truly,
R. Metcalf,
Macdonald, Man.



A Nichols and Shepard Steam Tractor and a Cockshutt Engine Gang getting ready for a crop of No. 1 Hard.

Plowing Harder than Threshing.

We won't be able to give you much more information now than we did last year, owing to the fact that we only used our plowing rig about twelve days during the past year, owing to the scarcity of water last fall.

Our engine is a J. I. Case 32 horse power, and it isn't too big to pull ten 14-inch plow bottoms, with four sections of iron harrows hitched behind them. In this locality we have a great variety of soil; in some places we can pull the above mentioned load easily with the throttle almost closed, and the reverse lever hooked up to first notch in quadrant, with a steam pressure as low as 70 pounds. But we prefer 130 to 140 pounds. In many places in the same field we strike spots where the engine has all it can do with the same load, with steam at 140 pounds and reverse in third notch in quad.

Our first day's plowing in 1910 was on March 24th. But we didn't make many mile rounds that day, as we met with several softer spots, where the drivers would pile the earth behind them, something like a badger. The first time that happened we were rather puzzled, but something had to be done. So we just dug away the bank which is always formed in front of the drivers, as they pull it out from underside. Then we threw in a few boulders, varying in size from four inches to twelve inches, close up to wheels, raised the plows, started engine slowly, put in friction clutch gradually, and out we went. We met with quite a number of such experiences, and the above method always took us out. But that sort of work isn't profitable for the operators, nor good for the engine. However, I consider we were quite fortunate to get on solid footing, even that easy. We run the engines so as to travel at about 2¼ miles per hour, generally, but when we come to slippery soil, I find the slower we travel, the less the drivers will skid.

Our plow consists of a Cockshutt of ten 14-inch bottoms, which, if properly handled, does splendid work.

I generally employ five men, one to operate the engine, one to fire, one to operate the plow, one to haul water and one to haul straw, which is the only kind of fuel we have used in plowing, on account of the grate bars we fitted our box with, and any kind of decent straw can be fired by a boy nine years of age, as we have tried it.

We use four horses, two on water tank and two on straw wagon. We also use half a ton to each 2½ miles as near as we can say, of straw.

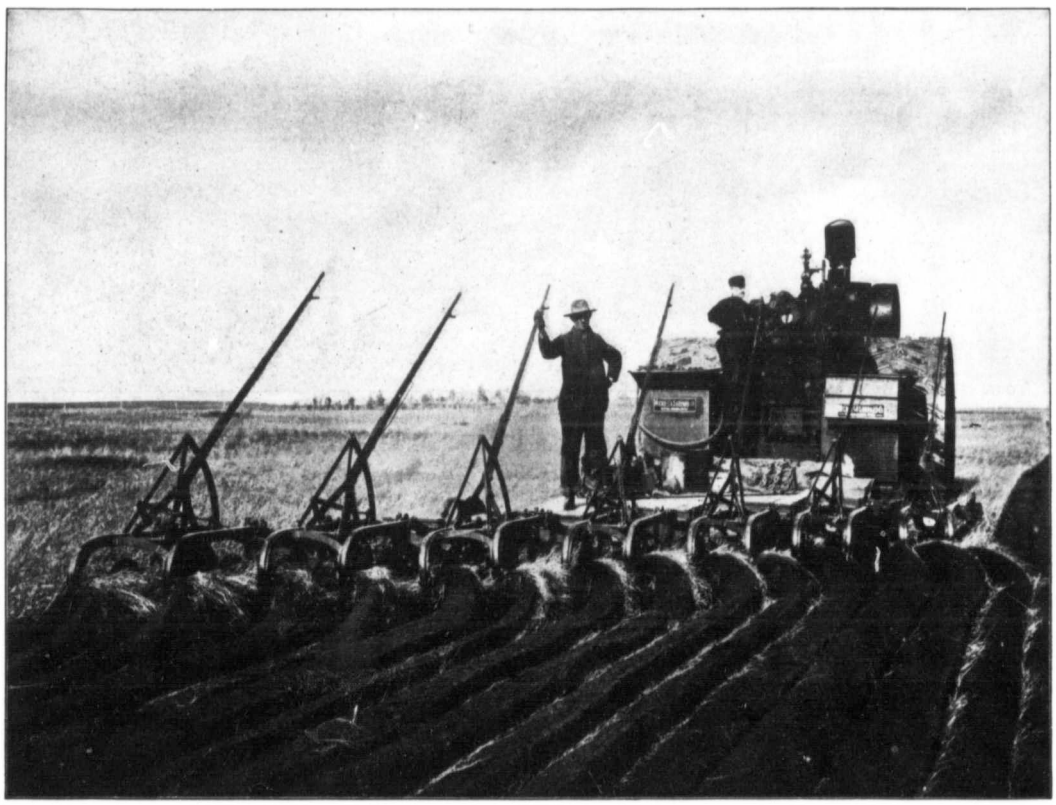
Our engine is fitted with a contractors' tank, the capacity of which is 360 gallons, and we can make from 2 to 2½ miles with the full tank of water, but as the tank is a flat bottom there is always several gallons left.

I consider traction plowing harder on an engine than threshing in most cases, but if it is old land that has been well cultivated and level, I don't think it any harder. Of course it costs more to keep the engine in operation when plowing. There is only one thing that requires a

An Average of 35 Acres per Day

Plowed with a Nichols-Shepard 35 Horse Steam Engine

Using one and one-half tons of coal per day. Turning a furrow 16 feet 4 inches wide and plowing practically two acres for every mile of travel.



Nichols-Shepard 35-horse Double Cylinder Engine turning 14-inch furrows — H. L. Fluke's Outfit, near Westport, South Dakota

Just as Good for Threshing

½-INCH BOILER SHEETS — **SPUR DIFFERENTIAL GEAR** — **ALL CASTINGS SOLID STEEL**
DRIVING GEARS OF STEEL — **ROCKER GRATES** — **POWERFUL and STEADY RUNNING**

Will Plow more and Thresh more and Thresh better than any other power—Steam or Gasoline. To thresh, the power must be ample, strong, steady and smooth-running. The Nichols-Shepard Double Cylinder Engine has no equal in these features. Don't bother with the weak, jerky and insufficient power of the incompetent steam engine or inexperienced gasoline engine to run your thresher. Get the Nichols-Shepard Double Cylinder and have ample power, insuring a good, strong steady motion to your thresher.

Then You Can do Good Work

WRITE FOR CATALOGUE

Nichols & Shepard Company, Battle Creek, Mich.

Branches

With complete stocks of Machinery and Repairs constantly on hand at the following cities:

CALGARY, ALTA., CANADA;
WINNIPEG, MAN., CANADA;
REGINA SASK., CANADA.

good deal of attention on all tractors that I have yet seen. That is the lubrication of the gears and the proper housing of same to exclude dust and dirt.

As we have always run the outfit among ourselves, we have never kept an account of what it cost us per acre.

Wishing you and your valuable paper every success,

Yours sincerely,

Coleman Bros.

Froude, Sask.

Costs $1.40 per Acre.

Last summer I first tried traction plowing. The prairie was very rough and I was breaking sod. I plowed 400 acres in 20 days. My engine is a Gaar-Scott 25 double engine, and the plows are eight bottom 14-inch John Deere.

I run the engine myself, and use six tanks of water per day and 2500 pounds of coal (Fernie coal) ,at a cost of $7.00 a ton. I figure that it costs me to plow about $1.40 per acre.

I have had no experience in hitching for I never did drilling, but I expect to do so in the spring.

Yours truly,

H. Hall.

Lucky Lake, Sask.

Averages 35 acres per Day.

We have a Gaar-Scott 40 horse power engine and could average about 35 per acres a day with it. We have a twelve bottom John Deere engine gang, and employ five men and one cook. We use six horses. We use about 2200 pounds of Crow's Nest coal per day and six tanks of water, ten barrels per tank.

To my mind traction plowing is no harder on the engine than threshing, only that it wears the gears a little more.

I estimated the cost of plowing about $2.00 per acre.

We have had no experience in attaching drills, but when I attach drills I am going to take a 2 by 5 oak piece and bolt the two tongues together and fasten it to the big evener. It takes a 4 by 6 for the evener to bolt the drills to. Then put a hole through the middle of the 2 by 5 and fasten it to the evener, so that it can turn.

We have done some traction discing and boating. We put on six eight-foot discs and six eight-foot floats. We fastened the floats on the 4 by 6 and the discs back of the floats and it works fine.

Yours truly,

John Wademan.

Abbnott, Sask.

The above represents the Hart-Parr sales force, including the branch managers. The photo was taken at Charles City, Iowa, upon the occasion of their recent meeting. The photo is in every way indicative of the wonderful progress that his Company has made in producing the "Modern Farm Horse."

Engine Work Ahead of that Done by Horses.

I own a 32 horse power Reeves engine and a Reeves steam lift 14-inch ten bottom plow. I employ one man and team to draw water at $4.00 per day, engineer at $5.00, fireman $3.00, cook $2.00, and board for three men comes to $1.00 per day; oil and grease $1.50 per day, shear sharpening $5.00, coal $11.50, always using the best steam coal. The total cost of running for a day came to $35.00.

Last season I broke 900 acres, breaking on an average 30 acres a day, not running over ten hours per day. The land I broke was very stony and hummicky, and the season was very dry. I believe in a wet season that one could break considerably more a day.

In discing I disced 60 acres a day. That is, I used six discs and 30 feet of harrow. To cover 30 feet of double discing I had six 16 by 16 discs, three abreast.

I used only one ton of coal a day discing. The second time I disced I fastened two big floats, made out of square timbers, and when gone over twice, the ground was disced four times, harrowed and floated and in first class shape for a seed bed.

I think traction cultivation is far ahead of work in this line done by horses, for it packs the land and in this way preserves the moisture.

In my experience I find that summer fallowing is very hard on the engine when the land is dry, because the drive wheels throw up so much loose dirt that settles in the gears and causes the gear to wear.

I have been operating a threshing outfit for ten years, but find that breaking one season is as hard on an engine as four seasons of threshing.

Yours truly,

John Carlson.

Hawarden, Sask.

Lack of Suitable Hitch the Trouble.

Our engine is a Reeves 25 horse power double cylinder, and we use the Cockshutt plows with eight bottoms, and have always been able to handle them in all kinds of soil. It seems the harder the soil, the more power the engine has.

As to men, we generally have four, engineer, guide, plowman and waterman. But on good ground and long runs can get along without the plowman, as the guide can attend to the plows at the ends. We only use one team to haul water when it is close, but when it is over one mile away we put on two tanks, as we use from si to eight tanks per day.

As to fuel, we use coal mined here and consider it takes about one ton to plow seven acres, but the Crow's Nest coal will go considerably further.

We consider plowing much harder on engine than threshing because of the uneven ground and the dust getting in all bearings more or less. With our outfit it takes nearly twice as much coal and water to plow as it does to thresh.

In regard to cost, we consider about $1.50 per acre is the cost on an average.

We have been bothered a great deal with hitches for harrows and drills, but have often thought of having a frame made to extend around and back of plows, bolted to each back corner of main plow frame. It could have brace

Don't Over-draw on your Account in the Bank of Good Wishes

Put Something Back Occasionally in the Shape of Deserving

The New Year holds out the brightest promises in the history of American agriculture. Do you realize it ? We do, and our plans are laid to do all we can to make the youngster's promises good to the users of GAAR-SCOTT machinery. Abundant fall rains have put the land in ideal condition for a great crop and with it greater prosperity to all who profit by the soil.

These are the conditions and 1912 is the opportunity. The way to make them yours is to operate efficiently. Dispense with wasteful, inefficient animal power and human muscle. Substitute economical steam and gas power. All of our three-quarters-of-a-century's experience and success in the manufacture of farm power machinery is at your service.

WITH EACH SUCCEEDING YEAR THE OLD, RELIABLE GAAR-SCOTT LINE HAS GROWN BIGGER AND BETTER AND BACK OF THE 1912 PRODUCT ARE THE SAME MEN WHOSE NAMES HAVE BEEN A GUARANTEE OF GAAR-SCOTT QUALITY FOR A THIRD OF A CENTURY. THE SAME POLICIES STILL PREVAIL THAT HAVE WON AND KEPT OUR THRESHER AND FARMER FRIENDS AND SUSTAINED THE LONGEST AND MOST HONORABLE RECORD IN THE THRESHING MACHINERY BUSINESS.

If you have been a GAAR-SCOTT customer you need no other assurance. If you have never run GAAR-SCOTT machinery, we will let you prove its worth by the tests of the field and be your own judge. The GAAR-SCOTT line is thoroughly seasoned. We couldn't afford to stake our seventy-seven years' reputation on experiments. Every 1912 improvement is genuine and worth your consideration. We can not tell you about them here: you must see our big catalog.

Our new types of steam power tractors and gas tractors are the crowning achievements of our long series of manufacturing successes. For their manufacture we have added extensive additions to our big plant and installed the most modern machinery.

At the bottom of the GAAR-SCOTT reputation has always been GAAR-SCOTT threshing machinery. If you don't know about the extra-strength frame of our new modern thresher and the "get-all-the-grain" qualities of its operating parts, then you must see the stripes on the 1912 threshing "Tigers" from teeth to tail.

This splendid line ought to sell itself, but you cannot know about it unless we tell you. Our faith in it and the vigorous push and pull of our big organization all over the U. S. and Canada will make 1912 the greatest in GAAR-SCOTT history. If you want an ample helping of the new year's prosperity—

WRITE US FOR THE

GAAR-SCOTT
Gas Tractor Catalog
tells all about
Tigerpull
Ask for it.

ANNUAL No CATALOG
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Address
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Winnipeg Regina Calgary

M. RUMELY CO.
LaPorte and Richmond, Ind.
Battle Creek, Mich.

rods across one corner and from center to center of frames between the plows.

Yours truly,
M. Pickering.
Wessington, Alta.

Cost $1.40 per Acre.

I have had very little experience with steam plowing in this country. I got my plowing outfit a little late last season, and it was very dry and I did not do much, but will tell you what I know about steam plowing.

I have a 36 horse power Rumely engine and a ten bottom Cockshutt plow. I pull ten bottoms in breaking sod, and engine does its work easy. I plowed on an average 28 acres per day breaking sod, using about 4000 to 4500 pounds of steam coal per day. Steam coal I find is the best, costs less per day and is easy to fire with, also is much easier on the engine. I use about nine tanks of water per day.

I have six men with the outfit, including a blacksmith to do the repairing and keep the plows sharp. I find that plowing is much harder on my engine than threshing. It takes about one-third less water and coal to thresh than to plow.

Last season the cost per acre for breaking sod was a little less than $1.40. I find that breaking sod can be done much cheaper by steam or traction power than by horses in this country; and my experience in other new countries some years back before traction power was used for farming, was that it took from ten to fifteen years for the country to develop. But with the use of traction power it is possible to get the soil under cultivation in less than one-half the time it would take horses. The country in the last two years has developed more than I have seen some central states develop in ten years, and that was because they could not get the land broken up and under cultivation with horses as quickly as if they had used steam or traction power.

Yours truly,
Robert J. Hanna.
Sterling, Alta.

Five Men and Two Teams.

Last season we owned and operated a 30 horse power Duplex Rumely steam engine, drawing a ten bottom 14-inch John Deere plow. Generally speaking, our outfit gave us good results. We worked in shallow breaking, deep breaking, backsetting and stubble ground. In backsetting and stubble land we also pulled four sections of harrows with about 50 pound weight on each harrow, which added greatly to the work done by the harrows. In all we plowed about 1050 acres and harrowed some of it, viz., the backsetting and stubble land. We think the harrow on behind the plow does a great deal more good than harrowing after the ground dries out partially, and it also makes a better job. In stubble and backsetting we plowed deeper than usually done with horse drawn plows, which adds to the value of the work.

We burn a good grade of coal, which retails at about $8.20 per ton, but by buying in car lots considerable is gained. We haul our coal in the winter and pile it where it will be convenient to get at, and we find this method very good, as the waste is very little.

We use in most cases one tank team and one team on the coal wagon. We do not run two gangs of men, as two gangs cannot do twice as much as one, or anything like it. Our crew consists of five men and two teams, an engineer, who fires also, a steersman who also attends the plows, a tankman and third man who fires up in the mornings, coals up, cleans flues, oils up at noon, helps change shares, etc., also draws coal and such odd jobs as may be necessary, and a cook. With this outfit we plow from 20 to 30 acres per day of eleven hours.

The fuel costs about 55 cents per acre, not counting cost of hauling, which, of course, depends on the distance from the railroad. The labor and board costs about $1.55 per acre. In this locality, the boiler feed water is very bad, which gives lots of trouble and loss of time.

The great advantage in having an outfit of this size is that you can get your work done in the right time, and, if used intelligently, will do it well and will show good results in the following crop.

We consider plowing a great deal harder on an engine than threshing, because the engine is running, as in threshing, besides all the gearing as well, which wears a great deal and is expensive. Then, too, the boiler not only has to generate steam, but it has to withstand jolts jars, twisting, strains, etc. The latter, we think, is harder than generating steam, and if your boiler mounting and general construction is not right your engine is as good as "all in," and the money in the wrong man's pocket.

We think the flue box ought to be long and high, so as to get better combustion; consequently fuel saving. The fire door and peep hole should be constructed with solid rings and no flanged plates to catch sediment and scale and give trouble, and in particular see that you have good circulation among the flues and that there is plenty of room between the flues for scale to drop through and fall to the bottom.

We think too little consideration is often given in purchasing a plowing engine. It must be designed and constructed from start to finish for heavy pulling purposes and for hard work, and lots of it.

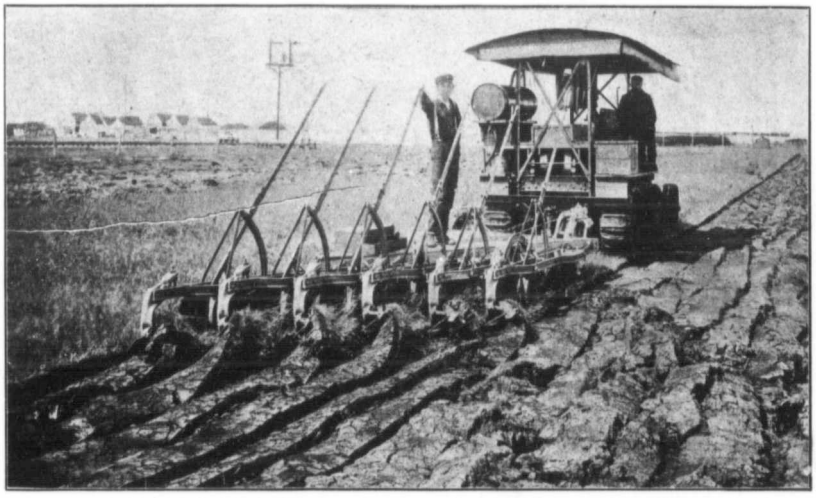
We find some difficulty when plowing old land to keep the soil from ridging. The soil, where the wheels of the engine packed, remains firmer and more compact, even after it has been turned with the plow, than the soil between the tractor wheels, and as a result the soil between the wheels is apt to be left lighter than the other, resulting in a ridge. This can be partially overcome by regulating and adjusting the plows differently.

Yours truly,
D. A. Evans & Sons.
Bison, Sask.

Uses 12 Barrels of Water Per Day.

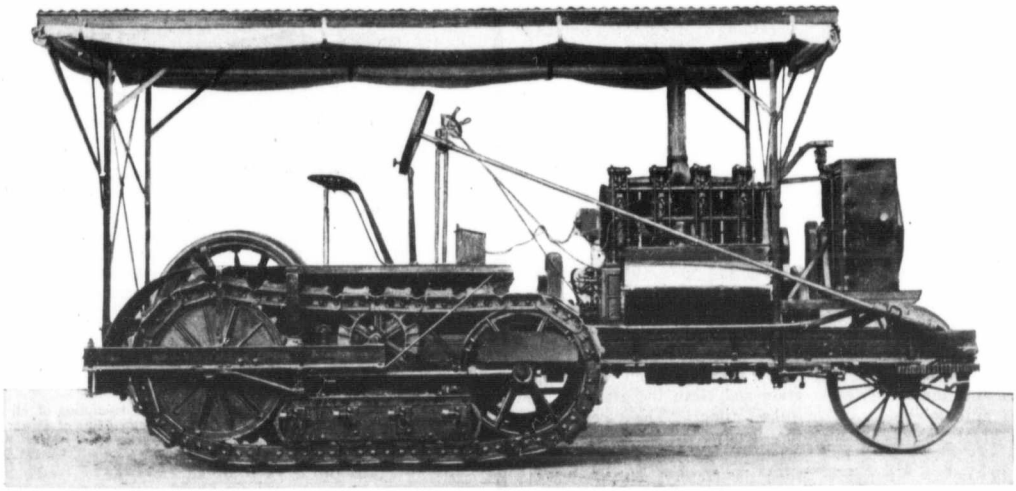
My engine is a 25 double horse power machine of Gaar-Scott make. I use a J. I Case eight bottom plow. Three men are employed, an engineer, a fireman (who also handles the plow), and a man with team to haul fuel and water. I attach a harrow to the plow and thus do double work.

I find it requires on an average of 2,700 pounds of Hocking



The Holt Caterpillar Gas Tractor pulling a Big Dutchman Engine Gang near Winnipeg

The CATERPILLAR



HOLT CATERPILLAR GAS TRACTOR, TWO sizes, 45 and 60 B.H.P. Fully Spring Mounted, rides, steers and handles like an automobile.

Has more than 2,000 square inches Tractive Bearing Surface.
Works successfully in Mud, Sand, on Plowed Land or Sod.
Turns in its own length, Bridges over holes and Irrigation Ditches
It cannot Pack the Soil.
Pulls Eight to Ten 14-inch Bottoms in Breaking.
Pulls Ten to Twelve 14-inch Bottoms on old ground.
Will drive large Separator; Easily handles five or more Binders.
The Platform Tracks are more durable than Round Wheels.

Four Cylinder Motor.
Jump Spark Ignition; Splitdorf Magneto; Schebler Carburetor.
Bearings Removable; Steel Gearing.
All Speeds on Direct Drive.
Fully Spring Mounted; Rides and Steers; Handles like an Automobile.
Weights: Eight and Nine Tons.
The most Accessible Motor that is Built.
Fuel Consumption less than any Wheel Tractor of same Rating.

HOLT'S CATERPILLAR FOR CANADA

MR. FARMER: During the past season how many times was your wheel traction engine hung up by the wet soil, by "pot holes," "buffalo wallows," or soft places? The **Caterpillar** was designed eight years ago to meet just these troubles.

Canadian Holt Co., Ltd., affiliated with **The Holt Manufacturing Co.** Stockton, Cal., and **Holt Caterpillar Co.,** Peoria, Ill., was incorporated under Dominion laws December 14th, 1911.

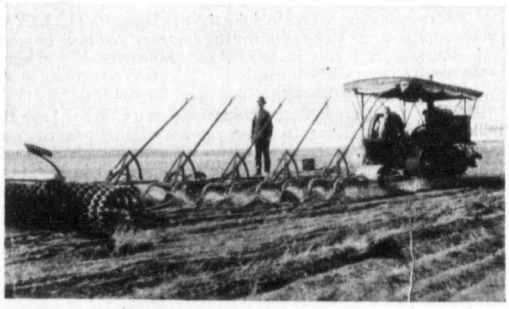
Extract letter, Harry C. Best, Strathmore, Alta., to a New York Enquirer:

"August 20, 1911.

"In seeding I pulled six discs, two drills and harrow; could have pulled just twice this load. I also ran when other engines were stopped on account of wet weather. It was impossible to mire the engine in the mud. In breaking I pulled ten 14-inch plows and packer. The engine uses 40 to 45 gals. gas per twelve-hour day. It will burn distillate, which is cheaper than kerosene. My total delay has been about three hours due to carelessness on part of engineer."

We Will Deliver Engines from Calgary and Regina

You must order now for Spring Delivery



45 H.P. Caterpillar Breaking at Namaka, Pulling 10 Bottom Engine Gang

45 H.P. Caterpillar Discing, Seeding, Harrowing, H. C. Best, Strathmore.

Canadian Holt Co., Ltd.

Builders of Caterpillar Tractors, Combined Harvesters, Fresno Scrapers

609 Eighth Avenue West, Calgary, Alberta

Canadian Holt Co., Ltd., Calgary, Alta.

Please send me free literature describing Caterpillar Gas Tractor. I am farming.....acres.

Name.....

Address.....

MAIL COUPON TO-DAY

J. I. Case Co., Greatly Enlarged.

The opening of the new year brought forth the announcement from the head office of the big J. I. Case Threshing Machine Company, of Racine, Wis., that the capitalization of the company would be increased from $5,000,000 to $40,000,000, and that an expansion policy would be inaugurated during 1912, which would be felt in farming circles around the globe.

The business of the Case Co. already extends to four corners of the world. Wherever the farm exists the name of Case has found its way, and the selling forces of the big concern will penetrate still further into the fields of Russia, Australia, India, Africa and South America with the new product that will be added to the already extensive line of threshing machinery and automobiles.

And the great fields of Canada, where the Case name has already built up an imperishable reputation, will be invaded with new lines of farm machinery. The gas tractor, which has been carefully studied by the Case experts ever since the first machine was turned out by the J. I. Case T. M. Company, as far back as 1892, will come in for considerable attention under the new expansion policy, and a big factory will be built which will be devoted almost entirely to the gas propelled engine.

The policy of the Case Co. has always been along conservative lines, and the announcement of the big increase in capitalization is in keeping with this same policy, although the figures would indicate different. For several years the influence of the big Racine concern has been growing, and the factory has been enlarging until the assets of the oragnization have become tremendous, far exceeding its capitalization. The friends of the company in the financial world have urged the increase in capital for some time, but the officers waited until the demand made it imperative to expand. Under these conditions it was decided to reorganize and add several new lines of machinery to the Case output.

The Case automobile, which has won its way to the homes of the farmers in every civilized country in the world as well as established itself in the racing and competitive circles of the big cities, will show a remarkable advance in 1912. The Case Company believes it has solved the problem of a high priced car for a medium amount of money, through its magnificent new automobile plant, in which is made and built almost every part of the car from the radiator cap to the tail light.

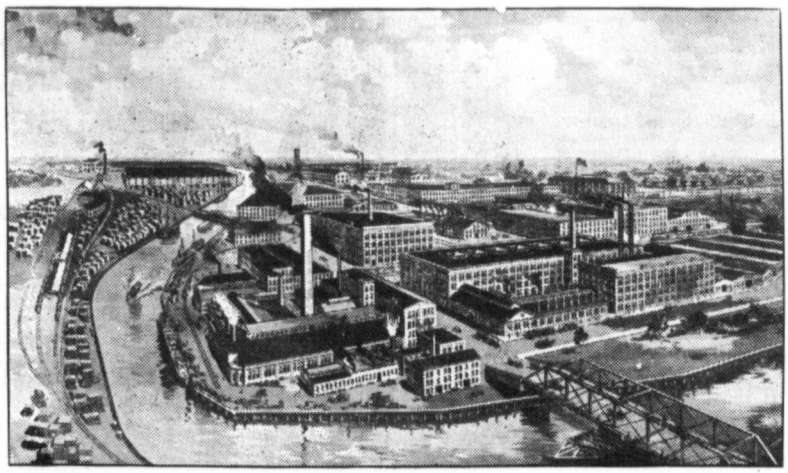
The history of the J. I. Case Threshing Machine Company makes up one of the red letter chapters in the annals of farm implement progress. Over 70 years ago J. I. Case, the founder of the great institution, landed in Racine, a straggling village at that time, with six crude threshing machines, bought on time, and an honest heart and hand.

After disposing of all the machines but one, with which he worked throughout the summer of 1842, Mr. Case set to work improving the thresher, and by the spring of 1843 he had built a new machine which would separate and clean the grain at the same time. The news of the new Case threshing machine travelled fast, and soon the factory, which covered less than a lot at the start, expanded into a great plant, measured only in square miles. The reputation that, at first extended over a county, grew, until today the sun never sets on the work of the Case threshing machines, and the plant is the largest in the world, covering over 200 acres.

Wherever grain is grown the name of Case is known, and wherever one travels he comes in contact with someone of the 10,000 selling representatives of the J. I. Case Threshing Machine Company. And when the year of 1912 reaches its full growth, Case influence and product will have trebled in its scope.

If figures were gone into, the detail of the Case Company would stagger the mind. Take, for instance, the single item of mail. One issue of The Case Courier, the forerunner of the Case catalog, goes to three and one-half million homes. Almost a car load of mail is received and mailed each week, and the telegrams keep a couple of operators busy throughout the day receiving and sending business and code wires to and from all parts of the world.

When asked to outline the plans for 1912, R. T. Robinson, secretary of the organization, shook his head. But when the time comes to unfold the expansion policy of the great company, the farm world will have sufficient grounds for sitting and taking notice, and these who have circulated or helped to manufacture the talk of a threshing machine trust will be forever hushed.



Offices and Plant of the J. I. Case Threshing Machine Company, Racine, Wis.

The largest institution in the world engaged in the manufacture of threshing machinery which has increased its capitalization from $5,000,000 to $40,000,000 and branched out into the manufacture of many different lines of farm implements and machinery.

The Kaiser's Rules of Life.

The "Outlook" publishes the following translations from a German paper of sentences that hang in the workroom of the Kaiser, so arranged that His Majesty has them always before him when sitting at his desk. They have been published before, but are of considerable interest:

Be strong in pain.

To wish for anything that is unattainable is worthless.

Be content with the day as it is; look for the good in everything.

Rejoice in nature and people, and take them as they are.

For a thousand bitter hours, console yourself with one that is beautiful.

Give from your heart and mind always the best, even if you do not receive thanks. He who can learn and practice this is indeed a happy, free and proud one; his life will always be beautiful. He who is mistrusting wrongs others and harms himself.

It is our duty to believe everyone to be as good as long as we have not the proof to the contrary; the world is so large and we ourselves so small that everything cannot revolve around us.

If something damages us, hurts us, who can tell if that is not necessary to the welfare of creation?

In everything of this yorld, whether dead or alive, lives the mighty, wise will of the almighty and all-knowing Creator; we little people only lack the reason to comprehend it.

As everything is, so it has to be in this world, and, however, it may be, should always seem good to the mind of the creature.

Notice.

In our last month's issue we announced Mr. S. C. Olson's resignation as local manager of Nichols and Shepard Co., and his retirement from the threshing machine business, also his engagement in the real estate bnsiness under the firm name of "The Commercial Realty Co.," but he requested that we correct that announcement on account of, when making final arrangements for the new venture, the name of the firm was changed and will instead be "Olson and Armstrong," 51 Merchants Bank, Winnipeg, Man., and through this announcement he is also soliciting the listing of land and properties for sale on behalf of his firm.

RECENT CANADIAN PATENTS.

Especially arranged and compiled by G. S. Roxburgh, of Featherstonhaugh & Co., Patent Barristers, Winnipeg.

(See opposite page for Diagrams.)

133519—Lars. M. Anderson, Crookston, Minn. The object of the invention is to provide an improved fanning mill for cleaning grain and it consists essentially in a frame carrying an upper shoe and a gang of sieves mounted in the shoe, there being a shoe oppositely inclined to the upper shoe and provided with a sieve. The upper shoe has a bottom plate arranged at a greater degree of inclination than the upper shoe and sieves and is adapted to deliver the grain upon the sieve to the lower shoe. A fan is supplied having a trunk with its mouth beneath and near the discharge end of the above mentioned inclined bottom.

133543—F. J. Andrews, Holden, Alta The invention relates to a cowl for smoke stacks and it comprises an outside supporting member located near the top of the stack and presenting a toothed ring plate which entirely surrounds the stack, a semi-circular cowl detachably carried by the toothed plate, a toothed member coacting with the said toothed plate, whereby the toothed plate can be shifted, and means for holding the ring plate in a predetermined set position.

133565—A. D. Hallett, Vancouver, B. C. The object of this invention is to provide a self propelled motor sleigh which can be controlled readily by the driver. A body is fitted with runners and a pair of chained tractors arranged on opposite sides of the body. Means are provided for driving the tractors and for shifting the direction of rotation and also for independently changing the relation of the tractor wheels on the opposite sides of the body with that body.

133572—H. A. Howard, Lloydminster Sask. The invention relates to a traction vehicle in which a body is mounted forwardly on a sleigh and rearwardly on a belt mounted on sprocket wheels, of approximately the same width as the sleigh. Means are employed for steering the sleigh and for rotating the belt and also for preventing the under side of the belt from collapsing and rolling over the ground.

133573—H. A. Howard, Lloydminster, Sask. The object of this invention is to provide a driving mechanism for traction engines and it comprises the combination with a driving shaft and a driven shaft, a ratchet toothed wheel connected to the driven shaft, a vibratory lever having a driving dog co-operating with said ratchet toothed wheel, a rack head having an arm pivotted to said lever and provided in its outer face with laterally spaced racks, a pinion on said driving shaft, and means for shifting the rack head to alternately engage the rack thereof with the pinion.

133680—H. E. M. Kensit, Calgary, Alta. The invention relates to a combination dish and plate rack and the object of the invention is to supply an improved rack which can be conveniently secured to a wall or such like support and which will hold dishes and plates on their edge thereby allowing a considerable number of articles to be held in a small space. Hooks are supplied for supporting cups and other such articles.

133613—W. Sawyer, Armstrong, B. C. The invention relates to a weight mechanism for sashes, etc., and the object of the invention is to provide a device for adjustably sustaining a window sash. Two sheaves are mounted on a window frame one above the other and two further sheaves are fitted on the sash. A flexible cord is secured at one end to the sash and passes successively over the upper sheave on the frame to the lower sheave on the sash, the upper sheave on the sash and the lower sheave on the frame to a point of connection with the sash.

133614—J. Schwab, Winnipeg. The object of this invention is to provide a support for garments such as skirts and it comprises a belt supplied with a series of inclined slots adapted to receive buttons, studs or such like devices carried by the garment to be supported. The shifting of the belt causes the button or such like to be caught in the slots.

133624—H. W. Johnson, Brandon, Man. This invention relates to an improved means for connecting gang plows to a frame and the object of the invention is to provide a means for adjustably connecting sets of gang plows to a frame, each set being independently controlled and it consists in pivotally connecting sets of draw bars to draw beams secured to the frame. The plow beams carry plows and each pair are supplied with a pivotted lever carrying a ground wheel located between the plows.

133693—A. Cox, Millside, B. C. The invention relates to a reel for tightening wires and it comprises a cylindrical reel having substantially rectangular side flanges, the sides of the angles being respectively convex and concave in the direction of tightening rotation. Any suitable means is used for securing the wire to the reel and for rotating the reel.

133694—W. Crawford, Erinview, Man. The object of the invention is to provide a spark arrester which will effectually prevent live sparks from passing up a stack and this is accomplished by supporting in the stack a hood over which a series of deflecting plates are arranged the deflecting plates being supplied with adjustable aprons or dampers moved to suit the draft required.

133702—A. Dunn, Fernie, B. C. The object of this invention is to provide an improved stove and it comprises an outer casing containing an inner casing, the casings presenting between them an annular smoke chamber. A plurality of draft flues is arranged in the smoke chamber which flues open to the top and the bottom of the stove. The base of the stove is supplied with an air chamber into which draft flues open. A suitable outlet pipe passes from the annular chamber and means are employed for controlling the draft in the air chamber.

133740—G. H. Murrin, Crossfield, Alta. The invention relates to a building block and it consists in a block rectangular shaped, and a dove-tailed groove extending longitudinally of the upper joint face, a recess centrally disposed in said groove for the reception of a plastic filling, a dovetail flange extending longitudinally in the under face of said block, a groove extending vertically of one end face of said block and a tongue extending vertically on the opposite end face of said block and only part way of the depth of said groove on the opposite end face.

133751—W. Ralph, Vancouver, B. C. The object of this invention is to provide an improved stove ventilator and this is accomplished by forming a passage between the back of the stove and the draft flue, the bottom of the passage being aligned with the hot plate of the stove. An open hood telescopes within the passage and is arranged to slide out over the hot plate of the stove.

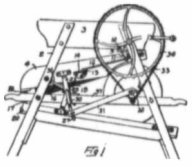
133753—W. J. Robinson, Brandon, Man. This invention relates to a ground anchor and it comprises a metallic plate having the ends thereof rounded and the body portion thereof bent and on the sides of which are two hooks receiving supporting wires on the opposite sides of the scoop, which wires are bent and twisted together to a suitable height and terminate in a loop at the top.

133758—J. Schwab, Winnipeg, Man. This invention relates to an improved heating system for boilers and the object of the invention is to supply a means for causing the products of combustion to pass both backwardly and forwardly both beneath the boiler and backwardly and upwardly through the tubes of the boiler.

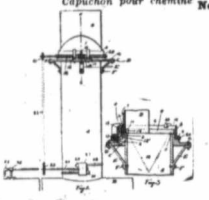
Continued on page 50b

Western Canadian Patents, specially compiled and arranged by G. S. Roxburgh of Featherstonhaugh & Co., Winnipeg.

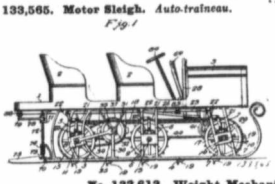
No. 133,519. Fanning Mill.



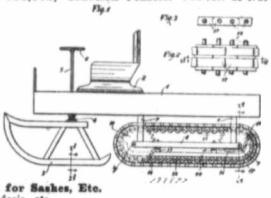
No. 133,543. Cowl for Smoke Stacks. *Capuchon pour cheminé*



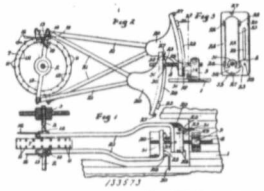
No. 133,565. Motor Sleigh. *Auto-traineau.*



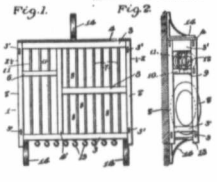
No. 133,572. Traction Vehicle. *Véhicule de trac*



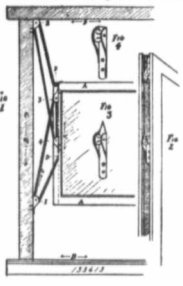
No. 133,573. Driving Mechanism for Traction Engines.
Mécanisme de commande de machine à traction.



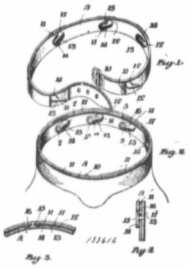
No. 133,580. Dish and Plate Rack. *Ratelier à vaisselle.*



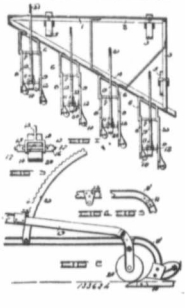
No. 133,613. Weight Mechanism for Sashes, Etc.
Mécanisme des poises de châssis, etc.



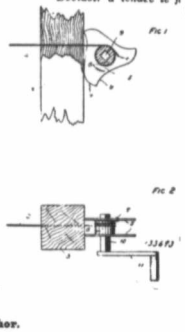
No. 133,614. Garment Support.



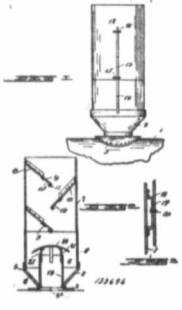
No. 133,624. Gang Plough.



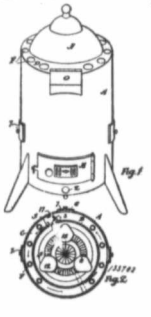
No. 133,693. Wire Tightening Reel.
Dévidoir à tendre le fi



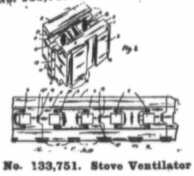
No. 133,694. Spark Arrester.



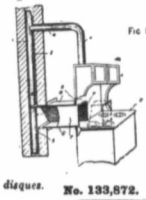
No. 133,702. Stove.



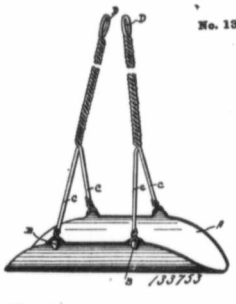
No. 133,740. Building Block.



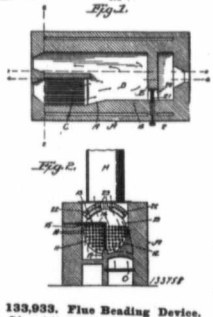
No. 133,751. Stove Ventilator



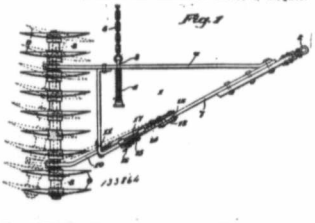
No. 133,753. Ground Anchor.



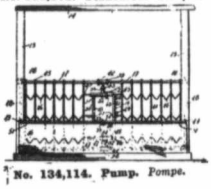
No. 133,758. Single Boiler Heating System.
Système de chauffage à chaudière simple.



No. 133,864. Disk Harrow. *Herse à disques.*

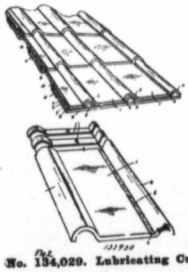


No. 133,872. Stanchion. *Etançon.*

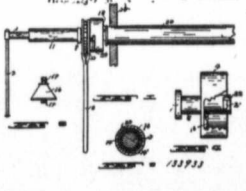


No. 134,114. Pump. *Pompe.*

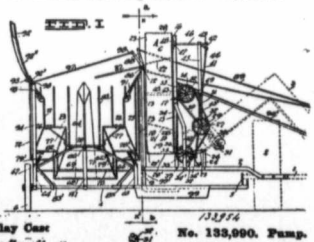
No. 133,920. Roof Tiling, Etc

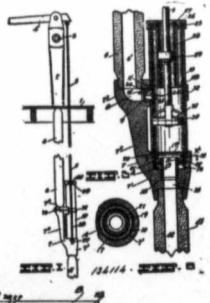


No. 133,933. Flue Beading Device.

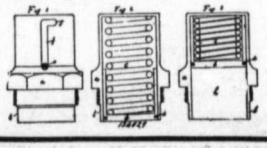


No. 133,954. Shocking Machine. *Engerbeuse.*

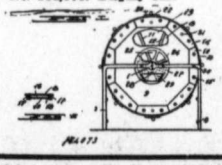




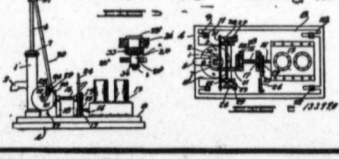
No. 134,029. Lubricating Cup. *Godet à graisser.*

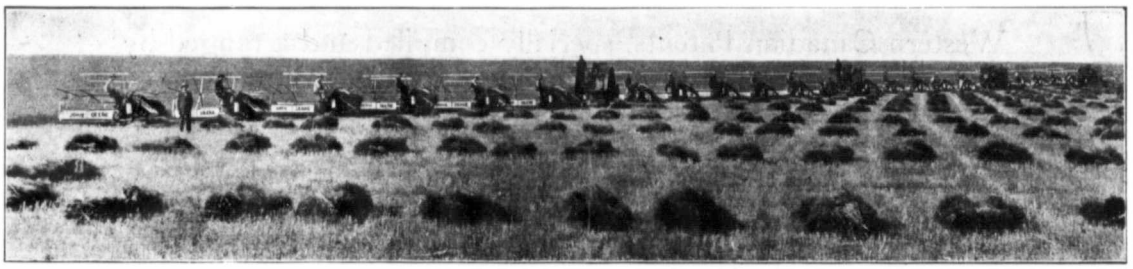


No. 134,073. Display Case



No. 133,990. Pump.





JOHN DEERE ENTERS THE BINDER FIELD

When the world received the Marsh Harvester it said that the end had been reached. When the self binder was invented the plaintive cry of starving millions ceased. The self binder is today an implement that excites no surprise, yet it is nevertheless one of the most important and necessary fall farm tools. So important a work does it perform that were it to be taken out of our agricultural implement equipment, the world's industrial system would be paralyzed and millions would starve through an overwhelming diminution in the bread supply.

Although, as said before, the self binder is nothing new, when any new concerns starts to manufacture this valuable implement, or when any old implement firm takes it upon themselves to turn out this indispensable farm tool, the event is well worthy of being chronicled.

One of the latest firms to take upon themselves the burden of providing the farmers with self binders is the John Deere Plow Company. The name of "Deere" has been a household word to the readers of The Canadian Thresherman and Farmer ever since this magazine started. "Deere" plows have turned thousands, yea millions of acres of old land and prairie in Canada West. "Deere" discs, harrows, and packers have likewise converted these acres into a proper seed bed. "Deere" wagons have drawn the crop to market, but not until 1911 did John Deere binders aid in the harvesting of Canada's crop of No. 1 Hard.

At the top and bottom of this page are illustrations showing John Deere binders at work on the Weitzen Farm, about twenty - seven miles south of Rosetown, in Saskatchewan. Upon this farm in 1911, thirty of these binders cut 2,560 acres of wheat and an equal acreage of flax. The binders were coupled in sets of six, and each set was drawn by a gas traction engine.

What a marvellous sight! Just imagine a swath 210 feet wide, and this swath continuous from sun-up to sun-down. Can humanity conceive of anything being done on a grander scale? There is nothing in human history that is so resplendent with industrial significance. It would seem that in man's "battle for bread," that the problem has been solved and we must needs respect the enterprise that has made it possible.

The Weitzen Farm, which is managed by O. O. Winter, is said to be the largest wheat plantation in the Western hemisphere, yet it is but one of the many that the broad fertile Canadian prairie can produce. Such wholesale farming must needs keep the world's breadstuffs within the reach of the poorest, and in solving the farm labor problem and make the farmer suffcient unto himself, while he at the same time continues to give to the world the fat of the "last West."

But let us not lose ourselves in the realm of romance. We don't do things in Western Canada in anything but a practical way, and the impractical has no place within our minds. We demand the best and the volume of work done must always be consistent with the quality of tools that do it.

John Deere plows, discs, harrows, etc., have made for themselves a reputation through efficient service rendered, and if a self binder is to bear the John Deere trade mark, it must needs be of the same quality as its brother implements, that have preceded it and which have born that name.

This is the task of the "Deere" people. That is why they have not placed a self binder upon the market, until they felt it was in every way up to the task of carrying the "Deere" trade mark. This firm has always been keenly alive to the needs of the farmer and their large shops have supplied him with millions of grain raising implements. This self binder, which will be placed upon the Canadian market in 1912, makes but another link in what is already an enormous implement chain.

That the "Deere" trade mark is to be truly upheld by the John Deere binder is evidenced by the following letter from Mr. O. O. Winter, manager of the Weitzen Farm. He says:

WEITZEN LAND AND AGRICULTURAL CO.
810 Palace Building.
Rosetown, Sask., Oct. 1st, 1911.
John Deere Plow Co., Ltd.,
Winnipeg, Man.

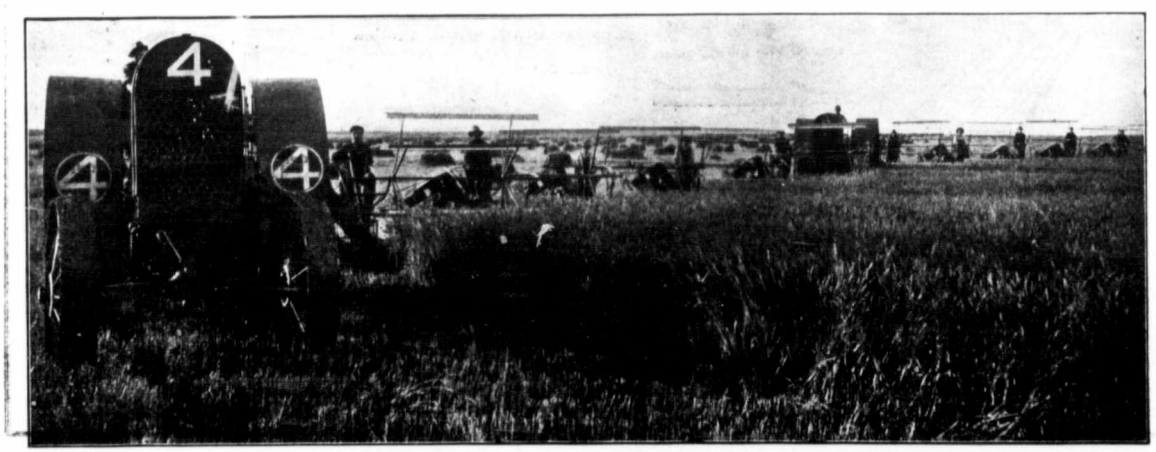
Gentlemen:—

Now, that the harvesting of our four sections—two thousand, five hundred and sixty acres of wheat, and an equal acreage of flax, has been completed, with the thirty John Deere Harvesters purchased from you, it is but proper that I should express to you my opinion of their merits.

As the selection and purchase was based upon my own judgment after a careful inspection of the harvester, as well as your recommend and guarantee, it naturally affords me satisfaction to be able to say we made no mistake in the purchase, and after the severe try-out given them in very heavy grain cut on the green side, that you have **the best harvester on the market.**

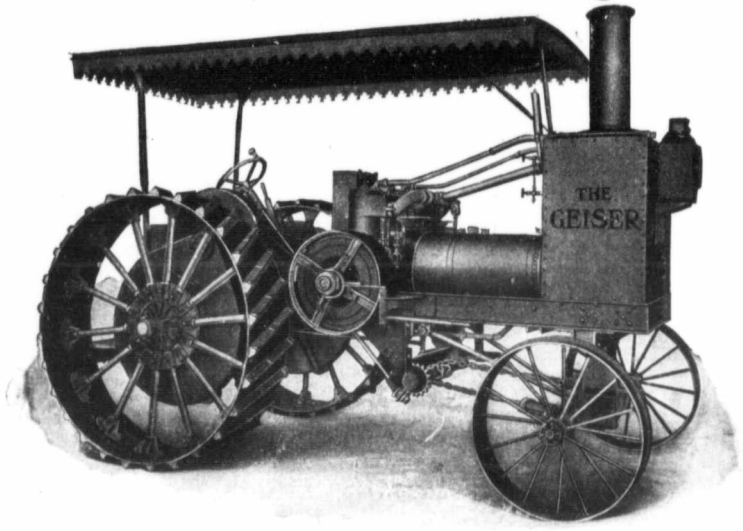
We used five binders with each of our six engines coupled up with Hansmann Binder Hitches, in cutting wheat and six in flax, and I think the passage of the thirty harvesters, each throwing out an average of twenty-four bundles per minute (seven hundred and twenty bundles per minute for all), was as splendid a harvest scene as ever was witnessed, and you would have been justly proud of your harvester had you seen them thus in operation. I congratulate you upon having perfected a harvester that in quality of design, material and workmanship, quite equals other farm machines and implements of the "John Deere Line," which I consider enough said.

Yours very truly,
O. O. WINTER,
Vice.President and Manager.



Geiser Outfits are Money Makers

Get in Line Now for Big Profits in 1912.



GEISER OIL TRACTOR 4 CYLINDER 50 B.H.P.

This is

The Geiser Oil

Plowing Traction Engine

Four Cylinder 50 B. H. P.

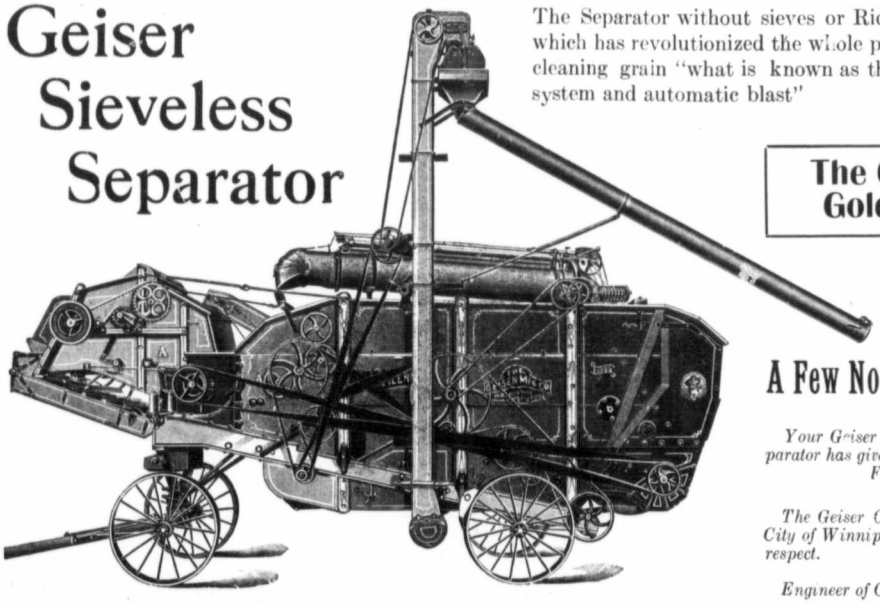
The Traction gearing is all steel completely enclosed and dust proof .·. .·.

Drop forged connecting rods.

Engine is set at right angles to frame doing away with all bevel gears.

Two speeds, forward and reverse. Jump Spark Ignition, High Tension Magneto.

Geiser Sieveless Separator



The Separator without sieves or Riddles. 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 Girl of the Golden West.

A Few Notes of Appreciation

Your Geiser Oil Tractor and Sieveless Separator has given me entire satisfaction.
Franz F. Guenter
Hague, Sask.

The Geiser Oil Tractor purchased for the City of Winnipeg is very satisfactory in every respect.
John W. Askey
Engineer of Construction City of Winnipeg

Your Geiser Sieveless Separator has got everything beat for cleaning and saving the grain. We have used several other makes but the Geiser beats them all. James Sled, care Scott Lumsden, Sask.

The Sieveless Separator purchased from you is very satisfactory. The cleaning of the grain is the most perfect we have seen and there is hardly any possibility of any grain being blown in the straw. P. M. Bredt & Sons Edenwold, Sask.

The Geiser Sieveless Separator. The Sensational Separator they are all talking about.
Hundreds in use in Western Canada giving entire satisfaction.

Send for illustrated Catalogue illustrating our Steam Plowing Engines, Oil Tractors and Sieveless Separators. Free on request.

BURRIDGE-COOPER CO., Ltd. 303 OWENA ST. Winnipeg, Man.
Branch: 1846 Dewdney, Regina, Sask.

Canadian Agents: The Geiser Manufacturing Company.

Conducted by Professor P. S. Rose

Practical Talks to Threshermen

Talk No. LIII.

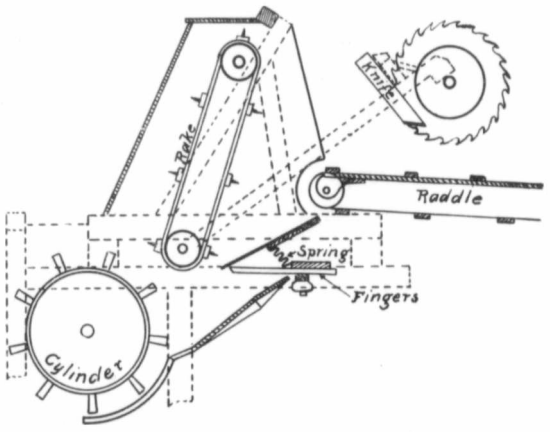
LESSON LIII.

Grain separators were quite thoroughly perfected before the feeders came into extensive use. In fact, it has only been within the last dozen years that grain feeders have come into general use, which is merely another way of stating that it has only been within that time that they have been sufficiently well developed to meet the needs of the business. We stated in the last lesson some of the essentials which go to make up the successful feeder and while the bare recital of the requirements do not seem at first thought very difficult to attain, they nevertheless baffled inventors for a good many years. It is not enough merely to cut the bands and shove the bundle up to the cylinder. To make a machine of this sort would be a very simple matter, but it would not work satisfactorily for a number of reasons. In the first place, it would slug the cylinder and cause a heavy strain on the teeth of the cylinder boxes and cylinder teeth. Second, it would slow down the whole separator and result in poor threshing and separation of the grain.

In the best hand feeding the straw was all fed lengthwise, all the bands were cut and the straw was spread as evenly as possible the entire length of the cylinder. The butts of the bundles were elevated and the cylinder teeth were allowed to comb the top straws off from the bundle first. Where necessary the feeder retarded the under side of the handles with his hands. He endeavored also to maintain an even, steady stream of straw to the cylinder at all times. This made it necessary, for the pitchers to pitch carefully and place all the bundles in such a manner that they could be handled easily by the band cutter and the feeder. Even with the most careful work it was a little difficult to keep an even blanket of straw going into the cylinder continuously.

The first mechanical feeders that were made had many of the features which were common today although the mechanism has changed considerably since the first machines were invented. The inventors realized the situation quite definitely, but there was nothing to guide them in regard to the form of mechanism or, rather, details of mechanism that would give the best results in practice. These details had to be worked out by trials extending over a term of years. One of the earliest forms of feeders which was placed on the market and one of the first to obtain recognition consisted of a revolving raddle which carried the grain to the threshing cylinder. Just before reaching the cylinder the bundles were delivered upon a spring supported platform which was slotted. Fingers from below came up through these slots and acted as retarders for the lower side of the bundle. Immediately above this spring platform there was another revolving raddle working in an almost vertical position, but with the lower end pointing toward the cylinder. This raddle was provided with spikes which, as they revolved around, caught the straw from the upper part of the bundle and delivered it rather high up on the threshing cylinder. (See figure 99.)

Here we have the main element of the modern successful feeder. The bundles were delivered to the threshing cylinder by means of a revolving raddle,



retarders prevented the bundle from going directly into the cylinder, and a device was arranged to feed the upper straws into the threshing cylinder first. There was a revolving disc having teeth which caught the bands of the bundles and brought them up against stationary knives. Here we have a crude form of band cutter. The feeder was also provided with a governing mechanism which depended for its action upon the volume of straw going into the cylinder. When the amount of straw which was delivered to the spring mounted feeding board passed a certain predetermined amount the spring became depressed, the board moved downward and operated a lever which disengaged a clutch and stopped the main feeding raddle. Just as soon as the bundle which operated the governor was disposed of, the spring platform rose and the feeding raddle again started to work. In this machine, which was rather crude, there was no means for spreading the straw uniformly across the cylinder. It possessed many mechanical defects not found in feeders at the present time, but aside from the one thing mentioned it possessed all the requisites of a modern self feeder.

In mechanical feeding, just as in hand feeding, one of the essential requirements is that the grain shall be fed as steadily and uniformly as possible in order to keep a steady stream of straw passing through the cylinder at all times and to make the whole machine work at an even uniform rate. It is very essential, as has been pointed out previously, that the separator work at a constant rate of speed, and this speed should be the one best adapted for the work in hand. If the speed of the cylinder varies, it follows that the speed of all other parts of the machine will also vary, since they are driven from the cylinder. This being the case poor threshing will result and also poor separation. To obtain the best results, therefore, the self feeder must deliver the straw at a uniform rate regarless of how fast the pitchers throw the bundles upon the platform. This calls for very close governing. It is, furthermore, not advisable that variations in the speed of the separator cylinder be utilized to stop the self feeder carrier. When grain is fed into the cylinder its speed is somewhat checked during the succeeding instant and until the steam engine governor can act and deliver more power to the main drive belt.

Likewise, if, while the cylinder is working hard, it suddenly runs out of straw its speed will increase for an instant until the engine governor can again act and cut off a part of the steam supply. The result of this intermittant motion of the feeder governor was to feed an equal amount of straw continuously and thus prevent any such action.

The amount of extra power required to run the separator fitted with a feeder is probably rather slight. There is, of course, the friction of the various parts to overcome and a certain amount of power required. However, when it is properly designed and working correctly the straw is delivered at a much more uniform rate to the cylinder than by ordinary hand feeding and there is less slugging of the cylinder and the machine works to much greater advantage.

The self feeder made fast threshing possible, because it replaced uncertain hand feeding for the more perfect and tireless work of a machine. Hand feeding when done well and conscientiously was very hard work and it taxed a man's endurance to the limit to stand on the feeding platform all day and take care of all bundles that three or four pitchers could deliver him. Under such conditions as these, and they were common in the West, feeding was not generally well done. Furthermore, it was a more or less dangerous position for both the feeder and band cutter. If a stick or stone or fork went into the cylinder, as they frequently did, broken pieces were apt to fly back with terrific force, and many men were seriously injured in just this way.

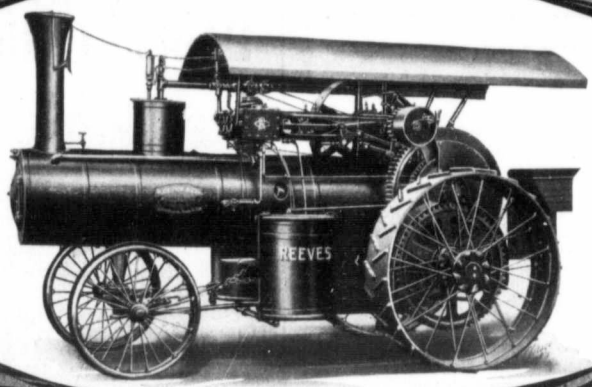
There was also the danger the feeder encountered of getting cut by the man who cut the bands. Where both worked at top speed it was almost impossible to guard against this danger, and consequently many men had their hands badly cut every season.

The self feeder did two other things that perhaps more than anything else led up to its rapid introduction, and these were that it dispensed with the services of two men, both of whom commanded more than ordinary laborer's wages, and it increased the capacity of the entire machine. These facts were the two outstanding points in favor of its adoption and which brought it into such almost instant prominence. It is a fact that it practically displaced hand feeding completely in less than five years after it was perfected.

The farmer who lost his half-bushel measure was in more than a peck of trouble.

REEVES

CANADIAN BRANCH:



REGINA, SASK.

Durability and Good Working Qualities in a Threshing Outfit Assure Profit to the Owner

Profit is what appeals to the buyer of threshing machinery, and when the qualities necessary to the greatest profit can be found in one machine, that is the one you should buy, even though, as is likely to be the case, the price is larger than on other machines. The following letter is right to the point and tells the experience of an operator of Reeves machinery:

Fullerton, N. D., May 29, 1911.

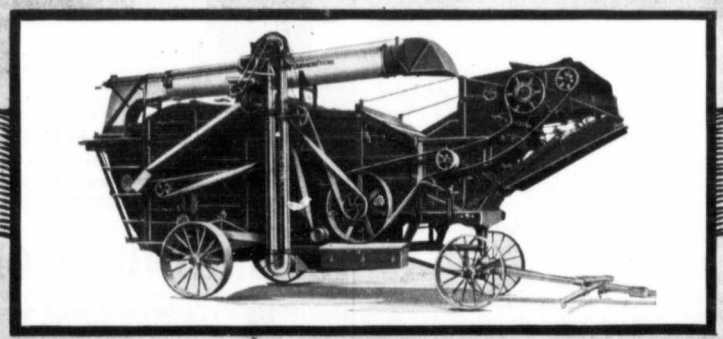
Reeves & Co., Columbus, Ind.

Dear Sirs:—Have you on hand lower pan for 40x60 separator No. 1052 bought in 1900? If you have, let me know and send price. This is the first repairs I have had to buy in eleven falls. I run this separator six falls in Illinois and five falls in Dakota, and it is still in first-class shape excepting this pan, and today, with a new pan, I will put it up along side any new separator and do a better job. I also am using most of the belts that came with it.

Respectfully,

R. F. D. No. 2, Box 25. *Myron McKeague, Fullerton, North Dakota.*

The Reeves Double Cylinder Engine and the Reeves Compound Separator make an outfit that will prove profitable to you, satisfactory to your patrons, and with reasonable care, will last a life time.



Our catalogs are free — ask for them

REEVES & COMPANY

COLUMBUS, IND. U.S.A.

REEVES

The Thresherman's Question Drawer

Answers to Correspondents

Q. F. F. D. Which will develop the most power, an 8 x 9 simple engine at 130lb. steam pressure, running 230 or a 6 x 9 x 10 compound at 175lb., also running at 230?

2. Is it possible to take a small cylinder size 2 x 6, and make a piston with two rings and fixing the ends of piston like the comet valve is made, so that the pressure will expand both ends of piston so that they will hug the side of cylinder steam tight? The question is can you place steam in one side of piston and a fluid in the other place, and place a higher pressure on the steam, and not have them mix; or will the steam get by the piston in the course of a day.

A. The nominal rating for traction engines would make both of these engines the same horse power. Each engine boiler has a different standard for nominal horse power, and the horse power of each of these engines would therefore vary from 11½ to 16-h.p., according to these different standards. The brake h.p. of these engines would be about 35.

2. It is the next thing to impossible to make a piston that will work freely, packed with two rings and hold steam without leaking more or less steam.

Q. L. V. Why does my engine carry over water at 135lb. pressure It is a Rumely single cylinder, getting plenty of oil. If I open the dip or pet cocks at 135lb pressure the steam is very wet or almost water.

A. The water which you are using is no doubt of a poor quality and needs to be changed often. In some extreme cases the water has to be taken out of the boiler every day. It is customary to clean a boiler once a week, but this will not always do.

It may be you need not change the water every day. It may run two or three days. You will likely know from experience just how long after cleaning the boiler works without foaming. You say you use plenty of oil, which is a good thing to do. Another thing which will help, is to hook the valve gear up as far as possible, thus working the steam on expansion to the highest degree, and in using less steam the boiler will not be taxed so severely, and will not be so apt to raise the water into the steam.

Q. H. H. J. Will you please tell me in your next issue through your columns the best way to set the valve to its seat, and how would you get an eccentric where there are no marks to show where it was set, when one is in the field with no special tools at hand?

A. If the eccentric is not keyed (which it should be), the tool required is a wrench to set the screws in the eccentric. To set the eccentric you should take the steam chest cover off, so that you can set the eccentric by the lead. Set the engine on dead center, place the reverse lever say to the forward position, and then turn the eccentric forward till the correct lead is had, on the end of the cylinder at which the piston is located at that time. Now fasten the eccentric, and turn the crank to the other dead center and the same amount of lead should be found; if not the valve must be shifted and the eccentric adjusted. If the valve is known to be much out of the way it should be adjusted first by measuring the full port opening at each end of the valve.

Q. L. E. W. I have a Port Huron Woolff compound engine.

1, Why does the valve pound inside the steam chest?

2. Should the steam balance valve be opened full blast or only part way?

3. Why does valve reverse hard after engine has been working?

A. The valve will not pound when the engine is working under a heavy load, the travel of the steam through and around the valve balances the same, and causes it to hold to the seat. When working under light loads, or when stopping, the pound is due to two causes: First, the spring holding the plunger to the back of the valve has become weak and the pressure of the exhaust steam from the high pressure cylinder being low, does not hold the valve from tipping slightly at the top; a new spring will remedy this. Second, the brasses at the end of the valve rod if not properly adjusted will, if too tight, cause the valve to lift.

2. The emergency valve on the steam line between the governor and the steam chest should not be left open only in cases where extra power is needed for a short time. The valve on the steam line between the main steam pipe and the plug in steam chest cover—the present engines are not so equipped—is for the purpose of creating an additional pressure to that of the spring, in order to hold opened very slightly.

L. J. Q. Will you kindly explain in a comprehensive manner the correct method of lining up crossheads, or guides, which have crosshead pin cast in one piece, thus not permitting the use of a string through the crosshead and cylinder to line by? Please also

explain method used for engine builders for lining, and also please give diagram, if convenient.

A. The difference between lining up the crosshead on a bar guide and a Corliss guide engine is: On the former you line up the guide bars to the crosshead and on the latter you line up the crosshead to the guides.

On a bar guide engine, if crosshead is worn, it should be filled so the bearing surface is straight on the bottom, top and sides and in line with the piston rod.

If the guide bars are worn they should be planed off or the bars can be turned upside down. They should have a straight, level surface for the crosshead to run on.

Cut out packing from thick paper, shipping tag is best.

Place enough of these under upper guide bars to hold the bars up off the crosshead. Then loosen the bolts so lower guide bars will be down below the crosshead.

Adjust the piston so you can move it back and forth by hand. Take off connecting rod and rear cylinder head and remove stuffing box, gland and packing. Move the piston across head to one end of stroke and slip gland in stuffing box. Draw up bolts on guide bars so the guide bars just touch the bottom of crosshead. Then move the crosshead to opposite end of guide, slip the gland in stuffing box and draw up this end of bars so they just touch the bottom of crosshead.

If the guide bars are worn so the ends will not allow them to raise high enough, file down the ends of the bars.

In using the packing, take enough of the packing, "A," so that when pinched together, it will be just thick enough to crowd one corner of the packing in between the lower guide bar, yoke and cylinder head lugs. Then loosen the bolts, put the packing in place and tighten the bolts again. Do this at all the four ends of lower guide bars.

Take a spirit level or straight edge and place it across the top of the two lower guide bars and see that the full width of the bars are in line with each other and level with heater. If not level, place packing, "B," under the outer or inner edge of bar to level it up. Rub chalk over the bottom of the guide bars, hold the gland in stuffing box and move the crosshead the full length of stroke and see that it rubs the chalk even at both ends of the guide bars, lengthwise and crosswise. It it does not, take out or put in packing until it does. Adjust the upper guide bars in the same manner.

After the four guide bars are adjusted up and down to a true, even bearing and run free on crosshead, place the connecting rod in position and tighten its boxes, put gland in stuffing box and loosen the bolts to guide bars just a little, drive the guide bars in or out until they just touch the edge of the crosshead. Then tighten the bolts, chalk the inside edge of guide bars and have some one turn the flywheel slow and watch and see that the crosshead does not bind at either end of bars and has an even bearing on the bottom, top, and edges and runs free.

A careful man can adjust the guide bars to crosshead in this manner better than with a centre line.

Q. A. A. J. My engine foams or primes very easy on a hard pull, even if the water in the boiler is fairly clean. We clean the boiler every week, and always have this trouble as soon as the boiler is the least bit dirty and the water in the gage shows a little high. Toward the end of the week we have to run with only an inch of water in the glass, for as soon as it gets a little higher the engine is ready to foam. The boiler has a very small dome, and we believe this to be the cause of the trouble. Would another small dome, connected to the other one, be the remedy?

A. There are a great many places in this country where the water is so apt to foam that it will have to be changed after two days' run; and there are some places where the boiler water has to be changed every day. While the boiler may be run longer than one or two days, yet it becomes so troublesome that it does not pay, and the engineer finds that it is far less work to refill the boiler than to worry along with a foaming boiler. There are a few things that may help in your case. If the engine is hooked up as far as possible, thus using less steam to the work, it will lessen the foaming. The use of plenty of good cylinder oil on an unbalanced slide valve helps also. Another thing is to keep the boiler raised in front, thus increasing the steam space in the boiler. The boiler can be raised to the extent that it will expose the front end of the tubes on a straight flue boiler to the steam; which will not hurt them if not carried too far. This can be done while threshing by placing blocks under the front wheels for a trial; and if it is found to be a good thing the king post can be lengthened to the same extent, which will do away with the block, and serve for both threshing and traction work. Another dome will not help. A boiler will not foam any more without a dome than it does with a dome. In England, traction engines are built without domes, and to-day very few stationary boilers have domes; and the time will come when traction boilers will be built in this country without this useless appendage. However, this will depend on the education of the user. Already some manufacturers see the folly of the dome on a boiler, but the man who has to contend against bad water might not at this time be satisfied with a boiler without a dome. Yet it is known to be of no value in this regard. The design of the firebox has more to do with foaming than any other single part of the boiler.

Q. W. H. Y. Can straw be used in a gas producer for fuel? If so, how many pounds of straw would be required per horse power per hour? Can it be used in a suction producer?

A. So far as we know straw has received practically no consideration up to this time as a possible fuel for gas producers. It would certainly not be adapted to use in the gas producers of the present day and especially not in the suction producer.

Q. Q. H. B. I have a 3½ by 4 air cooled motor, jump spark that I finished, buying the castings from foundry. Have the motor working well by hand, also seems to time perfectly, but will only make one explosion, and then the compression seems too high for the fly wheel to make another revolution, or it takes in too much air, but as soon as I turn it past center it will exhaust as before, and make the second revolution. I am using a carbureter ¾ inch, also coil and muffler, and the mixture sparks apparently all O.K., but cannot understand why the power is not enough to carry the piston by center. I finished this motor by blue prints from maker, and think everything is as called for. Will be pleased if you can give me any light on my trouble.

A. Your query is not sufficiently explicit, and we can only venture a guess as to the cause of your trouble. It sounds very much as if your engine was not properly timed, and that the force of the

Continued on page 76

MEN WHO MAKE No. 1 HARD

Being first hand experiences of the men who own and operate threshing outfits in Western Canada

Some Good Rules.

Our outfit consists of a 22 horse Compound Sawyer-Massey traction engine and a 36-58 J. I. Case separator. This makes a splendid rig.

My partner is running the separator and besides he bosses all the men at his end. He also collects all moneys, and pays all bills that must be paid until threshing is past. After that we do the collecting and paying each one every other year.

We have owned this outfit since 1906, and I didn't at that time know anything about the engine. So I had to hire for three falls. Now, my work is to take care of the engine, to keep time for all men, keep account of all expenses and thresh bills, and look after fuel, water, and firing.

Our engine runs better every year. Last fall we lost no time whatever on account of it. There's nothing like running your outfit yourself. Last season we threshed 25 days, for the straw was not so heavy as some years previous, on account of the weather being too dry, but other years we threshed as many as 50 days. Threshing was very easy work in this district last fall, and most all threshers made good money, although it was getting very dry to thresh barley in stook. It was hard to get water for the boiler, and also for the horses, as all lakes and sloughs were dried out. We bought our water for $1.00 a tank, small or large. Some farmers have wells to 200 feet deep, and have for sale all the water you want.

We charged 9 cents for wheat, 6 cents for oats, and 7 cents for barley at stook threshing. We did stack threshing for 3 cents less a bushel. On an average we paid $3.00 per day to all our men, and $5.00 for man and teams. We believe in getting good men, paying good wages, and above all in keeping liquor as far as possible from all our men. Another good plan is to have one boss only. Keep your outfit going, keep your men from cursing by not doing it yourself, never lose your temper, and start in good time mornings, quitting in good time at night.

I am very fond of reading your magazine, which is very valuable to threshermen, besides it is a good magazine for every home.

Yours respectfully,
G. E. Schopf,
Weirhill, Sask.

Only Do Their Own Threshing.

Our threshing experience in this country was with a 10 h.p. engine and a 28-46 Case separator, with straw carrier and low bagger. We fed it by hand. We could make a fair average, and do a good job too. It requires, however, too many horses, and there is too much work for horses to do in this country without doing the threshing.

Last spring we bought a 15 horse power International gasoline tractor, and a four bottom John Deere engine gang. We have a scrubby farm. As men were scarce we had to do the brushing ourselves. We pulled two fourteen inch bottoms, and broke 65 acres in 15 days. We pulled three fourteen inch bottoms part of the time but it is a heavy load for the engine in heavy scrub land.

Last fall we ran the 28-46 Case separator with blower and high bagger. We intend putting on a feeder next season. We only do our own threshing, and use the engine for plowing. I believe that the gears should be covered, so as to protect them from the dust and sand that blow off the drivers or implements. If there were good dust guards or covers on all engines I believe they would develop more power at the draw bar, and be a good deal longer lived.

We use a Motsinger auto sparker, and think it is far ahead of batteries, as it gives a good spark all the time, and there is no bother with dirty ignitor points. We had some trouble last fall with the ignitor. Everything seemed to be all right, only it seemed to miss fire every third or fourth time, and kept getting worse. We took out the ignitor, and found that the points were worn off flat. I just drove the old ones out and cut the heads off a couple of tin rivets, and drove them in, leaving nearly an eighth of an inch space between points. It now works as good as ever.

We never ran the engine in cold weather, but intend to run a grinder next winter. We are also going to put on dust guards for next season. We had a short season this time, as it was late before we got our engine, but will try and get started early next summer.

Wishing this magazine every success, as I would not be without it, I remain,

Yours truly,
James and W. J. Peter,
Maryfield, Man.

An Old Timer.

I have had experience in both horse power threshing and modern threshing. I always like to be around a threshing outfit, and so started out for myself, and I saw big things in store for me as a money making scheme. I dare say it looks that way to every inexperienced man who thinks that the other man charges too much for threshing.

I and my father went together, and bought a second hand J. I. Case 14 h.p. outfit. This we got for $500.00 in the year of 1904.

As we got the outfit a little late we did not do very much threshing that fall. We furnished three teams and five men, and charged 2 cents per bushel for oats and barley, and 3 cents for wheat.

Well we did not make money nearly as fast as we expected, and labor wages weren't nearly as high then as they are at present. We paid $2.50 per day for man and team, and 75 cents to $1.25 for men and boys to cut bands.

Well, in the fall of 1905 we threshed the same way, and got wages for ourselves, and that was all. We had a fairly good run, but the jobs were small, and we had quite a lot of moving to do from one job to another.

Now I think we bought this outfit very cheap and at the price we charged we never would have been able to pay for same out of what it earned for us over and above running expenses. In the year 1906 our customers wanted us to furnish the whole crew, and we did so, and charged 3 cents per bushel for oats and barley, and 4 cents for wheat. We had a good run that fall, threshing about 70,000 bushels of grain but it took nearly all we made to pay expenses, as it takes a lot of hands to run a horse power outfit.

We had two men to change off at feeding, two band cutters, four pitchers, one driver, two and three men on the straw. Two men could handle the straw all right if we didn't thresh too long at one setting.

My experience in threshing in this part of Alberta with horse power was to keep up the motion on account of the long green straw which we have here. I think 1,800 bushels of grain was the best day's work.

In the year 1906 we started again, not furnishing the crew this time. And for some reason or other there was always some one late in getting around in the morning so that we would be lacking a team or two for the power. And so it would be all the way from seven to half-past eight before we had the horse power full of horses, and as the grain was very tough that season we could hardly thresh without the seven teams on the power, and it was hard enough then.

One day when we were threshing for a neighbor along came one of our neighbor threshers who had a steam rig. He had the misfortune to have his separator burned one day when the stacks caught fire from the sparks of the engine. He didn't feel like buying a new machine, and wanted us to buy his engine, which was a 25 h.p. J. I. Case plow engine, and which he told us was in very good shape.

So as neither of us had had any experience with a steam engine we took his word, and bought the engine at $1600.00. Well we finished that year's threshing with the engine and the old Case separator. But the engine proved to be in very bad condition as it seemed to be priming half the time if working a little hard, and we got an expert to remedy the cause. But if anything he made it worse.

In the year 1907 we bought a new Aultman and Taylor separator with all attachments complete, which cost us laid down at Olds $1425.00, which we found to be a very good machine. I did not like the way the canvas apron behind the cylinder would carry a large amount of threshed grain up on the straw rack, and would easily throw over grain with the straw if fed a little heavy. But I have seen in The Canadian Thresherman and Farmer that this has been changed.

In the spring of 1908 a man who thought he was an engineer came along. He wanted to buy the outfit. We showed him how the engine worked, and he said that he was afraid of it, but we sold him the outfit for $2850.00 on the per cent. plan.

Well, he did fairly well with the engine in breaking, because it didn't need to run as fast in plowing as in threshing. But when he got to threshing he found out that it had some work before him. He had a time to keep it from priming. I know all about it, for I attended the separator for him, but he did fairly well, and earned some over $2000 in threshing that fall. But he charged 3 cents per bushel for oats, 4 cents for barley, and 5 cents for wheat, and 15 cents for flax.

In the fall of 1908 I and my two brothers purchased a 20 h.p. compound Sawyer-Massey engine, second hand, and a 32 x 52 Rumely separator. We found this to be a pretty good outfit. It cost us $2700.00. I just want to say right here that it makes a thresher go some to meet the payments as they come due, to pay them out of what he has earned over and above running expenses.

In the fall of 1909 we earned with the outfit $1360.00, charging 3 cents per bushel for oats and barley and 4 cents for wheat, but we lost about two weeks of the best threshing on account of waiting on the new machine to come, and in the fall of 1910 this district was hailed, so we had all kinds of prices. Some we threshed by the acre, some by the bushel, some by the day when we had the full crew to thresh. When stook threshing grain that was not hailed we charged 4½ cents per bushel, 5 cents for barley and wheat, hailed grain $65.00 per day or $1.00 per acre. In the fall of 1910 we earned $1740.00.

Now, we believe in doing a good job for our customers, and charging a fair price. We think a man can thresh in this district in stook threshing, furnishing the whole crew, for 4½ cents for oats, barley and wheat at 5 cents, and make his outfit pay for itself.

Continued on page 76

NOTHING BUT THE BEST

Your SUCCESS for 1912 will depend on having the right kind of Power—plenty of it, working hard, and not taking the game too seriously

There is no such Luck for 1912

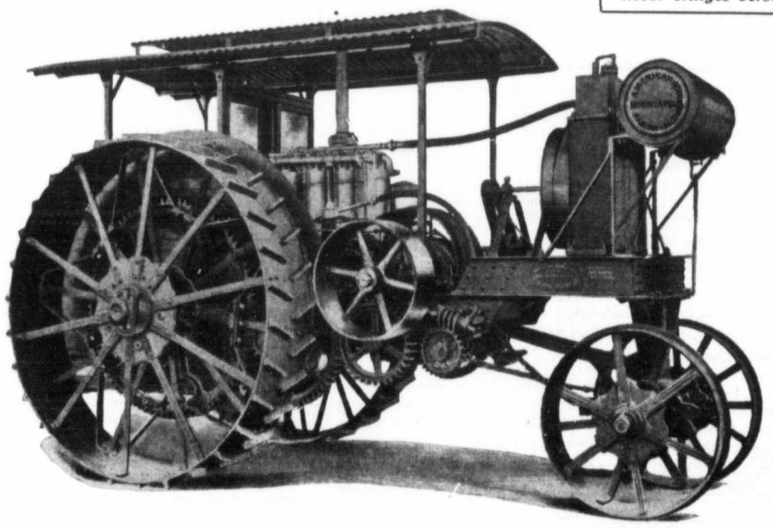
AS AN

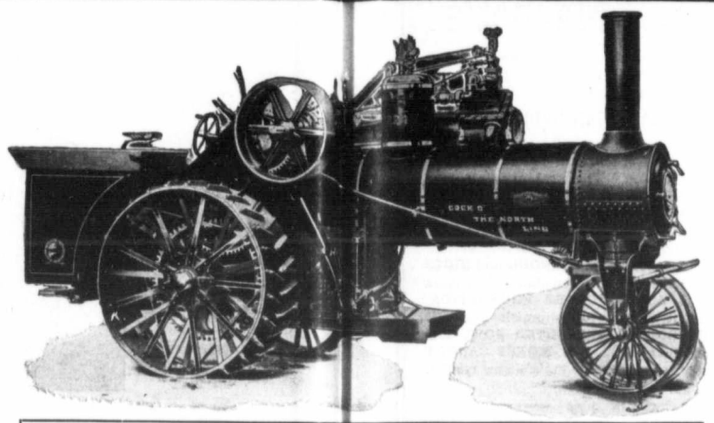
American-Abell Plowing Engine

You know better than we can tell you, Mr. Farmer, that the day of horse power for **good work on a paying scale is done.** You know that if you are to raise the crop in TIME, in QUANTITY and in QUALITY to make decent headway---you've got to have an ENGINE.

WHICH ENGINE?

The 25-H.P. "MINNEAPOLIS" FARM MOTOR





The 28 H.P. rear mounted triple AMERICAN-ABELL Special Plowing Engine—The greatest Steam Tractor in business to-day. The one Steamer that is at home on the Western Prairie. The "boy" that never bogs, the "cock" that never cringes before the toughest job.

An Invincible Pair

THE "MINNEAPOLIS"

A 25 H.P Gas Tractor may exceed on many occasions the amount and quality of the splendid service it promises, but will never fall short in the least particular.

A practically indestructable engine. Steel is used instead of cast-iron wherever possible, and it is not within the power of mechanics to produce a smoother working and more evenly balanced engine.

THE "UNIVERSAL"

40 H. P. brake test, weight 10,500 pounds. This (double opposed cyclinder) engine has a 7½ inch bore x 8 inch stroke, with a speed of 600 revolutions.

Its working record in comparison with horses and men employed on the same job is simply astounding.

Besides the tremendous advantage in TIME and quality it means the difference in cost between $1.00 and 45 cents an acre.

GET OUR GREAT CATALOG.

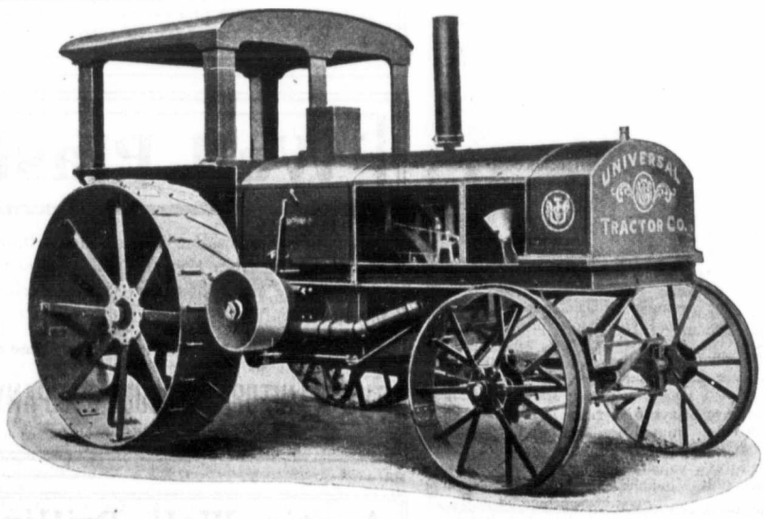
There is at least one of the Crowd

THAT WILL

Completely fill the Bill

We give you the portraits of three world-renowned champions that are rapidly building up fortunes for the men who own them-- that have never given a moment's anxiety to the men who operate them. The services of an expensive expert are not required with any AMERICAN-ABELL OUTFIT. Ordinary care WILL PRODUCE BEST RESULTS.

THE American-Abell "UNIVERSAL" FARM MOTOR



Your BURDEN in 1912 will be the smallest load you ever carried if you can hitch our American-Abell Plowing Tractor on to every load the farm carries

WINNIPEG REGINA SASKATOON TORONTO CALGARY EDMONTON

Our Creed: "We believe that honest goods can be sold to honest people by honest methods."

American-Abell Engine and Thresher Co., Limited

We represent THE ADVANCE THRESHER CO., BATTLE CREEK, MICH., and THE MINNEAPOLIS THRESHING MACHINE CO., HOPKINS, MINN.

Our Creed: "We believe that honest goods can be sold to honest people by honest methods."

Is Good Enough for 1912

THRESHING FLAX FROM THE SNOW.

By H. L. BOLLEY.

I have received letters from farmers asking how best to handle flax that is at present under snow. The following one is a good example:—

"Rosetown, Sask.,
Nov. 12, 1911.

Dear Sir:

Owing to the early snowfall and the scarcity of thrashing outfits in this district, I have been left with 80 acres of flax lying under the snow. I shall esteem it a favour if you will inform me whether it would be advisable to stack this flax now to thresh in the spring, or whether it would be better to let it lie as it is until the spring and stook thresh it then. I may say that the flax was wet before the snow came, and this moisture will have frozen on it.

It will be a great service to the farmers of this district if you will kindly inform me what would be the best thing to do under the circumstances.

Yours faithfully,
Robert Miskell."

I have not been able to lay down any definite rules for procedure with regard to threshing flax after a snowfall for the reason that it is a neighbourhood condition, and on almost every farm the conditions are somewhat different. Sometimes the flax was thoroughly ripe and ready to thresh when the snow came; sometimes the flax was cut green with lots of green foliage on it, and was not ready to thresh when the heavy freeze and snow came on.

In most cases, as in the case above, the snow was preceded by rain, so that ice formed on the straw and bolls before the flax was snowed under. In general I would answer as follows:

If the flax were well matured and the straw was dry before the snow came, and if there were not too much ice formed on the stems, leaves, and bolls before the snow fell, I believe that I would, as many farmers did last winter, contine their threshing operations during the cold weather before the snow is moistened up by thawing and rains. To do this will not be possible where the snow is too deep, but in most cases the snow is not so deep that one cannot shake the flax with forks, and stook it up operation would be to shake out the flax with forks, and stock it up into small loose cocks. In the absence of a large amount of actual ice on straw, loose mature flax shaken out of the loose dry snow, will thresh alright in the cold weather. The person who undertakes to save the grain in this manner must make up his mind to have a large storage place where the seed may by handled over and the large chunks of ice screened out by means of fanning mill or other grader.

In case flax was cut green and frozen before it was dry and in case the flax was wet by heavy rains just previous to the snow, I think I am inclined to follow the method as recommended by Mr. Miskell, viz., as soon as the snow goes off in the spring to shake up the flax and dry it in the winds of March and April. Put it into loose stooks and thrash it from stook as soon as dry and before the early warm rains set in.

It will, I think, be seen from these considerations that no one can give advice which will fit all cases. The particular farmer will need to go into his fields and study conditions. If he can shake out the flax with the loose dry snow on it, he should thresh at first opportunity, because every day it remains on the ground lessens his chance of saving the crop. If it should come an early wet spring with but few drying days in March and April, the chance of saving the grain would be slight.

As a matter of encouragement I may say there has been many samples of flax sent to the Pure Seed Laboratory during the last two or three years, which farmers have taken out of the snow at different times. Some threshed in the winter and some in the first days of spring. The somewhat injured for sowing purposes it was often found essentially as valuable for oil purposes as it would have been if threshed earlier.

It must be remembered in stacking flax that the straw has very little capability of shedding rain, and that as soon as the warm weather sets in, such wet straw molds and decays quickly; also that when flax straw is stored with ice in it, and this ice melts, the flax will be subject to heating and bin-burning, as soon as the weather is warm enough to allow mold growths to occur.

One very good reason for trying to get the flax off the ground during the winter weather is that the ground is not muddy, and the work of taking it out of the snow will hardly be found to be more disagreeable than trying to get it out of the mud in the spring.

Furthermore if the ground is cleared up this fall it will be ready for the plow the first thing in spring. It will be found quite difficult to get the flax out of the way in time to plow the ground for wheat, oats, or barley, if one waits for the windrows or stooks to dry in the spring. Even if it cannot be threshed during the cold weather it would be better to have the windrows made up into small, loose stooks, which can be worked over in the drying winds, and rapidly loaded than to do all the gathering up in the short space of time which will be left after the snow goes off.

Concrete Improvements in Winter Months.

Few recent discoveries are of as much benefit to the farmer as that of methods whereby concrete work may be done in winter as successfully and almost as conveniently as in summer. These enable the farmer to utilize spare time in fall and winter to make needed repairs and improvements, thus saving valuable time during the crop season.

If a few simple precautions are taken in the preparation of materials before mixing and in the protection of the forms from extreme cold until the concrete has "set," good results may be obtained at any season of the year.

Freezing does not injure concrete except during the "setting" process. If it is frozen before the setting starts, no harm is done. After it has set, no change of weather has any effect upon it. It is necessary, however, to protect it from frost until it has had a chance to become thoroughly "set."

Concrete will, on its own account, develop a certain amount of heat in the "setting" process. In extremely cold weather, however, some outside assistance, in the form of artificial heat, is necessary. The best way to provide this artificial heat is to warm the materials before mixing. This shortens the time it takes the concrete to "set," and lengthens the time necessary to bring it to the freezing point. It should be remembered that the less water used the quicker concrete "sets." Therefore, it is advisable to use as little water as possible in the mixing in cold weather.

A simple and easy made vessel for heating water may be constructed of a barrel and a coil of one-inch pipe. For this purpose it is wise to use a length of malleable iron gas pipe, because it is easily bent into a coil. It may be bent around a log or fence post about the diameter of the desired coil. The two ends are inserted in holes in the side of the barrel, one near the top and the other a few inches from the bottom. A fire is then built under the coil, and water from the barrel circulates through it, becoming quickly heated.

Most farmers, however, possess large boiling kettles, which will do equally well for heating the water.

Sand and stone may be very easily heated by making use of two pieces of stove pipe, one for the sand and one for the stone. The pipes are laid on the ground in such a position as to allow the wind to provide a good draft. The fire is then built in one end, and as fuel is added it gradually forces its way through the pipe. The sand and stone are piled on top of the pipe.

A good way to judge the proper amount of heat for materials is to make them just hot enough to be comfortable to the touch. Care should be taken not to use any frozen lumps of sand.

After the concrete has been placed in forms, it should be protected so as to keep the heat in as long as possible. This is more essential in thin structures than in massive walls, for the latter retain their own heat longer on account of their thickness.

The forms themselves are conductors, and will retain heat up to a certain point, but the concrete should be further protected by a covering of canvas or heavy paper, with a layer of ten or twelve inches of manure on top of this. Straw will also answer the purpose. If manure is used care should be taken to prevent it from coming in contact with the surface of the concrete, as it will discolor it.

SWAMP FEVER.

By W. G. PALMER.

Swamp fever is one of the worst horse diseases. So little has been known of this disease that it has seemed treacherous, often striking where least expected. Doctors Van Es, Harris and Schalk, of the Veterinary Department of the North Dakota Experiment Station, have carried on an extensive investigation into the nature of swamp fever. They have embodied their results in bulletin 94. They have determined several of the factors in the disease which are given in the summary as follows:—

1. Swamp fever is a disease of infection, transmisible by subcutaneous and intravenous injection and by ingestion through the alimentary canal.

2. The virus producing the disease is contained in the blood and urine of affected animals, but it is absent from the faeces.

3. The virus has thus far been demonstrated only in an ultra-microscopic form.

4. The virus is resistant to the severe freezing weather of our more northern climates.

5. While not denying the possible transmission of the disease of healthy animals by means of

insects and parasites, animals contract the disease naturally by the ingestion of food and water, contaminated by the urine of an infected horse.

8. The disease is essentially a septicemia, anatomically marked by sub-serous and sub-endocadial hemorrhages in the more acute forms, by occasional involvement of lymphnodes and spleen, by degenerative changes in the parenchyma of heart, liver and kidneys, and probably also by certain alterations in the bone marrows of the long bones of the limbs.

7. The chief and most constant manifestations of the disease are fever and albuminuria. The former is remittant or intermittent, not uncommonly at more or less regular intervals, while the latter is transitory and frequently synchronous with the febrile exacerbations.

8. Many cases of swamp fever terminate fatally without a marked reduction in the red blood cells, a fact denying the popular conception of "swamp fever" being primarily an anemia.

9. The blood of an animal may remain virulent for as long as thirty-five months after the inital infection, without the infected horse manifesting any clinical evidence of the fact.

10. Such non-clinical infection carriers probably play an important part in the establishment of more or less permanent centers of infection.

11. Both trypan-blue and atozyl are worthless in the treatment of the disease.

12. In the light of our present knowledge we have to depend upon such prophylactic measures as the destruction of diseased animals, segregation of suspects, care in introducing new horses into the stable, the safe-guarding of food and water supply from urine contamination, pasture drainage and stable disinfection.

The bulletin also reviews the observations and investigations that have been made by others, giving 83 references, making it a complete history of swamp fever up to date. Several plates are included, some of which are colored.

These investigations are the most extensive and thorough that have been made on this baffling disease. Knowing that the virus is contained only in the blood and urine, and that the blood of a horse can remain virulent for 35 months after infection without any external evidence of being able to transmit the disease is a big step.

The Printed Letterhead.

Printed letterheads and envelopes are travelling advertisers. When a letter comes, it makes a big difference if it has a printed letterhead and envelope. It looks like busines and it is business of the best kind.

The farmer needs such printed letterheads. There should be something for sale on every farm, and the letterhead can be made to advertise it very cheaply. It will also be found that the printed letterhead will have quite an influence on the person himself. The more he sees it the more pride will be taken in keeping up the quality of the articles for sale.

It is not accident that business men in all lines use the printed letterhead. They have found that it is a good business proposition. Those farmers who have tried it have found it both profitable and a source of pride. The cost will not be so much more than for plain paper. It may seem a little large, but then one wants to remember that he is getting a good many sheets and envelopes at one time.

The Farmer's Interests.

The farmer is interested in manufacturing, railroading, merchandising, banking; yes, and dependent on them. The farmer must have the labor saving machinery, which has in a large degree made him independent. The securing of sufficient men to do the work in the old way is now almost impossible, and it would be vastly more expensive than the present system with improved machinery. The labor saving machinery, or to put it different, letting the farm hand go to town and manufacture binders, for instance, rather than to stay on the farm and swing the scythe, had made the railroad necessary, in order to transport the products from farm and from manufacturer to the consumer.

It would be a big task for the farmer to secure the almost numberless things that he uses and needs. The merchant collects these and places them at points of convenient access to the farmer. A very useful service.

The farmer needs the bank. It facilitates his financial affairs. In fact, it enables the farmer to carry on his affairs in a much more business-like way than would otherwise be possible.

It is evident that farming, manufacturing, railroading, merchandising and banking are all an outgrowth of farming. A specializing of the work at one time all done on the farm. They are each necessary to and a complement of the other. The farm, however, remains the most important, though it has had less brains bestowed upon it than have the other big lines of industry, the side lines of farming so to speak. These are now making efforts to put more brains into farming. The manufacturers send out experts to teach different things, as soils, machinery and its care. The railroads send out agricultural experts to teach soils, crops, rotation of crops, soil tillage, etc. They also send out better farming trains. The bankers and merchants are strong supporters of farmers institutes, in this way bringing

personal instruction to the farmers. The bankers are also taking a very active interest in education.

In a high civilization like ours no one line of machinery can be allowed to get behind, as that puts a drag on all. The farmer is interested in and needs the manufacturer, the railroader, the merchant, and the banker, and they need the farmers. All together make for our splendid civilization.

Seed Selection.

In reading your November Thresherman issue heading, "This magazine wants your services," I will take the first subject you mention, re methods used in seed selection and treating it. Now I have only been farming in this Western country a matter of five or six years, but from the start have been constantly interested in seed selection. To start, I had 18 acres breaking on my homestead and not too much experience or money to buy seed wheat, so I left the seed buying to a neighbor and went to the woods for the winter. Well, that first crop came up and headed out, and it would be hard to describe the variety, half was bearded and the rest bald, consequently the grain didn't grade good, and I determined then to grow the Red Fife, as I liked the plumpness and color better than the Preston. Well the following harvest the crop got touched with frost, and I started again to look for something different. Well, then I sent to the Central Experimental Farm for a free five pound bag of the Marquis wheat, and sowed this the spring of 1908 in my garden with a Planet Jr. garden seeder. It came up a splendid stand and after heading out I carefully roqued it several times, picking out anything that just didn't look true to type, and when the main crop was cut I swung in with the binder and cut this Marquis plot; after it had hardened I rubbed out a sample and right then I knew I had a prize winner. I threshed it by hand and succeeded in winning first prize silver medal and $5 at the Maymont Douglas Agricultural Show, 1908. Now this was direct encouragement, and I sowed the two bushels on a piece of new breaking in 1909. But the hired man failed to put the seed down to the moist soil, consequently an uneven germination resulted, the main part of the seed coming up in June. Nevertheless, it beat the frost, and I managed to put it through the threshing machine after oats, and by catching the first dump in a sack I got the wheat true to type again. During this year I collected the best looking heads from the standing field and obtained about 15 pounds of seed this way, incidentally pulling out any impurities. I afterwards found this to be the method of procedure with the C.S.G.A. I sowed this selection on a special seed plot to improve the strain alongside of the field of Marquis, but a bad hailstorm cleaned the plot right out and badly damaged the field, nevertheless the field averaged 22 bushels per acre, which was ten bushels better than Regenerated Red Fife right alongside it, and was superior sample. Now I intend sowing a good seed plot again next year. I am well satisfied with the Marquis variety of wheat. It is equal in quality to the Fife, earlier and, in my opinion, stands the drouth better and is extraordinary free from smut, either dead or smut balls. These are my observations re selections of seed grain, and are applicable to oats, barley or flax. I am learning by experience, and am always willing to try anything which looks good. Now is the time to put your grain through the fanning mill and accept nothing but the largest looking wheat for seed; remember the plant has to live on the berry till it establishes good roots. Now I treat my grain with the usual one pound bottle of formalin in preference to bluestone, to about 40 gallons of water, formerly I suspended a perforated pail above barrel and let the liquid drip back. Now I use an Owen's Smut Cleaner, which is a superior way, as the grain is bound to pass under the liquid, and the automatic skimming device skims off all impurities, such as smut balls, straw joints, etc. Cover up the treated grain for a few hours, then shovel round to dry, and as soon as it is dry enough put in your drill and don't forget to put it right into the moisture.

Yours truly,
E. T.

Maymont, Sask.

The Individual Threshing Outfit.

I was glad to read in your issue of November of your call to farmers for first hand information on a number of very important topics. I do not feel capable of doing justice to any of them, but would like to try my hand at No. 15.

To correctly answer query No. 15 would be a rather difficult matter to suit every locality. But to take the country as a whole I would like to emphasize on the idea that a farmer own his own threshing outfit.

There are a number of very important reasons for this. First, there is the all important problem of getting the stooks off the field and get your horses started to plow. And then again, there is the uncertainty of the weather conditions. As a rule the man who waits for his thresher to come

his way has grain standing in the stook. On the average about three weeks, but even three weeks is lucky in this dictrict, for many fields are not yet threshed, this being December 13th. My neighbors have from 25 to 100 acres of flax under the snow, while, myself, having a share in a small outfit, have been threshed two months, and was able to have my threshing done when all the grain was in fit condition to thresh. Now a great many farmers view the idea of investing in a small threshing rig as a great deal of expense; but it is really a great deal cheaper than by paying the big threshing rigs eight cents for wheat and six for oats.

We have a portable gas engine, 20 horse power, and a 27-46 separator. This outfit costs about $2,700 complete. Now the majority of farmers have not the cash to pay for threshing machines, but they can buy on three year terms, being $900 per year. Now, if an outfit like the above is run right, the expense for labor, gasoline, oil, teams, etc., will be less than four cents per bushel for wheat, two to three cents for oats, and other grains according. This means a saving on the average section, "say 8,000 of wheat and 2,000 of oats," of about $400 per year; this is taking account of only the work, when you consider that you may save from two to five cents a bushel on your wheat, for color and hardness means a great deal on the wheat market today. Then there is from one bushel per acre up wasted when the grain stands in the stook very long, caused by mice, birds, gophers, and so on.

Every farmer does not farm a section, but any two or three farmers can buy a machine and have their own work done in good time.

And then with reasonable care and shelter a machine will thresh the crop on a section or even two sections for at least ten years; and then most farmers have horses enough to run an outfit like this, and will only have the extra expense of six men and the fuel and oil, which would bring the threshing expense down to two cents per bushel all round.

G. Hayseed.

Wilkie, Sask.

The Seed Drill.

My experience with the seed drill has extended over a period of five years. During that period I have seen a great many makes of drills in many different kinds of land. As far as I can see there are four different kinds in evidence, viz., hoe, shoe, single disc and double disc.

The hoe is a back number, anyhow, and seems to have been one of the first. The chief troubles with it was clogging with trash and weeds. The draft was also heavy and the hoes hard to keep clean.

The shoe comes second in evidence. About ten years ago everybody had shoe drills around this neighborhood. They were all right in a sandy loam or light land. I have ran a shoe drill of the Massey-Harris make for five seasons now, and I find it is the best made for spring plowing, or if the ground is loose. But if the ground is hard you can't force the shoes down into it, consequently all the kernels don't germinate. For the heavy land the shoe is not much good, because of the shoes clogging up with dirt; also I find that when they get clogged up it don't draw any easier than any other kind of drill.

The disc drill seems to be the next kind that the makers turned their attention to. The first of these was the double disc. It seems to be the most universally used drill all over the country. It has a distinct advantage over the shoe, having the power to put the seed down. Some of the other makes use the double disc in conjunction with the press wheel. I, for one, don't believe the press wheel is of much account; because to be of any use it must be heavy, and weight causes draft. Anyway, if the seed is covered right with loose loam it will germinate. And if the year is dry the press wheel can't make wheat grow.

The last drill to be invented is the single disc. The makers claim that it will till the soil. I saw a single disc drill at work in a field of pepper grass last spring, and I can't say that it thinned it any. The discs cut about three inches of ground, thus leaving three inches between. Also, the draft is about half a horse power heavier at the same work, not altogether because of the discs, but because of the added weight of the drill. I think that the single disc is not much of a success.

The chief essential in seeding is to get the seed down to the required depth and covered with the least power or draft. Now, as far as I can see, the double disc drill with heavy drag chains will do this. Also, if a light drill will do your work don't buy a heavy one. Weight means added draft, and draft means less acres. Of course where the land is heavy and hard it is necessary to have weight enough to put the seed into the ground.

Now, I think, if the makers would put a drill on the market with "weight boxes," so that when a man was sowing hard, heavy land he could put on extra weight. Then when he went to sow spring plowing he could throw the weight off, thus having a lighter drill for light work and also light draft, because it don't take as much weight to sow loose plowed ground as land that has been plowed the fall before, or perhaps summer fallow. Draft is the whole thing. Get the drill that will do the most work and do it right with the least power.

Yours truly,

A Farmer.

Douglas, Man.

Selecting Seed Grain.

The methods used in selecting seed grain is worked out under the system of the Canadian Seed Growers' Association. I follow this system on my wheat, oats and barleys. Most people are familiar with these methods. though very few seem to endeavor to take them up. As you ask for methods, Mr. Editor, I give a breif outline of these methods, which may be interesting to some of your readers. My seeds were started from good samples of grain that had hitherto given me good satisfaction in yields, type, earliness and healthy plants. Selection of heads of each respective kind of grain were gathered from the standing crop at maturity; small quantities of ears sufficient to thresh out enough seed to sow one quarter of an acre or more. In the selection of these heads care is taken, as far as one's ability allows, to select fair sized even heads in which the seeds are well matured and plump. An even maturity from strong, healthy plants of good bright, clean straw and of one particular type as far as possible to obtain.

This seed is sown in a special plot the next season, which is watched and rogued from time to time, when time can be spared; the more the better, for stray weeds, other varieties and other grains, for odd grains will creep in or come up as volunteer, no matter how careful one is, there are so many sources of pollution to contend with. The same system of selection is carried on from year to year, always pro-

curing enough to provide seed for this small breeding plot, while the main product of the plot is used on a larger plot or area, and provides seed for the general crops of the farm. In after years one is able to get registration for this seed if one's work has been carried on satisfactorily. In any case the extra work well repays the time and trouble spent. For the first three or four years the work appears to be progressing slowly as far as big results are concerned, but it is sure, and the more time spent in the fields on careful selection the better results. It means practically pure and clean seed and grain, evener and earlier maturity and an increase in yield, which means less weeds to contend with, less risk of frost, a better price for the grain as a sample and a bigger revenue from better grain and more bushels.

As to treatment of seed. I have discarded bluestone for formaldehyde the last three or four years, and like it better as it is handier and being much easier on the germination of the grain. This has been quite noticeable in the germination of the seed and thickness of stand of young seedlings when first appearing in spring from the seed bed under the same rates of seeding and soil conditions.

My method of application is dipping. The grain is placed in coarse sacks and dipped into the solution, which is contained in several half barrels. I do not tie the sack, but hold it with both hands and souse it up and down a dozen times to insure that the liquid runs right through the grain from the agitation. This is then left about ten minutes, then tied, pulled out and placed on another half barrel with a board across the top to drip. While this is dripping, one is dipping another or is engaged at another barrel or bag, so that no time is lost waiting on any part of the operation. Before the bag is drained entirely I shoot it onto the floor (which, by the way, has been washed over with the solution before commencing operations). The grain while still wet is shovelled over several times to ensure thorough wetting and is then covered with blankets or sheets and left to dry, which is the main point, and it has given me good satisfaction.

Rex.

Keep Going.

When one task is finished, jump into another. Don't hesitate. Don't falter. Don't waver. Don't wait. Keep going.

For activity breeds ambition, energy, progress, power. And hesitation heeds idleness, laziness, shiftlessness, sloth.

Don't dawdle in the hope that inspiration will strike you. Inspiration is more likely to strike a busy man than an idle one.

The Gaar-Scott Boys.

This photograph of Gaar-Scott officers and office force was taken in front of the Gaar-Scott office at Richmond, Indiana, in honor of the retiring president, Howard Campbell. Mr. Campbell preferred to be photographed in line with the boys. He is standing in the rear line at the left, the second man from the end. By his side, toward the centre of the group stands S. S. Strattan, Jr., for fourteen years the company's secretary.

The new president, Frank Land, former first vice-president, and for over a third of a century one of the mainstays of the manufacturing end of the business, will be recognized standing on the step back of the right lady. Will Campbell, who has been moved up from second vice-president to first vice-president; stands in the front row, the fourth man from the left end. C. P. Holton, treasurer and purchasing agent, who has been prominently identified with the Gaar-Scott interests since his youth, stands in the door-way at the right. Five of the office force were unfortunately absent when this photograph was taken.

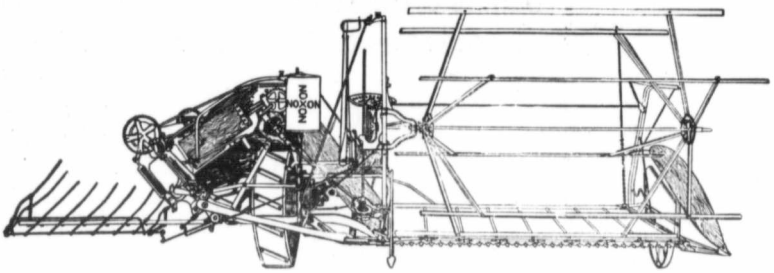
Howard Campbell, retiring president, who was also general manager of the business, has served in this capacity since 1900, and previous to that time was general superintendent of the factory for a great many years. He has devoted an ordinary lifetime to building up the big Gaar-Scott organization and establishing a high reputation for its machinery. No one familiar with his strenuous application to duty through all these years will begrudge him his well-earned rest and he retires with the best wishes of a host of threshermen who have known him personally.

Farmer Up-to-Date—Farmer Good Intention

Their Farms adjoin. Both of these Farmers live in your neighborhood. You know them and they know you. Are you one of them? If so, we sincerely hope you are the right one.

FARMER UP-TO-DATE	JANUARY 1912	FARMER GOOD INTENTION
HENRY: In a letter home. This college life after such a good time at home is necessary I suppose but it is certainly a change. The first morning after I came back I did not hear the breakfast bell on account of getting into the habit of sleeping so late at home during the holidays. It was not a very good way to start the New Year so I resolved to never let it happen again. They tell us here that now we are on the home stretch big things are expected of us boys. They evidently don't expect much from the girls, at least they don't say so. I have joined the hockey team and when we go up against some of those other city teams we are going to show them what "plow handle" muscle can do when it wants to. Don't forget that $10.00 you said you would send.	Week Ending Jan. 6th	CHARLES: I knew that hay stack feeding business would cause some damage. This morning I found that those yearlings had burrowed into the stack so far that it had caved in on one of them and he smothered to death. He wasn't worth much to be sure on account of being so thin but it seems too bad that he did not even have a fighting chance. They have already wasted more hay than would have built half a dozen good feeding racks but the rule on this farm seems to be to get things done with as little work as possible. Unless the remainder get a little grain between now and spring some hide company will make the only profit out of them that will ever be made.
FATHER: I think we had better begin now and get our seed ready for next spring. We demonstrated to our entire satisfaction that it pays to sow only the purest, cleanest seed that one can get. Last season was a wet one and despite all that could be done the weeds assumed a wonderful growth. Next year we are going to have all of those weeds to contend with and the best way I know of handling them is through thorough cultivation and a good strong stand of clean grain. We will clean our grain thoroughly and then put it through germination tests. When the time comes we will run it through the pickler and in the spring provide the best possible seed bed for its reception. The large amount of feed wheat that was marketed last fall was due, I believe, as much to poor seed as to a bad season.	Week Ending Jan. 13th	FATHER: John Snooks, the lawyer at R——, wants me to sue that nursery company for back commissions that they haven't paid. They claim that I sold some of the goods under list price and that I must make up the difference out of my commissions. I had to make expenses somehow and so had to sell the stock in some cases for what I could get. Those big companies are robbers anyhow and they can well afford to cut prices sometimes. Snooks is willing to take it up for one-half of my claim and costs. He assures me he can win so that the company will be obliged to pay the costs. I, of course, must guarantee the costs, if I loose, but he says there is no danger of that. We will teach those fellows to try and bleed a poor farmer. A few lessons of this kind will make them a little more considerate.
MOTHER: The Home Economics Society are going to meet here next week instead of in the town hall at R——. A great many of the members have requested to see my poultry plant and as our next meeting will be largely devoted to poultry discussions I thought it a good opportunity to have them here. Mr. J——, the butcher, at N—— has promised to come over and give a demonstration in killing and dressing poultry for market and I have promised to give a chicken pie supper for the young folks in the evening. It is going to take a few of my nicest chickens but I believe we can make the meeting well worth it. All I ask of you men folks is to look after the teams and if you are real good I'll give you some chicken pie.	Week Ending Jan. 20th	MOTHER: Father, the few potatoes we did have in our cellar are all frozen and at present prices I don't see how we can afford to buy them. A half-day's work for two men and a team would have banked the house in such a way that the frost could have been kept out. It certainly looks like a canned bean diet for this family this winter. The hen house is so cold that I haven't had an egg in over a month and just now they are forty cents a dozen in R——. A few dozen eggs now and then would certainly help out the grocery bill at this season of the year. Our credit is exhausted at R—— and at N—— and I suppose the next move will be to drive 25 miles over to C—— and trade on their good nature for a while.
JOHN: I was reading in the December number of the Canadian Thresherman and Farmer about a patent Hog Motor. This machine is worked by the hogs themselves who grind their own feed. From the description of what it will do and what it has done it looks good to me. I see that a bunch of four hogs down at Winnipeg gained 2 pounds per hog per day for 107 days and they did it on 4.65 pounds of feed for one pound of pork. In so far as I know we have never been able to touch that mark on this farm and I thought we were pretty careful feeders. I have always been a firm believer in feeding grain in the ground state and this machine seems to have solved the problem in so far as hogs are concerned.	Week Ending Jan. 27th	**THIS FARM FOR SALE** Stock and Implements included if desired Apply to Owner.

LET NOXON INSURE YOUR CROP



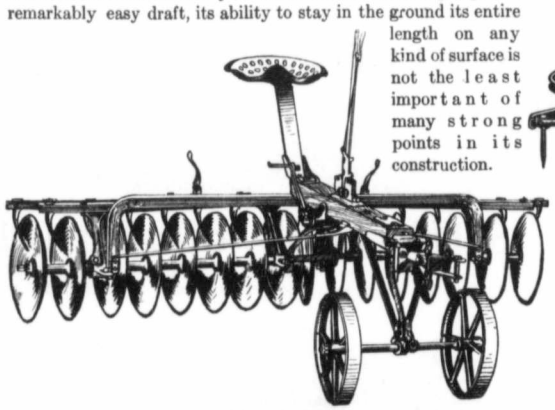
The fate or the fortune of your 1912 crop will largely hang by the implements you use.

"NOXON'S" meet every contingency.

On any point that affects the rapid, clean and complete harvesting of the crop **"The Noxon" Binder** has no rival. The Reel alone, will satisfy any practical grain grower as to the superiority of **"The Noxon"**. With its positive lateral adjustment on the outer end, it cannot be dragged forward or down by tangled grain. The **double crank** gives the same movement to both ends of the reel, making it rigid and easy to operate. The **all-steel bull wheel** will stand the worst that can be handed out to it on the harvest field. The **main frame** is light, strong and equipped at every possible point with roller bearings. The **Stark Knotter** is used on the **"Noxon"** and on all points it is the least complicated, and best working binder in business today.

THE "NOXON" DISC

has never failed to demonstrate wherever it has been used that it is one of the most uniformly effective soil cultivators going. Of remarkably easy draft, its ability to stay in the ground its entire length on any kind of surface is not the least important of many strong points in its construction.

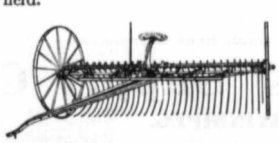


THE "NOXON" Spike Tooth Spring Lever DRAG HARROW

Made wholly of steel, this really high-class implement has no rival in its own line of drag harrows. You can use any number of sections abreast that the horses or tractor can draw. You cannot invest in a better tillage tool than the **"Noxon"** harrow.

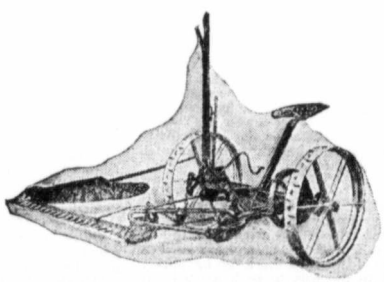
THE "NOXON" All-Steel Ratchet DUMP RAKE is made with the teeth very close together, the ten-foot size having 36 teeth.

The end teeth are short, giving the rake an easy hold on short wild grass. A strongly-made implement—we guarantee it to make a clean field.



THE "NOXON" MOWER

has a strong personality about it which peculiarly fits it to the demands of Western Canada. Has an exceptionally strong frame and wide tread. It is also geared to the proper speed, and the cutter bar is fitted with special guards having raised ledger plates.



NOW IS THE TIME TO MAKE CONTRACTS FOR LOCAL AGENCIES

TUDHOPE-ANDERSON COMPANY, Limited,

AGENTS FOR WESTERN CANADA

Warehouses at Winnipeg Regina Calgary Saskatoon

Distributing Branches: Brandon, Yorkton, Edmonton, Lethbridge, Swift Current

RECENT CANADIAN PATENTS

Continued from page 34d

133864—D. I. Cheley, Carnduff, Sask. This invention relates to a disc harrow and the object of the invention is to provide a plurality of discs shiftable in respect to a frame, the frame being yieldingly connected to a draft vehicle. It is accomplished by pivotally connecting a disc carrying shaft to one side of a triangular frame and adjustably fastening the other end of the shaft to the other side of the frame by the shiftable bar.

133872—W. P. Dawson, Kamloops, B. C. This invention relates to a stanchion and it comprises a frame structure having opposite side sections in which guide bars are horizontally mounted. Horizontally disposed supporting bars are slidably connected to the guide bars and carry slidably a yoked frame, the yoked frame and the supporting bars slidably supporting a curtain. The yoked frame is also supplied with extendible sections.

133920—G. H. Murrin, Crossfield, Alta. The invention has for its object the construction of an improved tiling and it comprises a tile having a cross groove formed in the upper side thereof adjacent to the top, a felt filling embedded in the grooves and ridges formed on the under side adjacent to the lower end thereof, the ridges of one tile being designed to fit into the groove of an adjoining tile.

133933—A. Poncelet, Swift Current, Sask. The invention relates to a flue beading device and the object of the invention is to provide a tool whereby the ends of flues can be quickly and effectually beaded and it comprises a shank having a tapered screw threaded end and a handle, and an intermediate threaded enlargement, a head rotatably and slidably mounted on the shank and adjoining the enlargement, such head carrying rollers or beaders, means for rotating the head and for advancing the same on the shank when beading, and releasable means for securing the threaded end of the shank within the tube.

133954—J. G. Stewart, Winnipeg, Man. The object of the invention is to provide a device which will receive sheaves from a binder deck, elevate them, subsequently rotate them and deposit them into a basket and finally deposit them in the form of a shock on the ground. It consists essentially in a shock forming basket adjoining the deck of a binder, a rotating shaft, a receiving and expelling box interposed between the basket and the deck, and means for controlling the movement of the box and the basket. Suitable means are also supplied for passing the sheaves from the deck into the bottom of the box at suitable intervals, the box being afterwards rotated to raise the sheaf so that it can slide directly into the basket.

133996—H. J. Bennett, Brandon, Man. The invention relates to an improved manner of driving mechanism for a pump, and the object of the invention being to supply a platform carrying a controlled drive means which can be readily attached to any pump to operate the same. It comprises a platform carrying an engine and having the front or forward end thereof cut away to span the base of a pump. A counter shaft mounted on the front end of the engine, a train of gears interposed between the engine and the counter shaft for driving the same, cranks located at the ends of the counter shafts and links adjustably connected to the cranks and designed to be connected to the pump rod.

134029—T. Niven, Lethbridge, Alta. This invention relates to a lubricating cup and the object of the invention is to provide an inexpensive, durable and efficient device of this class which can be quickly fitted to the part to be lubricated. It consists essentially in a casing member adjustable to the part to be lubricated, a spring actuated piston in the casing member adapted to feed the lubricant and an actuating locking member carried by the piston, this latter member allowing the piston to lock in the upper face and also serving as a means for indicating the amount of lubricant in the casing.

134073—B. J. Hemeon, Medicine Hat, Alta. The invention relates to a display case particularly useful in grocery and other such like stores and the object of the invention is to supply a case in which the material to be sold can be withdrawn directly by the rotation of the case and the opening of a gate, the parts being arranged also so that the display case can at all times be readily filled, there being normally closed emptying openings arranged around the circumference of the drum and concentrically arranged openings located in the face of the drum at the centre. A stationary plate is supplied with a single opening adjoining the centre opening in the drum which allows material to flow from one or other of the compartments when the central opening of said compartment registers with the opening in the stationary plate.

134114—G. A. Rockola, Birtle, Man. This invention relates to a pump and the object of the invention is to provide an improved force pump provided with means which renders it unnecessary to prime the pump from time to time. It consists essentially in a supporting casting having an outlet and an inlet duct therein, an outer cylinder carried by the casing and having an opening engaging with the outlet duct, an inner cylinder within the latter cylinder, a valve adjoining the inlet duct, a reciprocating plunger rod, and plungers on the rod operating in the respective cylinders.

Slightly Mixed

In small country newspaper offices, where the copy goes from the editor to the compositor, then, after printing, directly to the subscribers, the need of a proofreader is often felt. In this connection William Allen White, the Kansas newspaper man, tells of an amusing break made by a boy in the office of such a newspaper in that state. In "making up" the forms the boy got the galleys mixed, with the following result:

The first part of an obituary of an impecunious citizen had been dumped in the forms, and the next handful of type came from a galley which was a description of a fire. The subscribers were greatly startled when they came to the paragraph which read thus:

"The pall-bearers lowered the body to the grave. It was consigned to the flames. There were few, if any regrets, for the old wreck had been an eyesore to the town for years. Of course, there was individual loss, but that was fully covered by insurance."

Equal to the Emergency

"Yes," said Mrs. Holcomb at the club, when the conversation had strayed from the latest novel to more domestic topics, "that green girl of Mrs. Cooper's is a fearful trial to her.

"Mrs. Cooper went to the kitchen one Sunday morning, when she was expecting some particular guests to dinner, and she found to her horror, that the girl had cut her perfectly splendid big turkey all up into pieces, because she supposed from the size of it that it must be a particularly old and tough chicken. She was going to stew it!"

"Horrors!" exclaimed Mrs. Bassett, shocked at the indignity thrust upon high-priced turkey. "What in the world did Mrs. Cooper do?"

"Why," returned Mrs. Holcomb, soberly, "you know how clever she is with her needle? Well, she sewed that bird together again, and when he was roasted you wouldn't have known that anything had happened."

"But didn't the seams draw apart?""

"No," explained Mrs. Holcomb. "She featherstitched every one of them with brown silk."

Veterinary Item

Harry, aged four, while visiting his grand-parents in the country heard a mule bray for the first time.

"Goodness!" exclaimed the little fellow. "That horse has whooping cough awful."

His Opinion

She (after a quarrel)—I wouldn't cry for the best man living, so there!

He—You don't have to cry for him, dear; you've got him.

Grain Growers demand their own from the Railroads.

As we go to press, the forward note of the forthcoming convention of the Manitoba Grain Growers' Association has been sounded by the daily press and takes the form of a resolution which is being fathered by Frank Simpson, of the Shoal Lake branch.

Mr. Simpson is a well known and successful grain grower who has given up quite a little of his time to the interests of the association, and the nature and handwriting of the resolution he will take charge of indicates that he and the branch he represents are no back numbers when it comes to handling any interest that conflicts with the fair marketing of their goods.

It is the old grievance of car shortage—more specifically reciprocal demurrage. Now there are many questions of an important character affecting the marketing of the farm product that come up from time to time which we have not had the space to deal with, but this one is of such vital import, not only to the farming public, but to every business interest in the country, that no ostensible farm or trade organ can afford to let it simmer.

The complaint outlined in this resolution is justified in all conscience. To say that the "service" of the railway companies in handling the Western crop—particularly during the past five or six years, has been scandalous is putting it mildly, and in view of the concrete evidence the farmers have produced from time to time in support of their case, together with the promises of responsible officials thereon, has raised the matter to the realm of the notorious.

We are certainly at one with them in this instance. We trust they will be able to stir up some force which has hitherto remained in idleness or in a state of indifference, which will do something substantial at least towards the solution of the problem. So far as we can see, there have been absolutely no natural difficulties in the way that would accoun for but a small proportion of the evil. Red tape, barefaced graft, official lethargy, or pure cussedness, it seems are at the bottom of most of it, and the easiest thing in Canada today is for the farmers to make this apparent to any real authority, who has the disposition to listen to them and the power to do anything at all to bring the guilty parties on the carpet.

We would like to say a great deal on this subject were it not that we feel so helpless in the matter. Thi sseems to be the plight of every contemporary, and the fact still remains that in spite of all that has been promised, the iniquity grows with every fresh season.

Where is the Railway Commission in these days?

Wire was first beaten out by a hammer, but the artisans of Nuremburg, in 1350, began to draw it, which was the great step forward in that art.

What M. Rumely Co. Now Means

To that ubiquitous creature called "The consumer," anything that professes to lower the cost of production without prejudice to quality and efficient service is a welcome bit of news at any time. It is peculiarly acceptable at the beginning of a new industrial year, after all that has been said of late in the political arena about "high tariffs," "reciprocity," the "high cost of living," and the "increased cost of high living," etc.

For this reason the confederation of certain farm machinery interests which has lately been brought about by the Rumely Co., of La Porte, Ind., is a subject of the first importance and interest to farmers and to farm machinery men generally, not only in Western Canada, but over the whole North American continent.

The broad facts of the organization which has just taken place have already been made public through the medium of the daily press, but there are certain details and prospects which the new deal holds out, on which we would like to make a few observations that may not be unacceptable to readers of The Canadian Thresherman and Farmer.

The great scheme originated in the mind of Dr. Edward A. Rumely, and has been engineered from its conception to its finish almost entirely by the doctor's genius for just this very kind of problem and his resistless energy and zeal in dealing with anything of the kind.

The idea naturally suggested itself as he contemplated the enormous leakage and waste connected chiefly with the distribution and sales of the engineering products of his own house and of those other firms who have now come into line with the M. Rumely Co., viz., the Gaar Scott Co., the Advance Thresher Co. and the American-Abell Engine and Thresher Co.

This is a feature in "costs" which we have reason to believe our farmer friends have not always taken account of when machinery prices have been under consideration; but as a matter of fact the maintenance of branch houses, travelling salesmen, commissions to local dealers, advertising and collections in the threshing machine and engine business has run up to a figure which is almost equal to the factory cost of the making of the raw material into the finished product.

Any interested and thoughtful reader will see that this waste is largely due to the fact that threshing or plowing machinery is a season product, and that for only two or three months of a "selling" season. But the sales organization, numbering in the aggregate quite a few hundreds of first class men, must be kept throughout the entire year. This means long periods of limited activity—it may be of enforced idleness—for if competent men are discharged when the season's work closes, it is scarcely to be expected that efficient representatives will be instantly "on tap" for the next year's trade.

There is only one effective way of meeting the case, and that is the handling of a broader line of products, so that the salesmen and sales organizations may have something that is in season and saleable upon which their energies may be employed throughout the whole year.

Dr. Edward A. Rumely.

We need not spend any time upon the threadbare economic platitude of the "necessity for concentration" in any successful work. What it means is self-evident, and the abnormal leakage, the wholesale waste that is involved in carrying a big staff of highly paid men who cannot be profitably occupied during a considerable portion of the twelve months, will be no less apparent to every reader of this paper.

Then in the case before us, there is the further wastage arising from a "scatteration" of activities over the same field, all engaged on the same type of product, into which there can enter no real competition—except, perhaps, in the matter of advertising "copy!" Not only does this mean a needless multiplication of men, but the further expense of the building and equipment of branch houses, etc.

The idea is to concentrate these and focus them down to the finest point at which the distribution and marketing of the products can be effectively taken care of, while on the basis of the better financing of the new organization, the company will be enabled to secure for the farmer who buys on time the benefit of money available in the cheapest money markets.

Not only will these economics have the effect we have outlined, but the considering of all this scattered energy will mean a vastly increased productive power. The plant and machinery, as well as the branch houses of the units of this confederation, will be utilized where they can be employed, or discarded if for any economic reason they can be dispensed with.

The new organization will mean from the very beginning an ability to handle a much larger volume of business and increased facilities for getting it delivered to time. Its purpose is to standardise its product, specializing each factory to the work for which it is best adapted, and by increasing the line of products, the sales season can be extended over more months in the year, so that the sales force can be kept more evenly employed.

Another feature in this new departure which does not appear on the face of it is that of its possibilities with regard to the export market. At the present moment, and for a long time, both England and Germany have been taking advantage of the lack of competitive power, a condition created and kept up by the scattered forces of the American and Canadian threshing machine manufacturers, and have been securing a strong foothold, especially in the Argentine Republic and in Russia.

The re-organization of that portion of these scattered forces,

outlined above, will enable them, to what extent remains to be seen, to off-set this, and to open up a hitherto closed door to a big slice of our productive wealth and energy.

Notwithstanding all we have said with regard to the "motif" of the scheme, there are, no doubt those who will look askance on the proposal, and read into it somewhat of the sinister meaning that in a loose popular sort of way has come to be read into the idea of a "combine," "trust" or "corporation," and to which, we admit, a great deal of color has been given by the conduct of certain notorious "combines in restraint of trade."

The effect of any scheme of unification of business interests has already been determined by the character and purpose of the units, or industries, of which it is composed. If the accepted principles of fair play remain inviolate and the effect is to materially benefit the mass of the people, then it is to be commended and encouraged on every hand.

The ethics of this aspect of the case have long since been threshed to the last straw, and need not now concern us. When the law of supply and demand is under tribute and changes are being affected for one reason or another, there is always a minority of sufferers. But there are no "rights" in such a case, except what are to be found in the universal fitness of things, and specifically in the case before us it is the idea which will confer the greatest benefit on the greatest number that has a "right" to live.

We shall be very sorry, not to say surprised, if the subsequent history of this great corporation of farm machinery manufacturers develops anything in the shape of a "hold up." We will regret having penned this appreciation if it does not develop what it leads us to look for—a palpable advantage to the farming public both in service and in the value of the products they must use in the business of their life.

Doctor Edward A. Rumely is the executive genius of the gigantic undertaking which involves a capitalization of $22,000,000. From our own intimate knowledge of the doctor, what we believe is now a wide-spread public knowledge of the extraordinary industrial developments he has effected single handed, as well as what all the world knows of the other three historical houses his firm has absorbed, we are satisfied that the great consuming public has everything to hope for and nothing to apprehend. We also believe that the rights of no individual who has a right (other than a purely prescriptive one) to hold on to his job will ever be invaded.

Going more into detail in regard to what M. Rumely Co. now means, we find, as a whole, the M. Rumely Company includes the M. Rumely Co. proper, of La Porte Porte, Ind., the Gaar-Scott Co., of Richmond, Ind., the Advance Thersher Co., of Battle Creek, Mich., and the American Abell Engine and Thresher Co., of Toronto, Ont. A glance through this issue will reveal the fact that these different companies, who have been taken over by the M. Rumely Co., will be operated on what is known as the "line" system. For example, "Garr-Scott line," M. Rumely Company. The American Abell line is not so designated in this month's issue,

owing to the fact that the deal had not been consummated at the time the advertisement itself was printed. On and after January 1st the American Abell line will be merged into what is known as the Canadian Advance line, which will be manufactured at the works of the American Abell Engine and Thresher Co., at Toronto. The goods manufactured at these works and at the works of the other three concerns will be sold and distributed throughout Western Canada by the M. Rumely Company.

It will be seen that there will be an enormous product to market, and in order to take care of it properly the following plans have, so far, been perfected as regards the extension of branches and branch houses. At Winnipeg the different lines will be housed in the buildings of the old American Abell Engine and Thresher Company. Extensive improvements will be made to this property, additional buildings will be built, and the whole re-modelled to accomodate the increased office staff and warehouse facilities required. The new large modern warehouse will include modern shop equipment and modern tools for handling the different lines of machinery. Full and complete stocks of steam engines, separators, tractors, engine gang plows, and duplicate repair parts of all lines will be carried, and special attention will be given to the repair parts business. The repair business has been extended into a special department, and it is the M. Rumely Company's intention to lay particular stress upon this part of their business, and the aim is to always have on hand at all their branches and sub-branches a complete stock of repairs, and to handle them in such a way that they can be gotten to the consumer in the shortest possible time. The Winnipeg branch will have jurisdiction over all trade matters in the province of Manitoba, and all correspondence relative to the company's business on their respective lines of machinery should be directed to the Winnipeg branch of the M. Rumely Company. A sub-branch will be opened at Brandon, Man., where a full and complete line of stocks and repairs will be carried for the convenience of the company's customers in Western Manitoba.

Southern Saskatchewan will be handled from Regina, and a sub-branch will in all probability be established at either Moose Jaw, Weyburn or Swift Current. At Regina a new brick warehouse and office building 200 by 90 will be added to the present equipment there. This building will be two stories and a basement, with a foundation strong enough to carry additional stories as needed. All correspondence and other matters pertaining to the Company's business in Southern Saskatchewan should be referred to M. Rumely Co., Regina, Sask.

The branch house having jurisdiction over Northern Saskatchewan will be located at Saskatoon, where a new warehouse of modern construction is to be erected as soon as building operations can be started in the spring. This building will be of brick and mill construction, three stories and basement, 90 by 100, and will be centrally located in the wholesale district. This building is so arranged that additional floors can be added from time to time. All matters pertaining to the Company's business on the different lines in Northern Saskatchewan should be addressed to the Saskatoon office.

It is expected that a sub-branch will be opened at either Bredenbury, Yorkton, or Melville for the convenience of their North - Eastern Saskatchewan customers.

The Alberta and British Columbia business will be handled from the Calgary branch, where a new warehouse and office building will be built upon the same lines as the one at Saskatoon.

Sub-branches will probably be opened at Lethbridge, Edmonton and New Westminster, B.C.

The Calgary office will have full jurisdiction over all this territory, and all correspondence pertaining to the Company's business in Alberta and British Columbia should be addressed to the Calgary office.

The Ontario business will be looked after from a branch sales office which will be established at the works of the American Abell Engine and Thresher Co., Toronto. This office will have full jurisdiction over the Company's business in Ontario and the Eastern Provinces.

It is of importance from the standpoint of the purchaser, to remember the fact that all Gaar-Scott business, all of the Advance Thresher Co.'s business, and all of the American Abell Engine and Thresher Co.'s business, as well as the busines of the old M. Rumely Co. proper, is now handled entirely by the M. Rumely Company through their different branches and sub-branches. The term "Gaar-Scott line," "Canadian Advance line," simply means that these particular lines that are now being manufactured and sold by the M. Rumely Company.

The Rumely Company have arranged to hold their Gas Engineering School this spring at Calgary, Saskatoon, Regina, and Winnipeg. The dates have been arranged as follows:

Calgary, Feb. 12th to 24th
Saskatoon, Feb. 19th to March 2nd.
Regina, March 4th to March 16th.
Winnipeg, March 11th to March 23rd.

The course is open to everyone interested in gas engineering. Owners or their sons of either Rumely, Gaar-Scott, Advance, or American Abell machinery attend free.

Be on hand with your overalls on opening day, so as not to miss any of the work. A letter addressed to the M. Rumely Company at any of these four points will bring you detailed information.

To Serve You Better

THE GAAR-SCOTT LINE

THE ADVANCE LINE

THE RUMELY LINE

Three Vast Service-Rendering Organizations Have Been Knitted into One—

To give Universal Service—
To reduce the Selling Expense—

THE SIGN OF THE

RUMELY OIL PULL TRACTOR LA PORTE IND.

Three Enormous Manufacturing Plants Have Been Joined for the Building of Power Machinery that will make the Farm Pay Better—

To make possible Quantity Production of Quality Products—

FOR YOUR BENEFIT.

M. Rumely Co.

CAPITAL, $22,000,000.

Third Largest Manufacturer in the World of Agricultural Implements.

1913 Rose Street REGINA, SASK.

Winnipeg, Man. Calgary, Alta. Saskatoon, Sask. Brandon, Man.

THE AGRICULTURAL ENGINEER

Continued from page 26

At the 1910 Winnipeg Motor Competition, five steam engines in public test consumed 4.16, 3.59, 3.62, 3.07 and 4.07 pounds of coal per horse-power-hour respectively. It is to be noted that these engines were operated under the best conditions for economy. The boilers were perfectly free from scale and the engines were tested at loads conducive of maximum economy.

Steam engines will cost in the neighborhood of $100 per horse power. The labor of attendance is large. When this is made to include the cost of providing water, it is fair to assume that two men can care for an engine developing 50 actual horse power at a cost of $7.50 per day, or 1½ cents per horse-power-hour. From this data, the following estimate has been made:

Cost of Power From A Steam Engine	
Coal, 8 pounds @ 0.3 cents..	2.4
Labor, $7.50 for 500 horse-power-hours	1.5
Lubricating oil, ½ gal. for 500 horse-power-hours @ $1.00	.1
Depreciation, 10% of $100 for 1,000 hours	1.0
Repairs, 5% of $100 for 1,000 hours	.5
Cost per horse-power-hour...	5.5 cents

Note the above are based upon United States prices, and would run about 25 per cent. higher in Western Canada.

The **windmill** cannot be used except for work which may permit of its being discontinued at times, such as grinding and pumping water. Prof. F. H. King, formerly of Wisconsin Experiment Station, determined that a 12-foot steel windmill would furnish 1,600 horse-power-hours during the year. The cost of this power is very low, as will be indicated by the following estimate:

Cost of Power From A Windmill	
Depreciation of mill, 10% of $200	$20.00
Interest on investment, 6%	
Repairs, 5% of 200.....	10.00
Attendance, 5 cents per day	18.25
Total cost of 1,600 horse-power-hours	$60.25
Cost per horse-power-hour	3.76 cents

This discussion does not take into account the adaptability or practicability of each source of power. Each will be discussed in turn, and it is desired here only to give a general outline of what may be expected as far as economy is concerned in the operation of the various types of motors used in agricultural operations.

The Air Engine.

The air engine, or to be more exact, the hot-air engine, is perhaps the least known and the least used of any of the mechanical sources of power on the farm. There are several reasons for this, as we shall see from its description. As the name indicates, its uses are for the working fluid. The working effect is produced by the alternate heating and cooling of a body of air.

The air on one side of a piston is suddenly heated, causing it to expand and drive the piston forward. After it has expanded, it is cooled and contracted by some external means. (See illustration for a sectional view of a Rider Erecesan Hot-Air Engine, which is one of the best known types on the market today.) In the sectional view (2) is the power- piston working in the cylinder, marked (1), which is open at the top; (3) is another piston of very large volume used to transfer the air from above it to below it, and vice versa; (6) is the heating apparatus (which in this case is a gas burner) which heats the lower end of the cylinder shown at (4); (17) is a water pump whose piston is operated by the engine. The power-piston (2) and the transfer piston (3) transform their reciprocating motion to rotary motion, the former through the crank-beam (8) and the latter through the bell-crank (12). The piston rod of the transfer-piston passes through the hollow piston-rod of the power piston.

The upper end of the cylinder is jacketed, so that the water which is pumped all passes out through it, keeping that end of the cylinder cool all of the time. The lower end of the cylinder is surrounded with a non-conductor of heat, so that it is kept at a high temperature all the time. The transfer-piston does not fit tight in the cylinder, but leaves a space around it, through which the air may pass to and fro.

The operation is as follows: The lower end of the cylinder is first heated by some external means, either gas, wood, coal or other fuel, being used successfully for this purpose. The engine is then started by giving it a revolution or two by hand. The air contained in the cylinder is first compressed in the cool top part, the pistons approaching each other. This compression causes the cool air to pass by the transfer-piston to the bottom of the cylinder, where it is heated and immediately expands, drawing the piston upward; the fly wheel carries the motion to where the expansion by the heat gives the piston another impulse, thus completing the cycle.

Continued next month

Fowling and falconry were practised by the ancient Greeks, but were carried to greater perfection in medieval England.

POWER AND PLOWING

Continued from page 17

of types that seemingly should fit every need, yet we all see avenues of improvement. No one design can embody all the desirable features nor fit every condition. Each designer must start with a conception of what is most important and work toward that end. You are practical men, students, molders of public opinion. You can render this great dry-farming movement a service by studying this question of motive power deeply, and laying bare the essential points on which engineering and agriculture must get together. If mechanical power is more efficient than animal power, even for only part of the whole number of tasks, then you can do no greater good than to encourage its development along right lines. Close contact with the makers of the gas tractor, and in fact all farm machinery, will enable you to mold design in the direction of greatest usefulness to the communities you represent. It is your knowledge of agricultural conditions that, dovetailed with the engineer's faculty for devising ways to meet new needs, will solve the present problems in the quickest way.

Your permanent interest in power and plowing is not whether one tractor is better than another, or whether one, or two, or four is the ideal number of cylinders. The question of steam or gasoline or kerosene is not of everlasting importance, nor the relative merits of tractor, cable-plow and auto-pulverizer. These are all vital for the moment; but in the end it all comes back to the question of whether animal or mechanical power shall predominate. It will be settled on the basis of efficiency. The animals hold out little hope of improvement; the mechanical motor, every prospect of wonderful advances. You may, if you will, have an important part in determining its ultimate character.

* * * *

[The second half of Professor Ellis' lecture dealt with the development of farm machinery through the ages, and was illustrated by stereoptican pictures. More than 60 views were shown, from the original twisted stick of the savage to the latest development of modern times—three powerful gas tractors hitched to one giant plow of fifty bottoms.]

As She is Spoke

In Nice an Englishman and a Frenchman were about to separate on the Promenade des Aaglais. The Englishman as he started toward the Cercle Mediterranee called back: "Au reservoir!" And the Frenchman waved his hand and answered: "Tanks!"

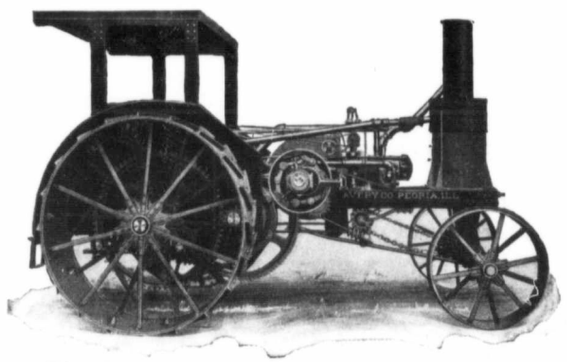
For Better Seed.

An interesting government publication has just been issued in the report of the Seed Commissioner, for the period from January, 1905, to March, 1911. The report contains an historical record of the work of the seed branch since its organization under a seed commissioner in 1905, and a brief review of the work in seed improvement done previous to that date by the seed division under the direction of the Commissioner of Agriculture and Dairying.

Since the seed branch was organized on its present basis, its work has been prosecuted along two main lines—commercial and educational. The commercial work entails the enforcement of the Seed Control Act, the inspection of seeds and seed crops, seed testing, seed trade investigation and the distribution of reference of economic seeds. Among the subjects investigated and reported upon are the vitality of field and garden seeds, weed seeds in feeding stuffs, the influence of age on the vitality of seeds, and the production of Canadian grown root and vegetable seeds. The educational work includes the various means adopted for stimulating interest in the production and use of better seeds. A vigorous propaganda has been maintained for that purpose through organizing and assisting in conducting local seed fairs, provincial seed exhibitions, field crop competitions, seed judging classes, giving assistance to the Canadian Seed Growers' Association. The report outlines what has been done along these various lines.

From the standpoint of the farmer the most valuable and interesting part of the report is the large section devoted to the evolution of the legislature respecting the inspection and sale of seeds in Canada up to the Seed Control Act of 1911, and the work connected with its enforcement. The regulations at present in force are clearly outlined, and the standards of quality in respect to weed seed content for the four grades of timothy, red clover, alsike and alfalfa seed are graphically illustrated. The weeds classed as noxious under the Act, numbering about 25, are illustrated and described, as well as about 75 other weeds of minor importance. The illustrations of the plants and seeds and the descriptive matter are largely taken from "Farm Weeds," the book with full page colored illustrations, published by the Department in 1909, and now sold at $1.00 per copy. This report may be had on application to the Seed Commissioner, Department of Agriculture, Ottawa.

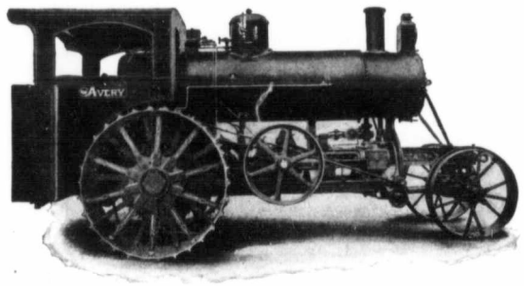
Get a New 1912 AVERY Catalog with Natural Color Field Scene Illustrations



The New Avery Gas Traction Engine

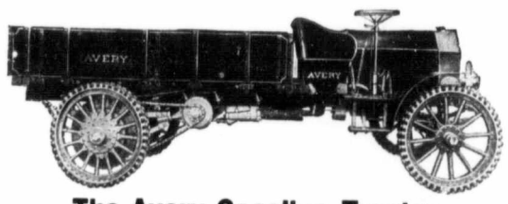
20 Traction H.P. and 35 Brake H.P.

The Simplest Engine built. Has fewer Gears, Shafting and other Working Parts than any other Engine. Also the Lightest Weight Engine considering its Power and Strength of Construction.



Avery Double Undermounted Steam Engine

We are selling more of these Engines eve ry year. They are the Only Steam Traction Engines with the right design an d construction for an all around engine for all kinds of work. The most D urable, Powerful and Easiest to Handle of any Engine built. Sizes, 20 a nd 30 H. P.



The Avery Gasoline Tractor

The First and Only Combination Gasoline Farm Wagon and General Farm Power Machine. Will haul loads on its own Bed, pull Plows, Discs, Harrows, Binders and Other Machinery in the Field and drive all kinds of Belt Power Machines.

The New 1912 Avery Catalog will have Full Page Field Scenes in Natural Colors

It will have a Special Colored Cover showing an Avery Threshing Outfit, Steam Plowing Outfit and Gas Plowing Outfit at work—all shown in their Natural Colors just as you would see them at work in the field.

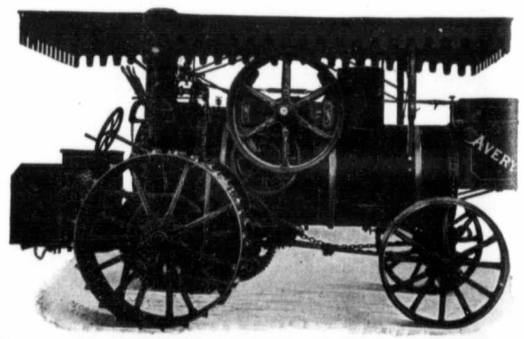
Inside the Catalog will be Three Full Page Natural Colored Field Scenes of the Avery Undermounted Engine in the Belt, the New Avery Gas Traction Engine doing stubble plowing and the Avery "Yellow Fellow" separator threshing—all full page size—all Field scenes, and all showing the machines in their Natural Colors.

YOU DON'T WANT TO MISS SEEING THESE NATURAL COLOR FIELD SCENE ILLUSTRATIONS.

This Catalog clearly illustrates and fully describes the Entire Avery line of Threshing, Power Farming and Hauling Machinery, shown on these pages. The Avery Line is the Largest and Most Complete Line Built. It is the Most Original and Up-to-Date Line in Design and Construction.

AVERY COMPANY, 2

BRANCH HOUSES: Minneapolis, Kansas City, Des Moines, Omaha,
JOBBING HOUSES: In Other Principal Machinery Centers



Avery Single Cylinder Steam Traction Engine

A splendid Engine for Belt Work and Ordinary Traction Purposes. Has Special Full Water Front Return Flue Boiler which is Wonderfully Economical in the use of Fuel and Water. 2 sizes, 16 and 20 H. P.

Look at the illustrations here. The Only Undermounted Steam Traction Engine. The Simplest Gas Traction Engine built. The Fuel and Water Saving Avery Return Flue Engine. The Only Combination Gasoline Farm Wagon and General Farm Power Machine. And the Famous Avery "Yellow Fellow" Separator that has made the Most Wonderful Grain Saving Records ever made.

The illustrations in the New Avery Catalog show these machines and all of their principal parts.

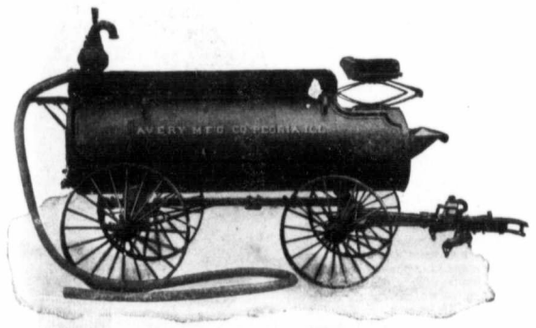
The printed matter tells why it pays to do Power Farming and Power Hauling and describes each machine and all its parts fully.

YOU WANT TO SEE ONE OF THESE NEW 1912 AVERY CATALOGS.

You want to see the Splendid Natural Color Field Scene Illustrations—the first ones we have ever used in our catalog. The description of the machines is interesting to read. You want to know about all the New Machines and New Features. This Catalog is Free. Write for a copy at once. Use the coupon in the corner below or write a postal or a letter at once and ask for a copy of the New Avery 1912 Catalog.

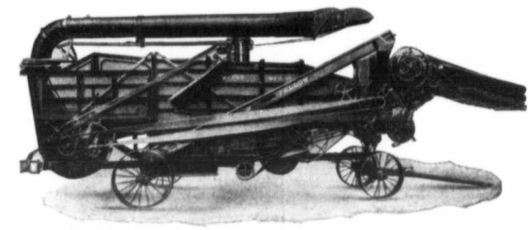
59 Iowa St., Peoria, Ill.

St. Louis, Indianapolis, Fargo, Grand Forks, Billings, Aberdeen
EXPORT OFFICE: 2 and 4 Stone Street, New York City



Avery Steel Tanks

For Water or Oil. Furnished in Two sizes, 12 and 15 bbl. The shape of these tanks being round makes them strong. They are much better than the wooden style—don't need soaking up, don't leak and are lighter in weight.



Avery "Yellow Fellow Grain Saver" Separator

In 25 Field Tests Avery Separators saved an average of 99 9-10 per cent of the Grain. The Best Grain Saving Record ever made. And besides these Field Tests, Avery Separators are backed up by the Strongest Guarantee ever given.

AVERY COMPANY,
259 Iowa St., Peoria, Ill.

Gentlemen: Please mail me a free copy of your New 1912 Catalog with Natural Color Field Scene Illustrations.

Are you a Thresherman?.....

If not, are you thinking of going into the business?.....

Are you doing Power Plowing?.....

If not, are you thinking about it?.....

What machinery are you particularly interested in?.....

.....

Are you in the market?.....

Signed.....

Address.....

Date.....

Womans' Department

Conducted by PEARL RICHMOND HAMILTON

A HOUSEHOLD FORUM FOR THE DISCUSSION OF EVERYTHING THAT PERTAINS TO THE HOME

A NEW LEAF.

Lord, Thou lettest the green things start
A new life every year;
Out of their sunken selves they rise,
Erect and sweet and clear.
Behold the lily's pure white leaves,
Unfolding by each mere.
Out of my own self let me rise,
For God, if it can be,
A new and noble growth may spring
From yon decaying tree,
Surely a strong, pure life may mount
Out of this life of me.

HOME ECONOMICS WORK AT THE MANITOBA AGRICULTURAL COLLEGE

The Manitoba Agricultural College is fortunate in having three such capable women in the Home Economics department as are Mrs. Charleton Salisbury, Miss Kennedy and Miss B. A. Duncan. Mrs. Salisbury and Miss Duncan have been added to the staff this year and Miss Kennedy has been on the staff since the formation of the Household Science course in this college.

Mrs. Salisbury is a graduate of the polytechnic of Rochester, N. Y. and has had charge of the Home Economics Extension work for some time at the Iowa Agricultural College. While connected with that institution she travelled over the state thoroughly, conducting large meetings of women interested in the science of home economy. Her plans are to visit a society in Manitoba once each week. This will be the means of promoting sociability among the women of the Province as well as imparting instructive practical knowledge in home economics. Not only the girls, but the wives and mothers as well are thus brought in touch with the work of the Manitoba Agricultural College. It is truly a work of mutual helpfulness among the women of Manitoba.

Mrs. Salisbury also has charge of the lecture work and conducts classes in foods, physiology and hygiene, sanitation, laundry, home-furnishings and home-nursing. She is a Canadian by birth and is a woman of large experience and executive ability.

Miss Duncan is a bright woman, full of enthusiasm for her work and comes with the best of credentials. She has charge of the cooking—a very important part of the work in the course. The girl who takes the work under her instruction will go back to her home feeling that what she regarded formerly as slavish work is in reality the finest art.

For some time I have been very much interested in Miss Kennedy's work She has charge of the sewing, millinery and drawing and her instruction is exceedingly practical in this age when it costs to dress. The exhibition of the work in her classes last summer was worthy of highest commendation.

I visited the college one afternoon last summer when her class of fifteen girls had their work on exhibition. Every girl had made a complete outfit of underclothing a dress and a hat, and the work was a credit to herself and teacher. A marked feature of the work was that on each piece was pinned an itemized bill of the cost of the material used, and strict economy was strongly emphasized. One dress I have in mind was very neat and pretty. It had been fashioned from a blue material and trimmed with lace and it cost only two dollars. The hats averaged two and three dollars each and they were just as pretty as the twelve dollar hats in stores. Miss Kennedy is a thorough and exceedingly capable instructor, and she has a personality that the girls love.

The class this winter numbers twenty-five girls and they represent the cream of Manitoba. A fine feeling of admiration prevails among the teachers and students and this year's work promises unusual results.

Mrs. Charleton Salisbury

Girls go home after a course of this kind with their heads full of practical ideas, and from the standpoint of economy, a father will gain dollars by allowing his daughter to take the Household Science Course.

It is the very best course for any girl to take. The problem of conducting a household within ones income is becoming complex. This course teaches girls to divide scientifically a small income. It gives the girl an idea of the value of foods. She will learn the foods that are nourish-and how to prepare them with economy; and she will be taught the necessity of interesting herself in the sanitary conditions about the home. Such a course will rectify the average girl's exaggerated ideas of comparative values and help prepare her to meet emergencies in a practical way. It will teach her the art of home-making and will solve the problem of "How to keep the girl on the farm."

HOME ECONOMICS WORK OF MANITOBA.

It is with pleasure that we devote our department this month to the Home Economics Work. Every society is anxious to know what other societies are doing and I have the following reports—all of which were received in the month of December. They contain interesting and useful information and convince us that the Home Economics Societies are very much alive. I wish to thank the different societies for sending in their reports. In doing so they have helped one another and have added very greatly to the interest of our Woman's Department.

P.R.H.

MANITOU.

Yearly Report of the Manitou Home Economic Society.

The Manitou H. E. S. was organized Nov. 30, 1910 with twelve (12) members. There are now one hundred and eleven (111). Twelve (12) regular, three (3) executive and one (1) special meeting has been held during the year together with three social functions. The motto chosen for this branch is "Excelsior" and 100 pins bearing this motto together with the name of the Society have been purchased and re-sold to members. Our meetings are held the third Saturday in each month in the Normal School. A programme committee look after the subjects and see that an interesting programme is ready for each meeting. The subjects all bear upon the home. Five delegates attended the Annual Meeting in Winnipeg last February. Home made candy is served at each meeting during intermission when members have a chance of speaking to each other.

We have lost two members during the year, one by death and another by removal. When the Minister of Education visited Manitou in connection with the Normal Class a deputation from this society waited upon the Honorable Minister in regard to having domestic science taught to Normal students and also the establishing of a manual training school in the town. A donation of nine books was gratefully accepted by the society from Mr. Coldwell. Much interest was manifested when the College Special made a stop of four or five hours here in May. In fact the cars were inadequate to accommodate the crowds of women who desired to see the demonstrations of cooking. At our first social function in May we farewelled Mrs. McClung in the Opera House; at the second in July we had a very pleasant afternoon at the home of the president three miles out of town and the third in Nov. took the form of a birthday party. All three were a success socially.

Miss B. A. Duncan

Through the activity of this branch a new one has been formed at Lariviere a town distant from here some seven miles. This branch was formed in August and is in a flourishing condition. Mrs Salisbury of the Agricultural College Staff has lectured to us on "The qualifications of an up-to-date home-maker." The lecture was very much appreciated and well attended by both sexes. Members of our society were successful in capturing nearly all the prizes for poultry at the fair held a few days ago. Two of our members are directors for the Annual Exhibition, one looking after the domestic manufactures and the other the fancy work. They have also revised that part of the prize-list which embraces the work of women. Altogether the society is in a flourishing condition and with the advent of the New Year we hope to accomplish greater things in the future.

Respectfully Submitted
CLARA G. ROWE, Sec.

First Annual Meeting of Manitou Society and Election of Officers.

The first annual meeting of the H. E. Society was held last Thursday afternoon in the Orange Hall at 2.30 o'clock. After the hearing of the Sec-Treas's report the election of officers took place and resulted as follows:—

Pres.—Mrs. C. H. Brown; Vice-Pres.—Mrs. C. McNamara; Sec. Treas.—Mrs. W. J. Rowe; Directors.—Mrs. J. Tait, Mrs. McCharles, Mrs. Harold Miller and Mrs. G. T. Armstrong. There were present about sixty ladies. After the business was over a social time was spent. Mrs. I. H. Davidson recited. The proceeds from the afternoon amounted to $24.92 and four new members were added to the society. The Minister and Deputy Minister each donated $1. Mrs. J. Hodgson also made a donation of $1. Refreshments were served and a very pleasant time spent. The meeting closed with the National Anthem.

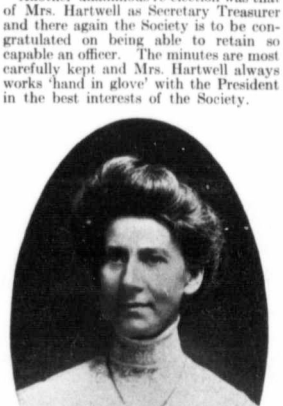
Clara G. Rowe, Sec. Treas.

SWAN LAKE.

The meeting of the Home Economic Society on Saturday last was almost entirely devoted to business; the election of officers for the coming year being the most important matter before the meeting. Mrs. Gardner kindly occupied the chair during the election.

As was expected, Mrs. G. B. Gordon was unanimously re-elected President. The position of President is no easy one, calling as it does for patience, tact and executive ability and the few words of thanks spoken by Mrs. N. Armstrong in reference to Mrs. Gordon's past services to the Home Economics were endorsed by every member, and the Society is to be heartily congratulated on having obtained her consent to act for the coming year.

Another unanimous re-election was that of Mrs. Hartwell as Secretary Treasurer and there again the Society is to be congratulated on being able to retain so capable an officer. The minutes are most carefully kept and Mrs. Hartwell always works 'hand in glove' with the President in the best interests of the Society.



Miss Kennedy

With that important business finished, the following ladies were elected to office:

Vice Presidents: Mrs. Armstrong, Mrs. Gardner, Mrs. Downey.

Board of Directors: Town, Mrs. Herbert, Mrs. M. Simpson, Mrs. Hodgson.

Country, Mrs. Couch, Mrs. Blair, Mrs. Penniston.

Literary and Corresponding Secretary: Mrs. Langridge.

An excellent programme was then outlined, it being understood that if was subject to change if necessary, and it was a pleasing circumstance to note the genuine interest taken in the discussion by all the members.

It is not always easy to keep alive the individual interest in such a Society as this but where each member shows herself so anxious to take her share in helping as was the case on Saturday afternoon, it cannot but be a great success.

A Society formed on the lines of the Swan Lake Home Economics can mean so much to the ladies in a small community; it is not only educative, but it takes the place of a social club; it is helpful in that each member talks, or demonstrates on the subject in which she has made herself proficient and so can aid others and smooth away the difficulties which they have encountered, and above all it is designed to further the true interests of the community and to enable everyone to get the best and highest out of the surroundings in which she is placed.

As it was the Annual Meeting, no settled programme had been arranged but Miss McCrea of Treherne gave a recitation which was charmingly rendered and much appreciated. After the Secretary had read the roll call, the Doxology was sung, and lunch brought a very interesting meeting to a close.

The Swan Lake Society was newly organized last year. Seven meetings were held during the year with an average attendance of thirty. The membership is forty-one. The membership fee is twenty-five cents.

BIRTLE.

The Birtle Society of Home Economics managed a Tag Day for Ninette which was very successful. Our meetings have been very interesting and helpful and we are hoping to make them still more helpful this year and hope we may be able to keep the interest up and a good attendance

The report of the Birtle Economics Society for 1911 is as follows;

Officers:
Mrs. Malcome, President: Mrs. Wheeler, Vice-President: Mrs. D. Watt, Sec.-Treas.

Directors:
Miss McLaren, Mrs. W. Patterson, Mrs. Dodge, Miss McLoed, Mrs. Wheatley.

January:
Twenty-five members present Subject for papers as follows:

Cooking of Meat—Mrs. J. Patterson and Mrs. Malcome.
Home Sewing—By Mrs. D. Watt.

February 4th:
Sixty ladies present.

Paper—How to Make Fruit-Cake—By Mrs. C. Hall.
Light Cakes, Fillings and Icings—By Mrs. Dodge.
Shortbread and Scones—By Mrs. Easson.
Afternoon tea was served at the meeting.

March 4th
Seventy ladies present.
Subjects:
Economics in House Keeping—By Mrs. Hough.
House Keeping Systematized—By Mrs. Wheatley.
Making of Soup—By Miss Lyons.

April.
Fifty members present.
Subjects for meeting:
A Model Kitchen—By Miss Zeandle.
Bread making—By Mrs. Patterson.
Pastry—By Mrs. B. Dulton.

May 6th
Twenty-five present.
Little Things that Help in the Home—By Mrs. Sanden.
Fumigating—By Mrs. Hardnett
Gardening—By Mrs. Cartwright.

A musical programme was given at this meeting.

June.
Twenty-three members present.
Subjects:
Cool Dishes for Hot Weather—By Mrs. McCann.
Fireless Cooker—Mrs. Dulton.
Training the Child—By Miss McGregor.

There were no meetings in July and August.

September 9th.
Fifty ladies present.
Social Life in the Home—By Miss McLaren.
My Duty to My Children—By Mrs. Wood.
Some Dainty Recipes—By Miss E. Stewart
Afternoon tea was served.

October 7th.
Forty-five members present.
Subjects:
Recreation in the Home—By Miss Doulin.
The Farmer's Wife—By Mrs. Tansley.
Musical programme.

November 11th.
Fifteen members present. This meeting was addressed by Mrs. Salisbury. Every one enjoyed it very much.

December.
Election of Officers.
President, Mrs. D. Watt: Vice-President, Mrs. Walker: Sec.-Treas., Miss McLeod.
Directors:
Mrs. Malcome, Mrs. J. Stewart, Miss McLaren, Mrs. B. Dulton, Mrs Cartwright, Mrs Manwaring.

J. M. Watt, Sec.-Treas.

VALLEY RIVER.

The Valley River Home Economics Society, 1910-1911.

Nine meetings of this Society were held during the winter of 1910-11. Our general meetings are discontinued through the summer months owing to the summer's work on the farm, the bad roads in spring and the fact that our meetings run concurrently with The Grain Growers, who also discontinue theirs.

Our year's work commenced on Nov. 2, 1910, when we appointed our officers' and also decided to ask Miss Juniper of the M. A. C., to visit our Society.

On the 24th of Nov. a meeting was held at which all arrangements were made for a public meeting in the schoolroom on the 2nd Dec., to be addressed by Miss Juniper and Miss Kennedy, a programme, lunch, etc., all being provided for.

This meeting proved quite a success, the room being well filled. A capital lunch was provided by the ladies. The addresses of the two speakers were greatly enjoyed and general appreciation expressed. At a succeeding meeting, Dec. 8th, it was decided to join the regular Societies being formed by the M. A. C. and directors were appointed as required by the regular organized institute, in addition to the existing officers.

During January correspondence took place on the subject of sending delegates to the convention at Winnipeg, and at a meeting on the 2nd Feb., final arrangements were made to have the Society represented at the Convention by two of its members. This took place on the 14th and 15th of February and on the 2nd of March, 1911, a full report of the proceedings was given by the President and Secretary, the two delegates.

On Mar. 16, 1911, it was announced that the name finally selected for the Manitoba Household Science Association was "The Economics Society." A second announcement was that the College had offered us the use of its magazine clipping and that a travelling library was being planned for, which shall be at the disposal of any one Society for two weeks. We also decided that the annual fee for our Society be 50 cents.

On Mar. 29th the first meeting of our Society under its new name, "The Home Economics Society", was held. The President read a paper from the Western Home Monthly, by Miss Juniper, on the name "Home Economics."

In addition to the above work in connection with the College, etc., on seven occasions a paper prepared by one of the members, or a discussion led by one of them was part of the evening's work. Our subjects were: Buttermaking, breadmaking, How to feed hens for Winter Laying, Soup Making and the Cooking of tough meats, The Cooking of Vegetables, Home making for the Young People, and gardening.

Committees were appointed for the following purposes:

The Look-out Committee,—To act as hostesses or receivers to strangers; To help to amuse the children, to inquire into the possibility of a rest room for farm women in town.

The ladies also act in concert on all picnics, Christmas trees and similar public occasions.

MIAMI.

Report of the Household Economic Meetings held at Miami During 1911.

The Miami Institute of Household Economics was organized in Nov. 1910, when Miss Juniper and Miss Kennedy from the M. A. C. addressed the ladies of the town and vicinity in the hall here. The first meeting was, however, not held till the following March, when the ladies met at the home of the president, Mrs. F. Collins. This was mainly a business meeting and among other things, the buying of a Vacuum Cleaner was decided on.

In April the meeting was again held at the home of Mrs. Collins. Two well prepared papers were read on The Culture of Flowers. Miss Garnett gave one on Perennials and Mr. W. Jones, the other on The Care Necessary in Sowing and Watering the Small Seeded Annuals. It was decided at this time to try and get a hall or other public place to meet in,

and we were fortunate in getting the Vestry of the Presbyterian church. All the meetings so far have been held there.

In May a paper on Tomato Culture was given by Miss Seip; it was decided to send this paper to the M.A.C., as Miss Juniper had requested the Society to send in any paper which they though would be of use to other H. E. Societies.

In June two papers were given; the first on the Preparation and Canning of Fruit, by Miss Seip, the second on The Fly Question, by Mrs. Blanchard. Quite a few hints were given on the cleaning of back yards and lanes, which is the main breeding place of the fly. The paper on Fruit Canning was handed to the Editor of the Miami Herald for publication.

In July there was no meeting.

At the August meeting the topic First Aid to the Injured, was taken by Mrs. J. Webber, former matron of Carman Hospital, who gave a very helpful and instructive address; this paper was published in the Miami Herald, for the benefit of those who were not present at this meeting.

For the September meeting there were three papers, one on the Pure Food Law was read by Mrs. (Rev.) Beattie, the second on The Habit of Cheerfulness, by Mrs J. Frazer, and the third, Is the World Growing Better? by Mrs. Kerr.

In October a demonstration of Paper Bag Cookery was given by Mrs. Beattie; this was quite a novelty with a very practical side to it.

Lunch was served at the close of this meeting.

November being the Annual Meeting Mrs. Salisbury from the M. A. C. was invited to come and address the Society. She very kindly consented and gave a talk on Home making, which was highly appreciated by the ladies present.

A new staff of officers was elected for the coming year at this meeting.

EMERSON.

Emerson has a progressive Society of one-hundred members. Mrs. Frank Bell is President and Mrs. Cohen, Secretary.

Last spring they offered prizes for the best pansy beds. There were five entries. Both prizes went to the country. The judges drove about to the different places to examine the pansy beds. The points were, size of bed; size of bloom; arrangement, and care of cultivation.

They plan to offer more and larger prizes next year. One will be for the best kept yard. This is an excellent plan as it will add to the improvement of homes both aesthetically and financially. Mrs. Salisbury visited one of the meetings and the members appreciated her helpful suggestions. Christmas ideas formed the programme for the November meeting.

DELORAINE.

At the annual meeting all of the old officers were re-elected for another year and a few new names were added to our membership, so we are hoping to have an increased interest taken in the meetings.

It was suggested at one of our meetings that we discuss what good results had been gained so far by forming this society. However that subject was left until the society was a little older and better able to judge, but I can see this far that if nothing else has been gained than just meeting together once a month and exchanging ideas, some advance had been made. We have a membership of about thirty-two, and one of the first things we did was to open a rest room to be used by every lady who cared for or who had need of such a room. So far it has not been patronized as well as we could wish, through a sort of feeling that it is only for those of the society—although we have advertised it free to all, and have had cards printed and put up in all the stores. Then, too, it is not as conveniently placed as we would like, but the best we could do. We pay five dollars a month rent, and that heats and cares for the room. We also have had some very excellent papers on the "Relation of the School to the Home," and one on "Amusements in the Country Home"—both by farmers' wives.

Then our delegates to the Agricultural College gave us a very good report. One of our doctor's gave an interesting talk on 'Germs.'

So far we have held our meetings in the private houses in town during the winter, to save the expense of rent and fuel, and then, too, it seems more sociable—and that is what we strive for, to have everyone to feel free to talk and take part. Our next two meetings will be in country homes.

Dear Readers.

I take this opportunity to thank the women for their kind letters of appreciation of this department. Many letters come to me that the writers say are not for publication. I must say the temptation to publish parts of them is very strong, because the ideas expressed would be so helpful to our readers. However, I appreciate more than I can tell you these "heart to heart" letters and I hope for a large correspondence this coming year.

To one and all I wish a Happy New Year—full of success in every way.

Here is part of a letter from a President of one of our Home Economics Societies: To the Editor of the Womans' Department of Canadian Thresherman and Farmer.

Dear Madam:

I am very glad to see that the papers in the west are taking such interest in the Household Economic Societies. It is both a help and encouragement to the different institutes to hear what their sister societies are doing and in no way can this be done better than through the press. We always looked forward to those meetings in Ontario, not only for the practical, but also for the soical side; and in this country where there are so many strangers, it should be still more interesting to attend entirely undenominational meetings to get acquainted and also to get advice from those whose longer residence in this country gives them experience which counts for so much to new-comers.

MORRIS.

Birthday Party to Oldest Member of Society, Morris.

The ladies of the Home Economics Society met at the home of Mrs. Wilton on Saturday, September 2, and had as their guest, Mrs. Millwood, a member of their society. The occasion being Mrs. Millwood's 81st birthday, a number of friends and fellow-members were present to offer their congratulations. A very pretty cake, with Birthday Greetings, was placed on the tea table, and was much admired by all those present, but especially prized by Mrs. Millwood, who, notwithstanding she has passed the allotted span, enjoys wonderful strength and vigor and is a regular attendant of the Home Economics Society.

An interesting feature of the occasion, was the presence of four generations of one family. Mrs. Millwood, her daughter, Mrs. Albert Langton, her granddaughter, Mrs. Freemen Norris and her great-grandson, Claude Norris. Mrs. Millwood was born near Rugby, England.

Our Home Economics Society in Morris is making progress and our member-

ship is increasing and attendance good. We have been particularly fortunate in having three speakers from Winnipeg lately. In October Mrs. Salisbury of the M.A.C. held two meetings, one in the afternoon and another in the evening. She spoke principally of the work of the H. E. S. and gave many suggestions on how to make it useful and interesting. At our November meeting we had Mrs. Hamilton, editor of the Woman's page in the Canadian Thresherman, who gave us an excellent paper on "The Girl on the Farm." At this meeting we also had a paper by Miss Mina Clubb on the work done by the girls of the Domestic Science class of the M. A. C. On Dec. 6th, Mrs. Colin H. Campbell visited us and spoke on "Coronation Memories." There was a large attendance of members and visitors and Mrs. Campbell was listened to with the greatest attention. Her description of the various scenes and events was most interesting. At the conclusion of her address Mrs. Campbell was tendered a vote of thanks and presented with a beautiful bouquet of red and white roses by Mrs. Chisholm, after which tea was served, which brought to a close a very enjoyable afternoon.

A Member.

The Home Econmics Society at Morris is the only Society I have visited. It is difficult for me to visit out of the city during the winter as I cannot take my little girl with me. I hope, however, to visit more next summer.

I found the Morris Society in a very prosperous condition. Under the executive leadership of Mrs. Lewis as President Mrs. McKenzie as Vice-President and Mrs. Chisholm as Secretary, they have accomplished excellent results and the Society is a credit to the community.

P.R.H.

CARMAN.

The Dufferin Home Economics Society was started in November, 1910, with Mrs. W. S. Murray as President, Mrs. Coutts as Vice-President, and Miss Meikle, Secretary Treasurer.

At the January meeting, 1911, Mrs. Murray was re-elected President with Mrs. Robert Malcolmson Vice-President, and Miss Campbell Secretary Treasurer.

These officers have served the society faithfully and well, being at their posts through heat and cold, when home duties were pressing and always with the Society's best interests at heart.

The following are among the best papers of the year, "Best Literature for Our Homes," Order and System in Housekeeping 'Care of Children's Teeth' by Dr. McLachlan, "Care of Typhoid Fever Patients in the Home," by Nurse Adrain, "Bread Making" and "Ridding our Homes of the Filthy Fly." We had a discussion on "The Dower Law," in August and a lecture by Dr. Mary Ellen Davidson, of Neepawa in September on "Hygienic Management of Infants and Young Children," "Germs and Their Infections, etc.

SASKATCHEWAN HOMEMAKER CLUBS.

The Canadian Thresherman and Farmer has a large circulation among the Saskatchewan readers and the Manitoba women would like to hear from the Saskatchewan Homemakers Clubs. Reports from the Saskatchewan Clubs would be highly appreciated. I have on my desk a little booklet describing some of their work the past year and quote the following from it:

SASKATCHEWAN HOMEMAKERS'

"The Home is the Sunniest Side of Every Great People."

ORGANIZATION.

By Miss Mary S. Mantle.

"All our strength is in our union,
All our danger lies in discord."
—*Longfellow.*

Not a single Homemakers' Club in Saskatchewan in October, 1910. Twenty-four Homemakers' Clubs in Saskatchewan in October, 1911. True, there existed here and there organizations similar in aim and purpose, each bearing the name of its choice, but each standing alone, having no connection with any other, and not provincial in its scope.

Some of the new Homemakers' Clubs busy with their own work, struggling to get firmly established, perhaps do not realize the extent to which they are in the public eye. Interest in them is not merely local, not provincial alone, but they are watched, sympathetically yet critically, by the women and the men in other parts of the West. Your success as a Club not only advances your cause, but directly influences the extension of the work elsewhere.

THE ANNUAL MEETING.

The Clubs are now face to face with their Annual Meeting, some after nearly a year's work, others after an existence varying from six months to one month. For the reason that in going from place to place, as well as through correspondence, one is frequently questioned on these subjects, the annual meeting and the election of officers are referred to briefly at this time. One suggestion is particularly emphasized: **Even if you have done it previously read the Constitution through once before going to the Annual Meeting,** members as well as officers. Notice of the annual meeting must be given to each member at least one week before it takes place. It must be held between November 20th and December 20th, and the membership fees are due at this time. The Secretary sees

that the President is provided with a programme containing the order of business for the day, which varies with the regular order of meetings, and that she has a note of the matters which should come up for discussion or decision.

OFFICERS.

The choice of officers is the most important item of business at the annual meeting, because on this choice the Club's success for the coming year will largely rest. On the personnel of your Executive and Board of Directors depends the work they will do. Our main consideration in selecting officers should be to choose them for their fitness, and for no other reason. A happening such as the following is not unheard of: two friends are sitting together, and Mrs. A. smilingly says to Mrs. B., "I'm going to vote for you for President." Mrs. B., with a somewhat conscious laugh, replies, "Well, if you do I'll vote for you." Neither was considering whether the other was the most suitable available person for the position; they were merely mutually complimentary. Our best friend may be our best friend, but not the best President for our Club, and if that is so we are doing neither her nor the club a kindness by putting her in.

One or two points are worth keeping in mind: Among the officers are needed both young and older folk, a blending of the enthusiasm of youth with the experience of age.

The unmarried ladies should be represented as well as the married. Sometimes the former have more time to give to the work. Sisters and daughters, though not at the head of the home, are yet keenly interested in its affairs. They represent, too, special interests of their own.

In making nominations for a certain office, it is essential to keep in mind the other offices which also have to be filled, and discriminate.

For the chief offices choose those who are already interested in the Club, and endeavor to select ladies who will work well together. While the human nature is as it is, this carefully selected group of leaders will work together better than this other group, where the clashing of natures, interests or prejudices has been entirely ignored. No doubt year by year we shall learn to work more harmoniously with all and sundry, but don't take too long a chance on sudden reformations.

Before the voting for officers starts have the secretary read the list of members. If there is a blackboard in the room, write these names on it, but if not the secretary can write them out on slips of paper beforehand, and say that there is a copy for say every three voters.

All the emphasis should not be laid on the president's work, or on the secretary's. Every officer you appoint has an important place to fill.

Our aim in the election is to have a body of officers each one of whom is the best available. No club should be discouraged because its officers are not perfect. We seldom can get perfect officers, but we do try to select such as are anxious to put their best into the position they accept.

THE PRESIDENT.

Not often are all the qualities we would like in any officer to be found in one individual, but that does not mean we should not maintain a high standard, and endeavor to secure in her as many of the characteristics which we deem advisable, as possible. The President should be one who is pretty generally liked in the district. She may not be the wealthiest, the most clever, or the best educated. If she is popular, and willing to undertake her duties she should be influential. What we are looking for in the president, as in every officer, is suitability. There is a difference of opinion as to the advisability of changing the president every year. I believe it is best to make a yearly change. The office carries with it some honor and should be passed around. If the precedent of a yearly change is established, it will save some hard feeling in that year when it is necessary to put an unsatisfactory president out of office.

THE VICE-PRESIDENT.

Her duty is to take the place of the president in the latter's absence. In making this appointment it is well to mind the tendency to elect the vice-president of one year the president of the following year. This should not be a hard and fast rule, however, for one who would do well might not do at all as president. On the other hand, if the vice-president is really suitable for the higher office, her year's apprenticeship to it will stand her in good stead.

THE SECRETARY.

A good secretary cannot be valued too highly. She has the most work to do, yet her duties regularly attended to, should not prove burdensome. Her place is an important one; she has work to do behind the scenes, and on the fidelity with which she attends to it much of the success of the meetings depends. The rule of a yearly change should not apply to the secretary's position. There is a continuity to her work, and a good secretary grows more valuable year by year as she continues to take the minutes, to make reports, to conduct correspondence, and to keep her hand on all the activities of the Club. The records one secretary starts she is best able to carry on, and the correspondence which may be in progress she can best continue. By all means endeavor to retain the services of a good secretary if you have been fortunate in finding one.

THE DIRECTORS.

Why not give each director a special duty to attend to. If you have committees on membership, programmes, etc., the Directors might serve as convenors of these committees.

AFTERWARDS

And when our new officers and committees have been elected, we must not sit in judgment on their efforts too soon. We are inclined sometimes to undervalue the work of another because it is not done just as we would do it. If we entrust certain work to certain people, we should let them do it their own way, and give them a fair opportunity to make good before criticising.

SUGGESTED TOPICS FOR MEETINGS.

The Preparation of Meats. Why it is better to stew than to fry meat; recipes for stews; the food value of different cuts; what to do with the cheaper cuts; meat stuffings; ways of using "left-overs"; the value of the fireless cooker.

Relation of the Home to the School. Taking an interest in the children's school work; supporting the teacher's authority ways in which parents can help the teacher; welcoming the teacher to the home; visiting the school.

Table and Bed Linen. Bleaching; removing stains; methods of marking; mending; uses for old linen.

The Distribution of Money in the Home. The wife's share; are regular allowances to the children advisable?

NEWS OF THE CLUB IN BRIEF.

Percy. "Our first meeting was quite a surprise to us, everyone talked so much and felt so much at home. The subjects taken were, 'Canning and Preserving,' and 'Helpful Methods in the Home.' The fireless cooker was discussed, and before we knew it it was five o'clock, our time for closing. There were about twenty present."

Qu'Appelle. The uses and abuses of Gillet's Lye, recipes for the making of soap and a good washing fluid; on these subjects an able paper was given by Mrs. J. G. Milne, at a recent meeting.

Kipling. "Our meeting was splendid. Everyone said they enjoyed it," is the news from this club. They meet in the Presbyterian church, and they are allowed the use of the organ. Two ladies volunteer each time to serve refreshments; two others are on the programme committee, and two on the membership committee. At the last meeting the wife of the doctor, Mrs. Hart, herself a trained nurse, read a paper on 'Hints in Nursing,' while the topic to be discussed next is 'The Care of House Plants.' "

Manor. "Gleanings from the Carlyle Fair," was the suitable and interesting subject taken at the meeting of the Manor club.

Zid. Word comes from here. "We are very much interested in this work, and hope all the people will take hold and make a success of it." The subjects dis

cussed so far have been 'The House Fly,' 'Storing of Vegetables, Butter, Eggs, and other food supplies for Winter Use,' 'Croup and Remedies.'"

Bladworth. "Cooking for Threshers,' was a practial subject chosen by this Club and handled in a practical manner through papers and discussion.

COURSE in GAS ENGINEERING

Continued from page 21

that anyone would rather handle the gasoline by preference, as the heavier fuel fouls the cylinders, and necessitates frequent cleanings, yet the matter of cost is a vital one, and must not be overlooked. Its importance is shown by the fact that out of 24 internal combustion tractors entered, over one-third of these were operated on kerosene retailing at 12 cents per gallon.

The lowest cost per acre was recorded by No. 24, using kerosene, being 28.2 cents. Were anyone to inquire as to the reason for the gas tractor being so popular for plowing they would only have to be referred to this column for a very satisfactory explanation. Where the cost for the internal combustion engines ran from 36 to 50 cents, that for the steam ran from 80 to 100.

The cost per day was put in here to give some idea as to the relative expenses for continuous operation. This, by no means, represents the actual cost, for besides fuel, there is lubricating oil, water, labor, repairs and minor expenses, which amount to considerable. One of the chief items, of course, is labor, and it would be interesting if a comparison could be made between the steam and the gas tractors in this respect. The cost of the fuel only is given for the steam rigs, that for the water not being shown.

The thermal efficiencies were calculated using 18,500 British thermal units for gasoline and 19,500 for kerosene. This value is obtained by dividing 2,545 by the product of the number of pounds of fuel per horse power hour and the number of heat units per pound of fuel. The maximum efficiency, that shown by No. 15, was 24.2 per cent., in other words, nearly one-fourth of the heating value of the fuel was manifested in useful work at the brake. When it is considered that there is a loss due to belt slippage for which no allowance was made, the efficiencies were remarkably good. Using kerosene the efficiencies were considerably lower, due to the fuel being less volatile and consequently causing a greater loss through the unused portion. The best result on the plowing field was 21.5 per cent. recorded by No. 4.

Another very important factor in the operation of a tractor is the percentage of power generated at the engine which finally reaches the drawbar. A certain amount of power is required to move the tractor itself, depending upon the weight, the condition of the soil, etc. Then there are numerous other losses caused by friction in the chains or gearing, in the bearings, in the differential when turning. The results from last year's contest tended to show that from 70 to 75 per cent. of the maximum developed horse power could be expected at the draw bar under the most favorable conditions. The results from this year are somewhat different and, although lower, are quite consistent for all the tractors, and so need not be disappointing to any.

This percentage is spoken of as transmission efficiency, since it covers the losses in the transmission of the power from the engine to the drawbar. An average of all the rigs this year gives the value of 52.4 per cent., with 63.8 per cent. as a maximum and 37.5 the minimum. One peculiar fact to be noted is that the maximum efficiency was obtained from a tractor using a four-cylinder vertical engine set lengthwise of the frame, thus transmitting the power through bevel gears. One of the strongest claims for the single-cylinder tractor was the simplicity of the gearing, resulting in a greater percentage of the power being transmitted to the drawbar. This type of rig recorded an efficiency of 55.5 per cent. this year.

Thousands that are capable of great sacrifices are yet not capable of the little ones which are all that are required of them. God seems to take pleasure in working by degrees; the progress of the truth is as the permeation of leaven, or the growth of a seed: a multitude of successive small sacrifices may work more good in the world than many a large one.

—George Macdonald.

Folks who wait for applause will never win it.

* * * * * *

Light troubles speak; great troubles are silent.

* * * * * *

If we depended on the milk of human kindness half of us would starve.

SYNOPSIS OF CANADIAN NORTHWEST LAND REGULATIONS.

Any person who is the sole head of a family, or any male over 18 years old, may homestead a quarter section of available Dominion land in Manitoba, Saskatchewan or Alberta. The applicant must appear in person at the Dominion Lands Agency or Sub-agency for the district. Entry by proxy may be made at any agency, on certain conditions by father, mother, son, daughter, brother or sister of intending homesteader.

Duties.—Six months' residence upon and cultivation of the land in each of three years. A homesteader may live within nine miles of his homestead on a farm of at least 80 acres solely owned and occupied by him or by his father, mother, son, daughter, brother or sister.

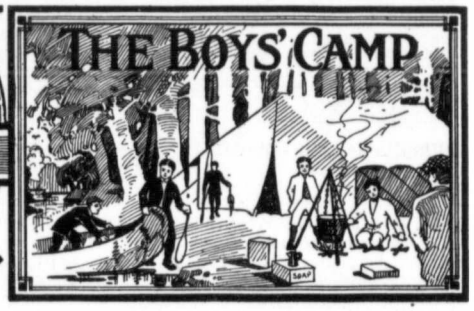
In certain districts a homesteader in good standing may pre-empt a quarter-section alongside his homestead. Price $3.00 per acre.

Duties.—Must reside upon the homestead or pre-emption six months in each of six years from date of homestead entry (including the time required to earn homestead patent) and cultivate fifty acres extra.

A homesteader who has exhausted his homestead right and cannot obtain a pre-emption may enter for a purchased homestead in certain districts. Price $3.00 per acre. Duties.—Must reside six months in each of three years, cultivate fifty acres and erect a house worth $300.00.

W. W. CORY,
Deputy of the Minister of the Interior.

N.B.—Unauthorised publication of this advertisement will not be paid for.



The Girls' Cosy Corner

A DIARY'S DIARY.

The first day of the year is here;
My pretty owner, smiling gladly,
Exclaims: "A diary What a dear
That's just what I've been wanting badly"

She takes me to her writing case,
And guards me as a new-found treasure;
Thus in her life I take my place,
Recording all her work and pleasure.

I play a most important part,
For special power to me attaches;
I hold the secrets of her heart—
And dates of county hockey matches

* * * * * *

Maids are a fickle, faithless lot
For *now*, when asked about my pages,
She says: "Dear me I quite forgot;
I haven't filled it up for ages"

Leslie Mary Oyler.

Will "Mayflower", in August number send in her name so I may forward her prize.

GIRL'S PRIZE LETTER.

Bardo, Alta.

Dear Cousin Doris:—This is my first letter to the Girls' Cozy Corner. My brother takes the Canadian Thresherman and Farmer. We like it all fine. I like reading the letters to the Girls' Cozy Corner. My parents came from Norway nineteen years ago and came to Alberta. I am fifteen years of age and am in Standard four. We live two miles from school and nine and one half miles from Tofield, I have two brothers and four sisters. My youngest brother is five years old but will soon be six. Well I must tell about what I did last summer. I raked all the hay that was mowed but when going home one night one of my mares got her bridle off and took a runaway. I got the lines but could not hold them and away they went as fast as they could go. I had unhitched two tugs so the rake pole fell down and stuck into the ground. The rake got left and I fell off but up I ran and home I went as fast as I could go so they should not get scared for me. I did not get any hurt so I was very glad. We have milked fifteen cows this year and I was the one who brought the cream to town all summer through. We have about one hundred chickens now and have had a lot of eggs. Well I guess I will have to close now hoping to see my letter in print. I remain your cousin

Petra Serbickmo,

Grandora, Sask.

Dear Cousin Doris:—I have been a silent reader of the Girls' Cosy Corner for a long time. Now I have determined to write, and like the rest of the girls, I would like to get the prize.

We live fifteen miles from Saskatoon and three miles from Grandora which consists of one general store, one hardware, one grocery and dry-goods, a confectionery store, and a M. W. A. Hall.

I have read many books. Some of them are: "A Very Rough Diamond," "Maraia," "Sink or Swim," "Jack's Ward," "David Copperfield," "Beautiful Joe," and many others that are too numerous to mention.

A member of the club said that she was aunt when she was seven years old. I can beat her, for I was aunt when I was one year and two months old. I now have one niece and six nephews.

I am thirteen years old, and in the eighth grade at school. I love drawing and painting, although I can do neither very well.

I see some girls tell about their pets. We have just one cat and four dogs. We have two black ponies, but they are not exactly pets. I can drive them, but cannot ride them.

I am afraid my letter will be getting too long for C. D. to publish, so I will quit for this time but will write again if I may. Your interested cousin,

Leeta Brady.

Sonya, Ont.

Dear Cousin Doris:—My father takes the Canadian Thresherman and Farmer and likes it very much. He wont let me read your letters till he reads what he wants to.

For pets I have a little brown pug dog, Tiny, and a little grey and white kitten called Muggins, I also have Daisy, my calf.

I go to school every day. The school is straight across the road so I am never late. Our school isn't very big; there are twenty-four pupils.

I wish the Cozy Corner every success and hope to see my letter in print. (Age 9 years). I remain,—Hilda Squires.

Ingelow, Man.

Dear Cousin Doris:—May I join the Girls' Cozy Corner? My mother wrote last year and got a cookbook and my sister wrote and got two books. They were David Copperfield and Little Women. They were all lovely books for which we thank you very much. We are shipping our cream to the T. Eaton Creamery, Winnipeg. We got 29 dollars and thirty cents for July. We are milking seven cows. We have over two hundred chickens and thirty-three turkeys. We had thirty-five hens this summer and we sold twenty dollars worth of eggs and we ate quite a lot of eggs too. My father caught a mink and weasel last winter and he shipped them to the Pioneer's Hide and Fur Company and they did not pay him for the hides. I don't think that was right. Father wrote to them but they did not answer him. Father registered the package. Well I will stop, wishing the Corner every success. Yours truly, Leticia Clark.

(This letter was written last summer.)

St. Louis, Saskatchewan

My Dear Cousin:—I don't suppose you remember me. Well I am an old member of the "Cousin Doris Club."

I like the girls' corner very much; it is very cool and fresh looking, especially after a hot day at school. We have had school all summer this year as we don't have any in winter. Our teacher is very nice and all our school children like her.

I believe we have more fun at our school than in any other. We play squat tag when it is not too hot and we have more fun at that game than at any other game.

Don't you think it would be nice to get a badge for our Corner, girls? I think it would. Now, my dear cousin Doris, won't you get a badge for the "Girls' Cozy Corner" and the "Boys' Camp" please. I am sure we would all be very proud of our badges then.

Well, I did not come in to give hints, but to compliment the girls and boys on their interesting letters.

I am pretty sure that Blue Eyed Ben is not a Scout, because he caught a poor, defenceless little bird. None of the Scouts would be so cruel.

I can bake quite a few things, but I don't bake much in summer time as it is too hot. I like housework better than baking and I can keep house all alone.

It has been raining nearly every week. It is raining again to-day. I am tired of rain.

I found a little humming bird's nest on a beautiful rosebush in the woods last week. There was only one tiny egg in the nest and the beautiful little birds were flying all about my head. I did not know what it was at first. It is the first humming bird I have ever seen.

We have a boat and we go sailing on a lake not very far from here. I am "Christopher Columbus" and I discover islands, of course most of the islands are only stumps as that is only a stumpy lake. It is called "Chicoo Lake."

I was sixteen years old on the second of May. Please, Editor, don't say I am too old to belong to the club any longer.

How is your dear little girl, Cousin Doris? I hope she is enjoying herself.

Good-bye for this time, cousins. I will come again if you want me to.

Mary McDougall.

Manitou, Man.

Dear Cousin Doris:—Thanks very much for the book which I received in good condition and was very pleased, as well as surprised to get it. I have finished reading it and I think it is one of the best books I have ever read I have also read two other books by "Mrs. Meade" called "Polly or a New Fashioned Girl" and "A Gay Charmer," and I think "Mrs. Meade" is a fine author.

I passed my midsummer examinations before Summer Holidays and I am in Grade Eight now.

We have finished stacking and the threshing machines are all busy now. We will not be threshing for a week or so. I may have to stay home in threshing and help mother as I am the oldest girl.

We have a good garden this year as it is the first time we ever planted a fair sized garden. But all the same we got some prizes on vegetables at the fair. I think there will be lots of potatoes this year and they are a nice size.

At the fair I got a prize for map drawing and tried some sewing, but was unlucky. I have done quite a lot of sewing such things as some doll's clothing, a tea-apron and some fancy-work. How many of the members like doing fancy-work?

I am sending you a recipe for a "Roll Cake", made like this:

3 eggs well beaten, 1 cup of white sugar, mix well, 3 table-spoons of boiling water, 1 rounded spoonful of baking powder, 1 cup of flour, pinch of salt. Beat well and cook in rather hot oven for ten minutes; turn out of pan on a cloth, spread with jelly or fruit and roll immediately while hot, leave rolled in cloth till cooled.

Cousin Doris, would you please put your little girl's picture in the paper, as all the girls of the "Girls' Cozy Corner" would like to see it. I hope she enjoyed her holiday in the country. Most every girl likes flowers at the very least I do. I would rather live in the country than in the city, the same as your little girl for there is more fresh air and freedom in the country and wild flowers to pick..

As my letter is getting pretty long I will close for this time. Hoping my wish and the wish of many others would be fulfilled. Wishing your "Girls' Cozy Corner" every success, I am, your loving cousin, —Ethel Tait. (Age 12)

I think I shall have my little girl's picture on this page sometime as so many members have requested it. C.D.

The Canadian Boys' Camp

A WATCH.

Within my breast a little watch
Ticks bravely night and day,
And slow or fast it's steady beat
Marks hours that pass away.
When I am good it's tick is loud
On days of joy and song,
But slowly drearily it ticks
When I've been doing wrong.
I often wonder when I lie upon my bed to rest
Who is it winds while I'm asleep
The watch within my breast.

(Harry Cundell of Khedive, Sask., sent in the above.)

Young, Sask.

Dear Cousin Doris:—This is my first letter to The Canadian Boys Camp. My father has taken The Canadian Thresherman and Farmer for nearly a year. I like the letters in it very much. My father has four cattle, two cows and two calves. He also has six horses and two colts. My sister has a cat named Pearl. I have a trap to catch gophers and a twenty-two rifle to shoot them.

I am eleven years old. I go to school every day. The school is a mile and a half from my home. We play baseball cricket and football at school.

I think I will close, Yours truly,

Harold M. Brotchie.

Asker, Alta.

Dear Cousin Doris:—This is my first to the Canadian Boys' Camp. I am ten years old and will be eleven in January. I have a five hundred shot repeater Air Rifle. I have shot one partridge and two b ack-birds. My brother has a fifteen shot Repeater 22 Caliber. I have five sisters and one brother. My father is out threshing now. We have ten cows eight calves, twelve sheep and nine pigs.

I am a member of another club. It is called the Prairie Chicken Club. I go to school. I am in the second reader. Our teacher's name is Mr. Sydney W. Thurber.

I will close this time, I remain,

Victor Emanuel Krefting.

Oakland, Man.

Dear Cousin and Campers:—It is a little cold now, but it was a lot warmer before. We have thirty acres of wheat sowed. We have a little colt now, it is a week old on the 1st of May. The automobiles are running again. I took the measles on the 1st of April. I was in bed four days without being dressed. On the 2nd of April I woke up and heard my mother and brothers getting dinner as all the others had them too. I asked if it was supper time. I went to sleep again and woke up about half-past four and asked if it was Monday morning.

I received my book and have read it

through and think it fine. I was to the post office and called for the mail and got it.

I have not been to school since last December as the road was snowed up and then we took the measles. I caught ten gophers and two squirrels. There is water in the railroad ditches and the railroad one quarter of a mile away makes it easy to drown them out. I have seen a lot of gophers. We got a carload of poles this spring.

We have three turkey hens which are beginning to lay. We have got nine eggs now. Our hens are laying well now. My letter is getting long so I will close, yours truly,—John Blair Jr.

P. S. Could any one send me the words of "Under the Old Oak Tree."

Mutrie, Sask.

Dear Canadian Camp:—Seeing that nearly all the boys were writing letters to your paper I decided to write a letter. to you too. I am 14 years old and live on a farm, but I do not like it very well. Before we started for this district we lived in Winnipeg so you can imagine what the change is.

I do not like shooting very much, although I have a nice rifle of my own and a nice pure-bred pointer dog, so I'm well equipped for hunting.

My father owns a gasoline engine, engine gang and a separator; we like them very much. Father, my brother and our hired man plowed 600 acres this summer. This is pretty good for such a wet summer.

I am going to tell you a few things about music now. This is my fondest occupation. I took lessons for two years and an examination was sent to me, so I tried the exam. and succeeded in getting my teachers certificate.. The music I like best is composed by celebrated composers, such as Beethovan's, etc. Do any of the campers play the piano? I will close by giving you a short story, a very farcible reading.

Wishing you all success, yours sincerely,
Musician.

Hochstadt P. O.

Dear Cousin Doris:—I will try to write a letter to the Canadian Boys' Camp. This is the second time that I have written to the camp. We have very fine weather now. How is the weather there, Cousin Doris? My father has got a typewriter and I thought I would write on it.

This season we got a little over 900 bushels of grain. Nearly 600 bushels of wheat, and 300 bushels of oats and 63 bushels of barley. My brother and I went to St. Piere with butter to-day and got 25 cents a pound. We have three horses, four cows, six pigs, one dog, three cats and about 70 hens. We have lots of rats among our buildings. I want to buy some rabbits, when there are rabbits among the buildings the rats will all run away. We wish to sell our farm here. We have bought ten acres of fruit land in British Columbia. We intend to move there next spring with several other families. I would like to get a book. Yours truly,—Peter K. Toews.

Earl Grey, Sask.

Dear Canadian Camp:—This is my first letter to the Boys' Camp. My father is taking the Canadian Thresherman and Farmer, and we like it fine. I think it is a very good paper for boys as well as for men, because we boys can learn a lot of things that might be useful when we get a little older.

Well now the duck season is in and we boys have to get our rifles clean and ready for the hunt. I have a 22 caliber Repeater which we can kill pretty big game with. The threshing time will soon be here and some of us have to help there too. The cutting of wheat is pretty nearly all done around here, but there are some oats uncut yet. The crops around here are very heavy but some very low places were caught by frost, not very bad though, but some are pretty well hailed out on some miles distance away. How many of the boys are learning to do taxidermy? I am, but have not had much to do it on. I have mounted two gophers and one squirrel, but of course, they were not very good as they were my first. I hope I will get along better the more I practice.

Well I guess it will take up too much room in the camp. The writing is poor so I don't know if it is readable. I am, your friend,—Einar Lundell.

Whitemouth, Man.

Dear Cousin Doris:—May I come into your camp to-night? It is beginning to snow and is pretty cold.

Well, boys, I suppose you, like myself, are sorry chicken season is over. I shot nearly one hundred chickens. I have a twenty-two, Savage rifle, and made pretty good use of it, I tell you.

We live about seven miles out in the country. Our nearest town is Whitemouth. Have any of you boys been at W. It is a very pretty place on the C. P. R., both healthful and beautiful. There is some of the loveliest scenery along the Whitemouth river.

My two brothers are threshing at present; they own and operate a 25 H. P. Minneapolis Engine and a 36-60 Goodison separator. I wish you could see them working. They have threshed 1,130 bushels in five hours. Would have done better only threshing is very poor this year, owing to the wet weather, we had during stacking.

One day last week, two boys came to shoot rabbits; we walked about three miles up to a gravel pit and came home loaded with our rabbits, got thirteen. John saw a rabbit jump up by a log, thinking it was a bear, he ran back to us and said there was a bear there. I stepped ahead of the boys, had my rifle loaded ready for anything that might happen to come. I got up within twenty-five yards of John's supposed bear, he put his head up above the log, I fired, sneaked up, when I got up pretty close, I saw what I had shot, don't you forget, we had a good laugh on John.

Last summer there used to be a lot of bears in the bush where our cattle have to pasture, I used to go on horseback for them night and morning. One night I wasn't very far from the cattle when the horse seemed very uneasy. I expected to see something, but not a bear, when who should step out but a big Bruin. I turned and galloped to Mr. Funberg's he went with the rifle but didn't get a shot at one; there were three in the bunch. A few nights after I was out near the same place again when the pony started, she threw me off, but as luck happened I held on to the check. She dragged me for about ten yards, gaining my foothold, I mounted again and reached home safe. I saw the three that night and was only about ten yards away when I landed off her back.

Leslie was out moose hunting last season he got a moose eleven years old. He got the head mounted and hide tanned; they both look swell. About two-mile and a half from here there were two moose dead; their horns were locked together where they had been fighting and not being able to get separated, had starved to death. They were seventeen and eighteen years old. My, the horns were big, about fifty inches from tip to tip.

Wishing the club every success, I will close.—Fred Cousins.

Viscount, Sask.

Dear Cousin Doris:—This is my first letter to your club. I like to read the letters of the boys and girls.

I like this club very much better than the rest.

My father takes the Thresherman and Farmer.

My father has five horses, four colts, twelve cattle, five pigs and a threshing machine.

I go to school. I live on the farm. I am eight years old.

I guess I will close, wishing the club every success, I remain, yours truly,
John Leyh.

Halkirk, Alta.

Dear Cousin Doris:—This is my first letter to your club and would like to see it in print.

I am nine years old and go to school nearly every day and am in the first class and like it fide. My teacher's name is Miss Freeborn.

I have a colt and a calf. I can play on the organ.

I earn my money by hauling express from the depot on my sleigh or wagon.

As my letter is getting pretty long I will have to close, hoping to get a prize. Yours truly, Roger D. Underwood.

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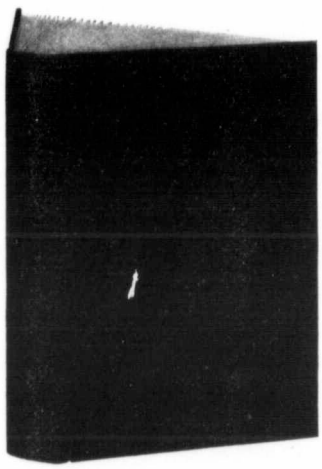

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MAGAZINE SECTION

WITH THOUGHTS LIKE THESE ARE ALL OUR CARES BEGUILED.

The Foot-Path to Peace.

A Thought for 1912.

To be glad of life, because it gives you the chance to love and to work and to play and to look up at the stars; to be satisfied with your possessions, but not contented with yourself until you have made the best of them; to despise nothing in the world except falsehood and meanness, and to fear nothing except cowardice; to be governed by your admirations rather than by your disgusts; to covet nothing that is your neighbor's except his kindness of heart and gentleness of manners; to think seldom of your enemies, often of your friends, and every day of Christ; and to spend as much time as you can, with body and with spirit, in God's out-of-doors—these are little guide-posts on the foot-path to peace.

Henry van Dyke.

RACING FOR THE THRESHERMAN & FARMER

The Hundred Dollar Shortage

A Little Chapter of the "Old, Old Story."

Train "No. 7"—the Denver express—had gone lurching and swaying on its way down the canon, leaving a reminiscent smell of coal smoke and burnt brake-shoes in the air, and the little railway station at Ashtaroth subsided into its normal condition of inertness—a day-long quiet, disturbed only at train time. The sun was not yet high enough to look over the shoulder of Mount Antioch into the deep-notched canon, but the reflection from the snowy summits of the opposing range filled the gorge with a silvery glow of mild radiance, and Kate Dent rose from her place at the telegraph table, and stood at the window to watch the sunrise.

When she opened the window the grim bulk of Sinai, the opposite mountain, stood wholly within the shadow of the mightier Antioch, but presently the sharply-defined shadow line began to ebb down the slopes of the western range like the receding wave of a great ocean of color. When it sank below the shaft-house and dump of the Great Dagon Mine the subsiding wave left the young girl's thought stranded like a bit of flotsam in the wake of a retreating billow.

Duncan Ross was the foreman at the Dagon, and yesterday he had asked her to be his wife. She had turned him aside with a jest, but she knew he would ask again, and a doubt beset her. Time was when the doubt did not exist, but that was before Ross became her father's creditor. On the books of the railway company Amos Dent figured as agent at Ashtaroth. But he was mineral-mad, and spent the better part of his time dabbling in "ground floors" and "true fissures" in the adjacent gulches, while his daughter did the work for which he drew the salary. The dabbling was expensive, and Dent had borrowed of whomsoever would lend; of Duncan Ross, among others. Ross laughed, and called the loans "investments," but Katharine knew they were not. The young man had an enviable reputation for thrift and commonsense, and she knew that he was the last man in Ashtaroth to back the visionary schemes of her father for the sake of an investment.

So, on the heels of the "investments" a barrier had grown up between them, as needs must; and when Kate closed the window and went back to her work there was a dash of bitterness in the thought that her father knew the true state of affairs, and made capital out of it. It was a sordid thing from any point of view, and she was unreasonable enough to blame Ross for his part in it.

"He ought to have seen that it would put an end to everything," she said, taking the cash-book from the safe, to begin the daily struggle with the balance. "I know I can never think of him again except as a creditor."

The forenoon wore away with rather more than the usual number of trippings and stumblings among the mathematical pitfalls. Kate's gifts were domestic rather than clerical, and on this particular day the air seemed thick with inaccuracies. She could not make the cash balance. There was an error of one hundred dollars, and she checked for it until her head ached, and she was in doubt as to the product of twice two.

After dinner a small incident thrust itself into the meshes of the mathematical tangle. A man named Omer, who was her father's partner in a disputed mining claim, came in to ask her for the agent.

"I don't know where he is," said Kate, keeping her place in the column of figures with the pen-holder.

"Ain't gone away nowheres, has he?" queried the man anxiously.

"No; not out of town."

"Well, if you see him before I do, tell him I'm chasin' him. Things has come to the jumpin'-off place up yonder at the 'Croscut.' The Ajax people served a notice on us yesterday, an' this mornin' they driv me out o' the claim with a gun. They say we can pay 'em a hundred dollars royalty down, or quit."

"I'll tell him." She said it absently, thinking more of the elusive error than of what Omer was saying.

"All right. Maybe I'll run across him first, an' if I do I'll take him right along over to the Ajax with me."

Katharine nodded and turned back to her task; and when her father did not return he accordingly took it for granted that he had gone with Omer.

For an hour longer she struggled with the recalcitrant figures in the cash-book, coming out always with the same result—an error of one hundred dollars. Finally, in a fit of desperation, she recounted the cash in the safe, and here the error came to light. The money was one hundred dollars short.

When she had made sure of the shortage she sat down and faced the unnerving fact calmly and resolutely. There was but one explanation: the "ground floors" had been unusually rapacious of late, and this new demand on the part of the Ajax people was for the exact amount of the shortage. She would not allow herself to follow out the chain of probability. What she had to confront was a condition, and not a theory, and she weighed the chances, and made her plans accordingly. She would carry the shortage as cash on hand until she could replace it out of her salary as operator.

"Poor old dad!" she said softly, with the light of a compassion in her eyes. "We're going to bury it deep this time; but oh, you mustn't—indeed you mustn't—"

A new note in the telegraph instrument cut into her soliloquy, and she sprang up with a little cry of dismay. In the simple plan of restitution she had forgotten that the station might be checked by the travelling auditor before the money could be replaced. And the new note in the sounder was a message from the agent at El Chico, telling her that Auditor Rudd would reach Ashtaroth on "No. 19." She glanced up at the clock. "No. 19" was due at three-twelve. In a brief quarter hour the time for restitution would be past.

"Oh, what can I do?" she wailed in helpless impotence. Already the thunder of the approaching train seemed to be dinning in her ears.

The answer came to the question like an echo to her agonized cry. A man appeared in the trail leading down from the Dragon, and came across the bridge. It was Ross, on his way to the camp blacksmith-shop, with the piston of a disabled power-drill on his shoulder.

In a flash she saw the way out of her besetment, and the thorny hardness of it. She would appeal to Ross, and the miserable business of bargain and sale would be quite complete. She called to him, and he eased the drill piston from his shoulder and came up.

"Doing the burro act," he said good-naturedly. "How are they coming with you to-day?"

Katharine tried to brace herself to the demands of the moment, which were to borrow one hundred dollars expeditiously, and, as near-

ly as might be, without explanation. But to her dismay, the simple words of the request refused to say themselves. Instead, she found herself falling in with his mood, which was casual.

"Only tolerable. I'm chief clerk and roustabout this afternoon, and I'd rather not be either."

"Major-Gen'ral Amos gone off to dig another hole?"

"He has gone over to the Ajax with Hiram Omer. They're having some trouble about the 'Cross-cut.'"

"I heard about that. Omer's jawin' 'round as if there was goin' to be blood on the moon, but he's a good deal of a tinklin' cymbal, Hiram is."

Katharine's heart failed her. "No. 19" was gliding swiftly down the canon on the wings of the fast-flying minutes, and the deed was yet undone. Ross rested his arms on the lowered sash and looked around the office.

"This ain't no kind of a place for you to be shut up in all the time, Kathie," he said, passing abruptly from generalities to particulars. "There's a better one up yonder on the Dragon claim, waiting till you say the word. The "super" says we can have his outfit complete whenever we want it, Been thinking any about what I asked you yesterday?"

She turned away and made a sign of negation. "It's no use, Duncan."

"Why ain't it?"

"Because it isn't."

"That's a woman's reason, all right enough, but it don't go. Tell me the worst of it, Kathie."

"There isn't anything to tell."

"Yes, there is. Something's been edgin' in between us for a good while back. I've felt it, but I don't know more'n a baby what it is. Can't you unload on me like you used to, Kathie, and tell me what's gone twistin'?"

With his persistence, and her own great trouble, Katharine broke down.

"Oh, I wish you hadn't said anything about it!" she burst out. "I wanted to ask you something—to ask you to do something for me; now you've made it impossible!"

"Say, little girl, don't you talk that way"—reproachfully. "You

don't know much about how a man feels, or you wouldn't. You know I'd go broke for you any day, and be glad of the chance."

She looked up suddenly. "Would you lend me a hundred dollars without asking me what I wanted to do with it?"

"You know I would."

"And you wouldn't ask——"

"No that wouldn't cut any ice."

She glanced up at the clock and caught her breath. The saving interval had shrunken to a span.

"Get it for me!" she panted. "Get it quickly. I must have it before—before the train comes."

The young man turned his back to the window and opened his shirt. It was before the days of banks and bankers in Ashtaroth, and Ross carried his savings in a buckskin money-belt, which was seldom unbuckled. With the money in his hand he paused to wonder why Katharine was in such tremulous haste. He was a slow plodder in the more devious paths of thought, but at the moment some flash of the young girl's foreboding prescience illumined him, and his eyes kindled. What he saw in that brief glimpse into the heart of things moved him to swear softly under his breath. He knew then what it was that had come between them; he saw the barrier that obligation had builded, and he knew that this latest addition to it would make it impossible from his side no less than from hers. Moreover, the reason for her anxiety became luxuriously apparent: Amos Dent had been using the railway company's money.

What he should do came to him in a lightning stroke of inspiration. Two conditions must be fulfilled: Katharine must be enabled to return the loan at once, and she must be made to believe that her father is an honest man. Ross counted out the sum in fives and tens, and slipped a hundred-dollar note between the others.

"There you are," he said, thrusting the roll into her hand. "You can have more if you want it."

"No, this is enough, thank you." The added burden of obligation was upon her, and a new note of constraint was in her voice. "Are you sure you can spare it?"

"Of course I can." He knew she was waiting for him to go, but he lingered in the hope that something would befall to keep her from counting the money. She had unrolled the notes and was twisting them nervously about her fingers.

"Shall I give you a note " she asked, plunging deeper into the misery of the new and strained relation.

A slow smile worked its way up from his square jaw to his sunburned temples. "I guess you'd better not. It's bad enough as it is, ain't it?"

"Oh, it's wretched!" she wailed. "Can't you understand now why I —why things are not as they used to be "

He nodded. A murmur like the hum of a distant swarm of bees filled the air. The train was coming, and the danger of detection was less imminent. "I didn't understand it till a minute or two ago, but I guess I do now. As long as I didn't know I spose I'd 've kept on naggin' you; but you needn't be scared now. You've got the cinch on me."

"I—I don't understand," she faltered.

He pointed to the banknotes. "Don't you see As long as you keep that I'm muzzled; I can't say another word. I'm plumb crazy about you, Kathie, but I ain't fool enough to think I can buy you. When you give that back to me I'll know you're willing to let me be in debt to you for the rest of my life. Savez?"

She made as if she would return it there and then, but he drew back, and shook his head, as he said:

"No, you didn't mean that. You need it or you wouldn't ask me for it. There's your train. Good-by."

Katharine had no more than time to toss the money into the drawer before the train slid down to the platform with brake-shoes smoking. There were no orders for "No. 19," but the conductor thrust his face in at the window for a word with the pretty operator. Kate forestalled his greeting with the query: "Is Mr. Rudd on the train?"

"Yes, but he's goin' on in with us."

Kate sank back into her chair with a sigh of relief. The reaction left her weak and nerveless.

When the train had gone, Katharine attacked the neglected office work with better courage. The catastrophe was staved off for the time, but a well-spring of bitterness bubbled up in her heart when she remembered that she must henceforth be her father's surety.

At six o'clock she closed the day's business, and made up the remittance for the treasurer, so that it might be ready for the night express. In counting the money for the express package she made a discovery that sent the blood from heart to brain and back again with dizzying impetus. Once, twice, thrice she went over it with trembling fingers. There could be no mistake this time. There was exactly one hundred dollars too much.

She thought she understood how it had happened. There was a one-hundred dollar note in the drawer which she had evidently overlooked in the previous countings. The joy of the discovery overcame her for the moment, but when sanity returned she went down on her knees to thank God for the reinstated belief in her father's honesty, and to beg forgiveness for having wronged him even in her thoughts.

It was late in the afternoon when Amos Dent zig-zagged his way down the Ajax trail to its debouchment at Danny's blacksmith-shop. He had had a stormy time with the Ajax people, notwithstanding the fact that he had gone

oney in hand; but the difficulty as well over, and he was beginng to wonder if Kate had diswered the shortage. He hoped t. The mineral-madness had ten out the core of his honesty, t shame survived. Moreover, assured himself that he had ly borrowed the money for a w hours. It should be replaced once, or as soon as he could find oss.

The thought had scarcely aped itself before the man himlf came out of Danny's shop ith the drill piston on his oulder. At sight of the agent e young man dropped his burn and waited.

"How're ye, Duncan?" said ent. "I was just goin' to hunt up. Can ye let me have another undred?"

"No⁺ much!" Ross replied. ou've fingered the last dollar o' ine you'll ever get a chance to. avez?"

"Why, Duncan, lad! What's e matter with ye? Ain't goin' ack on an old friend like that, e ye?"

Ross glowered down upon the eatherbeaten prospector, and was inded to lay the lash of truth ross his shoulders. But the ve of a woman restrained him.

"I ain't going to row with you, me; you ain't worth it. I said a inute ago that I wouldn't stake ou on, more, but I'll take that ack. The next time you get in hole you come to me, and keep our fingers out o' the company's oney-box. Do you catch on?"

Dent staggered as if he had een smitten. "Lord o' love!" he asped. "Has she found out?"

"No, she hain't found out, and ie didn't tell me. It's squared, nd she don't know. But the next ime——"

The old man burst into a babble. There ain't a-goin' to be any ext time, Duncan, I swear——'

But Ross had shouldered his urden and gone his way. At he bridge he shifted the drill iston from one shoulder to the ther, and glanced aside at the ittle station building. There was o light in the bay-window.

"She's gone home to get that old maniac's supper, I s'pose," he aid, faring sturdily across the bridge. "I hope she didn't count hat money before it got mixed up with the rest. If she did I'm a ruined community."

Half way through the little grove of aspens a small, gray-clad figure glided from the shadow of the trees and stood in the trail. "Is that you, Duncan?" it said.

Ross cast his burden and laughed. "By Jo, Kathie, I thought you was a 'hold-up.' What on top of earth are you doing out in the woods at this time o' night?"

"I was waiting for you. I was afraid I mightn't see you when you crossed the track."

She came close to him and thrust a bit of crumpled paper into his hand. "It's the money," she said. "I didn't need it, after all. I made a mistake, and—and I thought I'd sleep better if I gave it back to you to-night."

He caught her hand, and held it. "Say, Kathie, do you remember what I said: that when you gave it back I'd take it as a sign that you'd let me owe you for something that I wasn't trying to buy?"

The kindly darkness hid her face, and the whispering leaves of the aspens caught up her answer and made it a part of their monody. But a lover's ears are quick, and Ross took her in his arms.

"God bless you little woman," was all he said; but the melody of the eternal silences was in their hearts as they retraced their steps across the rough bridge.

"Somebody will steal your drill thing," she said, when they were on the Ashtaroth side of the stream.

"Let them," said Ross, hardily. "I'm going home with you to fight it out with Amos before I eat. He's got to hunt him a new clerk, and do it quick. Savez?"

The aviator's wife was taking her first trip with her husband in his airship.

"Wait a minute, George," she said. "I'm afraid we will have to go down again."

"What's wrong?" asked the husband.

"I believe I have dropped one of the pearl buttons off my jacket. I think I can see it glistening on the ground."

"Keep your seat, my dear," said the aviator; "that's Lake Erie."

Jonney—You wouldn't take me to be a member of one of the richest families in the city, would you?

Crosby—No, I don't think I would.

"Neither would Miss Golden. I asked her to last night."

"PUZZLES"

BY ONE OF THEIR VICTIMS

The solving of riddles, that mild gymnastic exercise of the brain, has in all ages proved equally attractive to the clever and simple, the old and the young.

In this article we hope the reader will find some fresh material with which to puzzle his friends, and thereby increase his own reputation as a man of parts.

Very simple questions, provided they be turned in a sufficiently artful manner, may prove insurmountable stumbling blocks to the cleverest brains. Who, for instance, has not heard how King James I. puzzled all the leading wits of the age by propounding to them the following: "Why is it that, when a fish is introduced into a bucket of water, already full to the brim, the water does not overflow?"

All sorts of theories, some of them very ingenious, were put forward to account for such an extraordinary phenomenon. The true solution of the problem, it need hardly be said, is very much simpler than any of those found by the wise men of the seventeenth century, on whom King James, with the pawky humor of his nation, had stolen a march, by, as the logicians would say, begging the question — assuming as fact some thing which is not true. The water in the bucket does overflow, as anybody who makes the experiment will soon discover for himself. Numerous other instances of the same kind of trick-question might be given, to which the correct answer is simply "Not true."

Other questions of a slightly different nature, but equally simple, have been known to completely nonplus persons for whom, on all ordinary occasions in life, the qualifying term stupid would be singularly inappropriate. How many of your clever friends, may I ask, will readily give a correct answer to the following question—assuming, of course, that they have not heard it or something like it before? "If a boy weighs 50lb. and half his own weight, what is the boy's weight?" The answer, naturally, is 100 lb., yet it is surprising what a number of people will glibly reply 75 lb. Here are others that may be new to some of our readers:

"Every day a yard is cut from a roll of silk 20 yards in length. In how many days will it be entirely cut up into lengths?"

"A man climbing a greasy pole 20 ft. high, mounts 2 ft. every minute, and then rests for a minute, during which he slips back three-quarters of the distance he has gained. How long at this rate would he take to reach the top?"

Need the reader be told that the answer to the first question is not 20 but 19; and to the second not 40 but 37? The man ascending the pole gains half a foot every two minutes. In 36 minutes he is, therefore, within 2 ft. of the top. At the end of the 37th minute he reaches the top and — remains there.

Here is another question involving an elememtary acquaintance with geometry:

"My room had only one small window, a foot high and a foot broad, which admitted very little light. A clever friend showed me how I might enlarge it to twice its size without making it either higher or broader. How was it done?"

The original window was diamond shaped. By making it a square window I increased neither its length nor its breadth, and yet it was exactly twice its former size.

To find the correct answers to the foregoing questions the only thing necessary is a certain amount of reflection; but there are others which cannot be disposed of so easily—which, indeed, leave the door open for troversy. Of these the following is a typical specimen.

"Suppose a man walking round a pole on the top of which a monkey is seated. As he goes round, the monkey turns round on its perch and faces him all the time. When the man has completed his round of the pole has he gone round the monkey or not?"

To most persons it would certainly appear that the man has not gone roundth e monkey, but whoever is interested in such questions will find no lack of learned authorities to prove that the man, in going round the pole, has necessarily gone round the monkey also.

"How would you demonstrate that a vessel is able to move faster than the wind by which it is driven?" At first sight the wary reader, unacquainted with nautical matters, might imagine this to be on all-fours with the query put by King James to his savants, but, as every yachtsman is aware, this is by no means the case. A ship really can sail faster than the wind. For example, it may be blowing at the rate of fifteen knots an hour though the wind, at the time, is blowing no more than ten knots. This is a fact that may be proved any day by experience; but, fact though it be, many a practical sailor would have great difficulty in giving any very clear explanation of it. It is perfectly obvious that, when the vessel is driving straight before the wind, it is out of the question to suppose that it can travel at a rate quicker than the wind is blowing — indeed,

one reason and another, its e of progression will be much s than that of the wind. hen it is sailing at an angle h the wind, however, the e is different, and then, para- xical as it must appear to ny a landsman, it may far strip the wind.

An ordinary billiard table will ffice to furnish the required monstration. Begin by lay- the long cue at one side of table from end to end. As- me now that cue, when mov- across the table by the force your arm, represents the nd. If the cue encounters a ll in its passage it will evi- ntly push it across the table, st as the wind would a vessel iving straight before it; cue d ball will travel at identical- the same speed. Imagine, wever, that a groove is cut agonally across the table om corner to corner, and that this groove the ball is laid. hen the cue encounters the ll now, it will drive it along, t directly across the table before, but towards the cor- r pocket at the end of the roove. By the time the cue as been moved from one side the table to the other the ll may have travelled diagon- ly from one end to the other nd, evidently a much longer istance. In precisely similar ashion is a tacking ship enabl- d to sail faster than the wind.

Many very excellent puzzle uestions have been furnished n connection with railways. One that is not so easy to olve as it looks at first sight s this: "At ten o'clock in the orning a train leaves Winni- peg for Calgary and travels at he rate of fifty miles an hour. At the same time another train started from Calgary for Winni- peg at the rate of forty miles an hour. Which of the trains will be nearer to Winni- peg when they meet?"

The majority of people to whom this question is address- ed—the reader is no doubt one of the wise exceptions — im- mediately begin to calculate the distance each of the two trains respectively will be from their starting-point when they meet. It is evident that the faster train from Winnipeg will have covered a good deal more than half the total dis- tance separating the two ter- minal points when it encount- ers the slower moving train from Calgary. But all this is more waste of time. The rate at which the two trains are severally travelling has no more to do with the answer that is required than the hour at which they start, nor than, as Mr. W. S. Gilbert would have it, the flowers that blow in the spring. When the two trains meet they must be at precisely the same distance from the terminal points, no matter what the dif- ference in their speeds. Should the reader understand the ques- tion at once and give a correct answer he may esteem him- self a very clever fellow indeed. Many a good man and true has ignominiously failed to main- tain his reputation for mother wit under the test.

Of a somewhat similar char- acter is another very excellent puzzle question. "Every hour in the day a train starts from Re- gina for Winnipeg. The jour- ney between the two cities is performed in exactly twelve hours. How many trains from Regina will a traveller who starts from Winnipeg at midday meet before he reaches his des- tination?"

This is the simple question to which an answer is required, but how many readers can give the correct answer? Nine out of ten people to whom the question is fresh will, without hesitation, declare that twelve is the number. The tenth ex- ceptionally wideawake ques- tionee does not overlook the fact that when the train from Winnipeg starts at midday 12 trains from Regina com- mencing with that which left Regina at midnight, are en route for Winnipeg already. Each of these 12 trains the tra- veller must meet, in addition to the twelve other trains which start from Regina at midday and every hour thereaf- ter until he himself arrives at his destination. The correct an- swer, therefore, is not twelve but twenty-four.

Some questions have the pro- perty of exasperating our nerves by their apparent simplicity yet

real difficulty. "If three snakes, forming a circle, begin to swallow each other by the tail, it is apparent that the circle gradually diminishes in diameter. When does this process cease, and what becomes of the snakes?" Let the reader see what he can make out of this.

One is inclined to say of this something analogous to the "solvitur ambulando" — "It is solved by walking" — with which some angry man cut the Gordian knot tied by Zeno, the famous old Greek philosopher, who undertook to prove that there was no such a thing as motion. "Every body must either be here or there," argued this ingenious splitter of hairs. "It is impossible that it can ever be in two places at one and the same time, therefore it is impossible that it can ever be in motion." The argument seemed and seems unanswerable, and a savage "solvitur ambulando" is perhaps as good a solution as could be found.

It is much the same with that other Greek puzzle concerning swift-running Achilles and the tortoise. While the tortoise laboriously covers ten yards, Achilles leaves a hundred yards behind him. In a race between the two, the tortoise is given a hundred yards start, and the contention of the subtle schoolmen was that Achilles, in such conditions, could never overtake his slow-footed competitor. "For," said they, "when Achilles has completed his hundred yards he has the tortoise still ten yards ahead of him. By the time he has covered this ten yards the tortoise has advanced one yard. Achilles now covers the yard separating him from the tortoise, but still finds the latter one-tenth of a yard in front. When Achilles has run this tenth of a yard, the tortoise has drawn away ahead an extra hundredth part of a yard. And so such a course of reasoning might be continued ad infinitum, demonstrating as plainly as possible that, in spite of his superior speed, Achilles will always be outdistanced by the tortoise. Clearly there is a flaw somewhere, and in practice, the whole argument would be overthrown in a few moments. It would, in fact, be "solved by running."

Something of the same kind is stated as follows: "How long would it take a man to pay off a debt of ten dollars under an arrangement such as this. He promises to pay five dollars the first month, two and a half dollars the second month, one a quarter the third month, and so on, each payment being half that of the proceding one?" As a matter of fact, the debt would never be repaid. At the end of six months he would have paid off all but 10 cents, but if he were to continue until the crack of doom there would be always a balance against him—not a large balance, it is true, but still a balance. It is assumed, of course, for the purpose of argument, that the debtor has some practical means of paying off minute fractions of a cent, and that his creditor, when the balance has almost reached vanishing point, does not take a leaf out of the book of the big drapers and suggest that a few pins would be accepted in lieu of the little difference outstanding.

Donkeys, says a Frenchman who has made a study of them, are very clever animals, and often surpass the dog. Yet, if we are to believe logical theorists, a donkey placed exactly midway between two hayricks would starve to death, since there is no reason known to these gentlemen why he should select one hayrick rather than the other. Personally we should be inclined to believe that the donkey would very soon find a way out of the difficulty, and would not remain in a position of such unstable equilibrium a moment longer than the time strictly necessary to reconnoitre the position.

There is another class of propositions which leads to very curious results, and explains away in a perfectly simple and natural manner many of those so-called extraordinary coincidences which set simple souls marvelling at the vagaries of chance. "How would you prove," for instance, "that there are at least two persons in the world who have precisely the same number of hairs on their head?" Calculate, if you are able, the largest number of hairs any one individual can possibly have on his head. If you have no data to go upon, put your estimate as high as you reasonably dare. A million is a large number, but, to make assurance, doubly sure, say, if you like that there are heads on which as many as a hundred million hairs are to be counted.

You will still be far short of the total population of the world. Once admit this, and the case is proved. If the number of individuals living exceeds but by two your largest estimate of the number of hairs on any individual's head, then must there be at least two individuals with exactly the same number of hairs. Even supposing that one individual has a head as innocent of hair as a billiard-ball, and that a hundred million possess from one to a hundred million hairs apiece, the head of the second man over your hundred million must have its exact counterpart somewhere among the rest.

In the way the continually repeated assertions of naturalists that Nature never makes any two objects—whether they be the leaves of trees or men's faces—precisely similar may be disproved, provided you can show that the differences between leaves or faces are less than the total number of leaves

or faces in existence. The population of the world living at any moment, be it remembered, amounts to a respectable number of hundreds of millions. If the number of human beings who have lived, let us say, in the past thousand years be considered, we arrive at figures so vast that the imagination cannot even grasp them. Certainly the number must far exceed any possible differences — or, rather, any difference perceptible to our gross senses—in an object so limited in size as a man's face. The inevitable conclusion, therefore, is that every person possesses or at any rate has possessed in the past at least one, probably several, doubles absolutely identical in every visible particular with himself. Uncanny as the notion is, its seems difficult to escape from the conviction that it is no mere fantastic freak of the imagination but a sober truth. Nor need the reader be reminded how effectively the fact—for fact it may be called — has been turned to account by writers of fiction in all ages, nor how frequently cases of mistaken identity are continually being exposed in courts of law.

"Charlie," said the visitor to a bright little five year old, "are you going to be a dentist, like your father, and pull people's teeth when you grow up?"

"No, sir," replied Charlie; "I am going to be a lawyer, like Uncle George, and pull people's legs."

A History of Potatoes.

The chronicle of one of the old Spanish travellers, published in 1553, says: "The people of Peur eat tuberous root, which they call papas." The Spaniards took this root to Spain, where it was grown as "the truffle root." The Italians very quickly adopted it into their gardens, and soon the Dutch were cultivating it with much the same zeal that they displayed for tulips. Of its introduction into England, all that we are sure of is that in 1586 Sir Walter Raleigh was growing potatoes in his Irish garden. Thomas Hariot, in his account of Virginia, names potatoes among the roots that were found growing there, saying that some of them were as big as a walnut, and others considerably larger. This Virginia potato seems to have been that which is now known as the Irish, while that grown in Peru is more likely to have been a sweet potato. Another writer describing the esculents of Virginia, says the potato root is thick, fat and tuberous, not differing much in shape from the sweet potato, except that the roots are not so great or long, while some of them are round as a ball, and others are oval, in the egg fashion, "of which the knobbie rootes are fastened with an infinite number of threddle strings," says the Independent.

Early in the seventeenth century Raleigh's plantation of potatoes had been repeated all over Ireland; but the farmers of England, moved by the stubborn prejuidce and possibly in part by jealousy, decided that they would have nothing to do with the tuber. Shakespeare makes Falstaff imagine that the heavens are raining potatoes upon him — an imagination which could hardly have been delightful, unless the potatoes retained their original small size. It was as late as the time of Charles II, certainly it was after the Cromwellian episode, before the potato got any fair hold in English soil.

Gilbert White, writing in 1778, says that potatoes had prevailed in his district for about twenty years, and that this had been brought about "only by means of premiums," but that potatoes were then much esteemed by the poorer people, who would scarcely have ventured to taste them in the previous reign. Another writer speaks of them as a rather questionable product — possibly to become human food, "although rather flatulent and acid for the human stomach." He recommends boiling them with dates, and thinks that such a combination would keep soul and body together, for those who are too poor to get anything better. It is probably true that left in the light after digging, they became continuously less and less suitable for food.

The story of the introduction of the potato into France has been often told. The country people were so convinced of the poisonous nature of the tuber that they would not give it a trial. Its friends were actually mobbed for trying to introduce a food that would poison the people. The story goes in two ways. One of these tells us that King Louis XIV wore potato blossoms in his button-hole, and had potatoes on his royal table, until they became popular with the aristocratic classes. Another story recounts how a celebrated physician and philanthropist planted a field of potatoes, about which he placed a guard, with instructions to allow just as much thieving as possible. The poorer people, believing a vegetable that deserved such careful, watchful care, must be of great value, stole nearly the whole of them. In this way their prejudices were overcome, and a valuable esculent added to their dietary.

Silver and Black Foxes.

The collection of silver and black foxes has been getting less year after year, still we see them coming forward into Winnipeg from the remote northern districts. Possibly the most valuable skin so far to reach Winnipeg was received by the North-West Hide and Fur Co., of this city. The skin is pure black, good size, and well furred. This same firm has already handled two black foxes this season and three silver.

For Manitoba Farmers.

The Farmers' Annual Short Course, together with the Home Economics Short Course and Convention, the Agricultural Societies' Convention and the Provincial Seed Grain Exhibition, will be conducted simultaneously again this year at Manitoba Agricultural College, commencing on Monday evening, February 12th, and continuing throughout the week. A very full program is being prepared, an outline of which will be ready for publication in a few days. This year's short courses and conventions give promise of being even stronger and better than they have been in the past, thus insuring a very profitable week to everyone interested in agriculture who may have the privilege of attending.

To Remove Tattoo Marks.—Once tattooed, always tattooed, was formerly the rule; but a French army surgeon, Dr. Tranchant, has discovered a methor of removing tattoo marks, whether made with India ink or lampblack. According to La Nature, the first process consists of rubbing the skin until a thin layer of the surface is worn away, then applying a mixture of lime, slaked just before use, and powdered phosphorus. The tattooed part having been coated with this paste, a piece of gauze is laid over it, covered with a bandage. The dressing is removed after forty-eight hours. The scab is allowed to dry in the air, and come away in about a fortnight, without leaving a scar. If any trace of the tattooing then remains, the treatment is repeated. Dr. Tranchant claims to have applied this treatment in a great many cases, with perfect success.

Old Customer: Ah! trade has altered very much—very much indeed since I was a boy.

Tradesman: Indeed, sir—in what way?

Old Customer: Why, in those days we used to buy stuff that we knew under names that we didn't know; while now we know the names all right, but I'm bothered if we know what the stuff is.

Wholesale

Some time ago in New York city, a man was awakned in the night to find his wife weeping uncontrollably.

"My darling," he said, in distress, "what is the matter?"

"A dream!" she gasped. "I have had such a horrible dream."

Her husband begged her to tell it to him, in order that he might comfort her. After long persuasion she was induced to say this:

"I thought I was walking down Broadway, and I come to a warehouse, where there was a large placard, 'Husbands for sale.' You could get beautiful ones for fifteen hundred dollars, or even for twelve hundred dollars, and very nice-looking ones for as low as a hundred."

The husband asked, innocently, "Did you see any that looked like me?"

The sobs became strangling. "Dozens of them," gasped the wife, "done up in bunches, like asparagus, and sold for ten cents a bunch."

Tommy, aged six, went fishing the other day after his mother had told him not to. The next morning one of his little playmates asked if he caught anything.

"Not until I got home," was Tommy's significant reply.

A Tip for the Boys.

A Lesson From The Cockle Burr.

We do not like them. They grab us by the leg as we walk through the fields, they put their sharp forks straight through our trousers and prick unmercifully; and yet there is something we may learn from them.

What is the secret of the cockle? By seizing every possible opportunity and holding to it in the end it accomplishes its purpose, and that purpose is to get somewhere where it can seed down more ground and grow fruit after its kind.

The cockle burr misses never an opportunity. Few men ever know an opportunity when they see it; if they do, they stand back on their dignity and wait for an introduction, which may come and it may not. The cockle lets no chance go by.

The burr sticks. Don't we know that? It sticks till we sit right down, no matter where we are and hunt the miserable thing up and throw it away. Our leg will be sore all day from the wound that wretched thing gave us in its desperate effort to hang on.

What is the reason so many stores are vacant about town? A few days ago they were open and things were going on there more or less briskly. To-day they are empty. The proprietor has dropped out. You have to get a detective to find him.

What is the matter?

Do not stick.

But is sticking all there is to it? The right time and the right place as well as the right kind of business has something to do with success. No use in setting up a news stand out on the desert of Sahara. It would be foolish for a man to think he could sell ice cream at the North Pole.

But other things being equal, it is the man that sticks that wins.

The time to sand the rails is when they are covered with ice and the wheels begin to whirl for nothing. Sit on the driver's bench now and wish the wheels would hold, and before you reach the next station, you will get a message asking why you are not making your time.

Sand the rail when the wheels begin to slip. Don't wait till to-morrow before you think of it. Stick.

The cockle scatters its seed by getting hold and sticking to it. It is the man that lets no chance go by while he is wondering whether he had better grab it or not that does the business.

Sounds funny to hear a rooster cackle in the night. Sometimes we wonder what the fool is thinking about; but he is just letting the world know that he is alive and right there.

It would be a good thing if some of us did a little crowing when people were not really expecting it. That is the secret of getting things to come our way.

MEN WHO MAKE No. 1 HARD

Continued from page 41

For stack threshing 3 cents for oats, 3½ cents for barley, 4½ cents for wheat.

I for one don't believe in crowding a machine, as I have not seen the machine yet that wouldn't throw over grain when overloaded. I have seen quite a number of different rigs, but have never been around an outfit that threshed as many bushels per day as we have read of, some brother threshermen claiming to have threshed all the way from 4,000 to 7,000 bushels per day. I would like to get around some of those outfits, and see how this is done, also the way they do it. I am very willing to learn yet, because it seems to me I have a lot to learn if threshing can be done successfully. The best day's run we had in all my experience was 2,580 bushels of mixed oats, barley, and wheat.

THRESHERMAN'S QUESTION DRAWER

Continued from page 39

explosion gets away too quick, or the back pressure during the exhaust stroke is too great by reason of constricted valve passages or too early exhaust closure.

Concerning the timing of your engine, it is neecssary that the inlet valve is open when all other ports are closed on the out stroke of the piston, so that a good mixture of air and gasoline is inhaled. Then there should be good compression and a good spark at the high compression point. The power stroke which follows should carry about 4-5ths of the outward piston stroke before the exhaust valve opens. The exhaust valve should have a sufficient area to allow a fire escape of the exhaust gases, so as to insure against back pressure.

The fly wheel may be too light to gain sufficient momentum from a single explosion to carry over the next compression.

Q. C. C. N. Will you please answer the following:

1. What h.p. will gasoline engine develop with 4½in. bore, 6in. stroke at 350 r.p.m., and at 400 r.p.m. weight of fly wheel 120lb. each, diameter 26in?

2. (a) Will 1, 2, or 3 dry cells make as strong spark as full set of 5 or 6. (b) Would increasing the number of cells make the spark any stronger or larger, or is this governed by the voltage?

3. In small engines of one or two h.p. is there any danger of getting current too strong for sparking points?

4. Which is the best for all practical purposes the 2 or 4 cycle engine, when used by the average person?

5. Which is the best for reading, studying, and general purposes, gasoline, electric, or acetylene lights, and is electric as cheap or cheaper than either of the others?

Continued on page 77

THRESHERMAN'S QUESTION DRAWER

Continued from page 76

6. Do you know of any apparatus or formula with which one could manufacture denatured alcohol for individual use without an excessive expenditure. To be used for power purposes?

7. Do you know of any company that make a power washing machine that can be run by belt? If so please give name and address.

A. Approximately 2.7 h.p. and 3 h.p. respectively.

2. (a) No. (b) Yes. The more cells the greater the voltage.

3. Yes, but in using from 5 to 8 of the ordinary dry cells there is no danger.

4. For general purposes we think the 4 cycle engine best for the average person.

5. The best of either is first class, and will give satisfaction. Where a steady current can be had, the electric is by far the most convenient, and everything considered is about as cheap in general.

6. The only method of making alcohol from raw vegetable material is by maceration and distillation which requires equipment or machinery with a capacity equal to the quantity for even domestic use for power and other purposes would require quite a little equipment and outlay.

7. There are washing machines, almost any of which can be very simply rigged up to be driven by power. Any one with a mechanical tendency can easily figure it out for you.

New Feeder Company for Canada

Information is at hand to the effect that the Pella Stacker Company, of Pella, Iowa, have made arrangements to erect a factory at Port Arthur for the manufacture of the Garden City Feeder, work to begin on the same early in the spring.

The company will have a capital stock of $200,000, with $100,000 paid up. This concern has enjoyed a very prosperous business in the United States, and as Western Canada is naturally the haven of feeders, they have turned to the Canadian West.

We wish to extend a hearty welcome to this new concern, and trust that they will enjoy a profitable business.

We are in receipt of the annual catalogue of the Massey-Harris Company, Limited.

The catalogue of general implements is resplendent with good things, and it would be well for every farmer in Western Canada to look into it.

Under the head "Farm Power" a very neat catalogue has been issued fully describing the old

line of gasoline enkine which the Massey-Harris Company sell in Western Canada. Either of these catalogues can be obtained from your Massey-Harris dealer, or from the Massey-Harris Company, Winnipeg.

When writing please mention The Canadian Thresherman and Farmer.

THINGS IMPERISHABLE

Continued from page 5

very real fruits of a healthy state of mind by simply neglecting to keep in touch with the simple conditions of right thinking.

Digging Out Information.

The purpose of The Canadian Thresherman and Farmer is to help its readers to help themselves in this respect. We have no monopoly of the commonest information. We have but our own share of wordly wisdom, and we earnestly invite the cooperation of any one who can add one little drop to the bucket.

The successful man, said Napoleon, has always been the man with the best information. There is no equipment for success, for security, for that happiness which is the fruit of the mind at rest, like clear and definite information on any subject that enters into the sphere of our responsibilities.

It is our business to help you to the most complete and the most reliable information you are groping for in your life on the farm, or, indeed, in any relationship you may care to address us upon should you not find it ready to hand in the pages of the Magazine.

What these pages may develop we cannot say, but whether it takes the form of a song or a sermon, we will spend our last effort in providing continuously things that will help, console and cheer, that will recreate and uplift the tired soul on the outlook for some quickening influence that will send him full steam ahead into every new day with an appetite for work he never knew before.

You Can If You Will.

It shall be our purpose to provide food and entertainment for every member of the household so that at the end of the day or at any time, in sickness or in health, it may become the universal feeling that one can take up The Thresherman and Farmer, find his or her own corner and never fail to appreciate something from it that will have the charm of a restorative and cure the worst "case" of worry and weariness that ever clouded a human life.

We can all do something. Most of us can do a mighty lot. May we remind you that a man may fail in a dozen different lines of activity and then succeed brilliantly in a phase wherein he

was unconscious of any ability. We must never rest content with what we are and say, "There is no use in me trying; I can never be great at anything. I am not even clever now."

But the law of reserve power stands by us as a fairy godmother and says: "There is one charm by which you can transmute the dull dross of your present condition into the pure gold of strength and power—that charm is ever doing your best, ever daring more, and the full measure of your final attainment can never be told in advance. Rely upon me to help you with new revelations of strength in new emergencies. Never be cast down because your power seems so trifling, your progress so slow. The world's greatest and best men were failures in some line, failures many times before failure was crowned with success."

Game is in Your Hands.

From the same material one man builds a hovel and another a palace. Bricks and mortar are just mortar and bricks till the builder makes up his mind what he will do with the stuff. We have all got "our circumstances," but we can, if we like, become more the creators and the architects than the blind bungling creatures of our circumstances.

There's a kink in every lot; there are lots of uncomfortable corners in every man's life, but it is marvellous how he can, if he will, not only "make the most" of these jarring elements, but make them the very stepping stones to his success and comfort, as well as the happiness of all who are associated with him. Take a lesson from the creatures as they find a way or make one for their own comfort. Look at puss and the rat in our picture. Here is a case in which a man may see that it is not only possible to have a good time in a tight corner, but where one may live on the most amicable terms with a natural foe.

This cat reared along with her kittens a baby rat that would never afterwards leave her. Both of these strange companions were alive and doing well quite recently.

The rat is over a year old and his foster mother has had other family cares in the meantime, but still they are inseparable, and likely to remain so. Let us find our happiness, as we will surely find our success in the principle of "If you'll scratch my back and I'll scratch your'n," for "life is made up not of great sacrifices or duties, but of little things in which smiles and kindness and small obligations given habitually are what win and preserve the heart and secure comfort."

Don't Fail to Renew Your Subscription Before it is Too Late.

Conducted for the benefit of Dealers, Threshermen and Farmers who have anything to sell or exchange. Three cents a word for each insertion.

FOR SALE—One 22-45 Hart Parr gasoline-kerosene traction engine, new in 1910, located at New Dayton, Alberta. Price $3000.00. M. M. Baker & Co., Peoria, Ill.

WANTED—800 bushels of first class Red Fyfe seed wheat. Must not grade less than No. 1 Hard. Must be absolutely clean. Samples must be submitted and entire lot must be up to sample. Address W. M. Bundy, Terre Haute, Indiana.

FOR SALE—Reeves Plowing outfit 40 H. P. C. C. Engine with balance valves, steam guide and all steel gear running in oil. 16 bottom steam lift plow. All in first class condition and for sale at a price that will interest you. Campbell Bros. Warner, Alta.

CANARIES FOR SALE—A large selection of strong, healthy, vigorous birds, both Western and imported varieties, magnificent songsters. Prices and descriptions on application. C. Symmonds, Druggist, Invermay, Sask.

ENGINEER MACHINIST—Wants position in Manitoba for threshing season. Can do own repairing and capable of keeping engine in first class shape. State wages, wire or write J. T. H. c/o The Canadian Thresherman and Farmer, Winnipeg.

BUYERS ATTENTION.

THE GEORGE WHITE & SONS COMPANY, LIMITED, BRANDON, MAN.

ENGINES

2—25 H.P. White tractions thoroughly rebuilt and in good shape, each.... $1600.00

Second Hand

1—16 H.P. American Advance traction..$ 700.00
1—18 H.P. Minneapolis traction.....$ 600.00
1—20 H.P. Brandon Cornell, Portable..$ 400.00
1—20 H.P. White traction.....$1200.00

SEPARATORS—Second Hand

1—Altman & Taylor 28x50, all attachments.....$400.00
1—40x62 Waterloo separator, all attachments.....$400.00
1—36x60 Goddison separator, all attachments.....$300.00
1—36x60 American Abell, all attachments.....$325.00
1—30x56 Felshie separator, all attachments.....$300.00
—2—32x56 Great West Separator; all attachments.....$200.00
1—36x56 Great West Separator, all attachments.....$200.00
2—White Challenge separators, thoroughly rebuilt, all attachments, each.....$900.00

Write us re new goods—We have the best.

FOR SALE—Complete Threshing and Plowing outfit: J. I. Case, 25 H.P., steam engine, Gaar-Scott 33-52 separator and 10-14 inch Cockshutt independent breaker engine plow. Good shape. Apply Fairview Land Co., Osage, Sask.

WANTED—Experienced thresher salesman for immediate work. None but good men need apply. Address, R. B., Box 3079, Winnipeg, Canada.

BROTHER—Accidently discovered root will cure tobacco habit and indigestion. Gladly send particulars. H. H. Stokes, Mohawk, Fla.

SALESMEN WANTED—Threshermen or engineers to sell oils, greases, belts, packing, lacing, paints, etc. First-class opportunity for first-class men. O. L. Doty, Cleveland, Ohio.

FOR SALE—Two portable steam engines, 12 and 16 H.P., also two separators, 30 Bell City and 36 Sawyer Massey, all in good shape. $150 each. Must be sold. G. T. Grant, Ituna, Sask.

LICENSED ENGINEER MACHINIST (not a throttle puller) would like a plowing or threshing engine this season. State wages. Apply Box C. K., care of The Canadian Thresherman and Farmer, Winnipeg.

SEPARATOR MAN WANTED to operate Nichols Shepard machine. Must be experienced. Apply, stating wages wanted, to J. W. Wallace, Pilot Mound, Man.

WANTED TO RENT—A 25 H.P. engine and 36 x 60 separator for threshing season. State terms. Apply Box C. K., care of The Canadian Thresherman and Farmer, Winnipeg.

WANTED—Position as separator man. Sask. preferred. Have had 12 years experience. State full particulars. Jas. Jackson, Box 101, Dundalk

WANTED—Position as Engineer for fall 1911, 16 years' experience, six seasons in Manitoba; have certificate for Ontario, can do own repairing and a hustler. Apply stating wages to Alfred Adair, Terra Nova, Ontario.

WANTED NOW—Reliable men to sell a selected list of hardy Russian fruit trees, ornamental trees and shrubs, forest seedlings, raspberry and current bushes, seed potatoes, varieties recommended hardy by the Brandon and Indian Head experimental farm; 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 Cockshutt gang or will exchange on land. For particulars apply D. Ruse, Bradwardine, Manitoba.

FIREMAN wants position on Steam Plowing or Threshing engine, preferably in Sask. In replying please state wages and probable length of run. Geo. Meilke, Blanche P. O., Que.

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 Wilson, Murray County, Minn., U. S. A.

FIREMAN—Wishes position. One year's experience. Can make good on a Plowing Outfit H. O. Lovedey, Wascca, Sask.

WANTED—Persons to grow mushrooms for us in waste space in gardens, yards, sheds or cellars, $15 to $30 per week. Send for illustrated booklet and full particulars. MONTREAL SUPPLY CO'Y, Montreal.

FOR SALE—10-14 inch Cockshutt independent engine plows breaker bottoms. Only plowed 1500 acres. In good shape. Have no further use for them as farm is all broken out. Fairview Land Co., Osage, 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, Summerberry, 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 $1800.00. 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.

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 Glennie & Rodger, Macdonald, Man.

WANTED—Position as engineer, strictly temperate; have had considerable experience and can furnish references. State wages and make of engine. Address Andrew J. Johnson, Killarney, Man

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.

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.

WANTED—First class blacksmith on plow outfit, near Lethbridge, Alta. Must give reference. Address Kessler Bros., 1513 North Main Str., Dayton, Ohio.

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.

WANTED—Position as Steam Engineer for spring breaking season. Fifteen years experience. Fully qualified in any province. Best of references furnished. Can handle any make or style of engine. Address, O. A. Halt, 93 Dagmar St., Winnipeg, Man.

FOR SALE—Threshing machine, also engine gang plow. For particulars apply to W. L. Barker, Box 1711 Calgary.

WANTED—Catalogues of Steam and Gasolene Threshing and Plowing Outfits. Address G. H. Lewis, Cosy Nook, Sask.

FOR SALE—Massey-Harris warehouse in good town near Saskatoon. Agency guaranteed to first-class man. Apply care of Canadian Thresherman and Farmer.

"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 155, Wellwood, Man.

FOR SALE—Acetylene Headlight, new, also good supply of carbide. A. E. Powell, Box 155, Caron, Sask.

FOR SALE OR TRADE FOR GOOD LAND—One 35 H.P. Double Cylinder Steam Engine with 10 Bottom Cockshutt Plow. All in first class shape. Elias Gjertson, Warren Man.

WANTED—Position on steam plowing outfit, firing preferred, experienced. Frank Campbell, Marquette, Man.

FOR SALE—Two useful English Bu Bitches, good blood, good breeders, pedigrees, photos, etc. M. Cochran, Imperial Bank, Winnipeg.

FOR SALE—Imported English Bull Dog, "Lucky Bargee," big winner, Winnipeg Winter Show 1911—Cheap. M. Cochran, Imperial Bk. Winnipeg.

WANTED—Position as Engineer on steam traction outfit for threshing or would take both ends. Can do own repairing. Nine years experience. Best of references and certificate for Sask. Am strictly temperate. Address E. F. Sharpe, Maple View Ont.

FOR SALE—A Maurer's Standard Belt Hay Press. Capacity 20 tons. In good order. Price $200. Apply E. H. Snyder, Box 137 Camrose, Alta.

WANTED—Position on plowing engine for summer as fireman. Am holder of diploma from Heath School of Engineering, by correspondence, and could run engine if necessary. Would prefer to work in Saskatchewan. Apply stating wages to H. E. M'Mahon, Box 11, Kinley, Sask.

FOR SALE—Avery 1911 model 30 h.p. Alberta special under-mounted engine, equipped for plowing. Cockshutt engine gang 8 bottom. Both run 8 days. Also new 36 x 60 Avery separator, with feeder and blower. All 3 for $3,800.00 cash. No trade considered. Davy C. Purfurst, St. Paul Minnesota

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, abstainer, and pusher, have Alberta and Saskatchewan applications, papers. W. Z. Bayley, Hamilton, Ont., 35 Smith Ave.

FOR SALE—Small separator complete with all attachments. $400 cash. Box 13, Welby, Sask.

WANTED—Gasoline Tractor, Separator, and Plows, one or all. Write giving Make, Size, Age, Price and terms to Box 81. Dayslend, Alta.

FOR SALE—Emerson eight bottom engine gang in good running order. Will quote a price so low that one can afford to ship any distance. C. I. Mahood, New Dayton, Alta.

FOR SALE

	No.
15 Horse Case Simple Portable Engine	20540
15 Horse Case Simple Portable Engine	15833
15 Horse Compound Portable Engine	13426
18 Horse Simple Traction Waterloo	323
16 Horse Portable Sawyer-Massey	8299
20 Horse Portable Sawyer-Massey	1419
20 Horse Simple Traction Sawyer-Massey	1116
20 Horse Compounded Traction Engine, Case	7936
20 Horse Simple Traction Engine	" 17721
20 Horse Simple Traction Engine	" 16912
32 Horse Simple Traction Engine	" 19019

J. I. CASE, THRESHING MACHINE COMPANY, Winnipeg, Canada.

FOR SALE

One 15 H. P. Case Traction Engine, with or without 28x50 separator. For sale or exchange with a Gasoline Traction Engine.—William Brayshay, Kelloe P. O., Man.

FOR SALE

SECOND-HAND AND REBUILT MACHINERY.

Two 25 H. P. Simple J. I. Case engines.
One 15 H. P. Simple J. I. Case engine.
One 18 H. P. Compound J. I. Case engine.
One 15 H. P. Compound J. I. Case engine.
One 32x54 Wood Case separator.
One 28x50 steel Case separator, with wind stacker, self feeder and weigher.

J. I. CASE THRESHING MACHINE CO., Calgary, Alberta.

BARGAINS

1—32 H.P. Port Huron engine, rebuilt and in first class shape.
1—American-Abell 20 H. P. engine, rebuilt.
1—Minneapolis Separator 44x72, rebuilt. With all connections.
1—32x54 Avery Separator complete, just rebuilt.
1—36x60 Avery Separator to be rebuilt complete.
2—Avery 30 H. P. double undermounted engines.
1—30 H. P. Northwest 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.

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—By holder of second class certificate position as engineer; have also good knowledge of gasoline engines. Address care of Box 148, Oxbow, Sask.

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 25 h. p. direct flue, Simple, heavy gear traction engine.

One 21 h. p. Compound, return flue traction engine.

One 18 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.

FOR SALE

30 H. P. American-Abell Sim. Trac.	$2500.00
26 H. P. American-Abell	1700.00
26 H. P. John Abell Sim. Trac.	1200.00
22 H. P. American-Abell Sim. Trac.	1500.00
22 H. P. American-Abell	1200.00
22 H. P. American-Abell Cross Comp.	1200.00
22 H. P. American-Abell Simple	1500.00
22 H. P. American-Abell Simple	1500.00
28 H. P. American-Abell Cross Comp.	2500.00
18 H. P. American-Abell Simple	1000.00
18 H. P. American-Abell Simple	1000.00
18 H. P. John Abell	900.00
18 H. P. Advance Comp. Traction	1000.00
18 H. P. Advance Comp.	1100.00
10 H. P. Minneapolis Comp. return flue	1000.00
20 H. P. American-Abell Portable	800.00
18 H. P. American-Abell	800.00
14 H. P. American-Abell	800.00
36x60 Tor. Adv. Sepr., 36 inch Parsons feeder	575.00
36x56 Tor. Adv. Sepr., 36 inch Parsons feeder, 56 inch Maple Bay Windstacker Perfection E. Wr. & W.L.	700.00
40x56 Advance Sepr., 40 inch Advance feeder, Advance Wr. & W.L.	550.00
36x60 Toronto Advance Sepr., 36 inch Parsons feeder, Straw carriers	575.00
36x60 Toronto Advance Sepr., 36 inch Parsons feeder, 60 inch A-A Windstacker, Perfection E.W. W.L.	750.00

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.

AMERICAN-ABELL ENGINE & THRESHER CO., LTD., WINNIPEG.

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.

BOYS AND GIRLS—Send us your name and address on a postal card. We will show you how to earn $10 and up every month, after school hour Avallone Co., Inc., 2057 E. Addson Ave., Chicago, Ill.

WANTED—Engine gang six or eight bottoms must be in good repair. Box 70, Morse, Sask.

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 Young, Mapleton, Man. Apply to Manitoba Bridge and Iron Works, Winnipeg, Man.

FOR SALE

Two four bottom Moline engine gangs with breaker bottoms and extra shares, price, $160.—J. Hansford, Fairlight, Sask.

FOR SALE

We have on hand at present a very full line of Rebuilt and Second-hand Engines and Separators which we are offering at attractive prices. Write us fully what you are thinking of buying, when we shall be pleased to tell you what we have and quote prices. All our rebuilt goods are sold under same guarantee as new ones and of course are carefully repainted and look exactly like new. If you write us at once we are sure to have the size you almost want.

We also have a thoroughly Rebuilt Saw Mill Outfit consisting of 25 H. P. Saw Mill Engine and Portable Saw Mill with carriage and track complete. Can hardly be distinguished from new goods Will be sold at a bargain.

SAWYER-MASSEY COMPANY, LIMITED Winnipeg, Man

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.

A—ALBERTA PORT HURON CO., Calgary, Alta.
1—AMERICAN—ABELL ENGINE & THRESHER CO., Winnipeg, Calgary and Edmonton.
2—AMERICAN SEEDING MACHINE CO., Winnipeg.
3—BAILEY SUPPLY CO., Winnipeg.
4—BEEMAN MFG. CO., Winnipeg.
4½—Bell B., & SONS, Winnipeg.
5—BELL ROBT., ENGINE & THRESHER CO., Winnipeg.
6—BRANDON MACHINE WORKS, Brandon.
7—BRANDON PUMP & WINDMILL WORKS, Brandon.
8—BRANDON & ROBERTSON, Brandon.
8½—BUFFALO PITTS CO., Moose Jaw, Sask.
9—BURRIDGE-COOPER CO., Winnipeg.
10—CANADIAN FAIRBANKS CO., Winnipeg, Calgary, Saskatoon, Vancouver.
11—CANADIAN MOLINE PLOW CO. Winnipeg.
12—CANADIAN PORT HURON CO., Winnipeg.
13—CANADIAN RUBBER CO., Winnipeg, Vancouver.
14—CANADIAN STOVER CO., Brandon.
15—CARBERRY IRON & WOOD WORKS, Carberry.
16—CARBERRY STACKER CO., Carberry.
17—J. I. CASE T. M. CO., Winnipeg, Regina, Calgary.
18—CHAPIN CO , Calgary.
19—COCKSHUTT PLOW CO., Winnipeg, Regina, Calgary, Edmonton
20—CRANE & ORDWAY, Winnipeg.
21—DEERE, JOHN PLOW CO., Winnipeg, Regina, Calgary, Edmonton, Saskatoon.
22—DE LAVAL SEPARATOR CO., Winnipeg.
22½—DOMINION SPECIALTY CO.,
24—EMPIRE CREAM SEPARATOR CO., Winnipeg.
26—GAAR, SCOTT & CO., Winnipeg, Regina, Calgary.
26½—GAS TRACTION CO., Winnipeg.
25—GOODYEAR TIRE & RUBBER CO., Winnipeg, Regina, Calgary.
27—GRAY-CAMPBELL CO. Winnipeg, Brandon, Moose Jaw, Calgary.
27½—HAMILTON PULVERIZER CO., Winnipeg.
28—HAUG BROS. & NELLERMOE, Winnipeg and Calgary.
29—HARMER IMPLEMENT CO., Winnipeg.
30—HART-PARR CO., Portage la Prairie.
32—HERO IMPLEMENT CO., Winnipeg.
33—INTERNATIONAL HARVESTER CO., Winnipeg, Regina, Calgary, Edmonton, Saskatoon, Brandon.
34—LOUDEN HDWE & SPECIALTY CO., Winnipeg.
35—MANITOBA HAYES PUMP CO. LTD., Morden.
36—MANITOBA IRON WORKS, Winnipeg.
37—MANITOBA WINDMILL & PUMP CO., Brandon.
39—MASSEY-HARRIS CO., Winnipeg, Regina, Calgary, Edmonton, Saskatoon.
40—MAW, JOS. & CO. LTD., Winnipeg.
41—McKENZIE, A. E., Brandon.
42—McLAUGHLIN CARRIAGE CO. Winnipeg.
43—McRAE, ALEX., Winnipeg.
44—MELOTTE CREAM SEPARATOR CO., Winnipeg.
45—NEEPAWA MFG. CO., Neepawa.
46—NICHOLS & SHEPARD CO., Regina, Winnipeg.
47—NORTHWEST THRESHER CO., Brandon.
48—ONTARIO WIND ENGINE & PUMP CO., Winnipeg.
49—PARIS PLOW CO., Winnipeg.
51—PARSONS-HAWKEYE MFG. CO., Winnipeg.
52—PETRIE MFG. CO., Winnipeg, Calgary, Vancouver.
53—RAYMOND MFG. CO., Winnipeg.
54—REEVES & CO., Regina.
55—RENNIE, WM. SEED CO., Winnipeg.
56—RIESBURY PUMP CP., LTD., Brandon.
57—RUMELY, M. CO., Winnipeg, Calgary, Saskatoon, Regina.
58—SAWYER & MASSEY CO., LTD., Winnipeg.
59—SHARPLES SEPARATOR CO., Winnipeg.
60—STEELE-BRIGGS SEED CO., Winnipeg.
91—STEWART & NELSON CO., LTD., Brandon.
62—STEVENS, JOHN & CO., Winnipeg.
62a—STUART, JAMES, ELECTRIC CO., Winnipeg.
62b—SUB-SURFACE PACKER CO., Winnipeg.
63—SYLVESTER MFG. CO., Brandon.
64—TUDHOPE-ANDERSON CO., Winnipeg, Regina, Calgary.
65—VIRDEN MFG. CO., Virden.
66—VULCAN IRON WORKS, Winnipeg.
67—WATERLOO MFG. CO., Winnipeg, Regina.
68—WATEROUS ENGINE WORKS, Winnipeg.
69—WATSON, JNO. MFG. CO., Winnipeg.
70—WHITE, GEO. & SONS, Brandon.
71—WINNIPEG RUBBER CO., Winnipeg.
72—WINNIPEG THRESHING MACHINE CO.

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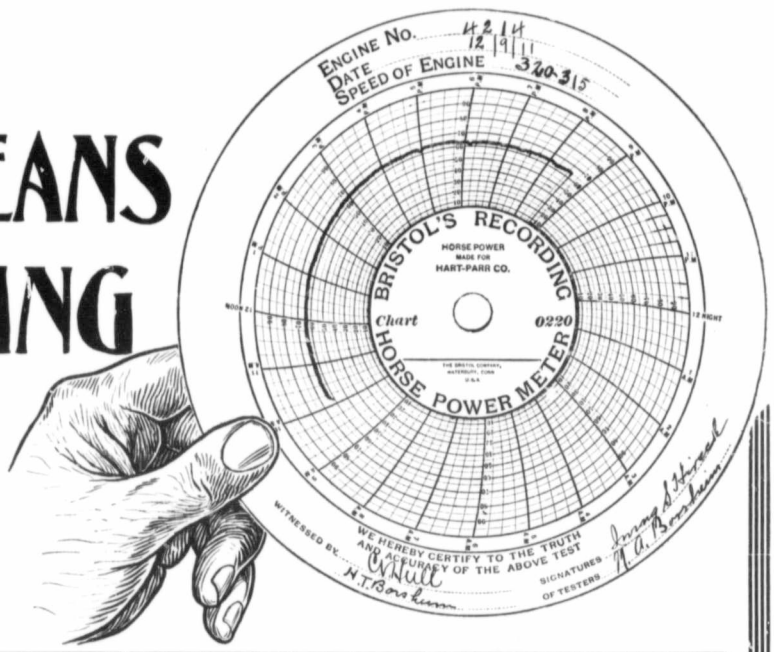
A TEST THAT MEANS SOMETHING

63-65 H.P. for over 10 continuous hours with a 60 H.P. Hart-Parr Tractor



How Hart-Parr Tractors are Tested

SOON after we began building tractors we began to see the need of some scheme of testing them that would make them carry a heavy load for hours at a stretch; because, in the field they are required to do that very thing.

Brakes Throw Away Power.

Any sort of brake or fan is a mere waster of power. It wastes lots of money to run a 40 or 60 horse power engine 8 or 10 or 20 hours on a brake, and then throw the power away. Besides, the men running the brake or fan test feel free to start and stop the engine as often as they choose, because nothing is dependent on the continuous operation of the engine. So that it is impossible to keep the engines running under heavy load for hours at a stretch; and no one does it where they use a brake or fan for testing. They run the engine for an hour or two, and if everything works smoothly, they take it out and paint it and ship it.

Engines Furnish Factory Power.

We required considerable power to operate our works, and as our works grew, the power demands grew. We therefore conceived the idea of belting each engine to a dynamo, and by loading the dynamo furnishing a convenient load for the engine. Then instead of wasting the current from the dynamo, we installed electric motors all over our works and ran the motors (and our shop machinery) with current from the dynamos in the testing plant. Thus our testing plant became our power plant.

No Field-Test Can be more Exacting.

This is the best example of the "conservation of energy" in the world, and the system originated in our works. It practically costs us nothing to give our engines long, severe tests. Therefore we can afford to do it; and it assures every customer of ours that his engine has been thoroughly tested before it leaves the works. There is no sham about such a test. When an engine is belted up to a dynamo **it must go**, and keep going for hours at a stretch; it cannot be stopped for any trivial reason. And this is just what it must do in the field. So that, as nearly as possible, they are tested under field working conditions.

Automatic Indisputable Record.

But we were not satisfied even with this kind of a test, until we had installed automatic recording instruments that made a continuous record of the load carried by each engine every minute of the time it was in the testing plant. This record is made by a pen, actuated by electrical mechanism, on a circular chart, which is revolved by clock work. The illustration above shows such a load record for over ten hours, with one of our 60 BHP engines. We do not expect any engine to be worked as hard as this all the time. But it simply shows what this 60 h.p. engine can do under continuous heavy load conditions, when necessary. And every 60 h.p. engine we turn out can do as well, whenever necessary. Do you wonder that we have confidence in them? Do you wonder that they "make good" in the field under the most strenuous conditions? We don't guess at what they can do in the field, **we know** it; because we know what they have done before they left out works.

Twenty to Fifty Hours on Trial.

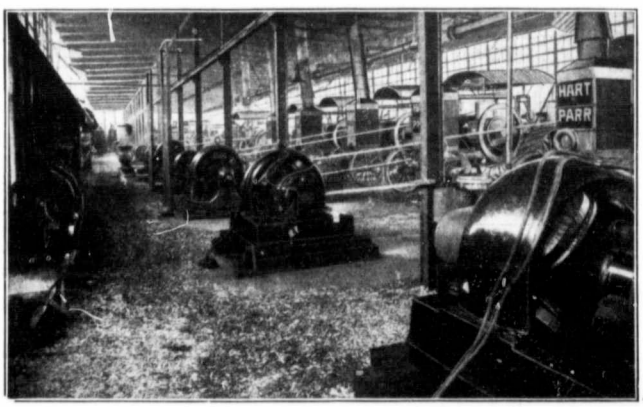
Every tractor we build must spend many hours in the Power & Testing Plant—sometimes 20, sometimes 50 hours—it cannot be shipped otherwise. And before it is released from there it must make a "maximum load run," carrying a steady load well in excess of its rated power. So that when you buy a Hart-Parr Tractor you are absolutely sure that it has been given the most exacting factory test that can possibly be devised, and has "made good."

Buyer Gets Blue Print Fac-Simile.

These autographic records, for the entire time under test, are filed away with the records of each particular engine, and can be referred to at any time. Furthermore, we will hereafter furnish a blue print of the final load record of each engine to the purchaser of that engine.

The Illustration taken in Testing Department.

The lower illustration shows a part of the interior of our Power and Testing Plant. This building is 330 feet long, built of steel and concrete. It keeps 9 or 10 of these testing sets going all the time to furnish power for our works. The building will hold 21 such sets. When we require more power, we will be building more engines, and hence will have more engines to be tested. So we will install some more dynamos. Simple enough, isn't it? And yet how comprehensive, how certain to produce the best possible results. We are the only builders that give their Tractors such continuous, exacting tests. Others cannot afford it unless they copy our system.



Cheap Kerosene Used.

All our engines are tested on low grade kerosene (kerosene distillate), which now costs only 3.4 cents per gallon, delivered at our works in tank cars. We have built nothing but kerosene tractors ever since 1906.

We are the originators of the Kerosene Tractor.

A Cordial Invitation.

We wish every prospective customer could visit our works, and see not only how we test our engines, but how we build them in the first place. See the care that is taken in every detail of the work; see the perfect **system** that prevails everywhere. He could then understand why we can build tractors of such high quality, such certainty of performance, and sell them at such reasonable prices. We cordially invite you all to come, if you can possibly do so. If you cannot come, write us, and let us send you our 1912 catalog. It is brim full of information about our tractors and the advantages of "Horseless Farming."

HART-PARR CO.

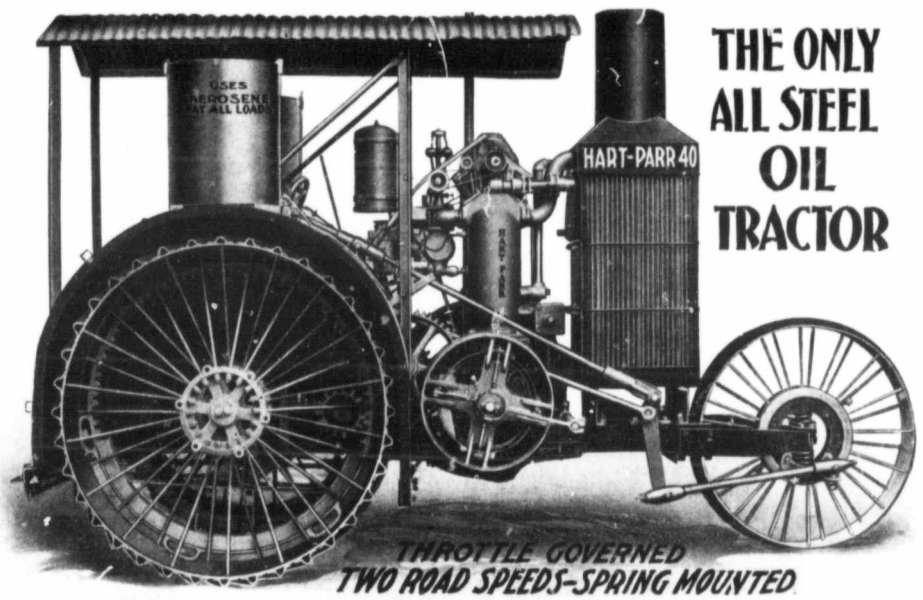
30 Main Street Portage la Prairie, Man.

Regina and Saskatoon, Sask.

The CHAPIN CO., Calgary, Agents for Alberta.

Hart-Parr 40 B.H.P. Oil Tractor

A MODERN FARM HORSE FOR MEDIUM SIZED FARMS



WILL DO MORE WORK, WITH LEST COST FOR REPAIRS THAN ANY TRACTOR BUILT.

Specifications.

CYLINDERS.—2 Vertical cylinders 8 bore, 12" stroke, speed 400 R.P.M. A long stroke, moderate speed motor—the most efficient and durable kind. Hemispherical cylinder heads cast on, valve cages ground to seats—no packing. Cylinders off-set 2½ from center line of crank shaft, making engine very easy to start.

Crank Shaft.—A pressed steel forging of special carbon steel, annealed and oil tempered—tough and dependable. 3½ diameter in main bearings; crank pins 4 diameter. The strongest crank shaft used in any motor of this size.

Connecting Rods.—Steel drop forgings, can be bent double without breaking. Caps bolted on with extra large Vanadium steel bolts.

Bearings.—Crank shaft and crank pin bearings extra long, of white bronze, in the form of half bushings—easily replaceable. **Ball Bearings** on cross shaft. Differential shaft and rear axle bearings are long phosphor bronze sleeves, having bearing surfaces on both sides. All truck bearings protected by dust collars. You must see these bearings to appreciate their perfection The most perfect bearings ever used on a tractor; an original Hart-Parr design, and **found on no other tractor.**

Lubrication.—Our new system of selective spray lubrication supplies an abundance of lubrication to all parts of the motor without special lubricators of any kind. The acme of simplicity. Just keep a proper amount of oil in crank case—the motor does the rest. Force feed ubricators for gear train.

Gears.—Every gear (except one) of steel; all high speed gears have machine cut teeth—perfect in shape, noiseless in operation and wear longest. "Planetary" reverse, enables us to use a single operating lever—the only way it can be done.

Driving Wheels.—73 diameter, 20 face. Built up of steel—even the hubs are steel. Our wave form lugs riveted to tire. They get a wonderful grip on soft ground, without packing the soil injuriously. Has less slippage than any other driver, and **used only by us.**

Ignition.—Two complete and separate systems of "jump spark" ignition. Dry battery with "single spark" coils, and also powerful magnetic (capable also of operating electric headlights) with separate coils. Between the two you always have a good spark.

2 Rates of Travel.—2.2 and 4 miles per hour. Meets every requirement of farm and road work. Most other tractors are speeded much slower in order to make a big showing in the number of plows pulled. **The acres plowed** and the **quality of the work** is what counts.

Ratings.—Guaranteed to develop 40 brake horse power; and under favorable conditions, 27 "draw-bar horse power;" will replace 17 to 20 horses.

Fuel; Kerosene, Of Course.—All Hart-Parr Tractors use kerosene, and have used it for five years. We originated the Kerosene Tractor in 1906, and have sold nothing but Kerosene Tractors ever since. If kerosene were not the best fuel to use, all our competitors would not be trying to build Kerosene Tractors.

PRICE--The Same to Everyone--$2,600 F.O.B. Portage la Prairie, Man.

A LIBERAL DISCOUNT FOR ALL CASH

Our "Square Deal" plan is: One price to Everyone, when purchased on the same terms. One man's money looks just as good to us as another's.—We have no favorites.

Read the specifications, compare them with others, and you will see that we give you MORE for YOUR MONEY than you can get elsewhere. We can do this because of our great manufacturing facilities, where SYSTEM and QUALITY makes for low cost and high quality. WE EVEN OWN AND OPERATE OUR OWN OPEN-HEARTH STEEL FOUNDRY—No other tractor builder does. That is why we can build tractors of STEEL, and sell them at such low prices.

Our Sales Policy eliminates all large dealer's profits.—We pay agents only for service rendered.

REMEMBER ALSO—"HART-PARR SERVICE" follows our tractors wherever they go. We have large repair stocks at all large farming centers, and our experts are always at your command. You will not have to lie idle days or weeks waiting for repairs or expert if you buy a Hart-Parr.

These are only a few of the reasons why you should buy a Hart-Parr. Our 1912 Catalog tells you many more. Shall we send it?

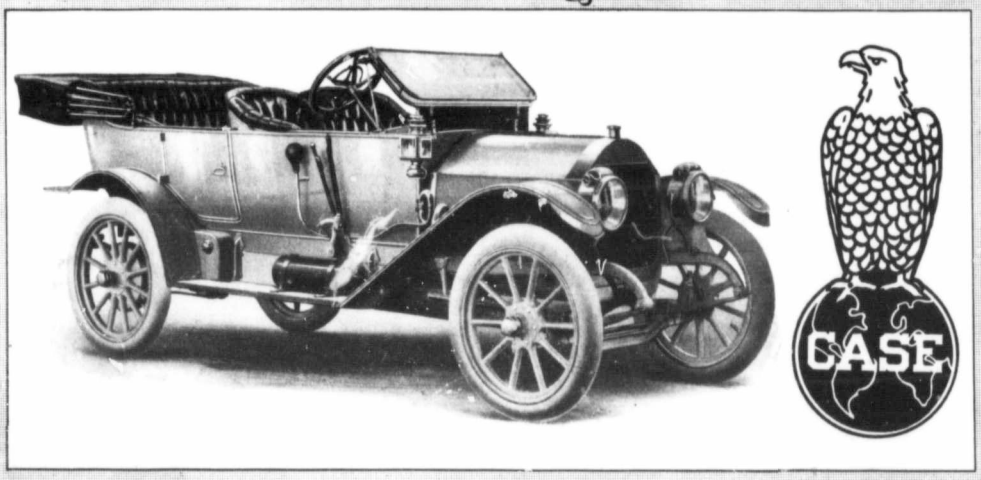
We also Build a 30 H. P. a 60 H. P. and an 80 H. P. Tractor.—We can fit your requirements.

HART-PARR CO., 30 Main Street, Portage la Prairie, Man.

Regina and Saskatoon, Sask. *The Chapin Co., Calgary, Agents for Alberta*

We've Picked Out An Automobile For You

A Car So Useful It Pays For Itself



A Run For Life

A short time ago a serious accident occurred on a farm—many miles from the nearest Doctor's residence. A Doctor was needed quickly to save a Human Life. No hope of being able to drive the distance and bring back assistance in time. The injured man's family looked on in desperation. A neighboring farmer passes in his Case Automobile, takes in the situation at a glance, throws on the power and is away like the Wind. Never faltering under the unusual strain, never missing a stroke, with never a slip or stop, the trip is made—the Doctor brought—and a life saved. You'll be surprised how much more you can accomplish, how much time you can save, how much more ground you can get over with a Case automobile on the farm. Most every Case owner can make his machine pay for itself.

Follow Experience And You Can't Go Wrong

For 70 years the Case trade-mark has stood for ***dependable*** machinery. We could not afford to jeopardize a reputation that has taken 70 years in the building by placing that trade-mark on anything but a ***dependable*** automobile—dependable to the limit of Human ingenuity. All we had learned in 70 years was applied to picking out a car you could depend upon—a car that represented the best the world afforded in an automobile. You have that car in the Case—a car built to stand not only the hard wear of every-day usage, but with a reserve power sufficient to see you safely through sudden emergencies and unusual strains—a car beautiful in finish—a stylish car, with the best materials and the best of everything throughout. Then there is the Case service that goes with every Case car—ten thousand agents throughout the United States and Canada who are equipped to take care of your needs and help you to get the best out of your car You find them where ever you go, good fellows every one of them, always ready to serve a Case owner.

Send us your name on post card and we'll send you our new automobile catalog and the name of a Case agent in your vicinity who will take you for a ride.

J.I. CASE THRESHING MACHINE Co.

INCORPORATED

RACINE, WISCONSIN, U.S.A.

CANADIAN BRANCHES, TORONTO, WINNIPEG, REGINA & CALGARY