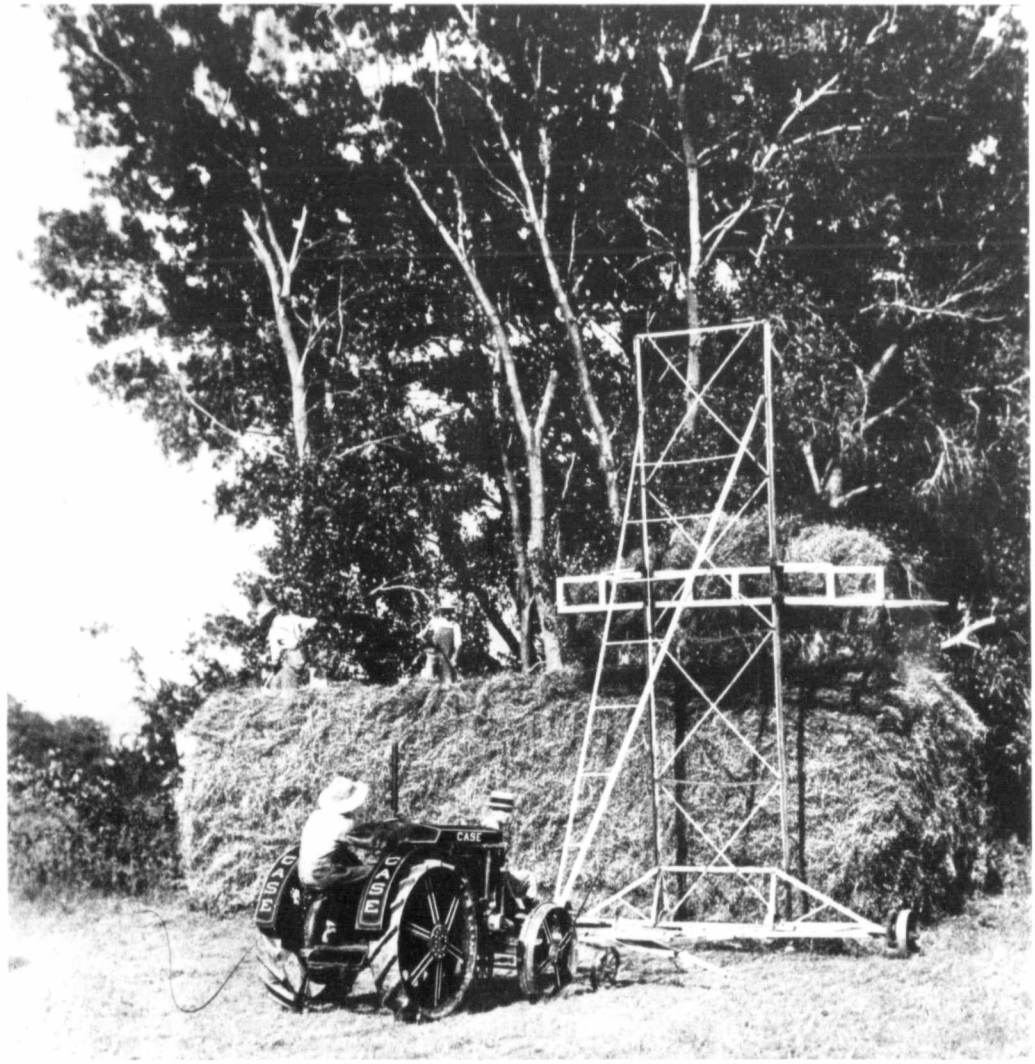


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The CANADIAN THRESHERMAN AND FARMER

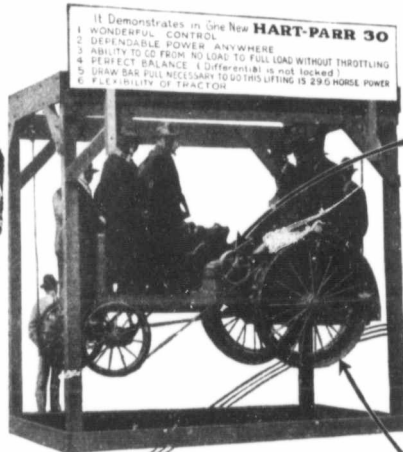
WINNIPEG CANADA
JULY
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Published Monthly by E. H. HEATH CO. LIMITED - Our Seventeenth Year

Can you lift yourself by your boot-straps?

The New Hart-Parr Can



It Demonstrates in the New **HART-PARR 30**
 1. WONDERFUL CONTROL
 2. DEFENDABLE POWER ANYWHERE
 3. ABILITY TO GO FROM NO LOAD TO FULL LOAD WITHOUT THROTTLING
 4. PERFECT BALANCE (Differentiated in not needed)
 5. DRAY BAR FULL NECESSARY TO GO THIS LIFTING IS 29.6 HORSE POWER
 6. FLEXIBILITY OF TRACTOR

What the Tractors Really Pull
 The Belt Horse Power Tests of 1916-1919

NAME	Rating	Engine	Coal	Oil, 1918	Coal, 1919	Oil, 1919
Hart-Parr	30	Ker.	28.0	33.0	31.1	37.5
F. H. O.	14-20	Ker.	25.0	25.0	25.0	25.0
Hawell	20-40	Ker.	25.0	25.0	25.0	25.0
Colman-Taylor	15-30	Ker.	25.0	25.0	25.0	25.0
Wallis	15-25	Gas	25.0	26.9	25.0	25.0
Case	15-27	Ker.	25.0	25.0	25.0	25.0
Shiloh	9-18	Gas	26.5	21.2	25.7	25.0
Hubely	12-20	Ker.	25.0	25.0	25.0	25.0
Frank	12-25	Ker.	25.0	25.0	25.0	25.0
Heenan	12-24	Ker.	25.0	25.0	25.0	25.0
Titan	10-20	Ker.	24.0	25.0	25.0	25.0
Waterloo Bn.	12-25	Ker.	24.0	25.0	25.0	25.0
Emerson	12-20	Ker.	20.0	21.4	24.7	25.0
Steel Mfg.	12-20	Ker.	20.0	21.4	24.4	25.0
Nelson	16-33	Ker.	21.4	25.0	25.0	25.0
Paty-H	12-25	Ker.	24.0	25.0	25.0	25.0
Haber	12-25	Ker.	24.0	25.0	25.0	25.0
Lauson	12-25	Ker.	22.6	25.0	25.0	25.0
London	11-22	Ker.	20.0	25.0	25.0	25.0
Mercil	10-20	Ker.	20.0	25.0	25.0	25.0
San Jocky	10-20	Ker.	19.5	25.0	25.0	25.0
Die	12-25	Gas	18.0	25.0	25.0	25.0
Cleveland	12-20	Gas	18.7	25.0	25.0	25.0
Case	10-18	Ker.	18.0	25.0	25.0	25.0
Shelby	9-18	Ker.	18.0	25.0	25.0	25.0
Bull	12-24	Ker.	18.6	25.0	25.0	25.0
Avery	12-25	Ker.	17.6	25.0	25.0	25.0
Happy Farmer	12-24	Ker.	14.2	25.0	25.0	25.0
Whitney	9-18	Gas	17.5	25.0	25.0	25.0
Heider	8-16	Ker.	16.0	25.0	25.0	25.0
Avery	8-16	Ker.	16.0	25.0	25.0	25.0
Fort Huen	12-25	Ker.	16.0	25.0	25.0	25.0

Proves 29.6 horsepower at rim of rear wheels

ONE HORSEPOWER IS 33,000 POUNDS RAISED ONE FOOT IN ONE MINUTE. THE NEW HART-PARR 30 IN THE PICTURE WEIGHS 5,185 POUNDS, THE 12 MEN WEIGH 2,215 POUNDS, MAKING A TOTAL WEIGHT OF 7,400 POUNDS.

In this demonstration the tractor is running in reverse gear at 1 1/2 miles per hour, which is 132 feet per minute.

7,400 pounds multiplied by 132 feet per minute, and divided by 33,000 foot pounds equals 29.6 horsepower.

This unique demonstration designed by Hart-Parr Company and called the "Bootstrap test" is proof of the actual power delivered at the rims of the rear wheels. The cables pass around the rims of the rear wheels and around the front wheels and the tractor raises itself and the twelve men by its own power.

The clutch and brake action of the New Hart-Parr 30 are so perfect that the tractor moves up and down gently and steadily, stopping at any desired point. The tractor has such perfect balance that it is not necessary to lock the differential in making this test. The Dray Kerosene Shunt, an exclusive Hart-Parr invention, enables the engine to pass from no load to full load as the tractor goes up, and from full load to no load as it comes down, without throttling and without misfiring.

SPECIFICATIONS:

- POWER—Pulls three plows—30 H.P. on belt.
- MOTOR—2-cylinder twin, 4 cycle. Valve-in-head. 750 R.P.M.
- TRACTOR FRAME—Cast Steel, one piece. No bend, no twist.
- BEARINGS—S.K.F. and Hyatt
- CARBURETOR—New Dray Kerosene shunt.
- SPEEDS—Two forward; one reverse.
- TRANSMISSION—Selective sliding gear.
- COOLING DEVICE—Honeycomb radiator—shaft-driven pump and fan.
- LUBRICATION—Fresh oil, force feed.

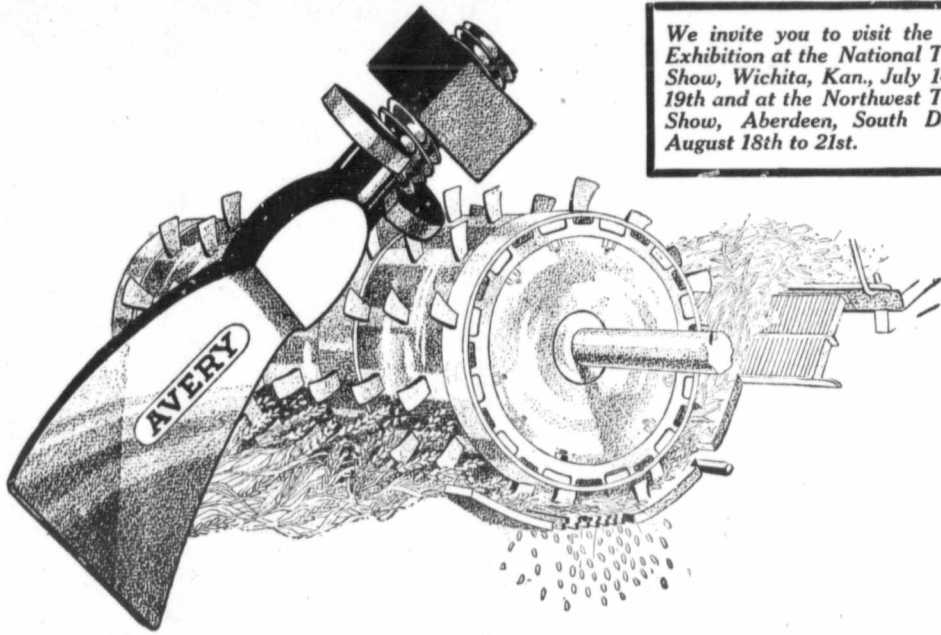
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Avery Thresher Teeth Are Guaranteed for Life

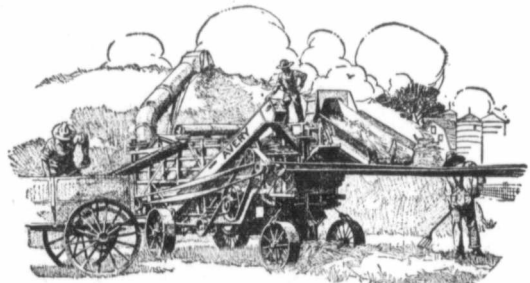
THAT'S the warranty that stands behind the cylinder and concave teeth in Avery Threshers—the strongest warranty possible—printed right in every Avery order blank. But no wonder! Avery Separator Teeth are made of genuine tool steel—the kind of steel out of which high grade tools are made. They are extra large in size; the wearing corner is tempered and they are made by a better process than other teeth. Farmers and threshermen never have tooth troubles or delays in threshing with Avery Separators. Avery teeth are time and money savers.

The Champion Grain Savers

Avery Separators are also equipped with the famous I. X. L. Grain-Saving Device. It has fingers that tear up the bunches of straw and hunt around for the last kernel and get it. That's one reason why Avery Threshers are the Champion Grain Savers of them all. That's why they beat the Government grain-saving records made in threshing on canvas by over one-quarter of one per cent. That's also why Avery Threshers are backed by the strongest definite grain-saving warranty given with any make of separator.

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and learn why Avery Threshers are the Champion Grain Savers—why they save the grain and clean it better than any other threshers—why they run steady and last a long time. One man recently wrote us about rebuilding his Avery—said his machine was 20 years old, but too good to discard. Hundreds of others say similar things. The Avery Catalog will tell you all about it—ask for a copy. Address



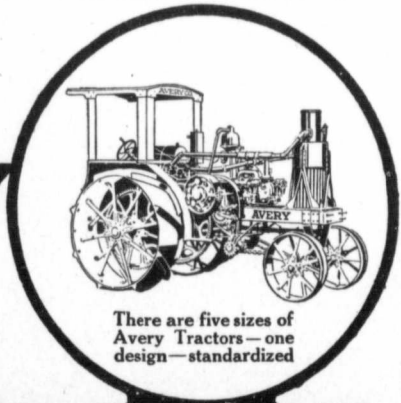
There is a Size Avery Thresher for Every Size Run and a Size Avery Tractor for Every Size Farm

Do your harvesting, threshing, plowing and silo filling the Avery way this season and save time, hard work and expense.

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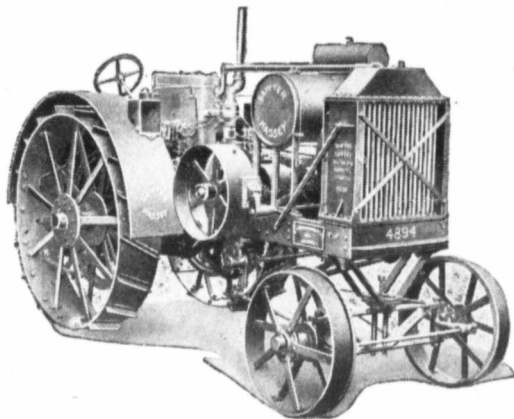
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Motor Farming, Threshing
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There are five sizes of Avery Tractors—one design—standardized

SAWYER-MASSEY



Right side 11-22 Kerosene-Burning Tractor

WE have solved the Problem of Lubrication in Tractors, if a good grade of Motor Oil and the proper amount is kept in the Crank Case all bearings will receive a liberal supply.

The Closed Radiator has ample capacity to keep the motor cool during continuous service.

The Fuel being fed to the Carburetor by gravity, and filtered in its passage insures a constant supply of pure kerosene.

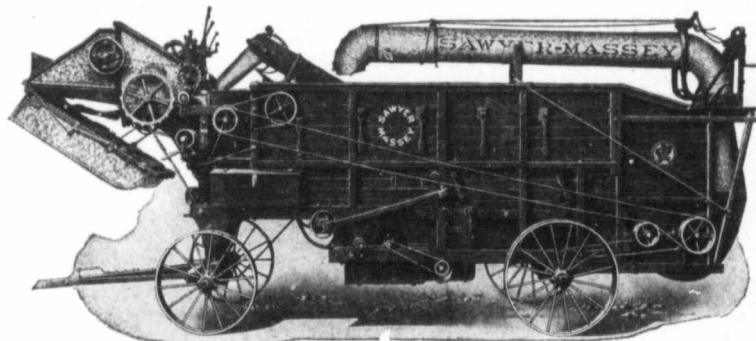
All our Tractors have Two Speeds forward and reverse.

In addition to the above, we can furnish any one of the following sizes in similar design, 17-34, 20-40 and 25-50. All being complete in detail having Counter Shaft with Differential Gear, making both Rear Wheels Positive Drivers. **ASK FOR OUR SPECIAL BULLETIN on any of the above sizes where full information will be found.**

With the exception of the 11-22 all sizes of Kerosene-Burning Tractors are equipped with a Canopy Top. On all SAWYER-MASSEY machines we specialize on Sturdy Construction, Attractive Appearance, Simplicity in Design, Highest Standard of Workmanship and Selected Material.

Sawyer-Massey Separators

have demonstrated in open competition on many occasions their Superiority over competitive machines in actual tests. Their long experience and co-operation with their thousands of customers made it possible to produce a line which includes the No. 1 with 22in. cylinder and 36in. body, No. 2 with 28in. cylinder and 44in. body, both of which machines are of medium capacity. If maximum capacity is required, we can furnish the GREAT WEST SEPARATOR in larger sizes.



Sawyer-Massey Separators No. 1 and No. 2

Every Purchaser of a Sawyer-Massey Machine has an equity in the Company's Fair Dealing Policy and Nation Wide Service which is a permanent protection.

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Steam and Kerosene Burning Tractors, Grain Threshers and full line of Road Machinery

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Vol. XXIV

WINNIPEG, CANADA, JULY, 1919

No. 7

A REASONABLE expectation is rarely disappointed, but whoever thinks it reasonable to expect that four years of war will not make any serious break in the old world's working plan is slated for a sharp disappointment.

In the manner of doing things, in the matter of social interchange generally, and in the price of commodities in particular, a new normal has been created which it is just as well to get acquainted with at once and work up to.

Everything in sight points to the fact that whatever happens in many years to come, there is no likelihood of things dropping to where they were, say, in the first half of 1914. There are reasons for this belief, far too numerous to mention, but at the bottom of it all few will fail to appreciate the fact that to an alarming extent the four years of war and revolution in Europe has left the world practically breadless.

If ever in the past it were necessary to urge the idea of "increased production," still more is it imperative now that every agency that can be harnessed to the business of producing food-stuffs should be set in motion and speeded up.

Shall we be charged with the misdemeanor of exaggerating if we state definitely and broadly that the horse is now a dead issue insofar as the intensive as well as the extensive work of farming is concerned in the big crop producing countries?

Where large farms are the rule, tractors are a positive necessity, but the tendency is nowadays in Western Canada to come down to the small farm. The terrible inroads of the weed crop has finally demonstrated that if noxious weeds are to be exterminated or even kept within reasonable control, there must be a big subdivision of extensive farming property into parcels which can be thoroughly handled by their real owners.

In the latter case, no less of necessity is the tractor. A few

The Tractor---The Horse and the High Cost of Living

years ago we dared not have said this much. "Them were the days" of the unwieldy machine that more often than not proved a

that have superseded manual and horse power.

What would most of us have said "befoh the wah" had some

and with a thousand gallons of gasoline fuel to spare?

The thing is coming along as surely and as naturally as the morning sunrise and probably the automobile is doing more than most things to open the eyes of the farmer to what advantages there are in using a gas engine to do practically all his farm work and domestic chores.

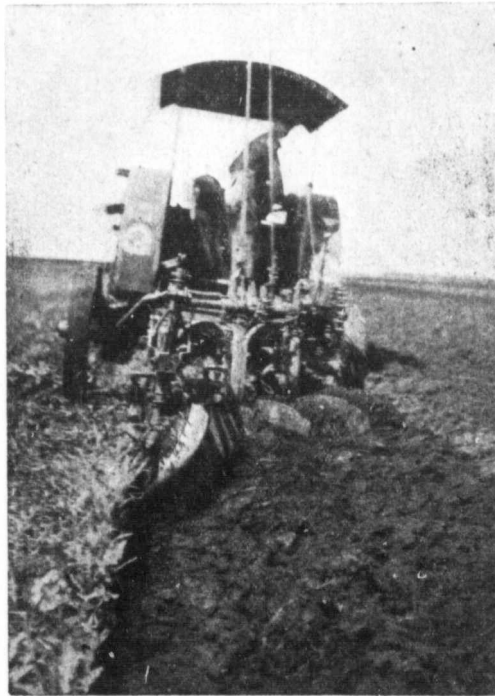
What strikes one more in these days in entering the merest country hamlet—not to speak of the towns and "cities"—than the enormous number of automobiles on the streets, biding their time by the store or whirring home in half an hour with supplies and repairs that used to take half a day with old Dobbin? And it didn't matter how many "Dobbins" you hitched up, it didn't reduce the time by ten minutes and added so much more to the price of the trip and the risk of same with a bunch of frisky bronchos.

Even enthusiastic horse breeders are freely admitting that the engine is the country's hope. Ontario has recently shown a decrease in its horse population of some 77,000 within the twelve months—due largely to the farm chunks losing their jobs in favor of the gas tractor.

The Canadian Thresherman and Farmer sent out a few months ago questionnaires containing a series of questions on the subject of the tractor. These were addressed to farmers in the three prairie provinces and something like 873 replies were received—many of them giving details of intense interest. (These have all been published in book form and may be had on application to the publishers.)

But one leading question was: "Is tendency in your district more towards power-farming?" Of the above number 822 answered "Yes." There were 47 "No's," 2 replied "Slight," and 2 "Not yet." These figures need no comment, and any interested person is heartily welcome to a perusal of the original letters.

The agricultural engineering department of the Ohio State Uni-



The First Fruits of a Perfect Seed Bed

white elephant, and we do not pretend to say that even yet has the perfect tractor been found.

But the air is fairly charged with hope and expectancy in the near advent of the ideal power machine for the farm. What more reasonable than to expect very shortly an internal combustion engine that will do its job as perfectly as any of the older devices

sanguine friend told us that in a brief space a heavier-than-air machine would be built that would fly over the Atlantic from Europe to North America in 16 hours; and that a big passenger airship, lighter-than-air, would do the trick in 72 hours and after resting her crew for a couple of days she would make the return trip in 65 hours without mishap

versity, in co-operation with the state department of agriculture, recently conducted a survey among the tractor owners of the state. The objects were to determine the adaptability of the tractor and to find out if the owners were satisfied. The results accomplished by each individual make of tractor were also tabulated, and can be had by writing to the Extension Department, Ohio State University.

Much has been said and written about tractors in a general way, but there has been a lack of definite knowledge of just what a tractor can do. A tractor may have certain features that appear well on paper or are good advertising points, but if the farmers condemn them from actual experience they are of but little value. Farmers are continually writing for information concerning the adaptability of the tractor for certain farm conditions, and it is evident that the only satisfactory method of obtaining this information is from a farmer's personal experience.

Questionnaires with sixty-five questions covering all phases of the tractor in relation to its operation on the farm were sent to all the tractor owners in Ohio. More than 800 replies were received and on these the survey is based. The experience of 800 tractor owners operating their tractors under all conditions should be an invaluable aid to the farmer contemplating the purchase of a tractor.

The topography of Ohio varies from level land in the northwestern and central regions to rolling and hilly land in the south. The soil varies from a heavy clay to a light, sandy soil. The soil as a whole can be described as of a loamy nature.

Plowing is an operation to which tractors are especially adapted. Steady, deep plowing seems to have been the object of tractor manufacturers, but results show that owners are very reasonable in the depth they plow. The most common depth is seven to seven and a half inches, with an average of 7.14 inches.

Most of the farmers agree that one great advantage of the tractor is its ability to speed up production. To get a corn crop in on time, in many seasons, means the difference between a profit and loss; and the man with a tractor can do much more in a day than one with horses, for his machine never gets tired.

An interesting difference is shown in the average number of acres plowed a day by the several makes of tractors. Several two-bottom tractors plowed within two-tenths of an acre per day as much as some tractors pulling three bottoms. This can be ac-

counted for the difference in speed; two-bottom tractors could travel three and a half miles an hour, while the best the three-bottom tractors could do was two and a half miles an hour. Besides speed, several other factors determine the number of acres a tractor will plow in a day, such as the condition of the soil, whether spring or fall plowing, and the size and shape of the fields.

It will be seen from the table below that the number of acres plowed per day does not increase proportionately with the number of bottoms. This can be explained by the fact that every time the

pillar types. It does not seem that the tractor can be criticized seriously for packing the soil. The consensus of opinion is that where judgment is used, the tractor does not unduly pack the soil; but in heavy clay soils, regardless of the judgment used, the tractor does pack the soil to a considerable extent. Several factors determine the extent to which the soil is packed, such as type of soil, condition of soil as to moisture, and whether drive wheel runs in the furrow or on land. Undrained land encourages packing.

There is no doubt that the speed of a tractor has a definite relation

serve power and criticize the agent for rating the pulling ability of the tractor too high. Regardless of the size of farm, one desires a machine with sufficient power to enable it to pull out of any rut or obstacle that it encounters without wasting time.

It is true that a number of tractors have been overrated to the farmer. This is shown by the fact that some rated three-bottom tractors are pulling more two-bottom plows than they are three-bottom, but other rated three-bottom tractors, with very few exceptions, are pulling what they are rated. If one desires a three-bottom tractor he should not purchase one rated lower than 12 horse-power on the drawbar, regardless of what it is rated, unless his farm has exceptionally good soil.

Almost without exception the farmer of to-day is demanding a very light-weight tractor with a maximum of power. This can be followed through this survey. The big, heavy, slow tractor does not come up to the light, fast tractor in the field. It does not necessarily mean that if one has less than 153 crop acres that a tractor will not be a profitable investment; many farms of 100 acres and less are using tractors and are thoroughly satisfied with them.

The average number of days in the year that the tractor was used by the owner was 62.4 days. The greater the number of days that a tractor can be kept busy on the belt, the greater will be its value to the farmer. It is a question for the individual farmer whether a tractor will prove a good investment if used only for field work. The average annual repair cost for all tractors was \$22.42, which can be considered very reasonable, with present and past high prices. Here again there was a wide variation among the individual tractors; the lowest was \$7.11 and the highest \$56.50.

But the sum total of the outlook is the need for speed without prejudice to quality of work. How many average plowmen visiting the contest field at Portage la Prairie last June could have told which was the horse and which the tractor plowing? So uniform and clean, in fact, was the greater portion of the latter, that remarks were freely made as to its superiority in certain respects to the horse work. We are but starting in, yet the near future is colored with the certainty that in less time than it took to win the war, the right idea in power farming will have come into its own and that the tractor will cover the prairie with its perfect work and unvarying service, even as Nature serves.



"Eyes Front" and you've got a line as straight as a Plumbet

tractor is stopped there will be a greater loss of work with three

	PLOWING				
	Acres Plowed Per Day	Depth Plowed	Gallons of Fuel Per Acre	Is the Packing of the Soil Detrimental?	
				YES	NO
Two-bottom tractor ..	5.56	7.46	2.69	..	..
Three-bottom tractor ..	7.14	7.40	2.75	87	490

bottoms than with two. The amount of fuel used per acre differs considerably with kerosene and gasoline, always being lower for gasoline, though not more economical.

Is the packing of the soil detrimental in plowing? There is no doubt that some tractors pack the soil more than others, that the heavy four-wheeled type packs the soil more than the two-wheeled and light four-wheeled cat-

to the number of horses replaced. Tractors running more than three miles per hour are as a rule replacing well over two horses each, while those running three miles or less per hour are without exception replacing well under two horses. Much depends on the speed of the tractor as to the number of acres plowed per day or oats cut, and so forth; consequently the greater the speed the more work accomplished. Naturally, there is a limit to the speed that is practical.

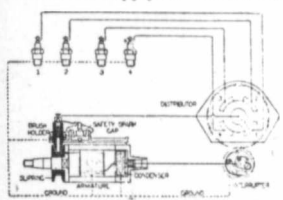
The average size of farm for two-bottom tractors was 152.8 acres, with 136 farmers wanting a larger size and ten a smaller. Two hundred and two were satisfied with what they had. It seems true that most farmers are buying tractors too small for their uses; a great number cry for more re-

OBVIOUSLY enough the tractor could not run with just a set of spark plugs screwed into its cylinders. There must be electrical energy present with means of control. There must be ample means of conveying or directing this energy into the proper channels, so that its work may become effective. Such an arrangement of the mechanisms, previously described, forms the ignition system of the tractor.

Ignition systems may be classified into three general classes, namely, single ignition system, dual ignition system, and double ignition system. These may be further sub-divided, which subdivisions may be later considered. In order to make clear just what is meant by the classification given, the following definitions are essential:

1. A single ignition system is one employing a single source of electrical energy. An example of such a system is one having a high tension magneto as the only means of current generation, the current being conducted direct from the magneto distributor to the spark plugs.

2. A dual ignition system is one in which two sources of current are available, either of which may be used to supply the current to



Internal Wiring Diagram of High Tension Bosch

the spark plug. An example of this system is one having a generator and storage battery arranged in such a manner that the storage battery will supply the current at such times when the motor speed, and consequently, the generator speed, is not sufficient.

3. A double ignition system is one in which two sources of electrical energy are available and two sets of spark plugs are used. Two single systems or a single and dual system may be used on one engine. One of the systems may be a magneto system and the other a dry cell system, or a storage battery generator system may be submitted for one or the other.

A single ignition system may be divided into three types, according to the method of the electrical energy supplied, as follows:

- 1st—High tension magneto single ignition system.
- 2nd—Low tension magneto single ignition system.
- 3rd—Dry cell battery ignition system.

TRACTOR IGNITION

Resume of Different Systems

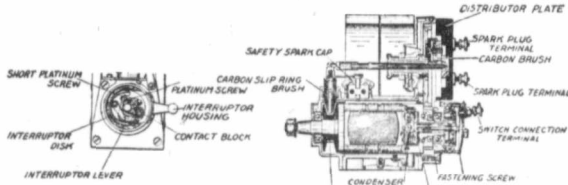
By C. C. HERMANN

The dual system may be divided into two types, according to the combination of electrical supply used, as follows:

- 1st—Storage battery and direct current generator.
- 2nd—Battery and magneto system.

comparatively heavy. The heavy wire is used to construct the primary or low tension winding, and the fine wire the secondary or high tension winding.

Since no vibrator is used in connection with these magnetos, it is necessary for the magneto to



Longitudinal Section through Bosch DU4 Magneto and the interrupter with cover removed

run in synchronism, that is, in step with the engine so that the spark occurs when the current is most intense. In order to obtain this necessary condition the magneto must be properly timed and the proper terminals connected to corresponding spark plugs. In most cases, knowing that the wiring is correct, the magneto can be easily and quickly timed in the following manner:

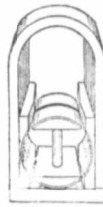
The essential feature to remember in timing a magneto is that the time of sparking is controlled by the platinum contacts of the primary circuit breaking mechanism, which is mounted on the magneto. At the instant of the opening of the platinum contact points, a spark should occur at the spark plug terminals within the cylinder. This spark should take place when the piston in question is near the top dead center of its compression stroke. To obtain this condition the magneto drive must be disconnected from the engine and the timing control arm, on the interrupter housing in some types, placed in the fully retarded position. The engine crankshaft should next be turned until the piston of number one cylinder is exactly on top dead center of the compression stroke. Next remove the distributor plate and the interrupter housing cover so that an unobstructed view of the interrupter may be obtained. The magneto armature should then be rotated by turning the exposed distributor gear in the direction in which the magneto is to be driven until the platinum

Reviewing High-Tension System

As previously stated, the high-tension single ignition system is constructed of a high-tension magneto, a switch, the conducting cables and the spark plugs. This system is, therefore, the simplest system now in use and as a consequence is very widely employed by tractor manufacturers.

The high-tension magneto consists of an armature, the magnets, a primary winding and a secondary winding on the armature core, a condenser, interrupter and distributor. The double winding admits of a high-tension, or a high voltage current being generated in the magneto without the aid of an induction coil. The armature winding is composed of two sizes of insulated copper wire, one size being very fine and the other

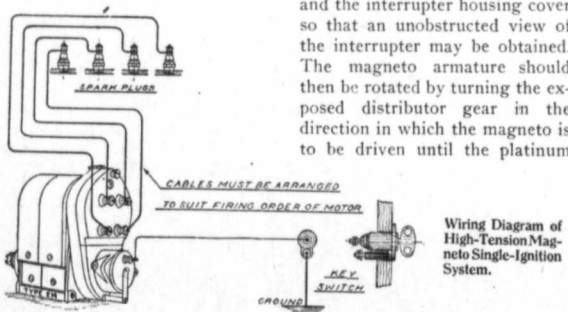
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Armature Which Rotates Between Horseshoe Magnet

out, the insulation inspected after which it may be replaced and the engine tried again. The spark plug gap should be about 1-32 of an inch wide or the thickness of a dime. The cables often wear and fray from the contact with the frame, causing a short circuit. If this is found to be the case, it should be replaced or carefully wrapped with rubber tape.

It often happens that the cable core breaks, due to vibrations, but makes connections at intervals, causing an irregular firing engine. This trouble can be determined by pulling the cable tight which will separate the core, if it is broken, and the engine will stop. The ordinary switch can be easily inspected and it does not require a great amount of intelligence to tell whether or not it is out of order, as there are only two contact points insulated from each other and short circuited by the switch lever. Moisture and dirt collected on the switch contact often cause switch troubles. See that the



Wiring Diagram of High-Tension Magneto Single-Ignition System.

Continued on page 80

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CIRCULATION MANAGER

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July

THE WORK CURE

1919

OUR GUARANTEE

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BY a close calculation, the world is in debt something like two hundred billions of dollars on account of the war. Counting men, women and children, sane people or idiots, savage or civilized, this means roughly a hundred dollars a head for every human creature of the world's population. Take it for granted that they haven't got the money and that the money does not exist that will clean up this indebtedness. How is the debt to be discharged? Shall we revert to the mean trick of "repudiating the bill" or shall we be honest and proceed at once to work it off in the only way an honest man who is strapped for the moment can face his indebtedness?

It isn't worth while debating the point. The right thing to do is as clear as any point of morals can be made clear, and the power to enforce it is in the hands of every man who may read this. The only way possible is to work it off, so let us all get down to work, concerning ourselves not so much about shorter hours as about increased production. The stern fact is that while millions of men have been busy

killing each other, the world has been marking time with regard to its food products until at the present day there is not sufficient food in sight to meet its normal requirements. For the time being at least a new normal has been created.

This "new normal", however, is turning the heads of many people and strange devices are being resorted to with the expectation that some of them will knock the bottom out of all the trouble. Perhaps the most foolish and hopeless of these is the attitude taken by certain producers that since the cost of living has increased more than the rate of pay, there shall be more money and less work, forgetting or deliberately blinding themselves to the fact that the remedy lies not in shorter hours but in increased production. And we find (not in Canada, however) certain farmers actually organizing to reduce acreage and production in order to sustain war prices, to make more in proportion, not as the world is supplied but as it is unsupplied.

The solution of the problem now facing us lies not in anything like this sort of thing. Russia has shown us that men live on bread not on wages; "that money is good only in proportion to the supply of actual commodities that can be bought with it, and that when production stops money becomes worthless and men starve and freeze regardless of the rate of wages, the amount of money in their pockets or

the length of the working day. The business of every man, whatever his "station" in life is to produce. Labor's business is essentially to produce, and in return for its product, labor is entitled not only to "decent" but first rate living conditions. Not merely the "living wage" but there is a margin of comfort and recreative leisure beyond the bare existence wage that belongs to every decent workman.

To-day the world is practically in the position of the man marooned on the fire swept prairie. His entire food product has been burned up except a little bag of seed grain which fortunately has escaped the flames. He has also a wad of dollar bills in a fire-proof safe, but he is without means of transportation to where he might exchange these dollar bills for food or clothing. These to him, for all practical purposes, do not exist, and his only alternative is to get down to work with his bag of seed, make the best of it with the rest of animated nature around him until he can once more behold the fruits of his labor smiling on him in rich abundance.

How does the "strike" method help a man in this set of circumstances? Exactly as it is "helping" the world of men and women to-day. If every man were to hang back and strike on his job how speedily there would come an end to all things. But the great majority of men—of "laboring" men—are not such idiots as some of their imported leaders would wish them to be. Labor has a mother's gift of common sense second to no endowment of capital that the world knows of, and we give the rank and file of labor credit for being able to scent out its real enemies with unflinching instinct and to deal with them in true sportsmanlike fashion.

The true panacea for every ill in sight is to get busy and go by the golden rule. No exorcism charms like hard work. We've tried it and it never failed. We have also tried all sorts of make-shifts or some easier way than work, and they all brought us back to where we started from, worse off than when we started. Nothing was ever made out of war, and there never was a strike that did not leave both striker and "struck" worse off in the long run. "There are no benefactors and beneficiaries in distinct classes." This is old-fashioned philosophy, but strange isn't it that the only thing that seems to wear and fulfil its promise is the old-fashioned thing that is measured out by the golden rule? Therefore let us get down to work—the kind of work that produces and makes satisfied and "kindly disposed people."

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Plowing with a Tractor

(From the Agricultural Gazette)

IN tractor plowing it is very easy to guide the machine when the furrow is rectilinear, but it must be very straight. For this reason the first furrow should be turned most carefully with a team, for the perfection and easy working of all the following furrows depends on its straightness.

Handling becomes much more complicated when the furrow is curved. Let us take the example of a tractor with one driving

freedom of movement on the soil allows of the plows being guided into the correct position; on the other hand, the disadvantage is accentuated when working on an internal curve, the steering wheel D being obliged to run on the plowed ground.

In any case plowing curves is

should be finished on a curve of the shortest radius compatible with the turning of the machine, *ie.*, along the curve *acb* (shown as an arc to simplify matters) so as to reduce to a minimum the space *Oacb* which has to be left to be finished by hand. But this is not possible because, whether working on internal or external curves, there would be unplowed strips on the curves, given that the widths *L* of the first furrows are so much greater than the normal width *l* as the angle of the field is more acute.

The plowing must, therefore, be done in concentric curves (Fig. 4); the part of the angle left untouched will, it is true, be greater, but the rest will be completely and uniformly plowed.

Handling With the Plows Lifted

Handling with the plows lifted is much lighter and easier than during plowing, but it is much

wheels are very prominent and it is almost impossible on very compact soils.

The turning should, therefore, be done while moving, and gradually, without pushing the turn to the maximum, for handling is nearly always more tiring on narrow curves; but, on the other hand, it should be done energetically and quickly so as to save time and space.

It is thus of interest to see how

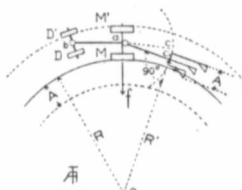


FIG. 1

wheel working in the furrow (Fig. 1).

The coupling *r*, usually attached at about the middle *a* of the back-axle, can turn round this point, describing an arc of radius *r* (length of coupling).

When the tractor turns, describing an arc of radius *R*, the chain and consequently, the plow-beam should take up the position *ac*, in order that the width plowed should remain constant. On the contrary, however, owing to the pull being on a curve the chain tends to assume the position *ac'* normal to *R'*, so that there is a tendency for the plows to be displaced towards the centre *O* of the curve.

This tendency, whilst hindering the steering by causing a lateral component *f* to act on the driving wheels of the tractor to be displaced transversely to the direction of movement, prevents the plowing of a uniform width, as the plows tend to be displaced towards the ground already plowed and to enter into the preceding furrows, while the displacement is all the greater as the chain *r* is the longer and the turning radius *R* is shorter.

When the point where the chain (Fig. 2) it attached is moved to *a'* or as far as *a''*, (as is done for hauling military lorries on the road), the difficulty is lessened, but not eliminated for such a displacement should vary with the radius of the curve.

This difficulty is also not eliminated when plowing on an internal curve, *ie.*, when the driving wheel *M'* runs in the furrow. In this case the plows tend to move away from the plowed land, thus covering a larger width and leaving strips unplowed.

With machines working, not in the furrow, but on the firm land, there is no difficulty in plowing external curves, because their

always very difficult, and results in a poor yield being obtained from the engine on account of the greater passive resistance, while the machine (even with a differential) wears more owing to the

abnormal strain on gears and bearings. Work done on such curves can never be regular nor perfect. It can be easily understood why circular plowing is often practised in North America on account of the usually light soils and the fact that a depth greater than 5 to 6 in. is rarely plowed. The regularity of the work in this case becomes merely a side-issue when compared with the benefit obtained by eliminating turning at the end of the furrows, the plowing thus being continuous. But, in Italy, the more intensive cultivation, which requires better and deeper plowing, the more compact soils, and the absence of vast plains, indicate the inadvisability of curvilinear plowing, which should be reserved for indispensable work such as finishing off the corners of the field.

For example, let us assume that a corner of a field, forming an acute angle (Fig. 3), to take a simple case has to be finished. It

more frequent, particularly when there are short furrows or irregular plots, so that they tire the driver the most. From this point of view, they thus deserve special consideration.

Turning is easier with two steering wheels mounted on a

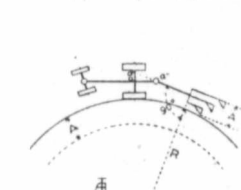


FIG. 2



"Rumely" with a 3-bottom "Grand Detour" at P. rtage

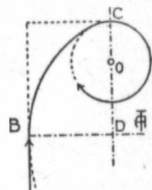


FIG. 3

the machine can be handled in the field, while meeting the opposite requirements of less fatigue with greater speed, in the narrowest space.

When it is said that a machine turns in a radius, of 5 meters for example, it means that the machine can, at the maximum, turn in a circle of 10 metres in diameter, but not that it could do the whole turn in a space of 10 metres except by doing the maximum turn on the spot, which never happens in practice.

For example, take a machine moving along a straight line *AB* (Fig. 5) and which, when at *B*, should turn to the right. The driver, letting the machine move forward, commences to turn gradually towards *C*, the maximum turning point, after which the machine would advance automatically, describing an infinite number of circles of centre *O* and radius *OC* corresponding to the minimum possible to the machine.

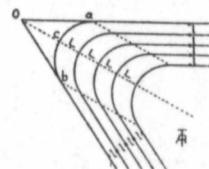


FIG. 3

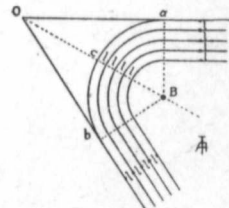
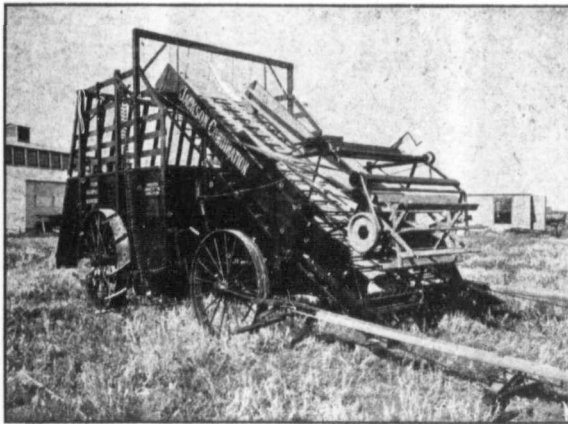


FIG. 4

loose axle, turning like the front-wheels of an ordinary four-wheeled cart. It is less easy when the two wheels are turned as in the automobile type, and still less easy when there is only one steering wheel. In the last two cases turning on the spot is very tiring if the types of the

When a man who is away from home writes a letter to his wife every day he is either very much in love or "up to something."

Some people would rather have it known that they are able to talk a little French than to know the unabridged dictionary by heart.



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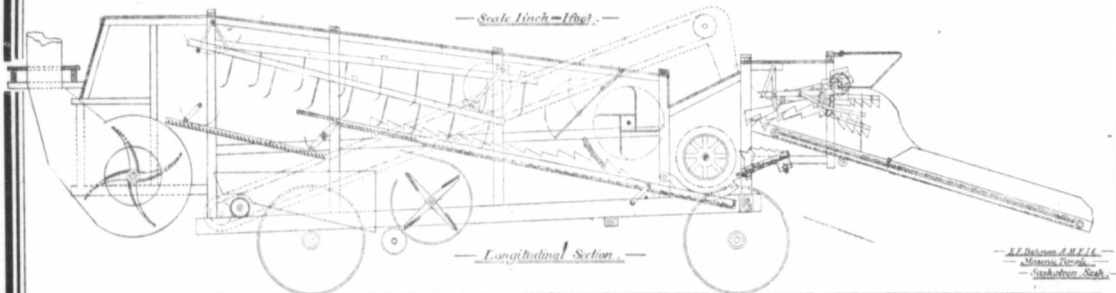
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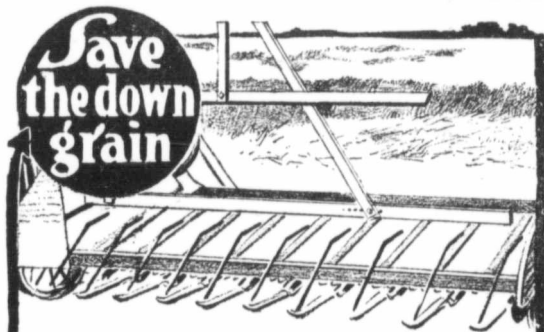
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The Tractor gives the Farmer no more trouble than his Automobile

By A. E. KUD

THERE is one question which is almost invariably put in the form of a statement, and this is its usual form: "Why is it that the average farmer has so much trouble with his tractor and so little trouble with his automobile?"

The answer is easy: He doesn't. This question is like that other one that is always put in the form of a statement: "Why is it that married men live longer than single ones?"

They don't. It just seems longer.

Tractors do not give more trouble than automobiles, but to many it does seem that they do. Apparently the tractor gives a lot more trouble; in reality, when the matter is fully gone into and the varied circumstances and conditions under which they labor are considered, it is found that the tractor does not suffer in comparison with the more pretentious older brother, the automobile.

There are many reasons for this seemingly contradictory condition of affairs, the principal one of which is that automobile troubles and tractor troubles are viewed from two widely different angles and have an entirely different effect upon the owners of the disabled machines.

When the trusty Tin Lizzie fails to respond to the gentle twist of the wrist, when she refuses point-blank to give even one disgusted explosion, it is no serious matter; indeed, it is generally looked upon as a very good joke. But when the tractor stops in the middle of a harvest field, it is a calamity. All the neighbors see it and talk about it. Every minute that it stands idle is a positive expense

and involves the possible loss of a crop already made and delay in preparing the seed bed for the following year, which would mean additional loss by reason of a shorter crop. On the one depends the little trip to town or to one of the neighbors, while on the performance of the other depends the outcome of the year's hard work.

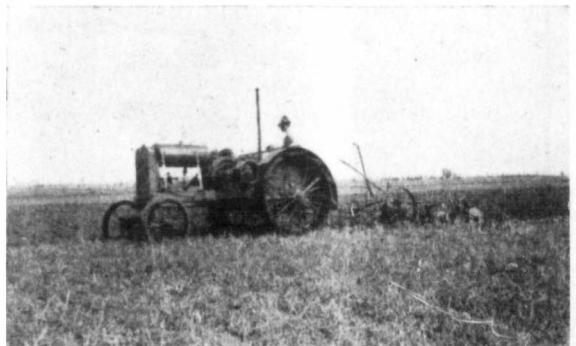
The little trip can be put off or made by other means; the tractor must move on till the last furrow is turned and the last sheaf garnered or be condemned by owner and neighbors—especially neighbors.

Important as the automobile is in the modern scheme of things, its importance is not to be compared with that of the tractor on the farm, and for that very reason the tractor is bound to receive the bulk of criticism when the short-comings of the two are under discussion.

Unjust Condemnation

Far be it from me to attempt to shield from censure the many mechanical mongrels that have masqueraded as tractors, to the sorrow and loss of the farmers who bought them and to the discredit of the tractor industry; neither would I conceal my contempt for the mediocre cars that have boasted quality. My contention is simply this: that the better tractors of to-day are equal in design, material and construction to the automobiles that we accept as absolute successes.

The tractor is too often condemned without weighing its efforts in comparison with the efforts of the automobile that we hold up as a mark to shoot at. When correct comparisons are made the tractor does not suffer.



The New Hart-Parr "Going Straight" at Portage

Every day of our lives we meet automobiles of all kinds and descriptions, limping along with one or more cylinders missing. We smile to ourselves or remark to our companion that "He is hittin' on two." No serious trouble, of course; one of a hundred and one trifling things may be causing it and nothing is thought of it.

Mister Farmer, or whoever is driving it, drives up to the first garage or service station that he comes to and asks the man wearing the greasy overalls to "Look 'er over, Bud, she's been missin' all the way in."

In an hour or so the owner returns and is told that a couple of spark plugs had gone bad and had to be replaced. He is also told that the valves need grinding and that he really ought to put in some new piston rings, as it doesn't seem to have much compression. Maybe the carburetor needs doctoring.

Mister Farmer pays his bill of three dollars and drives away. He does not feel that the car was in any way to blame for the spark plugs' going wrong. Those things happen every day and to every make of car and are, no doubt, due to poor oil or gas, or both. Repair shops and garages are full to overflowing, all over the country, with just such cases. Nothing wrong; no trouble, of course; just having them tuned up a little.

Now let us see what happens to the tractor when one cylinder misses. It cannot limp along to a service station. It isn't even headed toward one. It isn't rolling along on a pneumatic tire but its heavy wheels sink in and the soft earth clings to them. It is loaded to capacity, and when one cylinder stops firing the tractor stops going and the neighbors who drive by point to it and remark that "Smith's tractor is blowed up again." The car that they are riding in at the very moment they make such remarks may be full of carbon, have loose connecting-rod bearings, be missing on two cylinders, and still they feel that their car is a success and that Smith's tractor is a failure because one spark plug is out of commission. They drive along to town and have their car "tuned up" while they do some shopping or go to a picture show, and Smith's tractor stands still in the field, unable to move.

The injustice of their comparison is obvious and would be made only because of a lack of understanding. This lack of understanding is however, much too prevalent among the very people who would profit most by a practical working

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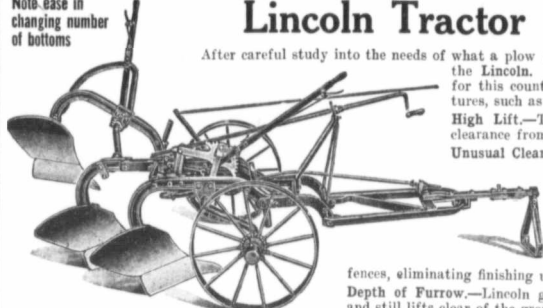
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Handles three plows under ordinary conditions and four in light soil. Motor; four-cylinder, four-cycle, 4 3/4 x 6-inch; 750 to 800 r.p.m. Develops 28 to 30 h.p. at belt; 12 to 15 h.p. at draw-bar. Weight, 5,900 lbs. The best light tractor made in Canada. Ask for full particulars and price. Write to-day.

Note ease in changing number of bottoms

Lincoln Tractor Gang Plows



After careful study into the needs of what a plow must do in Western Canada, we offer the Lincoln. Experience has proved that the plow for this country must have several outstanding features, such as:—

High Lift.—The Lincoln gives six to eight inches clearance from point of plow to ground.

Unusual Clearance.—By eliminating the gauge wheel through our single unit construction, and bending the beams very high in the throat, clogging of trash and stalks is practically impossible.

Hitch.—Here you have a wide range of adjustment and a rigidity so strong as to make it possible to back up to fences, eliminating finishing up with horses.

Depth of Furrow.—Lincoln gives you a nine-inch cut if necessary, and still lifts clear of the ground with the automatic lift. Weight of plow is directly above the bottoms, insuring uniform plowing depth under any condition.

One-Man Feature.—A single cord, extending to operator, from the clutch, raises and lowers perfectly. A full turn of wheel raises the plows—a positive, powerful lift.

Light Draft is accomplished by our special hitch-bar which eliminates side strain. These features are sufficient to put Lincoln Plows easily in the lead, but the Lincoln has more than all these.


You Can Change the Lincoln into Two-Bottom, or Three-Bottom Plow, by Simply Pulling a Lever.

Nothing to unscrew or lift off. To the farmer who has had an engine doing poor work, pulling three bottoms in unusual soil conditions, this feature at once recommends itself. It is possible to change to two bottoms in hard soil and revert to three when plowing is good.

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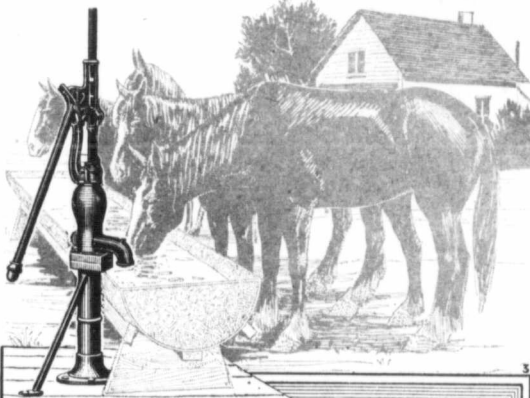
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knowledge of the care and capacity, as well as the limitations, of high-powered machinery.

Again, Mister Farmer's car develops a little motor knock. Nothing serious happens and he lets it run along till he can spare time to leave it with the repair

man. The little knock is annoying, but it is doing no particular harm and it can wait. When he drives into the shop and tells "George" to take up the bearings, it may be that a lot of little things need adjusting, and when Mister Farmer's attention is called to them he says they may

as well "give 'er a good over-haulin' while she's down." If, when he goes to get his car, he has a bill of twenty-five to seventy-five dollars he thinks nothing of it, but marvels at the wonderful success of his automobile that has "run over 8,000 miles, and this is the first time



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46 different styles of pumps, covering the entire utility and needs for any farm, any place. We have a pump to suit your needs or we'll make one for you.

THEY ARE THE ALL-METAL, NON-FREEZING TYPE.

We give full directions regarding installation.

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We guarantee our windmills to be the best in the world. They are oil-less, double geared, automatically governed, have two pitmans and are braced every five feet.

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Medicine Hat Pump & Brass Mfg. Co. Limited
MEDICINE HAT ALBERTA



the motor has been taken down."

Working at Full Capacity

Now what would have been the result of this sort of treatment if given to a tractor? When the tractor motor develops a knock it cannot be ignored. It is absolutely imperative that it be looked after, and at once. For a tractor is laboring under so terrific a strain that a knock whose warning is not heeded will very soon result in a break, and usually one that is very expensive. There is no garage close by to drive the tractor into, and the driver does not know what is causing the knock nor how to remedy it. He doesn't know how serious may be the damage resulting from his carelessness or lack of understanding and so it is usually allowed to run along until something comes loose. If that something happens to be a connecting rod, a crank case or perhaps a motor block is destroyed before the motor can be stopped.

One of the points that is so generally overlooked is the fact that the automobile ordinarily rolls along, using only a small fraction of its power, while the tractor is struggling with a load that is a dead drag and requires seventy-five to one hundred per cent of its power from morning till night.

For example: If you would take any one of a dozen of the better make of cars on the market and start it up the road with the throttle wide open, it would soon reach a speed of seventy-five miles an hour. In fact, there are very few of the larger cars that are not capable of making sixty miles or more, and in doing this their motors are not working any harder than the tractor motor works when pulling its normal load.

In other words, the tractor motor that goes out and pulls its load for ten hours has put forth as much energy as the automobile that has covered a distance of 600 to 750 miles! Pretty good day's run, isn't it?

It is nothing uncommon for a farmer to buy a tractor, take it home and start right in plowing and plow day and night for thirty or forty days. A tractor that would not stand up for thirty days would be considered a poor excuse indeed. The farmer expects his tractor to do this and would make a vigorous protest if it failed to deliver the goods. He does not stop to consider that if he would start out with a new car and drive it night and day for thirty days at full speed he would cover over 40,000 miles. Yet this is true—that is, it would be true if the car kept on going.

Not so very long ago a man came to me for the sole purpose

of getting into an argument. He was going to prove to me that tractors are a failure as compared with automobiles.

"I have had my car two years and I have driven it right at 8,000 miles, and all it has cost me for repairs is twenty-eight dollars. Jones has just had his tractor a little over a year and he told me he has paid out 122 for repairs" is the way he put it up to me.

On the face of it, it did look bad, but I asked him:

"How many plows does Jones pull?"

"Three," he replied.

"Has he plenty of reserve power?" I asked him.

"No, he can hardly pull three," he said.

"How fast will your car run?"

"I've had her up to sixty," he said.

"Then," I said, "your car could have traveled the eight thousand miles in 133 hours without working the motor any harder than Jones' tractor motor has to work to pull three plows—that is, your car can run sixty miles an hour just as easy as Jones' tractor can pull three plows."

"Sure she can," was his comeback.

By figuring up the amount of work that Jones had done with his tractor during the two seasons he had owned it, we agreed that his tractor had put in at least 800 hours, either in the field or on the belt. By the use of a pencil and a scrap of paper we soon figured out that it had cost Jones fifteen cents an hour to run his tractor—that is, for repairs.

We also found that the repairs for the automobile if it had run at full speed as had the tractor and covered its 8,000 miles in 133 hours, would have been twenty-one cents an hour. The "man who wanted an argument" had never thought of making this sort of comparison, but he saw how unfair had been his own thoughtless and hasty deductions, and he who came to scoff remained to buy and is now one of the most enthusiastic tractor boosters it is my pleasure to know.

Then we are asked, "Why isn't the tractor provided with more reserve power?" The man asking the question always overlooks the fact that he can give his tractor surplus power by taking off part of his load, and by no other means. The trouble is that a man will load his tractor to capacity, and then put up a yell because it hasn't any surplus power. If he hitched his automobile to a load that required every bit of its pull, where would be its reserve power? I asked a man this question a few days ago.

"But," he sputtered indignant-

Continued on page 18

Cushman Light Weight Engines

For All Farm Work

Cushman Engines are the all-purpose farm engines built for farmers who want an engine to do many jobs in many places, instead of one job in one place. Built light, built right. Weight only about one-fourth as much per horsepower as ordinary farm engines, but so well built, balanced and governed that they run even more steadily and quietly. No loud explosions, no fast-and-slow speeds, like old-fashioned heavyweights, but steady and quiet like automobile engines.

4 h. p. weighs only 190 lbs., 8 h. p. only 320 lbs. Sizes up to 20 h. p.

(2522)

The Original and Successful Binder Engine

WATER TANK

DOUBLE SPROCKET Farm Work.

The picture shows a 4 h. p. Cushman Light Weight truck outfit, with water cooling tank and gas tank. Engine weighs only 190 lbs. Entire outfit weighs only 318 lbs. Boy can pull it around from job to job. Same engine used on binder.

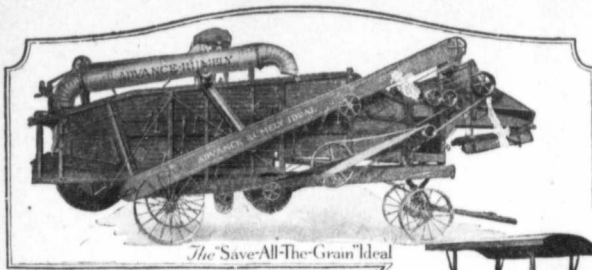
Before You Buy any Engine Ask These Questions

How much does it weigh? If it weighs more than 50 lbs. per horsepower, what is the reason? Is it throttle-governed? A throttle governor insures steady, quiet, economical operation. Has it a good carburetor? The Cushman has the Schebler—one of the best made. Many so-called farm engines have no carburetor. Has it a friction clutch policy? The Cushman has one that alone would cost \$15.00 or \$20.00.

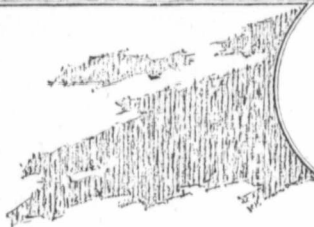
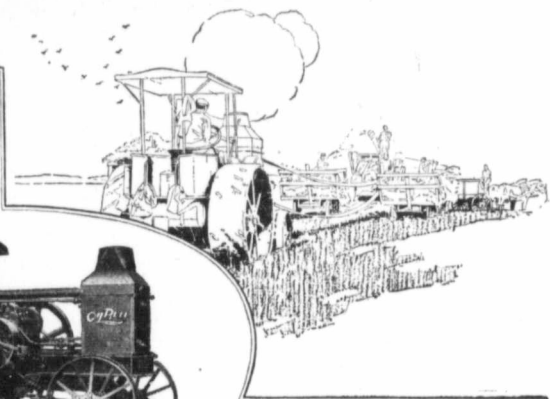
Cushman Engines are not cheap, but they are cheap in the long run. Engine Book Free.

Cushman Motor Works of Canada, Limited Dept. C.T. WINNIPEG
 Builders of High Grade, Light Weight, High Power Engines for General Purpose Farm Work and VINE STREET, MAN.
 Exclusive Selling Agents for: Combination Threshing Outfits—Langdon Ideal Self-Feeders
 —Fanning Mills—Smut and Pickling Machines—Vacuum Washing Machines—Lincoln Grinders—Lincoln Saws—Incubators—Portable Grain Elevators—Wagner Hardware Specialties—Sunn-Flatt Lightning Rod.

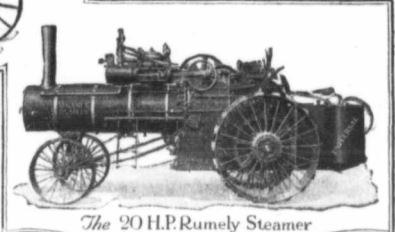
Don't Fail to Renew your subscription if it has run out. There are Great Things Coming!



The "Save-All-The-Grain" Ideal



The 20-40 Rumely OilPull



The 20 H.P. Rumely Steamer

Profit Makers for Both Ends of the Belt

What Do You Want In Your Thresher?

Large Capacity? The first principle of capacity is to *keep the straw moving*. We knew it and so designed the Rumely Ideal—the straw is on the move every minute and moving in the right direction, in a *steady even flow*. There's absolutely no chance for bunching, winding or choking in the Ideal—no matter what may be the condition of the grain. That *guarantees* capacity.

Close Separation? This is insured in the Rumely Ideal by the largest grate surface of any separator built—a travelling slatted rake that delivers the straw from cylinder to straw rack—lifting fingers on straw rack instead of common shakers—the largest straw rack of any separator built.

Clean Work? Extra large chaffer area and the adjustable sieves in the shoe, in conjunction with the Ideal system of wind control, guarantees a perfect job of cleaning without waste—no matter what the conditions may be—the kind that gets you no "dockage" at the elevator.

Durability? The Ideal frame is one piece construction—sills, posts, deck rails, straw rack sides—no splices or bolted parts—it can't sag, rot or pull apart. All moving parts are counter-balanced—steady operation that adds years to your machine.

Accessibility? On the Rumely Ideal *there isn't a bearing on the inside of the machine*—the shaker hangers are on the outside—all grease and oil cups—everything easy to get at and while the machine is running.

Service? 27 branch offices and warehouses protect the customer's best interests. At each branch is kept a complete stock of machines and parts ready for immediate shipment. Expert help is there when you need it.

Four Sizes. The Rumely Ideal is made in four sizes—22 x 36, 28 x 44, 32 x 52 and 36 x 60—each built on the standard Ideal design—a size to fit every job.

For the Power End
of the Belt

Rumely OilPull Tractors—The OilPull tractor has the *closest speed regulation of any tractor made*—as close as the best steam engine ever built. The OilPull is governor controlled—the speed of the engine *automatically and instantaneously* regulated to meet every change in the load. The OilPull *automatically* holds a thresher at its *correct speed all day*—no speeding up or slowing down as the load varies. And the OilPull is *guaranteed in writing* to burn kerosene successfully under all conditions.

Four sizes—12-20, 16-30, 20-40 and 30-60 H. P.

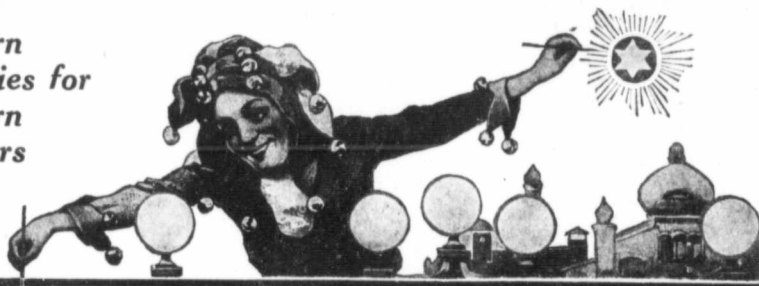
Advance-Rumely Steamers—Advance-Rumely steam engines are known the world over—their owners are numbered by the thousands. Built throughout in Advance-Rumely factories, the materials and workmanship are of the best and up to the high Advance-Rumely standards of manufacture. No steam engines will be found which are more economical in the consumption of fuel and water or of greater steaming capacity. The thresherman who buys an Advance-Rumely steamer can be sure of long years of profitable service and satisfied customers.

Two sizes—18 and 20 H. P., single cylinder.

ADVANCE-RUMELY THRESHER COMPANY, Inc.
La Porte, Indiana

ADVANCE-RUMELY

**Western
Batteries for
Western
Farmers**

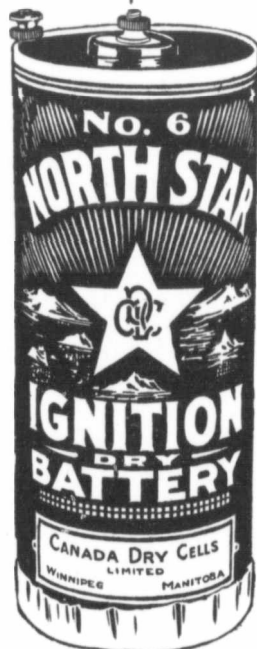


FOR SATISFACTION

Hitch your Engine to the "North Star"

Surprisingly large in life and power

The only "come back" is the come back for more of these dependable cells. They SATISFY the most discriminating users.



The Merits of North Star Products

are widely known in Western Canada as Western Batteries for Western needs. If it's a "North Star," the farmer knows it's good and a safe battery to buy.

NO TROUBLE Starting that Engine

when you use a "North Star Multiple." They do the trick. Made in compact, easily handled form, with a convenient handle for carrying.

Just connect two wires to the Binding Posts and the battery is then ready to operate
NO LOOSE CONNECTIONS

If your dealer or hardware merchant cannot supply you write us direct

**Canada Dry Cells
Limited
WINNIPEG, MANITOBA**



there are in reality just two types: those with petticoat or open insulators, and those with conical or closed insulators. The former can be recommended for the engines which show a tendency to foul up rapidly, while the latter are recommended only in case the extra extension of wire in the petticoat type shows a tendency to cause pre-ignition.

As a rule, the tractor owner and operator is safe in using the plug furnished with the machine by the manufacturer. Failure of one or two plugs on any particular machine should not be considered enough cause for a change to another type of plug. A few defective plugs do get out into service from time to time in spite of the utmost vigilance on the part of the plug manufacturer.

Troubles due to spark plugs may be divided into two classes: first, cut-out or missing; second, pre-ignition.

A missing plug can usually be detected by shorting from the upper terminal of the plug to the engine with a screw driver. The miss may be caused by a broken insulator. If this is the case, the plug will miss fire pretty steadily both under load and while running idle. The only remedy in case of a two-piece plug is a new insulator and in case of a one-piece plug, a new plug.

The miss may be caused by an insulator which is weak electrically. If this is the case, it will miss when under load, but will recover when running idle. The remedy in this case is a new plug with a better grade of porcelain. In a case of this kind, it is not always necessary to get another make of plug, but to specify to the dealer that the very latest insulator is desired. In case of Champion Toledo plugs, "3450" insulator will usually solve this trouble.

The miss may be caused by fouling or surface short. By this, we mean that a continuous layer of carbon or other conducting material has been deposited on the lower end of the insulator and the spark is travelling through this instead of across the gap. A miss of this kind is usually intermittent for a while and finally the plug stops firing altogether. The immediate remedy is to clean the insulator either with a Champion "Minute" cleaner or, in case of a two-piece plug, by taking it out of the shell and cleaning with gasoline and by scraping if necessary.

Where plugs show a tendency to foul up in this way very rapidly, especially where a wet shiny coating of oil is deposited, it is advisable to change to another brand of oil which, in many cases, will get rid of most of this trouble.

Pre-ignition may be caused by

AN automobile engine runs at full load and speed during only a very small part of its term of service. A tractor engine is running at full load practically all the time. Because of this, and the fact that low-grade fuels are largely used in tractor engines, the problem of spark plugs for tractors differs to some extent from that of spark plugs for automobiles.

As a rule, the use of low-grade fuel means higher compression, higher temperature and more dirt

and carbon. The last item is made still worse by dust taken in while working during the dry seasons.

It is impossible at the present time to recommend any one type of plug for tractor work. High temperature engines require a plug with an insulator which is exceptionally good electrically, can stand the repeated applica-

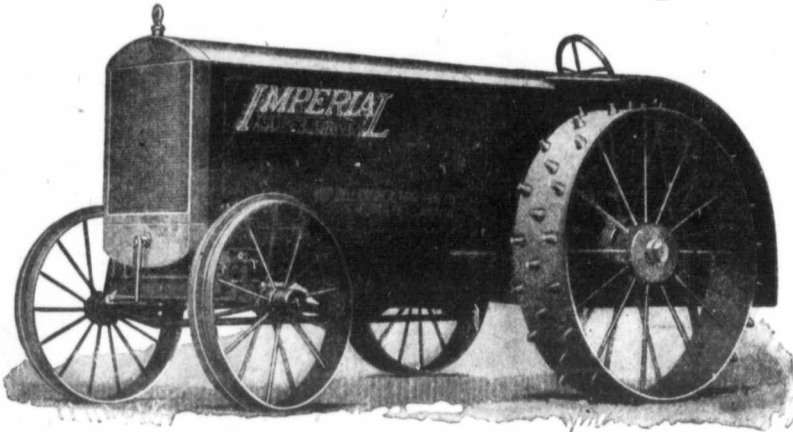
tions of high heat and at the same time not have enough of the central electrode exposed to cause overheating which may induce pre-ignition. An oil engine requires a plug having an insulator with unusually long shorting surface at the firing end.

In spite of the great number of different plugs on the market,

Tractor Spark Plugs

By O. C. ROHDE, Chief Engineer, Champion Spark Plug Co., Toledo, Ohio

The Tractor That Tops Them All!



Specifications:

- MOTOR—5-inch bore, 6½-inch stroke.
- RATING—15-30.
- PLOWING SPEED—2½ miles per hour.
- CAPACITY—3 to 4 plows.
- WHEELS—Rear 54 inches by 12-inch face.
Front 34 inches by 5-inch face.
- TRANSMISSION—Selective Type Live-Axle, Planetary Final Drive, enclosed in dust-proof housing. Heavy duty Hyatt Roller Bearings throughout.
- STEERING—Worm Gear Automobile Type.
- CARBURETOR—Stromberg, burns Kerosene, and burns it ALL.
- WEIGHT—Net 5000 pounds.

The Imperial Super-Drive Tractor

is the best designed, best engineered, most powerful for its weight and the most economical in performance of any of the farm tractors now in use.

It is the New Idea tractor—with the Live-Axle, Spring Cushion Drive—and a score of absolutely new and superior features which mean efficiency.

It has a unit Frame—with a much needed roomy platform on the rear.

It has a Live-Axle which delivers the power to the rims of the wheels—not to the hubs and spokes.

It has a Cushion Spring which relieve backlash and shock on the gears when the machine is running over rough ground.

It has a powerful, slow-speed, Kerosene-burning motor.

It has a driving principle, which delivers more engine power to the draw-bar than any other driving principle in tractor use.

It meets the accepted standard of performance—3 to 4 plows—and the accepted standard of weight—5200 pounds.

The Imperial Super-Drive

represents the best in tractor making that has yet been brought out in this country. It is far ahead of its time—and is the tractor that farmer and dealer have been waiting for. Write for complete information.

In the Western Provinces, especially, farmers have been making the mistake of buying too small a tractor, later finding such unsuitable for their use, unprofitable to operate, and unexpectedly expensive to keep in repair through being continually taxed to their capacity or more. Under such circumstances a larger tractor is really more efficient and economical even if its purchase meant a little more outlay. This is proven every day by owners of smaller tractors approaching us for an exchange.

Do not commit the same error, but profit by the experience of others and buy a tractor large enough for ALL your needs. It costs practically nothing more to operate a 3 to 4 plow tractor than the 1 to 2 plow size, and you accomplish double the work in the same time.

The Imperial Junior Separator

**SAVES THE GRAIN
RUNS EASY
BUILT TO LAST**

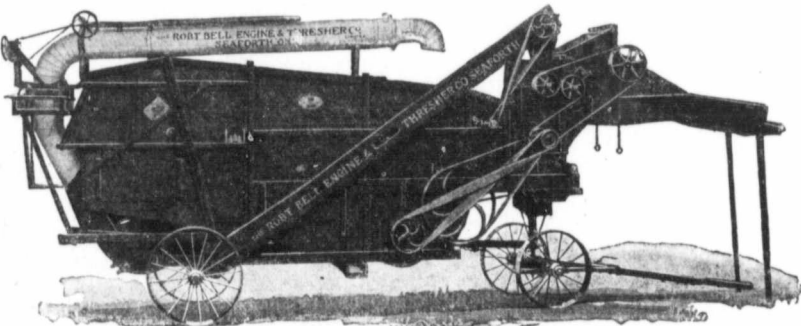
The Imperial Junior is designed to meet the requirements of the individual farmer who uses a light tractor for power.

It is free from complicated mechanism easy of adjustment, and a marvellous grain saver. From feeder to windstacker, through cylinder, concaves, grate, beater, deck, grain pan, shoe, fan and tailings elevator, every part is designed to give a maximum of work with a minimum of power.

Our entire output of these machines for the past year went through the season without a single call upon us for replacement of any part, through breakage or otherwise. Under favorable conditions it has threshed 1500 bushels of mixed grain in 10 hours, with no more than 20 actual horse-power to operate it.

It was not only the most efficient, light-running, and for its size the greatest capacity of any machine on the market to-day, but its design and appearance are pleasing to the eye, and it is exceptionally well painted, striped and varnished.

We also build other size separators to fit almost any size tractor.



SIZES: 24-inch Cylinder, 40-inch Body and 20-inch Cylinder, 32-inch Body.

The Robert Bell Engine and Thresher Company, Limited

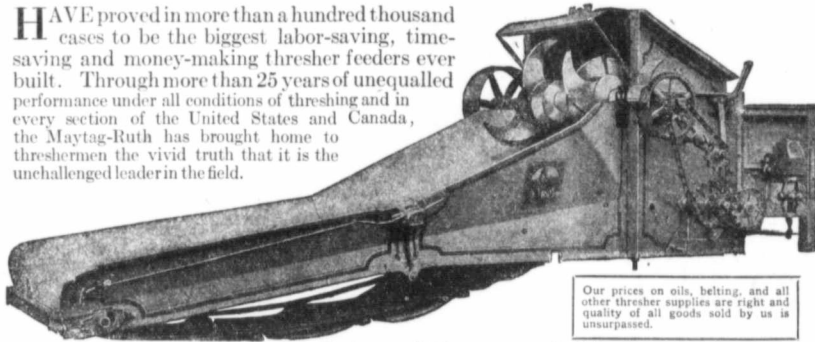
BRANCH: 1405 Whyte Ave., WINNIPEG, MAN., Canada HEAD OFFICE AND FACTORY: SEAFORTH, ONT., Canada BRANCH: REGINA, SASK., Canada

See our Exhibits at Regina and Brandon Fairs

MAYTAG-RUTH

Steel Self Feeders

HAVE proved in more than a hundred thousand cases to be the biggest labor-saving, time-saving and money-making thresher feeders ever built. Through more than 25 years of unequalled performance under all conditions of threshing and in every section of the United States and Canada, the Maytag-Ruth has brought home to threshermen the vivid truth that it is the unchallenged leader in the field.



Our prices on oils, belting, and all other thresher supplies are right and quality of all goods sold by us is unsurpassed.

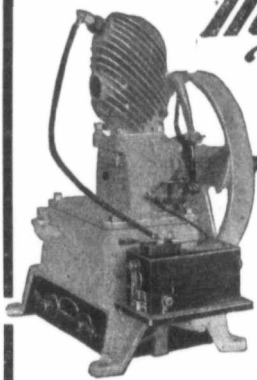
Tenacity for Duty and Economy of Upkeep

Simple efficiency of design and inbuilt ruggedness of construction give to the Maytag-Ruth that tenacity for constant service and that phenomenal record of economy which has made it the most exclusively used self-feeder in the world.

All that any other feeder will give you'll get from the Maytag-Ruth, plus the freedom from wear, breakage and high-cost idleness. When you buy a machine for any work about the farm you do so only because you figure it will make you more money

by saving labor and getting away with more work in less time. Then why run chances of disappointment by choosing a machine that may appear cheaper in its first cost but which is sure to prove expensive to you in breakdowns, tie-ups, and re-

pairs? When you own a Maytag-Ruth you need never worry about expensive tie-ups at times when it means real money to you. Make the best of your opportunities, when you are ready to buy investigate the Maytag-Ruth Steel Self-Feeder.



Maytag One-Horse Gasoline Engine

The Lightest and Simplest Gasoline Engine on the Market and at the Same Time the Most Powerful

For pumping, running fanning mill, cream separator and other light work, it has no equal. No trouble to pick it up and carry it from place to place.

We furnish the engine, which is an air-cooled, two cycle; a set of sealed batteries, a coil, a tin of Maytag special lubricating oil, everything ready to operate for the special price of..... **\$55.00**

The Maytag Company
Limited
WINNIPEG MANITOBA

other things than the plugs. If it is severe, it sometimes manifests itself by a spitting back through the intake, but it is always accompanied by a loss of power. What actually happens is this: Some part of the material inside the combustion chamber-valves, carbon, plugs, etc., has become hot enough to fire the mixture before time for the spark. The piston is not yet at the top of its compression stroke when the force of this premature explosion tries to drive it back down. The momentum of the fly-wheel carries it over for a while, but power is, of course, lost. In case of pre-ignition, the engine should first be examined to see whether there is an excessive accumulation of carbon and whether there are any particles hanging loose on valves or spark plugs.

The plugs should be looked over for rough edges on either wire or shell. If a petticoat plug is being used and no indications of this kind are to be found, it may be ad-

visible to try a conical plug, which very often will overcome the trouble, though it may need more frequent cleaning.

Occasionally the electrode wire



The "All Work" doing fine work on Portage Plains

shows signs of pitting or burning. This is entirely due to the use of defective material and there should be very little of it. If it does occur seriously it should be reported to the plug manufacturer or the dealer.

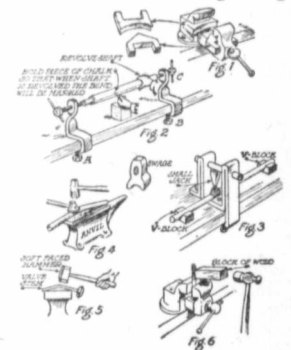
Always bear in mind that the tractor engineers have run thorough tests before deciding which plug to use. The spark plug they finally decide upon is the one they believe to be the best suited for their engine. When a new plug is needed the tractor user should insist upon the same plug his engine was originally equipped with at the factory.

In general, the spark plug manufacturer is prepared to cope with the tractor plug problem and can furnish plugs to meet all present requirements. However, present day development in engines and fuels is so rapid that the material on the market is not always the latest obtainable. The dealers are learning to classify plugs for the various conditions of service and if the tractor owner will specify clearly just what the plug is to be used on, he should have no trouble getting just the plug he needs.

ENGINE REPAIRS

Straightening Bent Work

FARM machinery has to stand pretty severe usage as a general rule, and nearly every farm mechanic has been obliged at some time or another to straighten a bent binder shaft, a truss rod, an axle, a piston rod or perhaps a valve stem, stud or bolt. To enable those who do their own repairs better to perform the work of straightening



How to straighten a bent shaft or axle.

bent parts, here are a few ideas that will lighten the task.

A great deal of small work can be straightened in the regular bench vise between blocks of wood with the help of a hand hammer or a large wrench; but with a couple of bending jaws, such as shown in Figure 1 of the accompanying sketch, a larger

Continued on page 18

The Grain-Saving Stacker

Has Been Adopted by These Manufacturers of the Standard Threshing Machines of Canada and United States

The manufacturers of North America's standard threshing machines named below are prepared to furnish machines equipped with the Grain-Saving Wind Stacker. Get the facts about this wonderful improvement which saves *one to three per cent more grain*. Full information will be given you by any in this list, many of whom you will recognize as the manufacturers of the best-known tractors and farm implements. Write any of these for descriptive circular.

Canada

Robt. Bell Engine & Thresher Co., Ltd.,
Seaforth, Ont.
Dominion Thresher Co., Ltd., New
Hamburg, Ont.
Ernst Bros., Ltd., Mt. Forest, Ont.
John Goodison Thresher Co., Ltd.,
Sarnia, Ont.
Hergott Bros., Ltd., Mildmay, Ont.
McDonald Thresher Co., Ltd., Stratford,
Ont.
Sawyer-Massey Co., Ltd., Hamilton,
Ont.
Stewart Sheaf Loader Co., Ltd., Winni-
ssex Mfg. Co., Ltd., Sussex, N. B.
Waterloo Mfg. Company, Ltd., Water-
loo, Ont.

List of Manufacturers

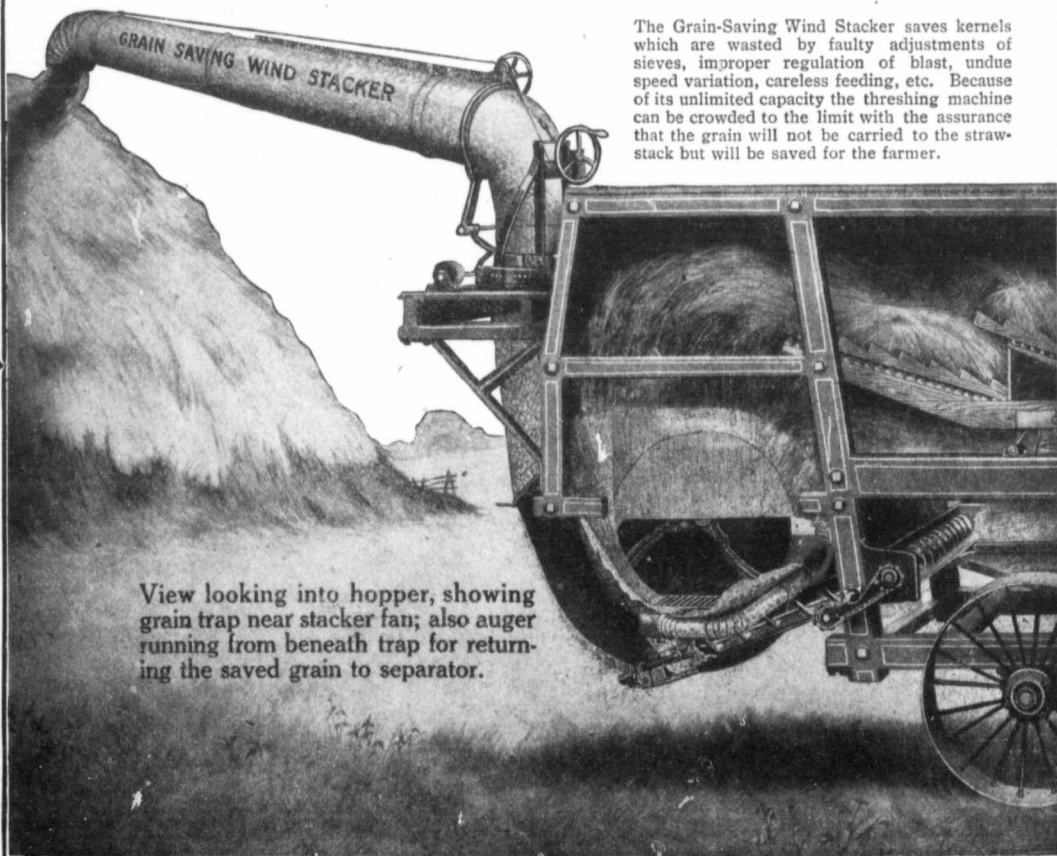
R. Watt Machine Works, Ridgeway,
Ont.
George White & Sons Co., Ltd., Lon-
don, Ont.

United States

Aultman & Taylor Machinery Company,
Mansfield, Ohio.
Avery Company, Peoria, Ill.
A. D. Baker Company, Swanton, Ohio.
Banting Manufacturing Co., Toledo, O.
Batavia Machine Co., Batavia, N. Y.
Buffalo Pitts Company, Buffalo, N. Y.
Cape Mfg. Co., Cape Girardeau, Mo.
J. I. Case Threshing Machine Company,
Racine, Wis.
Clark Machine Co., St. Johnsville, N. Y.
Ellis-Keystone Agricultural Works,
Pottstown, Pa.

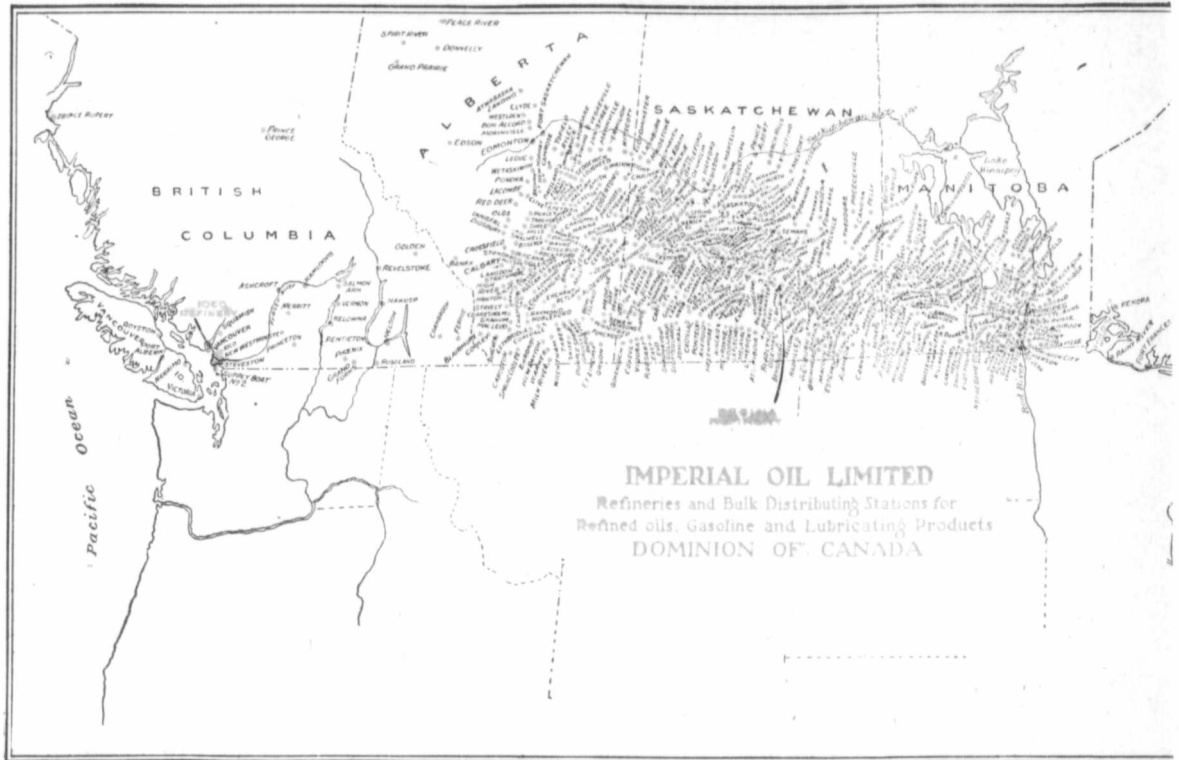
Emerson-Brantingham Co., Rockford, Ill.
Farmers Independent Thresher Co.,
Springfield, Ill.
A. B. Farquhar Co., York, Pa.
Frick Company, Waynesboro, Pa.
Harrison Machine Works, Belleville, Ill.
Huber Mfg. Co., Marion, O.
Keck-Gonnerman Co., Mt. Vernon, Ind.
Minneapolis Threshing Machine Co.,
Hopkins, Minn.
Port Huron Engine and Thresher Co.,
Port Huron, Mich.
The Russell & Company, Massillon, O.
Russell Wind Stacker Co., Indianapolis,
Ind.
Sawyer-Massey Co., Ltd., (U. S. Agency)
Moline, Ill.
Swayne, Robinson & Co., Richmond, Ind.
The Westinghouse Co., Schenectady,
N. Y.

The Grain-Saving Device Originated with The Indiana Manufacturing Co., Indianapolis, Indiana, Who Also Originated the Wind Stacker



The Grain-Saving Wind Stacker saves kernels which are wasted by faulty adjustments of sieves, improper regulation of blast, undue speed variation, careless feeding, etc. Because of its unlimited capacity the threshing machine can be crowded to the limit with the assurance that the grain will not be carried to the straw-stack but will be saved for the farmer.

View looking into hopper, showing grain trap near stacker fan; also auger running from beneath trap for returning the saved grain to separator.



Each red dot shows the location of an Imperial Oil Bulk Distributing Station. There are nearly 1,000 of

IMPERIAL

Royalite
 SAFEST AND BEST
GOAL OIL

WE SELL
 IMPERIAL OIL LIMITED

Polarine
 FRICTION REDUCING
 MOTOR OIL

USE
Premier
 Gasoline
 MORE MILES PER GALLON

The sign of Imperial Oil service. Displayed on hardware and many other stores throughout Canada.

What Imperial Distribution Facilities Mean

Our practically perfect distribution is the final guarantee of satisfaction to all who use Imperial Polarine Oils and Greases, Imperial Premier Gasoline or any other Imperial product. Imperial products may be conveniently obtained at any time, in any city, village or at any point in the country, from Halifax to Vancouver.

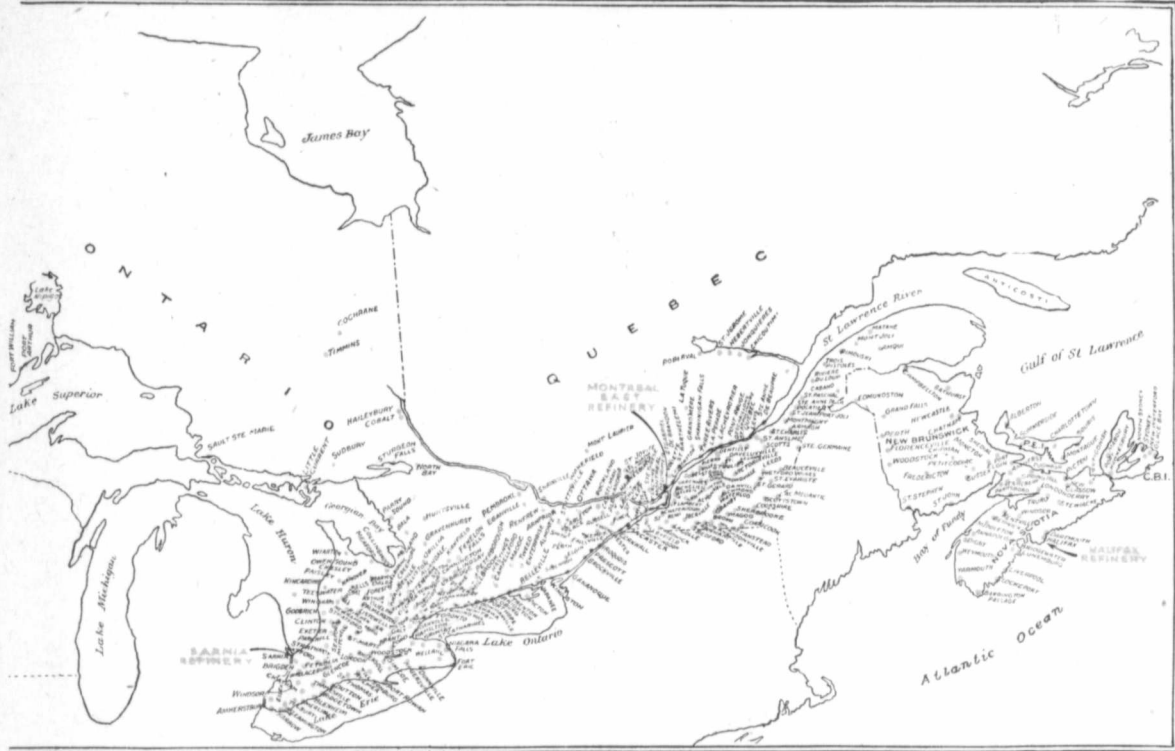
We have long recognized that the growth of our company is measured by the satisfaction that *Imperial Products* and *Imperial Service* give to you who buy and you who use them. Our bulk distributing stations provided to meet the demand for Imperial products may therefore be looked upon as a measure of customer satisfaction.

Imperial quality is assured. Our refineries, our bulk distributing stations, our tank cars, pipe lines and tank ships—all represent an investment that guarantees the uniform and unvarying high quality of every product that bears the Imperial brand.

Imperial products are refined in five Canadian refineries. From our refineries, they are carried by our own tank cars and tank ships to Imperial bulk distributing stations. From these they are distributed to our thousands of dealers

For Sale by Good Dealers Everywhere

IMPERIAL OIL LIMITED
 Power ~ Heat ~ Light ~ Lubrication
 Branches in all Cities



these now in Canada and their number is ever increasing to meet the growing demand for Imperial products.

To Canadian Farmers and Motor Car Owners

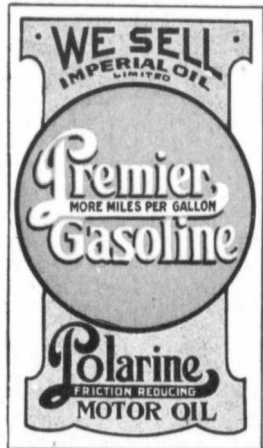
by fleets of tank wagons and tank trucks. Imperial distribution is as certain as Imperial quality.

Imperial bulk distributing stations, through which Imperial Oil dealers are supplied, provide the lubricants and the fuel best suited to your tractor or your car, no matter where you drive, no matter where you operate your tractor. Canadian farmers appreciate this advantage.

Imperial Polarine Oils and Greases and Imperial Premier Gasoline have long been recognized as the best by Canadian motorists and Canadian tractor owners. Not only these, but all who live in Canada enjoy the advantages of Imperial Oil's remarkably complete distribution facilities. Imperial Royalite Coal Oil, Imperial Lubricants and numerous other Imperial products are adding to the comfort and convenience on thousands of Canadian farms, in thousands of Canadian homes from one end of the Dominion to the other.

Imperial products are all real Canadian products; made in Canada and offered to our Canadian customers through Canadian distribution facilities second to none on this or any other continent.

For Sale by Good Dealers Everywhere



The sign of Imperial Oil service. Found on good garages throughout the Dominion.

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 Power - Heat - Light - Lubrication
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For Gasoline Engines, Tractor, Auto or Stationary
POLARINE OIL
STANDARD GAS ENGINE OIL

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POLARINE OIL
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POLARINE OIL A
IMPERIAL KEROSENE TRACTOR OIL
IMPERIAL KEROSENE TRACTOR OIL
EXTRA HEAVY
(Recommended by many tractor manufacturers)



A Correct Lubricant for every Farm Machine

For Open Bearings of Farm Machinery
PRAIRIE HARVESTER OIL
—very heavy body, resists cold, won't thin out with moisture

ELDORADO CASTOR OIL
—a thick oil for worn and loose bearings

NO ONE LUBRICANT WILL DO FOR ALL

Farm machines differ in structure and in service and so require different types of oils and greases. Farm tractors require different lubricants from trucks and automobiles—different parts of the same engine or motor having different duties to perform cannot be properly lubricated with the same oils and greases. Good lubrication will save you hundreds of dollars every year over poor lubrication. Imperial Farm Lubricants provide the right kind of oil or grease for each farm machine. From the Imperial Line you can select a lubricant that gives the greatest operating efficiency for each.



Look over the Imperial brands recommended here. These names are all recognized by Canadian farmers as standards of high quality. Imperial Farm Lubricants are scientifically formulated and carefully made. There are no superiors and few equals. Properly used they will increase the years of service from your automobile or tractor and all the other machines on your farm. Imperial Lubricants come in one-half, one and four-gallon sealed cans; in steel half barrels and barrels. The kind you want in the size you need can be delivered to you promptly anywhere at any time.



For Steam Cylinder Lubrication, whether Tractor or Stationary Type.
CAPITOL CYLINDER OIL
—the standard product for steam cylinder lubrication

IMPERIAL OIL SERVICE

Even though you are using Imperial Farm Lubricants exclusively, we hope that you will talk over your lubrication needs with the *Imperial Oil man* near you. He is well posted on farm lubrication. Put his knowledge to the test.



THRESHER HARD OIL
For Grease Cup Lubrication of Bearings, a clean solidified oil high melting point.

IMPERIAL OIL LIMITED
Power · Heat · Light · Lubrication
Branches in all Cities

shown, and with these the vise screw is made to answer as a bending screw.

In machine shops mechanics always use the lathe centers or special test centers for testing shafts, rods and axles for trueness. This is really the best and only correct way to test a shaft for straightness. The writer has devised a pair of bench centers as shown in Figure 2. They are in the form of clamps that will readily fasten on the edge of the bench; and as you will see, they can take a shaft or axle of any length, for they are movable along the bench. The center clamps are each made of one piece of flat iron stock and the screws are made from common bolts, the tips being filed conical and case hardened.

To test a shaft or axle on these centers it is but necessary to find the center of the diameter of each end and put a countersunk center hole in them or even a deep center punch; then put the shaft on the centers and revolve it with one hand, as shown, and at the same time hold a piece of chalk near it, resting your hand on a block of wood. The bent part will be marked by the chalk. Then take it off the centers and straighten it.

A very useful and strong rig for straightening work can be made as shown in Figure 3 from flat bar stock on a round bar. The frame of the press is made double and from one piece. This gives strength. A small screw jack is used upside down under the bar. Two V blocks are used to hold the work while bending it.

Work can be straightened on the anvil with a flatter, as shown in Figure 4. The bent part should be uppermost and the flatter held directly over it and this struck fairly with a sledge or hand hammer. Never use a flatter if the part is heated; a swage should be used instead. Small valve stems can be easily straightened as shown in Figure 5, using a soft-faced hammer for the work. Screw bolts and studs should be held in the vise jaws and bent straight with a block of wood, as in Figure 6.—C. H. Willey.

The Tractor Gives the Farmer No More Trouble than Automobile

Continued from page 10D

ly, "an automobile isn't intended to be used that way."

"Right you are," I said, "and neither is a tractor!"

When a tractor is built to deliver a certain horse power, it has just so much power and no more. There is no magic process by which it can draw unlimited power from the atmosphere any time it may need it to satisfy the unreasonable demands made upon it. Yet this impression seems somehow to have got abroad. Overloading has stopped many a tractor in the field in the midst of the busy harvest time. The person with the greasy overalls and the magic touch is miles away. The flivver that failed is tucked away out of sight in some repair shop. But the tractor that missed a shot is standing in plain sight of all who pass that field.

"That tractor is a failure," says the wise guy driving by; "I wonder why they can't make a tractor that will stand up like an automobile?"

Before the days of the automobile or tractor the driving horse and the top buggy were the pampered pets of nearly every well-regulated farm. The driving horse wore the celluloid rings and other horse's jewelry and for the buggy was provided a nice clean shed; the work horse wore whip marks and the farm wagon stood out in the weather.

There is a marked similarity in the treatment accorded the automobile and the tractor. For the auto a new garage is provided, while the tractor has to weather whatever storms happen to be on the calendar.

The ease with which a car can be taken to a doctor and have its every little ache removed also accounts for the seeming reliability

of the auto as compared with the tractor, and until such time as the tractor farmer will equip himself in such a way that he can minister to the wants of his machine, it will continue to suffer in comparison.

STRAIGHTENING BENT WORK

Continued from page 14

amount of work can be straightened. These are shaped as

TRADE SAWYER MARK
Registered
STITCHED CANVAS BELTING
PLEWES LIMITED (Distributors) **WINNIPEG**
On sale at your local hardware store.



Mileage -at cut prices

SEED may, or may not, be a bargain at cut prices. It depends on the crop it produces.

Tires may be dear at cut prices. It depends on the mileage they render.

So we do not offer you Goodyear Tires on a basis of tire prices: We offer them on a basis of mileage cost. And when you have finally obtained the last mile from a Goodyear Tire, you realize at just how low a cost mileage can be bought.

With the giant resources at our command we could probably produce a tire at a little lower price than anyone else. But every passing year more firmly convinces us that better tires, efficiently produced and marketed, will give the greatest value.

Apparently motorists have agreed with us, for they buy more Goodyear Tires than any other brand.

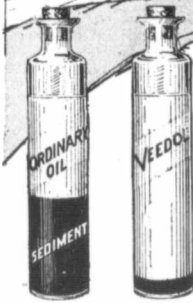
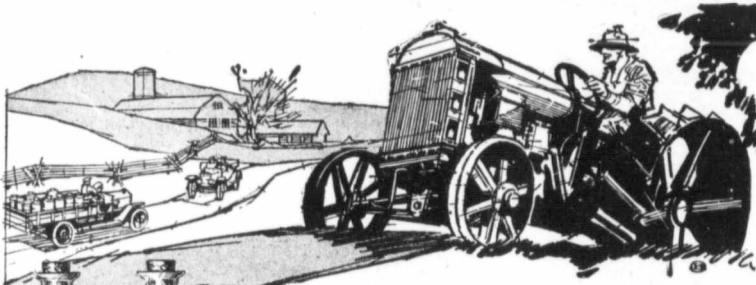
Surely you, too, will not allow a slight difference in first cost to stand in the way of lowering operating cost for your car, any more than you would allow the price of seed to ruin your crop.

See the Goodyear Service Station Dealer in town. He is selling mileage at cut prices.

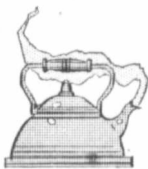
The Goodyear Tire & Rubber Co., of Canada, Limited

GOOD YEAR
MADE IN CANADA





Ordinary oil after use showing sediment formed after 50 hours of running



Just as water escapes in the form of steam, more than half of the average motor oil evaporates through the oil filler and is wasted.

Important points on tractor lubrication

AT harvest time a whole crop may depend upon getting the grain in from the field at a certain time. That is when your tractor must give perfect, uninterrupted service.

At this critical period a layup for repairs might cost you much more than the value of the tractor itself. Yet 90% of tractor engine troubles are preventable. They are due to inferior oil. There are three important points about tractor oil.

- 1. Sediment**—Ordinary oil breaks down under the intense heat of the engine, forming large quantities of black sediment which has no lubricating value. Sediment displaces the good oil from the moving parts, causing friction and wear.
- 2. Evaporation**—Ordinary tractor oil not only forms large quantities of sediment but it evaporates rapidly. This causes high consumption and often breaks the piston oil seal. Overheating, scored cylinders, rapid carbonization, etc., follows.
- 3. Contamination**—Ordinary tractor oil permits unburned fuel to drip past the pistons contaminating the

lubricating oil in engine base. The piston oil seal is destroyed, causing great damage. The thinned-out oil fails to lubricate, power losses result, burned out bearings are inevitable.

To overcome these faults of ordinary oil the Veedol engineers experimented for years in developing the famous Faulkner Process—used exclusively for the production of Veedol, the lubricant that resists heat. The striking superiority of Veedol is shown by the two bottles at the left.

Veedol not only reduces sediment, but also prevents excessive evaporation, and for this reason gives 25% to 50% greater service per gallon in the automobile type of tractor engine.

Veedol Special Heavy, the universal tractor engine oil, reduces kerosene contamination. It is unnecessary to clean the crankcase so often when Veedol is used.

Veedol worm-drive tractor oil reduces friction and increases horsepower.

Buy Veedol today

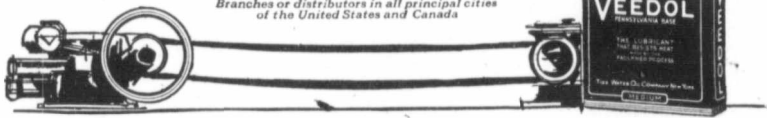
Leading dealers have Veedol in stock. The new 100-page Veedol book will save you many dollars and help you keep your tractor running at minimum cost. Send 10 cents for copy.

TIDE WATER OIL COMPANY

Veedol Department

1548 BOWLING GREEN BUILDING, New York

Branches or distributors in all principal cities of the United States and Canada



are insulated from the interrupter disk, which is electrically connected to the armature core. The interrupter contact block carries a platinum contact screw fitted with lock nuts. The interrupter lever is the form of a bell crank and carries on one end of a short platinum screw that makes contact with a corresponding contact screw in the block and is held in contact by means of a spring.

The primary winding is short circuited as long as the contact points of the platinum screws are closed, due to the electrical connection between the interrupter lever and the armature core, and thereby the primary winding. The interrupter housing may be rocked to advance or retard the spark. The condenser is electrically connected across the two contacts of the interrupter mechanism.

The secondary winding is placed directly over the primary winding of the armature, to which one end is connected. The other end of this winding is connected to the slip ring. A carbon slip ring brush conducts the high tension current to the carbon brush of the distributor rotor. The distributor plate is stationary and carries four terminals, to which the spark plug cables are attached. A safety spark gap is provided in the high tension circuit. A terminal is provided for the switch connection, which when grounded stops the ignition.

A CREED FOR COUNTRY BOYS AND GIRLS

I BELIEVE that the country which God made is more beautiful than the city which man made; that life out-of-doors and in touch with the earth is the natural life of man. I believe that work is work wherever I find it, but that work with Nature is more inspiring than work with the most intricate machinery. I believe that the dignity of labor depends not on what you do but on how you do it; that opportunity comes to a boy or girl on the farm as often as to a boy or girl in the city; that life is larger and freer and happier on the farm than in the town; that my success depends not on my location, but upon myself—not upon my dreams but upon what I actually do—not upon luck but upon pluck. I believe in working when you work and playing when you play, and on giving and demanding a square deal in every act of life.

One of the funny things about a lot of people who are worrying about saving their souls is that they haven't any.

TRACTOR IGNITION:

Continued from page 7

switch arm makes proper contact and keep it clean.

In case the ignition to all the cylinders should fail, the fault probably lies in the primary system, perhaps a short circuit due to worn insulation. The primary winding being generally grounded through the switch, all that is necessary to test the cable and switch is to disconnect the cable from the grounding terminal of the magneto interrupter cover and try to start the engine on the magneto. If the engine runs and then stops when the cable is connected to the terminal, the cable or switch is at fault, but if the engine fails to start, due to no spark, the trouble lies in the magneto. A faulty magneto should be placed in the hands of one entirely familiar with its construction for re-

pairs, or returned to the factory.

The foregoing troubles and remedies are somewhat limited, depending on the type of magneto used. However, they are the most common and other troubles encountered with specific makes of magnetos will be considered hereafter.

Example of Single Ignition System

Fig. 1 shows the internal wiring diagram of the Bosch high tension magneto used in a single ignition system. The low tension current generated in the primary winding of the magneto is conducted to the interrupter, where it is interrupted twice for each revolution of the armature. From the interrupter, the current returns to the magneto by way of the frame. The high tension current which is induced in the secondary winding is conducted

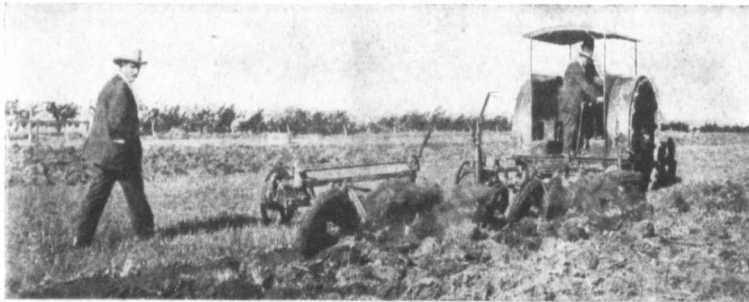
to the rotor of the distributor, from which point this current is distributed to the spark plugs 1, 2, 3 and 4, by the contact pieces 1, 2, 3 and 4. The secondary circuit is completed through the cylinder walls and the frame work.

Fig. 2a shows a longitudinal section and Fig. 2b shows the interrupter, with the cover removed, of the Bosch high tension DU 4 magneto. The armature is of H-section and has a double winding revolving between horse shoe magnets. One end of the primary winding is grounded to the armature core and the other is connected to the brass plate into which is screwed the fastening screw. The fastening screw holds the interrupter in place and also serves as a conductor for the primary current to the interrupter block. The screw and the block

Two Sweeping Victories FOR AULTMAN-TAYLOR TRACTORS

—Win BLUE RIBBON for best all around performance in sod plowing, at Pampa, Texas, Demonstration, in competition with 16 others.

—Make sensational "hit" at National Tractor Demonstration, Denver, Colorado, by being the only tractors demonstrated that really successfully pulled moldboard plows six inches or more deep in the hardest kind of sun-baked gumbo sod, minus moisture.



Winning the "Bacon" at Pampa.

The whole story of the sod plowing contest at Pampa, is told in the following excerpt taken from May 23rd issue of the Pampa Weekly News:

" and the field was alive with tractors, all pulling a full quota of discs and turning the sod over at an alarming speed.

The engines working in Tuesday's demonstration were:

AULTMAN-TAYLOR	Cleveland Caterpillar	Hart-Parr	Wallis Cub
Waterloo Boy	Fordson	Huber	Coleman
Moline Universal	Twin City	Allis-Chalmers (2)	Rumely
Titan I. H. C.	Case	Emerson Brantingham	Avery

The AULTMAN-TAYLOR ENGINE was awarded BLUE RIBBON for best all around performance, based on points."

Pampa Demonstration

At Pampa, 15 competitors, 16 tractors went down in defeat. The A. & T. 15-30 was awarded the **BLUE RIBBON** for Best all around performance in sod plowing. Let us see what best all around performance means to the user!

A tractor may be durable and not economical, or it may be economical and not durable. It could be both, economical and durable, and still not be reliable. Such a tractor could not possibly be awarded the blue ribbon for best all around performance. To win such an honor, a tractor must be a good performer in every particular — Reliable, Economical and Durable.

After all, performance is what counts, and the better the performance, the more valuable the tractor is to you. The performance of this 15-30 at Pampa is by no means unusual. It's just the character of service that these Better Tractors are rendering to thousands of proud owners in every part of the country and is the kind of service you may expect from the Aultman-Taylor Tractor you buy.

Here again is overwhelming proof in abundance of Aultman-Taylor Tractor Superiority—two sweeping victories in one month. These two victories simply add laurels to an already long list of achievements and make Aultman-Taylor leadership stand out more conspicuously than ever before. As far back as 1912, at Winnipeg, Aultman-Taylor tractor efficiency attracted the attention of the power farming world. Today Aultman-Taylor Tractors are just as far ahead of the average tractor as they were back in those days.

Write or ask any representative for full particulars.

Denver Demonstration

At the National Tractor Demonstration, Denver, June 9-14, Aultman-Taylor Tractors scored a big "hit" by really successfully pulling moldboard plows six inches or more deep in the hardest kind of sun-baked gumbo. This plowing job demanded big reserve power and stamina in a tractor. Only a few attempted this job and most of these failed in the attempt and gave up in despair. It was the unanimous verdict of the thousands of farmers present that Aultman-Taylor Tractors were the only tractors that had the power and stamina to successfully draw moldboard plows in this hard sod. It offered an excellent opportunity for the farmers to determine the difference between "fair weather" tractors and the real honest-to-goodness kind. We were just waiting such an opportunity. We wanted to show these farmers that Aultman-Taylor Tractors are not sold on mere claims, but on results produced in the field, under any and all conditions—and we did.

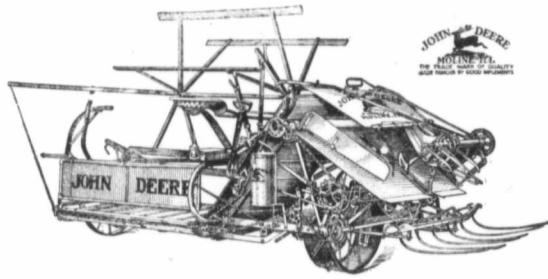
The conditions in Colorado are similar to those in many other parts of the country.

It would be poor policy to buy a tractor that would work only under favorable conditions and let you "stick" right in the peak of your rush work just because conditions were a little out of the ordinary.

The AULTMAN-TAYLOR MACHINERY COMPANY, Mansfield, Ohio

Branches:—CALGARY, REGINA, SASKATOON AND WINNIPEG

**YOU HAVE
WORKED
HARD FOR
YOUR CROP**



**NOW---SEE
THAT IT IS
HARVESTED
PROPERLY**

The John Deere Binder meets every emergency and condition of any harvest field

The John Deere—the Better Binder—has a main frame that is rigid and strong. Platform is all-steel riveted. Binder deck has 3 packers so as to make good bundles even in wet, tangled or irregular length grain. Extra well finished and hardened knotter. Outside reel support on all sizes. Extra heavy canvas is strengthened with concave slats. Large drive and grain wheels have wide tires and are equipped with roller bearings. All-steel quick turn tongue truck relieves horses and aids greatly in cutting a full swath at every turn. In 6, 7 and 8 ft. sizes. An excellent machine—built for many years of service.

See the John Deere Dealer

JOHN DEERE PLOW CO. Limited

WINNIPEG

REGINA

SASKATOON

CALGARY

EDMONTON

LETHBRIDGE

THERE is little work on the farm the tractor is better qualified to do than pulling the grain binder. Everything is in its favor in the harvest field, and for many reasons. The harvest of rye, barley, oats and wheat comes in almost the hottest time of the year. While the temperature may not be as high as it is later in the season, the air is really more humid, and in many sections harder on horses than the dry hot spells later on. Then, too, the flies are very pestiferous during the harvest season, and this, together with the hard work of pulling the binder, is decidedly hard on horse flesh.

Tractor Provides Steady Power

While it is true there is room for improvement in the use of a number of binder tractor hitches now employed, especially those which are home-made, still the tractor more than fills the bill cutting grain. In the first place, tractor power is steady, and little time is required for

Tractor's Pre-Eminent Position in Harvesting

By E. R. WIGGINS

stops except those made to oil the binder. When the grain is fit to cut, the ground usually is dry, so that there is good footing for the tractor. Another thing of importance is that the tractor can be speeded up to cut the grain faster than horses generally walk, thus enabling the farmer to assure himself that he will finish cutting his grain before it becomes over ripe. If left too long before cutting, so that it becomes too ripe, the kernels will shell out, causing a

waste. Where the tractor is used the farmer can wait until his grain becomes ripe before starting to cut. Many farmers having a large acreage to harvest with horses start early in the season before the grain is really ripe in order that they finish before the harvesting season is over.

Tractor Methods in Harvest

Until very recently grain binders, as designed to be drawn by horses, were used with the tractor. This year sees a binder especially designed and constructed

for tractor use. This machine has a 10-ft. cut, being built considerably stronger than the horse binder, and is equipped with anti-friction bearings.

There are now several types of binder hitches. With one type there is no hand guiding from the binder. The binder follows the tractor and steers automatically. In the case of turning corners, the tractor is not turned at all until the sickle has completed the swath. As the sickle is passing through the last stalks of grain in the swath the tractor is quickly turned to the left. The hitch keeps the harvester in line until the tractor is again turned to the right to straighten it out on the adjacent swath. As the tractor straightens out, the grain wheel

is quickly thrown backwards and in line with the next swath. If the operator is careful in turning, a square corner will be the result. An advantage in this hitch is that the tractor does not have to stop in turning a corner.



An Effective Harvesting Combination—John Deere and "Waterloo Boy"

The design is such that two parallel bars extend diagonally from the rigid tractor angle draw-bar to the binder hitch crosspiece.

This hitch is for one binder only, back of the tractor. If additional binders are to be pulled these last binders have to be equipped with hand steering arrangements. Many tractors are now so arranged that the operator can drive his tractor from the binder seat. The control lever and steering rod are extended back to the binder seat.

The two-wheeled tractors have this idea well worked out. The binder and tractor are a unit. The binder forms the rear sustaining member for the tractor.

A number of single binder hitches consist mainly of a stub tongue which is attached directly to the draw-bar of the tractor. This makes a very rigid hitch and requires no steering device in the binder. Hand guided binders have either a steering crank or lever, located conveniently to the driver's seat. The mechanism for steering may be a pivot arrangement actuated by gear on a rack, or steering may be accomplished by having the front end of the binder supported on a castored truck wheel, which wheel is steered by worm and gear, or by a set of bevel gears from a hand steering wheel.

Train of Binders

In hitching one binder back of the other, one hitch is provided with a roller at the front end of a stub tongue which travels on a segment at the rear of the front machine. This arrangement supports the front end of the tongue, and provides reinforcement to overcome side strain on the binder frame and platform. The roller and segment makes the tongue self-aligning.

Still another type has a pole pivoted to a rigid frame and swings by a gear quadrant and pinion. The pinion derives its motion from the steering wheel near the driver's seat through a worm gear. The tongue on the binder following is pivoted to a bracket attached to the main frame, and swings in a yoke carried in the frame.

On some binders provided with a tongue truck the tractor is attached by a bar, about three feet long, to the tongue track. Others remove the tongue truck and hang the tongue directly on the tractor platform. With such an arrangement the tractioneer may ride back on the binder, or drive the tractor from the platform, and makes use of another man or boy on the binder. The one riding on the binder has little to do except operate the bundle carrier

Operating as One-Man Outfit

A number of tractor owners

Imperial Tractor Fuels

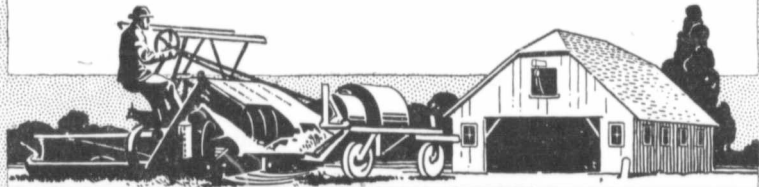
IMPERIAL PREMIER GASOLINE

Always of uniform quality. A straight-distilled gasoline. Every drop goes into power. Gives more power and less trouble per gallon than any other fuel. Meets every requirement of gasoline tractors and farm engines. Has in it everything a tractor needs to deliver its full rated horse-power on every job. The uniform high quality of Imperial Premier Gasoline has earned for it the praise of thousands of Canadian farmers.

IMPERIAL ROYALITE COAL OIL

A reliable, clear and clean-burning fuel for coal oil (Kerosene) tractors and farm engines. Free from impurities and foreign matter. Refined from high-grade crudes. Made in well-equipped Canadian refineries. Carefully and correctly refined. Full of energy and power; no waste. Imperial Royalite Coal Oil is the ideal fuel for the oil heater, the oil cook-stove and other household purposes, too.


Promptly supplied everywhere in any quantities desired.



IMPERIAL OIL LIMITED
 Power · Heat · Light · Lubrication
 Branches in all Cities

For cash or time prices write distributors named in this ad.

Save all the Grain



Write us for Proof of these claims

Whether you use a Moody only for your own work or for custom threshing, it pays from the time you start operating. It saves more grain than other machines and cleans it thoroughly for sale or seeding. This cleaning assures the highest grade. Every foul seed is caught and bagged—the ground you thresh on is as clean as your fields. The Moody is unequalled for strength, ease of operation and durability.

POWER REQUIRED—Moody Separators are made in two sizes: No. 6A 24-32. New 1919 Model No. 2, 30-38. No. 6A with hand-feed attachments and straw carrier requires 9 H.P. Engine. No. 6A with hand-feed attachments and blower requires 10 H.P. Engine. No. 6A with feeder and blower requires 14 H.P. Engine. New 1919 No. 2, 30-38 with hand-feed attachments and blower requires 14 H.P. Engine. New No. 2 1919, 30-38 with blower and feeder requires 16 to 18 H.P. Just the proper size for a Fordson Tractor or 10-20 Tractor. If you do not have an engine don't overlook our Victor Portable and Stationary Engines made especially for Moody Threshers, or our Parrot Tractor—the best tractor on the market.

NEW HOME MACHINERY CO., Ltd.
SASKATOON, SASK.

FRANCOEUR BROS.
CAMROSE AND EDMONTON, ALTA.


MITCHELL HARDWARE, LIMITED
BRANDON, MAN.

operate the binder from the tractor seat entirely. The bundle carrier is connected to a foot trip on the tractor platform, and the binder head shifting lever and reel levers are placed at the front on

the tongue. In this way these levers can be handled from the tractor somewhat the same as tractor plow levers are handled. With this arrangement a mirror is so placed on the tractor that the

tractioneer can see the tying mechanism and watch the bundle carrier.

Another arrangement used in the tractor harvesting is that of the line drive. The tractioneer



Nickel Genuine
This metal is especially designed for gas or steam tractors. It will not only flow freely, but will cast smooth bearings, which will outlast any other alloy on the market. It has been adopted by some of the largest manufacturers of tractors on this continent as a standard.

Frost King
This Babbitt for ordinary bearings and portions of threshing machines where high speed is required is the best alloy that can be used. It is very carefully compounded and made of the best selected metals and will run cool under almost any condition.

HOYT METAL COMPANY, EASTERN AVENUE and LEWIS STREET TORONTO
SALES: Five Million Dollars Annually. PLANTS: New York, London (Eng.), St. Louis, Toronto

rides on the tractor and controls the steering arrangement by a set of lines, and the clutch lever is operated by another set of lines. This design has been adopted by a number of the tractor concerns this year.

The use of home-made tractor binder hitches is not to be recommended. There are a number of commercial hitches that are very satisfactory, and nearly every harvester manufacturer makes a special tractor hitch for its own present day binder. However, it is not always possible for a farmer to get a hitch that will fit the binders he already has. The hitches that have so far been developed by farmers are very ingenious, but in many cases are not very practicable.

Remember These Points

A few of the things to watch out for in binding grain with a tractor may not be out of place. The first important item to be remembered is that care should be exercised at all times. And unless the binder is especially built to be pulled by a tractor, excessive speed should be avoided. The strain on the various parts of the binder is much greater when being pulled by the tractor than with horses because with the latter there is some "give." With the former, when an obstruction is

met, the governor will open up a little and instantly more power is applied. With the slow motion of the horse-drawn binder the operator is able to watch the machinery more closely.

Lubrication Always Important

Special care must be used to see that the binder is much better lubricated when pulled by a tractor,

cool, and the problem of lubrication is very acute. The writer has seen bearings on binders become hot when pulled by a tractor that never bothered otherwise. Increased draft, due to some parts sticking or clogging, does not make itself manifest with the tractor as it does with horses. That is why special care has to be

troubles will be greatly multiplied when the tractor is hitched to it. Chain trouble may be the result of excessive wear caused by the chains being run too tight or in having the chain on the sprockets wrong. The chain should run so the hooked ends lead with the openings of the hooks away from the sprocket. Chains that are run too loose flop and jump off the sprockets. C. O. Reed, formerly professor of farm mechanics at the University of Illinois, states that in sandy soil "it is better to run the exposed surfaces of the main frame chains, sprockets and gears dry than to oil or grease them," because the grease with the sand forms an abrasive.

There are many reasons why binders, after they have been run for some time, have heavy draft, and as these causes come under the heading of binder trouble, will be mentioned here. These are poor lubrication, tight chains, gears meshing improperly, elevators and canvases not adjusting properly, and the bull wheel axle not square in the frame.

The creeping of canvases is due to one of two causes; either the canvas is not tight enough or the elevator frame is not square. If the latter be true the slats will be torn off. This should be checked by placing a carpenter's square



"Waterloo Boy" on the Plowing Job at Portage

tor, than with horses. This point has been taken care of in the design of special tractor binders. With tractor binders, after starting the machine it is not necessary to stop and rest, as with horses, consequently the plain bearings do not have a chance to

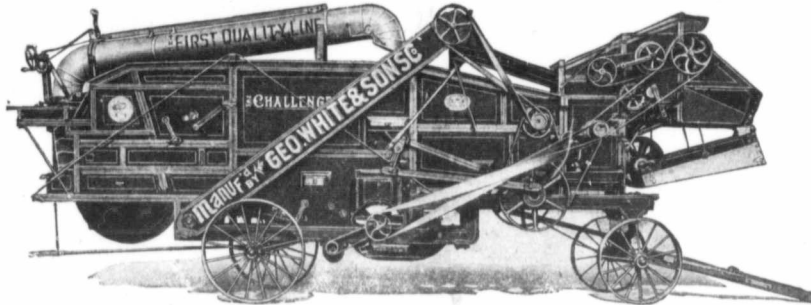
used to have the binder in first-class repair and adjustment, and then in the actual cutting of grain, operator must be all eyes and ears.

Binder Attention Required

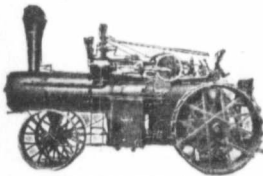
If the binder does not run properly when pulled by horses the



White Machinery Means The Best



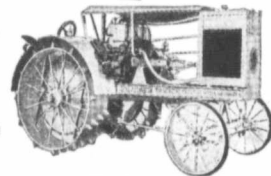
SPECIAL CHALLENGE 24x40
THE MACHINE YOU WILL HAVE TO BUY TO SATISFY YOURSELF
JUST SUITS YOUR TRACTOR



THE OLD RELIABLE
IT PUT THE "OIL" IN TOIL

POWER

Write now for Catalogue



ALLWORK ALWAYS
IT TAKES THE "IRK" FROM WORK

The GEO. WHITE & SONS CO. LTD.,

BRANDON, MAN.
MOOSE JAW, SASK.

in the corner between the guide and roller. This fault is overcome by adjusting the brace rods.

The bull wheel that is badly out of line should be squared up by moving wheel-axle pinions one tooth upward in the quadrant on the side towards which the wheel leans.

Excessive side draft is generally caused by some trouble in the grain-wheel bearing. The roller bearing in the grain wheel should be thoroughly cleaned and well oiled.

The knotter hook should be free from rust before it will work properly. If trouble is here found the hook should be polished with fine emery paper. The binder attachment should be properly timed. This may be checked by the markers placed on adjacent gears by the manufacturer.

There must be no lost motion between the knotter pinion and tier wheel. If the pinion is worn it should be replaced. A very important item in bindery operation is the proper tension on the twine. One authority states that the adjustment on the cord holder spring should be such as to require a force of about 40 lb. to pull the twine from the disk. Occasionally it will be found that the needle does not carry the twine far enough and the hook will take hold of only one cord. The length

of the pitman has to be adjusted to overcome this. The knife in the binding attachment becomes dull on some makes of binders. If not properly sharpened the twine will be pulled from the hook before the knot is made.

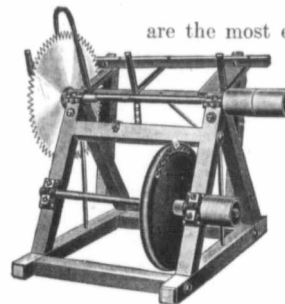
Hitches for Header

Within the past two years a number of the harvester companies have developed a header attachment to be placed on the regular harvester. The binding attachment is replaced by an elevator which elevates the headed grain into a wagon box. This new type of machine was developed first, because in certain localities where the grain was very short, due to a dry season, farmers wanted their regular binders so arranged that they could cut this short grain. As the grain was too short to bind, yet was fully supplied with heads, they demanded machines that would elevate the headed grain into wagons. These new machines were therefore brought out to supply the requirements. They were also arranged to head the tall grain if so desired. That is to say, the platform may be raised the required height.

True, Very True

First Williams Rooter: "Did you see the last basketball game?"
Second W. R.: "No, I took a girl to it."

Watson's Pole Saws



are the most economical wood-cutters. Strongly built to stand any racket; they are always satisfactory. Heavy, hard-wood frame, steel shafts and boxes, solid fly-wheel and three pulleys. The saws are built to standard Watson quality — of flawless steel.

Money could not buy a better saw than this. Write us to-day for prices and further particulars.

Write about these lines:

- | | | |
|-------------------|----------------------------|------------------------|
| Sleighs | Grain Grinders | Header Eveners |
| Wood Boss Harrows | Turnip Seed Sowers | Bevel Jacks |
| Harrow Carts | Wheelbarrows | Channel Steel Harrows |
| Root Pulpers | Horsepowers | Pole and Cordwood Saws |
| Straw Cutters | Doubletrees and Neck-yokes | |
| Pulverizers | | |

John Watson Mfg. Co.

311 Chambers St.

WINNIPEG

Heider

11 Years Actual Field Work

FOR eleven years America's leading power farmers have used the Heider in every kind of tractor work. Heider principles have been tested by time and found to be absolutely correct.

No Gears to Strip

With the Heider Drive the power is taken directly from the flywheel by two large metal discs at either side—one to go ahead, the other for reverse. No jerking, no vibration, no gears to strip. Tractor always in "mesh." Seven speeds forward and reverse, all with one motor speed and one lever for traction or belt.



Model D 9-16
With Rock Island No. 9 Power Lift Plow Attached. One-Man Outfit.

15 to 20% Fewer Parts

The fewer the parts through which the power has to travel, the more power delivered at drawbar or belt. Heider Tractor's simple construction does away with 15 to 20 per cent of parts. It does away with clutch, transmission gears and bevel gears. This leaves the maximum power for pulling plows and harrows, for hauling loads, for every farm job—with less fuel and less upkeep expense.

Two sizes, 12-20 and 9-16. Send for catalog of Heider Tractors and Rock Island Tractor Tools; the famous Rock Island Tractor Plows, 2, 3 or 4 C T X bottoms, and the Rock Island one-man Tractor Disc.

WATERLOO MANUFACTURING CO.
Waterloo, Postage La Prairie, Saskatoon, Regina, Calgary
Manufactured by Rock Island Plow Company
Rock Island, Ill.



Rock Island No. 38
One-Man Tractor Disc Harrow.
Operated from Tractor Cab.



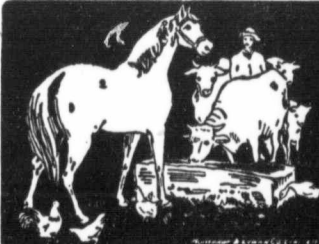
Model C
12-20 H.P.

DON'T SCRAP YOUR BREAKAGES

Send us all your broken or cracked Cylinders, Crank Cases, Gear Wheels, Gear Housings or Machine Parts. We will deliver perfect results and **save you money.**

HUB WELDING COMPANY

253 SHERBROOKE STREET, WINNIPEG
Lowest Prices consistent with Best Workmanship.



Dr. Thomas' Eclectic Oil
Relieves all Pain in Man or Beast
25 Cent Bottles at all Dealers

SERVICE

Department

Conducted By
G. WHO

Q.—I have tractor on which master gears and their pinions are lubricated with gravity gear oilers; have been using drainings from crank case, but find that this is not sufficient and it appears that the cheapest oil I can get for this purpose amounts to about 60c a gallon. What kind of oil would you suggest for this purpose? Also have used several kinds of grease on gears, but find it too dry as it cakes and drops off. What kind of grease would you recommend, or is there any mixture that a person could make whereby the grease could be made to stick to gears, forming a film of grease over the gear teeth? I like to use some grease since I find that gear oilers do not thoroughly lubricate gears since they fail to spread the oil over the entire face of gears. Would heavy cooling oil be of any value for use as a gear lubricant? Any information or suggestions that you can supply on this subject will be gladly received.—Harold Grass, Munson, Alta.

A.—The big trouble with exposed gears has been that the oil which is used to lubricate them has been fed from a small piece of tubing and drops in one place on each tooth. When the tooth reaches the bottom, the oil drops off without having had a chance to spread over the surface of the tooth. Grease, when applied to gear teeth, is generally more harmful than helpful, for it gathers dust and grit, making a grinding compound which tends to grind away the teeth. Where cast gears are used, this is sometimes taken care of by running the gears dry and turning some of the exhaust onto them, but this method does not hold with steel or semi-steel gears. The best method I know of for lubricating exposed gears is to provide an oil box as close as possible over the large gear. A slot is provided in the side of the box, and a wick the full width of the gear is fitted into the slot and allowed to hang down so that it just rubs on the teeth as they pass. Oil is fed into the box from the regular oilers and fed to the gears through the wick. This method keeps the gears lubricated for the full width and, after a trial of this method, you will probably be surprised to see how much more lubrication you get from the same amount of oil. As to the kind of oil to use, I have

used pretty nearly everything from Summer Black cooling oil to gas engine oil, and have had very good results from the oil taken from the crank case, providing it wasn't too full of dirt. Gear oil is probably the best for use in gears, but is very hard to feed in cold weather by this method.

Q.—How would I test my gas engine if equipped with high tension magneto and impulse starter to know if spark is out of time or if it sparks at spark plugs or not? Engine is universal, two-cylinder gas pull, formerly equipped with Remy low tension magneto and battery coil. I used to test by placing spark plug on frame of engine. Wires all connected, turn over flywheel easy till it sparked, then stop immediately and look where the piston was, but with high tension magneto I must turn it very fast to get spark, and can't stop at right time.—F. E. Buckley, Cadillac, Sask.

A.—If it is necessary for you to turn your motor over quickly to get a spark with a high tension magneto equipped with an impulse starter coupling, the starter coupling cannot be operating properly. The purpose of the impulse starter coupling is to hold the armature of the magneto stationary while the shaft which drives it keeps on turning and winds up or compresses a spring. At a given point the dog or catch which has been holding the armature stationary is released and the armature turns past the point of maximum current as fast or faster than it would if the motor were running at full speed. If the magneto is properly timed to the motor, the release will occur when the piston is on dead centre, regardless of where the advance or retard lever may be set. You will see by the above that you can turn the motor very slowly and still test as you did when you were using a low tension magneto with dry cells. If you have to turn your motor quickly to get a spark, you will probably find that the impulse starter coupling is not working freely. If this does not entirely clear up your trouble, write again, giving the name of the high tension magneto you have installed and, if possible, a description of the timing coupling which is used.

Q.—Which of the following oil tractors give the best service:

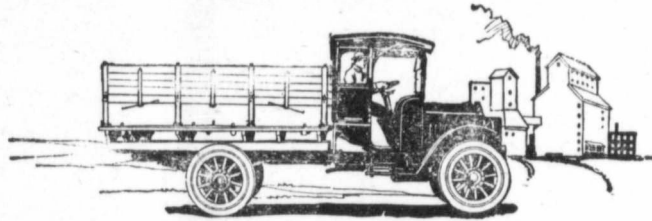
Rumely, Case, Titan, Mogul, Avery or Aultman-Taylor? I am going to purchase one for plowing and threshing. My separator is a 30x50 Geo. White. Do you think a 15x30 Titan will handle same? If not, I would try an 18x36.—James W. Reid, Sask.

A.—I don't think it is the policy of The Canadian Thresherman and Farmer to recommend any one make of tractor over another, and, in any case, you'd probably find it pretty hard to find any man who has been in the tractor game very long who will tell you what tractor to buy. In buying a tractor you have to take into consideration the work you want it to do and the conditions under which it will have to do that work. For instance, if your land is hilly, as some of the country is around you, you will have to have a lot of reserve power for the hills. You can get this either by working at the same speed all the time and just pulling enough to be a reasonable load in the hills, or you can buy a tractor with a high speed that isn't too fast for plowing. You would then pull your load on high until you came to a hill or tough spot, when you would use your low gear to pull the same load at a slower speed. The weight of the tractor is quite a consideration in some districts where the land packs very badly. The construction of the machine and the service it will give, you pretty nearly have to determine by results obtained from machines already in the field. It has been some time since I handled the make of separator you mention, but it takes about the same amount of power as the average separator. A 30x50 thresher should have about 35 H.P. or a little more to drive it properly under all conditions. In buying power for a thresher, always have some to spare, for lack of power is one of the greatest causes of wasted grain.

Q.—Will you be kind enough to tell me how many H.P. is a Chevrolet 490 car? Some say 25 H.P. Well, I can't see it, as 25 H.P. of any other engine would turn the wheels of a car.—Wm. Todd, Keppel, Sask.

A.—The specifications which I have give the Chevrolet 490 as 3 11-16 inch bore by 4 inch stroke. Using the Roberts' formula $\frac{D^2LN}{15000}$ such a motor would have 17.4 H.P. at 1200 r.p.m.. Using the formula $\frac{D^2N}{2.5}$ the rating would be 21.75 H.P.

If there is neither a heaven nor a hell, how are you going to explain the fact that there are mothers who are glad to make any sacrifice for their children and fathers who are unwilling to do a thing for them?



This Maxwell Truck Will Give You More Land More Money, More Time

A MAXWELL truck will go farther, do more than six good horses—in less time. And it costs no more. It feeds only when it earns. It defies weather. It is always on the job—ready to haul anything from 50 bushels of grain to 3,000 pounds of potatoes—anywhere, any distance.

It takes 5 acres to feed a good horse. Thirty acres to feed 6 horses. The wheat you can raise on 30 acres of land will pay for a Maxwell Truck—now.

Those 30 acres are then free to make money for you. And your Maxwell Truck will make money for you. It will enable you to market your crop quickly—in the best market—at the best price.

It will save you hours—days—of valuable time. It will make your work easier, pleasanter, more profitable.

Travels faster than heavier trucks. Yet it is big enough to handle 90 per cent of all hauling jobs.

Has the same type of worm drive which \$7,000 trucks advertise as their great feature. \$7,000 truck construction and sold with a \$7,000 truck guarantee. 10-foot loading space. Power enough to pull a wagon when truck and wagon are fully loaded. Electric lights and generator. Chassis \$1,550, f.o.b. Windsor, Ont.

See your nearest dealer. If you don't know him write and we'll tell you.


P. S.—You can get Maxwell service wherever you are.

MAXWELL MOTOR CO. OF CANADA, Limited, WINDSOR, Ont.




More miles per gallon
More miles on tires

YOUR OWN BRAINS and the INFORMATION you will get out of a-dollar-and-a-half spent on one year's subscription to "The Canadian Thresherman and Farmer" will make you an EXPERT POWER FARMER



In the Farmer's Factory



Six horses will make sixteen miles per day in the field, and the man looking after them turns out at 5 a.m. and is not through until 8 p.m.

Putting in the same hours with the

Stinson Kerosene Tractor

he could make thirty-three miles, pulling the load it would require twelve horses to pull.

Men to care for horses are nearly as scarce as men to care for tractors.



Our tractor requires the minimum of attention. It will last for years.

See it at Saskatoon and Regina Fairs, and remember, it is sold

AT THE SAME PRICE THE
AMERICAN FARMER PAYS

Sas.atchewan Grain Growers' Association

Head Office—Farmers' Building
REGINA, SASK.

Dry Farming Practices and How to Improve Them

Address by Hon. W. R. Motherwell at the Western Canada
Irrigation Association Convention, held at
Nelson, B.C.

ALTHOUGH not generally looked upon as such, dry farming is the twin sister of irrigation. Half of the world's arable surface gets insufficient rainfall from the clouds during the crop growing season. This shortage, if satisfactory yields are to be obtained, must be made up in one of two ways: (a) Irrigation, or (b) dry farming.

The former simply means the utilization—by artificial means—of our natural precipitation after it has first assembled in our rivers, lakes, etc. by means of the ordinary "run off." The latter means briefly the retention of our natural precipitation in the soil as it falls by means of proper tillage methods performed at the proper time. Inasmuch as the time of doing this tillage is quite as important as the manner of doing it, it is obviously and highly important not to undertake to till the whole face of the earth, when one has only half the necessary power to do it with. And this latter point becomes all the more exacting and imperative when one remembers the very short growing season on the prairie, and the still shorter rainy one, even on the more "dropping" years.

Saskatchewan has an average precipitation (rain and snow combined) of about 17 inches per annum. This is not sufficient to grow successful crops on consecutive years beyond a very few years. Hence the necessity of skipping a crop every three or four years and devoting, say, one-third of one's acreage each year to summer fallow, for the primary purpose of storing the rainfall in the soil and subsoil and the secondary purpose of killing weeds, which latter have proven such a terrible source of moisture

leakage in times past and present. This storing process can best be performed by deeply plowing the fallow early and before the usual rains, so that they may percolate freely into the soil instead of running off or being used up growing weeds, grass and rubbish prior to plowing.

Dry farming, by the above method means rapid nitrification and equally rapid loss of soil humus which should be restored by any and all means available, if a soil's retentivity and productivity is to be preserved.

The two greatest obstacles to successful dry farming methods on the open prairie are: First—The temptation to till and crop more than one has power to do properly and timely, thereby losing moisture by evaporation. Second—Overmuch or thoughtless tillage especially in the spring, thereby losing land by drifting.

The normal tendency of the West is towards too large farms for the power available. This has been greatly accentuated since the war by an indiscriminate campaign for greater production through the medium of greater acreage regardless of its condition, by those who should know better, with the natural result that when drouth pervades the land thousands and tens of thousands of acres that should never have been sown take the count on the first round. Superficial advisers tell us, "Oh, we are at war and every acre possible must be sown." Surely conditions on the prairie this year must once more demonstrate the fallacy of such unfortunate teaching. Just because we are at war our agriculture should be safer and surer than in normal times, as we certainly cannot afford to

Keeps Harness New and Axles Strong

Imperial Eureka Harness Oil

—gets into the leather. Keeps it supple—looking new and strong as new. Keeps insects and moisture out. Prevents drying and cracking. Keeps breakage and repair bills down. Sold in convenient sizes.

Imperial Mica Axle Grease

—prevents spindles wearing thin and hubs getting loose. The powdered mica and grease coats both spindle and hub lining with a covering of perfect lubrication that fills all pores and smooths all rough places. Makes loads easier to haul, reduces strain on harness and horses.



Sold in many sizes—1 lb. to barrels.

Imperial Eureka Harness Oiler

—makes oiling easy, quick and thorough. Should be in every barn.

IMPERIAL OIL LIMITED
Produce, Distribute and Lubrication

AT DEALERS EVERYWHERE

DO NOT SCRAP BROKEN CASTINGS

We make them equal to new at low price. Cylinders, Engine Bases, Gear Wheels, Steam Boilers, in fact any broken or cracked parts, welded and guaranteed by us. Scored or worn cylinders re-bored. Please write for our circular and estimates. We were the first to operate the OXY-ACETYLENE WELDING PROCESS in the West. Established since 1911.

MANITOBA WELDING & MFG. CO.

56 and 58 Princess Street, WINNIPEG, Manitoba



Huber Light Four Operating at Portage Plowing Match

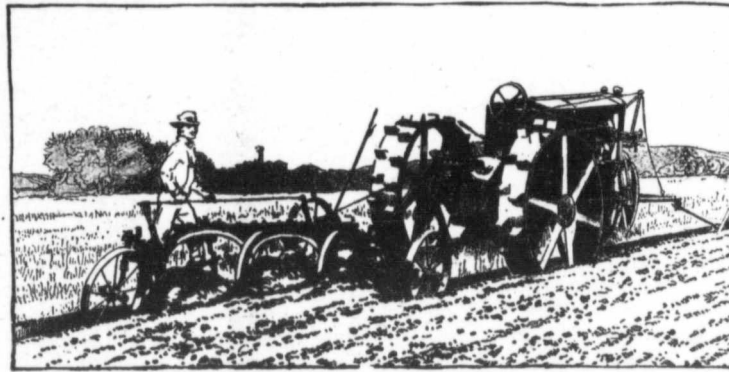
throw away good seed, energy and time at this crisis. This is a too frequent form of waste that must be eliminated if our dry farming practices are not to come into disrepute and our energies be partially dissipated during war. Let us not forget that it is bushels and not acres that count, and that in four years out of five it does not pay to sow land that is not in proper condition. Years like 1915, 1901 and 1887 come like the coveted magnet to the gold digger, at long intervals, and should be forgotten rather than that our farming operations be shaped and shodded to suit such exceptional years.

The second great obstacle to successful dry farming practices is: Soil drifting. Nearly every spring we have more or less of this scourge in Saskatchewan, on both the very light and the very heavy soils after being fallowed. Fortunately, however, there are a number of effective cures for this plague, that far too few people employ, although many are aware of them. Of course it goes without saying that the very best remedy is seeding down, thereby restoring the fibre root which acts as a binder to the shifting soil. But this, at present, is both expensive and impractical in many districts, so some other remedy must be employed in the meantime.

Sowing fallow land with winter rye in August of the same year in which it is fallowed is an absolutely sure cure for soil drifting. But many of us are so stiff-necked in our farming methods, and so wedded to wheat that this dead-sure remedy is not nearly as generally and profitably employed as it should be.

The man on clay land who grows wheat on his fallow and to whose mind nothing else will do has still a chance to keep his farm at home, by duckfooting or discing it about three inches deep early in the spring before seeding, making sure to omit the use of the dray harrow. This form of cultivation largely covers up the fine powdery top soil and replaces it with wet soil from below which quickly dries into hard chunky particles, much less liable to drift. This is not reckoned in itself good dry farming practice as a certain amount of moisture is lost by the operation, but our soil must be kept at home at all hazards, as one year's drifting like the present not only destroys that particular crop, but impairs the soil, equal to eight or ten year's cropping. In short, this practice means spending the fallow year in conserving moisture and the spring following in losing part of that moisture in

"Lowest Plowing Cost per Acre"



WALLIS

"America's Foremost Tractor"

The Wallis won the title, "America's Foremost Tractor" by ending needless power waste.

Compared with other tractors the Wallis actually pays for itself in additional service rendered. Where the ordinary tractor uses about half its power to pull its own self, the Wallis uses only one-fourth. Thus the Wallis delivers about 50 per cent. more farm power at the draw bar, than other tractor motors of the same belt power.

It is also significant that the Wallis weighs 1000 to 5000 pounds less than other tractors of equal drawbar pull.

This means much less fuel used per acre—greatly lessened cost of plowing per acre—in a word true economy of operation. And economy is the only basis on which to buy any farm machine. To produce

a tractor of the Wallis class, many advanced ideas in regard to material and design had to be introduced. One is the Wallis "U" frame—a simplified construction which did away with much needless weight.

Another is, completely enclosed gears, including the final drive. This reduces friction and entirely protects the tractor from sand, dirt, etc.

The motor, too, is distinctively a Wallis feature. In quality of material, design and workmanship it is comparable to the best aeroplane motor. This motor keeps cool under working conditions that would "burn up" the average tractor motor.

Here is conclusive proof of Wallis superior performance from the official report of the Walworth County, Wis., Tractor Demonstration held on Tilden Farms, near Delavan, May 6, 1919.

FIGURES FROM OFFICIAL REPORT OF THE WALWORTH COUNTY, WIS., TRACTOR DEMONSTRATION HELD ON TILDEN FARMS, NEAR DELAVAN, MAY 6, 1919

Name	Type	Rating	No. of Bottoms	Size Plow	Make of Plow	Time hrs.	Time runs	Acres plowed per hour	Acres plowed per bottom	Fuel Consumption per acre				Fuel cost per bottom	Fuel and labor cost per acre
										Gasoline		Kerosene			
										gals.	pts.	gals.	pts.		
Emerson-Brantingham	4-eyl	12 20	3	14-in.	E-B	1	2	.967	.322	1	6	...	...	\$ 131	\$1.02
Moline	4-eyl	9 18	2	14-in.	Moline	1	2 3/4	.960	.480	5	1	...	...	303	1.25
Advance-Rumely	2-eyl	12 20	3	14-in.	Oliver	1	3	.932	.317	...	2	6	4	147	1.07
Heider	4-eyl	12 20	3	14-in.	Rock Island	1	6 3/4	.922	.301	3	8	4	194	1.25	
Townsend	2-eyl	15 30	4	14-in.	Oliver	1	3 1/2	.944	.238	...	3	8	...	128	1.15
La Crosse	2-eyl	12 24	3	14-in.	La Crosse	1	11	.845	.281	...	3 1/2	7	1	153	1.17
Case	4-eyl	15 27	3	14-in.	Grand Detour	...	48 3/4	1.237	.412	...	3 1/2	7	4	129	.96
Case	4-eyl	10 20	3	14-in.	Grand Detour	1	7 1/2	.888	.296	1	4	2	129	1.06	
Case	4-eyl	10 18	2	14-in.	Grand Detour	1	34	.638	.312	...	2	6	7	233	1.41
New Hart-Parr	2-eyl	15 30	3	14-in.	Oliver	...	44 3/4	1.248	.449	...	3	6	...	141	.87
Allis-Chalmers	4-eyl	18 30	4	14-in.	Oliver	...	44	1.363	.341	...	6	6	6	129	.96
Samson	4-eyl	...	...	14-in.	Janesville	1	5 1/2	.916	.305	1	4	7	147	1.10	
Lauson	4-eyl	15 25	3	14-in.	Oliver	1	4 1/2	.930	.310	...	6	7	145	1.08	
Avery	4-eyl	14 28	4	14-in.	Grand Detour	1	1	.983	.245	4	2	...	...	189	1.37
Avery	2-eyl	8 16	2	14-in.	Grand Detour	...	(Did not start)	...	...	...	3 1/2	5	2	170	1.01
Forson	4-eyl	...	2	14-in.	Oliver	1	7	.895	.447	...	6	9	4	207	1.55
Eagle	2-eyl	16 30	3	14-in.	Oliver	1	15	.800	.266	1	6	9	4	120	.79
Wallis	4-eyl	15 25	3	14-in.	J. I. Case	...	42 1/2	1.411	.471	...	4	4	6	124	.99
Monarch	4-eyl	15 30	4	12-in.	Oliver	...	49	1.224	.308	...	3 1/2	7	6	141	1.11
Parrott	4-eyl	12 25	3	14-in.	Oliver	1	8	.882	.294	...	3	6	6	141	1.11
I. H. C. Titan	2-eyl	10 20	3	14-in.	Oliver	1	21	.740	.246	...	3 1/2	6	3	137	1.22
Waterloo Boy	4-eyl	12 25	3	14-in.	J. Deere	1	11	.845	.281	...	1	7	4	163	1.20
Turner	4-eyl	14 25	3	14-in.	Oliver	1	22	.730	.245	...	6	8	...	199	1.42
Cleveland	4-eyl	12 20	2	14-in.	Oliver	1	8 1/4	.876	.438	...	1	7	2	237	1.16
Allis-Chalmers	4-eyl	6 12	1	16-in.	Oliver	3	15	.307	.307	4	4	...	...	1.07	3.02
Indiana	4-eyl	8 12	1	16-in.	Oliver	2	18	.434	.434	4	...	...	...	.948	2.32

NOTE—All plowing was at least 6 inches in depth. One man operated each outfit. Labor is figured at 60 cents per hour; gasoline (tested sp. gr. 57) is figured at 23.7 cents per gal.; kerosene (tested sp. gr. 44) is figured at 12.7 per gal. (United States measure).

"Lowest Plowing Cost per Acre"

You will find a complete description of the Wallis intensely interesting. Write for catalog.

The Canadian Fairbanks-Morse Co. Limited

WINNIPEG

SASKATOON

CALGARY

Here is a Cletrac Fact — Kerosene Fuel!

IN operating the tractor fuel is an important item.

Gasoline is 36 cents a gallon. Kerosene (coal oil) is only 18 cents.

The Cletrac Tank-type Tractor works on kerosene—not just goes—but works—100%.

And the Cletrac uses no more kerosene than other tractors use gasoline.

On this cheap fuel, the Cletrac will do a hundred things around the farm—do them quickly and well—save man-power and horse-power—save time and money.

Plow—pull a disc, harrow and

drag over even muck land—and never pack the soil.

You'll want the active, dependable 12 h.p. of the Cletrac to haul mower and hay loader, binder and wagons of grain.

You'll want the 20 h.p. of the Cletrac belt pulley to run your feed chopper, cement mixer, wood-saw and other machinery.

Now is the time to find out about the Cletrac Tank-type Tractor. Write us for our book "Our Owners Say," the story of what the Cletrac is doing for other farmers—told in their own words.

The Cleveland Tractor Co. of Canada, Limited, Windsor, Ontario
The Cleveland Tractor Service Co., Limited, Regina, Sask.

Cletrac

TANK-TYPE TRACTOR

Mr. C. S. Otis of Melita, Man., writes as follows in reference to his Cletrac Tank-Type Tractor: "I bought a 22-50-inch Red River Separator and the tractor ran the separator threshing 15 days, and in all there were about thirty farmers who came to see it run. They all said it was the smoothest power they had ever seen on a separator, and two of the farmers whom I threshed for told me it was the best threshing outfit that had ever come into the district; it ran just like a clock. I used gasoline, 45 gallons every two days, and two gallons of 'Vaseline' oil that cost \$1.10 per gallon every two days. On an average, it did not take a pint of water a day in the radiator."



Red Wing

Thresher Belts

will give you a service this season that will make you their friend for life.

Their reasonable price—their extra strength—their non-slip grip—the way they deliver the power—and their freedom from break-downs—will win your favor.

Start the season right; equip your thresher with RED WING BELTING.

Our nearest branch is always at your service

Dominion Rubber System Service Branches

Located at
WINNIPEG, BRANDON, REGINA,
SASKATOON, EDMONTON, CALGARY
and LETHBRIDGE.

DOMINION RUBBER RED WING

order to conserve the soil from drifting.

For years past many farmers have been practising this pre-seeding form of tillage as above described, with marked success, with the result that such farmers today, amidst the desert-like, wind-swept conditions of many districts, have prospects of a fair crop of from twelve to twenty bushels per acre and even more in some instances. Other farmers are getting good results; in the prevention of soil drifting, by thinly spreading (with a manure spreader) six or eight loads of well rotted manure to the acre on the top of their freshly plowed summer fallow. This manure being short and well rotted does not interfere with subsequent top tillage for the killing of weeds, but it does constitute a very good binder in the ordinary year, for the shifting soil that has become such a terror to the owners of our very best worked fallows.

These three most practical methods of combatting the drifting of summer fallowed land—manuring the fallow, sowing winter rye in August, or discing in early spring—may all be used with advantage, the first on the parts which most need fertilizing, the second on any kind of land except low-lying wet places, and the third on the remainder. A great advantage of combining these three is the distribution of labor, although other important advantages will occur on a moment's reflection. If at all possible that portion of the summer fallow to be sown with winter rye should be plowed the previous fall in order to provide a longer period to store up moisture, especially in dry seasons such as this and last year.

It may be further added that the practice of stubble burning and stubble farming, so und enough in some localities and for a time, has about had its day and should be permitted to pass quietly into history. There is no question that the burning of stubble together with all top fibrous matter for the past 25 or

30 years, has had much to do with the soil's gradual increasing tendency to drift. On the other hand sowing on stubble, especially on poor stubble has had the effect of encouraging and establishing perennial weeds such as quack and similarly rooted grasses, thistles, dandelions poverty weeds, etc., until they have become a positive and growing menace to the most approved dry farming practices.

There are two other very important factors in dry land farming that deserve more than passing attention. The prevalence of annual weeds and the amount of seed sown per acre. Weeds are sometimes referred to as the farmer's best friend, and to some extent that they compel him to properly till his land, they may be looked upon in that light. But just to the extent they are permitted to occupy the soil, they actively compete with the crop for their share of the scanty moisture content of the soil, very much to the detriment of the crop and the owner's bank account. In more humid countries the loss from weeds is usually not so noticeable. But under our semi-arid conditions the presence of weeds often means ruin.

The amount of seed sown per acre, especially in west and south-west Saskatchewan, on a very dry year frequently determines the success or failure of a crop. Because of the variation in our soil, methods of tillage and the kind of year ahead of us, no hard and fast quantity of seed per acre can be determined upon. Experience, however, with respect to this very important matter, has taught us that thin sowing is best on dry years, poor soils and late or poorly tilled lands and in localities not pre-disposed to harvest frosts. On the other hand, rich fat lands, deeply and timely plowed on a "dropping" year, will carry a heavy crop and consequently should be sown comparatively thickly, especially if the district is pre-disposed to early frosts. Two bushels of



The "Universal" outfit as seen at Portage Plowing Match

Steady Power—Dependable for Threshing

The old reliable steam engine has never been equaled in power for threshing.

It is steady, which is always necessary to insure good results. It is the power that most people know how to operate.

It's troubles are easily discovered and remedied. If it get weak it does not stop dead. Almost anything that can burn can be used for fuel. The

Nichols-Shepard Steam Traction Engine

represents the best that can be produced in steam engine construction. It is durable and has lots of power. It is easily handled. Almost anyone can keep it running.

With a Nichols-Shepard Steam Engine and a Red River Special Separator you know that you are fixed just right

for threshing, and the farmer knows his work will be done quickly and well. There will be no waiting and no loafing on the job.

It pays to buy a Nichols & Shepard outfit. It will mean money in your pocket.

NICHOLS & SHEPARD COMPANY

(In Continuous Business since 1848)

Builders Exclusively of RED RIVER SPECIAL THRESHERS, Wind Stackers, Feeders, Steam and Oil-Gas Traction Engines

Battle Creek - Michigan

Branch Houses:—REGINA, Saskatchewan

H. P. NORTON COMPANY, CALGARY, Alberta

WINNIPEG, Manitoba

wheat or oats per acre are considered to be about the proper quantities for fallow land of the latter description, with a correspondingly lesser amount for more indifferently tilled land. On the lands of the former description (that is lighter soils or in west and south-west Saskatchewan) half these amounts—one bushel per acre of both wheat and oats—will often be sufficient for best results. In our real dry land area (south-west) and on second crop after fallow, three pecks of either wheat or oats one year with another will give better results than heavier sowing. This to many, of course, is absurdly thin sowing especially for oats, but let them try it and the harvest on the average year will show better results than the orthodox amount of a bag of oats to the acre, that so many blindly follow. It is impossible, however, to prescribe just how much seed should be used in every instance, as farms and even fields differ so much, and then the annual rainfall differs also. Take the spring of 1918 for instance; following the dry year of last season all lands should have been sown thinner than normally, as there was so little reserve in the ground that the cloud moisture had in many districts to be relied upon from day to day and week

to week to keep the crop growing. But even with the two dry years in succession, which we never had before over such a large area, there are farms here and there all over the country, where a fallow on clay land had been plowed early and deep last season and kept at home this spring and then not overloaded with seed, which give promise of satisfactory returns amidst the desert-like conditions that prevail immediately adjoining, where wrong methods were followed.

Although fully eighty per cent of Saskatchewan's open plains wheat area is suffering severely from drought right now, it is generally admitted that the country or more recent pre-emption area suffers in this respect more frequently and more acutely than the remainder of the province. In view of this, it would appear advisable to try out at least a portion of one's farm instead of once in three years, or not at all as is the eastern custom with some. The fact that this dry area in 1915 not only made a record crop yield for Canada, but for the world, proves that it is highly productive when given a chance. But this phenomenal, though occasional productivity, tempts many to gamble on its early recurrence, with the result that when a dry year comes in-

Just like getting a check

-30 cents of each dollar saved!

HASSLER for all Ford Passenger Cars

HASSLER
TRADE MARK REGISTERED
Shock Absorber
PATENTED

The Hassler Guarantee: "Absolute satisfaction or your money back."

SUPPOSE your garageman gave you a check for 80 cents every time you spent a dollar for tires and repairs? Suppose he gave you a check each year for a third of the depreciation you know has taken place in your Ford Car or Ford One-Ton Truck? It amounts to exactly the same thing when you equip with Hassler Shock Absorbers. At least 30% of your tire and repair cost is saved outright, because the road shocks and vibrations are cushioned before they reach the vital and weighty parts of the machine. This elimination of vibration also reduces the depreciation loss in the same proportion. There is real economy—a real worth while saving! Of course, you know how much more satisfactory your car will ride if you have Hasslers on it. The added comfort alone is worth far more than they cost.

10 DAY TRIAL OFFER

Don't ride without Hasslers because someone tries to discourage you. They are a quality product—worth their price. The Hassler dealer in your vicinity will put them on for 10-days' trial. Your money refunded if you say so. Write for name of dealer and Trial Blank.

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For Ford One Ton Trucks, Too!

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*"They wear longer
because they're made
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Every garment bearing the G. W. G. Label is guaranteed to give full satisfaction to the wearer in fit, workmanship and quality, and to obtain this satisfaction should the garment prove defective, simply satisfy the merchant from whom purchased; he is authorized by us to replace it.

stead, crop failure is the inevitable result on lands where a sufficient store of moisture has not been laid by—not for a "rainy day," but for a dry day. In districts where early autumn frosts occur the problem is more complex, and this additional factor must there be taken into account.

In any event it is surely high time in the west to cut out this "sowing every acre" stunt regardless of its condition or likelihood of growing a crop on an average year. This is largely what necessitates this frequent government seed distribution, which in turn, if practised too frequently and indiscriminately, tends to pauperize some, people and convert them into remittance men, with the government playing the part of the beneficent and indulgent old pater. The war is liable to be with us for years yet and we cannot either in our own or the nation's interest, afford to farm anything but our best. By all means let us prepare all the acres we have equipment to do right and at the right time, but to expand upon this, to any appreciable extent, is contrary to the dry farming experience of hundreds and thousands of our best farmers, and will tend to reduce rather than augment our aggregate field output.

I cannot conclude this talk better than by reading a copy of the Ten Farming Commandments, gotten out by the speaker in 1914, when conditions in Saskatchewan were much the same as they are today.

The Ten Commandments

1. Thou shalt have no other occupation than farming.
2. Thou shalt fallow thy land every third year, being careful to plow it both early and deeply.
3. Thou shalt cultivate thy fallow and not allow weeds or any other thing that is green to grow thereon, or winds to blow through it, for in such way the moisture which thy fallow should conserve will be wasted and thy days will be nothing but labor and sorrow.
4. Thou shalt not despise the harrow, but shalt use it even

whilst thou plowest, and shalt place thy chief reliance upon it thereafter, whether in early spring (except on driftly fallow), late spring, midsummer or autumn.

5. Thou shalt sow good seed early and down into the moisture, lest peradventure it cometh not up betimes. He who soweth his seed in dry soil casteth away many chances of reaping.

6. Thou shalt not overload thy dry land farm with seed, even as the merciful man doth not overload his ox or his ass. Thin seeding best withstandeth the ravages of drought and hot winds.

7. Thou shalt keep on thy dry farm such kinds and number of horses, cattle, sheep, pigs and poultry as the water supply maketh possible, and thou canst grow pasture, fodder, roots and grain for. Thus shalt thou be protected against adversity, and thus shalt thou give thy children and children's children cause to call thee blessed, inasmuch as thou didst not greatly dissipate in thy lifetime the fertility stored in thy soil through many thousands of years.

8. Thou shalt not live unto thyself alone, but shalt join the Grain Growers' Association, the agricultural society in thy district or any like minded organization that is good. Through these thou shalt work unceasingly for the welfare of thy district and the upbuilding of Saskatchewan agriculture.

9. Thou shalt study thy dry land farm and its problems unceasingly and ponder on ways and means whereby its fruitfulness may be increased, keeping always in memory the fact that not alone by speeches and resolutions, but also by intelligent and timely hard work shall production be increased and the economic salvation of thy country be wrought.

10. Thou shalt not covet thy neighbor's big farm. Thou shalt not covet thy neighbor's big four, nor his mortgage, nor his worry, nor his hurry, nor anything that is thy big neighbor's.

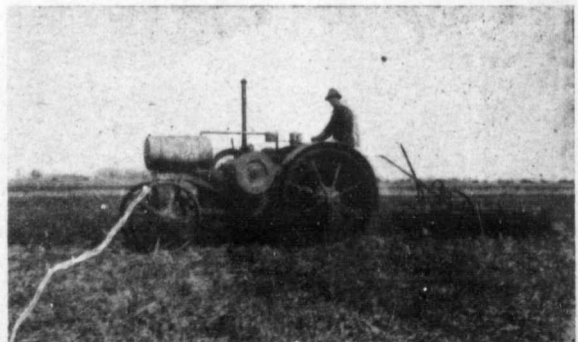


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AGENTS WANTED



One of the "Titans" operating at Portage

"Fore-Armed is Twice Armed!"

Have you **really** prepared for the rapidly approaching harvest in which for the greater part of Western Canada's crop, you will have to deal with the heaviest straw you have threshed in years? Remember what always happens **at the last moment** in the case of the man who is unprepared. Is your **Thresher-Belting** in a condition that admits of no doubt? Do you know that whatever state it is in you can be reassured beyond all peradventure by using the



LION BRAND
Rubber Belt
 or the
YELLOW FELLOW
ENDLESS THRESHER BELT



They are unbeaten in the field of grain production

and are sold by all thresher companies doing business in Canada. They may cost a trifle more than some fabrics that are always a big risk but that is forgotten in the added years of service, and we guarantee our goods against all disappointment from slippage or breaking. It is not possible to make better belting by any scientific method known at this day

Gutta Percha and Rubber Limited

WINNIPEG FORT WILLIAM REGINA SASKATOON CALGARY LETHBRIDGE EDMONTON

THE MORDEN FAIR

THE Morden Agricultural Society held its fair on July 2 and 3. The heavy rain of the 2nd affected the number of exhibits materially, but the second day was all that could be desired, and there was a large attendance.

Baseball formed the attraction, Carman, Plum Coulee and Morden participating. Carman won first and Morden second. The exhibit of ladies' work was exceedingly fine. The principal winners were Mrs. S. Martin, Mrs. T. Adair, Miss Whitfield, Miss Peters, Miss Cook and Miss Ward. In children's work, Miss Lillie Neiman and Miss Adair.

Horses

There were some fine animals exhibited by J. Bartley, of Roland, T. Shortridge and J. Bell, of Kaleida, in the heavy draughts. Geo. Pentland, W. Henderson, W. Minty, P. Patterson and W. Keir in the agricultural and farm chunks. In the general purpose and roadster classes John Ching, W. D. Moorehead, R. W. McClain, Roy Bond and J. Mason were the main winners.

For lady drivers, Mrs. Patterson won first and Miss Elva Keor second.

John Ching had a splendid herd of Shorthorns, and the honors were divided between him, Foley Bros. and E. Leatherdale. In the

Aberdeen-Angus class P. Patterson got first for 3-year-old bull, and W. Henderson took 12 prizes with his magnificent herd. Henderson, J. Ching and A. L. Shore were the winners in the grade classes.

The first for halter broke foal was won by Fred Stitel. Best heavy draught mare, J. Bartley. Best heifer, beef type—Henderson Cup—Foley Bros.. Best bull, beef type, P. Patterson. Best herd, Foley Bros. Best cow, dairy type, W. Henderson.

The exhibit in sheep and swine was very small. The prizes in poultry were carried off by N. McNaughton, Russel Hill and Mrs. F. A. George. The honors in fine arts were divided between Miss Cook and Mrs. Martin. Miss Peters and Mrs. Cooper won in cooking, and Mrs. Cooper and Mrs. Sweeting for plants and flowers.

A snob is an ass that walks on two feet and wears expensive clothes.

An Ungallant Toast

"At the dedication of a new fire engine in a little town of my state," says a Vermont man, "the following toast was proposed:

"May she be like the dear old maids of our village — always ready but never called for!"

THERE IS NOW

Only One Agency in Manitoba
 through which Farmers may secure

Farm Help

In Manitoba **NO PRIVATE EMPLOYMENT AGENCY ANY LONGER EXISTS**

THE Employment Service of Canada

(under joint auspices of the Dominion and Provincial Governments)

IS ALONE IN THE MANITOBA FIELD.

ACT NOW
DO NOT DELAY

To enable us to forecast our harvest help needs, and obtain the necessary number of men, please fill in the attached coupon, and mail at once.

J. A. BOWMAN, Gen. Supt. of Employment
 439 Main Street - - - WINNIPEG

Employment Service of Canada,
 439 Main Street, Winnipeg.

Dear Sirs:—Beginning about I will require men for farm work.

Yours truly,

Name

Post Office

N.B.—This application does not constitute a contract. It is to be used only for purposes of estimate.

CASE



STEEL



BEFORE YOU BUY A THRESHER

Compare a Case steel built thresher with any other make. Then only will you appreciate how well the Case is designed and built.

Consider the rigid steel channel frame construction that assures permanent alignment of bearings, shafts and other parts. Remember Case steel built threshers prevent sagging, warping and rotting.

Note the absence of a multiplicity of gears, chains, sprockets, belts and pulleys. Case threshers are noted for their simplicity and thus require least power to operate and fewer adjustments and repairs.

Case cylinder teeth are of unusual strength, specially annealed and hardened wearing surfaces and a shank of remarkable toughness.

The large separating surface insures big capacity. As a grain saver, you will find the Case alone in its class. The Case grain saving wind stacker further protects you against grain losses.

With proper attachments and adjustments Case machines thresh all grains or seeds grown. In the big grain districts Case threshers are the favorite. For 77 years Case threshers have set the pace. The man who owns one will tell you why.

Seven sizes: 20x28; 20x36; 26x46; 28x50; 32x54; 36x58; 40x62.

J. I. Case Threshing Machine Co., Inc.
891 Liberty Street
RACINE, WISCONSIN



Case Steam Tractors—8 Sizes



Case Kerosene Tractors—4 Sizes



Case Steel Threshers—7 Sizes



Case Steam Roller—10 & 12 Ton

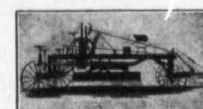
NOTICE: We Want the Public to Know That Our Plows



Case Balers—2 Sizes



Case Silo Fillers—3 Sizes



Case Road Graders—3 Sizes



Grand Detour Plows—5 Sizes

Are Not the Case Plows Made by the J. I. Case Plow Works.

GIBRALTAR



stands no more firmly on its base than does the "Magnet" Cream Separator. Nor is Gibraltar a more effective stronghold of defence against all attack than is the "Magnet" Cream Separator against all loss or leakage in the milk product that can be converted into coin. Its simplicity and perfect alignment in every part counts all the time for perfect work in separating the butter-fat. We will stake our whole possessions on the challenge to bring out any other cream separator made to-day that does more accurate work with less operating labor than the

"MAGNET" Cream Separator—

the greatest labor-saving and food-conserving machine ever introduced into Dairy Farming and they will give it you. DAIRY WOMEN know that the "MAGNET" bowl and one-piece skimmer is easily washed sweet and clean in less than five minutes—a saving of from 10 to 15 days' labor each year over the time required to properly wash the disc kind.

MAGNET ALWAYS SKIMS CLEAN

After nearly 18 years' constant use on Canadian farms the "Magnet" has established beyond the shadow of a doubt that its square gear drive and ball-bearing adjustments is unequalled as an effective piece of dairy mechanics and has nothing in front of it in lasting quality.

because its bowl is supported at both ends, cannot wobble and therefore will do perfect skimming for a life-time. Dairy men and women can avoid all "misery" by buying the up-to-date "Magnet" Cream Separator. "Facts are chiefs that winna ding, and carna be disputed."

The Petrie Mfg. Co. Ltd.

Head Office and Factory: Hamilton, Ont.

WINNIPEG, CALGARY, REGINA, VANCOUVER, MONTREAL, ST. JOHN, EDMONTON, LETHBRIDGE



Making No. 1 Farm Butter

By W. H. UNDERWOOD

CREAM when ripe and ready for churning should have a sharp acid taste and moderately thick and velvety appearance. During the ripening process it is essential that the cream be stirred frequently. When cream remains undisturbed for some time the fat rises in the same way that it does in the milk. Instead of being smooth and glossy it will appear coarse and curdy when poured from a dipper. As a rule quick ripening gives better results than slow, for instance when cream is ripened at a low temperature more or less of a bitter flavor is the result and if kept too long before churned, after it has become ripe enough to churn it will have an off flavor.

In making butter on our farm we never guess at the temperature of the cream during the ripening process and when churning. We use a good dairy thermometer. The mercury is colored red so the temperature is easily read at a glance. A good thermometer can be had cheaply and will pay for itself in a short time. In ripening the cream we bring it to a temperature of 60 degrees and hold it there until it is sufficiently ripe, which takes about 12 hours. When the cream is ripe it is cooled to a temperature of 58 degrees in winter and 52 in summer, at which temperature it is churned.

A Barrel Churn
We use one of the modern types of barrel churn because it churns easily and quickly and there is no dasher inside to beat and break the grain of the butter and make it look like lard with butter color in it. The churn is scalded with boiling water and then cooled with very cold water before the cream is put into it. This freshens the churn and fills the pores of the wood with water so that the cream and butter will not stick. The cream is strained into the churn through a wire strainer. This divides up finely any lumps of thickened milk that may possibly be in the cream and white specks in the butter are avoided. If the cream appears to be too thick we thin it with water until it will run off a wooden ladle nicely, which makes the churning process quicker to finish than when the cream is churned too thick. We never fill the churn more than half full of cream. Overflowing the churn will cause the butter to take a long time to form and the butter will not be of the best quality in every respect because of being churned too long. In the winter time we use just enough butter color to give the butter a light yellow tinge. While the cows are on fresh pasture the grass they consume imparts to the butter all the color needed.



For rough work wear
**OVERALLS
SHIRTS and
JUMPERS**

made of

STIFEL'S INDIGO CLOTH

Standard for over 75 years.

Better than you expect—a cloth that's built to stand wear and tear and weather. Three generations of wearers have found it the most-for-the-money cloth.

Be sure your overalls, shirts and jumpers are made of Stifel's—it hasn't an equal anywhere for all-round satisfaction. Look for the label on the back of the cloth inside the garments when you buy. Insist upon STIFEL'S and you'll never be disappointed in service. Remember, it's the CLOTH in your overalls that gives the wear!

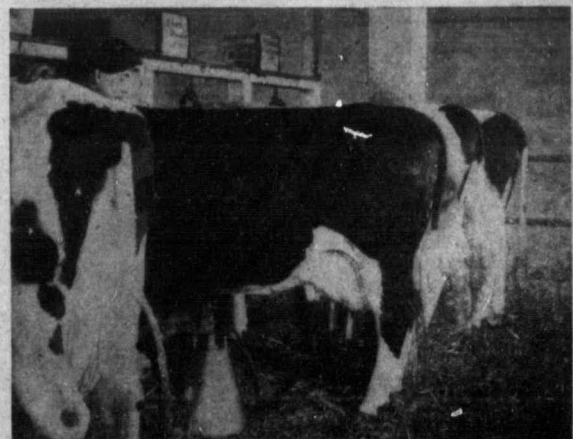
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Great producing Friesian being milked with an Empire milking machine at Truro Agricultural College

After the cream is put into the churn the lid is securely fastened and the churn is turned a few times, then the bung is opened so as to allow the escape of gases. The churning process requires about 30 minutes. We stop churning when the butter forms irregularly shaped granules about the size of grains of wheat or rice and float at a good height in the buttermilk. When the granules are larger than this it is more difficult to remove the buttermilk and distribute the salt. If butter is overchurned it will contain too much moisture and will not be as good as it otherwise would be. If the temperature of the cream is too high the butter will come in soft lumps and have a greasy appearance and contain a good deal of buttermilk, which will cause it to soon become strong. If the cream is churned at too low a temperature the churning process is retarded and a bitter flavor in the butter is the result.

As soon as the butter is churned the buttermilk is all run off and some pure water at the same temperature of the buttermilk is put in and the churn given a few turns. Then this water is run off and some more fresh water put in and the churn moved back and forth to wash the butter granules. This second water comes off clear as a rule, but if not we wash again with a little water. We have found that to use too much water or washing a little too often takes away some of the fine, buttery toothsome flavor which is so desirable in butter. Too much emphasis cannot be laid on the quality of the water used in washing butter. It should be absolutely free from all vegetable or mossy taste or odor. Minerals should not be in excess save salt and lime and these two not to any great degree.

It is needless to say that none other than the best grade of salt should be used in salting butter. The lake salt is preferable as it dissolves more readily and is not so liable to make mottles as other kinds of salt. The amount of salt to use in butter is a matter of taste and opinion. Salt adds flavor to the butter and materially increases its keeping qualities. Very high salting, however, has a tendency to detract from the fine delicate aroma of butter while at the same time it tends to cover up slight defects in flavor. As a rule one ounce of salt is added to each pound of butter. Many people guess at the number of pounds of butter made at a churning and the quantity of salt used, but this is not a good plan. Both the butter and salt should be weighed. A small scale that weighs to ounces or finer can be had at small cost and will insure

the proper quantity of salt being used every time. Salt very readily absorbs odors and must therefore be kept in a clean place where the air is pure and should be at the same temperature as the butter when used. It is very important that the salt be evenly distributed throughout the butter.

No. 1 butter cannot be made without proper working. It is a very easy matter to work butter too much and have it greasy. It should never be worked with the hands because the warmth of the hands will make it greasy and give it a salvy appearance. A butterworker should be used. The type of butterworker we use and which is very satisfactory is one having a stationary bed and corrugated roller arranged so that it can be passed back and forth over the surface of the butter. After the butter has been pressed out with the roller it is divided in the centre, one half laid into the other half and the roller passed over again. This is repeated until the butter assumes a waxy and firm condition. A good butterworker that will meet the requirements of the average buttermaker on the farm will cost not more than \$4 or \$5 and may be obtained from advertising dealers in dairy supplies.

Butter should be molded into square or brick-shaped one pound prints, a mold being used that makes a handsome imprint. Each print should be carefully wrapped in oiled or parchment paper as soon as molded, and where a number of pounds of good butter are made it is well for the maker to have his name and address or the name of his farm printed on the wrappers in fancy letters. Such wrappers, of course, do not add to the quality of the butter, but they help to make it look attractive. Much of the butter made on the farm is of a poor grade and must, of course, sell for less than good butter, but such need not be the case, for with a little extra care it is just as easy and costs no more to make a No. 1 as it is to make a poor product. — McLean's Farmer's Magazine.

If you want a man to keep on thinking well of you don't stop him before he gets through, to tell him you have heard his story before.

Trouble is about the only thing that a man is willing to turn from before he has had more than his share.

When a man is in love and when he is risking his money in a foolish speculation he believes in fortune telling.

Dependability

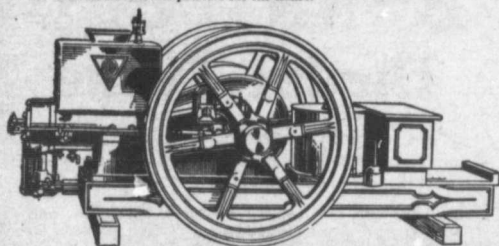


THE KEYNOTE of the ALPHA Engine is dependability. It runs when you want it to, day after day, and you never need to worry about it. Its simple, sturdy construction makes it dependable.

The ALPHA power rating is dependable; if it is a 1 1/2 Horse Power it will deliver at least one-and-a-half horse power; if it is a 28 Horse Power you can bank on getting more than 28—never less.

The De Laval Company is dependable — the largest manufacturers of dairy supplies in Canada.

If you don't know who handles the ALPHA in your vicinity, write nearest sales headquarters for his name.



THE DE LAVAL COMPANY, Ltd.

LARGEST MANUFACTURERS OF DAIRY SUPPLIES IN CANADA. Sole manufacturers in Canada of the famous De Laval Cream Separator and Ideal Green Feed Silos, Alpha Gas Engines, Alpha Churns. Catalogues of any of our lines mailed upon request.

MONTREAL PETERBORO WINNIPEG VANCOUVER
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Oldest and Largest Gas Engine Company in Canada



24-12 H.P.

The Drive that Pulls

SEVEN SPEED FRICTION TRANSMISSION

Drives a 24-in. Thresher

The Beaver has power to spare in driving a fully equipped 24-in. Thresher with blower, feeder and all attachments. In addition, the Waukesha motor has an actual reserve of 50 per cent surplus power that is always available.

The friction transmission, with seven speeds forward or reverse, make the Beaver as easy to operate as your car and thus saves valuable time in setting and lining up.

See the Beaver at the Leading Western Fairs

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Why Build a Silo?

By A. L. HACKER

THERE are thousands of stockkeepers in this province who need a silo and have needed it for several years. They either have not answered this question, or have answered it in the negative, or it may be they have postponed the matter, or felt that they could not afford the investment. The silo should be considered a part of the necessary equipment of a dairy or stock farm, for it has to do with the success of the business. The largest item of expense in keeping a herd of cattle is the feed bill, and therefore, it is the first question demanding our attention. Labor comes next, but the feed bill is generally twice that of labor, and the silo strikes directly at this overhead, making a big saving in the cost of feeding. It also produces better young stock and increases production. Practically all of the great milk and butter records of the country are held by cows that have been fed silage. Large, growthy, vigorous young stock are easily and cheaply obtained by the liberal use of silage.

It is difficult to determine accurately the saving made by the silo when the cost of the ration is considered, for so many conditions enter in which make a variation in the result, but it is safe to assume that from ten to twenty-five dollars can be saved in the cost of feeding a cow one year by the use of the silo. It is also safe to say that with silage, the cost of butterfat can be reduced six to twelve cents per pound, and the cost of producing a hundred pounds of milk thirty to fifty cents, a hundred pounds of beef a dollar to two dollars, and a hundred pounds of mutton seventy-five cents to a dollar and a half. With such saving, it can easily be figured that a silo would soon pay for itself when ten or twelve cows are kept.

The convenience of the silo is well recognized by men who have given it a thorough trial. By properly arranging the silo and the barn, it is possible for one man to feed forty cows in thirty minutes, and the work can be done with ease and without the use of a horse or wagon. The silo can be considered a time and labor saver.

The silo is the most economic equipment for the storing of forage. When space is considered, eight times more feed can be kept in a silo than in a haymow. It would be difficult, indeed, to construct a barn which would hold two or three hundred tons of forage, while it is an easy and simple matter to put up a silo that would hold this amount. There is less de-

terioration in holding over silage than in holding over dry fodder. I have seen excellent silage that was six years old, and this same silage was fed successfully to cattle, who seemed to relish it more than new silage.

The silo stands ever as an insurance against storage failures, especially damage by frost and drought. Any kind of feed which can be grown can be saved in the silo, though it may not mature a grain crop. It makes farming more secure, and warrants a cheap and excellent forage for all kinds of stock, in both winter and summer seasons.

The heavy, bulky feed on a stock farm should be produced at home, and the concentrates, such as grain and mill feed, can best be purchased. With the fertilizer, which is always found on the stock farm, big crops of forage can be grown. It is not uncommon to see corn fodder produce as much as twenty tons of silage per acre. This feed, grown close at home, can be rushed into the silo and the bulky ration for the year is supplied.

Silos should be provided for both winter and summer. Consider carefully the earnings of your pasture. Six times more feed can be furnished on pasture ground, if it is put in the form of corn and siloed. The pasturing of land worth a hundred dollars and up per acre is questionable, especially in sections where summer droughts are frequent. As Mr. Van Pelt recently stated, "the summer season is more severe on our dairy cows than the winter." It is fortunate that our summer is only four months long, for if it were eight the chances are we would force our herds dry or starve them to death. The summer silo in many sections is needed more than the winter silo. It is better to build two or three small silos than one big one. Like canned fruit, make your silos so you can feed off a good layer each day, and thus keep the forage fresh and sweet. Why a silo? can be answered by considering all of these times, considering the cost of feeding an animal, the cost of production, the cost of your land, the earning power of your farm. Scientifically stated, the silo will lower the cost of digestible carbohydrates, it will make your acres earn more, your stock earn more, your work easier, your storage greater, the production of your cows higher, your farm richer; with these advantages you will derive more pleasure and profit from your labor.



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Orders should be sent direct to Feed Division, Live Stock Branch, Ottawa, for straight car lots only—(about 30 tons to a car.) Join with your neighbor and order a car on shares. Terms—Sight draft with bill of lading attached, payable on arrival of car. Orders filled strictly in turn as received.

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Pamphlet No. 18 giving full particulars sent on request with samples of the feed.

Live Stock Branch (Feed Division)

The Dominion of Canada Department of Agriculture

OTTAWA

CANADA

505

ADVANTAGES IN NOT CHANGING SEED GRAIN

Practice has Nothing to Recommend it according to Experimental Farms Note

MANY farmers still think it advisable to change their seed grain every two or three years. In the light of the work done by the various experimental farms of Canada, says a bulletin by the Experimental Farms Branch, this practice has nothing to recommend it, while, on the contrary, it has been shown that there are distinct advantages in not changing seed. By the use of a good fanning-mill it is quite possible to grow the same grain year after year on the same farm and maintain its productivity, provided that the grain is seeded early each season on well-drained, fertile soil. The seed should not be blamed for poor farming, which is most frequently the cause of the farmer's dissatisfaction.

Many of those who favor a change of seed have possibly based their belief on faulty observations. An error that is often made is that of comparing the results of one season with the results of the next. If the seed has been changed between times and the second season is unusually favorable, it is assumed that the change of seed has brought it

increased yield. The weather conditions in different seasons may alone make a difference in yield of from 20 to 40 bushels per acre, depending on the kind of grain. Again, the use of different fields may give rise to the same error of judgment, also differences in the dates of seeding.

When the change of seed is made with a neighbor it is a gamble whether one gets anything that is superior to their own or not. The variety is usually doubtful, and the labor, cost and inconvenience have to be considered as well, while there is always a possibility of introducing noxious weeds.

There is one change of seed that every farmer who has been following this practice should make. He should change to the best variety of whatever kind of grain he is growing and stick to it. If he is not satisfied with his seed, he should discard it and buy seed of a well-known and proved variety. Its purity and productivity can be maintained by the combined use of the seed plot and the fanning-mill, and a change of seed is unnecessary.

A wise man never pretends to know all about everything, because he wouldn't be wise if he had any such notion.



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Manitoba Department of Agriculture

The Most Important Work upon the Farm
is to Train and Develop the Boys and Girls

THE MANITOBA

Boys' and Girls' Clubs

are now a mighty agency in the agricultural life of the Province. During the present season the Boys and Girls of Manitoba

**Destroyed Over Half
a Million Gophers**

of which 25,000 were the destructive Pocket Gopher, and by so doing saved thousands of bushels of grain. The next event in club work will be the

FALL FAIR

when the results of the summer's work will be marshalled for purposes of comparison and of showing what can be done by the Boys and Girls under intelligent direction.

WE APPEAL TO PARENTS

to give the young people all legitimate assistance and encouragement in getting their exhibits in good shape for the fair. The BOY is father of the MAN. An enthusiastic, ambitious boy or girl who learns in early life to do a difficult job well, is likely to succeed in later years. Remember that the Boys' and Girls' Club work is part of the EDUCATION of your Boy or Girl.

WINKLER

Minister of Agriculture
and Immigration

S. T. NEWTON

Director Agricultural
Extension Service

Prof. O. H. Benson, in charge of Boys' and Girls' Clubs for the United States, will deliver a series of ten lectures on Club Work at the Manitoba Agricultural College, July 28th to August 2nd. Club leaders will enjoy hearing these lectures.

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MEDICINE HAT, ALBERTA

**Alfalfa, Greatest of All
Rough Feed**

By A. L. HACKER

WHEN considered from the standpoint of a hay or rough feed, alfalfa is the richest product grown on the farm. Alfalfa is particularly rich in digestible protein. Protein is the part of all feeds which contains nitrogen, and is essential in feeds from the fact that it is utilized in the making of all growth—muscle, milk, bone, tendons, hide, hair, hoof, etc. It is this part of feeds which enables the milk cow to produce a large flow of milk, and gives the young the strong bone and muscle that is always noticed when they are properly fed. In this respect alfalfa is practically the equal of bran in digestible protein.

Combine Alfalfa With Other Feeds

Because of the fact that alfalfa is so rich in this part of the feed called protein, it is essential that it be combined with other feeds for securing the best results. That is, it has been determined by carefully conducted experiments that different classes of animals require definite amounts of the different food elements to supply their needs. Alfalfa alone furnishes more of protein than is needed, and also, for the sake of variety it should be combined with other feeds, which are not so rich in protein.

A Balanced Ration

Combining the different feeds that may be available, so to furnish the animal with what is required for best results, either for growth, fattening or milk production, is known as balancing the ration. That is, a balanced ration is a combination of feeds which when fed to an animal will produce the results desired.

The ration for a dairy cow would be necessarily very different from the ration of a fattening steer or a growing calf. The dairy cow, for instance, requires

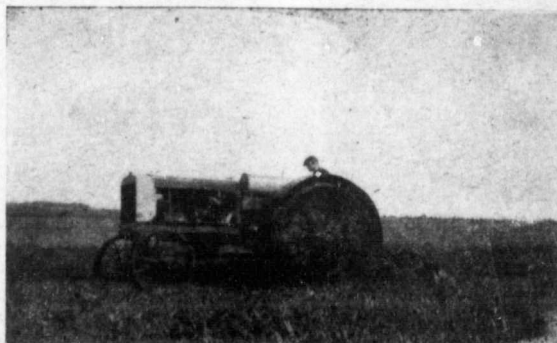
a large amount of protein, because the production of milk is dependent on the replacement of the blood supply, which requires a large amount of the element protein, while the fattening steer would require large amounts of the fat producing substances which comprise the fats, sugars and starches of the carbonaceous part of the food.

It has also been learned that where an animal is fed an excess of protein, a part of this protein can be broken down and utilized by the animal in place of the sugars or starches, while it is not possible for the sugars and starches in the feed to replace the need for protein. Consequently it is very important that the amount of protein be kept up to the requirements of the animal. There is no feed grown on the farm that will make it possible to balance up the ration so economically and satisfactorily as alfalfa.

Feeding Alfalfa to Cattle

The feeding of alfalfa hay is certainly a great pleasure. There is no feed that is so appreciated by cattle, and which seems to do them so much good. It has, however, been complained by some that when alfalfa is available it is almost impossible to get the cattle to eat any other kind of roughness, especially straw. We doubt, however, whether this fact should deter anyone from growing alfalfa, because unquestionably cattle will finish out their diet on other feeds if enough alfalfa is not available. However, it is a good practice to feed the less appetizing feeds, such as straw or corn fodder, before the alfalfa is fed.

In regions where plenty of alfalfa is available it is not an uncommon practice to feed cattle all they will eat. They soon become accustomed to the feed and seldom eat more than is apparently



One of the numerous and ubiquitous "Heiders" at Portage Plowing Contest

good for them. There is, however, some waste in doing this because some cheaper feeds could be utilized with equally as good results.

There are instances in which some detriment has resulted from feeding too much alfalfa. This is noticeable in the coarseness of calves which are dropped from cows, especially young ones, that are fed an excess of alfalfa. This would be avoided by limiting the alfalfa and feeding some corn fodder or straw.

For feeding alfalfa hay, some sort of rack should be provided, so as to prevent as much waste as possible. A very satisfactory form of rack is made with either light poles, small posts or 2x4's. Such racks may be made portable and moved about in the yards, or built permanently into the barns or sheds.

We have built the portable rack nine feet wide and 16 feet long, using 21-2 to three inch cedar posts. These posts slant inward from the frame of the rack at the top to near the centre, there being a set of these posts on each side of the rack. These posts are about 10 inches apart from centre to centre, which is too close for large animals to get their heads between. Consequently they eat hay as it is thrown against the rack. On each side, along the outside of the rack, is a manger in which hay pulled from the inside may be dropped. These may be built on skids of poles or 4x6's and can be dragged about the yard.

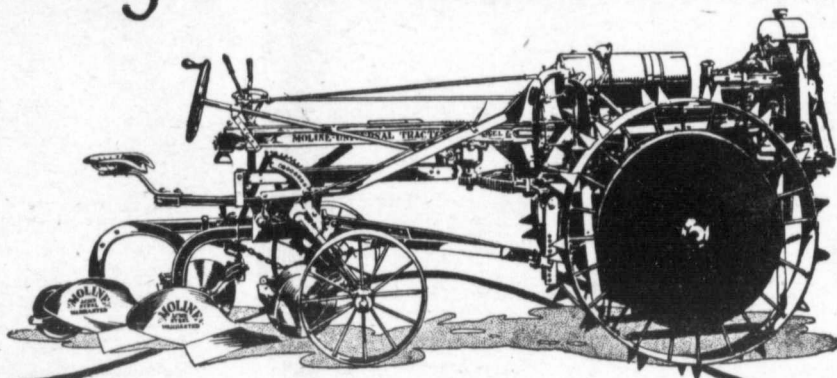
For building racks inside of barns, where hay may be delivered from chutes above, these racks may be built 11-2x3's or even 1x4's, if good material is available. The slats should be placed not over 4 1/2 or five inches apart, so that only the animal's nose can be inserted between the slats for pulling out the hay, and the manger below should be provided for catching hay that is pulled out.

When feeding alfalfa to dairy cows, where they are fed at regular intervals, the hay can simply be thrown into the manger at the time for feeding such roughage. In any case it is very essential that some good form of rack be used so that there will be no great waste.

Horses Like Alfalfa

The question is always asked as to whether alfalfa may be fed to horses. We have known of horses in the alfalfa regions that had reached extreme old age, that had never eaten any other kind of hay. This indicates that alfalfa is a good feed for horses. It has, however, been learned that precaution must be taken in beginning to feed alfalfa hay. Horses are particularly fond of it, and for

Why a Two Wheel Tractor



The Moline-Universal Two-Wheel Tractor is best adapted to farm conditions, because—Ninety-eight per cent of its weight is placed on the two big drive wheels and is available for traction. This eliminates dead weight, and enables the Moline-Universal to pull as much as tractors weighing from 1,500 to 2,000 pounds more. The Moline-Universal has enough power for heavy requirements, yet operates economically on light jobs. This is essential, because farm power requirements vary from light work to heavy work, and a tractor must be able to do all work economically and efficiently.

The two-wheel construction enables the Moline-Universal to be attached close up direct to the implement, so that one compact unit is formed.

ONE MAN controls the entire outfit from the seat of the implement—the best position to manipulate the implements and make adjustments for varying field conditions. Tractor and implement go forward, backward, and turn as one unit.

The two-wheel construction gives the Moline-Universal ample clearance for cultivating row crops.

The Moline Universal Tractor can easily be adapted to work with practically all horse-drawn implements.

Wonderful success on thousands of farms in replacing man and horse-power, proves that the Moline-Universal is fundamentally correct in design—it doubles a farmer's efficiency.

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Manufactured by MOLINE PLOW CO., Moline, Ill.

MOLINE UNIVERSAL TRACTOR



this reason if allowed to do so will eat more than is good for them. The results of overfeeding on alfalfa hay are often noticed in weakness of the kidneys and often in stagnation in disposition. That is, alfalfa hay being so rich in protein, apparently increases the number of red blood corpuscles to the extent of practically clogging the veins. These results are avoided by feeding alfalfa carefully at first, and especially by cutting down on the quantity of grain fed.

Horses have been worked on good alfalfa hay, cut and barely

wilted, for a month, without any grain. During one winter at our farm, eight work horses were fed a mixture of alfalfa and western rye grass, and from November until the 1st of March were fed absolutely no grain. These horses apparently withstood the summer work much better than they ever did before, and were never in better condition.

Alfalfa Good For Hogs, Sheep and Chickens

In fact, there is no animal on the farm that will not make good use of alfalfa. This is particularly true of hogs, for the

reason that it is generally not supposed they could utilize such a feed to any advantage. It is being learned to the sorrow of many hog feeders—the sorrow is because they did not learn it before—that they cannot afford to grow hogs without feeding them alfalfa every day in the year. There is no pasture that is the equal to alfalfa to hogs during the summer, and where brood sows are to be wintered over, there is no food that will bring them through the winter in better condition to farrow large litters of good strong pigs than a liberal al-



Department of Agriculture for Alberta

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Its RESOURCES are VARIED. It has sharp Wheat Lands, Rich Feederop Lands and boundless Natural Pasture Lands. It supports large commercial **Grain and Ranch Undertakings, Mixed Farming, Dairy and Irrigation Enterprises.** The Price of Land is lower for its quality than in other agricultural areas on the Continent.

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The Province is PRE-EMINENT IN LIVE STOCK raising. It has good Water and **Shelter** and Mixed **Natural Grasses** that produce strong boned, richly fleshed Meat Animals and Good Horse Stock. Its farms furnish a heavy volume of **Cheaply Produced Feed grains, Roots and Fodders.** Expensive tight shelters are unnecessary. The condition of demand and the Preference for Live Stock Undertakings make Alberta a Natural and Profitable Field for the stockman to work in. The man on land in Central Alberta is free from the Risks of the Single Crop.

It has half the COAL area of the Dominion and is developing its Gas and Oil rapidly. It has Fish and Timber besides.

GOVERNMENT SERVICES

The Department of Agriculture AIDS THE FARMER in Production by Popular and Scientific Education in Cultivation and Crops, Dairying, Stock Raising and Poultry Keeping and helps to market his Butter, Eggs, Poultry, Seed Grain, Potatoes and other products as far as government assistance is applicable. It Finances the Farmer by guaranteeing Co-operative Borrowings for Live Stock Purchases.

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Write for Information

HONOURABLE DUNCAN MARSHALL
Minister of Agriculture,
EDMONTON, ALTA.

JAMES McCAIG
Chief Publicity Commissioner
EDMONTON, ALTA.

lowance of alfalfa hay every day. In fact, alfalfa hay will replace two-thirds to three-fourths of the grain, and the hogs will be the better for it.

For those who have not seen sheep eating alfalfa there is no reason for spending words in saying anything on this subject. The sheep, of all animals, is a careful and delicate feeder, and apparently there is no feed which is quite so acceptable to the sheep as alfalfa, and none for which they will respond with better results, both in wool and mutton. It is a practice with those who have learned to use alfalfa to make racks very similar for both hogs and sheep, and these racks are constructed on the same plan as for cattle, except that they are nearer the ground, and the material used is lighter, while the openings through which they are allowed to feed are much closer together. Sheep are very careful and will perhaps waste less feed, unless they are overfed, than any other animal.

Chickens will make good use of alfalfa, either green or dry. For winter feeding good green alfalfa should be closely chopped, some bran and other ground grain mixed with it, place in a barrel or tub, preferably provided so as to be somewhat on the plan of the fireless cooker. Then when boiling water is poured over this and carefully covered, the heat will be retained for sufficient length of time to soften all the stems and leaves. Such feed will perhaps be more acceptable to laying hens in winter than anything else that could be provided for them, and they will give a greater response as they would for more expensive scraps.

Alfalfa is est Feed Grown

Only those who have grown alfalfa and fed it are in a position to appreciate the value of this great crop. There is no other hay so good as alfalfa for all kinds of stock, and for horses and hogs alfalfa is invaluable, either as hay or soiling crop or as pasture. It is the excelling hog pasture, and with hogs makes one of the most profitable farm combinations. An alfalfa field is said to be a hog's idea of heaven.

It has been said that — "No one more literally abets the growth of two blades of grass where one grew before than he who effectively urges the cultivation of alfalfa upon those who are strangers to it, and no one is more truly working for the benefit of agriculture, the basis of all prosperity, than he who proclaims its excellence as the foremost forage."

Honorable F. D. Coburn, the great apostle of alfalfa in Kansas, in "The Book of Alfalfa," says:

"The cultivation in feeding of alfalfa marks the highest development of modern agriculture. Alfalfa is one of the Nature's choicest gifts to men! It is the preserver and conservator of the homestead. It does not fail from old age. It loves the sunshine, converting the sunbeams into gold coins in the pockets of the thrifty husbandman. It is the greatest mortgage-lifter yet discovered."

WHAT GRASSES BEST MIXTURE WITH CLOVER

Timothy has Faults Explains
Note Issued by Experimental Farms on Subject

ALTHOUGH timothy, which, of course, is the standard grass used with clover for hay and pasture, is a most desirable grass, it has some faults which especially show up when it is grown in red clover mixtures, says an Experimental Farms note issued by the Department of Agriculture. It is a little too late and, as a result, it is not ready to cut until some time after the red clover has passed its best stage. It follows then that, unless a particularly late variety of red clover is used, like, for instance, Swedish red clover, which in the last few years has given excellent results in Eastern Canada, the clover-timothy mixture has to be cut either when it is too late for the clover or when it is too early for the timothy. In both cases losses result which would not occur if the clover and the timothy reached their best stage for cutting at the same time.

With a view of ascertaining the comparative value of various grasses in mixture with clover, a great number of experiments have been conducted at several of the Dominion Experimental farms and stations during the last few years, and judging from the results obtained so far, there are several grasses besides timothy which it would pay to use more extensively in mixture with clover.

Two of the most important ones are Orchard Grass and Meadow Fescue, which both are excellent yielders under suitable soil conditions and of high quality for both hay and pasture. They also have the advantage of being ready to cut just about when red clover is at its best, and will thus help to furnish a hay of high quality.

Orchard Grass, or Cocksfoot, as it is generally called in England, has been cultivated for about 150 years in Europe, and is everywhere regarded as a grass of a very high class, especially in sections of intensive dairying. Af-

ter cutting it produces quickly a second growth, consisting chiefly of long leaves, and for this reason it is a very valuable grass, especially where the second crop is to be used for pasture and where it is of importance to have a good pasture crop coming on as soon as possible after the first crop has been taken off for hay. The Orchard grass gives best returns on good, deep loams, well drained and well stocked with plant food. It is not very well adapted to light and dry soils or where late spring frosts or early autumn frosts are prevalent.

Meadow Fescue has been cultivated in Europe during at least 100 years, and is rated among the best fodder and pasture grasses. Like orchard grass, it produces chiefly leaves after cutting, and is therefore of special value for pasture. This is especially the case where the winter climate is mild, because in such districts the leaves remain green and fresh throughout the winter. The Fescue is especially adapted to rich loams and will yield abundantly where the ground is well supplied with moisture, except where the soil is sour. It is much less sensitive to spring and autumn frosts than the Orchard grass, and will therefore do better than the latter in the more northern parts of agricultural Canada.

BLIGHT RESISTANT POTATOES

By W. T. Macoun, Dominion
Horticulturist

DURING the past thirty years nearly 800 varieties of potatoes have been grown at the Central Experimental Farm, Ottawa. Seedlings have also been raised, from which blight-resistant varieties might be selected. In the early years the number of varieties grown each year was very large but gradually the poorest yielding sorts: those which were poorest in quality and those most subject to late blight, were discarded. Beginning in 1905 the varieties, of which the plants were least affected by blight were kept separate from the others and not sprayed with Bordeaux mixture. Fifty-three varieties were eventually brought together in this way as apparently most resistant to blight. Of these 53, however, there were ten which were more outstanding than the others, the majority having been rather badly affected in years when the blight was severe. These ten varieties were: King Edward, Dalmeny Beauty, Factor, Hard to Beat, Highlander, Duchess of Cornwall, White Giant, Lr. Maerker, Sirdar Halborn Abundance. Of these, all

but the White Giant were British or European varieties where special attention has been paid to blight-resistant sorts.

For various reasons all of these varieties have been discontinued except the Factor and the Holborn Abundance: the latter variety, however, is not grown at the Central Farm but at the branch stations. It is rather rough in appearance for a good commercial variety.

Before the act went into force, which prohibited the importation of potatoes into Canada, a large number of other varieties, including some of the most blight-

resistant originated in Great Britain were imported, and among these the Dalmeny Regent, Dalmeny Hero, Table Talk and Brydon are among the most promising. The drawback to many British varieties said to be most resistant is that they are not productive enough when grown in Canada.

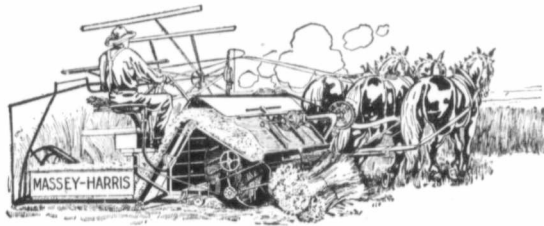
Both the Dakota Red and Maggie Murphy potatoes have withstood blight better than most in some places and have become very popular on this account, but they are inferior in quality and are not always immune.

In conclusion it may be said

that the most blight-resistant varieties are mainly among the latest sorts, and the latest sorts are in many districts where the potatoes are grown rather poor in quality. Much attention has been given in blight-resistant varieties by the department of agriculture of the United States both by breeding and otherwise, but, as in Canada, severe late blight only occurs occasionally and it takes a long time to get definite results.

In spite of the war the human race is progressing. Few women are having their ears pierced now.

Massey-Harris



Making the Harvest Sure

The Massey-Harris Binder takes all the worry out of Harvesting, for its owner knows that no matter in what shape the grain may be, his "MASSEY-HARRIS" will handle it and get it all. Years of actual work in the field have proven that for heavy crops, or down and tangled grain there's nothing to beat the Massey-Harris Binder. Thousands of farmers now look forward with happy and easy minds to harvest, in contrast to the old-time anxiety that accompanies uncertainty, because with a Massey-Harris Binder they take no chances—it gets all that grows.

This is how the Massey-Harris Binder has gained the enviable reputation of being the most reliable Binder.

Trussed and re-inforced at every supporting point, it is unsurpassed for strength and permanence.

The Cutting Table can be raised to cut any height desired, and as close as 1 inch.

The Reel can be set in seventy different positions, from sweeping the Guards to 31 inches above the Knife, all positions being obtained through one Lever which is within easy reach of the driver. Should the Reel strike an obstruction

it will rise automatically, even to its extreme height if necessary, to free itself. An Adjustable Reel Brace prevents the Reel from sagging.

The Knotter, so simple, with nothing to get out of order, always ties a perfect knot and ties it tight, with the band in the centre of the grain.

The Outside Reel Support which is a help when cutting light short crops, can be removed when found desirable to do so.

The Massey-Harris Binder—The Binder Par-Excellence

MASSEY-HARRIS CO., LIMITED

Head Offices—Toronto, Ont.

Branches at

Montreal, Moncton, Winnipeg, Regina, Saskatoon, Swift Current,
Yorkton, Calgary, Edmonton. Transfer Houses—Vancouver and Kamloops.

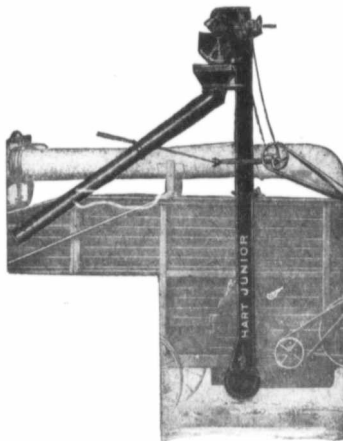
Agencies Everywhere

THE HART LINE

Hart Machines backed by thirty years of satisfactory service, embrace all the latest and best improvements in Automatic Registers and Self-Feeders and are recognized as standard by the discriminating and far-sighted manufacturers and users of threshing machinery.

THE WORLD'S LARGEST THRESHING MACHINE MANUFACTURERS USE AND RECOMMEND HART PRODUCTS

While the Junior Registers and Self-Feeders are recommended for Junior Threshers, the big Hart Line embraces dozens of styles and sizes of Registers and Feeders for the larger separators.

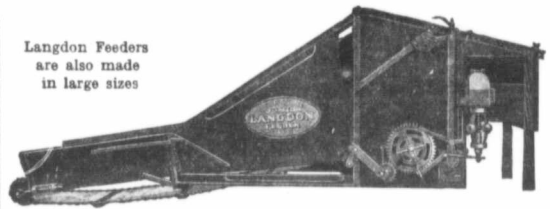


HART JUNIOR AUTOMATIC REGISTER
With 14-ft. Elevator

Also furnished as a low-down machine with conveyor, for Eastern trade.

AN AUTOMATIC REGISTER AND SELF-FEEDER FOR EVERY SIZE SEPARATOR, LARGE OR SMALL

Langdon Feeders are also made in large sizes



LANGDON JUNIOR SELF-FEEDER

CATALOG IS NOW READY

Hart Grain Weigher Co., Peoria, Illinois

Makers of Hart, Peoria, Hart Belt and Bucket, Simplex, Perfection and Hart Junior Automatic Registers; Loaders and Baggers; Langdon Ideal and Langdon Junior Self-Feeders; Hart Wing Feeders and Hart-Brown Wing Carriers.

IN far away Aberdeen City, Scotland, a series of popular lectures have recently been given on different phases of animal husbandry to some seventy soldier students belonging to countries overseas, many of them from Canada.

They are being given under the auspices of the Agricultural Department of Marischall College, and the first of the series happened to deal with the history and management of Shorthorn cattle, made all the more interesting because the men who spoke on the subject were all breeders of

The "Strike-Out" of the Shorthorn

world-wide fame. These were William Anderson, Saphock; James Durno, Rothiebrisanie; and William Duthie, Collynie.

As the proceedings were of an exceptionally lively character and the students are (many of them at least) prospective soldier-settlers with an eye to live stock breeding in Western Canada, we give a brief resume of the observations of the above named celebrities.

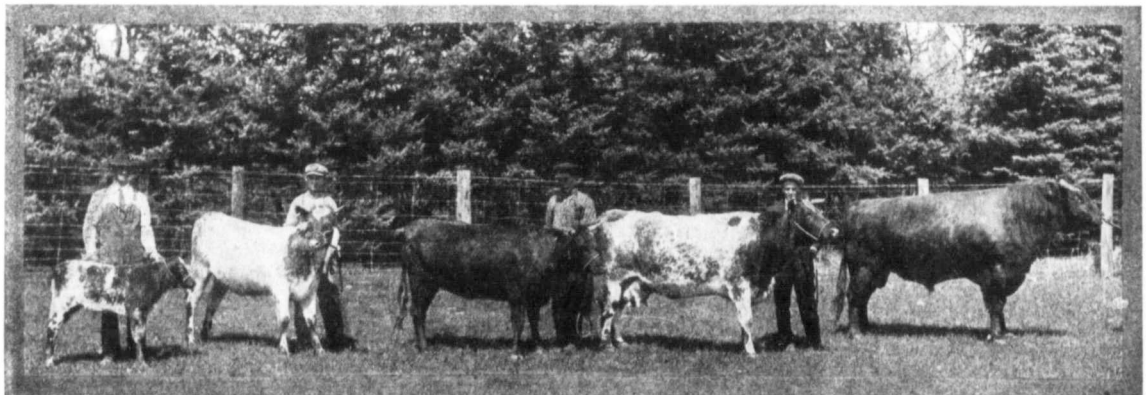
Mr. Durno stated that among the first breeds of Shorthorns were what was known as the "Teeswater," being bred on both sides of the river Tees in Durham and Yorkshire. There was also the wild white park cattle, bred and kept principally in the Counties of Durham and Northumberland, and it was held in the early history of Shorthorns that these cattle or their descendants

were one of the chief sources of the breed.

They were white with red ears, and no bull was used among the white cows unless he had red ears, while calves born without the red ears were killed, not being regarded as fit to breed from.

A hundred white cows with red ears were considered to be worth 150 black cows—a fact which he could vouch for, but which need not upset the feelings of those many splendid stockmen who were firm believers in the black cattle.

Wild white cattle were kept



A Representative Party—Paying Guests at Brandon Experimental Farm

at Chillingham, Northumberland, quite recently and Mr. Durno knew that it was an exceedingly common occurrence at the present day for an animal to come white with red ears. Then there was the rival breed of Longhorns which were bred and improved by Robert Bakewell. This type had a larger frame, big bone and grew more hair than the Shorthorn, but were considered inferior in giving a less quantity of milk and not the same quality of beef.

The two brothers, Charles and Robert Colling, whose names appear as the breeders of foundation bulls in some of the best pedigrees, such as the Lavender, Clara and Broadhooks, had the reputation of being great improvers of the Shorthorns. It was from a bull, Hubback (319), that the improved Shorthorn branched out. This bull had been serving cows at one shilling (25 cepts) each! Mr. Robert Colling and Mr. Waistell in company bought him for eight guineas, and at a subsequent date sold him to Mr. Charles Colling, who used Hubback, and upon exhibiting him at the third agricultural show held at Durham in 1785 was awarded the premium for the best bull.

Hubback was sold for 30 guineas when 10 years old, and was said to have left good stock from even indifferent cows. Although it was said in the early breeding of Shorthorns, and even to the present day, that only a bachelor could reach the top—it was a lady, Mrs. Charles Colling, who secured for her husband the fine cow, Favorite, which she re-named Lady Maynard, having bought her and her heifer calf from a Mr. Maynard for 35 guineas, which was considered a big price at that time.

This cow was destined to play an important part in the future history of Shorthorns through her grandson, Favorite (252), which was the sire of Comet (155), sold by Mr. Charles Colling at the Keton sale for 1000 guineas. The highest prices for Shorthorns up to this time were got for descendants of Mrs. Colling's cow, Lady Maynard, at the same sale.

The entries of pure-bred Shorthorns were begun to be made in the Coates Herd Book, and Mr. Amos Cruickshank, Sittyton, Aberdeenshire, began his life's work. Mr. Cruickshank's greatest success in breeding after his herd was established was from the use of home-bred bulls, such as Champion of England, Field Marshal, Roan Gauntlet, Cumberland and many other names breeders liked to see in present day pedigrees.

Mr. Cruickshank's greatest aim was to breed good cattle independent of pedigrees, using only good bulls for good animals on

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The tractor is one of the most severe of all service tests to which Spark Plugs are subjected. Its low speed and continuous, heavy load, whether on draw-bar or belt, develops a terrific heat with tremendous shock strain and vibration. Its efficiency depends on the ability of its spark plugs to withstand such gruelling punishment.



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Dependable Spark Plugs

have a "built in" dependability and have long since proved their ability to render satisfactory service under any condition in every type of tractor or farm engine just as they have in the more than two hundred makes of motors in which they are regular factory equipment. Champion 3450 Insulators with their patented asbestos lined gaskets resist heat expansion, cylinder shock and vibration to an extent far in excess of the efficiency demands of heavy duty tractor service. Insist that every Spark Plug you buy for any purpose has "Champion" on the insulator—it guarantees "Absolute satisfaction to the user or full repair or replacement will be made." Sold wherever Motor supplies are sold.

Champion Spark Plug Co. of Canada, Limited.
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Champion "Tractor" for Fordson A 14-1/2 inch. Price \$1.00.

"Heavy Stone" for Tractors and heavy Service Motors B13, 1/2 in. B 43, 3/4-18 B 53, 1/2 long. Price \$1.25. Full terminal furnished upon specification otherwise regular knurl nut.

both sides. The success of the Sittyton herd and Mr. Cruickshank's methods of breeding made a very great improvement in the breed of Shorthorns throughout the world, which improvement their friend, Mr. William Duthie, of Collynie, had most notably carried on, and to him was all honor for the high reputation of Scottish Shorthorns at the present day.

The Ideal Shorthorn

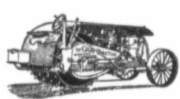
Proceeding, Mr. Durno said that in his opinion a young breeder commencing to breed pure Shorthorns should be very careful in his selection of females, buying only the best of proved ancestry, paying attention to type and color, and making sure that they were come of a good milking strain if possible.

A breeder starting off should be content with a few, rather than buying second rate ones, as, in his experience, young breeders were too often in a hurry for numbers. The female should have a nice head, the face shortish rather than long, clean nose, no trace of black, the eyes prominent, the horns not too long and a little flat at the root, of a yellow color, well set,



GRAY TRACTOR

"with the Wide Drive Drum"



Provincial Plowing Match Winner of the 4-plow type at Portage La Prairie, June 11-12.

This was the decision of the judges who had the various points and features of the machines at hand for immediate comparison. The Wide Drive Drum and simple construction, elimination of bevel gears and differential, the direct drive and protection afforded working parts, the side hitch features—these "Gray points" all contributed to prove that the Gray is the ideal tractor. The Gray was 8 points ahead of the second machine and 10 points ahead of the third machine.

You would readily see the points of vantage in a Gray if you had our catalogue and literature. A completely illustrated, detailed account of the construction and operation is given which will enable you to make comparisons. We will send you this literature upon request. Write us.

Gray Tractor Co. of Canada, Ltd.
307-309 Electric Railway Chambers, Winnipeg, Man.

Balancing Debts by Life Insurance

DO you ever think of Life Insurance as a means of counterbalancing unavoidable debt?

There are bushels of ways in which debt may creep upon a man, unavoidable almost, legitimate debt in many cases.

He may undertake to purchase more land, secure credit to extend his business. Ill health may hamper him and swallow his savings. Crops may fail and business losses occur.

All manner of calls tug at a man's purse strings, and do their best to make the domestic balance sheet a poor exhibit.

But Life Insurance will restore the balance.

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Send us your name, address and date of birth and get a copy of the Farmers' Account Book—free on request. Your Income Tax can be accurately figured by the use of this book.

turning a little forward and down rather than up, black points being an objectionable feature here.

The back should be strong and straight, with well sprung ribs. The hindquarters should be square and well filled; with a smoothness over the tail. The underline should be straight and well filled behind the forelegs, and the udder well shaped, with prominent milk veins. She should have a nice coat of soft hair, and a fine mellow touch when handled on the ribs.

The favorite colors were dark roan and dark red. Heifers to be retained in the herd should at no time be overfed, as it spoiled their usefulness as milkers and rendered them not so sure breeders. Females of moderate size and true type were, in his opinion, the safest and truest breeders and an impressive breeding bull, when put to those cows, would stamp himself more on the progeny than on big cows although equally well bred.

Every breeder had, or should have, his own distinct ideal of a Shorthorn female. It was a true saying that the bull was half the herd. Any breeder who aimed at breeding the best class of stock, and was determined to succeed, must not be soft-hearted with regard to price when he saw a young bull of the shape, color and breeding he thought would suit his females. But to make the bull an impressive sire, he must be bred both on his sire's dam and dam's side from animals of high individual merit and good color.

The bull himself should have a smart head, prominent, intelligent-looking eyes, full neck well set into the shoulders, waxy horn, and plenty of wavy or curly hair on his neck and forehead, which denoted breeding character. His top line ought to be straight, well covered over the crops and middle with mellow flesh, square hindquarters with full thighs and a nice finish at the tail, full chest, straight underline, with flanks well down fore and hind.

The bull must have a sound and healthy constitution, and it was very important that he should have a nice, docile temper, as this was generally transmitted to his progeny.

'Seventies Prices Compared With To-day's

Mr. William Anderson, Saphock, related his personal experiences as a breeder, and gave some hints as to the founding of a herd. During the past twenty-five years, he said, Shorthorn breeding had been carried on in most cases on a paying basis. For a good many years previous to that, however, prices were very disappointing.

About the end of the 'seventies

many pure-bred cattle were sold at practically butcher price, and most Aberdeenshire breeders carried on their herds, not for the profits they were making, but for the love of the breed. At the Saphock dispersion in 1891, at which he bought his first Shorthorns, 53 pedigree animals of all ages averaged just over 16 guineas each. The famous bull, Waverley, which did so much good in the herd of the late Mr. Bruce of Inverquhomery, was sold as a bull calf at the sale for 8 guineas.

He had a vivid recollection of the first bull calf he saw sold at 100 guineas or over at Mr. Duthie's sale. When the price got to 100 guineas Mr. Duthie went round the sale ring to Mr. Bruce of Inverquhomery, who was bidding, and said, "Stop, stop. This is madness"—(laughter). In recent years, added Mr. Anderson, the madmen have increased at Mr. Duthie's sales to such an extent that he has to let them take their own way—(laughter).

For many years, he continued, Sittyton supplied the principal breeders in Aberdeenshire with their stock bulls. In looking over some old Sittyton catalogues he found that the highest-priced bulls did not always prove the most impressive sires, and the same thing held good at the present day. On the other hand, it was very seldom that one saw a really good breeding bull at a small price.

He himself owned an animal which gained first prize in a good class at the Highland Society's Show, the great-grand sire of which was bought at Mr. Duthie's sale in 1891 for 11½ guineas—(laughter and applause). The first thing that brought Scotch cattle into prominence was Mr. Duthie hiring Field Marshal to the Royal herd at Windsor, and the late Mr. Gordon, of Newton, winning at the Royal English Show with Maud. The Englishmen then began to come north for their stock bulls and had continued to do so.

In giving advice to intending breeders of Shorthorns, Mr. Anderson counselled them to give a good price and to be sure to get a good stock bull. In buying females there was no need to buy the most handsome ones on the market. If they got a well-bred cow with a good feminine head, straight back and a good milker, even although she was not of the biggest size—his advice would be to buy her. If they crossed a cow of this description with a good breeding bull they were almost certain of success.

But let them be sure the cow was a good milker. Bad milkers were seldom satisfactory—sterility and lack of milk invariably

Steam or Gas Tractors



Equipped with

**"THE GOVERNOR WITHOUT JOINTS"
PICKERING**

give greatest efficiency

FITTED TO EVERY BUILD OF ENGINE

Patent Ball Ranger Speed Changer 'Supplied on all Genuine Pickering Governors.

Will increase speed 50% or more.

THE PICKERING GOVERNOR CO.

PORTLAND

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Rubber Belting

That Meets Threshermen's Needs

Threshing generally exacts the unusual in belt service. Outside work, exposure to all sorts of weather conditions, undue stress and strain, explain why.

As the main driving force between the engine and separator, we believe Dunlop "Gibraltar RedSpecial" is unsurpassed. The whirl of the machine is continuous wherever this belt is employed.

"GIBRALTAR RED SPECIAL" and "RELIANCE"

"Gibraltar RedSpecial" Friction-Surface Belting was introduced to thresher owners a little over a year ago. It has, by its steady, consistent service and ability to withstand the severe conditions of heat and cold to which a thresher belt is subjected, proven its right to be called "The Belt de Luxe" for Thresher and Agricultural use.

It will pay you to buy "Gibraltar RedSpecial" in preference to other kinds of Belting on account of its tremendous wearing strength. It is a high-priced belt,

but one that renders superior satisfaction at all times. With it you are assured of that uninterrupted service, that freedom from breakdowns, which mean so much to the threshing gang in the busy season. This year, as an added feature, we are stitching it at no extra cost to you.

"Reliance" is still the choice of those who insist on getting the best in the rubber-covered, stitched type. "Reliance" is thoroughly dependable and has won wide favor in the Prairie Provinces.

Dunlop Canvas Thresher Belts and Dunlop Agricultural Hose are conspicuously upholding the reputation of the "Two Hands" line of Rubber Products.

Dunlop Tire & Rubber Goods Company, Limited

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Winnipeg Branch: Canada Block, 354 Donald Street.

Regina Branch: 1437 Rose Street.

Saskatoon Branch: 258 Third Avenue South

Makers of Tires for all Purposes, Mechanical Rubber Products of all Kinds and General Rubber Specialties.





Two Enemies of Old Mr. High Cost of Living

The \$2.00 KNOCK-OUT glove and CASEY JONES the DOLLAR glove have been two **REAL FRIENDS** to the user of working gloves. For value and Service they cannot be equalled in Canada. By specializing on these two **LEADERS** we have created a demand for thousands of dozens a season, so are able to buy leather in large quantities and manufacture them at the lowest possible cost.

Get a Pair To-Day

SOLD AT ALL GOOD STORES



Northland Knitting Co., Limited, Winnipeg

Manufacturers of Men's, Women's and Children's Sweaters, Mitts, Gloves and Moccasins

went hand in hand. The pedigree of an animal should be well examined before the animal was bought. But it did not always follow that the animal with the best pedigree was the best individual. Let them try if possible to get the pedigree on the animal's back, as well as on paper.

"Collynie" Speaks

Mr. William Duthie, Collynie, then addressed the students. He recalled that the first Shorthorns he brought to Collynie came from the herd of Mr. Whitehead, Little Methlick. Mr. Whitehead, he well remembered, spoke to all the beasts as they entered the sale ring, calling them by name and addressing them in the most familiar terms. To one cow he remarked, "Oh, wumman, this is a sair day for you and me"—(laughter).

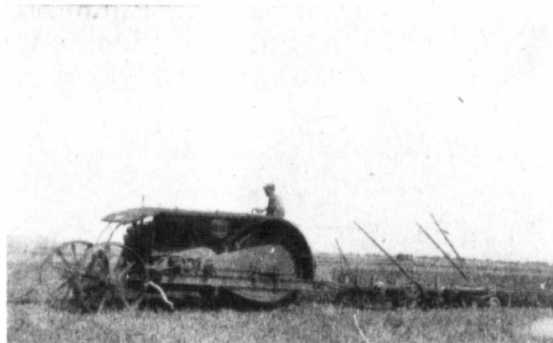
On the Sunday after the sale, Mr. Whitehead was seen to be obviously disconsolate, and a kindly-intentioned neighbor approached him and inquired anxiously, "Is it your wife, Mr. Whitehead?" Mr. Whitehead replied, "No, it's nae the wife—if she were ta'en I would soon get anither—but it's my coo Maria; I shall never see her like again"—(loud laughter).

Every man is sure that his dog never can go mad.

Irrigationists Meet at Medicine Hat

THE arrangements for the convention of the Western Canada Irrigation Association at Medicine Hat, Alberta, August 4th, 5th and 6th, are now nearly completed. Judging from

Those who have promised to be present and probably address the convention include His Honor Lieut.-Governor Brett; the Hon. C. A. Dunning, Minister of Agriculture of Saskatchewan; the



"Gray" tractor pulling a 3-bottom John Deere plow at Portage

the interest that is being shown in the convention not only among farmers in Alberta and the adjoining provinces of Saskatchewan and British Columbia, but in the East and the United States, it will be one of the most successful held so far.

Hon. T. D. Patullo, Minister of Lands in the British Columbia Government; H. W. Wood, President of the United Farmers of Alberta; Colonel J. S. Dennis; Dr. Samuel Fortier, Chief of the Irrigation Division, United States Department of Agriculture.

A feature of the convention this year will be a visit to the model farm of the Canada Land and Irrigation Company at Ronalane. This company is chartering a special train to convey the delegates and their friends from Medicine Hat to Ronalane and back. At the farm there will be a practical demonstration given of farming under irrigation. Actual field operations will be conducted in respect to the preparation of land for different methods of irrigation. Afterwards the purposes for which the various implements are used will be discussed, as well as the comparative yields of crops under different applications of water, crop values and stock raising as a means of marketing farm products.

Practical addresses will be given by practical men on subjects of interest to farmers generally and irrigationists in particular. They include such topics as "Increasing Profits with the Silo," on which Mr. G. H. Hutton and Sydney Carlyle will speak; Live Stock and the Irrigated Farm, which will probably be dealt with by Professor W. L. Carlyle, of Calgary; Commercial Seed Growing, Profitable Irrigation Crops, Trees on the Farm, the Economic Phase of Irrigation, and many other subjects.

Reliable Power at Your Beck and Call

Titan and International Tractors



International 15-30

A TRACTOR is useful only as it furnishes cheap, dependable power for all the other machines—drawbar and belt. The best tractor is the one that works with the most machines, wears longest, needs fewest adjustments, costs least to operate and gets all possible power out of cheap fuel.

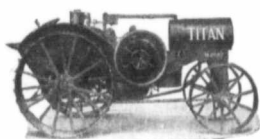
Owning all these essentials, **Titan and International kerosene tractors** have, season after season, become a more familiar sight on farms the country over.

Whether out in the field doing a good job of plowing, disking, drilling, harvesting; furnishing cheap power at the belt; hauling crops to market, levelling roads, clearing land, uprooting trees, stumps and hedges, you know you are getting your work done in the most efficient way at the lowest possible cost.

Right now, when rising markets call for large yields, is the time to consider power that is suited to your needs. **Titan and International tractors** are designed and built to give you the power.

With one of these tractors, you get what every tractor owner must have—Service. When things are humming and you are geared up to the top notch with a vision of a bumper crop ahead, to be without service is a serious matter. This is why we have 16 branch houses and over 3,500 local agents in close touch with their respective farming communities.

Our tractors for West Canada are made in these sizes, 10-20 and 15-30 h.p. Both operate on kerosene, or any other oil fuel down to 39 degrees Baume. Full information and catalogues sent on request. Better still, call on your local agent.



Titan 10-20

INTERNATIONAL HARVESTER COMPANY OF CANADA LTD.

WESTERN BRANCHES—BRANDON, WINNIPEG, MAN., CALGARY, EDMONTON, LETHBRIDGE, ALTA., ESTEVAN, N. BATTLEFORD, REGINA, SASKATOON, YORKTON, SASK.
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Pulls the Binders, too!

with the same dependable power that has planted thousands of acres this spring.

WATERLOO BOY

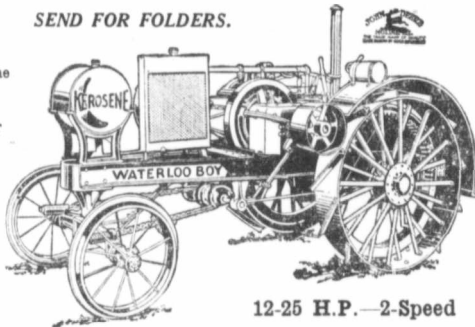
Its size makes it the ideal power for harvesting. Cutting is a big job that should be done quickly. With two or more binders behind this original kerosene tractor you can be sure of pulling through on record time.

With a belt power of 25 h.p., the Waterloo Boy is capable of handling comfortably a 24-inch separator with attachments.

Get your tractor now and it will be on the ground for your fall plowing as soon as your crop is taken off.

SEND FOR FOLDERS.

See the
John
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12-25 H.P.—2-Speed

JOHN DEERE PLOW CO. LIMITED

WINNIPEG REGINA SASKATOON CALGARY EDMONTON LETHBRIDGE

BINDER

500 ft.



600 ft.

TWINE

550 ft.

The Most Reliable Twines

EQUITY AND UNITY

Made especially for the SASKATCHEWAN GRAIN GROWERS'. Have you placed your order yet and made sure of your supply? If not see your LOCAL SECRETARY.

**Do It Now—
DON'T TAKE CHANCES**

**The Saskatchewan Grain Growers'
Association Limited**

FARMERS' BLDG.

REGINA

A Soldier Organization

IN the course of his speech in the House of Commons on the Soldier Settlement Act, Hon. Arthur Meighen, Minister of the Interior, referred to the distinctly soldier character of the organization which is dealing with this matter. He said:

I now wish to say a word about our general organization. This is a returned soldier enterprise; it is developing into a great settlement. It was desirable that as far as possible, a returned soldier personnel should take care of the work. I want to give the figures to show how far we have been able to succeed in getting a returned soldier organization that would meet the requirement and that would measure up to the responsibilities, financial and otherwise, involved in this great undertaking. It must be remembered in this connection that we had to lay the nucleus of our organization at a time when the type of men that we were after were, for the most part, overseas. Indeed, it was only in recent months that we have had a pretty general field of selection, having regard to the kind of men we desire to get.

There are in the whole organization at the present time 475 persons, of whom 305 are males and the remainder are stenographers and female help. Of the 305, 246 are returned soldiers, or 81 per cent of the whole organization. Of the 246, no less than 51 have received decorations in France. I fancy that there is not a more distinctive soldier organization in any other belligerent country.

The distribution of the organization is as follows:

The total for Prince Edward Island is 7, of whom 4 are males, 3 of whom are returned soldiers. The man who is not a returned soldier is the agricultural expert whose business it is to watch, assist and supervise the men actually working on the land. We could not get a returned soldier to qualify for that position. Nova Scotia has a total of 9, 8 males, 3 of whom are returned soldiers, or 28 per cent. That is the smallest percentage of any province. For the other provinces the figures respectively are: New Brunswick, 12, 9, 8 or 89 per cent; Montreal, 14, 10, 8 or 80 per cent; Quebec, 3, 2, 2; Ottawa, 128, 66, 52 of whom are returned soldiers in the head office here.

The Soldier Settlement Board is a separate organization under the Minister of the Interior. It does not report through the Deputy Minister of the Interior, but through the Chairman of the Board direct to myself. The

figures from Winnipeg are respectively, 55, 37, males, 28 of whom are returned soldiers or 76 per cent. Calgary, 41, 34, 30 or 88 per cent. I may say, with Calgary in mind, that among the best class of returned soldier we have been able to get is the private. We find that if we can get the private returned soldier with the necessary ability — and we have certainly succeeded in some cases in getting men with the necessary ability in a conspicuous degree — his influence and his acceptability with the men generally is even greater than that of the returned soldier officer. Such a man we have in Calgary—a Mr. Thomas Smith, a returned soldier with one arm. The figures for Edmonton are: total 37, 28 of whom are males, 23 of whom are returned soldiers, or 82 per cent. Regina, 40, 24, 20 or 83 per cent. Prince Albert, 23, 16, 13 or 81 per cent; Saskatoon, 19, 13, 11 or 85 per cent; Vancouver, 35, 24, 19 or 79 per cent; Victoria, 20, 10, 8 or 80 per cent; that is the distribution of the organization throughout the Dominion.

Mr. McKenzie: Is it the duty of these groups to operate exclusively in a certain province, or are their duties of an interprovincial character?

Mr. Meighen: There are interprovincial divisions. In Nova Scotia, New Brunswick and Prince Edward Island each organization operates for its province. The same is true of Ontario, where we have a somewhat different system by reason of the provincial organization fitting in and being used as an auxiliary. In Saskatchewan we have three head offices—at Regina, Saskatoon and Prince Albert. In Alberta two—at Calgary and Edmonton. In Manitoba one; and British Columbia two—at Victoria and Vancouver. In Alberta and British Columbia we have also a sub-office in the most active outlying points.

Mr. M. Clark: Will the Committee be right in assuming that most of the male employees have had previous experience at farming?

Mr. Meighen: I think I am safe in saying they have all had experience at farming without a single exception. In fact, in all positions of any responsibility the man is an expert in a greater or less degree; he is the best expert we can get.

Wait Till It Pours

"Some men," said Uncle Eben, "can't lay by a little money for a rainy day without bein' fooled by de fust sprinklin' cart dat turns de corner."

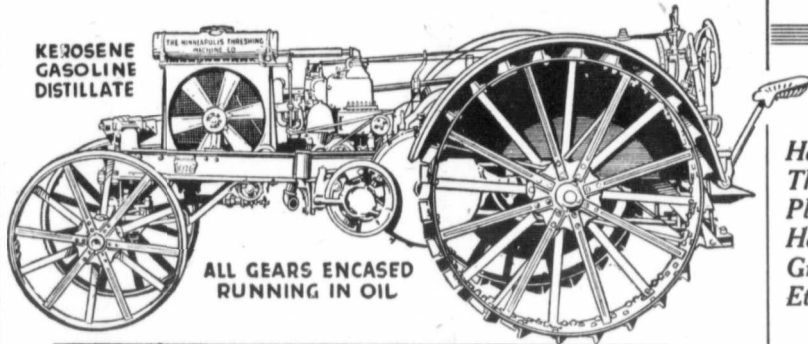


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KEROSENE
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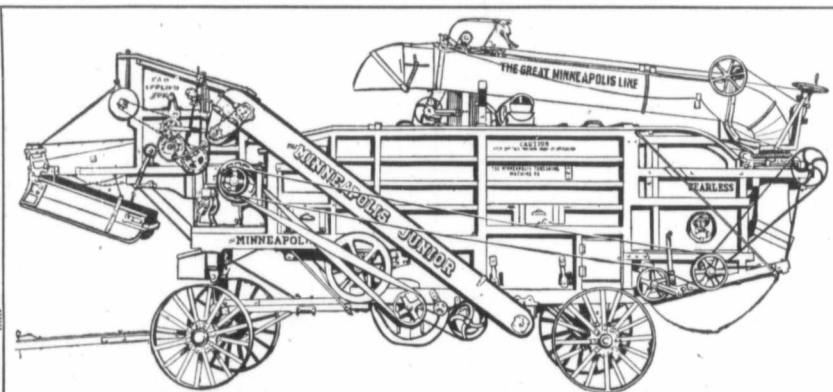
THE MINNEAPOLIS 15-30 ALL PURPOSE FARM TRACTOR

*Steady
Durable
Economical
Reliable
All-Purpose
Power*

*Harvesting
Threshing
Plowing
Hauling
Grading
Etc., Etc.*

Our large modern equipped plant is working to its limit of capacity to supply machines to those who prefer the Minneapolis to any other make. We hope to be able to meet the demand but judging from the way orders are coming in now it is going to be some task. We suggest that in order to avoid any chance of disappointment that you order your Minneapolis Tractor, Junior Separator or Tractor Plow NOW and specify immediate shipment.

*A
Glutton
for
Work*



THE BIGGEST LITTLE SEPARATOR BUILT

*A
Miser
to
Save*

Minneapolis Junior machines are just as well built as the larger ones. They are not built to sell at a cheap price but to last and give the best of service and satisfaction. Tractors of 10-20 rating and larger are operating these machines throughout the grain growing sections. Any of our branches are prepared to serve you promptly—NOW!



The Minneapolis Threshing Machine Co.

West Minneapolis (Hopkins P.O.) Minnesota
WINNIPEG REGINA CALGARY EDMONTON



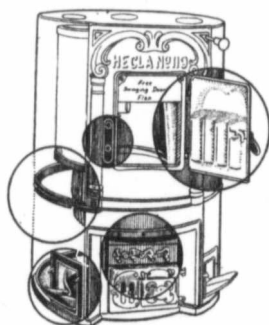


The New

LIGHTER DAY
Coal or Wood
High Oven
RANGE

The full heat from the fuel is used, thus cutting down fuel bills and heating the oven in a much shorter time than is usual. No stooping is necessary to watch baking or roasts. Warming closet is directly heated. Send for the story of the "Lighter Day," told in photos. No housewife can imagine what this greatly improved range is like until she sees these photos. We send the story free; ask for it on the coupon.

The HECLA
Warm
Air
FURNACE



The HECLA has many exclusive features—steel ribbed pot—fused joints—cast iron combustion chamber—individual grate bars—circular water pan—and so on. One ton of coal in seven is saved by this scientific construction. Genuine satisfaction is assured with a properly installed HECLA. We have a booklet and also guaranteed House Heating Plans which we send you free. Send the coupon.

Clare Bros. also supply Imperial Boilers, Hydrothermic Radiators, etc., for hot water and steam heating. Consult us on all heating problems.

CLARE BROS., WESTERN LTD.,
WINNIPEG, MAN.

Please send me booklet on:
[] Lighter Day Range
[] Hecla Furnace

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Clare Bros.
Western Ltd.
WINNIPEG - MAN.

The Farmer and Repatriation

THE Canadian farmer has a right to look with pride upon his contribution to the cause of democracy since the first year of the war.

From the farms of Canada, many thousands of the best fighting men were recruited. Whole battalions were made up of men from farm homes and small villages.

And those who were left played their part. They provided the Allies with food. They helped to keep things going at home. They learned how to "carry on" in spite of loss of help and a hundred other such difficulties.

But there remains to-day a task for the farmer equal in importance to any that he undertook in war time—his share in restoring and readjusting the country in the transition to peace.

Canada faces the problem of placing in suitable employment the thousands of returned men whose record of service and endurance overseas has won for them a foremost place in the consideration of every man, woman and child at home.

Many of these men will return to their old places in the cities. Some will go back to their own or to their fathers' farms. But there will remain a great number who will discover that the old order has changed for them—and who will think of turning for the first time to the land for employment.

The Government, through the Soldier Settlement Board, has laid plans to train as many soldiers as possible for agricultural life, and has also made provision to secure land for all who wish to possess farms of their own.

But there will be many who will prefer to learn farming by practical experience.

The farmer who needs help can render valuable aid to these men and to the country by giving the returned soldier employment wherever possible.

There is this to be remembered—that patience and tact will sometimes be necessary. It may take time for some of them to get back into the old system of work, and to find their strength again.

Let one fact be kept in mind with regard to every returned man, whether he was a former employee or not—the fact that Canada owes him a tremendous debt, and that any deficiencies on his part during the first few months of his rehabilitation should not be allowed to disqualify him as they would under ordinary conditions.

The farmer plays one of the most important parts in the

economic life of the community.

When you clear the land—build fences, and increase production, you are actually helping to develop the country. When you build new barns, you are stimulating a demand for raw materials. In both ways you can help to keep the returned man busy.

There is another important question.

With the Government plan for soldier settlement in operation, there is every prospect that, within the next few years, many soldier settlers will be located on farms in every part of Canada. Trained advisors and skilled experts will help these men; but each must in the end work out his own salvation.

It is hoped that the farmers will be on the lookout to lend a helping hand to the soldier settler, to give him advice, and to aid him with his problems.

Every additional efficient farmer means greater strength to the life of the community. Every settler well established with his wife and family means another taxpayer to relieve local burdens, and another citizen to add his contribution to the social life of the district.

There is a place for the returned soldier, too, in the work of the farmers' organizations, which have of late years developed so much business enterprise.

Co-operative societies sometimes find it difficult to secure efficient managers. There are a number of men in the Canadian army who, as quartermasters or quartermaster-sergeants, have acquired useful experience in business methods and in handling commodities.

At any rate, there is an opportunity for farmers' organizations to show an example of public spirit and enterprise in welcoming the soldiers and in aiding their return to civil life. A special committee should be formed in every Farmers' Club throughout the dominion to carry on this work—to talk over the needs, the difficulties and the possibilities of the whole situation. This is the sort of patriotism that Canada needs now.

There is one other phase of assistance that might well be considered in the homes in rural districts. Many of the men who have fallen in battle have left behind them orphaned children. It would be infinitely better for such children to be brought up on the land than left in the cities. There must be many farmers in Canada whose families have grown up, or who have no children of their own, who would be

glad of the companionship and affection of such little children.

Why not make a point of giving preference to those children who have been left as wards of the country by the death of their Canadian soldier fathers?

Many other suggestion might be made. Their success would depend, as in the case of those already advanced, on the farmer's ideal of the future of Canada.

Canada counts on the farmer to help pay the debt we owe to the returned citizen.

Help him beat his bayonet into a plowshare!

M. A. C. MAKING BIG ENGINE SHOW AT BRANDON FAIR

UNDER the direction of Prof-ssor L. J. Smith, the Manitoba Agricultural College (Engineering Department) are putting in a demonstration in motor mechanics at the forthcoming Brandon Fair which cannot fail to prove of surpassing interest to a large number of visitors.

The directors have given the M. A. C. men a splendid position and space ad. lib. for their display and we strongly urge upon all who can reach Brandon in fair week to see this fine exhibit.

The exhibit will be divided into three parts, as follows:

- 1. Aeroplane engines:
 - 1—90 h.p., 8-cylinder, V-type Curtiss aeroplane engine.
 - 1—130 h.p., 9-cylinder rotary Clerget aeroplane engine used in French aeroplanes.
- 1—Sectional, 9-cylinder, rotary Monosoupap engine.
- 1—Le Rhone rotary engine.
- 2. 1—4-cylinder, vertical International Harvester tractor motor.
- 1—4-cylinder, Waukesha motor.
- 1—Erd motor.
- 1—Ford motor.
- 1—Case motor

3. Gas engine accessories: Magnetos, lubricators, ignition systems, carbureters, spark plug testers, and so forth.

The programme is to run two of the aeroplane motors every twenty minutes, while the intervals between will allow time for examining the various engines and asking questions in regard to gas engine problems.

There is the same kind of difference between praise and flattery that there is between a shadow and the thing that makes the shadow.

Some people are so easily satisfied that they are glad to attract notice merely by getting in other people's way.

OUR RECORD: We have built over 125 schools in Saskatchewan each year for the last three years and equipped most of them. For the past eight years we have designed over nine-tenths of all one and two-room schools in Saskatchewan. We have more Waterbury Heaters in the Rural schools of the three Western Provinces than there are of all other makes combined.

The Waterbury SEAMLESS PIPELESS Furnace

FOR HOMES, SCHOOLS, CHURCHES

WE gave our record above so that when you read the statements below you'll know they are absolutely reliable. Nearly 4,000 rural school heaters we have sold are operated on exactly the same principal as the Waterbury Pipeless Furnace, which

- Can be installed in any basement or cellar in one day.
- Reduces fire risk, burns any fuel.
- Heats rooms with moistened warm air.
- Operates just like a stove, so no experience is necessary to run.
- Is furnished complete, ready to set up, with casing, registers and all necessary fittings.
- Write us to-day for Big Catalog and all further details you wish to know.

No trouble to answer questions. Every furnace guaranteed.



NOTE THE ARROWS CAREFULLY

The black arrows show the hot air ascending. The light arrows show the cold air descending.

Waterbury SANITARY CAUSTIC Closet

Where sewer and water are not available the Waterbury will give you perfect satisfaction. Country churches, stores, summer homes, rest rooms, schools, factories, and especially farm houses, should be so equipped.

REQUIRES NO SEWER OR CESSPOOL

City conveniences in country homes is what the Waterbury Sanitary Caustic Closet brings.

Guaranteed Odorless

The Waterbury Closet costs little more than an outdoor privy—every farm home should be equipped.

Write us to-day for catalog and more details—Draw a rough pencil plan of the rooms in your house and we'll send you back a plan showing where closet should be installed and the cost.



THESE BOOKS ARE FREE

Mark X opposite the subject you desire information about and mail back to us to-day

- Free Plans for School Buildings.
- Basement Furnaces for Schools.
- General School Equipment.
- School Room Heaters.
- Adjustable School Desks.
- Sanitary Drinking Fountains.
- Chemical Closets.
- Trustees Plan Book



SPECIAL Ask us about Moving Picture Machines and Columbia Phonographs for your school.

Waterman-Waterbury Mfg. Co. Ltd.

Dept. 61

REGINA

SASKATCHEWAN

Builders and Equippers of Schools

Heating and Ventilating Specialists

Harvest Expectations

vs.

Harvest Realizations

Very often the crop does not come up to earlier expectations, which not only causes the farmer and his family, who have worked so assiduously, considerable disappointment, but, as a consequence the planning of months and years goes for naught. Just so through life. Every man with responsibilities hopes to leave his dependents in an independent position, but as a result of unforeseen events, is frequently unable to do so, regardless of his good intentions.



This is why the progressive farmer carries adequate Life Insurance. He knows that if anything happens, it will provide funds to complete his unfinished work. On the other hand, if he lives until the maturity of the policy, the systematic accumulations will provide a competence for his declining years.

The Manufacturers Life Insurance Company

HEAD OFFICE - TORONTO, CANADA

P.S.—Fill out the attached coupon to-day and mail it to the above address. It places you under no obligation.

I would like to save \$..... yearly through the medium of Life Insurance.

I am..... years of age, and am (married). Kindly forward particulars of plan of policy you recommend

Name.....

Address.....

Cream Shippers— Attention!

**WE PAY
THE
EXPRESS**

If you desire the next best returns for your cream—bill your **NEXT CAN** to us. Our prices always highest—test and weights correct and returns mailed promptly. Shipping cans furnished at the following prices:

5-gal., \$4.50; 8-gal., \$5.50

SHIP YOUR EGGS TO US

The Tungeland Creamery Co.
BRANDON, MAN.

All Cream Shippers coming to Brandon during the Fair, or at any other time, are extended a cordial invitation to come and see us.



K.W. High Tension Magnetos

TRACTOR OWNERS

Send for our Catalog of Magnetos and Parts to Fit all Makes

We repair all makes Magnetos, Coils and LIGHTING PLANTS

PROMPT SERVICE WORK GUARANTEED

Acme Magneto Works, 276 FORT ST. WINNIPEG

Inspect Your Tractor

IN inspecting the tractor it is a good plan to start with the engine by removing the cylinder cover or heads and scraping out the carbon. This should be thoroughly removed after first carefully plugging all bolt holes or water-circulating passages with waste so that there will be no chance for pieces of carbon to get in these places. Remember, if carbon is allowed to accumulate in the cylinder bolt holes it is likely to cause the bolt to tighten on the carbon in the hole instead of on the cylinder cover, and then the engine will leak compression. Carbon that gets into the water passages is very apt to work into the radiator and plug up some of the circulation tubes.

After everything is cleaned it is a good plan to wipe the head, piston and cylinder walls with a piece of waste moistened with cylinder oil. Some tractor operators use kerosene, which probably cleans a little better, but it has the disadvantage of making it harder to start the engine afterward. Don't forget to examine closely the cylinder walls to see if in good condition; if you should find one of them scored or showing signs of cutting it will be necessary to have the piston taken out and the trouble discovered and remedied. The spark plugs should be thoroughly cleaned and the spark gaps adjusted to the thickness of a worn dime. After the cylinder cover has been replaced all the cylinder oil should be drained out and about a gallon of kerosene oil put in the crank case; the engine cranked by hand for twenty or thirty turns, the dirty kerosene drained out, and then a fresh supply of cylinder oil put in the engine.

The wiring system should next be carefully looked over. If any wires are found to be worn or frayed—caused perhaps by rubbing on some part or by vibrating—they should be replaced.

The next thing that needs attention is the radiator and the other parts of the cooling system. Start in by inspecting the hose connections to see if they are tight. If they should show signs of going to pieces through the rubber's stripping off and the fabric's breaking, then new connections should be installed. To make new hose connections tight it is a good plan to put a coat of very thick shellac on the connecting pipes before slipping on the hose. This will fill up all uneven places and make a joint that will outlast the hose.

The radiator should be thoroughly washed out with clean

water to remove all sediment and mud that has collected, and unless you are going to use your tractor right away it is advisable in winter to leave the radiator empty. Then there will be no chance of its being frozen. The fan-driving belt should be carefully looked over to see if it is in good condition. Generally you will find that it has many cracks on the inside or side that touches the pulley. If so, it is advisable to replace it with a new one, because it is beginning to wear out.

Now look over the transmission and clutch and see that they are in good working order. The transmission should have plenty of lubrication and all the moving parts should slide easily and smoothly. If any lost motion has developed in the operating levers it should be taken up, and there is generally some means provided for doing this.

The clutch should close up nicely and without jolting. If it is a leather-faced one, see if the leather is getting dry; and if so, work a little neat's-foot oil into the face. Remember that the leather in order to do its work properly should be soft and pliable like a new high-grade leather belt. Also remember that mineral oil, such as machine oil or cylinder oil, should never be allowed to come into contact with leather, for it will rot it in due course of time.

Now test every bolt and nut with a wrench to see if they are tight, and as you pass them as O. K. be sure to mark each one with a piece of chalk so that none will be missed.

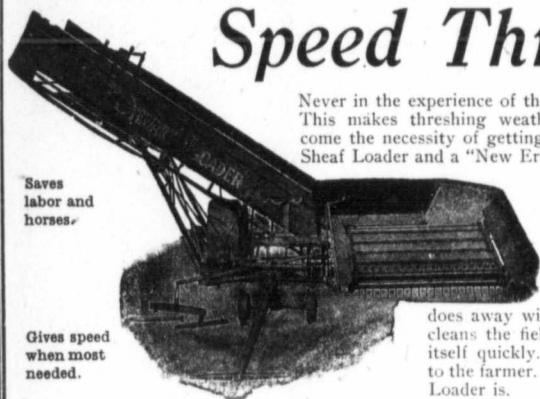
On all nuts where cotter pins are used do not fail to replace the cotteners, because for these parts an absolutely positive lock is necessary. Do not make the mistake of thinking that you can use lock washers instead of cotter pins; they are not safe because they are apt to crystallize and break, thus loosening the bolt.

Refill every grease cup and tighten it up until the whole charge has been forced into the bearing; then take it off again and fill it once more. The second time, however, tighten it only just enough to hold it firmly and you will have a charge of grease ready for use when wanted.

The bull gear or final gear if exposed to the dust and grit should be lubricated with graphite in which a little grease has been mixed, but only just enough to make it stick. This should be sparingly applied to the teeth where the wear or pressure is taking place. This "dry" lubri-

Speed Through Threshing!

Never in the experience of the Canadian West have there been so many heavy storms as this year. This makes threshing weather problematical. With the cutting and stooking of your crop will come the necessity of getting the stooks into grain in the quickest possible time. With a Stewart Sheaf Loader and a "New Era" Separator you not only save time but also labor and expense. The



Saves labor and horses.

Gives speed when most needed.

Stewart Sheaf Loader

does away with field pitchers altogether, saves half the bundle teams—and actually cleans the field better than hand forking. There is no question about it paying for itself quickly. A crop finished before a heavy rain or a frost means many dollars to the farmer. Write us to-night for full particulars and know what the Stewart Sheaf Loader is.

The "NEW ERA" Separator—built for the prairies!

The "New Era" factory is here in the West—and the manufacturers are men who have had years of experience in Western threshing. That means a thorough understanding of conditions as they are. Every "New Era" is guaranteed to do the most satisfactory work and to do it quickly, thoroughly and with little or no loss of grain. Five sizes: 20 x 42; 24 x 46; 28 x 50; 32 x 56; and 38 x 64—one to suit any need.

Lack of vibration is one of the big points in the "New Era." This is accomplished by a scientific balancing of all parts. The separating racks, fitted with "fishbacks" and other special adjustments tear the straw apart almost with the action of human fingers. Several entirely new devices are used which effectively check the flying grain. The straw rack is about 3 feet longer than is usually found in other standard length separators. Many other improve-

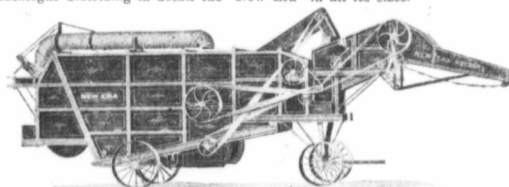
ments make this the one best separator for Western Canadian use. Get our catalogue describing in detail the "New Era" in all its sizes.

We also manufacture the "New Era" Combination Loader, other Standard Separators, "New Era" Rotary Cultivator and Agents for the Moline line of farm machinery. Write for particulars of any or all.

Stewart Sheaf Loader Co. Ltd., Winnipeg, Man.

Branches at

Moose Jaw, Saskatoon, Calgary and Union Transfer Co., Fargo, N.D.



ation will not collect grit like ordinary grease, and it is a very effective lubricant on gear teeth under conditions of high pressures and slow speeds. The graphite seems to work into the pores of the metal, and thus will stay in place for a very long time.

After everything has been made clean and all moving parts thoroughly lubricated, with everything in running order, it is a good policy to give the whole tractor a coat of paint. A high-grade genuine graphite and red lead paint will give excellent results.

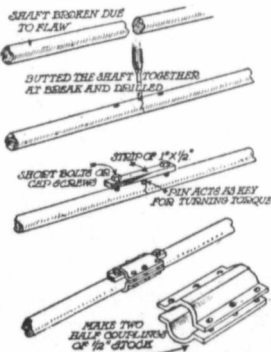
The first time you are ready to start your tractor and just after you have filled it up with fuel, draw about a cupful of the gasoline or kerosene out of the sediment bulb under the fuel tank and about the same amount out of the carburetor. This will clean them out and remove water or mud.—George P. Pearce.

A woman wants to be loved, but a man is satisfied if she will just let him love her.

Have you ever met a man who was so poor that he was unwilling to share his poverty with some patient woman?

MAKESHIFT SHAFT REPAIR

FREQUENTLY at the most inopportune time something happens to put some of the farm machinery out of commission, and as a result fifteen or twenty hands are idle



until a new part can be obtained.

But when the farm has a handy mechanic and a fair workshop with tools, many dollars and much time can be saved by makeshift repairs.

The accompanying sketches show how the belt-driving shaft of a farm tractor was temporarily repaired. A flaw in the shaft caused the break.—C. H. W.

18-36 H.P. 3-4 Plows

STINSON

Tractors

with gauge wheel adjustable to 3 positions.



AGENTS WANTED
Write or wire re open territory in Manitoba and Alberta. Saskatchewan is being handled by Saskatchewan Grain Growers' Association, Regina.

36 h.p., 4 cylinder motor—power to properly drive a 28-inch separator—kerosene burning at all loads—3000 lbs. draw-bar at 3 miles per hour—plows 12 to 16 acres in 10 hours, according to number of bottoms—weight 7,130 lbs.—all gears enclosed, running in oil—and it can be bought at the same price the American farmer pays. Get catalogues and full information.

Martin & Phillips Sole manufacturers and distributors for Canada.
803 INDUSTRIAL SITE
Medicine Hat ("The Tractor Centre of Canada") Alberta

OXY-ACETYLENE WELDING APPARATUS and SUPPLIES

We can supply a thoroughly practical outfit from \$100.00 up. There should be at least one plant in every district to repair breakage quickly and SAVE TIME and MONEY. Up-to-date farmers with Tractor Engines are putting in welding outfits and doing their own and their neighbors' repairs. We give free instructions to purchasers. SEND YOUR **BROKEN CASTINGS** Scored Cylinders or any kind of Repairs. We Re-bore Cylinders, True Up Crank Shafts, Re-tip Boiler Flues and are in a position to handle any repair job promptly.

Nothing too large or too small

GIEGER WELDING WORKS, SASKATOON



PURITY FLOUR

"More Bread and Better Bread"

Best liked by those
who like the best.



OUR WOMEN FOLK

CONDUCTED BY
PEARL RICHMOND HAMILTON

The Altar

This is an altar where from year to year,
From dawn's bright blossoming to
twilight grey,
Rises an incense sweetest unto God—
An incense wrought of love, of toil and
play.

No fairer altar looks to cloudless sky
In marble temple crowned with golden
dome
Than this whereon is carved with symbols
bright
The word immortal, loved and holy—
Home!

Arthur Wallace Peach.

THE SCHOOL AS A CENTRE FOR COMMUNITY SERVICE

This Excellent Address was given at the
Manitoba Educational Convention by
Mrs. Rose A. Hambly.

DURING the last fifteen months I
have been teaching in a Ruthenian
settlement 45 miles from
Winnipeg. The people in this particular
district were unfortunate in choosing
their homesteads, the land being, as one
man aptly describes it, "too sand, too
stone, too swamp." Some of them have
been unfortunate in another respect;
they have been the prey of the speculator
and the tool of the politician. In
this latter misfortune, we, as older
Canadians, share the blame and loss.

A young man—a successful rural
teacher of ten years' standing—once
said to me, "I am quitting teaching; I
want to be able to poke my own fire."
In a number of the new Canadian
districts, cottages have been built in
connection with the schools, and I am one
of those teachers who poke their own
fire, and hear the music of their own
'ra-kettle.

Anyone can readily perceive that a
separate home is necessary for the
teacher, among a people whose mode of
living differs so widely from our own.
Only those who have been among them
know how essential such a home is
for the people themselves. I have in
my district, women who were trans-
planted straight from Austria to the
place where they are now living, and
had never had a chance to learn any-
thing of our ways of housekeeping till
the door of the teacherage was opened
to them. In such districts, the influence
of the teacher's home is not less valuable
than the teacher's work in school.

The contractor finished the cottage
the day that I went out, and the wagon
that brought him to the station, carried
me back to the school. My nearest
neighbor—a crippled old woman—was
standing at her gate, and waved to me
as I passed. Her home is a moss-
chinked cabin, twelve feet square, and
the cost of the entire furnishings does
not exceed ten dollars; yet I have never
known any one richer in a sense of
neighborliness and hospitality. She was
the possessor of a cow, a potato patch,
and a well, and before night came she
had managed to share all these things
with me in so happy a manner, that I
felt as if I had been welcomed into a
kingdom.

Not all were so well disposed. Before
I had been there a week, one of the rate-
payers who knew a little English, came
to me and told me that the people did
not desire a teacher who could not
speak their language.

"Woman teacher no good here; all
these people had like beasts. Only man

who can fight stay here. These children
wild like wolves, learn nothing unless
you beat every day with big stick. How
you going get letters? How you going
get things from store? You no stop
here; these people eat you up." Under
the spell of this gloomy prophet, I felt
my spirits rising. Here was a situation
in which even Mark Tapley might find
"credit in being jolly." I thanked my
pessimistic friend, and privately re-
solved that if any one tried to "eat me
up," I would furnish as difficult a meal
as possible.

As soon as I was settled, I started out
to look up those people who were not
sending their children to school. In the
first home I visited, I found appalling
conditions. Under the family bed—a
wretched affair of rags and hay—a flock
of hens was cooped, and a pig lately
killed and not yet cut up, lay on its
back on the floor, and invited dust and
dirt with open arms. The winter's
supply of potatoes was heaped in a
corner. Two little girls of eight and
nine, clad each in a single tattered gar-

ability, a passion for learning, and nice
moral perceptions; while the patient
courage of the women is a thing to
wonder at.

For the benefit of the older boys and
girls a night school was started, with
classes two evenings a week. Not being
accustomed to restraint or discipline,
some of them were a little boisterous
and inclined to disregard the property
rights of others. On one occasion when
hand sleighs belonging to the day pupils
had been destroyed, I announced that
there would be no evening classes till
the sleighs were replaced. This was
cheerfully done within 48 hours, and I
have never since had ground for com-
plaint.

About this time a sewing machine
was sent out as part of the school equip-
ment. This was a great attraction for
the girls. With a little assistance in the
use of patterns, they were soon able to
make their own dresses. During the
winter, the night school girls often came
at 5 o'clock, and sewed for two hours
before school. In the spring, some of

in simple home nursing and diet for the
sick.

Some strange things came to my
knowledge. In an adjoining district, the
wife of a man who was fairly con-
valescent under the doctor's treatment,
thought to hasten his recovery from
pneumonia by packing a tremendous
plaster of mud on his chest. He died in
a few hours. The women are especially
helpless in dealing with infectious
diseases. One poor mother told me she
had lost five children in three days, of
scarlet fever. Infant mortality is very
high, and this is largely due to im-
proper feeding. Bottle-fed babies a
month or two old, can hardly be expected
to thrive on milk and coffee varied with
milk and tea.

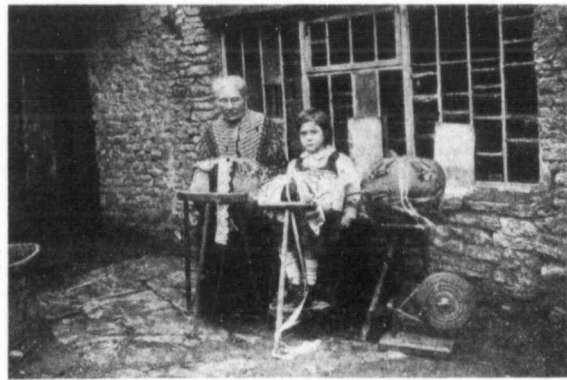
It was a great relief when we were
able to settle again to the regular work
of the school. Evening classes were re-
sumed with a somewhat wider scope.
From the first, the night students had
been encouraged to bring their friends,
and a number of people had got into the
way of dropping in to spend an hour.
There were letters to be read and
written, garments cut out, and so many
various little things to attend to, that
in order to take care of them all, it
seemed necessary to add another evening
to the week's work.

I talked the matter over with my
young people—and they were enthu-
siastic about the idea of a community
gathering once a week. It is nearly
always easy to draw a crowd for an all
night dance. That was not at all what
I was aiming at. I wanted to get all the
people of the district together in a
friendly, social way. I explained that I
was especially anxious to have the
mothers—that if anybody had to stay
home it was not mother.

We decided on two rules—ten o'clock
closing, and no smoking in the school.
As the days lengthened, some happy
spirit usually managed to set the clock
back half-an-hour, and everybody
appeared so blandly oblivious, I thought
it best to follow their example. While I
was positive in prohibiting smoking in
the school, I had no desire to offend or
banish the smokers. The cottage was
placed at the disposal of those who felt
that cigarettes were indispensable to
their happiness. A few of the older men
occasionally availed themselves of the
privileges.

To the two rules I added a request. I
believe the people of my district are
loyal; I think they concur in the senti-
ment of the woman who said to me, "I
eat the English bread, I keep the Eng-
lish law." Outside of my own district
the people are unknown to me. I ex-
plained to the night school, that any
one could depend on a welcome from me,
except the man who had evaded his
military responsibilities. I had no
desire to make inquiries, or he told the
names of evaders, but it was my wish
that the young man who had been sitting
under a bush, would remain under his
bush so far as our socials were concerned.
I have never referred to the matter since,
but I have reason to believe that wish
has been respected.

In order to avoid the paralyzing stiff-
ness that sometimes settles on a com-
pany of people in new surroundings, we
planned a programme of lively games
for the first part of the evening. Some-
times we had a little concert, and here
the school gramophone was of great as-
sistance. None of the girls could dance,
but several of the women knew some of
the folk dances of their own country,



ONE OF OUR MOST BEAUTIFUL ART-CRAFTS

The old and the new generation making lace, Olney, Bucks, England. Mr. Henry H. Armstrong, High St. Olney, would like very much to get in touch with people who originally lived in these parts and who have since taken up their abode in Canada.

ment, shrank against the wall and
peered at me through their tangled hair.
It was in one of the strongholds of
poverty and ignorance, yet even here,
hope and the love of beauty were not
dead. In that fetid atmosphere, in the
dim light that fell through the filthy
window, a cherished geranium had put
forth a sickly flower.

I learned that these two little girls
spent the dark winter days alone in that
hovel, while their fourteen-year-old
brother, and widowed mother, cut cord-
wood in the bush. Having no clothes,
they were prisoners except for short
dashes in their bare feet to the stable
near by. With the help of friends,
those two little girls were made ready
for school, and I have never known two
brighter, happier children. This was an
extreme, but not an isolated case, as
similar conditions existed in a degree in
a number of the homes.

Going in and out of these places and
seeing little children who had died for
lack of intelligent care, laid in the grave
without the tenderness of any religious
service, it seemed to me at times that I
was living among a people who were
outside the humanities of life. Yet this
was only seeming, for out of these poor
homes come children of great natural

them went away to work in English
districts, and I have reason to believe
that they acquitted themselves with
credit, as I have received several letters
from farmers, and farmers' wives, ask-
ing me to send them help for the
summer.

In common with many other districts,
we had an anxious time during the
influenza epidemic. We were, however,
more fortunate than some in having a
doctor, and many people in that part of
the country undoubtedly owe their lives
to Mr. Stratton's prompt action in send-
ing help. The doctor made his head-
quarters at the school, and remained
with us several weeks.

Nursing, as it is ordinarily under-
stood, was almost out of the question.
The homes have few comforts for those
who are well, and no facilities for the
care of the sick. Most of the beds are
shallow boxes of boards or poles, with
some loose hay thrown in and covered
up with a single thickness of cotton.

For some time before the epidemic
reached us, the children had been drilled
repeatedly in the instructions laid down
by our medical authorities, for the pre-
vention and treatment of the disease,
and lessons were given to the older girls

Gold Standard

Just Like an Old Friend

Always the same, smiling a welcome across the breakfast table every morning. It looks good and is good, and it improves on acquaintance. The introduction is easy, too —

Just a tablespoonful of **Gold Standard Coffee** for each cup required. Bring the water slowly to boiling point and allow it to boil one-half minute; add one-quarter cup cold water to settle, and serve in three minutes.

You can get it at your grocers.

The Gold Standard Mfg. Co. Winnipeg, Man.

and readily consented to teach us. One of the pleasantest features was that no one who could contribute to the evening's enjoyment had to be coaxed. They all came prepared to do their best as a matter of course. I have never known a better behaved crowd, and the good humor and fun were irresistible. We sometimes had a sprinkling of young people from neighboring districts, but the Friday night social remained a family gathering throughout the winter. The average attendance was sixty. It was thought advisable to discontinue these meetings during Lent, but the people seem to miss them so much that we are planning to resume them again, changing to Saturday night for the summer months. Now that everyone has got into the way of coming to the school, it should not be difficult to interest them in outdoor sports, and improving the school grounds.

There have been results far deeper than the pleasure of the moment. Women who had been living in the district for years, met together for the first time, in the school. There has been a noticeable improvement in dress and manner, and a friendlier feeling pervades the community. I have in mind two sisters-in-law who live on adjoining farms, and had not spoken to each other for years. The bitterness of a quarrel that had cost a life lay between the two houses, and it was not for a stranger to meddle. One night we were all filled with astonishment; the two sisters were dancing together! Away from the brooding and monotony of their home life, in that kinder atmosphere where everyone was unconsciously at their best, the better, truer instincts of their hearts had wakened and flowered into forgiveness and reconciliation.

The Extension Service of the Department of Agriculture was very generous in its treatment of our Boys' and Girls' Club last year, sending us a large box of garden seeds. Some of the boys purchased registered grain from the Department, and in three of the homes at least the grain from this seed has been hand-selected for this spring's sowing. It was the business of the entire family during the long winter evenings. A number of the children purchased eggs, and in so doing were able to make a start in getting a pure-bred flock of hens.

On application to the Department of Agriculture at Winnipeg and Ottawa, farm bulletins were obtained for distribution, and the names of those farmers desiring further bulletins, placed on the mailing list of the Department. In a number of cases the teacher was asked to explain certain cuts and diagrams to a pupil who, in turn, translated and explained to his father.

We are indebted to the Fort Garry Chapter of the I.O.D.E. for a splendid box of books. Such a gift given in such a spirit, has done much to strengthen the work of the school. "English ladies who have never seen us, sent us these books for love," wrote one little girl. Twenty-six pupils have qualified for the "Children of the Empire" buttons, which are given to those who have read ten books.

The difficulty is not to induce the children to read—but to procure enough reading matter. Outside the school and teacherage, there is none, and the annual grant of ten dollars leaves us, like Oliver Twist, asking for "more." In these districts, remote from picture plays and funny papers, there is a great hunger for books. The child who has learned to know and love good books, and above all, the beautiful book of outdoors, has laid hold of one of the most lasting benefits and pleasures of life, and will never be friendless and alone. Perhaps no greater gift lies within our bestowal.

The school sewing machine has proved invaluable to the women. When they wish to sew during school hours, the machine is moved into the cloak room, and class work is not interrupted. Quite often they remain during night school, and have tea at the cottage. On such occasions little presents appear mysteriously in my kitchen, for the Ruthenian woman is splendidly independent. Out of mass fact and kindness she excels in the difficult art of graceful giving. Always her gifts repre-

sent her time and skill. I have seen broilers so beautifully and wonderfully prepared, that I wished to photograph them to show to my friends. Those teachers who have lived among the Ruthenians know that the first new laid eggs, the earliest berries, the finest vegetables and the most delicate cheese, find their way to the teacher's table.

In some respects they practise an economy that is foreign to us. After I had used all the green onions in my garden, I went to a neighbor for some. She did not extravagantly pull them up by the roots, as I had done, but culled a leaf here and there from the strongest sets to make up my bunch. When she wants new potatoes, she puts her hand into the hill and takes out two or three of the largest, leaving the plant undisturbed. She is frankly curious about my



MRS. ROSE HAMBLLY
 Authoress of the accompanying article on "The School as a Center for Community Service."

house keeping methods, and I am equally interested in hers. It is pleasant to see the beautiful loaves of bread she bakes in her big clay oven, and the wholesome meal she grinds between two stones. She thoroughly understands the food value of dried peas, beans and other vegetables, and the manifold uses of skimmed milk, both sweet and sour.

I know no woman more faithful than the Ruthenian in her devotion to duty, as she understands it. She shirks nothing. With her willing heart and strong arms, she thinks to achieve, by sheer physical force, the things that seem good in her eyes—a bigger patch of cleared land, better buildings and, above all, a chance for the children. For herself she asks nothing; and here she fails. She has never had a chance to learn her duty to herself—that heaven which makes sweet and healthful the daily bread of life. The house that replaces the shack does not always mean a proportionate increase in convenience. It sometimes means discomfort on a larger scale. Here is a vast field of opportunity calling for the exercise of understanding, sympathy and tact. The women do not want pamphlets or lectures, or even teachers. You may be all these things to them if you wish, but first and always you must be neighbor and friend.

In dealing with the older people, I have often wished that I could speak to them in their own language. The inability to do so, however, sometimes leads to special effort to learn English. At our Christmas concert I was pleased and touched to find that some of the

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AN Empire Milking Machine will enable you and your help to spend at least two hours more in the field every day. The absolute uniform action of the Empire Milker soothes the cows and generally results in considerably greater milk flow. It also lengthens period of lactation.

If you milk ten cows or more you need an Empire. It will positively save you money 365 days in the year. Investigate. Write for Catalog No. 32. Ask for name of nearest dealer. Start saving now.

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 of Canada, Limited.
 MONTREAL, TORONTO, WINNIPEG.

Send for this Book

One Dollar-and-a-Half spent on the "Canadian Thresherman and Farmer" will give you the best education on power-farming you can buy at any price.

parents had learned a little English from their children in order to express their appreciation and good wishes in words that I could understand. There is a language as universal as the sound of wind or rain—the language of the human heart. This, with the bond of a common interest—the children—soon leads to mutual understanding.

The children realize that the school is their great opportunity, the door to true citizenship. Once they know what is expected of them, I have found them faithful in all the little duties that devolve on them in the way of personal neatness, care of school property, and consideration for others. When the larger responsibilities of life come upon them, the will, I trust, not be able to forget the lessons of the school and the flag—that the business of life is noble living.

Mother's Corner

Letters From Our Mothers

Edrans, Man., July 12, 1919.

Dear Mrs. Hamilton,—I am sending you my little boy's picture, and wish to enter him in the contest. He weighed 9½ lbs. at birth and was 24 inches tall, and was more like a baby a month old. He could smile and wanted to be on his feet before he was two weeks old, so I let him, as I think the sooner they learn to exercise their legs the better. I think a good many bow legs are caused from not using them soon enough so they will be muscled up for when they begin to walk.



Charles Douglas Govenlock at 9 months

He had a cold in his head and chest the first month, and I just applied plenty of camphorated salve and got rid of it all right.

When he was four months old he could roll around the floor, and it was not safe to leave him in the bed alone. He weighed 17 lbs. and had two teeth. I never picked him up only when necessary, and never brought him to the table at meal time, so he soon learned to creep, and could walk by the chairs when he was seven months old.

He was nine months old when his photo was taken; he could walk alone then, had six teeth and weighed 23 lbs., and he was not out of shape with fat—just comfortable.

I nursed him until he was ten months old, then I weaned him, giving him cream and water and sugar until he was a year old, then I started to give him light food and plenty of fresh milk.

He is now two years and three months old; he weighs 30 lbs.; his height is 36½ inches (bare feet); chest measures 22 inches. He is big and strong and can pull his older brother in his wagon.

I found some of the letters very helpful.—Yours truly,

Mrs. A. Govenlock.

"The Annual Holiday of the People of Saskatchewan"
PROVINCIAL EXHIBITION
REGINA

July 28, 29, 30, 31, August 1 and 2, 1919

10,000 Exhibits

in the Departments for Live Stock, Dogs, Poultry, Butter and Vegetables, Flowers, Cookery, Grain, School Work, Industrial and Governments Exhibits, Implements and Automobiles.

Attractions that are Best

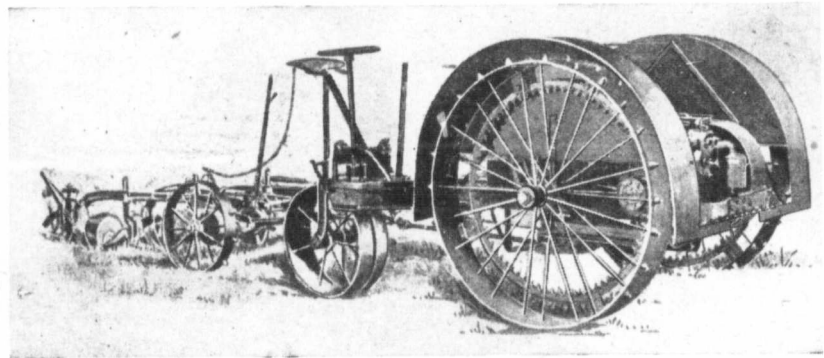
Including Sousa's Band, Sixteen Horse Races, Three Full Programs of Auto Races, Stunt Flying by two famous Military Aviators, Vaudeville Acts, Over Twenty Shows and Rides in the Fun Making Midway.

**THE REGINA EXHIBITION WAS GREAT LAST YEAR—
 IT WILL BE 100 PER CENT. BETTER THIS YEAR.**

Reduced Rates and Special Trains on all Railways

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D. T. ELDERKIN, Secretary, REGINA



U.S. Tractor on Manitoba Gumbo

Broke 100 Acres of New Land in Two Weeks and Still Going Strong.

The U.S. Tractor is the most practical machine on the market. It has all the good features and none of the bad ones. Pulls two plows under all conditions, and three under ordinary conditions. Use half-gallon of water in 16 hours. Engine, 24 h.p. Belt pull, 4,000 lb. Draw-bar pull, 2,000 lb. Weight of tractor, 4,000 lb. Gives continual service. Never run hot. High tension magneto and starter. No battery. Everything complete and fully guaranteed for 12 months.

PRICE, \$815.00 F.O.B. WINNIPEG

T. G. PETERSON, Canadian Distributor, 961 Sherbrook St., WINNIPEG

Didsbury, Alta, May 1st, 1919.
 Dear Mrs. Hamilton,—Orval Ernest Shantz is eight months and nineteen days old, weighs 28 lbs., height 31 inches, chest 21 inches, head 18½ inches. Orval has always been a very healthy baby.

When he was born he weighed 9 lbs., at two months 18 lbs., four months 25 lbs., six months 27 lbs., and now weighs 28 lbs. He has never had a sick day since he was born, excepting a cold.

The first four months I nursed him, but as he grew older, of course required more food than my nurse, so I started giving him cow's milk, and it has always agreed with him.

I feed him at the table some, such as rice, oatmeal porridge, fruit juice, biscuit soup and other soups; his stomach has never been upset.

Orval is a very fleshy little fellow, and his flesh is very smooth and firm; his little cheeks are like two roses,

He is our first baby, so naturally we are very proud and fond of him.

He is the first grandson in the family

so, of course, is very much spoiled and petted. I am sending a picture of the



Orval Ernest Shantz

little fellow with this letter. Everybody says he is the largest baby for his age they have ever seen.

Hoping to see this in print, also photo, Yours very sincerely,

Mrs J. Y. Shantz.

CYLINDERS REBORED

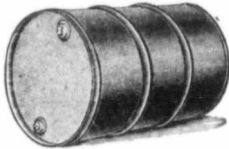
All makes of Gas Engines general repair work on all classes of Farm Machinery.

Satisfaction and quick work.

ROMAN'S MACHINE AND REPAIR CO.

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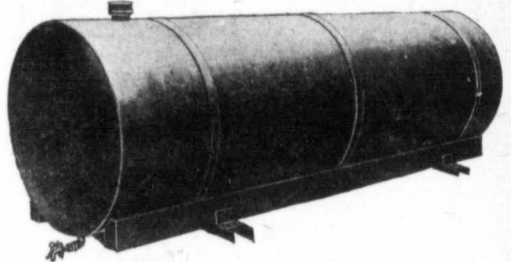
Drums All Sizes

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Made and Sold By Us

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Wagon Tanks—350 and 450 Imperial Gallons
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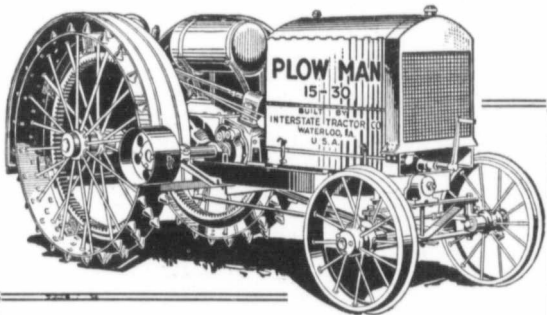
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IF NOT OBTAINABLE FROM YOUR DEALER—WRITE FOR PRICES TO BOX 3006 "C.T." WINNIPEG



Plow Man—All Standard Tractor makes profits where none were before

Every farm where work is done by hand that a machine could do better is losing money. To any farmer, whether he has or has not used other tractors, The Plow Man will be a wonderful advance over his present methods. Don't look on it only as a means of plowing or threshing or other field work, but as a handy helper that will handle any machine on the farm cheaper, quicker and better than can be done in any other way.

Satisfy Yourself About The Plow Man

There are two sizes, a 13-26 h.p. (2-3 plow size) and a 15-30 h.p. (3-4 plow size). There's no room here to tell you all their good points, or their economical running—write for these details to-night, get our illustrated catalogues and folders.

ANNOUNCEMENT: The Plowman Tractor Company, Limited, Regina, is an associate company of the Minot Auto Co., Inc., of Minot, N.D., who have bought the factory of the Plow Man Tractor (The Interstate Tractor Co. of Waterloo, Iowa), and from now on every attention will be given to making the Plow Man the one best tractor with the one best service in Western Canada.

Dealers can also find an attractive proposition in this tractor, but every Plow Man dealer must render every purchaser full service during the life of the tractor—Write for details.

Plowman Tractor Co. Limited
Cor. 7th AVE. & HALIFAX ST., REGINA

Don't Fail to Renew your subscription if it has run out. There are Great Things Coming!

Picture Stories Are Aids

WHEN children get tired of their souvenir post cards, they can cut them up into odd shaped pieces to be put together again as puzzles.

My children got so much pleasure by making picture stories they have read or heard. They do it in this way: If the story is "Jack and the Bean Stalk," they look through different magazines and catalogues to find the pictures suitable to a certain character. In a flower catalogue they find a bean vine. In the advertising section of almost any magazine they find a boy for Jack. If they find one climbing he is fastened about half way up the bean vine. Then they look till they find a picture of a very large man which serves as the giant. If a picture of a castle can be found, that is placed right back of the giant at the top of the bean stalk. Another picture they enjoy making is Red Riding Hood. They find her in a fashion catalogue as a little girl in a rain cape which they color red with crayons. And the other characters and animals they find as I have described. This game has a value aside from amusement as it teaches them to observe closely and gives them good ideas in the placing of the objects.

We have lots of fun making tissue paper butterflies. Even my little five-year-old girl makes them. We get crinkled tissue paper and cut ovals about five inches long and two and a half broad. These we decorate with circles and spots and borders, with water color paint. When dry we run them into a clothes pin opening as far up as you can push them with the scissors, then spread out the wings and ruffle out the edges. Two ovals should be placed together to make the front wings double. We tie these about midway of the clothes pin with silk cord and they look as though they are flying.—Mrs. W. H. B.

I find that old catalogues from different mail order houses furnish pleasant occupation for children. The pictures may be cut out and pasted into home-made scrap books; they may be colored with crayon or water colors. The pictures of men, women and children may be cut out and used for paper dolls, and extra waists, hats and dresses can be cut for these dolls. Houses may be built out of blocks in which these paper dolls may be imagined to keep house. Children with their vivid imaginations can often act out regular stories with their paper dolls. My little boys like best to build barns, and cut out wagons, houses and automobiles to occupy them, although they rather enjoy furnishing stoves, milk separators and such things for the girls' kit-chens. Mothers should find mail order catalogues very useful on rainy days.—Mrs. W. L. G., New York.

Artificial Food for Baby

IF baby's natural food fails for any reason, cow's milk suitably modified is the only practical substitute. The following formula is used by the New York city department of health:

Age three days to two weeks—Milk, 1 tablespoon; barley water, 3 tablespoons. Feed the baby 2 tablespoonfuls at first and increase until full amount, two ounces, is given at the end of two weeks. Feed baby every two hours.

Age two weeks to three months—Milk, 1 ounce; barley water, 2 ounces (two tablespoonfuls make 1 ounce). Feed baby this amount every 2 or 3 hours. Give only 7 to 8 feedings in 24 hours.

Age three to six months—Milk, 3 ounces; barley water, 3 ounces. Feed this amount every three hours. Give only 6 feedings in 24 hours.

Age six to nine months—Milk, 6 ounces; barley water, 3 ounces. Feed the baby this amount every 4 hours. Give only 5 feedings in 24 hours, the last one at 10 p.m.

Age nine to twelve months—Milk, 8 ounces; barley water, 2 ounces. Feed this amount every 4 hours. Give only 5 feedings, the last at 10 p.m.

Warm the bottle to about body heat, before giving it to the child, by placing the bottle in a dish of hot water. Use certified milk. Wash your hands before touching the nipple. Shake the bottle before using. Test the temperature by squeezing a drop on your wrist. Hold the baby in your arms while feeding and do not allow it to drink from the bottle longer than twenty minutes. If it does not take the whole feeding, throw it out and do not save it for the next time.

Barley water is prepared as follows: Take four heaping tablespoonfuls of clean pearl barley, add one and one-fourth pints of cold water. Boil in a covered dish, preferably aluminum, until reduced to three-fourths of a pint. Remove and strain through sterile gauze, macerate residue and strain again into a wide-mouthed bottle or a Mason fruit jar which has been properly sterilized. Cover and keep in a cool place. This may again be diluted with boiled water. Make fresh every day.

Sarcastic Cabby to stout old lady who has just paid the minimum fare, with no tip)—"Excuse me, madam, would you mind walking the other way and not passing the horse!"

Old Lady—"Why?"

Cabby—"Because if 'o sees wot 'e's been carrying for this 'e'll 'ave a fit."

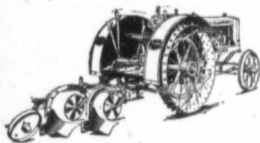
Lady—"What is your aim in life, my good woman?"

Good Woman—"Me 'usband, gen'rally."

"Rock Island Tractor Plows"

Pulled by "Heider" Tractors At the Provincial Plowing Match, June 12th

Twelve Rock Island Plows, pulled by "Heider Tractors," driven by amateur "Farmer Boys" in competition with professional plowmen, all finished winners, standing from first to fourth in the respective classes. "Twelve" Rock Island entrants and "Twelve" winners.



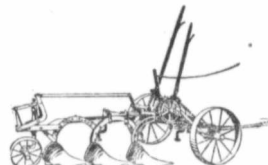
Heider 9-16 H.P.

With Special No. 9 Plow, gets into the fence corners. Plows all the land.



Rock Island Power Disc
8 and 10 feet wide.
The same high quality.

On June 11th, at Dundurn, Sask., 3,000 farmers watched Mr. R. J. Smith with his "Heider" Tractor and Rock Island Plow win first for best plowing and lowest cost per acre. On June 16th, at MacGregor, Man., Two "Heiders" with Rock Island Plows, took first and second money, also the special prizes. At the Portage Horse Plowing Competition "Rock Island" No. 8 Gang took first place. The famous "Rock Island" C.T.X. plow bottom demonstrated to the judges that it turns the furrow slices clear over, packs the furrow, prevents air spaces, preserves moisture, and absolutely covers weeds. "Heider" Tractors pull "Rock Island" plows Steady and Straight.



Rock Island No. 12
2, 3, or 4 furrow, C. T. X.



Heider, 12-20 H.P.

Waterloo Manufacturing Company Limited

REGINA

SASKATOON

PORTAGE LA PRAIRIE

Alberta Distributors—United Engines and Thresher Limited, Calgary and Edmonton.

THE EPIC OF OUR "FORT GARRY'S" AND "STRATHCONAS"

First of Allied Forces to Re-enter le Cateau—Joyously Greeted by Liberated Civilians

Sabres Wielded Unhesitatingly When Catigny Wood Charged and Cleared of Foe

Royal Canadian Dragoons Prevent Counter-Attack Materializing—All Objectives Gained

Ottawa, Oct. 28.—To the Canadian Cavalry Brigade fell the honor of victoriously re-entering le Cateau, the historic town on the western front, where British horsemen and horse artillery of the "Contemptible Little Army" made their splendid stand in the dark days of 1914. Le Cateau will always be linked in British military history with Mons. A cable from Fred James, the Canadian official correspondent at the front, to the director of public information here, describes the scenes.

Two weeks ago British infantry occupied le Cateau, which is a centre of great strategic importance to the enemy, but the first troops to enter the town were patrols of the Fort Garry Horse, on the night of Oct. 9-10. Their entry marked the attainment of the final objective given the brigade on the morning of the ninth and was the culmination of a brilliant operation, in which all four units played conspicuous parts. In less than twenty-four hours, the cavalry and other troops advanced more than eight miles on a three-mile front, cleared this section of the enemy and opened the road to le Cateau for the infantry. The cavalry captured over 400 prisoners, much artillery, trench mortars, anti-tank guns, motor cars, and 100 machine guns. They killed scores of Germans.

Embraced Deliverers

There were six villages between the point where the brigade first went into action and le Cateau, and from all of them the French civilians, long slaves of

their Hun masters, hailed the Canadians as their deliverers. Officers and troopers were almost pulled from their horses on to the streets by women who seemed to think that the best way to show their gratitude was to kiss every khaki figure, whether mounted or dismounted, irrespective of rank or anything else. They were delicious with joy and laughed and cried simultaneously.

An officer of the Strathcona Horse was pulled from his charger and forced to submit to a veritable barrage of kisses and embraces.

The advance into le Cateau was "quite the most romantic experience the Canadian cavalry corps has had." The incidents in the villages provided pleasant punctuations in an operation which produced many spectacular features, including many dashing charges on small garrisons preventing the success of the enemy's plans of defence. The troopers used sabres generously.

A squadron of the Fort Garry's charged Catigny wood, where machine guns were making a noise like a busy boiler factory and before the wood was cleared one hundred Huns had been killed by sabre and two hundred made prisoners. Forts, machine guns and much other material were taken in this action.

Horses Shot Down

Other charges were equally thrilling. An officer with a troop of Fort Garry's galloped down a machine gun nest with fifteen guns. Nearly all the horses were casualties, but undaunted the troopers pressed forward on foot. The Huns' nerves could stand no more and they turned and fled eastward until caught by the supporting forces on our right.

On the left of the Berytry-Cleary road machine guns were operating from a factory and a farmhouse. A squadron of the Strathcona's deputed to end the annoyance made a skilful charge, wielding their sabres, and forty-two Germans were killed, and many machine guns and prisoners were captured.

As the Royal Canadian Dragoons were advancing with remount waves the enemy attempted a counter-attack. It never materialized. The Dragoons dis-

mounted and used their rifles and finished the job with their sabres. A sergeant and three men of the regiment charged a pocket of machine guns and netted 30 prisoners, including an officer and three sergeant-majors.

Completed Magnificent Work

Throughout the show, the Canadian horse artillery were engaging targets excellently, firing over one thousand, eight hundred rounds. The objective assigned the Canadian brigade was an advance from the neighborhood of Maretz, where the infantry on the left were held up by machine guns, to seize the high ground to the left of le Cateau, approximately eight miles to the northeast and then to throw patrols into the town and round up the enemy who remained in the intervening villages. The three regiments and the horse artillery went into action at 9.30. Twenty-five minutes later the Strathcona's were making rapid progress on the high ground between Catigny and Clary, dominating our infantry positions. Just after 11 o'clock they had won the elevated plateau and the Fort Garry's claimed most of Catigny wood and Bois Montauxvilles.

The final objective was reached at nightfall and patrols were sent into le Cateau, Neuville and Inchy, to the left of le Cateau. The Fort Garry's entered Remont during the afternoon advance, while the Strathcona's gained Trollevilles. The total casualties of the brigade were less than half of the prisoners captured, and the fatal casualties were very few.

THE FREEDOM OF THE SEAS

Sympathetic Friend: "How do you feel now, Ed?"
Seaside Soldier: "Don't ask me; but if you know any guy that wants the freedom of the seas, tell him he can have it. I ain't got no use for it."

Jack: "My ideal of a wife is one who can make good bread."

Madge: "My ideal of a husband is one who can raise the dough in the hour of knead."

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Are worn all over Western Canada by good judges of good garments.

They fit you, wear well, and keep their color and shape through the hardest summer farm campaign.

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Put your overall money into Master Mechanic Overalls.

Western King Mfg. Co., Ltd.
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ALBERTA SASKATCHEWAN MANITOBA
MONTANA NORTH DAKOTA MINN.

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are the same.

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Model G Happy Farmer Tractor \$1250.00

Purchaser must absorb freight and exchange.

ANY farmer anywhere in Canada has the same advantage of price as any farmer in the United States—he can buy a Happy Farmer Tractor at American Factory price.

Hundreds of farmers have been waiting for this opportunity to buy at American prices and this announcement will start a rush that will keep us busy getting orders filled promptly. Place your order early so that you will get delivery in time for threshing and fall plowing—we can fill many orders from stock, but the late buyers will have to wait till factory shipments are received.

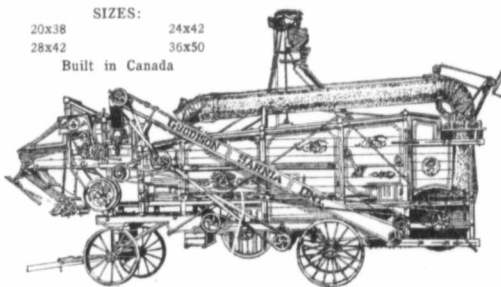
**Farm with a Happy Farmer for Profits.
It Operates at the Lowest Average Plowing Cost!**

It is not necessary to tell here the details of construction of the Happy Farmer Tractor; hundreds of farmers in Western Canada have them in daily use, while hundreds have written us telling of the satisfaction they give.

The Happy Farmer gives you 12-24 horse-power—one draw-bar horse-power for every hundred dollars you pay. It is unquestionably the best buy on the market to-day. Let us have our agent in your district make arrangements for you to see it demonstrated.

Goodison Threshers

SIZES:
20x38 24x42
28x42 36x50
Built in Canada



They work quickly and thoroughly, and do not eat up profits in repair bills. Clean work, with no waste of grain. Each size is a completely equipped thresher in every way.

The GOODISON is a full sized thresher—not a fanning mill. Double racks and balanced motion.

GOODISON rack is 12 feet long without the grate.

All adjustments can be made from the outside; hard rollers, too, are filled from the outside.

No vibration or excessive shake when the GOODISON is being operated because it is properly balanced.

**The Gasoline Engine and Tractor Company
Limited
WINNIPEG, MAN.**

Some Tip-Top-Tips

Green Tomato Butter

2 quarts of green tomatoes, 2 cupsful of seeded raisins, 1½ cupsful of granulated sugar, 1 teaspoonful of salt, 1 large juicy lemon. First wash, dry and cut the stem ends and all spots from the tomatoes. Cut into halves; remove as many seeds as possible. Cut into small pieces; mix the sugar with the tomatoes, and put over a very slow fire. Boil slowly for two hours, add the raisins, which have been washed, dried and put through a food chopper. Add the salt, lemon juice and boil for 30 minutes.

Apple Butter

2 quarts of new sweet cider, 1 peck of apples, 1 tablespoonful of ground cinnamon, 1 teaspoonful of grated nutmeg. Heat the cider in a porcelain-lined kettle, and boil down to one half the quantity. Put into the kettle. Wash, pare, quarter and core the apples; add to the boiling cider and, when soft, beat with a wooden spoon until smooth. The butter must cook until it is thick. Add the spice just before putting into jars. No sugar is used and any kind of apples will do. Pour into glasses, and cover with paraffin.

Crap-Apple Butter

4 quarts of crab apples, 3 cupsful of granulated sugar, 4 cupsful of water, 2 tablespoonfuls of ground cinnamon, 2 teaspoonfuls of salt. Wash and quarter the crab apples but do not pare them or remove the cores, and put into a preserving kettle with water. Bring to a boil rapidly, then simmer until tender. Mash through a strainer and return to the fire. Add the sugar, cinnamon and salt, and simmer for three-quarters of an hour. Pack in jars or crocks, and cover with paraffin. Set away in cool place.

Candied Orange Peel

4 oranges, 1 cupful of sugar. Cover the peel with two quarts of cold water, put it on the fire, bring to a boil, and boil slowly until tender (for about 40 minutes). Pour into a colander and drain for two hours; remove all the white skin left from the pulp—the white on the rind gives a bitter taste. When dry cut into fine strips. Boil one cupful of sugar and half a cupful of water until it spins a thread; put in part of the peel and boil for five minutes; remove with a fork, and place in pulverized or granulated sugar a few minutes; put on a plate to dry.

Tomato Catsup

Wipe one peck ripe tomatoes and cut in quarters. Put in a preserving kettle, bring to the boiling point, and let simmer four hours; then rub through a sieve. Add to pulp one quart cider vinegar, three cups sugar, one-fourth cup salt, one tablespoonful black pepper, one teaspoonful ground ginger, one teaspoonful clover and one-eighth teaspoonful cayenne. Return to kettle and cook until of the desired consistency to bottle. It may take three hours. Watch carefully and stir frequently to prevent burning. Fill bottles and cork.

Chili Sauce

Wipe, peel and slice 12 medium-sized tomatoes. Put in a preserving kettle and add 1 pepper, finely chopped, 1 onion, parted and finely chopped, 3 tablespoonfuls sugar, 1 tablespoonful salt, 2 teaspoonfuls clove, 2 teaspoonfuls cinnamon, 2 teaspoonfuls allspice, 2 teaspoonfuls grated nutmeg and 2 cupsful vinegar. Heat gradually to the boiling point and let simmer 2½ hours.

To Dry Vegetables for Soups

Young, tender carrots, parsnips, turnips, cabbages, celery, onions, green peas, and beans may be dried for soups, etc. Mince the raw vegetables rather fine, spread in a granite dish and place in a warm oven. Be careful not to have the fire hot enough to scorch them. The layer of vegetables should not be very deep; if more than an inch, stir frequently. When they seem pretty dry, put into a cloth bag or sugar sack, packing them loosely. Tie the bag tightly and hang near the stove. Shake up once in a while to insure thorough dryness and prevent mold.

To Dry Peas

My grandmother dried peas that you could not tell from fresh peas when cooked. She gathered them young, shelled them, dipped them into hot, then into cold water, put them on plates, and dried them in an oven until they rattled. Before cooking them, she always added water and seasoning, just as with fresh peas.

June Peas in Brine for Winter Use

Make a brine of salt and water that will float an egg. Place in an open jar; in this put fresh peas which have been shelled. Keep covered with a cloth, porcelain plate and a weight, so that they will keep under the brine. When soaked in fresh water, they taste as if just picked from the vines. Beans and tomatoes may also be kept in this manner.

Drying Rhubarb

Rhubarb, when well prepared, will keep good for an indefinite period. The stalks should be broken off while they are crisp and tender and cut into pieces about an inch in length. These pieces should then be strung on a thin twine and hung up to dry. Rhubarb shrinks in drying more than any other plant, and when dry strongly resembles pieces of soft wood. When wanted for use it should be soaked in water all night, and the next day stewed over a slow fire. None of its properties appear to be lost in drying and it is equally as good in winter as any other dried fruit.

Carrot Marmalade

2 cupsful cooked carrots, 4 cupsful sugar, 2 lemons. Wash and scrape the carrots and cook in boiling water until tender. Drain and put through the meat chopper. Add the juice and grated rinds of the lemons, and the sugar. Cook slowly about half an hour or until the consistency of marmalade. This quantity will fill six jelly glasses. It tastes like a fine orange marmalade.

Butterfly Salad

For each service (butterfly) allow two rather flat lettuce leaves, one slice of canned pineapple, one stalk of canned asparagus, two stuffed olives, two strips of pimento and two tablespoonfuls of French dressing or one of mayonnaise. Set the stalk of asparagus in the center of the plate, the lettuce leaves at either side of it, cut the slice of pineapple in two equal pieces; set these above the lettuce leaves, round side toward the asparagus. The asparagus represents the body of the butterfly, the lettuce leaves, with pineapple above the wings; set one olive at the root end of the asparagus for the head, cut the other in slices and dispose in symmetrical fashion on the pineapple to represent the markings on the wings. Set the strips of pimento in place above the head (olive) as feelers; serve the dressing in a separate dish.

Raisin Brown Bread

1 cupful of corn meal, 1 cupful of Graham flour, 1 cupful of rye flour, 2½ cupsful of milk, ½ cupful of baking molasses, 1 cupful of seedless raisins, 1 teaspoonful of salt, 2 teaspoonfuls of baking soda. Sift the flours, soda and salt twice; add the milk and the molasses. Beat well. Add the raisins and beat for three minutes. The dough must be stiff. Brush a mould with butter; fill it two-thirds full and steam for three hours and a half; then place in the oven for fifteen minutes.

Lemon Butter for Tarts

1 cupful of water, ½ cupful of sugar, 1 tablespoonful of flour, 1 egg, 3 tablespoonfuls of lemon juice, 1 teaspoonful of grated lemon rind. Put the water on to boil; add the flour, which has been mixed with a little cold water until smooth. Boil for ten minutes; then add the egg, which has been beaten with the sugar and salt. Bring to a boil; remove from the fire; add the juice and rind of lemons and beat for two minutes. When cold fill into tart shells or spread on toasted bread.

Cream Sauce

One cup loose cream (or one cup sweet milk and a teaspoonful butter); pinch of salt; sugar and nutmeg to taste; heat to boiling point and serve.

THE SCRAP-HEAP FOR HEROINES?

Critical times for the women workers of France and Great Britain are reported by Miss Mary McDowell, vice-president of the Chicago Women's Trade Union League, who has just returned from Europe, where she was sent on a mission for the industrial department of the Y.W.C.A.

"During the war they called us heroines—but they throw us on the scrap-heap now," the women are saying, according to Miss McDowell, who adds that the situation is the more distressing because most of these women are workers who for the first time in their lives have had wages on which they could live in reasonable comfort, and during the war they have set up a new standard of living for the French and British working people.

WOMEN CHEMISTS

As an outcome of the war, women chemists have taken their places on a par with men as industrial chemists. With only such training as chemists as is offered in the regular course at women's colleges, women are competing successfully with men who have had extra years of post-graduate training.

In answer to a questionnaire sent out recently to industrial plants it was shown that in sixteen firms employing a total of 368 chemists, 78 were women.

It is the consensus of opinion among men that women are more painstaking in analytical work than men.

Mrs. Sophia Redmond journeyed from the Arctic circle to Seattle that she might turn over to the Red Cross Association \$206, the proceeds from the auctioning of a sweater that she had knit for the Red Cross. Mrs. Redmond's home is in the little village of Nolan, which is well within the Arctic circle, and she is the only white woman in the village. On August 10, Mrs. Redmond started on her journey to Seattle, mushing to Bettles, 75 miles away. From there she went to Nulato by river-boat, a journey of only 500 miles. There she boarded a Yukon River steamer to connect with the ocean steamship for Seattle, her destination.

Miss Marjorie Bulman, during last summer, managed the irrigation system on her father's three thousand acre ranch in the Okanagan Valley, near Kelowna. Mr. Bulman was finding great difficulty in getting a capable man to superintend the irrigation, a work which requires intelligence more than physical strength. His daughter offered to undertake it, and her father states that he has never had a more efficient superintendent. Mr. Thomas Bulman was formerly a member of the well-known firm of Bulman Bros., lithographers of Winnipeg, but for the last few years has been engaged in fruit growing in the Okanagan Valley. His daughter, during that part of the year when irrigation is not necessary, is a student at the University of British Columbia.

A federation involving 100,000 women in Canada was recently formed in Winnipeg. Mrs. Arthur Murphy was chosen president. This includes the agricultural societies working under the Agricultural Educational Act. The delegates were: Miss A. De Bury, of Saskatoon, Sask.; Mrs. D. Watt, of Birtle, Man.; Miss Mary McIsaac, Edmonton, Alberta; Miss A. E. Hill, of St. Annes de Bellevue, Que.; George H. Putnam, Ontario; Miss A. McCain, New Brunswick, and Mrs. Blackwood Wileman, of Duncan, B.C.

Mrs. J. Brownridge, of Portage la Prairie, was elected president of the Rebekah Assembly recently in Winnipeg.

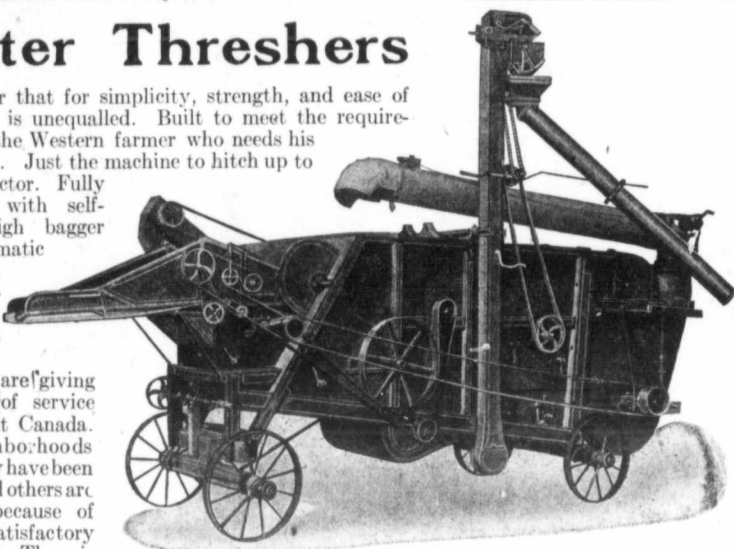
Susanna Cocroft, physical training expert, is responsible for the physical fitness of women government employes in Washington.

A MILITARY PROBLEM

"What are you knitting my pretty maid?" She purred, then dropped a stitch. "A sock or a sweater, sir," she said, "And darned if I know which!"

Lister Threshers

A thresher that for simplicity, strength, and ease of operation, is unequalled. Built to meet the requirements of the Western farmer who needs his own outfit. Just the machine to hitch up to a light tractor. Fully equipped with self-feeder, high bagger with automatic register, and wind-stacker. Hundreds of our threshers are giving the best of service throughout Canada. In neighborhoods where they have been introduced others are ordered because of their satisfactory operation. There is one in your community—look it over before you arrange to thresh this year's crop.



Sizes fully equipped—22 x 36—26 x 42

Write for catalogue giving full description of this machine.

R. A. LISTER & CO. (Canada) LIMITED WINNIPEG, MAN.

Maltum advertisement featuring an illustration of a man and woman at a table, the Maltum logo, and promotional text: 'Served icy cold adds greatly to the enjoyment of any meal or lunch. Order from your druggist, grocer, confectioner, or direct from E. L. DREWRY, LIMITED : WINNIPEG'

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PRINCE OF WALES PLUG CHEWING



High in favor—
the satisfying
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*The Tobacco with a
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**Which do you prefer to save
—the price of the Barn or
the cost of the Paint?**

When the barn raising is over and your fine, new building stands complete—paint it right away! Every day's work that the weather man puts in on its unprotected walls is a day off the life of your barn. You'll pay for the paint whether you use it or not—so you had better use it.

Stephens'

BARN AND ELEVATOR PAINTS

are made by a Western firm for Western Barns, Granaries, Fences, Implement Sheds and all farm buildings. They are used by Railroads and Elevator Companies—a sufficient guarantee that you'll receive compound interest on every penny you invest in paint.

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Paint and Varnish Makers
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Your *Stephens*
dealer will be glad
to co-operate with
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ing plans.



Tanks from Factory to Farmer

AT FACTORY PRICES
WE PAY THE FREIGHT

2 x 2 x 8 ft. \$21.50.

20 Gauge





265 Imperial Gallons \$38.25

Rust Proof

5 x 2 ft. \$23.50.



We also manufacture Sheep Dipping Tanks, Hog Feeders, Feed Cookers, Feed Cisterns, Snow Melters, etc.

Freeland Steel Tank Co.
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An unconditional
Guarantee with Every
Tank. Send for Free
Catalogue and Price
List of Other Sizes.

FOR SALE—One 32 H.P. Cross Compound Reeves Engine and one 44x48 Reeves Separator. Both in good shape. An up-to-date outfit for threshing and plowing. Apply Young Bros., Wainwright, Alta.

FOR SALE—4-cyl. 60 H.P. gasoline engine, \$1,500, and complete 26 H.P. steam engine 36x60 separator in good condition, \$1,800, half cash, balance to suit. William Drewes, Botha, Alta.

MACHIAVELLI

A Story of Love in a Bird Store

By GEORGE WESTON

Mr. Hopper was a philosopher, but, alas for philosophy, Mr. Hopper was also in love. Nature had made him stout, and a sedentary life had left him stout, so that when he moved around his bird-store, with a slow deliberation which must have been very soothing to the canaries and the chaff-inches, it was hard to believe that there were times when he thought in empires and sighed in lovelorn madrigals. But Minerva knew differently, and so did Dr. Faust.

Minerva was the owl which occupied the cage of honor at one end of the counter, and Dr. Faust was the parrot which graced the large cage opposite. At night, when the blinds were drawn, Mr. Hopper would often sit between this attentive pair reading Marcus Aurelius or Swinburne and talking first to Minerva and then to the doctor.

"Now I could have thought of these things too," complained Mr. Hopper one night, looking up from a volume of the noble Marcus and addressing Minerva. "Yes, and I could have thought of them even deeper than he did. But suppose I finish my American Machiavelli. What then? Hardly anybody will want to read it because I haven't the name. People will say, 'Who is this man Hopper who has written the American Machiavelli?' And when they find out that I keep a bird-store."

Minerva blinked her eyes. "No," said the philosopher, "and I don't know that I blame them so much myself. The most exciting things I did

And after he had given a sigh that woke up half the birds in the shop, he stood still and listened to a heavy tread overhead.

"That's him," he said, turning a jaundiced eye to Dr. Faust. "He's calling on her twice a week now—him and his little fox-terrier. First thing we know they'll be married, and that will be the end of that." He dropped his voice to a sly, revengeful note. "If I could only get him to eat the biscuits which he buys for his terrier . . ." He hastily turned his thoughts from the contemplation of strychnine and prussic acid and drew a number of unfinished manuscripts from underneath the counter.

"Now, what shall I work on to-night?" he reflected. "Here's The Drawbacks of Speech, Based on Observing the So-called Dumb Animals and Birds. Shall I give that a go? And here's the American Machiavelli, or, Only the Strongest Survive. I guess I'll tackle the American Machiavelli to-night. Somehow I feel in the humor for it."

He was sharpening a pencil (from his expression it might have been a dagger), when he heard a commotion in Mrs. Stebbins's rooms overhead.

"Has something happened to him?" Mr. Hopper hopefully asked himself, his head on one side like that of a listening roan. "Has he gone and fallen off a chair, or set fire to himself, or something?" The next minute there was a knock on his door, and when Mr. Hopper unlocked it a worried-looking man strode into the shop carrying an even more



Mr. Hopper reading his Marcus Aurelius

to-day were to sell three canaries, two bird-cages, stuff a squirrel, and open another barrel of dog-biscuit. Put Machiavelli in a bird-store and he would have been buried by circumstances, too. Well, such is life."

And having uttered this unconscious summary of all the philosophies, he closed the Meditations of M. Aurelius and turned his attention to Swinburne, first moving his chair around to face Dr. Faust.

"Unrequited affection," said Mr. Hopper, wagging his head over the book. "No wonder the poets are always singing about it. If I hadn't gone in so strong for philosophy, I think I would have gone in for poetry. Why, I could write on 'unrequited affection, Doctor,' said Mr. Hopper, feelingly, "in such terms as would bring tears to the eyes of a—of a—blue-jay."

He put the book down and walked around the store.

"And after all, who am I to think of her?" he asked, stopping in front of the Doctor's cage. "I'm only her tenant. There she lives above the store and never gives me a second thought after I have paid my month's rent. Buys a little catnip every once in a while for her Angora cat, and thinks more of the cat than she does of me. And that's my life. I can't be a philosopher or a Machiavelli because I haven't the opportunity, and I can't show my regards for Mrs. Stebbins because I'm not supposed to have any."

worried-looking fox terrier under his arm.

"You'll have to leave him," said Mr. Hopper, speaking with great dignity after he had completed his diagnosis. "In addition to the scratches and contusions this hind-leg seems out of joint. I'll have to bandage it and keep my eye on it for a week or two before he can run around much."

The worried-looking man had hardly left when another knock sounded on the bird-man's door. Again he unlocked it, and his landlady entered, tenderly carrying a basket. A bright-eyed, bright-faced widow of forty was Mrs. Stebbins, but when she placed her burden in Mr. Hopper's hands she was too upset to speak. She pointed to the panting bundle of fur that lay in the bottom of the basket and sank into the chair by the side of the counter.

Again Mr. Hopper made his diagnosis, and when at last he shook his head there was a very ominous atmosphere in the bird-shop.

"I should judge, Ma'am," said Mr. Hopper, in tones which Talleyrand would have envied, "that a dog has done this."

"Yes, and would have killed her if I hadn't hit him with the poker. You do whatever you can, and if anything happens to her. . . ."

"If anything happens to her," thought Mr. Hopper as Mrs. Stebbins left, "he will never call to see her again—he nor his fox-terrier, either. . . ."

The door closed. Mr. Hopper locked

it and returned to the basket on the counter. He looked at Minerva, and Minerva looked back at him. He turned and gazed at Dr. Faust, and the Doctor returned his glance with an interest which can only be described as intense.

Mr. Hopper drew a long breath. "Well," he said to himself, "what are you going to do?"

On a shelf in the corner was a round bottle. Mr. Hopper looked up at this bottle. Part of the label was hidden, but enough was visible to display the following letters, "Chloro—"

"Only the strongest survive," muttered Mr. Hopper. "Only the strongest survive."

He started for the bottle, but ended by taking a walk around the shop, his hands in his pockets.

"What would Machiavelli have done?" he demanded of himself as he walked away from the bottle. He stopped.

"But I'd feel so plaguesy mean whenever I thought of it," he replied, walking back to the bottle.

"But you wouldn't have to keep thinking about it, would you?" he demanded as he walked away again.

"I would think of it," he answered, walking back, "every time I saw a cat."

"Well, you wouldn't have to keep looking at cats, would you?" he demanded, walking toward the door.

"No," he said, returning to the corner. "But I'd think of it every time I saw Mrs. Stebbins."

"You're a fool!" he fiercely told himself.

"I know it," said he. "That's always been my trouble."

He sat down in his chair behind the counter and groaned. Minerva was watching him with all the wisdom of the ages in her big, round eyes, and Dr. Faust was ironically biting the bars of his cage and chucking to himself.

"Now let us reason it out like Marcus Aurelius would have done," said Mr. Hopper, taking a new grasp on things.

"If I make this cat well, Mrs. Stebbins will forgive him, especially when she finds out how hard she hit the dog with the poker. But if the cat dies, she will never forgive him."

He blinked his eyes like another Euclid working out an intricate mathematical proposition.

"And that," announced Mr. Hopper—"and that would leave me. I could give her another cat, with my compliments, just as good as this one. And this one I could stuff. Somehow I wouldn't feel so bad about chloroforming it, either, if I knew I was going to stuff it."

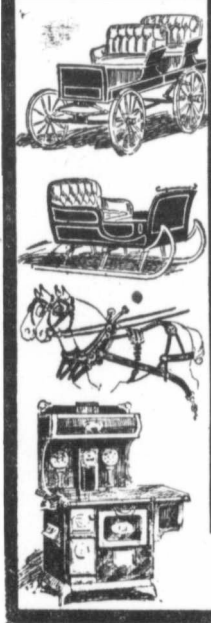
Mr. Hopper looked quickly from Minerva to Dr. Faust.

"And here I was just complaining about having no opportunities like Machiavelli had," he said.

Dr. Faust chuckled. "And it isn't as if it would hurt the cat," he said, turning to Minerva.

Very solemnly Minerva looked at him, and very solemnly she blinked her eyes.

"It would put the poor thing out of its misery, too," said Mr. Hopper, deserting Talleyrand in favor of Mr. Pecksniff. With this last reflection he arose and walked toward the bottle. "What is the life of a cat," he asked himself—



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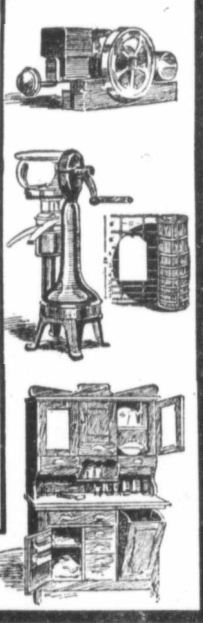
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 WINNIPEG CANADA

When writing Advertisers please mention The Canadian Thresherman and Farmer

"what is the life of a cat compared to a man's whole future happiness?" But, nevertheless, his step lagged as he neared the corner shelf, and he had stopped to frame a few more Machiavellian



Their eyes met, their hands met—the blind was drawn

"Black Watch"

The Best Black Plug Chewing Tobacco on the Market.



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When you are offered overalls claimed to be as good as Carhartt's for 25c, 50c or a dollar, or even two dollars less than my Carhartt's, remember that the manufacturer has made a so-called saving somewhere equal to the difference in price, for no manufacturer anywhere can sell overalls at less price than I ask for mine and remain solvent, that is if he gives the same quality that I do. The point I make is that the fair price you pay for my Carhartt Overalls is enough to insure first-class material and workmanship throughout without forcing me to resort to "skipping" or substitution.

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Piers of live, elastic rubber built about one inch apart inside the casing and vulcanized or welded to take the place of an inner tube. Nothing can happen but wear.
30x3 and 30x3 1/2 sizes only—Ford Sizes. More than 50,000 cars equipped with them in 6 years.
Big Money in becoming our exclusive dealer in your county. Tire experience unnecessary. Write today for terms.
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UNION MADE
OVERALLS
SHIRTS & GLOVES
Known from Coast to Coast
R. G. LONG & CO. LIMITED
TORONTO CANADA

slipping his baby hand into hers, that she might know that her little soldier was near, ready to battle for her.

Uncle Richard's arrival made things easier. He gave his sister no time to think of what she had lost, and in a very few days she and her fatherless children had set out upon their journey to their new home in the north of Wales.

Uncle Richard's cottage was very small. He was the cobbler for the village and his workshop was at one end of the cottage.

His shop was not only a meeting place for the family, but for the men of the town. Many knotty problems were discussed. David would sit quietly listening. At first he did not understand, but as he grew older he began to ask questions which the men found difficulty in answering.

Uncle Richard's cottage stood on the main street. Beyond were woods and meadows and parks belonging to the rich people of the town.

David's sense of justice made him as a boy a rebel. He never could accept the established law that the rich land owners were the superior people and had real power of government.

He believed that the men who gathered in his uncle's little shop for the purpose of considering all sorts of interesting topics were superior to the so-called aristocrats.

It did not seem to him fair that the few men who owned the great estates should prosecute as a criminal his friend, Tom Jones, just because he pulled a fish out of forbidden waters.

It was well that David was born with a taste for fighting, for he was obliged to begin to battle almost as soon as he came into the world. There were hard times for the little family, although he and his brother always had the strong arm of Uncle Richard to help them and their mother's love to shield them.

When David was still quite young it was one of his duties to see that potatoes were planted in the little garden and that they yielded a crop for the family. As he never allowed anything to get ahead of him, there was not a better tended potato patch in the whole village.

David's uncle had not enjoyed many advantages, but he had a taste for study. He determined that the boy should have a profession and when he was ten years old his uncle decided that he should be a lawyer.

There was very little money, not enough for the child's education, and to make it so farther Uncle Richard studied Latin and French that he might teach these languages to his nephew and save the expense of a tutor.

The education and training that came to David through listening to and taking part in the discussions in the little shop was important; for these simple men who came together were thinkers. Questions of politics, religion, and many other subjects were threshed out.

David was keenly alive when reforms were under discussion. Sometimes he tried to bring about reformations, and on one occasion at least he was successful.

The Church of England was the Established Church, and all of the people of the village were obliged to support it. On each Ash Wednesday the children marched to the church and were ordered to give the responses to the Church Catechism and to recite the Apostle's Creed.

David had heard this subject discussed in the little shop, and the opinion was that the law had no right to require the children of parents who held a different belief to subscribe to this doctrine.

This was enough for David. Imagine the surprise of the church authorities on one Ash Wednesday when the children refused to make the response. David was known to be the leader and was punished, but we can well believe that his uncle made up to him for any punishment the Church may have inflicted. Fortunately, David was enabled to go through a law course with a firm of solicitors in a neighboring town, and was



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thus able to stay under the influence of his uncle.

As a means of developing his natural oratory he became a member of a local debating society which had set battles on all kinds of topics.

At the age of twenty-one he became an admitted solicitor, competent to practise law and to appear as an advocate in civil and criminal courts.

David's real battle with the world now began. His early experiences made him ready to take the part of the down-trodden, for he had been reared in an atmosphere of suppression of the poor.

In his practise of law, David first came to prominence at the age of twenty-five, when he undertook the case of the family of an old quarryman who had lived and died in the little village where the boy had been reared.

Because he was not a Conformist, did not belong to the Church of England, the Church said he should not be buried by the side of his daughter, in consecrated ground. David wasted no time but struck straight from the shoulder. "You have the right to bury this man by the side of his daughter," he said. "If the clergyman refuses you permission, proceed with the body to the graveyard. Take the coffin in—by force if necessary. If the churchyard is locked against you, break down the gates."

The villagers followed instructions. David carried the case through two courts, and won the day.

And so David has gone on, breaking down many cemetery gates and burying dead traditions that should have been under ground long ago, always fighting valiantly and in the open, and for the good of the people to whom he belongs and to whose interests his great talents have been consecrated.

Fear was not born in him, and now as Prime Minister of England, David Lloyd George stands with shoulders squared, fists clenched, and eyes flashing, fighting for the very existence of the land he loves. And he will fight to a glorious finish.

The foregoing facts from the life of the British Premier are reproduced in abridged form from "The Christian Work." In connection with them it is interesting to recall that fine human touch used by this great yet simple Christian man on that memorable day in the House of Commons, when, as Chancellor of the Exchequer, he introduced his famous "Old Age Pensions Bill" which subsequently became law and has brought comfort and happiness to many worthy old souls in the evening of their lives. It was an event of the greatest import and up till then, the most dramatic and far-reaching perhaps of his wonderful career.

The great building was packed, but in the stranger's gallery there was still one vacant seat—evidently reserved for some one, exactly opposite and in full view of the Treasury bench. Just as the famous Chancellor was about to rise to introduce that historic budget, one of the uniformed attendants of the House was observed carefully assisting that old man along the gangway and down to that vacant seat in the gallery.

Many eyes were focussed upon the unusual sight, but there had been no breach of order or violation of the fitness of things in the least. Rather the opposite, for that was the old uncle who had taken in hand the orphaned little chap when he needed a father's counsel and support and who was now in the popular esteem, the foremost man in England at that supreme hour.

A LAND OF PROMISE

The bishop was addressing the Sunday School. In his most expressive tones he was saying: "And, now, children, let me tell you a very sad fact. In Africa there are ten million square miles of territory without a single Sunday School where little boys and girls can spend their Sundays. Now, what should we all try and save up our money and do?" And the class, as one voice, replied, in ecstatic union, "Go to Africa!"

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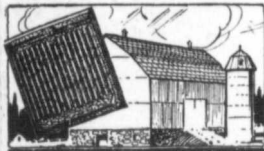


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Our Young Folks

The Critic

A LITTLE seed lay in the ground,
And soon began to sprout;
"Now which of all the flowers
around."

It mused, "shall I come out?"

"The lily's face is fair and proud,
But just a trifle cold;
The rose, I think, is rather loud,
And then, its fashion's old.

"The violet is very well,
But not a flower I'd choose;
Nor yet the Canterbury bell—
I never cared for blues.

"Petunias are by far too bright,
And vulgar flowers besides;
The primrose only blooms at night,
And peonies spread too wide."

And so it criticised each flower,
This supercilious seed,
Until it woke one summer hour,
And found itself a weed.

Their Own Names

I KNEW a charming little girl.
Who'd say, "Oh, see that flower!"
Whenever in the garden
Or woods she spent an hour.
And sometimes she would listen,
And say, "Oh, hear that bird!"
Whenever in the forest
Its clear sweet note she heard.

But then I knew another—
Much wiser, don't you think?—
Who never called the bird "a bird,"
But said the "bobolink,"
Or "oriole," or "robin,"
Or "wren" as it might be;
She called them by their first names,
So intimate was she.

And in the woods or garden,
She never picked "a flower,"
But "anemones," "hepaticas,"
Or "crocus," by the hour.
Both little girls loved birds and flowers,
But one love was the best;
I need not point the moral,
I'm sure you see the rest.

But would it not be very queer,
if when, perhaps, you came,
Your parents had not thought worth
while
To give you any name?
I think you would be quite upset,
And feel your brain a-whirl,
If you were not "Matilda Ann,"
But just "a little girl."

—Independent.

(A prize of two dollars is awarded every month to the boy who writes the most interesting letter, and also a prize of two dollars is awarded every month to the girl who writes the best letter. Let us have a splendid response. Tell us about your work and your ambition in life.—C. D.)

OUR FRIENDS, THE BIRDS

(The following, taken from an American Journal, gives us some useful information on the farmers' friends, the birds. The reference to corn might well apply to wheat. I trust every boy will read this.—C. D.)

EVERY animal either helps or hinders man in his work. Two hundred million dollars' worth of fruit and grain and other crops are destroyed in the United States each year by insects. The insects are in many cases so small and conceal themselves so skillfully that we fail to know they are present until the damage has been done. Sometimes they come in such countless numbers that man is helpless and can only stand and watch the destruction of his year's work.

Our native birds are, for the most part, busily at work protecting our crops through feeding on insects. Prof. E. E. Fish says that birds save for

Raise More Hogs



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The only question in his mind is, "Where can I get the money to buy brood sows and pigs to fatten?"

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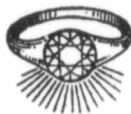
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agricultural purposes because of their destruction of insects, one hundred million dollars each year in the United States.

The robin is one of the first birds to come in the early spring, and most boys and girls recognize this pretty red-breasted visitor at a glance. The robin steals cherries and strawberries and other products of the farm and garden; but watch him in a freshly plowed field or in your yard and see what he is doing. Evidently he is working eagerly for his dinner, and cherries and strawberries do not grow in such places; he is seeking his food among the insects; and grubs and caterpillars, crickets, grasshoppers and other smaller forms make up the larger part of his meal. These are the forms which are most harmful to the grain, and so should you kill a robin you would kill one of your best friends. If you get up early enough in the morning you may find him hunting for cut-worms. These worms do their harmful work in the night, and the robin knows that if he gets any cut-worms for breakfast he must be up early. If a single robin destroys so many harmful insects for his own use, how many more do you think he will destroy when he has a family to feed? Did you ever see a nest full of young robins, with their great mouths wide open? Notice the kind of food the old birds give them. Are they fed cherries and fruit, or worms and bugs? Do not take any person's word for this, but see for yourself. For what I want is not to tell you things, but to have you see things. The old robin is kept busy hunting worms and insects for the little ones in the nest. Try to find how many times in an hour the old bird brings food to the nest. A young robin requires each day, more than its own weight of animal food.

Another early bird is the blue-bird, which has the good qualities of the robin without any of his questionable ones. You may find him eating some vegetable food in the fall, but for the most part he eats insects, chiefly harmful ones, especially those that are injurious to trees. One of our common birds, which some thoughtless boys are fond of shooting, is the meadow-lark, one of the farmer's most efficient helpers. Its food is chiefly beetles, caterpillars and grasshoppers, varied by an occasional diet of seeds. At the Department of Agriculture at Washington, the contents of the stomach of a meadow-lark were examined, and 54 grasshoppers were found. If one meadow-lark eats 50 grasshoppers in a day, and there are 20 meadow-larks to the square mile in your region, how many grasshoppers will these 20 meadow-larks destroy in a month? A grasshopper weighs about 15 grains and eats about its own weight of vegetable food each day; how much vegetation would the grasshoppers have destroyed in a square mile had they not been destroyed by the meadow-lark?

There are several kinds of birds in the West belonging to the wood-pecker family. We have the downy wood-pecker, the hairy wood-pecker (commonly known as sap-suckers), the yellow bellied wood-pecker, which is the true sap-sucker, the yellow hammer, and others not so common. All these birds, with perhaps the exception of the yellow-bellied wood-pecker, are of great value to the farmer. Their food is largely made up of insects injurious to trees. The health of forest trees depends largely on the wood-peckers. The oak is the home of five hundred kinds of insects, all more or less injurious to it. Other trees are the homes of large numbers of insects, but none have quite so many resident enemies as the oak.

The true sap-sucker or yellow-bellied wood-pecker, may do some harm to young trees, because of the holes he drills in the trunk and the resulting loss of sap. But even in this case it is a question whether the good done does not more than balance the evil. The sweet sap as it comes to the surface attracts insects, and as they become entangled in the sticky fluid they fall an easy prey to the sap-sucker and other insect-loving birds. You can always tell if the true sap-sucker has been at work. The holes he drills are in a straight row right

around the trunk; the holes drilled by the other wood-peckers are scattered. At any rate this bird which may possibly be harmful is only a summer resident, while the other wood-peckers spend the entire year with us. The wood-pecker family should be carefully guarded and every boy and girl should know about these good friends of man.

Were you ever given a gun to keep the blackbirds out of a freshly-planted field? If so, you were given a foolish thing to do. When the blackbirds first come in the spring they usually are compelled to eat grain until the ground is broken by the plow, but this grain is usually the waste grain upon the ground. As soon as the soil is turned by the plow and the blackbirds can secure animal food, they become so eager to secure every grub and larval form exposed by the plow that they will come within a few feet of the man who is plowing. Much of the corn planted would be destroyed by insects were it not for this preliminary work of the blackbird in ridding the soil of grubs.

The crow has a bad reputation; he picks up corn that the farmer has planted. But what is he doing the remainder of the year? Corn is not being constantly planted. His food is made up of insects, largely grasshoppers. Taking the entire year, the crow is of great service to the farmer, and his destruction would be a serious injury to agriculture. The cat-bird, the barn-swallow, and even the jay-bird are helpful. The more you know of these feathered tenants of the farm, the more will you regard them as friends deserving our careful protection.

Generally the sight of an owl or a hawk is the signal to run for the gun in the hope of killing it or at least driving it from the farm. Yet only a few of the large birds of prey are injurious. These larger ones destroy poultry and game birds and perhaps are rightfully killed. But the screech-owl, the barn-owl and the sparrow-hawk are among our best friends. Their favorite foods are mice and the larger insects. Some of our crops are dependent on the presence of the smaller owls and hawks.

Probably there are two hundred different kinds of birds in your country. How many of them are harmful? Suppose you watch closely for a year and make a list of all the birds that harm man in any way. You will be surprised to find how short the list will be. The birds have a right to live, and every farmer's boy ought to protect them carefully. If all the birds were destroyed, within three years there would be an insect to every square inch of this great land of ours. Does not this give enough reason for the protection of birds?—Lillian Snyder.

AN IRISH TRAGEDY

In a small village in Ireland the mother of a soldier met the village priest, who asked her if she had bad news.

"Shure, I have," she said. "Pat has been killed."

"Oh, I am very sorry," said the priest. "Did you receive word from the War Office?"

"No," she said, "I received word from himself."

The priest looked perplexed, and said, "But how is that?"

"Shure," she said, "here is the letter, read it for yourself."

The letter said: "Dear Mother—I am now in the Holy Land.—Tit-Bits.

AFTER THE PARTY

Several members of a woman's war-working party had assembled at the house of another member, and were chatting with the little daughter of their hostess.

"I hear you are a great help to your mother?" said one.

"Oh, yes," replied the little girl, "mamma gives me a task to do every day."

"Oh," remarked the lady, "and what is your task for to-day?"

"I have to count the spoons after you have all gone."

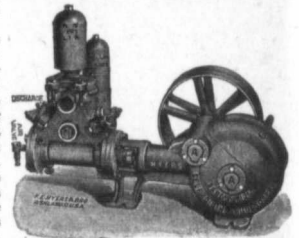
"Dear Joe.—Come home. Forgive and forget. I have destroyed the book of war recipes.—Violet."

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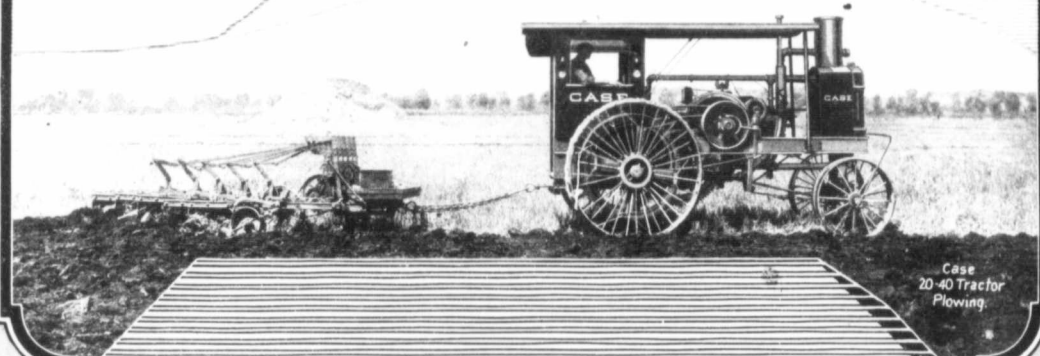


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KEROSENE TRACTORS

PROVEN IDEAS IN TRACTOR BUILDING

When all is said and done in judging tractors, their work must decide as to where they are classified in public opinion.

That is true of all farm machinery—as we have learned in 77 years of experience.

And that is why we are guided in making Case Kerosene Tractors better than some may think necessary.

Case designing means, oftentimes, more expensive construction. To embody betterments means changes in our factory equipment.

Furthermore, Case specifications call for the finest materials—superiorities which are frequently overlooked or deemed unimportant.

Yet since 1842 the dominant Case policy has been to build the best, regardless of cost.

Cheap farm machinery is always the most expensive, and when it comes to tractors, with their terrific burdens, it is all the more essential to avoid cheapness in design and materials.

We could never think of building an inferior tractor and giving it the Case name. Only proven ideas appeal to us.

We now offer a line of kerosene tractors suitable to all farm requirements. This line consists of the Case 10-18, 10-20, 15-27, and 20-40 tractors.

For those who are desirous of studying these tractors in detail, we have prepared an illustrative, descriptive booklet, which will be sent upon request. Write for a copy today. Then you will be able to make judicious comparisons.

J. I. Case Threshing Machine Company, Inc.

Founded 1842

RACINE, WISCONSIN, U. S. A.



Case 20-40 Tractor Operating a Case 32-34 Thresher