

Aug '18

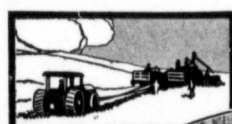
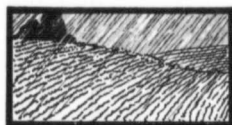
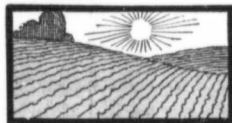
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CANADIAN THRESHERMAN AND FARMER

WINNIPEG CANADA
AUGUST
NINETEEN EIGHTEEN



Published Monthly by E. H. HEATH CO. LIMITED - Our Sixteenth Year



"That organization will win which can fight a quarter hour longer, march a mile farther and a minute faster, and be slightly better fed, better led and of better morale. This war will be won by narrow *Margins* and narrow margins are sufficient to win it."

The *Margin* of Bushels of Wheat Assured by Using the

Grain Saving Wind Stacker

is vital to the Nation's life and cause. The situation is grave. The wheat loss, last year amounted to 20,000,000 bushels, according to government reports.

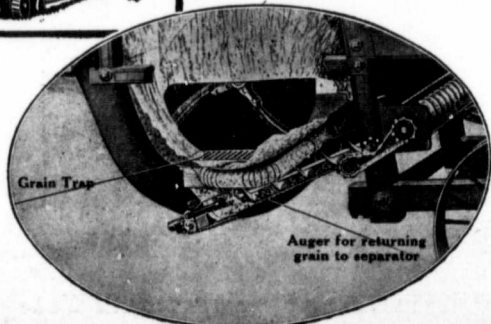
**100%
in the
Sack**

The wheat crop this year will exceed 900,000,000 bushels, according to government estimates.

The Grain Saving Wind Stacker equips the thresher to get from the year's planting, seed investment and harvest labor this vital extra margin of food, upon which the fight hinges.

The Grain Saving Wind Stacker costs no more than the ordinary stacker—yet tests have proven its superior worth. It saves the grain the separator wastes—stacks the straw—prevents backlashing—runs with less power and saves fuel.

Obtain a catalogue from any thresher manufacturer in the United States or Canada, illustrating and explaining how the Grain Saving Wind Stacker puts the grain in the sack instead of in the stack.



The Indiana Manufacturing Co., Indianapolis, Ind.

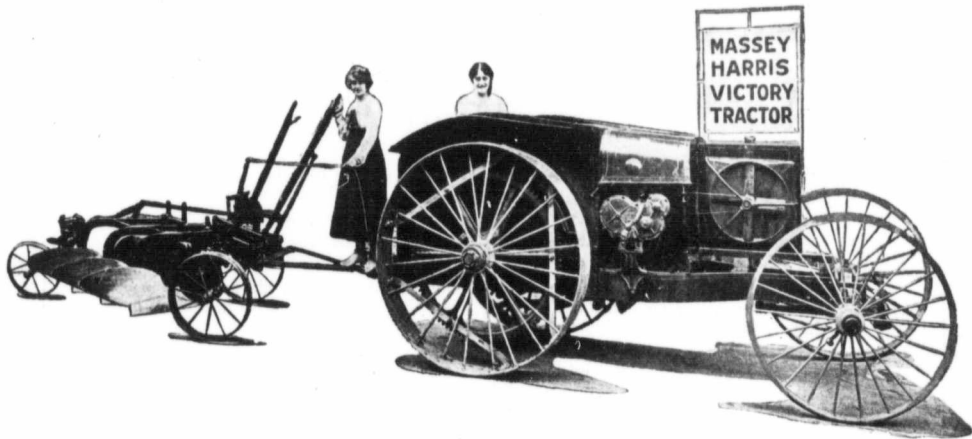
It's Irresistible—The Massey-Harris!

THE TRACTOR DE LUXE

LIKE THE TANKS ON THE BATTLEFIELDS OF FRANCE—IT ALWAYS GAINS ITS OBJECTIVE

Quality and Service Always Wins!

OUR NEW TRACTOR AND POWER PLOW PROVED THIS AT THE TRACTOR PLOWING DEMONSTRATION DURING THE BRANDON FAIR WEEK.



Hundreds of Spectators present paid our Outfit the Greatest Compliments on the **Hundred Per Cent Efficiency—Dependability**—Testifying without exception, that the work performed was the **HIGHEST CLASS ON THE FIELD.**

The Superiority of The Massey-Harris Tractor

is evident from its appearance. Finish—Construction—and Durability is the Foundation upon which our Tractor is built.

Dependability is the Thing of Vital Importance

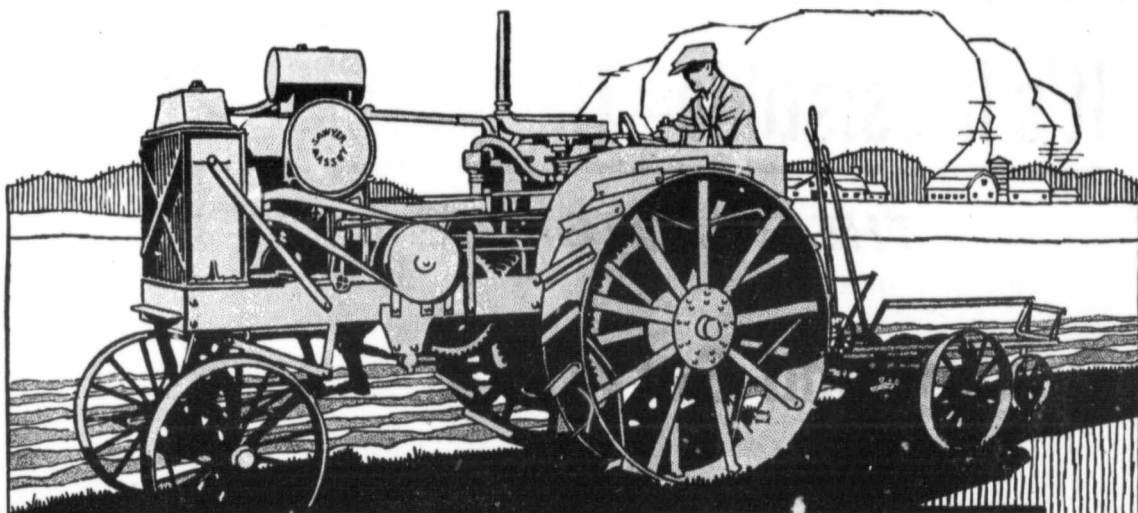
The Massey-Harris Tractor **DELIVERS THE GOODS**—not now and then, but every time, all the time, on any job.

IT'S A LUXURY IN A FARM TRACTOR

a necessity to success—designed along simple lines—a Tractor for those who discriminate—this is not an idle boast, but a fact.

Why Mar the Fitness of things by selecting anything but

The Massey-Harris?



A BUILT-TO-MEASURE TRACTOR FOR YOU

WHEN buying a tractor there are three important points to consider: Will it do your work? For how long a time will it give good service? How much will it cost for operation and up-keep?

The tractor that is best suited to your work, that gives you the longest good service, and that costs the least for operation and up-keep, is the one *you* want.

Your tractor needs have been measured by us. Our 82 years contact with the development of Canadian agriculture have enabled us to do this well. But what is more important, our experience, ability and equipment enabled us to *build* the tractors best suited to the needs of Canadian farmers.

We found one tractor was insufficient to meet the needs of all. So we built four sizes: 11-22, 17-34, 20-40 and 27-50. But the principles behind each of these sizes are the same. Back of each tractor is the Sawyer-Massey reputation, guarantee, and a service that really serves.

All Sawyer-Massey Gas-Oil Tractors have 4-cylinder motors; 4 wheels; air cleaning equipment; power transmission direct to *both* rear wheels, on which 75% of the tractor weight rests, assuring maximum power at the draw-bar and complete traction in all soils. Big radiator capacity and perfected mechanical cooling prevent overheating.

*Bulletins describing Sawyer-Massey Tractors
forwarded on request. In writing, specify
the size in which you are interested.*

SAWYER - MASSEY COMPANY LIMITED

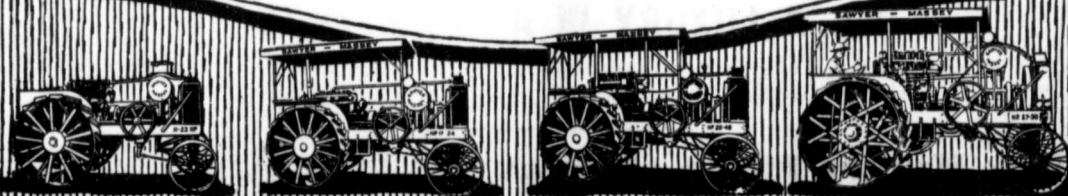
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*If you are interested in Sawyer-Massey
Steam Tractors or Threshers, we will
be glad to supply full information.*



Four Cylinder Sawyer-Massey Gas-Oil Tractors Kerosene Burning



Vol. XXIII

WINNIPEG, CANADA, AUGUST, 1918

No. 8

IS THE TRACTOR HERE TO STAY?

HOW long is the farm tractor to remain in the limelight which at present it enjoys? It is a fair question to ask? Some may say that it will last just as long as the war does, and that he who wishes to see the present tractor boom continue is but saying in another way that he wants the war to continue. This is not true. There is not a single tractor manufacturer to-day who wishes this war to continue one second longer than is necessary. In fact, at the recent National Tractor Demonstration held at Salina, Kansas, the writer never saw and never hopes to see again a greater "win-the-war spirit" exhibited than that which was backed up by the tractor manufacturers, who were there for the purpose of exhibiting their machines.

So rapid has been the rise of the tractor industry, and so great has been the demand for this class of farm machinery, that it is but natural that men and capital are turning towards it, and it is also but natural that they should ask themselves the question—and also ask it of others—where is this tractor business going to lead to? Is it on a safe and sane foundation? Is it backed up by positive demand, or is it merely a demand occasioned by passing fad? To answer this question is diffi-

cult. One has to be more or less of a prophet, and furthermore, one cannot be too positive in one's statements, but, upon the whole, we have certain basic facts that will serve as a pretty good hypothesis towards forecasting the future of the tractor industry. First it can pretty safely be said that the war, whether it continues or ends to-morrow, will have little immediate effect on the production and use of farm tractors. If the war were to end at once, there would naturally be a short disorganization period, during which time almost anything might happen, nobody knows what. But when the seas are again opened to commerce, there is bound to be the greatest movement in history in the way of foodstuffs and farm implements, especially tractors and tractor tillage tools, to replenish the depleted supplies of war-weary starving Europe. American and Canadian farmers will continue to feed the North American continent, and the Allies, and in addition will be required to furnish all the food available for the Central Powers, and even for Russia and Roumania. The North American continent is in no danger of starving. We have, nevertheless, drawn seriously upon our food reserves to feed the Entente Allies. This is witnessed by our wheatless days, by

our meatless days, and before this war is over we may have other "less" days. England, France, Italy, and the other Allied countries are on short rations, and have been for three years. Austria is on the verge of famine, and Germany is not far off. Russia, Roumania, Scandinavia, Holland and other countries are in a similar condition. Their fields have not been properly tilled for four years. Little or no fertilizer has been available to keep up the productivity of the soil, which has deteriorated accordingly to a very great extent. Their tillage tools are largely worn out or been destroyed, with comparatively little labor available to make more, or use what there is. Very little consideration is necessary to show that the pre-war conditions cannot be established overnight upon the stoppage of the war. Even the demobilization of the armies will take months, and perhaps years.

We are going on the assumption that the Allies will win the war. No other condition is thinkable or possible. We must win, whether it takes one year or fifty. If we lose, either by military defeat or diplomatic compromise, we forfeit our right to live as a free people. We lose, for perhaps evermore that upon which our free institutions have been based,

the very foundation of our country will have been taken from under us, leaving us stranded upon quicksand. Therefore, we cannot lose. We must win. We will win. The Kaiser and his crowd must capitulate, or be destroyed root and branch. There is no other way.

If the war goes on, the present food conditions of the world must of necessity become worse. Already, 25,000,000 of our available 35,000,000 or so of man-power on the North American continent is being used for war purposes, directly or indirectly. In European countries, conditions are worse, and the longer the war lasts the worse these conditions must become. Every known expedient must then be adopted to conserve the man-power, to make it possible for each and every man, woman and child to produce more of every necessity, both of farm and industrial products. Every farmer must till more acreage, and every acre must produce more crops. We must not only farm extensively but also farm intensively. We must plow broader, plow deeper, and plow faster. And the same is true of every other farm operation. All of which means more tractors and better tractors.

In the light of this, what is the
(Continued on page 16)



Tractor and Farm Machinery Exhibit, Brandon, July, 1918

Western Canada's Light Tractor Plowing Demonstration

DURING the month of July at the Brandon Fair, the Third Light Tractor Plowing Demonstration was staged. Elaborate preparations had been made for this event, but the weather-man realizing that Western Canada needed rain, and needed it badly, decided that he couldn't wait any longer, and the much needed rain came, but the Plowing Demonstration was seriously interfered with.

However, the manufacturers were on the job, and quite a large array of farmers got there also. If we were to count in the thousands of farmers who "got stuck in the mud" on the way, and who never reached the city of Brandon at all, the plowing demonstration would have had quite a nice crowd.

One thing the demonstration did prove was that a tractor can plow in almost any condition of soil.

A start was made on Tuesday, July the 23rd. It was decided that upon that day nothing more would be done than to stake out the lines. Tuesday evening we witnessed what was almost a deluge, with the result that the light loam in the Brandon district was turned into a mud-puddle. However, a start was made on Wednesday morning, and it was with some difficulty that the heavier tractors were able to move off and pull their loads. Nevertheless, everyone finished up their job, and all were in readiness for a big day on Thursday. A start was made on Thursday morning, and it looked for awhile as if the plowing fields would witness a record crowd, automobiles were lining up beside the field, etc. Everyone got away to a good start, but the weather-man again interfered, and by eleven o'clock it was raining, and raining hard, with the result that the plowing had to be finished under conditions that were by no means favorable to the Demonstration.

It is unnecessary within the scope of this article to go into details. The illustrations in this issue practically tell the story of who was there and what they did. It might be said, however, that a more representative Demonstration from the standpoint of tractors entered has never before been pulled off. Forty-four machines were in, and this was only three less than the number taking part in the big National Tractor Show at Salina, Kansas. Practically every type of light tractor was to be found on the field, three wheel-

ers, two wheelers, four wheelers, and caterpillars; two cylinder machines and four cylinder machines; machines that burned kerosene and machines that burned gasoline; machines that pulled two plows, machines that pulled three plows, machines that pulled four plows, and some that pulled five plows; all types, all sizes, all sorts of designs—and all sorts of prices.

The Demonstration was held under the auspices of the Exhibition at Brandon. It was directly in charge of E. W. Hamilton, of "The Canadian Thresherman and Farmer," assisted by Professor J. MacGregor Smith, of the Agricultural University of Saskatchewan, and Professor L. J. Smith, of the Manitoba Agricultural College. The direct field management was in the hands of these two latter gentlemen, who also checked the fuel, and saw that each tractor burned its advertised fuel, and sealed the tanks.

In detail the entry list might be summed as follows:

Advance Rumely Company—This firm demonstrated two tractors, a 14-28 pulling four plows, and a 10-20 pulling three plows. The 10-20 machine made its first appearance in the Canadian West at the Demonstration, and while it is almost a small model of the company's famous "Oil-Pull," it is a most likely looking tractor and should give a good account of itself in the future.

Anglo-Canadian Engine Company—This concern demonstrated a 9-18 Moline Universal, pulling two plows. This is a combination machine, and one which is adapted to the use of a large number of implements, and is meeting with considerable success in the Canadian West.

Canadian Avery—This concern demonstrated four tractors of the famous Avery type, extending from the Baby 5-10 pulling one plow, down through the 8-16, 12-25 and 18-36 pulling 2, 3 and 4 plows respectively. The Avery line made a beautiful train of tractors as they went down the field, and, of course, did the usual Avery job, which is par-excellence.

Canadian Fairbanks - Morse Company—This concern demonstrated the famous Wallis 15-25, pulling three plows. This is a three-wheel machine. It attracted considerable favorable attention, and should prove a profitable adjunct to the Fairbanks line for 1919.

J. I. Case Threshing Machine Co.—This concern demonstrated

their 9-18 pulling two plows, and their 10-20 pulling three plows. Case is always on the job. Never behindhand, always in at the start and right on time at the finish, with a nice piece of good work on the credit side.

Cushman Motor Works—This concern demonstrated for the first time the Cushman tractor, and pulled its load of three plows in a businesslike manner.

N. J. Dineen Company—This is a new concern on the Canadian market, handling the "Little Giant" tractor. This is a 16-horse power (drawbar) machine pulling four plows.

Emerson-Brantingham Implement Company—This concern had a 10-20 pulling three plows. The writer has attended practically every plowing demonstration that has been held in the United States and Canada for the past ten years, and the absence of Emerson-Brantingham from such a demonstration would be cause for wonder.

Ford Motor Company—This is the first time that the Fordson has been in a public demonstration in Western Canada. The little 11-22, with Rogers at the wheel, cut quite a figure on the plowing field.

General Utilities Company—This concern demonstrated the 12-25 Port Huron pulling three plows. The name "Port Huron" is well known in the Canadian West in the steam thresher line. This is the first time, however, that the Port Huron Gas Tractor has made its appearance in Western Canada. It is a friction drive type, and has excited considerable favorable comment.

Gilson Manufacturing Company—The Gilson 15-30 pulling three plows performed a very nice piece of work. The machine is of standard design, and will no doubt be heard of in the future.

Goold, Shapley and Muir—This concern has stuck to the tractor business through thick and thin, and are to be complimented on the progress they have made.

Gray Tractor Company—This concern demonstrated the Gray Drum Tractor, pulling four plows. This tractor is unlike others in that the main drive wheel is a wide drum, for which several advantages are claimed. It was this firm's intention to show the adaptability of this tractor for pulling discs, harrows, etc., but the weather conditions did not permit.

Guilbault's Limited—With the Cleveland Tractor, this concern demonstrated the 12-20 cater-

pillar, pulling three plows. Cleveland Tractors have been placed on the Canadian market in large quantities, and no doubt much will be heard from them in the near future.

Happy Farmer Company—This concern demonstrated two tractors, the Nilson 16-27 pulling four plows, and the Happy Farmer 12-24 pulling three. The Happy Farmer is by no means new on the Western Canadian market, but this is the first season for the Nilson. Both these machines gave a good account of themselves.

Hart-Parr Company—This concern demonstrated the new Hart-Parr 30, pulling three plows. This is a machine of standard design, but for which several new features are claimed.

International Harvester Company—Here is another concern that follows demonstrations year in and year out, and with their 10-20 Titan pulling three plows, their 10-20 Mogul pulling three plows, and their 15-30 International pulling four plows, a row of tractors was demonstrated which made a beautiful showing.

H. A. Jones—This concern demonstrated the Bates 12-20 pulling three plows. This was a caterpillar machine, being one of the two caterpillar types on the field. Excellent work was done in the demonstration.

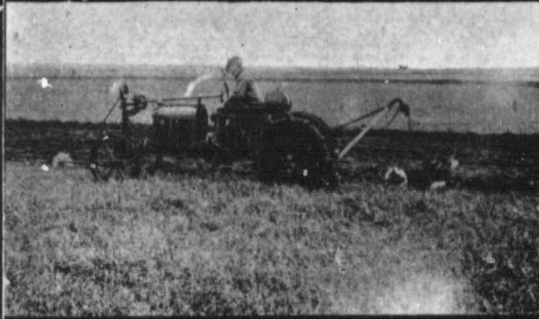
Massey-Harris Company—This was the first appearance of the Massey-Harris Company in the tractor field, and in their 12-25 pulling three plows, they had a machine that did most excellent work. Always on the job. Between Massey-Harris tractor and Massey-Harris plows, we find an outfit for which we predict a very bright future. They did some excellent work on the field, for straightness of furrow and evenness of operation the Massey-Harris outfit in its initial appearance produced a job of plowing that was all that could be desired. It was a credit to the Massey-Harris line of farm machinery.

Minneapolis Steel and Machinery Company—This concern was right on hand with their 16-30 pulling four plows. This machine was of the standard type, and the work done was a credit to the firm.

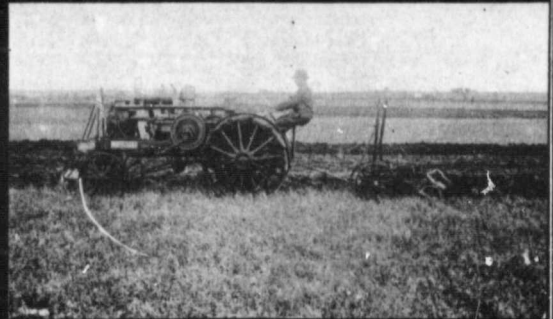
Minneapolis Threshing Machine Company—This old reliable concern in the thresher business, well known throughout the length and breadth of Canada, were in attendance with their 15-

Continued on page 61

Tractors and Mows in Light Tractor Mowing Demonstration Brandon, Man. July 23, 25, 1918



Avery 5-10 pulling Grand Victoria plow



Avery 8-16 pulling 2 Grand Victoria plows



Case 918 (Acrossey) pulling 2 Grand Victoria



Goold Shapley Meir 12-24 pulling Stock shaft



Massey Harris 12-25 pulling 3 Massey Harris plows



The Wallis (Canadian Bankers) pulling 3 Case 918



Harley Waterloo Mfg Co's 16 pulling 2 Rock Islands

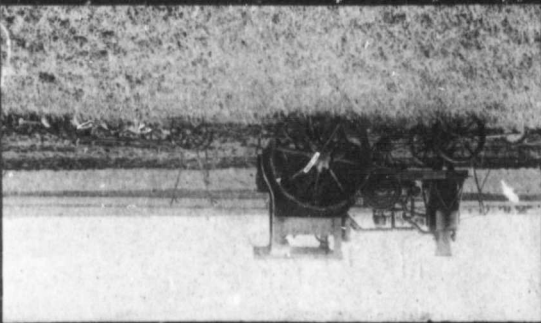


Rumely & Co. Pull 14-28 pulling 4 Rumely plows

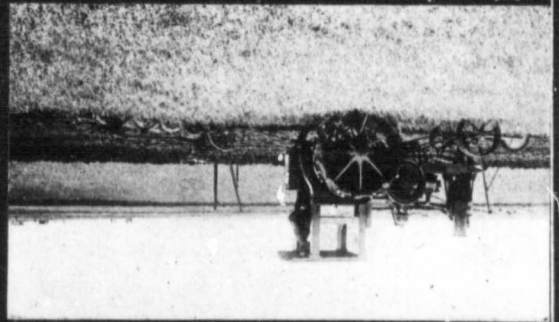
Tractors and Plows in
Jordan's Field, May 23 25 1918



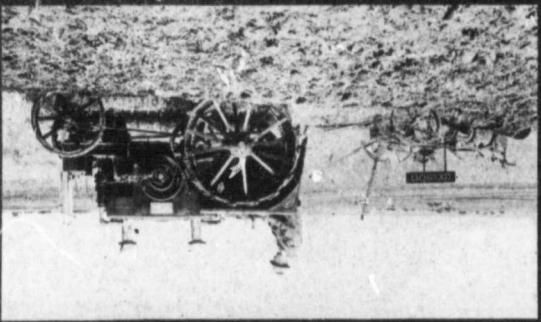
Waterloo, May 12 25, plowing, 3 John Deere plows



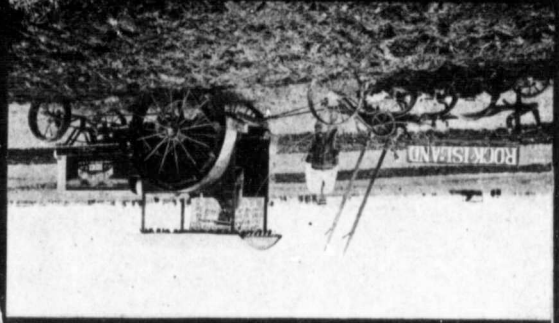
Mersey, 18 26, plowing, 4 Grand'etone plows



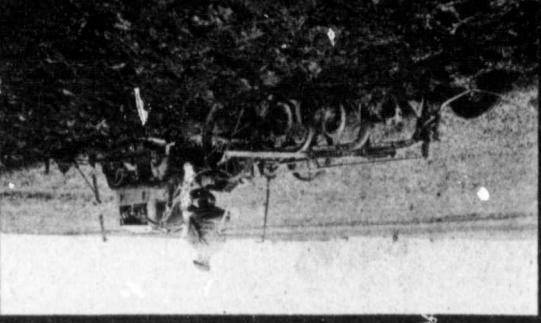
Mersey 12 25, plowing, 3 Grand'etone plows



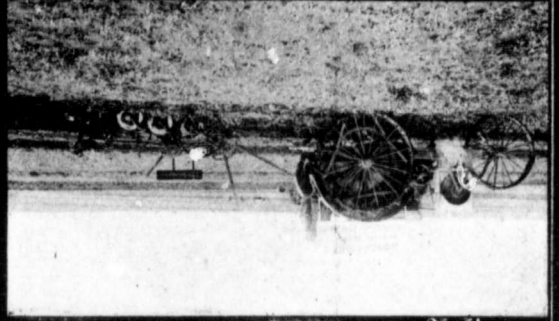
Gold Shipping, Mersey 12 24, 25, 3 Cockshutt plows



Mersey (Cockshutt, 1918) plowing, 3 Rock Island



Creighton (Cockshutt's 1918) plowing, 3 Automatic Oliver's



Mersey 12 24, plowing, 3 Cockshutt plows



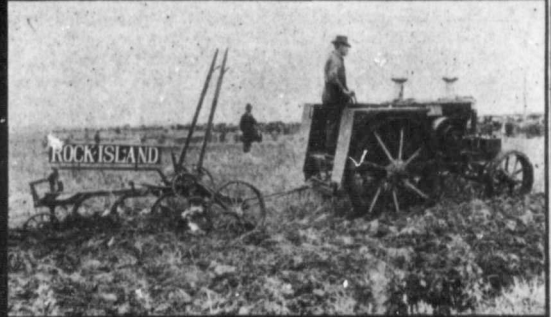
Mersey 12 24, plowing, 3 John Deere plows

Tractors and Plows in Light Tractor Plowing Demonstration

Brandon Man. July 23-25 1918



Happy Farmer 12-24 pulling 3 C & W plows



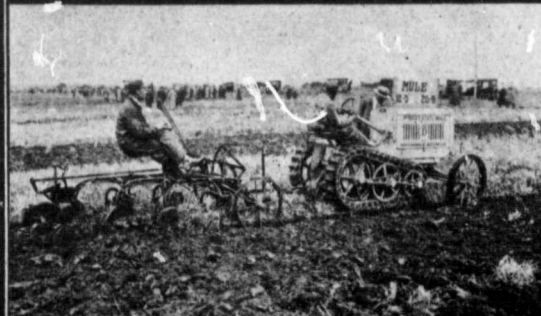
Good Shapley Motor 12-24 pulling 3 Rock Islands



Gilson 15-30 drawing a 3 bottom Cockshutt Gang



Milson (Happy Farmer Co. Ltd) 16-27 with 4 Case plows



Bates Tractor Mule (H. A. Jones) with 3 Vitcan plows 12-20



The Plowman (Southern Implement Co.) with 3 Case plows 13-30



Mr. Jordan 11-22 drawing 2 Case plows which were replaced on following day by 2 bottom Cockshutt



Mr. W. S. (Canadian Tractor Sales Co.) and Stockshutt 16-24

The Draft of Plows at the Brandon Tractor Plowing Demonstration

By L. J. SMITH,

Prof. Agricultural Engineering Manitoba Agricultural College.

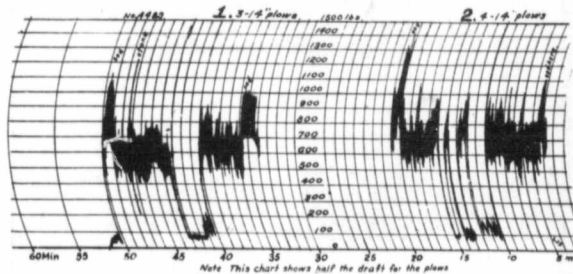
WHEN a new type of tractor is put on the market, one of the first questions now asked of it is,—“How many plows will it pull?” The question itself marks the progress of the tractor as an important factor on the farm, for not so many years ago gas tractors were not considered as a factor in agricultural work in anything but threshing and breaking. Then the brake or belt horse power was the important item; but now the light tractor has assumed among its other farm burdens, that of stubble plowing. Hence the question “How many plows will your tractor pull?”

There is no definite answer to this important question. It varies according to the kind and condition of the soil, and as to whether

River valley gumbo; but in the following fall, the ground was very dry, and this tractor could only pull two 14-inch bottoms in the same soil. We tested its draft and found that it was developing its full draw bar horse power.

Then too, there is a great difference between breaking and back setting. An engine that can pull four 14-inch breaker bottoms and a light packer, will in back setting only handle three 14-inch bottoms and a light disc, for it takes more power to move the tractor over the breaking.

The conditions at the Brandon plowing demonstration were quite different from those of the Red River valley. The soil plowed was more of a sandy loam and the plowing was a stubble pro-



it is breaking, or back setting, or stubble plowing.

In the motor contests held by the Winnipeg Industrial Exhibition (and the farmers of America have the exhibition to thank for the data and general information gotten by the engine builders at those contests) the average draft per 14-inch plow in breaking was as follows:

1910, 3½ inches deep,	780 lbs.
1911, 3½ " " "	720 " "
1912, 3½ " " "	810 " "
1913, 4½ " " "	695 " "

The 1913 test was really one of back-setting as the field had been plowed two years before in a motor contest and nothing had been done with it in the interval. Hence the lighter draft for the greater depth.

Often in deep stubble plowing, the tractor cannot pull any more plows than in shallow breaking, for the tractor does not get such good footing on the loose soil, and it therefore takes more power to move itself.

Again, spring and fall plowing varies considerably, as an example, a certain 10-20 tractor a year ago last spring pulled three 14-inch plows in stubble in the Red

position with plenty of weeds. The depth was 5 inches, all plows were 14-inch.

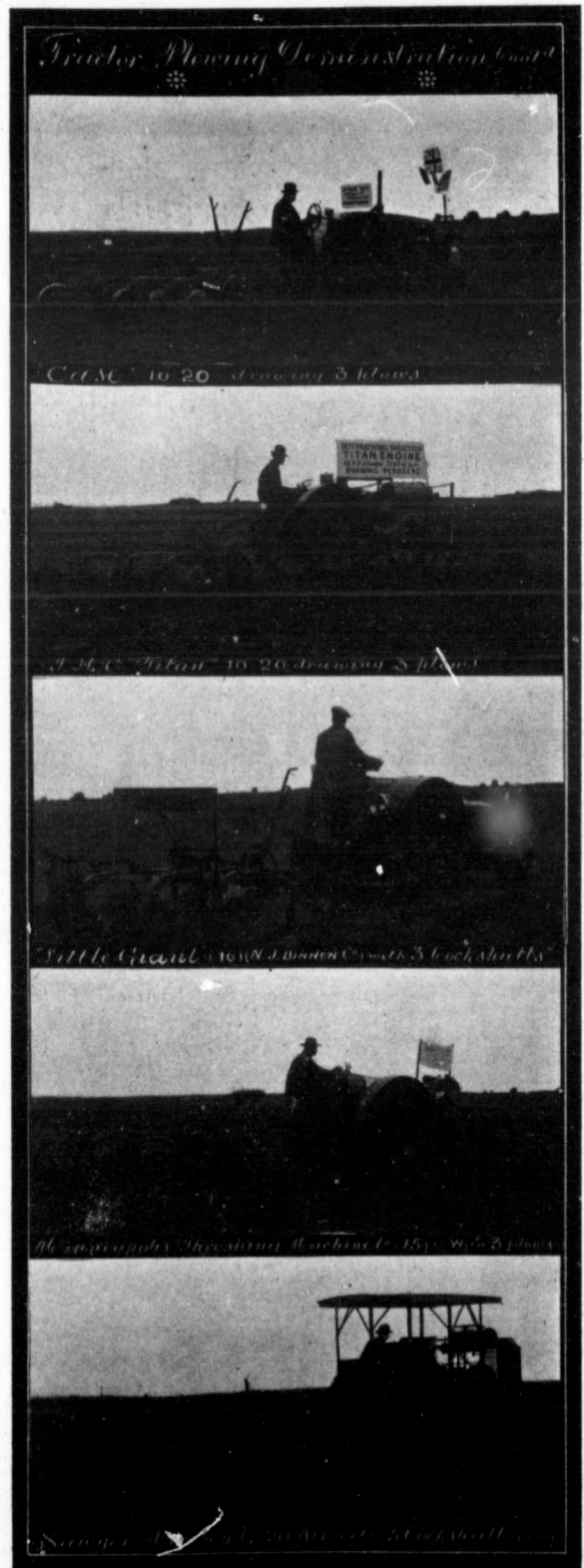
The writer made a number of draft tests during the two days plowing. The soil conditions were practically the same in both fields. Rains left the ground moist, and the soil turned easily, though during the latter part of the second day's plowing, the rain set in again and made it hard for the plows to clean.

Owing to the rain, and to the fact that the field was rougher, the tests taken on the second day were not so good as those of the first day.


The two charts shown in the cut will be of interest to the reader. The lower end of the field was level for 20 or 25 rods then there was quite a rise and then fairly level ground again.

The dynamometer was so arranged as to record one-half the draft. This must be kept in mind while studying the charts.

Following the No. 1 chart, the reader will notice that the plowing started at 34 min. by the chart. The draft for a short distance was in light sod, and ran up to an




Tractor Plowing Demonstration Cont'd




*John Deere Plow
PLOWS FOR TRACTORS*

Cray 18-36 pulling 4 John Deere plows




Ransley 10-20 pulling 3 bottom plows




ROCK ISLAND

White All work 18-27 with 4 Rock Island plows




Plowman (Northern Tractor) 15-30 with 3 plows




Sawyer (McCoy) 18-22 with 3 Cockshutt


Tractor Plowing Demonstration Cont'd




H. C. 15-30 (4 cylinder) pulling 4 Automatic Oliver's




Cushman 10-22 drawing 3 Cockshutt plows



Masline Universal 9-18 (AROLD CANADIAN ENGINEERING CO.) with 2 plows



Port Huron (General Utilities Co.) 12-25 with 3 Cockshutt's



Emerson (Branche) 12-20 (3 plows)

THE CANADIAN THRESHERMAN AND FARMER

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August

Fundamentals and Frills!

1918

OUR GUARANTEE

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

ONCE in a while even so base a quantity as an agricultural editor finds himself, and touches the high spot in morals and in government. But a man who thus succeeds is one who first of all has had the iron driven into his soul; has learned to govern himself, and has tasted the fruits of abnegation—those sweet morsels that leave no sourness or embittered aftermath. Such we take it is the contemporary from whom we quote on this page. There's "nothing new" in what he says, there's nothing "smart" in the way he says it, and yet it is the greatest thing he or anyone else could say in these times, for it expresses the last word in successful living.

Does it not look to you sometimes as if we editor chaps generated a great deal of mental sweat in trying to conjure up something smart and new and startling to say in the little corner to which we are hemmed in? What carloads of smart fellows there are performing conjuring tricks with their mother tongue, but how few now-a-days are the good men who have come to anchor on the rock-bottom of the old moral fundamentals? How many are content to stake their reputations on the simple axiom that an ounce of good living is worth many a ton of those literary frills that glut the book market of to-day? Who wants to embellish the fundamental principles of right living set out in pure Anglo-Saxon?

One of our friends has got the following framed and hung in his office till it has become yellow with being looked at by the sun and all sorts of men seeking for wise counsel. It is called "A Message to the Northwest," by Dr. Cyrus Northrop, in his eightieth year: "I am an old man now, and have seen many things in the world. I have seen this great country that we speak of as the Northwest, come, in my lifetime to be populous and rich. The forest has fallen before the pioneer, the field has blossomed, and the cities have risen to greatness. If there is anything that an old man 80 years of age could say to a people among whom he has spent the happiest days of his life, it is this:

"We live in the most blessed country in the world. The things we have accomplished are only the beginning. As the years go on, and always we increase our strength, our power and our wealth, we must not depart from the simple teachings of our youth. For the moral fundamentals are the same and unchangeable.

"Here in the Northwest we shall make a race of men that shall inherit the earth.

Here in the distant years, when I and others who have labored with me shall long have been forgotten, there will be a power in material accomplishment, in spiritual attainment, in wealth, strength and moral influence, the like of which the world has not yet seen. This I firmly believe. And the people of the Northwest, moving ever forward to greater things, will accomplish all this as they adhere always to the moral fundamentals, and not otherwise." This warning was sounded many years before a living soul of those peaceful times dreamt of war. It had all the weight of the "Voice on Sinai" then to enforce it: What is its meaning now, in the light of what four years of a "God-fearing" nation's crime has written with the blood-red hand of war?

It means that a very large number of the world's "God-fearing" people, while ostensibly conducting their business according to the rules of the game as set forth in the twentieth chapter of Exodus, have all the while been camping on the thin crust of chartered hypocrisy. To say that we have really been living according to the injunctions of the Carpenter's Son of Nazareth would be the blindest rot we have ever written. "Business as usual" has simply meant business according to the most daring scheme of consummate bluff that can get away with the plunder. We have been shouting "Efficiency," "Service," and such like patent medicine catch-calls like quacks on the village green. We have been nibbling at the frills of a ghastly sham. We have to a large extent been filling ourselves with "the husks that the swine did eat." Let us stop this fooling and start feeding once more on "the old fundamentals."

An Old Law Discarded

The old law of "every man for himself and the devil take the hindmost" seems to have been tumbled into the discard, and men work and die now, not for themselves but for democracy—the right of the other fellow to live his life. To this end the rich and the poor, the exalted and the humble labor together, performing all things needful. No longer is any necessary thing labelled "menial," and every man is, for the time at least, "his brother's keeper." Who would have imagined a year ago that so much could have been so quietly accomplished in a single twelve months?

So far we have gone along the highway of progress and toward a new world—so much for having been scared stiff and for once in our lives brought face to face with fundamental realities.—"The Country Gentleman."

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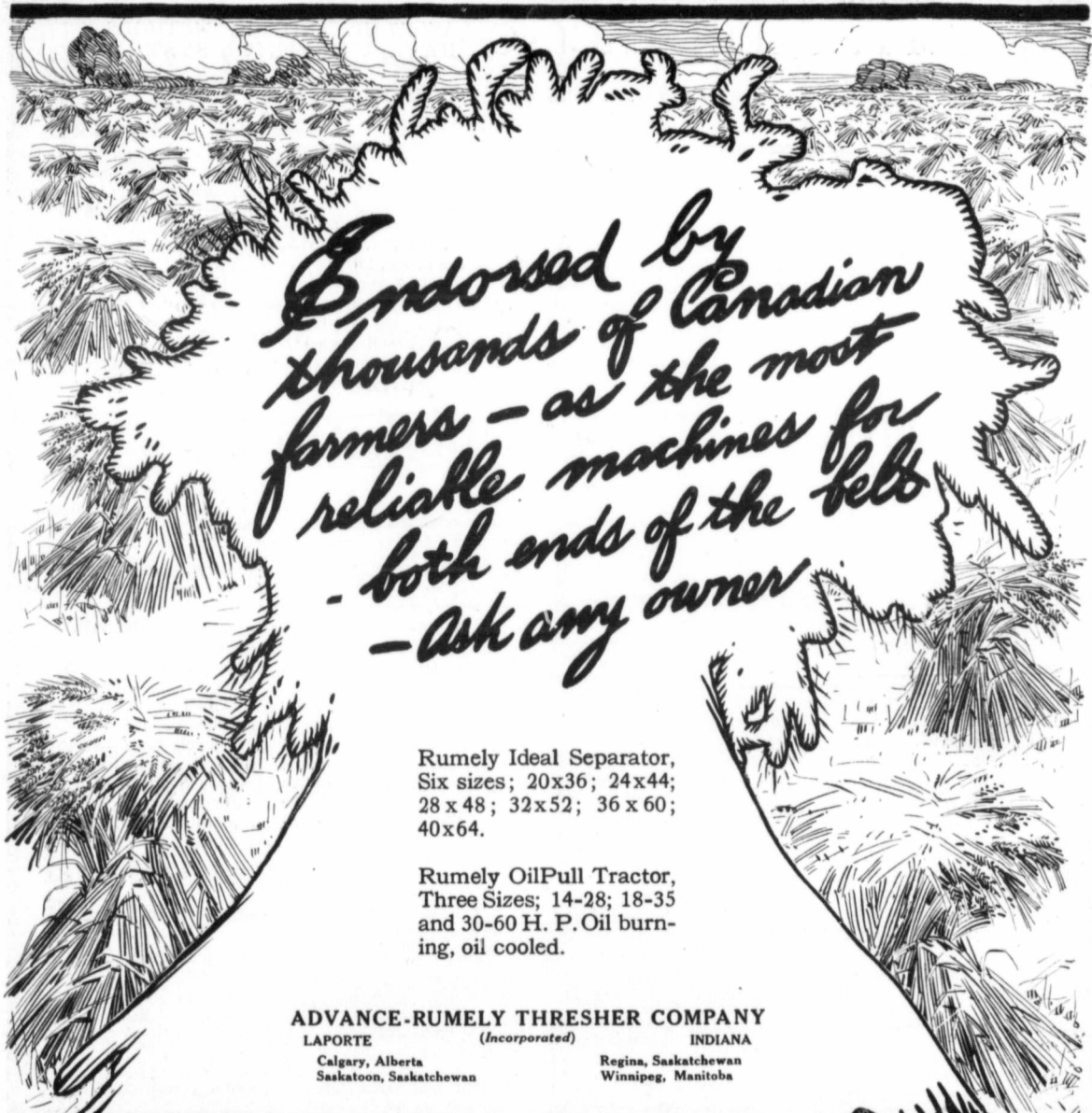
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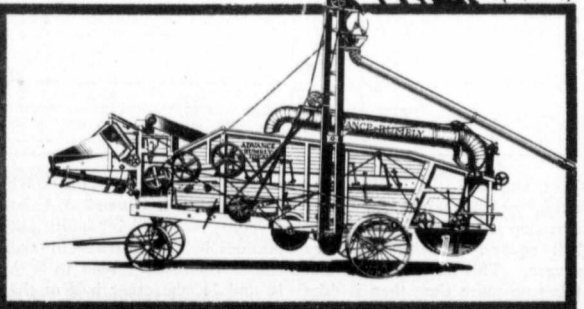
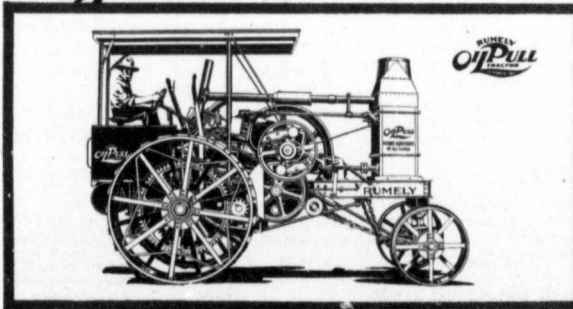
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BETTER BELT LACING—AVOID HIT AND MISS METHODS HAVE A DEFINITE SYSTEM

By PROF. J. MACGREGOR SMITH
Saskatchewan University

PRACTICALLY every farmer owns and operates an engine, a feed grinder or some other power machine. He should be able to lace a belt. To the average man belt lacing always appears to be a very mysterious operation and in threshing time the whole gang gathers round the separator man as if he were a wizard, when he is lacing a broken belt. The

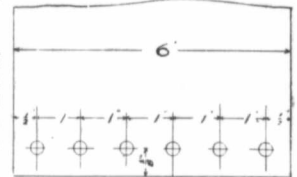
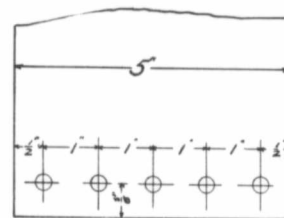
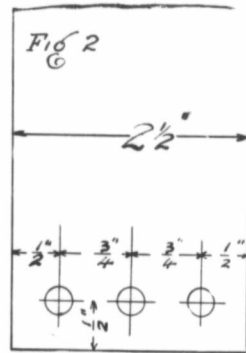
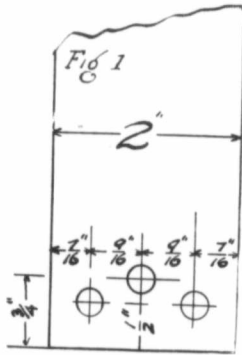
Figs. 1, 2, 3 and 4 show a single row of holes in each case. Fig. 7 shows a double row especially adapted to rubber and canvas belts. Fig. 8 shows how the work should not be done. With leather belts use a good belt punch, but for rubber and canvas belts

pulley a good way to finish it would be to run from 11 to 1 in both cases and punch another hole at the point indicated by X, and finish as in Fig. 10.

Double Lacing

Fig. 10 shows an example of this lace. The lace is straight and double on the pulley side and crossed on the side away from the pulley. Starting up through

to fit the crowned pulley better. The loops 10-11, 11-12 make the double lace rise on to the pulley without any jar, whereas, if it was made three ply in the middle this would not be the case. Another method of finishing is



methods of lacing belts are legion and it is impossible to state which is the best, because there are many good ways. We do not want to convert you to our way of doing it, but if you have not already a very definite system, we will, by means of diagrams endeavor to show clearly three different ways and they will fulfil your requirements. With a little practice you can readily "catch on."

First of all, what is our problem? It is to make a smooth

the holes should be made with an awl and not with a hollow punch, which cuts off many strands and materially weakens the belt. The tine of an old pitchfork makes a very good tool after being sharpened a little at the point, the other end being bent to form a handle.

Single Lacing

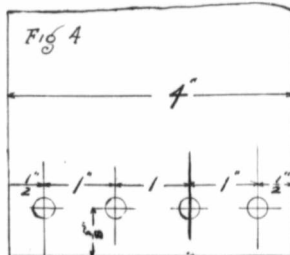
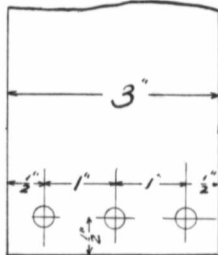
Fig. 9 shows an example of single lacing. The lace is straight on the pulley side and crosses on the side away from the pulley. Starting on the pulley side the

the holes 1, 1 follow the holes as numbered to the position 10 (which is also the first hole). From 9 the lace goes down through 10 up through 11, down through 12 and up through 11 again. When it is pulled tight the same applis to the opposite side of the joint. This will leave only one thickness of lace in the middle, which will allow the belt

shown to the right, a loop is formed and pushed through the last hole, a short piece of lace is inserted and the loop pulled tight. This can easily be removed with a pair of pliers. Burning the end of a lace makes it hard and it can be more easily pushed through the holes.

Double Hinge Lace

The single hinge lace is similar, the only difference being the lace passes through each hole once instead of twice. Therefore we will not go into details with it. The double hinge lace is harder to describe but by the aid of numbers we hope to make it clear. Starting as shown in Fig. 11 the path of the lace B is as follows:

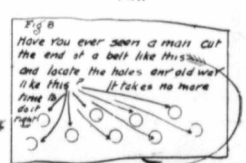
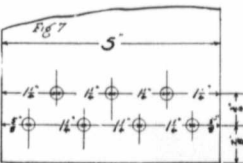


joint and one that will be as strong as the belt itself. The first step is to cut the ends of the belt square. Use a small try square. This is important and takes no more time than it does to do it as shown in Fig. 8. Next is the location of the holes. For small leather belts one row of holes will be found sufficient and should be spaced with some relation to the size of the belt.

ends are put through the holes 1, 1, and then across to 2, 3, 4 and 5, here the lace is again put through hole 4 (marked 6) and hole 5 (marked 7) then to 8, 9, 10 and 11, the other half of the belt is finished in exactly the same way. There are different ways of finishing, either a square knot can be tied, or the ends tucked in around some of the other laces. In case the belt runs over an idle

Between belt 1 and belt 2 and up through hole 2 ; then	" 1 "	" 2 "	" 1 "	" 3B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 2 "	" 4B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 3 "	" 3B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 4 "	" 4B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 5 "	" 5B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 6 "	" 6B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 7 "	" 7B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 8 "	" 8B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 9 "	" 9B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 10B; "	" 10B; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 10B; "	" 10B; "

Lace A goes between belts 1 and 2 and down through hole 2 ; then	" 1 "	" 2 "	" 3A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 4A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 3A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 4A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 5A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 6A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 5A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 6A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 7A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 8A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 7A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 8A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 9A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 10A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 9A; "
" " " " " " " " " " " "	" 1 "	" 2 "	" 10A; "



This lace is recommended for a belt running over small pulleys,

as a windstacker. It is also good
(Continued on page 16)

What Does This Mean to You, Sir?

Out of 39 tractors demonstrating at Brandon, 15 chose to pull COCKSHUTT LIGHT TRACTOR PLOWS. There were more Cockshutt Tractor Plows in the demonstration than any other. The reason is very plain---manufacturers and demonstrators knew that to make the best showing they needed the best tractor plows---and they chose COCKSHUTT because they have proven to be the most suitable for any kind of soil.

There are more **Cockshutt Light Tractor Plows**

At work throughout Canada and the United Kingdom than any other make

Mr. Bert Kennedy, Champion Plowman of Canada, E. A. Orr and Thos. Morrison, former Champions, after careful comparison have chosen Cockshutt Tractor Plows



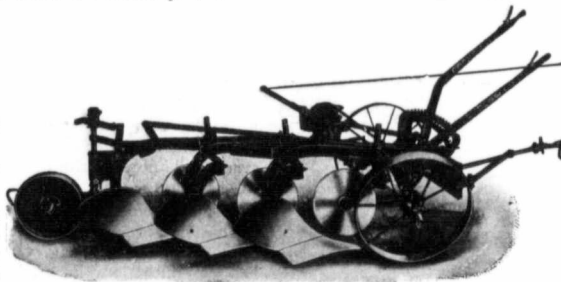
Cockshutt Junior Light Tractor Plow operated by Seager Wheeler on his farm at Rosherne.

The Cockshutt is not a remodelled horse plow. It has heavier beams, heavier bottoms and construction throughout, proportionate to the extra strain a traction plow is subjected to.

Controlled From the Tractor Seat

A single pull of the rope raises or lowers the bottoms instantly. The levers are very convenient, and should any adjustment in depth be required, the change can be made without slowing up or stopping the tractor.

The power for raising or lowering the bottoms is supplied by the land wheel, and operates by means of a simple, positive and reliable arrangement that works automatically when the tractor driver pulls the cord.



Action of the Bottoms

Because of the operation and location of the land and furrow wheels, the whole weight of the plow is brought to bear on the bottoms, forcing them into the ground when the furrow is started. This feature is worthy of particular notice, the Cockshutt takes a quick, positive dig into its work.

The Levers

A lever to regulate the depth and one to level the plow are all that are used on the Cockshutt. Set these when you begin the field and it will rarely be necessary to touch them till the work is finished. In case of necessity you can raise the bottoms by hand, clear of the ground. Large helper springs to both land and furrow axles make easy work of this when it has to be done.

You Can Hitch a COCKSHUTT to any Make of Tractor

Adjustments up and down as well as sideways are provided. The flexible hitch allows the engine to go over dead furrows and uneven ground without altering the depth of plowing or affecting the work of the bottoms. **The Hitch is stiff** and will permit backing the plow when necessary.

HIGH AND LEVEL LIFT---

Trash will not accumulate on the share of the rear plow in making a turn, nor will it dig into the ridges of plowed land should it be necessary to cross the field.

CLEARANCE

Extra clearance is provided by the height of the beams and the "stagger" of the front furrow wheel. The beams are high and well arched, and will permit the passage of trash when working in dirty land.

LUBRICATION

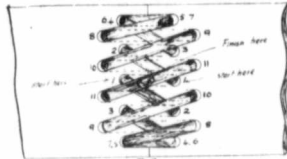
Hard grease cups are provided at all wearing points. They insure light draft and smooth working to all parts. Furrow wheels have renewable boxings, so the upkeep cost, even after years of hard work, is practically nothing.

Write our Nearest Branch for Descriptive Folder

Cockshutt Plow Co., Limited

WINNIPEG REGINA CALGARY SASKATOON

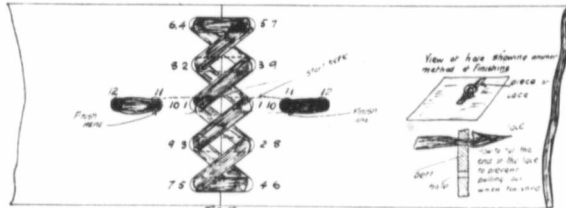
for a drive belt. The advantage of beginning at the center of the belt is that two men can lace at the same time, one to the right and the other to the left. However all laces shown can be start-



Example of Single Lacing Showing Side of belt away from the Pulley

ed at one side if desired. Care being taken not to pull it too tight. One end should not be put through two holes in succession, and both ends of the lace must be passed between the ends of the belt to the opposite side before either is put through the next hole.

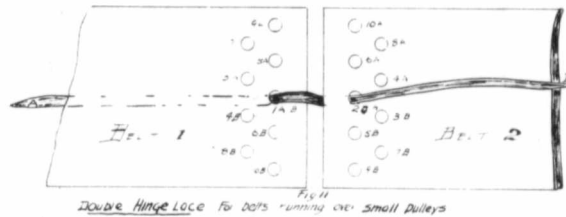
Regarding the "Bootleg" lace we have had no experience, but



Example of Double Lacing Showing Side of belt away from the Pulley

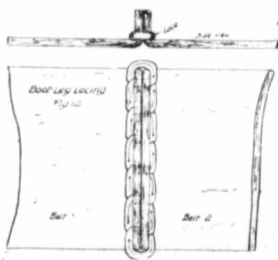
one writer says: "Wherever possible, especially for rubber and cotton belts, the bootleg lacing is used, but it must be confessed this form lacks much of popularity. In respect that it gives uniform and continuous belt contact; in that good stout twine serves

it will outlast any other lacing known, it is pretty nearly perfect. In that it looks 'perfectly horrid' and in that it is quite likely to knock a thumb off an incautious operator or spectator, it is imperfect. This form of lacing is called 'bootleg' not because of any rela-



DOUBLE HINGE LACE FOR DOLLS RUNNING OVER SMALL DULLEYS

for it as well as the most expensive whang leather; in that it is easily and quickly made; and that



tion to booze but because it is made exactly as the old-fashioned bootlegs were sewn up."

Some readers may be able to tell what their experience has been with this type or with any especially good forms they may have used.

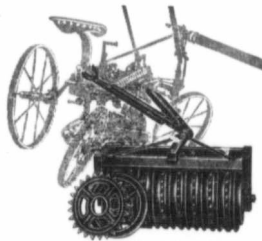
In closing let us remind you that a leather belt runs with the hair or smooth side next to the pulley, and a rubber belt with the seam (near the center of one side) away from the pulley.

Christiansen PULVERIZER PACKER and MULCHER



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WHAT OF THE TRACTOR PLOW?

THERE is rather too much attention paid to-day to the tractor and not enough to tractor drawn implements, particularly the tractor plow. When the job is finished and the work is commented upon it is generally to the effect that it is either a good piece of plowing or it is not up to the standard. The thought is generally of the tractor, while it is in reality the plow which performs the real work.

This fact was particularly evidenced at the Brandon Plowing Demonstration, where practically every well-known make of plow was at work.

It is a noteworthy fact that the tractor plow, or as it was formerly known, the engine gang, really had its inception in Canada. While there may be some who will dispute the statement it was the Cockshutt Plow Co., of Brantford, Ontario, who put out the first real engine gang. It was a huge heavy implement drawn on skids, but in its day was a wonder, and served its purpose behind the huge 100 horse-power tractors that were then in vogue.

Ever since that time (1905-6) the Cockshutt Company have been tractor plow builders, and while they are to-day not alone in the tractor plow business, they have kept pace with tractor development and have always been on the job with a plow that would meet the requirements.

At the Brandon Demonstration was also to be found the famous Verity tractor plow, which is made by the Massey-Harris Co., the work of which bore out this

company's reputation for good goods.

John Deere plows were also in evidence, as they have been for many years in Western Canada, their standard being too well known to need any further comment.

Oliver plows, P and O plows, Grand Detour plows, Rock Island plows, E. B. plows, J. I. Case plows, and Vulcan plows, also graced the plowing fields.

A scarcely more representative gathering of what the market has to offer in tractor plows could have been witnessed, and while there was no official marks or records as to either plows or tractors, those in attendance had a most excellent opportunity to size up the tractor plow situation.

A Chaplain Who Knows Something

A story told by Spencer Leigh Hughes in a speech in the House of Commons one night tickled everybody. It is the story of the small boy who was watching the Speakers' procession as it wound its way through the lobby. First came the Speaker, and then the chaplain, and next the other officers.

"Who, father, is that gentleman?" said the small boy, pointing to the chaplain.

"That, my son," said the father, "is the chaplain of the House."

"Does he pray for the members?" asked the small boy.

The father thought a minute, then said: "No, my son; when he goes into the House he looks around and sees the members sitting there and then he prays for the country."



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Electricity as a Farm Power

A MAN who was called upon recently to speed up the production in a big factory, tells that in one instance, by the introduction of a little inexpensive machinery and the re-arrangement of the working force, three men were able to do the same work that eight men had been doing before and to do it better.

The same problem in a measure confronts the Canadian farmer today—to be able to do the same work or more work with a smaller working force.

On a great many farms a force—new as a factor in farming but wonderfully practical and efficient, is being introduced to help solve the labor problem and to help speed up production. This force is electricity, and the introduction of small individual electric power and light plants makes it possible to use electric current anywhere.

This is an important matter for the farmer. He knows better than anyone else about the difficulties that go with an attempt to secure man power for farm labor—and to keep it once it is hired.

Electric power on the farm helps out in more than one way. It does many tasks that otherwise must be done by hand, freeing that hand for more profitable and often more congenial labor and it furnishes improved conditions of living that appeal to the farmer's family, to the boys and girls and to the hired help and make it easier for them to be satisfied with conditions on the farm.

It is influencing the farmer himself in a vital way. Life on the farm with modern conveniences in the house, and with the drudgery taken out of the chores, does not become distasteful as he grows older. He is content to stay out of the "Retired Farmer" class, and to live out his life in the farm home where he can keep his mind and body healthfully occupied and where the benefit of his advice and experience can still be had by the younger workers.

The benefits that electricity brings to the farm home are tremendous. Electric light about the barn is a time saver. The chores can be done after night with ease and dispatch when securing the lights needed is just a matter of snapping switches on and off around at convenient points instead of carrying a lantern, after having taken the time to assure oneself that it is cleaned and filled.

With electric light in the farm buildings it is easy to use all the daylight hours in the field and do the chores after dark.

Then electric power can be used in various ways to lessen the labor of many jobs and often to relieve one of the tasks altogether, as in the matter of running a churn or cream separator, a grinder, feed chopper, grindstone, fanning mill and the like. It is proving quite a boon in the operation of pressure pumps for pumping water for the stock, for sprinkling the yard or garden, for household use, doing away with a lot of hand pumping. It is running milking machines cutting the time of milking in half and doing away with the mighty unpleasant task of milking by hand.

It is running washing machines, saving time for housewives and lightening their work—vacuum sweepers—likewise electric fans—destroying the ill effect of sultry weather and keeping everybody fit for more work and better work.

There is a strong appeal in the possibilities of electricity to the farmer and to those who labor with him. They have been accustomed to accomplish things by the outlay of actual strength, by toil that tries the muscles and oftentimes oppresses the spirit. To be able to accomplish the tasks merely by turning a switch and then watching the mysterious electrical force go ahead and do that task silently, tirelessly, but efficiently and well that has a fascination for the farmer just the same as it has for the man in any other line of business, who realizes that there is a benefit to him in letting a machine do all the work that does not just have to be done by hand.

So we are going to witness—are witnessing—the introduction of this modern force on the farm at a rate that foretells great and helpful changes in labor conditions there with a corresponding benefit to the farmer and to all the rest of mankind whose prosperity depends upon that of the farmer.

An Apt Retort

Mrs. Jackson—"Speakin' ob your husband, Mrs. Wimple, did he evah convey to you dat he done propose to me befo' he married you?"


Mrs. Wimple—"Deed he did not! He was so ashamed ob some ob de figs he did dat I nevah insisted upon a confession."

SERVICE!

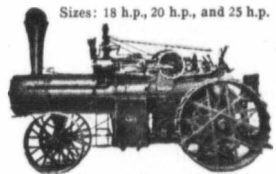
**Purchases of WHITE MACHINERY
Buy WHITE SERVICE**

The success of our customers means success to ourselves. We are with you all the way.

Rebuilt portable and traction engines and separators in stock. Write for descriptive catalogue and price list.

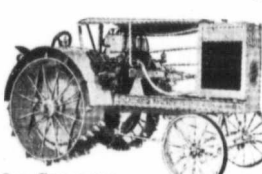


Sizes: 24 x 40, 28 x 46, 32 x 54, 36 x 60.



Sizes: 18 h.p., 20 h.p., and 25 h.p.

IT PUTS THE "OIL" IN "TOIL"



Our Guarantee
This outfit for utility, efficiency and durability cannot be exceeded.

The George White & Sons Co., Limited
BRANDON, MAN. LONDON, ONT. MOOSE JAW, SASK.

GEO. WHITE & SONS CO., LTD., BRANDON, MAN.

I am interested to know what you have in the following goods.

Name

P.O. Prov.

JUST WHAT THE FARMER WITH A GAS ENGINE WANTS The Universal Babbiting Jig for Gas Engine Connecting Rod Bearings



With this Babbiting Jig you can run your own bearings, using your old metal over again, with a small amount of new metal added, and you have a new bearing again. By running these in hot, your metal will always stay tight in its seat and will never get loose, as a die cast bearing does, and break up before it is half worn out. These Jigs are made up in different sizes and widths to fit all leading engine connecting rods on the market. Allowance is made for shrinkage of babbitt when cooling so the bearing will fit your shaft without filing or scraping half of it away.

Note: the two shims centre the Jig and hold it in place, centrally located. All you have to do is to pour the cavity between the Jig and connecting Rod full, unbolt it apart and your Bearing is in place tight. This Jig can be made up to fit any Split Bearing, used on all kinds of Machinery or Shafting, such as used in Power Plants, Factories, or Saw Mills, where forms are used for Babbiting Bearings.

Canadian Patent, June 27, 1916 American Patent, Dec. 5th, 1916
Any infringement on this Patent will be prosecuted to the full extent of the law.

UNIVERSAL SUPPLY CO. 1340 Scarth St., REGINA

TRADE SAWYER MARK

Registered

STITCHED CANVAS BELTING

PLEWES LIMITED Distributors **WINNIPEG**

FOR SALE—Aultman Taylor 30-60 Tractor, kerosene burning and first class condition. Will be sold worth the money, but for cash only. Address Tractor E, Box 3164, Winnipeg, Canada.

FOR SALE—Daisy 32 x 50 Separator, with blower, feeder, and high weigher. All new belts, and 120 ft. 8 in. drive belt, used two days. Complete, ready to run. \$400.00. F.O.B. Botha. Wm. Drewes, Botha, Alta.

GOOD OIL FOR THE TRACTOR

It Will Do a Lot to Reduce Your Engine Troubles

By F. P. Stubbs

TWO successful North Dakota farmers own a 30-60 horse - power tractor of prominent make. Until recently they used in it what is considered a good grade of oil. They were satisfied with the results. They believed they were getting the utmost work and profit for their machine.

Then an oil salesman disturbed their peace of mind. He told them that due to incorrect lubrication they were throwing away money every working day and that he could prove it. He did.

With the brand of oil formerly used the tractor was put to work plowing a 16½-acre field. The crank case of the engine was then drained. The salesman's oil was poured in. Another 16½-acre field was plowed. Both fields were perfectly level. The soil was the same. Conditions were identical. But the results of the tests were not. Here they are:

	Former Oil	Salesman's Oil	Saving with Salesman's Oil
Acres plowed	16.5	16.5	.....
Consumption of oil	32 pts.	12 pts.	20 pts.
Consumption of fuel	35 gals.	28 gals.	7 gals.

A twenty per cent saving in fuel in favor of the new oil was made and a 62.5 per cent saving in lubricating oil!

"Phew!" exclaimed one of the tractor farmers; "let's figure this out." Thereupon it was discovered that the use of the new oil had resulted in an actual money saving of \$2.21 in the cost of plowing the second 16½-acre field.

What made this saving possible? Simply that the oil the salesman recommended for the tractor met the lubricating requirements of that particular make of tractor engine with scientific exactness. The other oil did not. It was a good oil, but not for that engine.

The new oil gave a perfect piston-ring seal. The forces of power and compression were conserved. Maximum power resulted from every drop of fuel used. The faulty oil made a faulty piston-ring seal. Power escaped. Fuel and oil consumption mounted up. Money was wasted.

Unwittingly the tractor owners had been adding to their expense. When they bought their tractor they bought a barrel of oil—the kind made little difference to them. The dealer said it was a good oil. The farmers took his word for it. To both dealer and farmer oil was just oil. It was a case of the blind leading the blind.

The tractor is a heavy, hard-working, slow-moving machine

The Farmer Now Takes His Choice!

THE farmer is coming into his own. Encouraged by good crop conditions, he is reaching out after the comforts that have long been due to him.

This is why so many farmers are buying a

Gillette Safety Razor

They realize that the man who can afford pretty nearly anything that he wants, prefers to shave himself with a Gillette. If men of means prefer a Gillette to being shaved by a valet or barber,—if these men use a Gillette costing five dollars, year after year, in preference to any other razor under the sun, then the farmer knows right well that no matter how much money he spends he cannot get a better razor than a Gillette.

The man who feeds the nation can share with the capitalist, the banker, the statesman and the soldier the luxury of Gillette shaving. He can appear every day with a "velvet smooth" chin. And he will do a better day's work, just because he feels so fit.

How he will enjoy the four or five minutes' session with his Gillette! The keen, rigid edge seems possessed of magic powers to remove the outdoor growth of beard. As one man said, "You have to look in the glass twice to convince yourself the whiskers have gone!"

There is a wide variety of Gillettes from which to select. These are the "Standard", "Bulldog", and "Pocket Edition" models, in a fine range of cases—leather, cloth, silver and gold plated.

You will have no difficulty in locating a Jeweler, Druggist or Hardware Dealer who carries Gillette Razors.

352



GILLETTE SAFETY RAZOR CO. OF CANADA, LIMITED

Office and Factory:

65-73 St. Alexander Street, - MONTREAL.

which tends to run hot and which demands a lubricant rich in quality to enable it to stand up under the excessive heat. The oil must be correct in body for the motor in which it is to be used. All oil is worthless unless it has the correct body to reach all bearing surfaces and is rich enough to supply those surfaces with a protecting film.

The oil must retain its lubricating efficiency under this extreme heat of continued service and not be pressed out of the bearings. It

must form a perfect piston-ring seal to prevent the escape of the fuel charge into the crank case, which deteriorates the oil and decreases the power and miles per gallon of fuel and also results in overheating the engine.

To determine the correct lubricating oil for a tractor requires both scientific study and broad practical experience. Such knowledge and experience the tractor owner does not and cannot have.

There is just one way out. That is for the tractor owner to make

the dealer show him, the authoritative recommendation of a reliable lubricant manufacturer. Don't be guided by price alone. Pennies saved in buying lubricating oil jeopardize your gasoline and kerosene dollars.

The tractor farmer who takes as much care in buying an oil that suits his tractor as he does in buying a tractor that suits his particular needs will harvest more crops, reduce his maintenance cost to a minimum and prevent 50 per cent of his engine troubles.

How the Sparks are made

Furnishing the Electric Current for Engines and Tractors
By FRANK M. WHITE in "Farm Home"

THE ignition system and all its theory need not be thoroughly understood by the average engine operator in order to get the best results. However, the more one knows about the subject, the better he can prevent trouble developing. It is not my intention in this article to attempt to explain all of the ignition details of every ignition system, but rather a few fundamental points with which every engine operator should be familiar.

There are certain fundamental definitions which ought to be known by every one operating tractors. The volt is the measure of electric pressure, just as "pressure" in a steam engine represents the steam pressure in the boiler. The ampere is the unit for measuring the amount of electric current, just as the amount of water which flows through a water pipe in a given unit of time is measured by cubic feet or gallons.

How to Obtain the Electric Spark

Electricity is generated in two ways: Either chemically, as is the case in dry cells and storage batteries, or mechanically, by the use of magnetos and generators.

The dry cell is commonly used for generating the current in the farm type of engine. The amperage of the ordinary dry cell ranges from 25 to 40 amperes. The voltage is 1.5. Since in the average ignition system from six to eight volts are required, one cell will not furnish enough voltage. The voltage can be increased by using several dry cells and connecting them in series, that is, by connecting the positive of one cell to the negative of the other, as is shown in Fig. 1. From four to six cells would be required to furnish six to eight volts.

The capacity and life of the dry cell depend largely on the way it is used. It will last longer if used intermittently. Cells when worn out are of no value. There is no way in which the life of the cell can be materially increased. Cells are ordinarily spoken of as dry cells, while they really are wet cells, as moisture is necessary for the chemical action to take place between the various materials contained in the cell. This action takes place as long as moisture is present or until all of the current is used up. Many receipts are given for reviving wornout cells, but none that I have tried are satisfactory.

You may be told that by puncturing the cell in three or four places and placing it in a solution of sal ammoniac or salt water, it will be rejuvenated. This method should not be depended upon, for cells treated in this manner will last but a very short time.

Dry cells will last much longer if they are kept dry. They should not be placed in a damp place where there is a chance that the paper covers will absorb moisture and set up a circuit between the cells. If it is necessary to locate them in a wet place, it is advisable to imbed them in para-

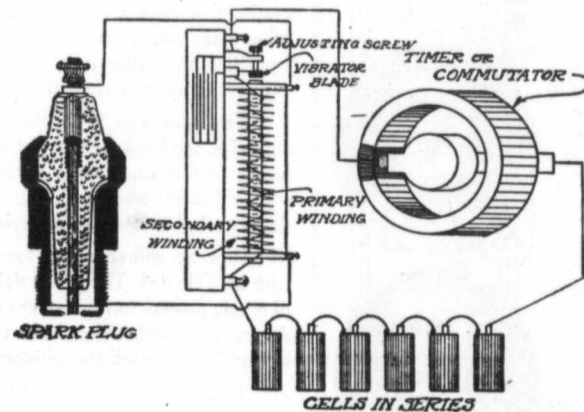


Fig. 1—Sectional parts of Jump Spark Ignition System

ffin. Under this condition moisture cannot escape from the cell and neither will it result in a circuit between the cells.

Storage batteries are not often used in farm gas engine or in tractor ignition work, and therefore will not be considered.

Two Types of Ignition Systems

Ignition systems may be divided into two general types: High tension, commonly called "jump spark" ignition, and low tension, or "make and break" system. The low tension or "make and break" system consists of a movable part electrically connected to the engine and a stationary insulated point. When these two parts are brought together, the circuit is closed, and at their separation a spark occurs that ignites the combustible gas. This system, although very simple electrically, is rather complicated mechanically, and is not suitable for tractor ignition.

The high tension system, or "jump spark" system, is more commonly used in tractor ignition work. In the high tension system it is necessary to understand clearly the principle of the

coil, the plug, and the commutator or timer.

The spark plug, as shown in Fig. 1, consists of a metal shell which is screwed into a tapped hole in the cylinder wall and carries a central point of wire and insulation usually made of porcelain or mica. Spark plugs must be so well made that they are gas tight. The most common trouble with spark plugs is due to carbon forming between the insulated and grounded parts of the plug, thereby forming a short circuit in which case there will be no spark jump from one point to the other.

Clean Plugs Often in Cold Weather

When tractors are burning kerosene, or during cold weather, there are greater chances for misfiring than during the summer season, and consequently the

heavy or primary wire and the core becomes magnetized. The magnetized core then pulls the vibrator over to it, which breaks the electric circuit and, of course, demagnetizes the iron core. This

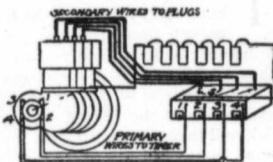


Fig. 2—The Principle of Wiring a Four-Cylinder Motor

breaking, or interrupting, of the current induces a current in the secondary or fine windings. The core soon loses its magnetism and the vibrator returns to its former position. The circuit is again established and the action is repeated. So long as the primary circuit is continued, then there is a vibrating of the vibrator and a secondary current flowing to the spark plug.

The current induced in the secondary windings has a very high voltage. This high voltage is what causes the spark to jump from one pole of the spark plug to the other.

One point which must be carefully kept in mind in wiring an engine is that there must be a complete circuit in order to get a current to flow. If, in wiring an engine, one is careful to trace out the current, there will be less difficulty in wiring. This is not so simple as it might appear when one has many sources of current with the various switches and points of connection which are included in the ignition system.

Wiring a Four-Cylinder Engine

Although the high tension system of ignition, in which batteries furnish the current, is not commonly used on many engines of more than one cylinder at the present time, yet a four-cylinder engine is just as easily wired as one of one cylinder. Fig. 2 shows the method of wiring a four-cylinder engine by using vibrator coils. The current in this case might be generated by a magneto as well as by batteries. The ignition wiring would be identical.

High tension systems appear to be more complicated than low tension, or "make and break" systems. From the electrical point of view they are, but mechanically by the use of the high-tension jump spark ignition system it is possible to avoid the use of any moving parts inside the cylinder. This lessens the mechanical complications, which are more or less likely to give trouble.

Every animal on the place should be your friend. If the critters run when they see you coming, you have mistaken your calling.

Cleveland Tractor



A Tractor That Does The Things You Want a Tractor To Do

The Cleveland Tractor is not confined to a narrow field of service. It does the things you want a tractor to do.

It plows, it harrows, it plants, it reaps. Its great power and small size enable it to work satisfactorily in difficult, awkward places. It works efficiently under and among small trees, close up to fence corners, around boulders, on hillsides, over ditches, gullies and rough ground.

With 600 square inches of traction surface, it goes through sand, gravel, gumbo, mud and even wet clay without packing the soil.

The Cleveland Tractor lays down its own tracks, crawls on them, and picks them up again as it goes along—just like the famous war "tanks."

It does *faster* and *better* work than was possible before. It plows $3\frac{1}{2}$ miles an hour—eight to ten acres a day—equal to

the work of *three* good men with *three* 3-horse teams under favorable conditions.

But the Cleveland is *far more than just a tractor*. With pulley and belt, it will saw, cut ensilage, pump—and do the things you demand of a stationary engine.

In addition it can be used for hauling the manure spreader, for grading, dragging logs and pulling road machinery.

It develops 12 horsepower at the drawbar and 20 horsepower at the pulley. Yet with all this power the complete machine weighs less than 3200 pounds, and can be housed in less space than is required for a single horse.

Rollin H. White, the well-known engineer, designed the Cleveland Tractor. It is built under his personal supervision, and is constructed for long service. The track sections are joined with hardened steel pins which have their bearings in hardened steel bushings. Gears are protected by dirt proof

cases and are of the same high quality as those of the best trucks. The finest materials are used throughout.

Farming today demands the most comprehensive machinery obtainable—machinery that is useful in doing *many* different things—machinery that is adaptable to widely varying conditions.

Thousands of farmers are looking to the Cleveland Tractor in the present crisis. And the Cleveland is meeting the demands—severe as they are—and is *making more money* for its owners.

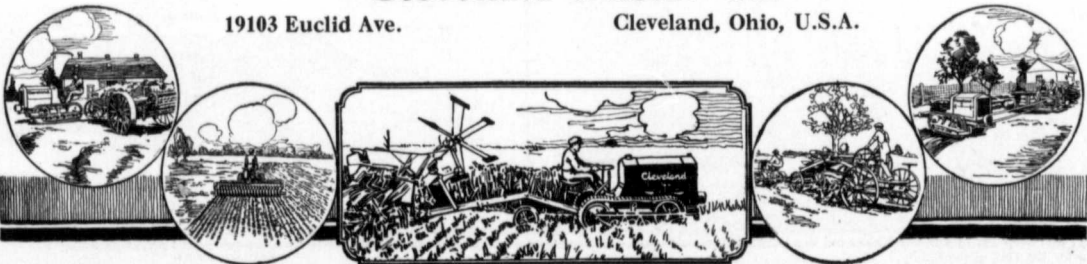
It is truly the tractor that does the things you want a tractor to do.

Nearly every farm can use one or more Clevelands to speed up production and cut down costs. Write *today* for complete information and the name of the nearest Cleveland dealer.

The Cleveland Tractor Co.

19103 Euclid Ave.

Cleveland, Ohio, U.S.A.



Tractor Experience in Western Canada

A BIG ARMY OF TRACTORS THE ONLY WAY

Masonville P.O., Sask.,
Feb. 18, 1918.

Dear Sir:

YOUR letter to hand asking me for information about my tractor. I regret this letter only just arrived.

I have a 20-40 H.P. Case tractor, but only purchased this engine last fall, so have not had much experience with this make at present. The engine pulls in backsetting a 5-furrow Cockshutt Gang with ease on level ground, plowing from five to six inches deep, but when mounting steep hills it is often necessary to lift one plow.

My farm is chocolate loam, and is quite rolling and also stony, but I find this stony land is not as hard to plow with an engine gang as with a horse sulky plow. When a bottom strikes a stone it either pulls the stone out or lifts it over.

I think it is very essential to have a plow with independent bottoms for stony land. I also pull two sections of harrows behind the plow.

Last fall I ran the outfit by myself and found 10 acres a day to be a good day's work. With new set of shares to be replaced daily, the grease cups and tanks to be filled kept me busy.

This year I hope to break up some 300 or 400 acres, and I think it will save money and much labor to plow with the engine, with oats worth around a dollar a bushel and labor very scarce; in fact, it would be impossible to break up this amount of land with the horses I now have.

I, however, intend to do all the seeding, discing and harrowing with horses. I don't like to run

an engine over the land after plowing, the wheels pack the ground too much and the low places are often wet, also this soil being gritty, it is very hard on the engine gears to run over loose soil, also the horses must have some work to do through the summer.

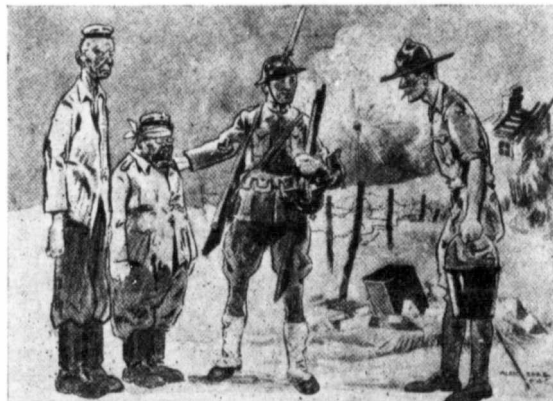
I think this engine uses about 25 gallons of gasoline, or 30 gallons of kerosene to plow and harrow 10 acres, and about 2 gallons of cylinder oil. I have not tested this accurately—the ground here was very dry last fall and hard to plow.

With past experience I am sure it pays to get a cylinder oil with a high fire test. To use a poor quality of cylinder oil is very injurious to the engine, the piston head soon becomes coated with charred oil and the rings stick in the grooves. I drain the oil out of the crank case every day and use this for the gears.

I think at the present time when increased acreage is needed so quickly, anyone who has vacant land and cannot plow it with his present outfit, it is his duty to have it broken up this coming summer either by having it done with a tractor or buy one himself to do it. With wheat at \$2.20 a bushel one should not hesitate at all about investing in a tractor if by so doing he can appreciably increase his acreage.

I think the only way Canada can quickly increase her production of cereals is by using large numbers of tractors to break up the vacant prairie sod. Horses can soon cultivate the soil once it is broken.

The kerosene tractor in my opinion is always ahead of the steam engine at the present time,



"Say, Ed, keep yer eye on the Kaiser an' the Crown Prince, will ye? I'm goin' back arter the rest o' the family."

Heavy Fields at Brandon Proved to Hundreds of Farmers the Power of the

Hart-Parr Tractor

Prompt
Delivery
Guaranteed



Kerosene Burning

Pulled Four Bottoms the First Day, and Three on High Gear After the Heavy Rainstorm

The power of the Hart-Parr Tractor was demonstrated to the satisfaction of hundreds of farmers at the Brandon Fair. It had no trouble at all to pull three bottoms seven inches deep under conditions that farmers agreed made a severe test.

It has Reserve Power for Hard Spots, Heavy Soil and Hard Work

The Dray Kerosene Shunt is an exclusive feature with the Hart-Parr that enables it to develop more power than any other tractor its size, and more power than any other tractor for fuel consumed; this proves its fuel economy as well as its giant power.

Don't buy a tractor till you have learned all about the Hart-Parr. Write to-day for full details.

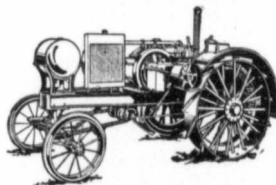
Hart-Parr of Canada, Limited

WINNIPEG SASKATOON REGINA CALGARY

Even in the heavy soil and mud at Brandon Plowing Demonstration the

WATERLOO BOY TRACTOR

ONE-MAN
KEROSENE



—was unequalled for efficiency. It proved its dependability for working in any kind of weather and on any soil.

There is no doubt about the satisfaction you will get from a Waterloo Boy Tractor at both belt and drawbar.

Write for Descriptive Folder.

Eliminate waste in threshing with an

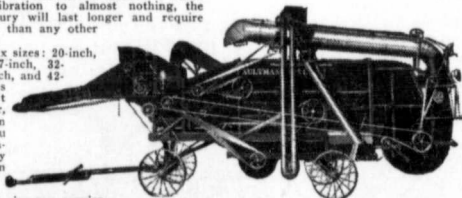
Aultman & Taylor New Century Separator

The New Century will save every bit of grain. Its famous Universal Rotary Straw Rack gives it double the separating capacity of any other type of rack—big catalog tells all about it, send for one.

Because of the scientific construction which reduces vibration to almost nothing, the New Century will last longer and require less repair than any other separator.

Made in six sizes: 20-inch, 23-inch, 27-inch, 32-inch, 36-inch, and 42-inch, there's

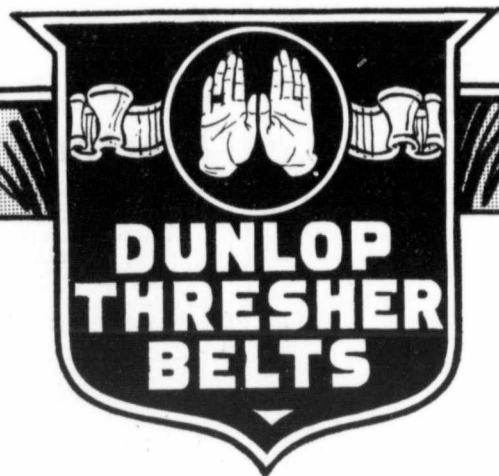
a size to fit your power, or we can supply you with a Waterloo Boy or Aultman & Taylor engine to operate the size you require.



Waterloo Boy Kerosene Tractor of Canada, Limited

WINNIPEG

We carry in stock a full line of repair parts for Aultman & Taylor Tractors and Separators.



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 "Prairie" is unsurpassed. The whir of the machine is continuous wherever this belt is employed.

"Prairie" and "Reliance" (Rubber-Covered and Stitched)

Dunlop "Reliance" is a second choice for threshing work. Although this belt is of a slightly lighter construction than Dunlop "Prairie" it is a thoroughly dependable article, and because of its many merits is largely represented in the Prairie Provinces.

It is needless to say that both of these belts are especially designed. They have to be to deliver that unflinching service which hundreds of

threshing machine owners in every agricultural community have been receiving from them.

If your preference is for a Frictioned-Surface belt you will find our high-grade "Gibraltar RedSpecial" to be unexcelled.

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 Co., Limited

HEAD OFFICE AND FACTORIES: TORONTO

BRANCHES: Victoria, Vancouver, Edmonton, Calgary, Saskatoon, Regina, Winnipeg,
London, Hamilton, Toronto, Ottawa, Montreal, St. John, Halifax.

MAKERS OF TIRES FOR ALL PURPOSES, MECHANICAL RUBBER PRODUCTS OF ALL KINDS AND
GENERAL RUBBER SPECIALTIES.



as a steam outfit takes more men to operate and kerosene is much easier to haul than coal and water.
Yours truly,
H. G. Cole.

A LOYAL CANADIAN FROM "THE KAISER'S LAND"

Othton, Sask., Jan. 28, 1918.

Dear Sir:

I BEG to submit herewith a statement of my experiences with our farm tractor—the 15-30 h.p. Rumely Oil Pull with a 6-bottom Rumely engine gang, which we have operated for two years; also the Rumely or Advance Rumely 28-cylinder separator.

This combination has given us good satisfaction, but the time we were able to operate the outfit was too short each year, on account of the land being too wet in the early spring; and as depreciation and interest on the investment must be charged to the work it performs the cost of same will be higher than a fair average would make it.

Our land is a black sandy loam. Last spring was too wet for engine work, and towards the end of seeding time we plowed 40 acres. Since buying this outfit we haven't reduced the number of working hours, as we need them in a wet year, so we make use of the horses also when plowing with tractor. One 4-horse team follows the plows with a 4-section harrow; another 4-horse team with the seeder, and another one with the land packer.

Spring plowing is done 4 inches deep, summerfallow 6 inches, and fall plowing 5-6 inches. The plows were used this summer 20 days, including brush breaking, which was done with one 24-inch brush breaker.

The cost of stubble plowing, summerfallow and fall plowing per acre is as follows:

Coal oil at 22 cents per gallon and some gas	\$3.70
Cylinder oil at 58 cents per gal. . . . .	.58
Gear oil at 62 cents per gal. . . . .	.31
Sharpening plowshares . . . . .	.25
Depreciation and interest on investment	3.86

Total per acre

The land plowed was half a mile long, some parts only 80-100 rods. Two men ran the outfit. The brush land plowed with a 24-inch brush plow was covered with poplars and willows; the patches not more than 40 rods long, and some of it not even as long. The brush of the size from 2-inch diameter up was cut close to the ground and removed before plowing; all the smaller stuff was plowed under.

The plowing was done 8 to 10 inches deep. After plowing, lots of the stumps were on top and were removed, and with the common 4-horse disc harrow worked down to a fine seedbed.

Cost of this plowing per acre is as follows:

Coal oil at 22 cents per gallon and some gasoline	\$ 3.30
Cylinder oil at 58 cents per gal. . . . .	.58
Gear oil at 62 cents per gal. . . . .	.31
Cooling oil at 60 cents per gal. . . . .	.15
Sharpening plowshare .....	.25
Depreciation and interest on investment	3.36

Total per acre

Two men also ran this outfit.

Grain threshing—We run an Advance-Rumely 28-48 Separator in 20 days, while running the outfit. Our average daily work was 600 bushels and 1,000 bushels oats, with an additional few bushels barley. I have no record of acres cleaned off, but the yield was rather low, in rough figures will say about 15 bushels wheat per acre and 30 oats.

The average daily cost is as follows:

35 gallons coal oil	\$ 7.70
1/2 gallon gasoline .....	.19
2 1/2 gallons cylinder oil	1.30
1 gallon cooling oil .....	.90
1 gallon gear oil .....	.02
Depreciation and interest on investment	9.18

Total daily cost

Two men also ran this outfit.

I reckon 10 per cent depreciation and 8 per cent interest on the investment and divide the results with as many days as the outfit has worked. The granaries on our farms are 12 x 14 and 14 x 16, built on two runners of 4 x 6 timber projecting 2 feet on either end, so that the engine may be hitched on the end most convenient to go forward. Such buildings are most satisfactorily moved with a tractor.

We place the granaries in the fields so as to thresh from 1,000 to 1,500 bushels grain into one with the shortest haul of stooks possible.

Excuse my poor language and spelling, for I never received instruction in this land of how to write and read.

You will notice by this scribbling that I some time came from the Kaiser's land.

Yours truly,
Conrad Beck.

A PAYING PROPOSITION

Cavendish, Alberta, Jan. 23, 1918.

Dear Sir:

I HAVE had great success in traction cultivation, etc., this year, doing all the work with the tractor, and doing the hauling of oil, water, seed, grain, etc., with my car, using no horses whatever. In fact, I haven't a head of stock on my farm.

I own and operate alone a 10-20 Titan tractor and a 20-30 New Racine Separator complete, and have threshed about forty days now.

Last spring I drilled 170 acres, pulling a 20 marker drill, single disc (McCormick), two sections of heavy lever harrows, (McCormick)

The Gray Tractor

Did you see it at Brandon?

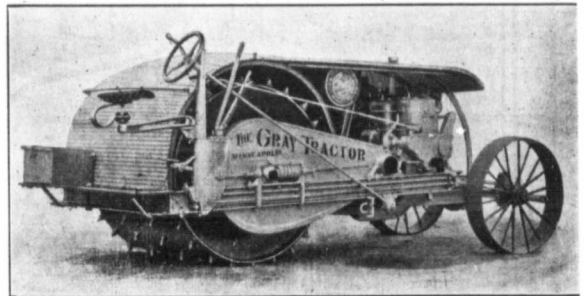
Despite the rain the Gray did its work perfectly pulling four plows easily with power in reserve.

"With the Wide Drive Drum"

Every feature of the Gray is high class—built for Wear, Strength and Service. Its unique construction with the wide drum guarantees perfect traction and no ridging or packing of soil.

SPECIAL GRAY FEATURES

Turns in small radius, yet it has no differential—this takes away half your Tractor troubles. Has 3-point suspension on frame. The only Tractor with the side arm hitch. All working parts are covered and run in Oil. Waukesha 4-cylinder Motor. Timken & Hyatt Roller Bearings—everything of the highest standard. Weight, 6,200 lbs.

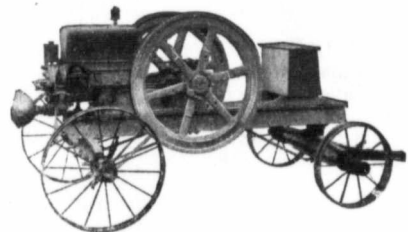


WRITE FOR BOOKLET

Gray Tractor Co. of Canada Limited
307-309 Electric Railway Chambers WINNIPEG

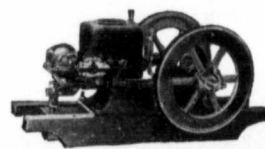
Alberta Distributor

M. D. PEEVER, 24 Mason & Risch Block, 8th Ave. W., CALGARY



Portable and Stationary Throttle Governed Kerosene Engines

In all sizes, suitable for small Separators. Fitted with Webster Self-starting Magneto. All Portables furnished with Heavy Steel Trucks. Sizes, 7, 9, 10, 12 and 14 H.P. Longer lived and more efficient than high speed small tractors.



1 1/2 H.P. Gasoline Engine

1 1/2 H.P. Gasoline Engine with Webster Self-starting Magneto; Speed Changing Device, etc. Simple, Reliable and Durable. Easily started and operated in Winter and Summer. If you haven't a Pumping Outfit you should have one installed before Harvest and Threshing commences.

ORDER DIRECT, OR HAVE YOUR DEALER ORDER ONE TO-DAY; WITH ONE OF OUR DOUBLE-GEARED PUMPING JACKS.

Full Additional Information and Prices on Request

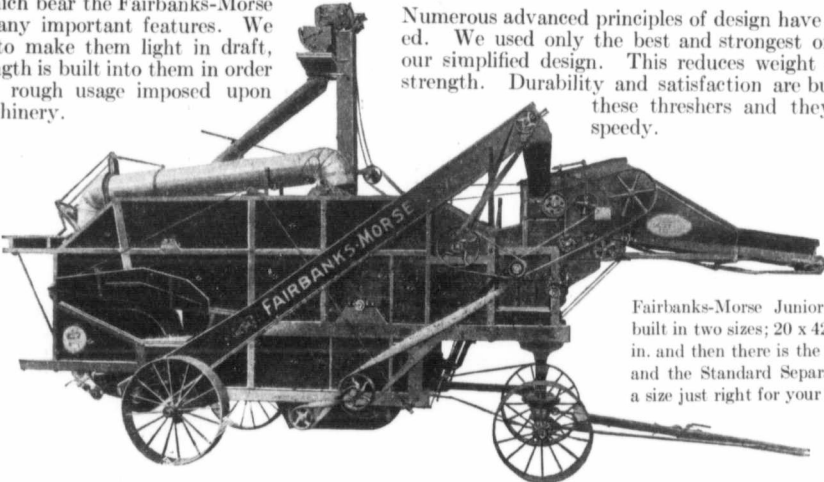
Phone 2943

MANITOBA ENGINES, LIMITED BRANDON, MAN.

SAVES ALL THE GRAIN

Separators which bear the Fairbanks-Morse name have many important features. We have sought to make them light in draft, yet great strength is built into them in order to withstand rough usage imposed upon threshing machinery.

Thorough cleaning and threshing without waste—whether the grain is loose or bundled, long straw or short, good weather or bad—that's the money making ability that is built into every Fairbanks-Morse separator.



Numerous advanced principles of design have been employed. We used only the best and strongest of materials in our simplified design. This reduces weight and increases strength. Durability and satisfaction are built right into these threshers and they are mighty speedy.

Fairbanks-Morse Junior Separators are built in two sizes; 20 x 42 in. and 24 x 46 in. and then there is the Tractor Special and the Standard Separators. There is a size just right for your size tractor.

There's a difference between Fairbanks-Morse Separators and ordinary grain threshers. In the Fairbanks-Morse Separator the straw is shaken, thrown up, struck from beneath, and driven forward. No deck ever devised could so thoroughly free the grain, yet this unequalled grain saving separation is secured in the simplest possible manner.

The large steel beater is located in Fairbanks-Morse Separator in such a position as to effectually check the straw upon leaving the cylinder, the straw being spread evenly over the entire width of the deck.

In this operation it is so thoroughly agitated and picked over that any grain still amongst the straw is almost perfectly separated.

The straw deck is built in two sections, hinged together and carried by bails at either end. Is operated directly by a crank shaft which gives the deck four distinct motions—up, down, forward and backward. The effect is to so thoroughly toss and tease the straw that every possible kernel is removed. The action of the rear bail in conjunction with the crank causes the speed of the straw to be increased as it travels the triangular slats and fish backs, which

compose the deck. This, of course, spreads the straw thinly, pulls it apart and completes the most perfect separation that could be obtained.

Hundreds of farmers are now buying these threshers. Their great success has been the result of one thing—they are right threshers. Fairbanks-Morse principles of construction and Fairbanks-Morse performance have never been equalled.

There's a Fairbanks-Morse dealer in your neighborhood. Place your order with him to-day.

WALLIS

A Big Powerful Tractor, Yet Light in Weight

In the Wallis tractor you will find many advanced ideas in tractor building. For example, Wallis was the first to enclose oil running parts of the transmission including the master gears. In a tractor it is especially necessary to enclose the final drive because of the hard work which these gears have to do. They must be protected from the wear of dust and dirt. In the Wallis Tractor not only are all of the transmission gears enclosed, but all the gears of the tractor are enclosed perfectly protected and run in oil.

This feature alone which adds years to the Tractor's service, would have made the Wallis

famous in design and performance. There are, however, many other equally advanced features in the Tractor. For example; the "U" frame construction of boiler plate save a lot of unnecessary weight by doing away with all "I" beams, braces, counter braces, etc.

The Wallis wheel is a notable feature of this tractor. By its design one-third of the weight of the average wheel is saved, and at the same time strength is added to this member.

These ideas in design and construction explain why the Wallis is years ahead of its time.

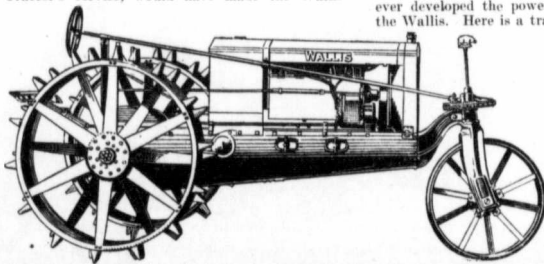
No other tractor of equal weight or price has ever developed the power, speed or durability of the Wallis. Here is a tractor weighing little over

3000 pounds, which delivers at the draw-bar 74 per cent of the power developed—according to the tests by the Hyatt Roller Bearing Company. This means that 74 per cent of the power generated from each gallon of fuel is delivered at the draw-bar ready for work. In most tractors, only 50 per cent or 60 per cent of their power is used for work, because 40 per cent or 50 per cent is consumed in transmission losses and power required to propel their heavy weights. Consequently from each gallon of fuel, the Wallis Tractor gives practically 50 per cent more pulling power than the average tractor.

The Wallis is not a small tractor, but a big powerful tractor in condensed form.

AN UNUSUAL CATALOG

Our catalog illustrates in detail every part of mechanism of the advanced type of machinery. It will give you a standard by which to judge all tractors. We will send you a copy on request.



The Canadian Fairbanks-Morse Company, Limited

SASKATOON

WINNIPEG

CALGARY

mick), and a sixteen wheel I.H.C. packer, all at one time on high speed, with good success, as the job was all done at once conserving all the moisture possible.

After the spring work, I broke 300 acres of sod, pulling a three bottom 14in. P & O Gang Plow, and plowed about 40 acres. I have also plowed as high as 12 acres a day, several times from four to five inches deep.

The land here is not too heavy and not too light.

I figure about a \$1.00 per acre for expenses using kerosene.

I moved a 12 x 14 granary over a mile through plowed ground and sod.

I moved my separator over two miles through a foot of snow.

I pulled two McCormick 8ft. discs with tandem or 32ft. of discs and dived 30 acres four times.

People say I have got the best outfit in the country.

My engine has lots of power to run my separator. I have threshed all kinds of grain, and can put more grain through my separator any day than either of two 24in. separators that are in my neighborhood.

An outfit like mine is a paying proposition if it is run right and taken care of.

Yours truly,
H. D. Francisco.

GOOD ADVICE FROM ONE WHO HAS TRIED

Bechar, Sask., Jan. 24, 1918.

Dear Sir:

MY tractor is a 10-20 International Harvester Co. Titan. It has been used for plowing, discing, cultivating, road grading, hauling wagons, and for threshing.

It pulls with ease, on high gear, a four disc Emerson Automatic Lift Plow, at a depth of seven inches. The soil is a heavy clay loam, and was stubble, having had two crops taken off subsequent to summer-fallowing. It averaged three gallons of kerosene per acre and slightly over a gallon of lubricating oil per ten acres. Ten acres is considered a day's work, but requires steady travelling. With this machine's kerosene container filled, it will pull the plow for slightly over twelve miles.

In discing, a two 10ft. disc harrow, pulled either abreast or one following the other, is an easy load, and it has pulled a three-section harrow behind the discs when double discing, and does 30 acres a day.

Cultivating—It will haul two 7ft. cultivators with five sections of harrows behind, doing 40 acres per day. When discing or cultivating it uses about twenty gallons of kerosene per day, and a

little over a gallon of lubricating oil.

In road grading it is very successful, providing the ditch is not too deep, but as this engine has a very short front axle it will not work in a ditch. It must be level or reasonably so.

It is a wonder in mud and water, and has pulled two wagons through a marsh when the water came nearly into the wagon boxes. Have driven it for two miles through water from six inches to two feet deep. Of course, the extension mud lugs were on while doing it.

It also ran a 24-32 Geiser Separator, threshing 750 bushels of wheat per day at a very small cost. Excluding the usual running expense of the farm, it cost \$110.00 to thresh 5,000 bushels of wheat. The \$110.00 was for extra help and oil. The horse feed saved by not having a large outfit was a big consideration. After threshing, a team and man raked the stubble, and it took ten hours to thresh the raking, the usual farm crew only, doing it, and the proceeds of the rakings were \$179.75. This is usually wasted as a large outfit would not stop to thresh such a small thing as a few loads of rakings.

The repair expense for the season was practically nothing.

My opinion is that a small tractor is a necessity on a farm of a section. It will not displace horses, of course, but the horses on a farm where a tractor is kept have a good easy time, take less feed, are always in good shape, and are never tired out on a hot sultry day. Of course, I do not believe in working summer-fallow with an engine after it is plowed unless the ground is very dry. Even the smallest tractors leave wheel marks which are more or less detrimental. The horses are the ideal outfit for that work. Neither do I believe in using a ten-horse tractor on a two or four-horse job while the horses are in the stable. From observation, I believe that a larger than a ten or twelve-horse-power tractor (at drawbar) is too heavy for a heavy clay loam soil.

In conclusion, a tractor will not displace more than four horses on a section, but it will add fifty per cent more power to a section of land than the usual twelve horses kept, make the horses work easier and there will be fewer horses to winter.

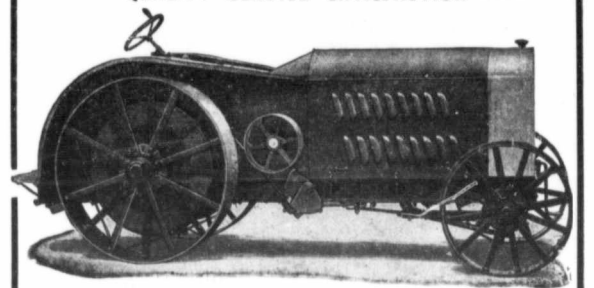
Yours truly,
G. W. Stewart.

A pound of alfalfa in the field is worth a ton on the face.

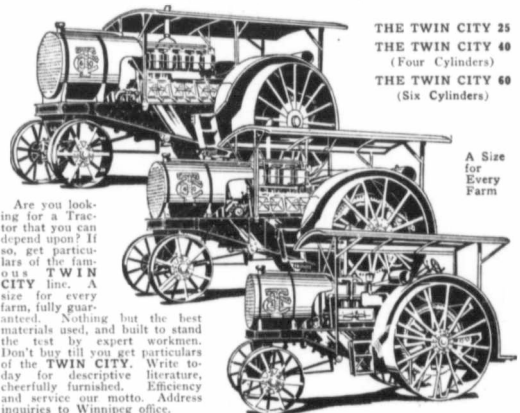
The hens, as usual, will do the laying this fall, while the roosters attend to the publicity department.

TWIN CITY KEROSENE TRACTORS

QUALITY—SERVICE—SATISFACTION



THE TWIN CITY 16 (Four Cylinders)



THE TWIN CITY 25
THE TWIN CITY 40
(Four Cylinders)
THE TWIN CITY 60
(Six Cylinders)

A Size for Every Farm

Are you looking for a Tractor that you can depend upon? If so, get particulars of the famous TWIN CITY line. A size for every farm, fully guaranteed. Nothing but the best materials used, and built to stand the test by expert workmen. Don't buy till you get particulars of the TWIN CITY. Write today for descriptive literature, cheerfully furnished. Efficiency and service our motto. Address inquiries to Winnipeg office.

Minneapolis Steel & Machinery Co. of Canada, Limited

REGINA WINNIPEG CALGARY

Built Like The Big Fellow

THE secret in buying a small thresher is to know and choose the one that is built like the big custom thresher—the big fellow that after years of long service and rough usage still hums along every fall, and turns out the usual clean, perfect job.

Its mate is to be found in the Lister, for it is mechanically perfect—just like the old boy only smaller. We followed him in every detail—used the same materials and followed the same design in construction, only reduced the size—that's all. But to do away with all vibration we mounted the Lister on a six wheel truck.

To-day Lister threshers are dotted all over the country. Farmers having heard of past records of performance, placed confidence in Lister threshers when buying. So will you if you investigate carefully and choose a thresher from its past records.

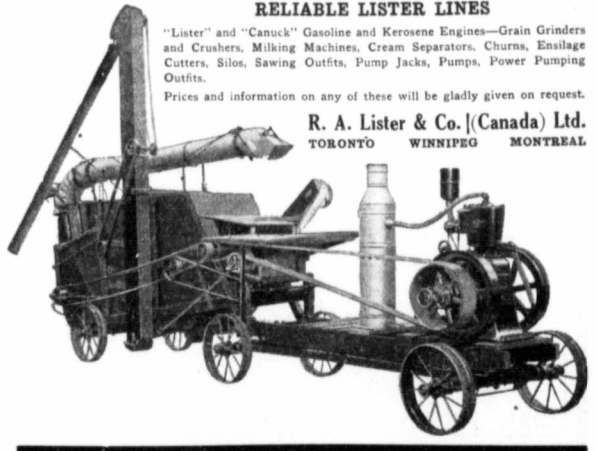
Lister threshers are built in two sizes—22x36-in., and 26x42-in. You can buy them separately or mounted on a six wheel truck powered by a Lister or Manitoba Engine. Send in your order to-day and get your outfit on the job ready for action just as soon as your grain is cut.

RELIABLE LISTER LINES

"Lister" and "Canuck" Gasoline and Kerosene Engines—Grain Grinders and Crushers, Milking Machines, Cream Separators, Churns, Ensilage Cutters, Silos, Sawing Outfits, Pump Jacks, Pumps, Power Pumping Outfits.

Prices and information on any of these will be gladly given on request.

R. A. Lister & Co. (Canada) Ltd.
TORONTO WINNIPEG MONTREAL



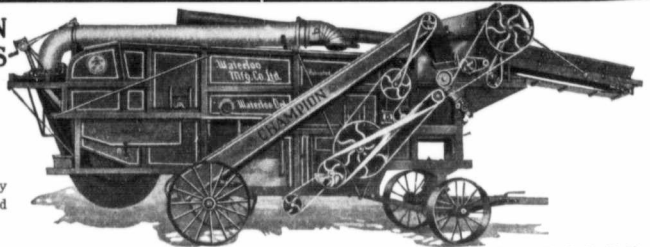
"WATERLOO" CHAMPION SEPARATORS

Steam Engines and Heider Tractors
Kerosene Tractors

ALL SOLD UNDER A WATERLOO GUARANTEE

These well known lines of machines are built in sizes to suit every farm. A full stock of machinery, repairs and threshing supplies on hand at all our branches.

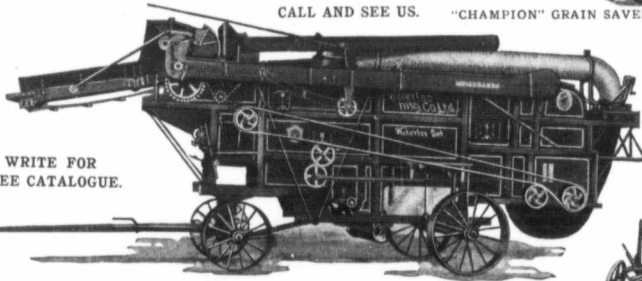
CALL AND SEE US.



"CHAMPION" GRAIN SAVERS can be furnished in following sizes: 20x36, 24x36, 24x42, 28x42, 33x52, 36x56, and 40x62.

The Name, Waterloo "CHAMPION" is an absolute assurance of dependability and long service. Grain, time and money savers. Delivers the grain in marketable shape in the sack. Will handle any kind of grain perfectly, quiet in operation, easily adjusted, well balanced, free from vibration. Every part is guaranteed to give our customers perfect satisfaction.

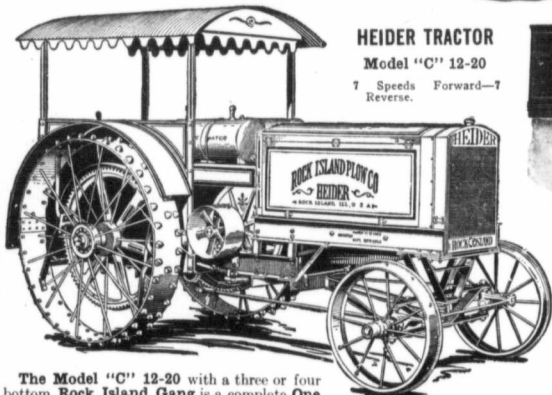
WRITE FOR FREE CATALOGUE.



HEIDER TRACTOR

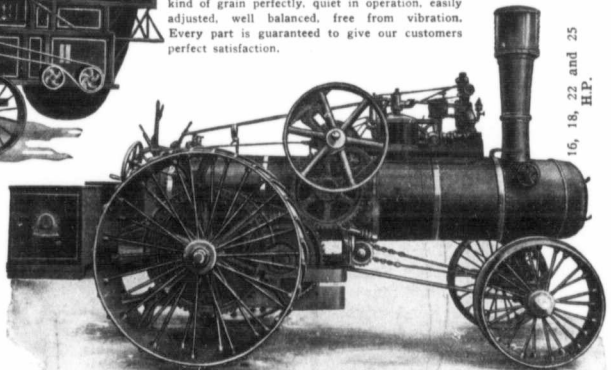
Model "C" 12-20

7 Speeds Forward—7 Reverse.



The Model "C" 12-20 with a three or four bottom Rock Island Gang is a complete One Man Outfit. It also has ample power to drive our smaller size Champion Separators.

TRACTOR FEATURES
4 Wheels—4 Cylinders.
7 Speeds Forward—7 Reverse.
Special Friction Transmission.
Less Gears—Less Trouble.
Simple—Durable—Economic.
Heavy Duty Waukesha Motor.



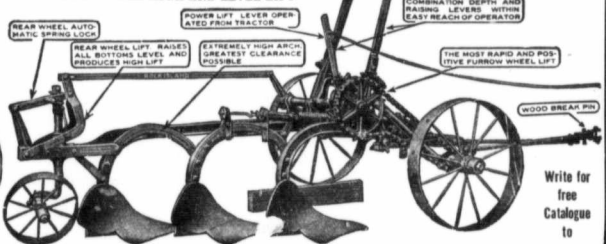
16, 18, 22 and 25 H.P.

"WATERLOO" STEAM ENGINES are simple and economical and are built to conform with the statutes of the different provinces.

The cost of operating is less than the upkeep of horses for doing the same amount of work—when idle it takes no feed.

Front Furrow Wheel Lift Tractor Plows

NOTICE THE HIGH AND LEVEL LIFT



Rock Island

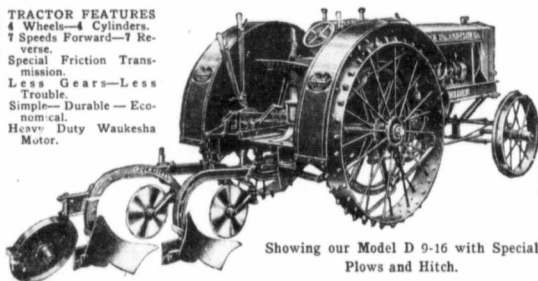
"CTX" Bottoms

2, 3, or 4 Bottoms

COMBINATION BOTTOMS AND RAISING LEVERS OFFER EASY REACH OF OPERATOR

THE MOST RAPID AND POSITIVE FRONT WHEEL LIFT

Write for free Catalogue to



Showing our Model D 9-16 with Special Plows and Hitch.

The Waterloo Manufacturing Company, Limited

Regina, Sask.

Portage La Prairie, Man.

Saskatoon, Sask.

ARE YOU USING WILD FRUITS?

FRUIT is going to be scarce this year. Winter was hard on fruit trees and the small fruits have not been plentiful so far. In England the crop for jam making is also reported short, and the soldiers require vast quantities of jam. People who live near wild berry patches should make a point of picking all they can. Get the children out in the berry patch. Wild raspberry jam and wild blueberry jam are two great Canadian delicacies. Use wild

fruit and there will be more tame fruit for the canneries to ship as jam to the soldiers.

CAN ALL YOU CAN

IT would be a thousand pities to produce vegetables or fruit in response to the War Garden appeal and then have more on hand than could be used so that quantities would perish. All surplus vegetables over immediate requirements should be canned, dried, and stored away, for winter will follow a season of

plenty and all the world will be short of food.

SUBSTITUTES FOR WHEAT FLOUR

BAKERS, confectioners, public eating places and private households must use one pound of substitutes to every nine pounds of wheat flour, until further notice, according to Canada Food Board's order issued July 13th. The order which was to have gone into effect on July 15th increasing this proportion of substitutes in Eastern Canada has

been deferred until further notice, owing to the limited supplies of substitutes for wheat flour at present available in Canada.

The use of a label "Victory Bread" upon bakers' loaves has been made permissive, not compulsory. Police authorities whose duty it is to enforce the food laws have been notified.

A handsome lawn in the country is quite as attractive as one in town, and when you want to sell your farm it makes a big difference in the price.

YOUR "BIT" IS STILL NEEDED

THE reports as to the harvest in Canada this fall are conflicting, but it is clear that there will be need for harvest labor from the towns and cities in all the provinces. In view of the dependence of the Mother Country and Allied Europe upon Canada and the United States for foodstuffs, it is to be hoped that every Canadian will consider what are the essential industries and whether the work that each as an individual is now doing is of such supreme importance as to predominate over the vital national duty of producing foodstuffs.

Allied Europe at the beginning of this year was said to have been short 500,000,000 bushels of wheat and over 100,000,000 head of live stock. What figures like these mean may be seen by contrasting the figures of Canada's 1917 wheat crop, the total of which was 233,742,150. The total importations into Allied Countries of the crops of 1916-17 (ending March 31st) was 570,000,000 bushels. From last year's crop the United States had very little wheat for export and her surplus, above normal consumption, was exhausted in December, 1917.

What about the crop of 1918? The Allies are still dependent upon North America for very large supplies of essential foodstuffs and it is important that no part of this year's harvest be lost because of labor shortage. The new harvest is now the one supreme crisis at the door of every non-combatant in the Dominion of Canada. Substitutes for wheat have to be produced in the non-wheat producing fields of the eastern provinces. Feed for livestock is one of the great concerns of the east. The dairy industry must be carried on to its full extent. We must ship our wheat and live as much as practicable on substitutes. With our scattered population we cannot possibly produce all the wheat that is required in spite of the vast wheat-producing possibilities of the west.

The labor supply in Canada has been depleted to the extent of nearly half a million men by the army, and further by the war industries. Farmers themselves, have been obliged by military necessities to forsake the furrow for the trenches. Those that remain have partially to depend on assistance from the towns and cities to save this coming harvest. Those who promised to help in this work of national necessity by going upon the land, or taking the place of someone else who is better able to do so, should take their promises on the registration card literally, arrange their affairs



SAVE MONEY ON Thresher Belts

Every Belt Guaranteed

ENDLESS CANVAS DRIVE BELTS

No. 5K2—Our "Reliable" Belts are the heaviest and most durable offered. They are made of full weight 32-oz. duck. Every Belt is guaranteed. All endless belts are 3 feet shorter than stated length on account of material required to make splice.

30 ft., 5 in.x4 ply ...	\$13.50	120 ft., 8 in.x4 ply ...	\$72.00
30 ft., 6 in.x4 ply ...	16.50	120 ft., 8 in.x5 ply ...	84.00
60 ft., 6 in.x4 ply ...	30.00	150 ft., 7 in.x3 ply ...	92.00
75 ft., 7 in.x4 ply ...	42.50	150 ft., 8 in.x4 ply ...	92.00
100 ft., 7 in.x4 ply ...	50.00	150 ft., 8 in.x3 ply ...	105.00
100 ft., 7 in.x5 ply ...	70.00	150 ft., 8 in.x6 ply ...	142.00
100 ft., 8 in.x4 ply ...	65.00	160 ft., 8 in.x3 ply ...	125.00
100 ft., 8 in.x5 ply ...	75.50	160 ft., 9 in.x3 ply ...	138.50
120 ft., 7 in.x4 ply ...	67.50	160 ft., 9 in.x6 ply ...	167.50
120 ft., 7 in.x5 ply ...	74.00		

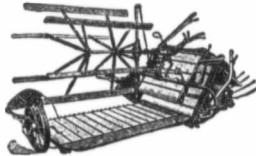
ENDLESS RUBBER DRIVE BELTS

No. 5K9—We offer this Belt to the Thresherman on its merits, as there is no better Endless Rubber Belt made. The kind of a Belt mostly sold with new threshing outfits. Our price saves you at least one-third. They are made of the best of materials and workmanship. We guarantee these Belts to give good service, and to stand up under a load as long as any Endless Rubber Threshers' Belt manufactured.

100 ft., 7 in.x4 ply ...	\$58.50	150 ft., 7 in.x5 ply ...	\$106.00
100 ft., 7 in.x3 ply ...	75.00	150 ft., 8 in.x4 ply ...	107.50
100 ft., 8 in.x4 ply ...	78.50	150 ft., 8 in.x5 ply ...	120.00
120 ft., 7 in.x3 ply ...	87.50	160 ft., 9 in.x3 ply ...	165.00
120 ft., 8 in.x3 ply ...	97.50		

BINDER CANVASES--BEST QUALITY

CONVEYOR CANVASES FOR BINDERS. COMPLETE ASSORTMENT FOR ALL LEADING MAKES.



No. 9 HIS--BINDER CANVASES. MASSEY-HARRIS

No. 3 Binder

No. 81106--Upper Elevator 50x 84	\$7.35
" 81107--Lower Elevator 53x 88	7.50
" 81109--6 ft. Platform 41x138	8.50
" 81110--7 ft. Platform 41x162	9.00
" 85033--8 ft. Platform 41x188	9.50

No. 4 and No. 5 Binder

No. 81106--Upper Elevator 50x 84	\$7.35
" 81107--Lower Elevator 53x 88	7.50
" A1200--6 ft. Platform 39x138	8.35
" A1201--6 ft. Platform 39x162	8.75
" A5013--8 ft. Platform 39x186	9.35

Elevator, Platform and Adjuster or Butter Conveyor Canvases to fit the leading makes of Binders. They are of standard weight, size and construction. We guarantee them to be made of as good material as the original ones on a new machine, and they will fit perfectly if you will give the correct numbers and sizes when ordering. End of canvas forms a flap which covers the leather straps and buckles. Slats are of smooth finished hardwood-ripped and stapled solid to the canvas.

Numbers and sizes listed below correspond with those printed on the canvases received with your new machine. State size and name of binder, number and size of canvas, and whether for upper or lower elevator. If impossible to find numbers and sizes on old canvases, measure width, also the length from buckle to last hole in strap. We furnish canvases for any make of binder if you give us exact measurements of same. Platform conveyors weigh about--6 ft., 13 1/2 lbs.; 7 ft., 15 lbs.; 8 ft., 16 lbs. Upper and lower elevator, 10 lbs.; adjusters, 2 lbs.

McCORMICK	Size	Year	Price
B55	Upper Elevator 47 1/2 x 93	1901 and since	\$7.00
B66	Lower Elevator 51 x 97	1901 and since	7.50
B167	6 ft. Platform 45 x 136	1901 and since	8.50
B468	7 ft. Platform 45 x 160	1901 and since	9.00
B469	8 ft. Platform 45 x 184	1902 and since	9.50
B835	Lower Elevator 51 x 94	1911 and since	7.50
H720	Upper Elevator 54 x 90	1892 to 1901	7.50
H729	Lower Elevator 54 x 98	1890 to 1901	8.00
H770	6 ft. Platform 38 x 141	1890 to 1901	8.50
H771	7 ft. Platform 38 x 168	1890 to 1901	9.00
H772	8 ft. Platform 38 x 195	1890 to 1901	9.50
V224 1/2	Upper Elevator 43 1/2 x 97 1/2	1894 to 1901	7.50
V226	Lower Elevator 51 x 102	1894 to 1901	8.00
V229	6 ft. Platform 38 1/2 x 136 1/2	1894 to 1901	8.50

DEERING	Year	Price	
E1532	Upper or Lower Elevator 54 1/2 x 96	1890 to 1900	\$7.50
E1549	Adjuster 7 1/2 x 52	1890 to 1900	1.50
E1550	6 ft. Platform 47 1/2 x 144	1890 to 1907	8.50
E1551	7 ft. Platform 47 1/2 x 166	1890 to 1907	9.00
H4562	Upper Elevator 47 x 91	1908 and since	7.50
H5199	Upper Elevator 43 x 90	1902 to 1909	8.00
H1775	Lower Elevator 50 x 90	1899 and since	8.00
H1772	6 ft. Platform 43 1/2 x 136	1899 and since	8.50
H1774	7 ft. Platform 43 1/2 x 156	1899 and since	9.00
H2791	8 ft. Platform 43 1/2 x 182	1901 and since	9.50
H2207	Adjuster 7 1/2 x 54	1899 to 1909	1.50

C. S. Judson Co., Ltd., Winnipeg

WE SELL THE BEST FARM SUPPLIES DIRECT TO YOU

and do what they said they were willing to do.

CANADIAN MANUFACTURERS SPEAKING "FRANKLY AND SINCERELY"

IN another page of this issue appears an announcement entitled "Mr. Farmer, we believe you to be fair," sent to us on instructions from the Canadian Manufacturers' Association and the insertion of which is being paid for by that body.

This article is the subject of an address delivered before the Canadian Manufacturers' Association in convention assembled at Montreal on June 15th by Mr. S. R. Parsons, the retiring president of the association, and reflects the carefully thought out views on the important subjects of tariff

and labor held to-day by the Canadian Manufacturers' Association. The article is worth a careful reading, as the viewpoint of the manufacturers should be, at least, understood by the farming community.

RETIRED FARMERS' OPPORTUNITY

MANY men living in town to-day have spent most of busy lives on the farms. They have earned their retirement. But the need for saving the 1918 harvest is very great. Retired farmers have a splendid opportunity to help out in the present crisis and many have volunteered to work on neighboring farms for the rush period. Every one that can do so is needed, for experienced men are at a premium. Their knowledge of

how to do things would help make inexperienced men and boys efficient.

LINSEED OIL CAKE

ARRANGEMENTS have been completed by the Canada Food Board with the United States Food Administration by which 15,000 tons of linseed oil cake and meal will be distributed to dealers, to relieve the scarcity of feed and fodder. Applications should be sent direct to the Canada Food Board on regular import application blanks, with sworn statements of quantities sold during the three years prior to January 1st. Allotments will be made on that basis.

The hired man who needs an electric starter isn't a good investment.

Overland

TRADE MARK REG.

The Thrift Car



Reins or Steering Wheel?

A LONG, tiresome, time-wasting drive with horses is a short, pleasant, time-saving ride with an Overland.

Let an Overland perform innumerable work duties for you and in addition be an endless source of recreation and benefit for every member of your family.

Select this beautiful, roomy Model 90 and you save money in the first costs and maintenance.

You cannot get complete satisfaction from less advantages than it gives—

And you cannot get as much value in any other car for the low price of this Model 90.

It has a powerful, fuel-saving motor; narrow turning radius; rear cantilever springs; 106" wheel base; 31x4 tires, non-

skid rear; electric Auto-Lite starting and lighting and vacuum fuel system.

Because this Overland Model 90 gives every essential for complete satisfaction, the farmer's family can enjoy it as much as the farmer can employ it.

*Five Points of Overland Superiority:
Appearance, Performance,
Comfort, Service and Price*

Willys-Overland, Limited
Willys-Knight and Overland Motor Cars and Light Commercial Wagons
Head Office and Works, West Toronto, Ontario
Branches: Montreal, Que., Winnipeg, Man., Regina, Sask.
Catalog on request—Address Dept. 1215

Gas from Straw

IN a recent issue of the "Commercial Motor," a British publication, we find the following editorial entitled "Gas from Straw":

Useful fuel can now be obtained by carbonizing straw and refuse. A very interesting communication has reached us from Professor R. D. MacLaurin, of the department of chemistry of the University of Saskatchewan which gives a considerable amount of interesting information with regard to a method of producing gas from straw refuse.

The matter is of considerable importance to Canada, because, on the prairies, there is no wood, and the average price for either hard or soft coal is very high. Again, there is a large amount of straw which simply goes to waste, and every autumn this straw is burnt. This sounds rather curious because in this country the ash from the burning of straw would be regarded as having considerable manurial value. This point, however, is not dealt with in Professor MacLaurin's information. Inefficiency of labor and plant to spread and turn in the ash may explain its non-use as a manure.

Carbonizing the Straw

In order to deal profitably with this straw, Mr. George Harrison, manager of the Saskatchewan Bridge and Iron Company, of Moose Jaw, Saskatchewan, has invented a retort for carbonizing it and any other cellulose material, thereby decomposing it into combustible gases, tars and ammonia with a carbon residue, Professor MacLaurin having undertaken the chemical work in connection with the development of the project.

A number of experimental

plants have been made, and it is hoped to get them installed on a certain number of farms during the present winter.

The uses to which the farmer can put the products of combustion will be for lighting, heating and power in connection with his farming operations and also in connection with his household, and he will reap benefits in other ways, in that he will be independent of strikes of miners and also transportation difficulties. Professor MacLaurin suggests that, as most of the farm work in Canada is done with tractors, there can be no reason why a couple of retorts should not be placed on a tractor, so that a constant supply of gas be furnished to a gas container whilst the tractor is in operation. In order to reduce the size of the retort, negotiations are at present being entered into with regard to a baling machine which will press the straw into the shape and size of the retort, and to such a density that a bale cubing one foot will contain 25 pounds of straw. This will enable the straw to be handled very easily and greatly facilitate the operations of the tractor. We ourselves are helping in connection with these experiments by sending out to Professor MacLaurin flexible gas holders suitable for use in connection with this work.

What the Straw Yields

The retort is made out of highly refined steel, and is designed in such a shape that the gases are removable in a very short time; it is also designed for individual use on the farm, and is of small dimensions. It consists of three oval cylinders, seven and half feet long, with a major axis of 24 inches and a minor



TO WHAT BASE USES — ?

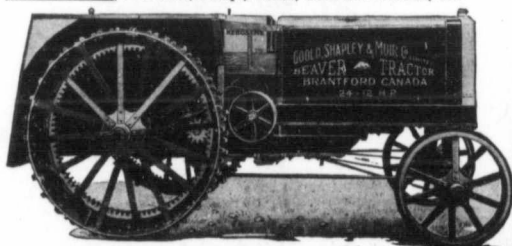
Tommy: "Gimme a bit more o' that boiled rice, will yer, matey?"
Cook: "Yas, certainly; glad yer liked it."
Tommy: "Oh, it ain't that—I wants to make a poultice to put on me boil."

Ten Years' Success Proves that you can absolutely depend upon the BEAVER KEROSENE TRACTOR

The genuineness of the Beaver Tractor is unquestionable. We've built Tractors in Canada for 10 years and we give an absolute guarantee with each one. The Beaver, one of our most popular small machines, has gained its popularity by its many good features. It is dependable, economical and so simple in construction and operation that a boy can handle it nicely. The Beaver operates on Kerosene—has a Perfect Kerosene Burner. Has 7 speeds forward and 7 reverse. Will back up to a load one-quarter inch at a time. Has special heavy duty, four-cylinder large size Waukasha Motor. Has large wide road wheels and the construction allows the wheels on one side to run in the furrow when plowing. No extra steering device needed. Has special heavy internal road gears and pinions driven from both sides. Will not lift up in front no matter how heavy the load. Has automobile type steering device, and has many other good features, all fully described in our catalogue. It's a Tractor you will be proud to own.

YOU should know all about our full lines. WRITE FOR CATALOGUE TO-DAY

We also manufacture the Ideal Junior 12-24 Two-cylinder and 15-30 Two-Cylinder Tractors, and a full line of Gas, Gasoline and Kerosene Engines, Windmills, Grain Grinders, Pumps, Tanks, Steel Saw Frames, etc.



BEAVER TRACTOR 12-24 Four-cylinder

Gold, Shapley & Muir Co. Limited
BRANTFORD, PORTAGE LA PRAIRIE, REGINA, CALGARY

1842



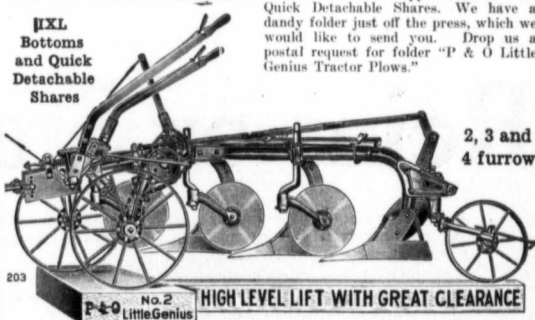
1918

Little Genius Tractor Plows

Are you in the market for a tractor plow for use behind your light tractor? Then we would say to you examine the records of the P & O Little Genius Plow. Farmers are buying thousands of light tractor plows and they are looking the plows over before they buy. That's why such a large percentage of them are buying P & O Little Genius Plows. Their field performance begs that degree of satisfaction which compels their users to recommend them. If you want a plow that will go into the field and do efficient work with the minimum amount of wear on your tractor, that will perform day in and day out without attention; in short, that will stand up to any kind of work—then you want the P & O Little Genius. It is made in 2, 3 and 4 furrow sizes, with IXL Stubble and Scotch Clipper Bottoms with

IXL Bottoms and Quick Detachable Shares

Quick Detachable Shares. We have a dandy folder just off the press, which we would like to send you. Drop us a postal request for folder "P & O Little Genius Tractor Plows."



Made by PARLIN & ORENDORFF CO., Canton, Ill., U.S.A.

International Harvester Co. of Canada, Limited
SALES AGENTS FOR CANADA

Winnipeg	Brandon	Regina	Saskatoon	North Battleford
Yorkton	Estevan	Calgary	Edmonton	Lethbridge

axis of six and a half, the retort being enclosed in a metal or fire-brick casing with firebox below. With a scrubber and a gasometer, the total cost including installation is expected in Canada to be \$500.

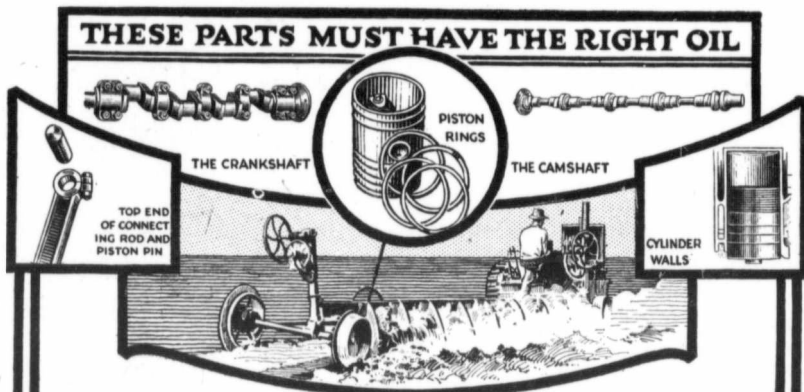
The straw, compressed into bales the size and shape of the retort, is placed in it, the doors are shut by a clamp, and straw burned in the firebox below. After the operation when straw is used as fuel, a certain proportion of the gas given off is used for the purpose of the carbonizing process, about 30 per cent of the total volume of the gas being utilized in this way. The gas begins to come off at a temperature of 200 degrees, and reaches its maximum between 500 and 600 centigrade. All the gas may be removed from the straw in about 30 to 45 minutes, rapidity of operation being an important factor from a commercial standpoint.

Each ton of straw produces between 11,000 and 12,000 cubic feet of gas, the quantity and quality varying slightly from the different kinds of straw. The gas after generating in a retort passes into a scrubber (this being a metal cylinder 4 feet long by 18 or 24 inches in diameter) and thence into the gas container or metal bag. If the gas is washed and purified so that the volume is reduced to 10,000 cubic feet, and, as stated above, 30 per cent be utilized in carbonizing a ton of straw, there would be a surplus of 7,000 cubic feet for every ton of straw carbonized. The calorific value of straw gas is approximately 400 B. T. U.'s. per cubic foot, so that one ton of straw would contain 4,000,000 B. T. U.'s. In this country we reason that about 250 feet of coal gas is equal to 1 gallon of petrol, and the thermal value in B. T. U.'s. of a gallon of petrol is calculated in the States at approximately 114,000. In this country we give it a higher value.

Taking 7,000 cubic feet as the net output from a ton of straw the heating value of the gas from that quantity of straw would be 2,800,000 B. T. U.'s., which can be given as the equivalent of 25 gallons of petrol.

140,000,000,000 Cubic Feet Going to Waste

From every ton of straw there is obtained between six and eight gallons of tar and ammoniacal liquors. This tar in its crude state would pay for the cost of baling the straw, which may be put down at just over a dollar a ton, so that the farmer would have his fuel prepared ready for use at the cost of hauling it from the field to his retort. The carbon residue, of which there is about 800 pounds to a ton of straw would find a ready sale as lamp-



How the Right Oil Maintains Full Power

YOU know that a Gas Engine's power depends largely on full compression being maintained in the cylinders. If compression is poor in one or more cylinders, the motor runs unevenly and even misses fire.

Poor compression results in leakage of the gases past the piston rings on the power stroke of your engine, diminishing the force of each explosion in the combustion chamber; with a marked curtailment in the power and speed of which the engine may be capable.

Poor compression is frequently the result of scored cylinder walls and broken or worn piston rings caused by friction wear being allowed to go unchecked. The most common cause of poor compression is the use of incorrect oil. You may use a high quality lubricant, one suitable for lubricating certain classes of machinery but wholly unsuitable for the lubrication of high-powered internal combustion engines.

Maintaining a Piston Ring Seal

To obtain proper compression and full power from your engine the oil must not only be high in

quality but it must be the right oil for the purpose. It must withstand heat and wear and maintain a perfect piston ring seal to give you full compression and power.



Polarine or Polarine Heavy will give your motor that perfect piston ring seal—will keep all the vaporized gas above the piston ready to give the full power stroke to each piston. Because Polarine and Polarine Heavy have proven their ability to lubricate every motor part, they are the most widely used motor lubricants.

Expert "Imperial Service" Free

When you decide to use Polarine or Polarine Heavy we are vitally interested in seeing that you get the grade best suited to your engine's lubricating requirements. Put it up to us. Send a full description of your engine. You'll be glad that you got our expert assistance.

Polarine and Polarine Heavy are sold in steel barrels and half-barrels, and in one-half, one and four gallon cans. Buy in the larger sizes for economy but always keep a four gallon can on your tractor.



Write us at Room 704, Imperial Oil Building, Toronto, for interesting Polarine Booklet.

IMPERIAL OIL LIMITED
Branches Throughout Canada



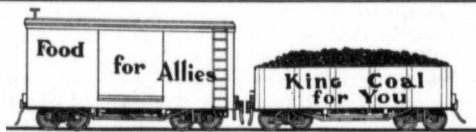
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For Boys and Girls

THERE is a marked scarcity of office help in Winnipeg, due to the heavy enlistment of office men. Success Business College graduates are given preference. The Success trains and places more certificated Stenographers, Book-keepers and Commercial Teachers than all other Manitoba Business Colleges combined. We employ 30 certificated, expert teachers (three times as many as employed by all local competitors) and own and use 150 typewriters. Our splendidly equipped premises have been highly commended by the Winnipeg Board of Health. The Success is the only school employing a Chartered Accountant who devotes all his time to teaching in day and evening classes; leads in graduates and gold medalists; places its students. Open all year. Enrol any time. Train in Winnipeg where positions are plentiful and board less expensive. Write for Free Information.

The Success Business College, Ltd.

WINNIPEG - MANITOBA



One of These Cars Must Wait

Railroads cannot haul both at once. Don't let this situation happen. It is unnecessary. If the farmers who have usually waited till after Harvest before hauling their coal do so this summer they will go cold this winter. This is the authoritative statement of all railroads.

EXTRA SPECIAL PRICES QUOTED FOR CARLOAD ORDERS NOW

Write or wire for special prices on 30 to 40 ton carloads of King Coal, Lump, Egg or Nut sizes—delivered to your station. King Coal does not clinker.

THE CARDIFF COLLIERIES, LIMITED

EDMONTON, ALTA.

Mining capacity (with car supply) 2,000 Tons daily

black or (in this country) a ready use as a manure.

It is to be doubted whether there is a sufficiency of straw used in this country at any time to warrant experiments of this kind, but as indicative of the importance of the scheme in the U.S.A. or Canada it may be mentioned that on the 20,000,000 acres which are cropped annually in the three prairie provinces of Western Canada only and giving a yield of one ton of straw per acre there is a total of 20,000,000 tons. Allowing for washing and purifying, and for the use of about 30 per cent gas for the purpose of carbonizing the straw, there would be procurable 140,000,000,000 (one hundred and forty thousand million) cubic feet of gas, which may be taken to be equal to 22,000,000,000,000 (twenty-two million millions) horse-power hours.

With regard to the durability of the retort, it will be observed that the straw is carbonized at a comparatively low temperature of 500-600 degrees centigrade, and it is well known that good steel or wrought iron will withstand such a temperature practically indefinitely.

A final word with regard to the gas itself. It is found to be utilizable in exactly the same way as coal gas or natural gas. The constituents are methane, hydrogen and carbonmonoxide. It has a slight odor, and has been found quite suitable for incandescent lamps, stoves, grates and furnaces.

It must be realized that the conditions differ so materially in different countries that a scheme which may be feasible in Canada would not have the least ground for success over here."

Thus writes a British contemporary about an item of great interest to the tractor situation in Western Canada. Over there the 'buses and trucks can be seen daily with their gas bags on board, and, indeed, to such an extent that the writer noticed in the same paper a movement is on foot to have the limbs of trees removed that might interfere with the gas bags on the public highways.

Too Smart

Paddy Doolan went into a shop one day to buy eggs.

"What are eggs to-day?"

"Eggs are eggs to-day, Paddy," replied the shop man, looking quite triumphantly at two or three young lady customers who happened to be in the shop.

"Faith, I'm glad to hear you say so," replied Paddy, "for the last ones I got here were chickens."

THE TRACTOR'S FUTURE

REPORTS show that the following different kinds of work are being done by tractors in the West:

Plowing, disking, breaking scrub, hauling grain, moving buildings, packing, seeding, grinding, sawing, cutting, straw running ensilage cutters, road grading, baling hay.

The tractor is no longer an experiment, it has come to stay.

The past is behind us now with the days of experimenting, which were nevertheless necessary. The present finds tariff rates making the initial cost of tractor farming very high in Canada. The future—what of it? It looks bright, and will be especially so if such cheap fuel can be obtained from the farm.

The following points should be kept in mind in buying a tractor:

1. **Mechanical Design**—The design should not permit of the tractor injuring itself by improper handling. This is with special reference to the gear-shifting device. It should have a range of speeds suitable for the work you expect to do with it. For satisfactory hauling on roads a somewhat higher speed may be desirable than used for farm work.

2. **Simplicity**—The fewer parts there are to adjust and inspect, the more satisfactory the tractor is likely to prove. The design should permit of attaching drawbar or belt without inconvenience. Sometimes one part of the machine is where it interferes with operating the belt satisfactorily and needs to be removed when the machine is on belt work.

3. **Accessibility of Parts**—Parts which are likely to wear out and need replacement should be as accessible as possible. These items are crank shaft, bearings, connecting rods, wrist pins, etc. Where bushings are to be replaced by babbitt, in many cases it is desirable to pour the bearing with the shaft in place.

4. **Lubrication**—All parts subject to wear should be lubricated by sight feed and perhaps force feed systems. These systems should be readily inspected. The time consumed in lubricating a tractor during the season's work is considerable. It should be possible to inspect this while the tractor is in operation without endangering the safety of the operator or the quality of the work.

5. **Protection of Working Parts from Dust**—An enclosed tractor is likely to have a longer life than one which has the working parts exposed to grit and dirt. Most of the work which the tractor is called upon to do places it in very dirty conditions.

SILVER STAR KEROSENE, ROYALITE GOAL OIL and PREMIER GASOLINE help to plow a great many acres—to thresh a great many bushels of grain each year. As more and more farmers become dependent on these fuels, our responsibility in maintaining their clean-burning powerful qualities increases. "Imperial Service" has made these fuels available to power farmers at more than 500 prairie tank stations. There is one near you. IMPERIAL OIL LIMITED, Branches Throughout Canada.

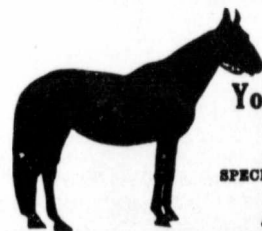
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Send us all your broken or cracked Cylinders, Crank Cases, Gear Wheels, Gear Housings or Machine Parts. We will deliver perfect results and save you money.

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Lowest Prices consistent with Best Workmanship.



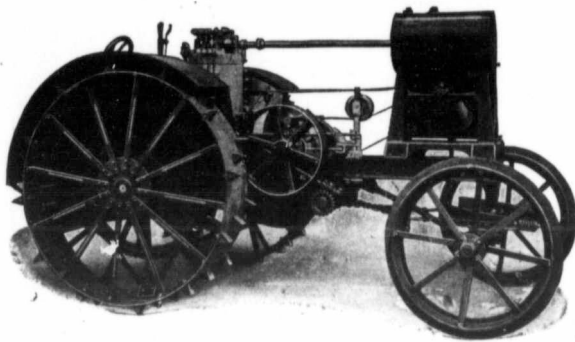
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Steam Traction Engines

Our Steam Tractors are well and favorably known almost everywhere. On account of difficulty procuring material, we have only a limited supply. Early action is essential in order to secure one.

THRESHING MACHINES.—Standard Imperial in sizes 28-42, 32-54 and 36-60. The Imperial Junior, in a new size, 24-40, specially built for use with our, and similar Tractors. Enquire about it.

REBUILT MACHINERY.—We have on hand a number of rebuilt engines and threshers of our own and other makes, in condition and at a price that will be found very attractive.

SEND FOR OUR LIST

The Robt. Bell Engine & Thresher Company, Limited

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Kerosene Tractors

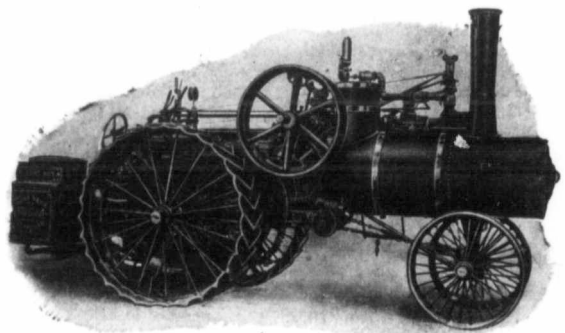
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Two Speeds Forward and Reverse

SIMPLICITY—Every working part easy to get at. Only about one-half the number of gears used as compared with others. Transmission runs in oil, in dustproof case. Hyatt Roller and Ball Thrust bearings on transmission shafts.

STRENGTH—Shafting, Gears and all other working parts unusually heavy and strong.

Send for further particulars of this Tractor before placing your order for one.



6. **Adaptability to Your Special Conditions**—This pertains to size, type, weight, etc., as well as to the type of farming. Doubtless you will plan on operating ensilage cutter, threshing machine, corn sheller, feed grinder and plows, as well as other tillage machines with your tractor. You should select one which is useable on as many as possible of those machines. In many cases the tractor is used for road grading work. Threshing machines now in general use, as well as road grading outfits, usually require a tractor which is larger than is justified for farm purposes. In this case it may be desirable for you to consider the purchase of special machines which will harmonize with your entire plant.

7. The standing of the company manufacturing the tractor should be investigated, as it has an important bearing upon the likelihood of securing repair parts. It also insures the purchaser against loss in case a defective machine is purchased.

8. **Length of Time on Market**—Very new types are likely to meet with considerable change, and unless the type has been well tried out it will be difficult to secure parts to replace those which are broken or worn out. Conservative companies usually test out

good models before putting them on the market. Then they feel justified in keeping a good deal of money tied up in repair parts.

TRACTORS STILL AVAILABLE

The first thousand Fordson tractors purchased from Henry Ford and Son by the Canada Food Board have been sold to Canadian farmers. Farmers who wish to secure such tractors in future should place their orders with the Department of Agriculture in their own province, and until further notice such orders will be handled in the same way as the first thousand.

It is far more difficult to be simple than to be complicated; far more difficult to sacrifice skill and to cease exertion in the proper place than to expend both lavishly.

Modern Farming With Apologies to Judge

"How many head o' live stock you got on the place?"
"Live stock?" echoed the somewhat puzzled farmer. "What d'ye mean by live stock? I got four kerosene tractors and two automobiles."



Best ANTI-FRICTION BABBITTS

ON THE MARKET

With forty years' experience in manufacturing alloys for all classes of machinery, the HOYT METAL CO. has evolved two alloys which are unsurpassed by anything of the kind now in use.

HOYT'S NICKEL GENUINE Babbitt is especially designed for heavy duty gas tractors.

HOYT'S FROST KING Babbitt is especially designed for threshers, separators and stationary engines of all classes.

If your dealer does not carry these meta's in stock, send your order direct to us. In order to insure prompt delivery send postal money order.

Nickel Genuine		Frost King	
Less than 25 lbs.	\$1.50 per lb.	Less than 30 lbs. ....	.60 per lb.
30 lb. box	1.40 per lb.	30 lb. box .....	.37 per lb.
50 lb. box	1.25 per lb.	60 lb. box .....	.35 per lb.

Delivered to your nearest express or post office station.

Hoyt Metal Co. EASTERN AVE. and Toronto
LEWIS STREET
FACTORIES—London, Eng.; Toronto, New York and St. Louis.

Steam or Gas Tractors

Equipped with



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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Adjusting a Plow to a Tractor

PEOPLE who look at a piece of good tractor plowing usually credit the good work to the tractor. Likewise when they see a poor piece of tractor plowing they condemn the tractor. As a matter of fact, the tractor has relatively little to do with the quality of the plowing done. If the tractor has the power and grip to pull the plow and is accurately steered, then the quality of the work done will rest with the plow or with the adjustment of the hitch between the tractor and the plow. I do not think it is an exaggeration to state that the adjustments of the plow itself and the adjustment of the hitch require more technical knowledge than does the running of the tractor. In other

and the accompanying illustrations showing correct and incorrect adjustments will enable me to make clear the verbal directions in regard to height adjustments.

As a means for arriving straight away at an approximately correct adjustment the plow should be coupled up first by guesswork to the tractor and put to work for a few yards until the bottoms are in the ground 8 inches, or whatever the depth may be at which it is desired to draw the plow. If the plow is a two-furrow instrument, a straight line drawn from the shin of the front breast at ground level to the point where the hitch is fixed to the tractor should pass through the point at which the hind end of the

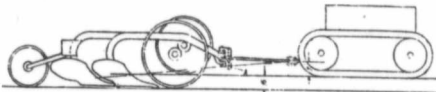


FIG. 1.—Hitched too low at tractor or too high at plow head.

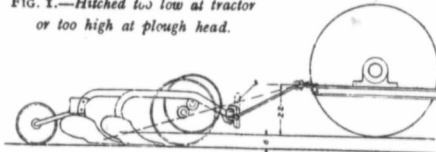


FIG. 2.—Hitched too high at tractor or too low at plow head.

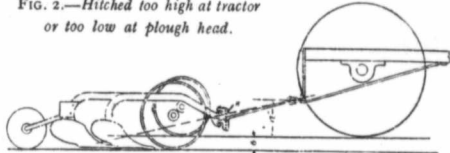


FIG. 3.—An almost correct hitch.

words, faulty plowing done by a motor tractor is more often due to lack of plow knowledge than of tractor knowledge. Most often both tractor and plow are right but the hitch is wrong. When once the basic principles are understood, however, it is quite a simple matter to make the best hitch practicable under any given circumstances.

The principles are merely those which have been so long in use in connection with horse-drawn single-furrow plows. The pull should be applied in such a position that the plow without any controlling influences will run perfectly straight in the direction of the pull. Further, in the case of multiple furrow plows the pull should be applied in such a position that the plow naturally runs with each of its plow bottoms at an even depth. This latter adjustment is a simple one, namely, height of hitch,

hitch is fixed to the plow. Or to take it another way, a straight line drawn from the same point of the shin of the front breast through the hind end of the hitch where fixed to the plow, would, if extended, indicate the height at which the front end of the hitch should be fixed to the tractor. The corrections of this line between plow shin and tractor can be made either at the plow head or at the tractor.

If a three-furrow plow is being used, the line should be taken from the equivalent spot on the second breast of the plow.

Figures (1), (2) and (3) show (1) a plow hitched too low at the tractor, or, alternatively, too high at the plow head; (2) a plow wrongly hitched in the opposite direction; and (3) an almost correct hitch. In each instance a correct adjustment is shown at A. The adjustments for true running of the plow in a lateral



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Be certain the goods you buy and sell are correct weight. Mistakes are always possible but accurate weight is assured by

Fairbanks Union Scales

They save their cost every year by eliminating short weights in buying and overweights in selling. They are the most convenient size scales for general light weighing anywhere. They replace the old time spring balance scales condemned by the Canadian Government.

Complete with tin scoop, 10 1/2" x 13 1/2" platform, single brass beam and extra weights. The scoop capacity of Fairbanks Union Scales is 30 pounds by half ounces—the platform, 240 pounds by quarter pounds.

They are strong, compact, simple and guaranteed absolutely accurate.

Write our nearest branch for information and prices of scales for any weighing purpose.

The Canadian Fairbanks-Morse Co., Limited.

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Saskatoon Vancouver Victoria

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On improved and occupied farm property.

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We can supply a thoroughly practical outfit from \$100.00 up. There should be at least one plant in every district to repair breakages 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.

BROKEN CASTINGS

SEND YOUR
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

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The Belt Without a "Kick"

is a belt that is worth its weight in platinum, which is now worth four times the market value of gold. Our belting product for threshermen, and other men who use belting in any kind of power service, is *the best* belting that can be produced by men of life-long experience from the best material known, with the aid of the last word to date in machinery specially designed for this purpose. We give a cast-iron guarantee of perfect satisfaction to any purchaser of the



LION BRAND
Rubber Belt
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ENDLESS THRESHER BELT



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.

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WINNIPEG FORT WILLIAM REGINA SASKATOON CALGARY LETHBRIDGE EDMONTON

direction are not so simple, as the design of the tractor may considerably affect these.

The ideal to be aimed at is to secure that the true line of draught of the tractor and of the plow shall coincide. For all practical purposes it may be taken that this line in the case of a tractor is midway between the two driving wheels; or if one wheel only is a driver, the centre of the wheel. For plows of two furrows the line is midway between the two beams, for three furrows down the centre beam and for four furrows between the two middle beams.

It is, however, not always possible to attain the ideal in this direction, and then it becomes a matter of compromise. If the two draft lines do not coincide, side pull is bound to result, and it will depend upon the adjustments as to whether this side pull is taken by the plow or by the tractor, or is distributed between both.

Where the ideal conditions cannot be obtained, I prefer to favor the plow and throw all the side strain on the tractor up to the point where steering becomes affected. The side pull is taken up by the lubricated bearings of the tractor and comparatively little power is lost, but side pull on the plow is taken against the land

side and severe frictional losses are set up, besides which the work done by the plow is less perfect. As a general rule I advise that to the greatest possible extent the position of the plow be-

wheels run with both wheels on the land, it is generally necessary to make lateral adjustments. Fig. 4 shows this type of tractor hitched up to a four-furrow plow. In this instance it will be noted

holes more to the right on the tractor drawbar, or a compromise might be made by coupling at A.

With the majority of two-wheel drive tractors, if one wheel be run in the furrow the direct pull is usually easy to secure, but the practice of running one wheel in the furrow has its limitations in other directions. These limitations, however, are not part of the subject of plow hitch adjustments. Fig. 5 shows such a tractor with a three-furrow plow. If the furrows plowed were a little less than the 14 inches drawn, the true lines would exactly coincide.

Fig. 6 illustrates a case of a particularly bad adjustment, and its effect upon the plow. Unfortunately, such adjustments or their equivalents were too frequently seen during the earlier portion of the past twelve months. They were largely the result of lack of tuition in regard to the simple principles I have endeavored to make clear above.

The fact that 99 out of 140 new tractors are fitted with engines working at 750 or more revolutions per minute and a considerable number at over 1,000 revolutions per minute by no means proves that these high speed engines are the most suitable for the purpose. They may even-

(Continued on Page 49.)

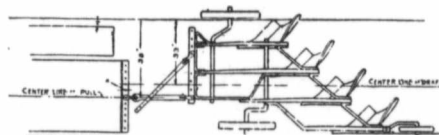


FIG. 4.—Straight pull for the tractor.

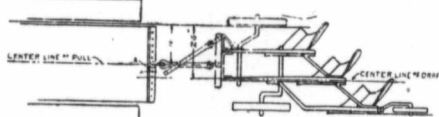


FIG. 5.—Also favours the tractor.

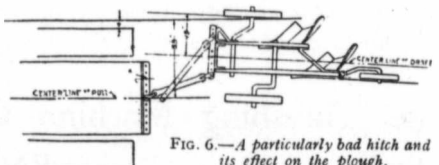


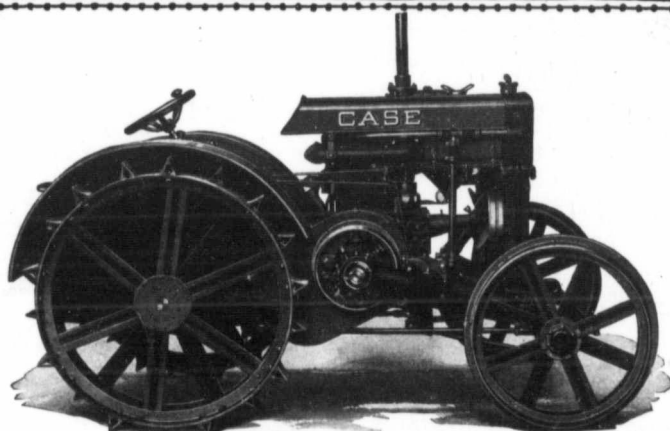
FIG. 6.—A particularly bad hitch and its effect on the plow.

hind the tractor should be regulated on the drawbar of the tractor, and not by the triangular plow hitch working from the centre of the drawbar.

When tractors with two driving

wheels are fitted with engines working at 750 or more revolutions per minute and a considerable number at over 1,000 revolutions per minute by no means proves that these high speed engines are the most suitable for the purpose. They may even-

CASE



CASE 10-18 OIL TRACTOR

"The Handiest Tractor Made"

That's what thousands of satisfied owners say about the 10-18 Case Kerosene Tractor, after using one for a variety of belt and draw bar work. We recommend a two bottom 14" plow which it easily handles anywhere a good team can continuously pull one 12" plow. It weighs just a trifle more than a good team. On the belt it successfully operates a 20x28 inch thresher completely equipped.

It is compactly constructed being only 102 inches long, with a wheel base of 65 inches. This allows it to turn in a 22 foot circle. The total height is only 55 inches and the total width 56 inches. This makes it an ideal tractor for orchard work too. It can go practically any place a team of horses can.

It has many excellent features not usually found in other tractors.

THE COOLING SYSTEM

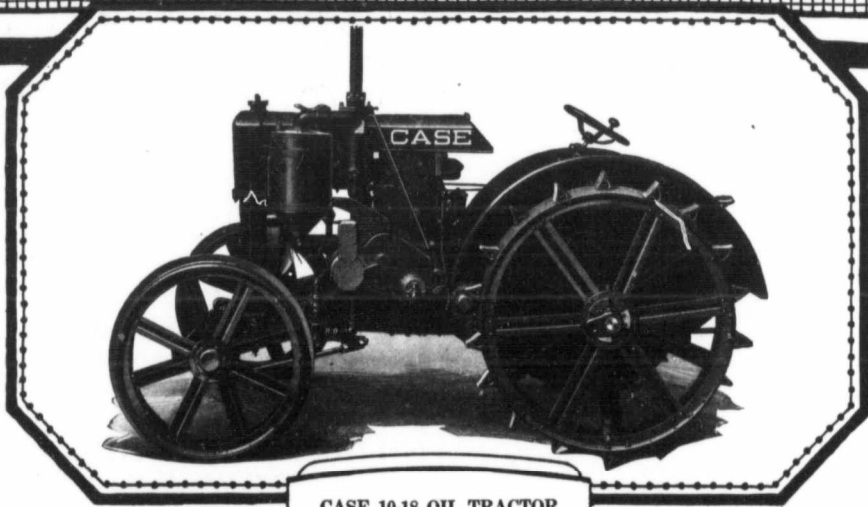
The Radiator of this 10-18 tractor is of an advanced design. It is a specially designed tractor radiator, built in our own factory and must measure up to all the high standards of quality as the rest of the tractor. It is modeled after the most approved type of heavy truck radiators, as now being used on the U. S. Army trucks. It is of the tube and fin type with cast iron frame. The radiator is in five parts, cast iron top, two sides, bottom and core, all easily assembled or taken apart. It has 12.4 square feet of radiator surface.

The Air Washer keeps dust out of the engine, therefore prevents rapid wear of cylinders, pistons and rings.

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CASE



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A Profit Producer On Any Farm

The Case 9-18 develops full power burning kerosene economically. It has abundance of reserve power. It is conservatively rated at 10 H. P. on the draw bar, but can develop a continuous draw bar pull of 13 to 14 H. P. It is not an experiment. This tractor was given over two years of the hardest kind of field tests before it was allowed to go on the market. Its sturdy construction is positive assurance of years of good faithful service.

Embodied in the Case 10-18 are many of the very latest developments of worthwhile tractor features.

THE SYLPHON THERMOSTAT

This is an exclusive feature of the Case Tractor. The Sylphon Thermostat automatically controls the circulation of the cooling system. By means of it the engine cylinders are kept hot. This is a great aid to combustion and prevents raw kerosene from passing the piston and diluting the oil in the crank case. This device allows water surrounding the cylinders to quickly rise to a temperature where thermostatic unit regulator expands (160-180 degrees) thus allowing the cylinders to become hot enough to vaporize kerosene much sooner than if the entire cooling system was in circulation, as soon as the motor is started. This is a great economy in fuel.

We know that if you investigate the Case 10-18 tractor carefully and thoroly, you will not be contented until you own one. Insist upon a Case. Do not be satisfied with a cheap or hurriedly developed tractor. We will glad forward to you detailed literature on this or any of our other size tractors upon request. We suggest that you write immediately.

J. I. Case Threshing Machine Company, Inc.

922 Liberty Street.

RACINE, WISCONSIN





STERILITY OF COWS

Dr. F. W. Caldwell, in "Hoard's Dairyman"

STERILITY or barrenness is becoming alarmingly prevalent in dairy and beef cows and this is particularly true with the higher bred herds. When occurring in grade cows sterility does not necessarily represent a serious loss, but when it occurs in pure-bred animals that have been developed for breeding purposes it assumes more serious proportions.

Sterility may result from a variety of causes. Consideration will be given here only to the more common and more easily prevented or remedied conditions. Barrenness is most commonly due to a diseased or inflamed condition of either the vagina, the neck of the womb, of the womb or its horns, or of the ovaries, or of several of these conditions combined. Disease of the ovaries may take the form of inflammation or degeneration with the formation of cysts or retained bodies (sometimes called yellow bodies). When sterility occurs in a heifer that has never been pregnant the causes just mentioned may not be present. In these cases the causes are more often physiological rather than due to diseases.

The causes that may operate to bring about the inflammation or diseased conditions mentioned may be various, but are essentially the same. Inflammation of the organs of generation is due to infection with bacteria or germs.

These bacteria in most all cases gain entrance to the organ or parts at the time the cow calves or aborts. They may be introduced by infected instruments or dirty hands, or more frequently as a result of the cow failing to "clean" and by the decomposition of the retained afterbirth. It is commonly observed that sterility is more common in aborting herds, than in healthy herds, and some have attributed this to the abortion disease. However, it is more probable that the rather transient inflammation produced by the contagious abortion presents a very favorable channel of infection by other bacteria which in turn produce a more serious as well as a more persistent inflammation. Also, it is observed that in outbreaks of contagious abortion, retained afterbirth is of very much more frequent occurrence than in herds not infected with this disease. As has been mentioned, retained afterbirth is one of the most frequent causes of sterility. A retained afterbirth is rapidly invaded with a great variety of bacteria which cause the afterbirth to decompose. This decomposing tissue in contact with the mucous membrane lining the womb exerts a very irritating action and presents the best possible condition for infecting that organ and producing a more or less persistent inflammation.

During a normal parturition or an abortion, the neck of the womb is widely dilated. In a short time after, however, this neck be-



WHAT'S IN A NAME?

"What's your son in, Mrs. Green?"
 "Well, I suppose it would be the 'Orse Guards if it wasn't mules 'e 'as to look after."



The Dairy Cow

is playing a vital part in the winning of the war for civilization. Her product cannot be replaced by any human system of "substituted labor." There's no greater sin than the waste of Nature's provision, for the sustenance of living things. To-day it is the **unpardonable sin**—the crime that cannot be condoned to waste anything in food product. Save every ounce of butter fat you can save for human food. You can do it by using a

"MAGNET" Cream Separator

The greatest labor-saving and food-conserving machine ever introduced into Dairy Farming.

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.

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

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 canna be disputed."

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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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| Montreal |Room 588, 439 St. Paul St. | St. Joseph Mo. |Saxton Bank Bldg. |

gins to close and after a few days is again quite tightly closed. Should all or a part of the after-birth still remain in the womb at that time, or should there be discharges present, these may be imprisoned in the womb and if not causing the death of the animal at once will present a condition very unfavorable for conception.

Prevention of Sterility

It is noted above that sterility in cows is largely due to disease of the organs of reproduction, that these diseased conditions are of the nature of inflammation, that the inflammation is in turn due to infection or "poisoning" with bacteria, and that the infecting bacteria make their appearance as a result of unclean or dirty conditions.

The problem then of preventing sterility is largely a matter of cleanliness, of sanitation both in a general way and also as applied directly to the function of parturition, and of sexual hygiene. In addition to these or as a part of the above we have also the control of contagious abortion or the exclusion of the disease from our herd if not already present.

Farm sanitation is a subject that has not been given as much consideration as its importance demands and this is particularly true in regard to the function of reproduction. Sterility is but one of a number of conditions which may result from unsanitary surroundings. Contagious abortion is spread largely as a result of this neglect. Infection of the navel with the accompanying peritonitis, joint-ill, and scours have the same origin.

Sanitary precautions that should be observed as related to the prevention of sterility consist in providing a clean, well lighted, well bedded stall where cows may calve, and one that will permit of frequent disinfection. It is next to impossible to disinfect some stables and the successful breeder is going to give this phase of his operations more consideration in the future. All dead animal matter, such as dead animals and "calf beds," should be destroyed by burning.

Should the cow require assistance in calving it will usually be found desirable to depend upon a veterinarian. Irreparable injury is often done at this time by misdirected efforts, and unless one has a wide and varied experience it very often proves very expensive in the end. In no case should assistance be offered without due regard to cleanliness. The tail, vulva, and quarters should be thoroughly washed in a 3 per cent lysol solution or other disinfectant, the vagina should be washed out with a 2 per cent solution of table salt, and

the hands should be thoroughly washed in hot water and soap and disinfected with lysol solution before making an examination. Disinfectant solution in abundance should be available to maintain clean hands in case they become contaminated. Only clean, bright instruments that have been sterilized should be used and in no case should one use rusty instruments or ropes that have served a previous case. New cotton rope is preferable to harsh sisal or hemp rope. Following parturition, either normal or when assistance is given, or following an abortion, the after-birth should be removed as noted later and the womb thoroughly washed out with a warm, mild antiseptic. A 1 to 2,000 solution of permanganate of potash may be used or a 2 per cent solution of table salt. This flushing of the womb should continue daily until all discharge has ceased and the womb has closed.

Objections may be raised to this procedure on the ground that it has not been followed in the past and in many cases, in fact in the most of cases, no unfavorable conditions have resulted. While this fact is admitted attention is called to the loss of cows due to septic metritis, to the loss of flesh, and the reduced milk flow that often follows infection, to the cases of sterility, and to the fact that these conditions are largely due to the infection of the generative organs at this time, and the procedure as outlined above will do much to lessen the chances of infection and thus reduce the number of these cases.

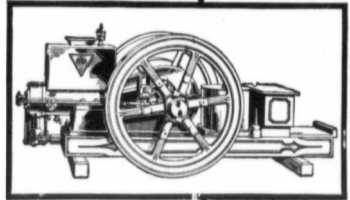
In the retained afterbirth, however, we have the most frequent cause of infection of the womb with the resulting sterility. Its removal should properly be left to the veterinarian as he is specially trained for this character of work and is able to make use of a wider, more varied experience and to adopt special methods with which the farmer is not familiar. Also, an understanding of the anatomy of the parts involved is a great assistance and the importance of having the operation completely and thoroughly done as well as the after treatment that may be indicated, cannot be over-emphasized. Likewise some common practices in connection with the removal of the afterbirth should be vigorously condemned.

Treatment of Sterility

It has been the common practice in the past in cases where cows fail to breed to simply sell the animal for beef. When the value of the animal or of her possible offspring does not justify incurring considerable additional expense, this is probably the best practise. However, in cases of pure-bred animals kept for breed-

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So simple
your boy can
operate it—
and always
dependable



When you buy a gas engine you want one that your boy or your hired man can look after.

You want an engine that will always RUN when you want it to. That is the kind of an engine the ALPHA is.

There's nothing complicated about it—no fragile electric batteries, no attachments that puzzle you. Every part is sturdy—built of the best materials—and will stand up under hard work.

You simply oil the Alpha, turn on the fuel—either gasoline or kerosene—give the flywheel a turn, and your engine has started chugging away on an all-day run. You can go away and leave it—pumping water, running a feed-cutter or doing any of the many other things you want it to do. Any one of the thousands of Alpha owners in Canada will tell you that you cannot do better than to use this engine.

Write today for complete information as to how you can save time, labor and fuel with an Alpha Gas Engine.

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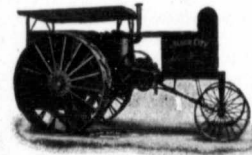
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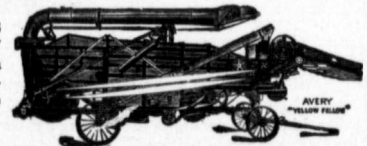
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which has been used only a part of two seasons, and which is practically as good as new.

I am prepared to sacrifice it for a quick sale.

It is in excellent condition, equipped with Bosch Magneto, extension rims, mud guards and headlight.

There is also a 6 FURROW VERITY ENGINE GANG with the outfit. The outfit is all complete and ready to run.



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as it must be cleared out at once. The man who secures this rig can do enough work to more than pay for it this season, address

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Winnipeg, Canada

ing purposes, no such sacrifice should be made. Most cases of sterility are amendable to treatment and the earlier treatment is instituted the better are the chances of recovery. Since a thorough knowledge of the anatomy of the parts involved and the possession of a highly developed sense of touch are required, as well as a thorough knowledge of the possible pathology of the disease and its amendability to treatment, it is not wise to attempt treatment without the assistance of fully qualified veterinary aid. Attempted treatment otherwise usually means misdirected effort and a postponement of treatment under a qualified veterinarian. As has been said, treatment should be commenced early.

It is fully as important in this connection to have reliable professional advice in regard to the possibilities of treatment, in order to dispose of the animal if not amendable to treatment, as to have the animal treated.

SLOWING DOWN WITH SHEEP

WHEN many farmers reach the age when they must slow down a little, they do not like to rent their farms and move into town, and their boys have either taken up farming for themselves or betaken themselves to the city. The old folks want to keep the place going, but are unable to run it at the high pressure of years past, and good hired help is so scarce that they must get along with as little of it as possible.

This was the problem of one who found its solution in sheep and poultry. He has 160 acres of land, most of which is at present in pasture. He has about 50 sheep, from which he made last year around \$800. He also has 30 grade beef cattle, and though these represent a larger investment than the sheep, they make, the owner says, considerably less profit, while the work of raising feed and caring for the beef stock is much greater.

The cattle will be sold and the sheep increased to 100 head. The owner figures that a flock of this size will make him \$1,500 a year. The poultry brings in about \$550 a year. This income will be plenty for all their needs, he says, and they will be able to make it with much less work than with any other kind of farming. It will mean a minimum of grain production and mostly pasture, hay and other roughage.

He is embarking on no new or untried line of farming, having had many years' experience with sheep, and even more with beef cattle, and has made some good money

from the latter, too. "But cattle take a lot of feeding in the winter," he says, "and I'm getting too old for it. I like cattle and have done well with them, and believe that there is yet good money in beef for the man who likes beef cattle.

Require Less Work than Cattle

"I'd still keep them if I was younger, but sheep are lots less work. They will eat almost anything that grows. They are the only stock that will make even weeds profitable. Wife and I have got to go slow from now on, and we can take our time with sheep and poultry, make a good living, and spend our days on the farm that means so much to us. We don't want to retire and go to seed in town."

The wool from sheep more than pays their way, he says, leaving the lambs for profit, besides they make good use of weeds and rough feed that would otherwise go to waste. He believes that eight sheep can be kept in place of a beef cow, and that they will make a greater profit with less work and expense, besides helping to keep the farm free from weeds, which is more than the beef cows will do.

Sheep on this farm are kept mostly on pasture, including the winter season. They are fed clover and alfalfa and a mixture of oats and bran in February when the lambing season begins. The feeding season is short. But going back to the story, doesn't it point a fine example to a great many of our older farm folks who are thinking of retiring and "going to seed in town?"

EVERY GARDENER HIS OWN SEED GROWER

WHILE rigid selection from year to year is necessary for most kinds of vegetables when grown for seed; and while to keep them pure the different varieties have to be grown some distance apart, yet most of the seed grown in the home garden is likely to give almost or quite as satisfactory results or even better than that which is bought, and, as some seed may be difficult to obtain next year, it is recommended for each person who has a garden to let a few plants or specimens ripen, from which seed can be saved.

It is better to mark the best plants and save the seed from them rather than to save the seed which remain after the plants have been cropped.

The following minimum number of feet, plants or specimens to be saved is suggested as being sufficient to supply enough seed for the home garden in 1919: Beans, 5ft.; corn, 1 ear; cucumbers, 1; lettuce, 3 plants; melons,

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Power is a dominant feature on your farm today. Equip yourself with an efficient power plant and your results are half assured.

A Fairbanks - Morse "Z" Engine

does the work of several men better and more economically. 150,000 farmers are daily demonstrating that the "Z" is the greatest engine value ever produced. Get acquainted with it and save money. You will find it economical and easy to operate. For pumping, lighting, sawing, cutting the feed—the "Z" Engine fills every want.

1½ H.P. \$96.00	3 H.P. \$169.50
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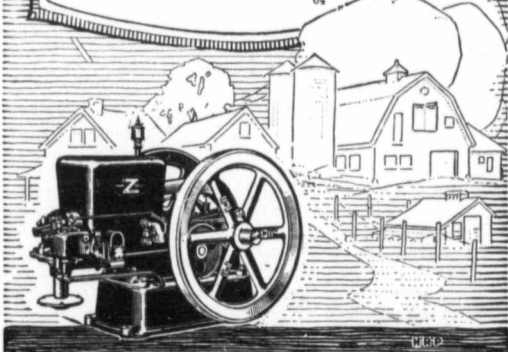
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Invest in House Paint—

It Pays Big Dividends

Good house paint repays its first cost many times and in many ways. It never was wise to forego painting your property and this year it is, if possible, less than usual the course of wisdom. Conservation is the national slogan—paint your house with

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Make it spick and span, sanitary and handsome.

It is Wasteful not to paint!

Stephens' House Paint is a scientifically made property preserver of great covering capacity, unusual wearing quality, and high artistic merit.

Nearest *Stephens'* Agent will be glad to estimate quantity and cost for you. Ask him for Color Cards.



G. F. Stephens & Co., Ltd.
Paint and Varnish Makers
Winnipeg Canada

1; peas, 5 ft.; radishes, 3 plants; spinach, 3 plants; squash, 1; tomatoes, 3.

Either reserve a few feet of the row of beans, or, better still, mark a few productive plants free from disease.

The seed stalks of lettuce are thrown up after the heads are full grown. The seed ripens rather unevenly, and, in order not to lose any of it, each head should be picked over as it shows white, it being necessary to go over the plants every few days. The plants can, however, be pulled and hung up to dry.

If some radishes are left unpulled, after being ready for use, they will soon throw up stalks, and good seed will develop. For best results the plants should be at least six inches apart.

Spinach, if thinned to six inches, will produce an abundance of seed.

In saving home-grown seeds, it is important to dry them as soon as possible after they are ripe, then clean them, and keep them dry until needed the following spring.

Peas and beans will soon be spoiled for seed if they do not dry rapidly in the pod after being harvested.

As corn sometimes has to be pulled before it is quite hard, it is desirable to see that there is a good circulation of air around each ear. A good plan is to husk the ears and then stick each one separately on nails driven into a board and far enough apart so that the ears will not touch.

The seed of tomatoes for home use should be saved from the plant bearing the largest crop of early and best fruit. Where a quantity of seed is saved, the tomatoes may be cut in half and the pulp pressed out into some vessel, adding about one-third its volume of water. Put in a dark room until fermentation sets in, which will be in about two days, when the seed will separate readily from the pulp. Wash out and dry where the sun does not shine on it.

Following are the quantities of seed which one might expect: Beans, 1 or more ounce per plant; corn, 300 to 600 kernels per ear; cucumbers, 1/8 to 1/4 ounce per specimen; lettuce, 1/4 ounce per plant; muskmelon, 1 to 1 1/2 ounce per specimen; onion, 1/8 ounce per plant; pea, 4 ounce per 3 ft. or row; pepper, 1-16 to 1/8 ounce per specimen; radish, 1 ounce per plant; spinach, 1 1/4 ounce per plant; squash, small seeded, 2 1/2 ounce each; squash, large seeded, 3 ounce each; tomato, 50 to 300 each; watermelon, 2 to 3 ounce each.

Some men keep their word so well that nobody ever finds it out.

More Power on Less Fuel

THE sharp rise in the price of fuel during the past few years is causing less worry.

Experienced tractor owners now know that the remedy lies in correct lubrication.

They have replaced the hit-or-miss use of oils with scientific lubrication. In the operation of their own tractors they have seen a marked drop in fuel and oil consumption.

In tests the correct grade of Gargoye Mobiloils has rarely failed to show a fuel saving of from 10% to 30%.

Oil consumption has been lowered in an even more remarkable way - generally from 30% to 80%.

Along with these savings has come a marked increase in power. Deeper plowing is possible; overheating becomes rare. Repairs are few and far between.

These results are matters of record.

New needs are rarely met by old remedies. Oils that "worked all right" on old-fashioned farm machinery have proved extravagant and dangerous on to-day's tractors.

Gargoye Mobiloils meet the needs of the modern tractor with scientific exactness.

That is now a commonly known fact. It is plain to tractor manufacturers and they are trying to make it plain to their customers. Almost without exception they advise the use of Gargoye Mobiloils as specified on the Gargoye Mobiloil Chart of Tractor Recommendations.

The grade of Gargoye Mobiloils specified for your make of tractor will save you money on oil, fuel and repairs. The power-difference will probably surprise you.

Write for correct Lubrication booklet containing complete Tractor Chart and other valuable data.



To Correctly Lubricate Your Automobile

There is a grade of Gargoye Mobiloils that will exactly meet the lubricating requirements of your automobile. It is specified in the Gargoye Mobiloils Chart of Recommendations for automobiles. Write for booklet, "Correct Lubrication," containing complete discussion of your automobile problems and troubles, and complete Gargoye Mobiloils Chart of Recommendations for automobiles, tractors, motorcycles and motorboat engines.

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BRANCHES THROUGHOUT CANADA

Correct TRACTOR LUBRICATION

Explanation:—The four grades of Gargoye Mobiloils for tractor lubrication, purified to remove free carbon, are:

- Gargoye Mobiloil "A"
- Gargoye Mobiloil "B"
- Gargoye Mobiloil "BB"
- Gargoye Mobiloil "Arctic"

In the Chart below, the letter opposite the tractor indicates the grade of Gargoye Mobiloil that should be used. For example, "A" means Gargoye Mobiloil "A," "Arc" means Gargoye Mobiloil "Arctic," etc.

TRACTORS	1916	1917	1918	1919
	Winter	Summer	Winter	Summer
Albion-Dover (Square Turn)	BB	BB	BB	BB
Alfa-Chalmers	BB	BB	BB	BB
All Well	A	A	A	A
Andrews	BB	BB	BB	BB
Apricot	BB	BB	BB	BB
Arcton-Taylor	BB	BB	BB	BB
Avery (19-36)	BB	BB	BB	BB
" (19-36 HP)	BB	BB	BB	BB
" (19-36 Full)	BB	BB	BB	BB
Bass Steel Mole	B	B	B	B
Best Tractor Pull	BB	BB	BB	BB
Best (19-16)	B	B	B	B
Big Bull	B	B	B	B
Boer (19-16)	B	B	B	B
Buckeye (Indiana)	BB	BB	BB	BB
" (Indiana) Giant Baby	BB	BB	BB	BB
" (Ohio)	BB	BB	BB	BB
Cat	A	A	A	A
" (19-18)	A	A	A	A
" (19-20)	A	A	A	A
" (20-40)	A	A	A	A
Champion	BB	BB	BB	BB
Cleveland	BB	BB	BB	BB
Commonwealth	BB	BB	BB	BB
C. O. D.	BB	BB	BB	BB
Corn Belt	BB	BB	BB	BB
Corning Grip	BB	BB	BB	BB
Emerald-Brantingham (E.B.)	A	A	A	A
" (E.B. 16)	A	A	A	A
" (Big Four)	A	A	A	A
" (Silver)	A	A	A	A
Farm Horse	B	B	B	B
Franklin City	B	B	B	B
Hart Parr	B	B	B	B
" (Model B)	B	B	B	B
Heater	BB	BB	BB	BB
Holt Caterpillar	B	B	B	B
" (Model 65)	B	B	B	B
" (Model 18)	B	B	B	B
Haber	BB	BB	BB	BB
Imperial Forty	BB	BB	BB	BB
Ingers	BB	BB	BB	BB
Kingfield	BB	BB	BB	BB
K. C. Prairie Dog	BB	BB	BB	BB
Kitchard	BB	BB	BB	BB
Len	BB	BB	BB	BB
Little Chief	BB	BB	BB	BB
Little Giant	BB	BB	BB	BB
Maryland	BB	BB	BB	BB
Minneapolis	B	B	B	B
Magd (I. H. Co.)	BB	BB	BB	BB
" (I. H. Co.)	A	A	A	A
" (Mason Universal)	A	A	A	A
New Era	BB	BB	BB	BB
Nichols & Shepard	BB	BB	BB	BB
Niles	BB	BB	BB	BB
Oil Pull (Ramley Co.)	B	B	B	B
" (14-28, 19-30, 20-40)	B	B	B	B
" (Ramley Co.)	BB	BB	BB	BB
Parrott	BB	BB	BB	BB
Perita	BB	BB	BB	BB
Plow Boy	B	B	B	B
Plow Man	BB	BB	BB	BB
Postcar	BB	BB	BB	BB
Rumple	B	B	B	B
" (19-16)	B	B	B	B
Russell	BB	BB	BB	BB
" (Little Four)	BB	BB	BB	BB
Sandusky	BB	BB	BB	BB
Samuel	BB	BB	BB	BB
Standard	BB	BB	BB	BB
Strat	BB	BB	BB	BB
Titan (I. H. Co.)	BB	BB	BB	BB
Ten Thumbs (4 cyl.)	B	B	B	B
Twin City	B	B	B	B
" (Model 16)	B	B	B	B
" (Model 18)	BB	BB	BB	BB
" (Junior)	BB	BB	BB	BB
Walls Cub	BB	BB	BB	BB
Watson Boy	A	A	A	A
Wyanonah	A	A	A	A
Yale	A	A	A	A

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are sometimes called plough shoes or harvest shoes because they are especially designed for wear in the ploughing and harvesting seasons.

You will not be troubled with tired, aching feet after doing a hard day's work in Palmer's Summer Packs, because they are light in weight, durable, roomy, comfortable and waterproof.

Ask your dealer for a pair of these, "Moose Head Brand" shown above is stamped on every pair.

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FREDERICTON, N.B., CANADA

TWENTY-THREE YEARS AN ALFALFA GROWER

By F. E. Ellis

HENRY GLENDINNING is best known to Canadian farmers as the great apostle of alfalfa culture. From one end of Ontario to the other and in other provinces as well, on the platform and in the press, he has told of the merits of this great forage crop. On the occasion of my last visit to Rosebank Farm where the apostle practises as he preaches and grows over 100 acres of his favorite crop, Mr. Glendinning told me of his early experience with alfalfa.

"I grew my first alfalfa about 23 years ago," said Mr. Glendinning reminiscently. "I had been reading about the crop, but had never even seen it grow. I decided to give it a trial. I bought some seed in Toronto. I am now satisfied I sowed it at the rate of 25 lbs. to the acre and did not get as good a catch as I did last season from a seeding of 12 lbs. to the acre. And last season, mind you, was a much more unfavorable one than when I made my first seeding 23 years ago. Of course, the longer you grow alfalfa on your land the smaller the seeding required to secure a stand.

"I sowed that first time with a nurse crop of spring wheat. When I looked at those puny little plants of alfalfa with their small stems, small leaves, many of them inclined to be yellow, it did not look like much of a crop, but I decided that such growth must be the nature of the plant. The stock was kept off until the grain was harvested and the crop made a fair growth that fall. The next year we cut a very fair crop of alfalfa. The land was rich and in splendid condition. I remember that that year we cut two crops. Then we made our first mistake.

Not a Pasture Crop

"After we had taken the second crop and growth was again well started we turned the stock on. We had been told that alfalfa was the greatest pasture plant the world has ever known, and we took the experts at their word. A number of hogs ran on it and on the adjoining field. The following spring there was hardly a plant left of our original seeding. Such was our first experiences with pasturing alfalfa, and our experiences with alfalfa as a pasture plant since have served only to strengthen our belief that if one wishes to get rid of a stand of alfalfa, the best way to do it is to pasture it.

"I just stated that hogs ran on both our alfalfa field and the field adjoining. The second spring we seeded alfalfa on that adjoining

field, this time with barley as a nurse crop. What was our surprise when instead of small, puny plants, the alfalfa stand was strong and vigorous. By the time the barley was ready to cut, the alfalfa was almost as tall as its nurse crop and some of it was out in blossom. I wasn't able to explain the difference then, but I think I can now. My belief is that there were a few bacteria clinging to the seeds of that first seeding on my farm, that these developed throughout the season, and that the hogs in the dirt that they carried on their feet from one field to the other inoculated the second field with alfalfa nitrifying bacteria.

"We sowed only the common varieties of alfalfa then and for a number of years we would get a good catch one season and have a failure the next. We were slow, too, in giving up our belief in the experts who had told us that alfalfa was a good pasture plant and we lost several stands through pasturing late in the fall. When we gave up late cutting and late pasturing, our experiences with alfalfa took a turn for the better.

An Experiment With Nitro-Culture

"I then knew nothing about bacteria or nitro-culture. One day when riding on the train with Prof. C. A. Zavitz of Guelph he asked me if I had tried nitro-culture. I told him that I had been getting good catches and asked if he thought I could do any better by inoculating the seed.

"Shortly after that I received a bottle of nitro-culture from the Ontario Agricultural College, just about the time I had bought the farm across the road. On it alfalfa had never grown. Here were ideal conditions to experiment with my sample of nitro-culture. Part of the field was seeded with untreated seed and part with treated. When we came to harvest the crop of barley, the bundles that we got from the treated part of the field were more than half alfalfa. From the untreated portion of the field we harvested only clean barley. We could walk out to the field and see clearly the straight line of demarcation between the two portions, so strong and vigorous was the growth of the inoculated portion; while on the uninoculated portion we had a catch that resembled very much the first field of alfalfa I had ever seeded. I found a great number of weak, puny plants as I had at first. In the course of a few days the treated stubble was a green mass, and on the other portion, stubble only was visible. The treated portion people used to mistake for fall wheat, so green did it look from

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They carry the load, day in and day out. They are ready for the hardest kind of service—for any kind of weather—because they are made expressly for the needs of the Western Canada grain country. Our nearest branch is always at your service; we'll see that you are promptly supplied, should you be unable to obtain a **RED WING Belt** in your neighborhood.

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According to the best estimates, you lose 3/4 bushels of grain in every 100 bushels if you don't thresh clean.

Looking after the leaks and cleaning up the refuse before the machine leaves the field will save you one bushel.

Careful handling of the bundles from the shock to the thresher or stack and arranging the bundle wagons so that all the grain that shatters may be caught

saves three-quarters of a bushel.

But most important of all is a machine of ample power that stays in repair and in proper adjustment. That saves fully a bushel and a half.

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is such a machine, dependable, durable, simple, efficient.

"High Points" in the construction of the Huber Junior Thresher are:—

Balanced Racks—Racks are so arranged that as one goes up the other goes down, eliminating practically all vibration and giving maximum agitation with minimum wear and tear.

Rack Pitmans outside of the machine allow more separating surface and make the pitmans accessible for oiling.

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Double Belting—Belting carries direct from pulleys at each end of the cylinder shaft to every moving part of the machine.

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Besides the Huber Junior Thresher, we carry the Huber Threshers in the larger sizes.

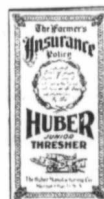
Write to nearest address for "The Farmer's Insurance Policy," describing the Huber Junior Thresher in detail. Also literature descriptive of the Huber line.

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the road, and not a few asked me why I didn't plow up the rest of the field and put it into wheat. That will give you an idea of how brown the untreated field looked.

"I examined the untreated portion of my field very carefully and I found dotted here and there among the weakly alfalfa plants, good, strong, vigorous plants about one to every square rod. I concluded that some dust or soil had been brought along with the seed, and that this had inoculated a small portion of the seed sown. In time the bacteria would work from these plants to others and inoculate the whole field. It was in this way that my second field of alfalfa had been inoculated. But, of course, it is much more expeditious and economical to make sure of the inoculation before you sow the seed.

Alfalfa Stands Four Years

"Another thing I noticed in that field was that there were not as many plants on the poorer side of the field but when the second season came along every plant seemed to be vigorous. The inoculation had spread. We cut that field for seven years. We now make it a point, however, not to run a crop for more than four years, cutting it three and then pasturing. The pasturing helps to destroy the plants and makes

the plowing easier. We are getting down to a shorter term for our alfalfa stands all the time."

Here I interjected a question. "What do you think," I asked, "of the plan followed on Hoard's Dairyman Farm in Wisconsin where they have a five-year rotation of corn, grain, and three years in alfalfa?"

"I should think that would be about ideal," said Mr. Glendinning. "The first year you do not get as heavy a crop of alfalfa as the second. The second year you get very good cuttings and the third year the best of all. After that there is a tendency for the stand to thin out as the blue grass creeps in."

In discussing the much-debated question of varieties of alfalfa, Mr. Glendinning informed me that he now grows only Canadian variegated, although it has been his experience that the common varieties of alfalfa will yield larger crops than the variegated.

However, he considers that the superior hardness of the latter more than compensates for any slight scantiness in cropping and in northern climates hardness is an important factor in variety selection. This year, for the first time, Mr. Glendinning is comparing Grimm alfalfa with his well tried Canadian variegated.

ADJUSTING THE PLOW

(Continued from Page 41.)
tually prove to be so, but on the facts as they exist at the present moment the slow speed engine has the best record. In my own opinion the most suitable type is a vertical four-cylinder engine running at from 600 to 700 revolutions per minute and fitted with a much heavier flywheel than is usual on the four-cylinder engines now commonly adopted. The stored up energy in the flywheel which can be exerted to overcome temporary overloads on the engine, such as in starting and in patches of difficult ground, is a factor of great importance.

The majority of the new 99 tractors fitted with high speed engines are the products of new tractor makers in America and are not the result of conversion of opinion on the part of the makers previously supplying tractors fitted with slower speed engines. Probably the most potent reason for the wholesale adoption of the vertical four-cylinder high speed engine is that such engines already exist in vast quantities as the standardised productions of factories catering for motor car and commercial motor vehicle requirements. Many of these new tractors are built by firms whose previous ex-

periences are more closely associated with motor trade than farming requirements, and the engines used are those to which they have been accustomed and which are readily obtainable.

MANITOBA'S WOOL VERY PROFITABLE CROP

THOSE farmers who possess sheep are in luck. The need for wool is very urgent and the price high. In Manitoba advantage of the co-operative marketing plan has been more widely taken than during any previous year. Already the Manitoba Department of Agriculture has shipped two carloads east, and so much wool has come in that a second wool warehouse in Winnipeg has been found necessary. It is confidently expected that the wool receipts of this year will total 300,000 pounds. This compares with 168,048 pounds marketed in the same manner in 1917. An advance of 40 cents per pound is being paid on the wool as soon as the department is able to take delivery of it; the balance of the price will be paid after the wool is sold.

While keeping one eye on Europe, don't forget to swat the fly and oil the mosquito.

Mr. Farmer---

We Believe You To Be Fair

We Know You Realize that there are Two Sides to Every Story and that a Fair, Square Hearing is Every Man's Right

So we, the Canadian Manufacturers' Association, ask you to read our views (published at our own expense) on the subjects of Tariff and Co-operation as presented in an address by Mr. S. R. Parsons, Retiring President of the Canadian Manufacturers' Association in Convention, before this body, at Montreal June 15th, 1918

"Speaking broadly, Canada must choose between the Tariff with Manufacturers on the one hand, or free trade without manufacturers on the other; the issue cannot be dodged and should not be clouded."

"The Tariff is not simply a matter of give and take between manufacturers and farmers. What about labor? What about railway companies, the merchants, the financial institutions, the people at large? The Tariff affects everybody."

THERE are two subjects of sufficient importance to claim our particular consideration this year and upon which we should focus our attention. I have, therefore, concluded to disregard all precedent, which, if followed, would constrain me to deal in a somewhat discursive manner with many matters of interest to our Association and the country at large.

The first question has to do with the relationship between employers and employees, and the second the problems of the tariff, particularly as affecting manufacturers and agriculturists. In discussing these topics, I am sure you will agree with me in saying that we should lay aside any ingrained prejudices or conclusions which would prevent us from reaching decisions that are unselfish, broad-minded, and national in scope. As men holding a high and important place in the nation's affairs, we should feel that unless we approximate in spirit many of our members, as well as hundreds of thousands of others who have without reserve

given themselves freely to the service of the country in defence of the things that we all hold dear, we are disqualified for dealing with important interests which have to do more particularly with the nation's life at home. From an intimate knowledge and association with the manufacturers of Canada, far and wide, I know that as a body they are characterized by the highest ideals of citizenship and service.

"Capital and Labor."

First, then, let us consider the question which is usually dealt with under the heading of "Capital and Labor." We have been learning many things during the past four years and while all sorts of doctrines, theories, and even fads are being put before us which are more or less impracticable in character, yet it would be a great pity if the fine idealism which is being preached could not be turned to useful account as far as possible. The thing which we call democracy is revealed more in spirit than in organization or

regulations. If democracy is going to be anything more than a label on an empty bottle, it must characterize our human relationships and actions. We have, perhaps, unconsciously, ignored to some extent the human element in giving effect to the relationship existing between employer and employed. In the old days when in small shops the so-called "master" worked with his men, often at the same bench, and each called the other by name, there was continuous friendly intercourse which resulted in producing good relations throughout. Afterwards, with the introduction of machinery, there was brought about an industrial revolution. Instead of the small shop with few workers, there was the great factory, with many hands, so that it soon came to pass that employer and employee did not often meet or even know each other.

The result in many cases has been that the workers came to look upon themselves as part of the machinery of the organization to be used solely in the interests of the producing capacity of the business. It was quite natural, therefore, to expect that disagreements would arise between the two chief interests involved that have led here and there to occurrences of which neither side could possibly be proud. We have now come to see that just as the human body cannot do its best work unless the integral parts are acting together, so in the case of our great industrial system, there must be a living spirit of working together in order to complete service. We have had, perhaps, more or less of the external form and have boasted too much about

the body of democracy when having little of the soul. Looking around us, and especially in Old World countries, though not unknown even in Canada, there are armed camps of Capital and Labor. I have no hesitation in saying that these should find some method of union. These two classes must stand together in their own interests. There must be a meeting ground where antagonism and suspicion shall not dwell. The situation at present is aptly described by the quotation:

"In the world of industry, employers explain too little, employees exclaim too much, economic teachers proclaim only a bias, and politicians only declaim. There is no one to interpret—no, not one."

Better Relationships

Now, the question is as to how to bring about a better relationship. No one will question the advisability of trying to regain an attitude akin to that which prevailed in the seventeenth century, when there was a glory and a pride in trade and craft, which has been largely lost out of our industrial life. What a day it would be if we could make a song of our work instead of a dirge of our grievances! Capital, on the one hand, must realize the duty of caring for the welfare of all those associated in industry, and Labor must be ready to cooperate to the fullest possible extent in a spirit of helpfulness. My own opinion is that each individual industry will work out its own plans applicable particularly to the special conditions governing the concern. Many schemes, some of them quite elaborate, have been brought forward in Great Britain, providing for a more effective co-operation between employers and employees. In the United States some plans of co-operation have already been put into effect and others

are being considered. Everywhere there is the feeling that the time has come when most earnest consideration should be given to this important matter. Nearly all the plans which have been put forward carry with them the idea of representation in our great manufacturing enterprises from both Capital and Labor. In some industries a committee of ten or twelve is appointed, half of whom represent the company and the other half the employees. These representatives are charged with the duty of dealing with matters such as employment, discipline, right of appeal, wage adjustments, and joint conference. In a certain industry employees after one year's service, are insured at the expense of the company, the amount varying from \$500 to \$2,000; in case the employee leaves the service of the company, he takes his policy along with him and keeps up the insurance if he wishes to do so. Annuities are also provided after twenty years of service.

No one industry can be a pattern for all, as the ability to deal with such questions is not shared equally. It appears to me that it is impossible for us to develop immediately a satisfactory plan of co-operation that might suit all the different industries with their varying conditions. There is, however, no reason why a start should not be made and some headway gained. The evolution of processes must be gradual; the new heaven and the new earth will not burst upon us in a day. Personally, I am not at all afraid to trust representatives of our workmen to join in plans of co-operation in the interests of all concerned. When we think of what our men from the ranks of Labor have done in this great war, coming forward largely under voluntary enlistment, and when we realize further the valor they have displayed on the battlefield, they are not only entitled to proper recognition at home, but to a consideration of their interests, which hitherto they have not had in large enough measure.

One thing appears to be certain, namely, that where individual interest, ambition, and good work are shown, these must all be recognized by both interests in the business and properly rewarded. On the other hand, the unwilling and the inefficient must not block the path of the ready and the skilful. *There can be no universal betterment applying to each and every worker in any scheme of co-operation without individual participation, if we are to hold our own against other countries and nations whose competition we have to meet both at home and abroad.* I would like, however, to see such a spirit of mutuality and co-operation engendered that the two great classes would think together and not apart. I believe this would result in such efficiency in all our organizations that we would be able to increase our home and foreign trade, help pay our war obligations, make reasonable profits, and pay higher wages than would otherwise be possible. It should be remembered that as from the ranks of Labor a very large proportion of our men have gone to the front, so when the war is over, to the ranks of Labor they will be returned. Much as we would like to see the returned men go upon our farms, yet the great majority will naturally revert to their former occupations. They will, therefore, be a charge for the promotion of their interests upon our towns and cities and the manufacturing industries in particular. We cannot begin too soon to lay our plans for giving effect to that particular form of co-operation which

will fit our individual concerns best and enable employers and employees to serve one another.

Our second great question is that dealing with

Manufacturers, Agriculturists, and the Tariff.

More than a generation ago the National Policy was brought into existence and, therefore, the great majority of men doing business to-day in Canada do not remember the hard and trying years before its introduction in 1878.

undermining that which has proved to be the great bulwark of our national, industrial, and commercial life.

The War-time Tariff Truce

It was understood, when Union Government was formed, that the agitation of the Western grain growers for the abolition of the tariff would not be continued during the period of the war. This has been denied by some of the grain growers during the session of parliament just ended, but a newspaper report of an address by Honorable T. A.

"Speaking Frankly and Sincerely"

The portion of this address referring to the Tariff was given in response to a direct challenge of the Grain Growers' Guide (the official organ of the Agriculturists of the West) to the President "to speak frankly and sincerely and come right out into the open on the Tariff question." In its issue of June 19th the Guide says:

"The Canadian Manufacturers' Association has had its annual convention and S. R. Parsons, the president, just retired has spoken. True to the intimation given through his recent letters to The Guide, he 'came out into the open' and spoke frankly about existing differences of opinion with regard to the Tariff. A digest of his speech as well as a summarized report of other features of the Canadian Manufacturers' Association convention appears elsewhere in this issue. It ought to be read closely by all grain growers, for Mr. Parsons, accepting the suggestion frequently offered by The Guide, has strongly urged that a conference between manufacturers and grain growers be held in Winnipeg some time this year. The dominant note sounded by Mr. Parsons in his address of last week at Montreal was national unity—a unity which would enable the manufacturer, the workman and the farmer to live and work together in Canada for the good of the country as a whole. This desire was expressed by Mr. Parsons in words of deep fervor, and we are told that his speech was received with great applause by the manufacturers who attended the convention."

As only excerpts from the address have appeared in the press, the Canadian Manufacturers' Association have concluded to publish it in its entirety for the benefit of the public, it being endorsed unanimously by the large Annual Meeting of the Association recently held in Montreal.

At that time the country was making little headway under a revenue tariff of 12½ per cent. Our industries were comparatively unimportant and American factories supplied us in large measure with products such as have since been made in Canada. Generally speaking, the commercial interests of the country were languishing and our bright young men were attracted in large numbers to the United States, a country being built up and prospered under a policy of protection. We are now in danger, especially on account of the propaganda of one section of our population, of failing to profit by experience, losing our balance, and blindly yielding to the demand for

Crerar, at Winnipeg, in the election campaign states:

"The Minister of Agriculture alluded to a conversation with a farmer in Toronto the other day, who asked him: "What concessions did you get on the tariff?"

"I required no concessions," declared Mr. Crerar. "The tariff is not the issue at present. I feel just as strongly on the question of tariff as any man. I have not sacrificed these views in entering a Union Government. The tariff is not the issue at present. The great outstanding issue is the winning of this war."

The Toronto Globe referred editorially to this matter and spoke of it as a

"truce"; in fact it was more or less the general expression of opinion at the time of the formation of the Union Government that tariff matters would not be referred to until the war was over. The manufacturers, therefore, accepted this view and would have respected same throughout if others had done so. We have found, however, that in the Western Provincial Legislatures resolutions have been passed asking for the removal of the duty on agricultural implements as a so-called "war measure." In farmers' papers and other organs there has been carried on a constant agitation against the tariff and denunciation of the manufacturers. Grain growers have recently challenged manufacturers to come out openly and declare themselves upon the tariff question. Much as we would have preferred that there be no consideration of this question during the period of the war, as all our attention should be fixed upon our national obligations with respect thereto, yet some measure of action has been forced upon us and it is, therefore, necessary to deny many of the unfair, erroneous, and misleading statements that have been made for the purpose of trying to prejudice the minds of the public against manufacturers and manufacturing interests of this country.

Agriculture and Industry Interdependent

Our statements should be prefaced with the remark that the manufacturers of this country, along with all other classes, are vitally interested in the success of the agriculturists and will not be satisfied until the fullest possible measures looking to their betterment and the removal of any inequalities or unfair burdens, are accomplished. It surely is not necessary to do this, however, at the expense of other classes and at the risk of ruin of our great industrial fabric, built up with great care and national efficiency. A great Toronto daily sets forth admirably the relation of manufacturers to agriculturists in the following words:

"If agriculture is the backbone of the Dominion, industry is the sinew and brain. Each is vitally important; they are interdependent. Progress and prosperity for one invariably means progress and prosperity for the other. Their success provides food or their failure provides famine for the people. Trade balances depend upon their activity. A favorable balance swells Canada's bank roll, and the people become prosperous and very happy under normal conditions."

Reciprocity

We are told that especially in the West, peopled so largely with American citizens of an excellent class, there is more or less of a demand for reciprocity, if not a closer connection, with the United States, which, perhaps, is quite natural, particularly among the class referred to. While as Canadians we value more than ever our friendship with the great nation to the south of us, yet we believe we have an important part to play as an integral portion of the great British Empire and in working out our own future. When there was an agitation for reciprocity, in 1911, and which certain elements in our population are now trying to revive, the majority of the people decided against it and in favor of a continuance of our national, political, and fiscal policy and unity. As nothing has occurred since to lead us to believe that we were mistaken at that time, it is perhaps well now to emphasize our views and refresh our minds on the question by referring to

what the then President of the United States thought of the reciprocity campaign and of its effect upon Canada as well as the United States. In a letter written at the time to Colonel Roosevelt, and made public afterwards, President Taft said:

"The amount of Canadian products we would take would produce a current of business between Western Canada and the United States that would make Canada only an adjunct of the United States. It would transfer all their important business to Chicago and New York with their bank credits and everything else, and it would increase greatly the demand of Canada for our manufactures. I see this is an argument against reciprocity made in Canada, and I think a good one."

We all know that Mr. Taft is an extremely capable business man as well as politician, and he recognized at once what even a measure of reciprocity, such as was then proposed, would mean to both countries. It would thus appear that our shrewd friends in the United States saw in the proposition what some of our Canadian politicians and others were blind to. The war-time measures of reciprocity that have been created are hardly a valid argument for their operation in normal times from a national standpoint. *Surely we could not be foolish enough now to want to place our country and our national existence in the condition so well described by Mr. Taft, nor are we ready to believe that our destiny lies in a severance of Empire ties.* Already Great Britain is taking steps to bind all parts of the Empire together in closer commercial relations for after-the-war trade. We in Canada have helped to create, as well as bear, heavy Empire war burdens and this ought to be followed by our full share of peace responsibilities; in fact our national and our Empire obligations must now be paramount in our thoughts and plans and receive greater and more serious attention than ever in the past.

Hostility to Manufacturers

It would appear from the propaganda being waged with such vehemence against the manufacturers of Canada that the chief view presented is that the tariff is retained solely to benefit the manufacturers and to oppress all other classes of the people, the farming community in particular; in fact one of the leaders in this propaganda in a recent article, which throughout is full of abuse of the manufacturers, commences the same by quoting from Sir Wilfrid Laurier in June, 1893, as follows:

"But I appeal to your judgment in the face of the experiment of the last fifteen years under the system which was introduced by the Conservative party, which was dubbed the 'National Policy,' to say if that system was not vicious in principle, iniquitous in its terms, and dangerous in its consequences, I say that it is vicious in principle."

Now this quotation is evidently brought forward to give the farmers of the West the view that Sir Wilfrid Laurier is the apostle of Free Trade and a non-believer in the National Policy. It would have been more honest had the writer stated that when Sir Wilfrid came into power and was in the saddle for so many years he found the retention of the National Policy, as reflected in the tariff, to be entirely necessary in order that proper revenues might be raised for the country. The writer in question further refers to the manufac-

turers in his "Hymn of Hate," as follows:

"It is conclusive proof that the 'infant' we have so tenderly nursed for fifty years has become a selfish giant, as ruthless and destructive as the one we are sending our armies to resist in Europe to-day. Never before in the history of our country has the mailed fist of special privilege so plainly shown itself."

Trade and Tariff Board

It is, therefore, quite evident that the time has come when the manufacturers of this country can no longer keep silence, either in their own interests, the interests of Labor, or the great national interests of this country. It should be remembered that the present tariff, with changes here and there, was enacted as a great national policy, not for the benefit of any one class, but for the well-being of the nation at large. No one who is not ignorant of the subsequent history of our Dominion can say that it has not justified its existence. An enormous revenue has to be raised in any case and in no other way can the amount produced by the tariff be raised so easily and fairly as by the present methods, which at the same time incidentally give reasonable protection to our great manufacturing industries. Manufacturers feel that the tariff could and should be changed here and there, and so amended that it would apply more scientifically than it does at the present time. *For this and other reasons, the manufacturers would like to see created what might be termed "A Trade and Tariff Board"; such a Board to be composed of representative men of actual experience and wide knowledge of commercial conditions and whose broad outlook and vision would fit them particularly for the proper study of these great questions so vital to our national interests; this Board to report to the Government from time to time their findings, and if after a full and complete survey of the situation, it be clearly established that the tariff is inimical to the best interests of the country at large; nay, more than that, if it is not actually essential from a national standpoint, then, I say, "Away with the tariff."*

Not Simply Give and Take

The time has arrived when we must all face this matter in a sincere and broad-minded fashion. It surely cannot be simply a matter of give and take as between manufacturers, on the one hand, and grain growers on the other. Labor must be consulted and considered, the transportation interests of the country (now so largely controlled by the Government) must have their say, the great financial institutions of the country, wholesale and retail business, producers controlling our mines, forests, and fisheries, are all vitally interested in the question of the tariff and must clearly have a voice as to its retention or otherwise. In giving expression to the convictions of manufacturers in this manner, we should at the same time be glad to meet the grain growers of the West and would do our part to try and bring about a conference to be held a little later in the season in the City of Winnipeg; this conference to be followed by other meetings, if necessary. We desire most earnestly to co-operate with our fellow-producers and to show them in the frankest manner our problems and to be shown by them their handicaps, in order that we may each of us see where changes could possibly be made that would be of mutual benefit and help.

Industrial Protection Essential

We would, however, be altogether insincere and dishonest did we not state in general terms that if there is one thing more certain than another, it is that manufacturers could not possibly exist in this country without the small measure of protection which the tariff affords them. The two stand or fall together. *Speaking broadly, Canada must choose between the tariff with manufacturers on the one hand or free trade without manufacturers on the other; the issue cannot be dodged and should not be clouded.* Living alongside a populous country of highly specialized industries, catering to a home demand of twelve times as many people as we have in Canada, it would be suicidal for us to attempt to compete, or develop our new country on the basis of free trade. It is, perhaps, interesting to note that, notwithstanding the enormous population of the United States and the great home markets that are open to them, they have found it necessary, in their own interests, to retain a large measure of protection by means of the tariff. Even under the present Democratic Government, reduced schedules, the average rate of duty paid on imports of dutiable goods coming into the United States for the year ended June 30th, 1916, was 30.67 per cent, while in Canada, for year ended March 31st, 1917, it was only 23.78 per cent, so that our own tariff is approximately only about 75 per cent, as high as the American tariff on dutiable goods. The War Tax of 7½ per cent, although added to the cost of imported goods, free and dutiable, was not proposed or desired by the manufacturers. It would appear, therefore, that those who complain of our high tariff walls have not full knowledge of our comparative position in this matter. It should be remembered that manufacturers pay heavy duties on much of their imported raw material; for instance, a large machinery-manufacturing concern in Toronto has advised me that while the tariff on their finished article would appear to give them a protection of 27½ per cent, yet their figures over a number of years show that the average rate of duty they pay on their raw materials is 25 per cent. *The protection to the manufacturer in this particular case, as in the case of very many other lines is, therefore, reduced by the amount of duty paid on the raw materials, leaving only an extremely moderate margin of actual protection.*

Honourable Chas. A. Dunning, Canadian Director of Production, is quite too good a business man not to see very clearly that even the removal of duties on agricultural implements for the farmer means that much additional burden of taxation to the population as a whole. In making his report covering the proposed removal of duty on agricultural implements, he stated he was "not concerned with questions of tariff reform, federal revenue, questions of permanent fiscal policy, or the age-long issue between free trade and protection." Just so; if these important national considerations may be completely ignored, the whole question is extremely easy of solution. Be it remembered, though, that the two million dollars said to be raised yearly from duties on agricultural implements, if not so produced, would have to be shouldered by the people at large.

Should the Burden be Shifted?

At this particular time in our national history, when employment for returned

soldiers is going to be a matter of paramount importance, and when the largest possible revenue must be obtained in all directions to carry our gigantic war debt, the question may fairly be asked: *"Is the farming industry languishing to such an extent that in order to help it out, there must be destroyed, or even impaired, its fellow-producer, the manufacturing industry of this country?"* In fact, the weakening of the latter from our standpoint would mean partial destruction of the former. However, perhaps some figures and statements sent out by the *Grain Growers' Guide* (the official organ of the agriculturists of the West) to prospective advertisers, would help to make clear the question as to the condition of the farming population. It is stated that, based upon the figures for 1917, there will be 60,000 motor cars purchased in 1918 in the three prairie provinces, having an average value of \$1,000 per car, making an investment of sixty million dollars, and that another ten million dollars' worth of accessories will be purchased. It is further stated that while in the United States the farmers bought 40 per cent of the cars sold in 1917, the proportion sold to farmers in Western Canada was twice this figure. It is further stated that "Western Canada, and especially the farmers of Western Canada, should, therefore, be the best prospects for your sales efforts in 1918." Another significant statement reads:

"A recent investigation, conducted by the *Grain Growers' Guide*, into nearly three hundred districts in Manitoba, Saskatchewan and Alberta, confirms emphatically the oft-asserted claim that *nowhere, and with such unanimity over such a wide area, is nature so bountiful or is the return per capita from farm life so profuse as in Western Canada.*"

"The following data is taken from this investigation:

Average size of farm.....	382 acres
Number of farms owned.....	92½%
Number of farms rented.....	7½%
Average acreage under crop.....	195 acres
Average value of farm holdings.....	\$11,010
Average number of persons per farm home.....	Five

"The wealth, as indicated above, is concretely illustrated by the official list of automobile licenses issued in Western Canada in 1917. The average for the Dominion of Canada as a whole is one auto to every fifty-seven people. The average for Western Canada (Manitoba, Saskatchewan, and Alberta) is one auto to every twenty people."

Value of Cereals and Other Crops

The figures given also emphasize the fact that in 1917 the cereal crops alone averaged in value per each farm \$3,725, and that the average capital worth (land, buildings, machinery, live stock), was, as stated above, over \$11,000, and that the average capital worth of the *Grain Growers' Guide* subscribers was \$25,878. *Taking their own figures of the average value of farm holdings and the average returns for the past three years, it shows that the cereals alone, without counting any other crops, have produced thirty-two per cent per year upon the capital.* There are many other extremely interesting and very satisfactory figures and statements given, all showing the great progress the agriculturists of the West are making. Now, in addition to the cereal crops mentioned in the *Grain Growers' Guide* circulars, we have figures issued in a bulletin by *The Nor-West*

Farmer, taken, it is stated, from 1917 final crop and live stock reports of the Provincial Departments of Agriculture in Manitoba, Saskatchewan and Alberta. A study of these reports gives the total value of farm products, other than cereals, at a little larger figure than the total value of all cereals. It is fair to assume, therefore, that on the average all the expenses of farming operations would be more than met by the production of other than cereal crops, whether such products were sold or retained to add to the farmer's capital. This, then, would leave at least the profit on cereals as net returns, and I do not hesitate to say, after careful calculation, that it would be quite double the average net profits of manufacturing during the same period of three years.

The first year (1915) was disastrous, generally speaking, in manufacturing, and while the last two years have been unusually profitable in many lines, yet in others war conditions have brought paralysis. No class in Canada, however, rejoices more in the prosperity of the farmers than the manufacturers. We realize that unless producers in all classes in the country, whether engaged in farming, manufacturing, mining, fishing, lumbering, or other forms of industry, are prosperous, it is utterly impossible for the country as a whole to progress as it should. It would appear, however, from the figures given by the agriculturists themselves, as quoted above, that just now is not an opportune time for them to ask other classes of the population to assume burdens of taxation which they would like to be relieved of.

It is interesting to note that the total number of farmers in Canada holding ten acres and over is 633,748, or about equal to the total number directly engaged and employed in manufacturing.

Industrial Statistics

Now, in order to ascertain what the National Policy has done for Canada, and is doing in the building up of our great national interests, it might be well to refresh our minds with some statistics. In the year 1915 returns show that the total number of people engaged in manufacturing on salary and wage-earners was 514,883. If we consider the munitions-making and other industries, in which women are now largely employed, we might fairly estimate the total number to-day as being about 650,000. If we multiply this number by two and one-half we should probably reach the total number directly dependent upon the manufacturing industry for their livelihood, making 1,625,000. If we add to this total the number of people who indirectly make their living on account of the total industrial dependents, we should add from twenty-five to fifty per cent, the number varying according to conditions governing different localities. This division would include farmers and truck gardeners, railway (steam and electric) workers, banking interests, civic employees, butchers, bakers, storekeepers, caterers, etc., etc. Adding only 25 per cent, this would give a grand total of over two million persons. The total capital employed is estimated at two and one-half billions. The total exports of manufactured products last year was \$682,521,000. A comparative estimate of our main products for home and foreign consumption for the year 1917, according to the "Canadian Annual Review," is as follows:

Manufactured products . . .	\$2,000,000,000
Field crops	1,100,000,000
Dairy products and live stock	1,300,000,000
Forest products	176,000,000
Minerals	200,000,000
Fisheries	34,000,000
Eggs, fruit, etc.	40,000,000

It might be interesting to try and figure out what it would mean in the case of a great manufacturing centre like the city of Hamilton, to have its manufacturing industries removed. The total population of Hamilton is 106,000, having increased from 52,000 in 1900. The total number of manufacturing plants is 340; the total capital invested \$110,000,000; the total number of hands employed, including office and travelling staffs, 30,000; total wages and salaries paid per year, \$25,000,000. Statistics show that upwards of fifty United States concerns have located branch industries in Hamilton, representing a capital investment of about \$25,000,000. These concerns, of course, would not have located in Canada except for the incidental protection which the tariff affords. Considering the extreme industrial activity at present in a place like Hamilton, calling for large numbers of women workers, it is probable that only about two and one-half times the actual number of hands employed would be directly dependent upon industry, making a total of, say, 75,000. If we add to this even 25 per cent more, as being indirectly dependent upon industry, we have a total population of over 90,000 dependents (direct and indirect) for their living upon the manufacturing industries. Any interference in any large way with the tariff which now enables these manufacturers to do business would practically wipe out the city of Hamilton. What is true of Hamilton would be measurably true of many other towns and cities.

Agricultural Implements

We might also ask what would be involved in the question of removing the duty on agricultural implements? There are approximately 160 firms in Canada making one or more lines of agricultural implements, so that the figures given below do not include many agricultural implement manufacturers who make other lines as well, nor do they include companies subsidiary to or dependent on the agricultural implement industry. The number of agricultural implement plants proper is sixty, total capital employed \$60,000,000, total wages and salaries \$7,000,000, estimated number of people directly and indirectly dependent upon the implement business 40,000 to 50,000. Now, it is quite possible that if the duty were removed on agricultural implements (and it must be remembered that the rate of duty is considerably less than manufacturers have to pay on any machines imported for use in their factories), and the duties were also removed from the raw materials entering into the manufacture of such implements, a few of the larger concerns might still live on account of their large foreign export business; yet as they purchase millions of dollars worth of supplies of all sorts from other manufacturers in Canada, all such secondary concerns would be adversely affected immediately, and there would be a general weakening and tearing down of a large portion of the industrial fabric of the country throughout. Figuring the total duty paid on agricultural implements in 1916, and taking the total value of the property of the farmers throughout Canada, it means about 3 1/2% for every \$100, or

in other words a farm valued at \$10,000 would pay on the average annually \$3.50. This does not seem like a staggering obligation by way of contribution to the national funds. The removal of the duty on tractors, without any consultation with the tractor manufacturers, to see what they could do to help out the situation calling for greater production, and without even making provision for the rebate of the duty on raw materials imported by the tractor manufacturers, was an unfair and unjust measure. We made such representations to the Government that they finally rebated the duty charges on raw materials, but the tractor industry, where hundreds of men were employed and others in anticipation, as well as hundreds of thousands of dollars already invested, has been paralyzed, at all events for the present.

Manufacturers' Contributions and Obligations

Manufacturers are, however, quite tired of the abuse that is being heaped upon them from interested quarters, and while it is readily admitted that there may be many schools of economists of widely divergent views, yet it is high time that a policy of standing together in our national interests be adopted, and that we should emphasize the need of common honesty and sincerity being shown in the statements that are being circulated. The profits of manufacturers, generally speaking, have been grossly exaggerated, and while here and there abnormal figures are shown (which are subsequently largely extracted by the Business Profits Tax), yet the large profits feature also applies in the case of agriculturists. The great majority, however, of these two classes, as well as of all other classes in the country, are simply making reasonable and necessary headway. Let us look at what manufacturers have helped to accomplish in the last three and one-half years.

1. Manufacturers have contributed more largely than any other class to the furnishing of men for the colors.
2. Manufacturers in large numbers have entered into personal obligations with those of their men who may return as to giving them employment. As this matter of employment will be one of the most insistent questions after peace is declared, it might pertinently be asked how manufacturers can fulfil their part of the compact if the fiscal policy of the country is to be radically changed?
3. Manufacturers have been called upon to assume greater burdens of taxation than possibly any other class, and especially the farming community.
4. Manufacturers have, perhaps, more largely than any other class, contributed to all patriotic funds which have been launched.
5. No class has subscribed more liberally to all Government war loans, and it must be remembered that in very many cases those so subscribing have undertaken large obligations at their bankers to enable them to do this. Manufacturers would greatly regret being placed in such a position, either by reason of removal of the tariff or taxation measures, causing strangulation of industry, that would not permit them to continue such relationship towards future Government undertakings.
6. No class has supported the farming community as much in the way of helping to supply men for the garnering of

the crops, and in many cases even paying the difference in wages over and above what the farmer contributed.

7. If it had not been for the manufacturers of this country the Allies would not only have been short of munitions, but the country would have gone bankrupt on account of the balance of trade being against us. This war industrial activity has been recognized by Sir Frederick E. Smith, Attorney-General of Great Britain, in the following sentence: "She (Canada) has developed for war purposes a resource of manufacturing ability of which no one could have supposed her capable."

The time has arrived, therefore, when the Government, members of parliament, and the people at large must be fair to the manufacturers of this country and not consider their interests as a football to be kicked about by interested politicians and others, otherwise the national interests are sure to be adversely affected. The tirade of abuse has already gone too far.

Australia's Attitude

By way of contrast, it is interesting to note that in Australia the Prime Minister, Mr. Hughes, called all the manufacturers together in conference and outlined to them a very definite scheme, calling for their help and promising the co-operation of the Government for the furtherance of industry, and especially to try and secure export business; in other words, the Government of Australia is so seized with the necessity of maintaining and enlarging her industrial life that the Government commits itself to plans of co-operation that are most commendatory. In a remarkable address at Melbourne, Mr. Hughes closes with these eloquent and significant words:

"I do not hesitate to say that with proper organization we can increase the output of the primary and secondary industries very substantially. We can rapidly increase our export trade. We can place industry on a firm basis by an organization which will aid the individual producer to increase his output, find him markets for his product, and ensure transport at reasonable rates thereto. And in this way we shall reduce the burden imposed upon us by this great war, rapidly develop our resources, find regular employment for our people at high wages, and attract large numbers of the right kind of immigrants. The war has brought to us, as to all the nations of the earth, many and grave responsibilities. We must be prepared to shoulder them. We have not only to produce more wealth to pay for the war, and to develop this our glorious heritage, but we have to hold it for the Empire and for our descendants. But there is something greater. That far-flung domain known as the British Empire produces every mineral known to man and every variety of the animal and vegetable kingdoms. Its wealth is unaccountable, its resources illimitable. Organized it can control the world; unorganized it must fall a victim to a more efficient nation, and its wealth pass through divers channels to alien lands. A deep and lasting obligation rests upon all the dominions to play well their part in this great plan of national organization, without which we are undone. Inexorable circumstances, patriotism, and common prudence alike compel us to adopt such a policy as will at once develop our resources, increase our production, and ensure our national safety."

Great Britain and Industry

Great Britain realizes that in order to hold her own as a nation and maintain her prosperity, she has not only to do everything possible to get hold of trade again, which she has temporarily lost during the war, but she must also put herself in a position to regain that which other nations, particularly Germany, have taken away from her during recent years, largely on account of governmental direction and help. All sorts of guilds and associations are being formed, acting under the supervision and co-operation of the Government in Great Britain, to secure the fullest measure of trade for British industries. Sir Albert Stanley, M.P., President of the Board of Trade, said recently:

"He could not help thinking, perhaps wrongly, that past Governments of Great Britain really failed to take into account the fundamental fact that this was a commercial era, and that the efficient conduct of the great industries of the country was absolutely vital to its welfare. Unless industries could be carried on with an equal degree of efficiency, unless they could produce their manufactured products at prices that would compare favorably with those of their great foreign competitors, what chance had the country of succeeding in establishing its place with the other nations of the world? He thought that the governments from now on would take an infinitely greater interest in industry, and would make it their business to see that it was carried on efficiently, and that there would be secured to the country the establishment of industrial enterprises which would make it absolutely secure against dependence on any foreign country for any essential commodity."

Canada Being Poisoned

In Canada, however, not only have we received no direct help and lead from the government in connection with planning for our industries after the war in the nation's interests, but a considerable section of our population is keeping the country in a foment of agitation which would tend to destroy rather than to build up. *There is only one way to pay off our accumulated war debts, and that is by producing in field, forest, mine and factory all that we possibly can, and selling these products at as high a margin over the cost of production as we are able to secure.*

As far as export trade is concerned, manufacturers in Canada may be forced in the national interests to sell their wares at a merely nominal margin of profit so as to help preserve the balance of trade and at the same time give employment to the largest possible number of people. The crux of the situation calling forth denunciation of industry, we believe to be just here. *Interested parties have poisoned the minds of agriculturists and other classes in this country and have led them to believe that the manufacturers not only received directly an enormous advantage from the tariff which they were not entitled to, and in consequence were making profits which were out of all proportion to the risks involved, but were also actuated by the most selfish motives. It is, therefore, opportune to say fairly, honestly, and emphatically that the average net return from the investment of capital in industry is not more than it should be to encourage men to take the risks incident thereto. Further, while here and there large profits have been made by manufacturers, as is also the case of agriculturists and other classes, yet the history*

of the past generation shows thousands of abandoned industrial enterprises in which men have lost their all, just as there have been abandoned farms that were not made to pay.

In the United States, according to recent returns made to the Federal Trade Commission, out of 250,000 trading and manufacturing concerns over 100,000 earn no net income whatever; in addition 90,000 of them make less than \$5,000 per year, some of whom have very large capital invested. It is the same thing in Canada: the few succeed, whom we all hear about from the house-tops, and the many either just get along or languish and die.

Agriculture Needs Home Markets

The old-world countries are already taking steps to make themselves more self-contained and self-supporting in the matter of foodstuffs. It may not be long, therefore, before the agriculturists of this country realize that they must depend more largely than ever before upon the home markets. To this end, manufacturing industries, if encouraged, should be established all through the West as soon as the population is able to take care of them and raw materials may be secured. No nation can become great that is concerned solely with agriculture. *Every important country in the world, except Great Britain, has found it necessary to adopt a policy which gives protection to its home industries, and many believe that she will be forced to fall into line after the war is over. Under free trade, agriculture has not prospered.* A writer in *The Athenaeum*, for February, 1918, in a remarkable article, admits that he was "brought up to revere free trade," but believes the time has arrived for fresh consideration and revision. He says: "The politicians must now see that it is life and death for England, and for English men and women; it is no game for political struggles, no academic arena for non-partisan, detached philosophers."

This section of my address would not be complete without the statement that the challenge of the grain growers, through their official paper, to the manufacturers to declare themselves on the tariff, and to which I was compelled to respond, led me to study the question from their standpoint, as well as ours. If the figures given do not tell all the story, and the agriculturists of the West are not receiving proper consideration, then we should be the first to co-operate with them in trying to remedy their difficulties.

There is said to be a condition existing among the truck farmers and gardeners of the East whereby they receive only an average of thirty-five cents as their portion of every dollar's worth of products sold. If this is correct, it is a wrong that should be righted, and for this purpose the facilities of our Association would be placed at the disposal of those interested.

Concluding Words

In concluding my address, I desire to thank my fellow officers, the members of the Executive Committee and of the Council, as well as the membership throughout, for the remarkable sympathy, support and confidence so often expressed during my term of office. This association and experience have been to me a source of happiness and joy that will cheer me throughout the rest of my life. I am sure that I can bespeak the same consideration for my successor.

I should also like to give utterance to my warm feelings of esteem towards our loyal, hard-working, and efficient staff at head office and at all the branches. We have a splendid organization extending from sea to sea, and that is being used to further the interests of trade and commerce throughout our glorious Dominion.

It is a time to build up and not tear down—a time for co-operation and not opposition—a time to stand to our tasks and not be found shirking—a time to act unselfishly and not be moved by greed—a time for national unity and not discord—a time to fight our battles bravely and not lose faith in God that right, not might, will soon rule all the world.—Advertisement.

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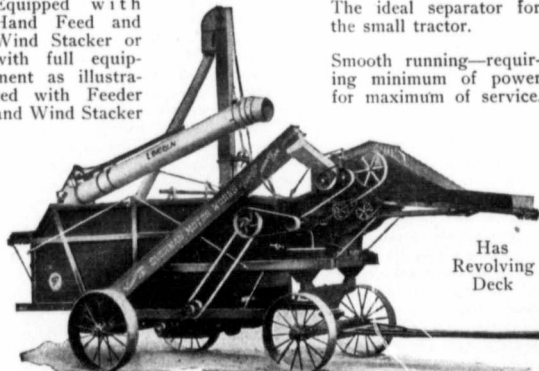
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Get in touch with us to-night—ask for full particulars of either of these Threshers.

Cushman Motor Works of Canada, Limited

DEPT. C.T. WHYTE AVENUE AND VINE STREET WINNIPEG, MAN.

Builders of High Grade, Light Weight, High Power Engines for General Purpose Farm Work. 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—Shinn-Flat Lightning Rod.

Things Accomplished by Manitoba's Department of Agriculture and Immigration in 1917

THE published report of the Manitoba Department of Agriculture and Immigration for the fiscal year ending 30th November, 1917, has just been issued. It may not take up quite so much space on the book shelf as previous reports of the kind but there is no falling off in its content value.

Hitherto a great deal of space was given up to a mass of details of secondary importance to the general public and of interest only to comparatively few people. This meant heavy cost in printing and still heavier expenses in distributing broadcast through the mails. We congratulate the Department not only in effecting the saving but in presenting its case in such compact and easily digested form.

Copies will be sent free to any legitimate inquirer and we are glad to reproduce something of the outstanding features of the report—sufficient to indicate its trend and compass.

Report of Deputy Minister

Hon. V. Winkler,
Minister of Agriculture and Immigration,
Winnipeg, Manitoba.

Sir,—I have the honor to submit herewith the annual report of the various branches of the Department of Agriculture and Immigration, for the fiscal year ending November 30th, 1917.

It embodies an account of the general agricultural conditions throughout the province, as well as a report of the various changes in the administrative branches.

Changes

The offices of the Extension Service were removed from the Agricultural College to the Parliament Buildings, for reasons fully given later in the report.

A new office of Live Stock Commissioner was created, W. W. Fraser being appointed as commissioner.

L. A. Gibson was appointed as Dairy Commissioner; Dr. S. A. Cox, Provincial Veterinarian. The Demonstration Farm Board, composed of Professor T. J. Harrison, R. Milne and J. H. Evans.

Agricultural Progress

As the period of the war becomes prolonged, greater interest is taken in government reports, particularly the reports of Departments of Agriculture. The fact that approximately eight millions of people awaken each morning in Canada requiring their daily bread—all of which has to be grown on the farm—was not fully realized prior to this war. Agriculture has never enjoyed the respect and attention from the world at large it does to-day, and more accurate information covering agricultural production is becoming daily a more pressing need, hence the increased interest in agricultural reports.

The world food shortage caused by displacing from the ranks of production of over forty million men and transferring them to engage in increased consumption and wanton destruction, has greatly increased our obligation as regards production. Increase of production has been brought about in Manitoba during the past season, notwithstanding the somewhat unfavorable season in the south-western sections of the province, and the appalling scarcity of farm labor, due to enlistment. It is pleasing to acknowledge, in connection with this last mentioned handicap, that during the harvest months urban citizens organized groups of helpers to assist in harvesting and threshing the crop. Civil servants were also granted leave of absence to engage in similar work.

The unusual demand for all farm pro-

ducts has brought prices to high levels and, speaking generally, Manitoba farmers are prosperous. If any proof were needed for this assertion it would be supplied by the liberality of the subscriptions in rural districts to the "Victory Loan" floated this year. A conservative estimate of the farm produce for the past season would be \$300,000,000, an increase of \$80,000,000 over last year.

Signs of the Times

Short course schools in agriculture and engineering have been in great demand this past season; requests have poured in from all over the province, indicating that this form of agricultural instruction is appreciated and fulfilling a much needed want. In addition to carrying on propaganda in improved methods of farming and consequent increased production, all the officials of the Department, when attending conferences or addressing meetings, aided the Manitoba Food Control Committee in bringing to the attention of the public the imperative need for food conservation.

Location of Extension Service Offices

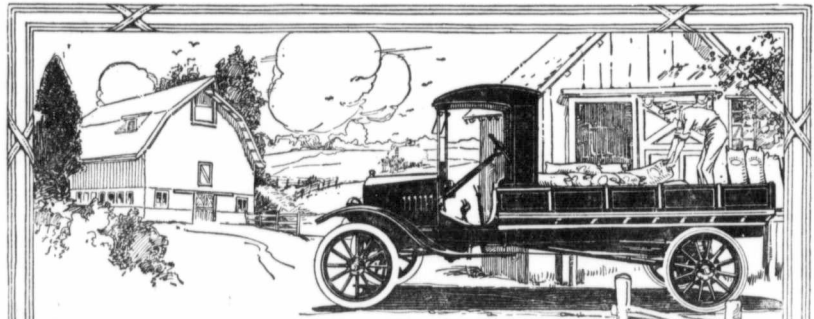
The removal of the offices of the Extension Service from the Agricultural College to the Parliament Buildings was a matter of necessity and economy. The Director of Extension Service is also Superintendent of Agricultural and Home Economics Societies. A great deal of this work is of an administrative nature, and calls for a close working with the heads of the Department. The location of the Agricultural College at St. Vital caused a considerable loss of time and increased expense in transporting short course equipment to and from the institution. A still more serious objection to the former arrangement was the difficulty of having officers of the various societies under the direction of this branch visit the offices of the superintendent when located at the College, owing to the time needed to make the trip; as a consequence, practically all the business was transacted by letter or over the telephone. Since the removal of the office, the superintendent reports that he has had a larger

number of official calls during the short time the office has been located in the city than was formerly the case during an entire year.

General Situation

Owing to the publication of Crop Bulletins 95 and 96, which contain a comprehensive resume of conditions affecting crop production during the past season, and which have already been submitted and approved. I have purposely omitted including this information in this report.

The accompanying reports, submitted by the Stallion Enrolment Board; Weeds Commission; Live Stock Commissioner; Co-operative Wool Marketing Branch; Purchasing Agent, Settlers' Animal Purchase Act; Cattle Brand Registrar; Dairy Commissioner; Provincial Apiarist; Editor, Agricultural Publications; President, Manitoba Agricultural College; Director, Extension Service; Superintendent of Immigration and Colonization; Game Guardian; and Secretary-Treasurer Manitoba Horticultural and Forestry Association, all give



What Will You Do For Help?

FARM help is scarce, but this condition can be relieved to a marked degree by using machines that accomplish more work in a given time with less man power.

Why should the farmer cling to horses—a slow, expensive means of power—when every other business is adopting the truck and thereby reducing the cost of hauling, speeding up deliveries, and saving for human needs the food that the horses would otherwise consume?

The motor driven truck can work constantly at maximum load under the burning summer sun, or in the coldest weather. Unlike the horse it needs no rests while working, it eats only while in actual use, and when the day's work is done it requires very little attention, and leaves you free for other "Chores" about the place. Then, it can be housed in one-quarter the space of the horses, wagon and harness it replaces.

It is a mistaken idea that a truck is useful only for driving upon paved roads. The Ford can be driven all over the farm, and used for hauling grain, potatoes, fruit, roots, fertilizer, wood, stock, milk or any other product. The speed it travels, the time it saves, and its low upkeep cost appeal very strongly to all users of the Ford Truck. If you need help, order your Ford One Ton Truck today.

All prices subject to war tax charges, except trucks and chassis

Ford
THE UNIVERSAL CAR

One-Ton Truck	\$750
Runabout	575
Touring	595
Coupe	770
Sedan	970
Chassis	535

F. O. B. Ford, Ont.

Ford Motor Company of Canada, Limited

Ford - - Ontario

very detailed account of the activities of their respective branches.

During the past year this office was called upon to represent the Government on the Public Markets Limited Board, a company which owns and operates the Union Stock Yards, at St. Boniface. This company is owned by the Canadian Pacific Railway Company, Canadian Northern Railway Company and the Grand Trunk Pacific Railway Company. The reports and records of the business transacted by this concern have always been open to inspection by the Government representative, and I wish to report that these records have been kept in a clear, concise and accurate manner. The volume of business handled by this concern has greatly increased during the past year and, with the exception of a short period during the fall, when an unusually large number of stock reach the market, there was sufficient accommodation to handle the normal trade. It is quite evident, however, that increased facilities will be needed in the near future.

Early in April, I assumed the duties of agricultural representative for the district of Selkirk under the Rural Credits Acts. While the work entailed visits to this district for the purpose of inspecting the farms of applicants for loans, the experience has been regarded as valuable and affords one avenue for keeping the Department in close touch with the needs of the man on the land. While this Act is administered in the Department of the Provincial Secretary, it is not out of place to acknowledge the possibilities under this measure, particularly in new districts, or those areas suitable only for live stock raising, where the farmers are often handicapped from the lack of capital.

The establishment of the half-section demonstration farm in the province of Manitoba is intended to supply more accurate information on farm management and ascertain the actual cost of the production of farm produce under average conditions. This farm is not an experimental farm, but rather a demonstration farm, and is managed by a working foreman, who is supervised by three men who comprise the Demonstration Farm Board. While there are farmers who keep accurate data covering some phases of their farm management, the farmers who keep complete records are few and far between. It is to be hoped that information will be forthcoming, as a result of this venture, which will set forth the possibilities of a half-section farm in the province of Manitoba.

Another work carried on in this office was the supervising and administering of the aids to farmers during the past season under the stockers and feeders plan. The applicants were allowed to select their own stock up to the number approved by the Department, which were afterwards inspected by a representative of the Department prior to settlement being made for the same. It is gratifying to report that, while admittedly an experiment, it proved very satisfactory to the Department and profitable to the participants.

Another feature of our work which has been of a decidedly practical benefit to many farmers and others interested in farming, has been the maintaining of live lists in this office of farmers having live stock, seed grain and other lines of farm produce for sale. A rough estimate of the number of sheep placed during the past season in this way would well exceed three thousand. The facilitating of the delivery of seed grain to the various parts of the province by the Seed Grain Branch of the Dominion Department of Agriculture, also engaged a great deal of our time during the spring months.

The organizing of the province of Manitoba for increased production, particularly the campaign for greater hog production, has entailed a lot of work, but has already been productive of marked results. An outstanding feature of the entire work was the eagerness of the Manitoba farmer to contribute to the winning of the war. The province was divided into twenty-two districts, a convention being held at a central point in each district. Speakers were supplied by the Department, and in this regard I wish to acknowledge the hearty and complete co-operation of the agricultural press. While the labor

problem, the scarcity of feed and heavy enlistment from the rural districts, have been serious handicaps to increased production, nevertheless a conservative estimate of the increased production in hogs as a direct outcome of this campaign would place the number at two hundred and fifty thousand.

In addition to rendering assistance to patriotic work, this office has been charged with the work of organizing the Province of Manitoba to procure agricultural relief to the Allies. This campaign is Dominion-wide with Dr. J. W. Robertson as head organizer. While the organization work is in progress at the time this report is being submitted, it is confidently expected that Manitoba will answer the call for assistance in this respect.

This briefly summarizes the activities carried on in this office during the past year.

I have the honor to be, Sir,
Your obedient servant,
J. H. EVANS,
Deputy Minister.

Report on Co-Operation Wool Marketing

Hon. V. Winkler,
Minister of Agriculture and Immigration.

Sir,—I have the honor to submit herewith a report upon the co-operative marketing of wool by this Department during the year 1917.

The past year has been a very prosperous one to the sheep owners of Manitoba.

In April an illustrated circular was published, outlining the Department's scheme for co-operative wool marketing, and containing full instructions to sheep owners as to how to care for their sheep and to ship their wool so as to receive the greatest returns. The educative work which this Department has been doing along this line has effected a decided improvement in the quality of wool marketed, but there is still need for its continuance. It is noteworthy that the best wool has been received from the largest flock owners. Evidently many of the farmers owning small flocks have not considered it worth their while to take the necessary pains to preserve the wool in its best condition, notwithstanding the very high prices prevailing, and the great world shortage of wool, which must result in continued high prices for some time.

Among the most conspicuous defects in our Manitoba wool during the past year was the presence of dirt and straw in the wool.

The pasturing of sheep on summer-fallows, no doubt, is very desirable from the standpoint of weed elimination, but this practice lessens the value of wool by filling it with dirt, and in some of our soils the alkali content is sufficient to injuriously affect the wool. The use of winter feeding racks which overhang the heads and backs of the sheep causes a considerable amount of chaff and straw to fall among the wool, as does also the feeding of sheep about overhanging straw stacks.

Our experience in marketing wool has brought somewhat into relief the conditions of the Canadian wool trade. Because our sheep are so strongly bred toward the medium and longer wool breeds, about 70 to 80 per cent of the wool produced in this province is of the combing grades, for which at present there is good demand. It would appear, however, that the Canadian woolen mills are not at present adequately equipped to handle this class of wool, and the logical market for it seems to be in the United States. During the past season it required 32 days of effort to effect a satisfactory sale of our Manitoba wool, and although all the wool buyers of Canada of any importance were asked to submit bids, not one bid was received from any buyer for a Canadian woolen mill.

The thanks of this Department are due the Dominion Live Stock Branch for furnishing an expert grader, and also for supplying to this office data in regard to wool sales, as well as assisting in other ways.

Knowledge of the Sheep Protection Act, passed at the last session of the Legislature, is gradually becoming more general; and as the protection which it offers to sheep owners against financial



Standard

Portable Grain Elevator

22-ft. leg. 24-in. wheels, wagon skein axles. Feed instantly adjustable. Folding slides on hopper. Any length of leg can be supplied. This machine will do the work of several men and teams and should pay for itself in one season.

Will save Labor, Worry and Time when you need it most

Handle your grain the easiest and most economical way.

WRITE US FOR PRICES AND FULL PARTICULARS
The Saskatchewan Grain Growers' Association, Ltd.
FARMERS' BUILDING REGINA, SASK.

To Spend the Best Years

of one's life in acquiring property and leave it all in jeopardy when it might be secured by Life Insurance, is, to say the least, un-businesslike.

A sufficient Life Policy has kept intact many an estate which would otherwise have gone to ruin for want of ready cash at the right time.

The Great-West Life issues Insurance on most attractive terms.

Rates on request.

The Great-West Life Assurance Company

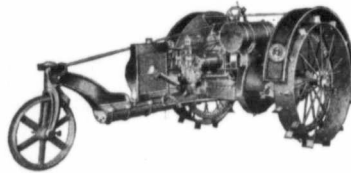
Dept. "U"

Head Office: WINNIPEG

Model "F"—the latest word in farm power

HAPPY FARMER TRACTOR

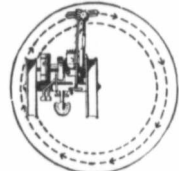
12-h.p. on the Draw Bar
24-h.p. on the Belt Pulley



One Wheel pivots—It turns in its Tracks



For Western Canadian farms use the new "Happy Farmer." It has a pull and drive that makes it dependable under all conditions and economical on any and all forms of farm power work. New style air intake makes better mixture—larger, more powerful motor develops much more than its rated horsepower on Draw Bar and burns Kerosene perfectly—uses same lubricating oil in the three places by new patented oiling system—and there are other added features to the already famous Model B. Delivery can be made at once. Get full particulars on this new Model. Its price is very reasonable.



Grain Separators

We can furnish both Huber 22 x 40 and Stewart 24 x 46 separators for use with light tractors, such as the Happy Farmer. Reasonable in price, ready for immediate delivery.

Disc and Moldboard Plows

Famous J. I. Case Tractor Plows, 2, 3 and 4 14" bottoms. Also 3 and 4 Disc, 24" and 26" diameter. Guaranteed to do perfect work. Our prices and literature on these are worth getting.

Tandem Disc Harrows

If you need Tractor Discs for this fall or next Spring—get full descriptions and prices. There is no question about the superiority of these goods.

WRITE US ABOUT YOUR REQUIREMENTS. WE ARE GLAD TO SEND INTERESTING ILLUSTRATED FOLDERS ABOUT ANY OR ALL OF THESE LINES. DROP US A CARD TO-NIGHT.

Happy Farmer Company, Limited 225 Curry Block, Winnipeg
Cor. Halifax and 7th Ave., Regina

loss on account of the ravages of dogs becomes more widely known, this knowledge is certain to stimulate the sheep industry.

The number of farmers contributing their wool to the Department for sale during the past year was 465. A few lots of wool came in too late to be graded by the official grader, but the wool consigned by 460 farmers was graded.

Gross receipts to farmers contributing were \$97,298.18.

Comparative Statement

Showing growth of department's wool sales. These are wools sold and amounts paid to farmers contributing wool through the Department.

1915	1916	1917
69,000 lbs.	154,000 lbs.	168,048 lbs.
\$17,422.50	\$46,910.13	\$97,298.18

As we write, the gratifying statement has been sent in that the 1918 crop of wool will probably more than double last year's returns. In 1917 there were something like 460 separate shipments. To date for 1918 the number on the records of the Department is 887 and it is known that many more are under way. The gross weight of wool sold in 1917 was nearly 170,000 pounds as shown above. Up-to-date for 1918 over 350,000 pounds have been marketed.

The farm dog that is determined to bite passing automobiles should carry along a "First Aid to the Injured" book.

THE SEX SOURCE OF PREPOTENCY

By P. V. Ewing, Texas Agricultural Experimental Station

BREEDERS of dairy cattle are interested in the question of what proportion each parent contributes to the composite heritage in so far as the character of milk and butter fat production is concerned. One of the traditional beliefs among breeders is that the bull is more prepotent than the cow. It is well known

that a well bred individual is prepotent over an animal not so well bred, when crossed. On this basis we arrive at the conclusion that one animal is prepotent over another in proportion as it is better bred. Further, neither of two animals equally well bred would show prepotency over the other when crossed. This is exactly the case, and prepotency of sex, in the literal sense, does not exist.

One should recall that the most common form of breeding for improvement is by grading up a herd by using pure-bred sires. A better bred sire, rather than a bet-

ter bred dam, is generally provided, for one bull can influence the breeding of many offspring. Thus, it comes about for purely economical reasons, that the bulls are, as a rule, better bred than the cows and should therefore be more prepotent. This difference, however, is due to breeding and not to sex.

The records of dairy cattle offer the best field to test the relative value of the bull and the cow in transmitting those factors which control the butterfat production. Accordingly, investigations were made along this line, a part of the results of which are here given.

In looking for a proper breed with which to work, the Holstein-Friesian seemed to offer the best field on account of a large number of records extending over a long period. This study was made on those records included in and recorded previous to the issue of Volume 10 of the Year-book of the Holstein-Friesian Advanced Registry.

The primary object of the investigation was to procure a large number of the records of grandams and their granddaughters, and to make a study of the relative prepotency of the intermediate generation when the granddaughters were related to the grandams through sons and



Joek (hitherto silent, rising to leave during a discussion on the merits of different regiments and countries). "Mph! I just ask ye, what wad you chaps dae if Scotland was tae mak' a separate peace?"

through daughters, or through bulls and cows.

A mere glance at the records showed that, owing to the comparatively recent origin of the Register, many of the grandams were quite old when admitted, while as a rule the granddaughters were entered at an early age. The ages of admission ranged all the way from one year and ten months to eighteen years, with which, of course, comparison would not be possible.

Regression studies were then made between these 126 grandams and their 680 granddaughters to establish the coefficient of heredity. When the line of descent was through bulls, the coefficient of heredity equals 0.157 plus or minus 0.028. When the line of descent was through cows the coefficient of heredity equals 0.155, plus or minus 0.028. The difference (0.002) is entirely within the limits of error, so that we may safely say that two coefficients of heredity are virtually identical.

Expressed in percentages, these coefficients would be 15.7 per cent when the line of inheritance was through bulls and 15.5 per cent when the line of inheritance was through cows. These figures give a very accurate guide to the relative prepotency of cows and bulls. Prepotency is relative only, and can be said to exist only when the inheritance is greater in one instance than in another. Here the inheritance is equal in both instances, consequently there is no prepotency manifested, and the bulls cannot be said to be more prepotent than the cows in transmitting the inheritable factors that combine to give the percentage of butterfat in milk.

These results would seem to indicate that one sex is no more prepotent than the other sex in transmitting inheritable traits. We might tentatively conclude, therefore, that the sexes are equipotent since no evidence has been produced to the contrary. The term prepotency of sex is therefore meaningless. Bulls are no more prepotent than cows.

WOMEN ON THE LAND

THE women on the land at present number hundreds of thousands, without counting farmerettes. The farmers' wives and the farmers' daughters have been hard at work all year; their day is never ended, milking, feeding poultry and pigs, butter making, handling eggs for market, etc. Their chores are innumerable, and in addition to that they have their own kitchens, their own households and their own family tasks, cares and responsibilities. At harvest time they have the additional burden of feeding the harvest hands.

There is plenty of room for war service on the part of town girls who want to help in the war in volunteering to help farmers' wives on the neighboring farms during the harvest rush. This would release the farmer's wife from her household duties and add her effective labor for outside work in aid of her husband who will be hard put to it to get in his crops this season. Helping the farmer's wife this year is just as important as any other war work that women can take up.

WAR GARDENS IN CANADA

FREDERICK ABRAHAM, hon. chairman of the Vacant Lots and Home Garden Section of the Canada Food Board, reports that there has been enthusiastic response to the appeal for the planting of war gardens throughout the West.

"The British Columbia War Gardens could supply the prairie provinces with fresh vegetables for many months in the year," says Mr. Abraham, "if the transportation problem could be solved. I believe this is only a question of time. Everything seems to grow in greater abundance in British Columbia, and many of the vegetables have two crops in the season."

Mr. Abraham reports that the school children of British Columbia have joined the school garden plot movement with splendid enthusiasm and the crop produced will make a material difference to the local supply.

It's all very well to look pleasant when you're striking, the easiest sledding, but the man worth while is the one who can smile when he carries a horse that is shedding.

The Stinson 18-36 Tractor

In the Stinson 18-36 Kerosene Tractor you find the very latest ideas in tractor building. For example, all gears, including final drive gears, are enclosed in a dustproof housing and operate in a bath of oil. This is most important, for on account of the hard work these gears have to do, they must be protected from wear of dust and dirt.

This feature alone adds years to the life of a tractor and, combined with the many other advanced features found in the Stinson, make it the one best tractor buy to-day.

The four-cylinder valve-in-head motor of the heavy duty tractor type, is a kerosene burning engine.

Frame is made of one-piece semi-steel, rigid and strong, main bearings are machined right in the frame.

Heavy duty Hyatt Roller bearings used throughout gives longer life to a tractor. Carburetor is equipped with patent Stinson dust separator, which separates the dust from the air through water—an exclusive feature in the Stinson tractor.

SOLD AT FACTORY COST

This tractor was sold for \$2,000.00, January 1st, 1918, at factory, to the American farmer, and, as yet, the price has not been raised.

At Regina, the price is \$60.00 more—the actual freight weight. There is not one cent of profit added to the factory price. Think what a saving this means for you in the purchase of your tractor.

INVESTIGATE THE STINSON

For power, speed, fuel economy, protection of gears, simplicity, durability and ease of operation The Stinson has no equal. No tractor of any size or weight has equalled its performance in the field. Get the facts to-day, direct from your own organization.

Separators \$2 x 44 fully equipped to go with Stinson Tractor and \$2 x 36 for smaller engines

THE SASKATCHEWAN GRAIN GROWERS' ASSOCIATION, LTD.
FARMERS' BUILDING, REGINA



Showing the guide wheel on the left hand side for binders, being one of three positions.

Why the Single Guide Wheel is Better--

1. Easier controlled.
2. Travelling in furrow has a smooth hard surface to travel over.
3. Is practically self-steering.
4. The frame is perfectly rigid—no possibility of twisting.



Let us Bring Back to Mother

—the bloom of her cheeks
—her sunny disposition
—her sound constitution

Get a case to-day of

MALTUM
(Registered)
STOUT

and watch tired Nature reassert herself. It nourishes and refreshes the body, sharpens the appetite and helps to build bone and brawn. Commence to-day to make Mother feel better by getting her this non-intoxicating food beverage. Don't put off the good deed until to-morrow.

Order from your grocer, druggist, confectioner, or direct from

E. L. DREWRY, LIMITED
Sole Manufacturers - WINNIPEG, MAN.

"On Everybody's Lips"

Bigger and Better Canadians Needed

Many of these will be developed in our Colleges.
Practical and Thorough Preparation for Life secured at

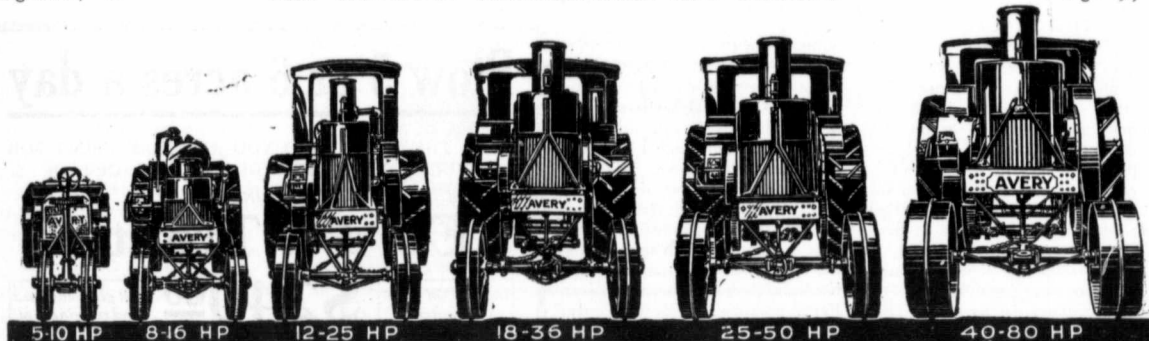
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HOWARD P. WHIDDEN, President.

FIVE DEPARTMENTS— Arts (Full B.A. Courses)
Theology Academic (Teachers' and Matriculation)
Music and Expression Business

College Residence Life at its best both for young men and young women.
For full information write The Registrar, Dept. T.

Fall Term Opens September 24th



AVERY Gives the World Power for Every Farm Need



For Every Size Farm and Every Kind of Work

THE complete line of motor farming machinery manufactured by the Avery Company fills all power farming requirements for every farmer in the world. Motor Farming has been established for every size farm by the Avery Line. The Avery is the **one standardized, thoroughly proved complete line of motor farming machinery.**

With one of the sizes of Avery Kerosene Tractors, you can plow, prepare your seed bed, and plant and harvest your grain crop. With an Avery Motor Cultivator you can cultivate your corn, cotton, beans or any crop planted in rows. With one of the eight sizes of Avery "Grain-Saving" Separators, you can thresh all kinds of grain, kafir corn, clover and other seeds. Every size Avery is a one-man outfit. For any kind of field work, belt work, or road work there is an Avery motor power machine that can be used safely, successfully and profitably.

Avery Tractors are entirely built in our own big factories and every part of an Avery Tractor (motor, radiator, transmission, etc.) is built **especially** for tractor work and **only** for the Avery Tractor. The Avery Company are builders—not assemblers. They specialize in motor farming machinery. Don't confuse the Avery Tractor and other Avery machinery with the ordinary assembled machine. **With the Avery Tractor you can unhitch from one machine and instantaneously hitch to another at the drawbar, or apply belt power. And you don't have to use a wrench to do either—the coupler is automatic and the belt pulley is always in place.**

Farm With Kerosene

Avery Tractors are real kerosene or distillate burners. They are the only make with a Duplex Gasifier fuel system which does the trick—**turns kerosene or distillate into gas.** Cheaper than feeding horses or mules. It means more acres handled by one man and every acre raising bigger crops. With the three or four-plow

Avery Kerosene Tractor and an Avery Motor Cultivator, one man can prepare and cultivate two and one-half times the acreage of corn that can be raised with horses. This combination of Avery Tractor and Motor Cultivator saves horses, saves labor, saves food and increases crops.

Five Sizes, One Design, Standardized

The five sizes of Avery Tractors from 8-16 to 40-80 h. p. are all of the same design. Avery Tractors have a patented sliding frame transmission that eliminates the intermediate gear used on other tractors—saving friction and increasing power.

The Avery motor has been rightly called, "The finest power plant on wheels." It is low speed motor—only 600 revolutions per minute. Crankshaft and connecting rods are extra large and strong. Main bearings are adjustable from the outside. Patented inner cylinder walls are removable. All parts are accessible and every part renewable. Many reports show four or five seasons' run without opening the motor case for adjustments of any kind.

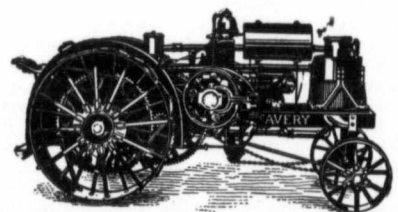
See the Nearest Avery Dealer

Go to the Avery dealer and select and buy the size tractor and equipment to meet your requirements, no matter how small or how large the acreage you cultivate. See samples of Avery Motor Farming Machinery and get prices at the nearest Avery dealer or write direct for complete Motor Farming Catalog describing and illustrating Avery Machinery in their natural colors. Address

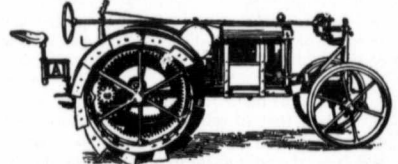
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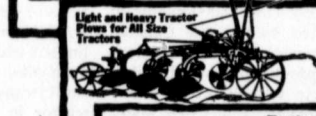
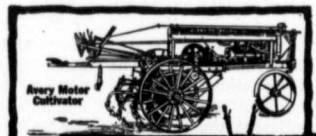
Motor Farming, Threshing and Road Building Machinery



Avery 8-16 H. P. Tractor pulls 2 or 3 plows and furnishes belt power for 19 x 30 inch thresher and similar farm equipment.



Avery 5-10 Model B Tractor, just the tractor for small farming, fifty acres or less, and for truck gardening and the orange ranch, orchard, etc. Weight only 2,000 pounds.



IS THE TRACTOR HERE TO STAY?

Continued from page 5

future of the farm tractor? The truth of the matter is that no machine of more or less universal application does not merely replace, displace or supplement its equivalent value of the available means for doing the work accomplished by the machine in question. It does more than that. It creates industry where industry did not previously exist. It breaks down the bars restricting human progress, and opens up new fields for human endeavor and advancement.

The spinning jenny of Arkwright was the cause of rioting, bloodshed and sabotage by the mill hands of Great Britain. Yet it created and made the cotton industry as we know it to-day, making new work, higher pay and better work conditions for millions of additional operators. The printing compositors imagined that the linotype machine would decimate their ranks and reduce skilled workmen to the rank and pay of laborers. Instead it was the making of the printing industry, multiplied by many times the number of skilled printers, increased their status and pay, and bettered their conditions in more ways than seemed possible, even to the more optimistic of prophets. Watt's steam engine, Fulton's steam boat, Stephenson's locomotive, McCormick's reaper, Whitney's cotton gin, Bell's telephone, and hundreds of other inventions have made, remade and revolutionized industry, trade, agriculture and commerce. Less than fifteen years ago, able mathematicians proved that it was a physical impossibility for man to fly in a heavier-than-air machine. Who to-day dare predict the limitations of aerial navigation, made possible in this generation by the Wright Brothers of Dayton, Ohio?

First, let us make the assertion, the axiom that is self-evident to everybody, that food is the first requisite, the only absolute necessity of life. All the gold, jewels, cotton and everything else in the world is of no earthly use to us mortals here below, unless we first have food. The limit of population is governed by the limit of the food supply. The food supply is intimately related to the production of farm tractors. At present there are approximately 118,000,000 people in the United States and Canada. With an adequate improvement in food production and distribution, these two countries alone can support ten times that many people, and do it easily.

There are about 30,000,000 horses and mules in use to-day on American and Canadian farms, or

roughly one for every four inhabitants of these countries. For a population of 1,100,000,000 people, we would need, at the same ratio, 260,000,000 horses and mules, which at the rate of 5 acres per animal would take 1,300,000,000 acres to feed them. Without following out this line of "reasoning" or delving any farther into "exact" statistics, it is obviously impossible to use farm animals for the intensified and intensified agriculture that will be necessary. Farm tractors provide the only solution. Can we then, in reason, limit the total production of tractors to 3,000,000, or even to that many per year,

The world is advancing. The Bolsheviks of Russia, the I.W.W. of this country, socialists everywhere, are merely indications of the need for improvement. Twenty years ago, David Lloyd George was regarded as a fanatic in England. To-day he is the saviour of the race. Four years have brought social revolution in America. Who, four years ago, supposed it possible to conscript an army of millions to fight in Europe. What American people then dared to imagine that they would clothe their president with the unheard-of powers he has to-day. Who would have dreamt of a Hoover, Schwab, Hurley and a legion of others doing what they are to-day, and the American people not only standing for it for demanding more of it?

Who will dare to say that the world will settle back, after the war, to the systems of pre-war days? Shall we be able to get our boys out of the trenches and back again into the industrial and agricultural harness of yesterday or even to-day? We hold no brief for paternalism in government. We do not claim to be its interpreter or its prophet. But we do assert that the world is not safe for democracy until it willingly and effectively makes better living, working and social conditions for our industrial and farm workers. Drudgery will go, both for the farm hand and the farmer's wife and family. (How many of us know that the farmer's wife holds the record for suicides among all classes in this country?) It will be forced to go. And one of the principal means used will be better conditions on the farm, conditions that will approximate to the best that can be found in the bourgeois sections of our up-to-date city life.

All this means unstinted and unlimited use of power in farming, farm life, interurban and inter-rural transportation. The farm tractor is chief among the new tools disclosed by the war, thus far, to make this possible. We need farm tractors, used without stint and without limit. The only

Plow 5 or 6 acres a day

WITH THE SAME FORD YOU ARE NOW USING FOR PLEASURE ONLY. GET YOUR MONEY OUT OF IT

BY USING A

Ford-a-Tractor

On and Off in 20
Minutes

\$240⁰⁰

All gears enclosed
and running in oil

And you can also use it for pulling your binder, or harrow or for hauling or any other field or road work. Does away with four horses under all conditions. The attachment is well made. Equipment includes a W. D. C. pump which changes the water in the cylinders 6 times a minute and positively prevents overheating of the engine.

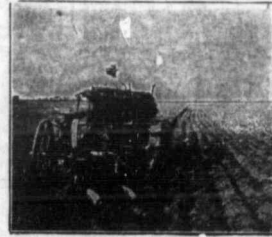
DEALERS:—Write quick for our proposition.

Recent demonstrations prove it to be able to stand up under rigid tests and to give very satisfactory performance.

GET THE LATEST FACTS ABOUT THIS TRACTOR ATTACHMENT.

J. D. ADSHEAD COMPANY

WINNIPEG MAN.
117 10th Ave. E., Calgary, Alta.



Farmers and Tractormen

Here is the Hitch You Need!



Parker Safety Hitch Tractors

Where stony or brushy land is being plowed with a Tractor much difficulty has been experienced by breaking the Plow or Tractor when a root or stone is hit, causing considerable repair expense as well as loss of time.

The Parker Safety Hitch saves repair bills and absolutely avoids all danger of breakage. The Hitch is attached between the Plow and the Tractor, and when anything solid catches, before the breaking point is reached a Spring disconnects the Plow. The tension of the Spring can be regulated to fit the strength of from one to five plows.

This Safety Hitch will pay for itself many times over in repair bills, besides saving of time.

You cannot afford to be without it a single day.

After September 1st, owing to the increased cost of manufacture, the price will be

\$12.00 F.O.B. Winnipeg

SATISFACTION GUARANTEED OR MONEY REFUNDED

Martin Parker, Tyndall, Man.

Address enquiries to

J. M. McRae, 667 Grain Exchange, Winnipeg

Patented in Canada and the U.S.A.

FOR SALE—Complete Threshing and Plowing Outfit; 40 h.p. Flour City Gas Tractor, in prime condition; also Yellow Fellow Avery Separator, 23-25, complete with all attachments. Outfit cost originally \$7,000. Will sacrifice, as I have sold farm. What offers? Cash or terms. X, care of E. H. Heath Co., Box 8164, Winnipeg.

ONE FOUR-FURROW PLOW, 14in. bottom; practically new; manufactured by Deere Plow Co. Also 15-20 Gasport Tractor, two-cycle engine; good powerful machine. \$160.00 cash for lot; F.O.B. Burlington Junction, Ont. Bethanbreck Ocharis, 508 Lumden Building, Toronto, Ontario.

danger is under-production, not over-production. The more we have, the more we will need, just as cotton machinery, linotype machines, printing presses, steam engines, electric motors, electric light, steamships, locomotives, telephones, steel plows, cotton gins, self binders, good roads and hundreds of other necessities of our rapidly advancing civilization have created new fields and demand for their use and application.

Whether the war ends now, or continues indefinitely, the present boom in farm tractors will continue to increase for five years at least, if only to avert famine from the earth. After that, who knows? Our guess is that the farm tractor will revolutionize agriculture and industry both, and itself will make conditions that will cause the annual production of farm tractors to increase without let or hindrance. Compared to the vista which opens up before us the miracle of the automobiles' progress during the past ten years will not simply be reproduced, but dwarfed by comparison. Go ahead, you tractor manufacturers and dealers. You're in a bigger business than any of us have even dreamed to be possible.

WESTERN CANADA'S LIGHT TRACTOR PLOWING DEMONSTRATION

Continued from page 6

horse-power machine pulling four plows, doing its work nicely and keeping up the reputation enjoyed by this firm for years.

Northern Implement Company—This concern was on hand with two machines, their 15-30 pulling four plows, and their 13-30 pulling three plows. These machines are what is known as the "Plow Man." They are four cylinder type of machines made to a standard unit, and demonstrated very successfully.

Sawyer - Massey Company—This old reliable tractor and threshing machine concern were on hand with two machines, their 17-34 pulling five plows, and their 11-22 pulling three. Both these machines did their usual excellent job.

Waterloo Boy Kerosene Tractor Company—This concern demonstrated their 12-25 Waterloo Boy pulling three plows. This machine is too well known to need any description or comment, having enjoyed a very successful career in Western Canada.

Waterloo Manufacturing Company—This concern demonstrated the Heider Tractor, being a 12-20 pulling three plows, and a 9-16 pulling two plows. The Heider tractors are becoming exceptionally well known in the Canadian West through the Waterloo

Manufacturing Company, and the thorough quality of their work and successful operation of the tractor needs no further description.

Western Canada Auto Tractor Company—This concern was on hand with the Staude, a tractor attachment for Ford cars, pulling two plows. This was the only Ford tractor attachment to be demonstrated. This attachment is becoming very well known in Western Canada.

George White and Sons—This concern demonstrated their 13-27 "All-Work" tractor pulling four plows. "All-Work" must be synonymous with "good-work." There was no fuss or feathers about this machine, just a good, businesslike type of machine, that did the work.

Western Tractor Sales Com-

pany—This concern was right on hand with an initial demonstration of the Atlas Tractor. This is a new type of machine, and new on the Canadian market. It pulled four plows very successfully.

Huber Manufacturing Company—This concern demonstrated the Huber 12-25 light tractor pulling three plows. Joe Neely was the man on the job, and wherever you find Joe you generally find a splendid piece of work. The recent demonstration was no exception.

When all is said and done, when the tractor demonstration is over, and we can sum up the results, we ask ourselves, just what does it all mean? Is the tractor demonstration longer necessary? Does it fill a demand? We have about concluded that the days of

tractor demonstrations are over. The farmer is no longer particularly interested in seeing the tractor plow, because he knows it will do it, and it is quite probable that 1918 has seen the last big tractor demonstration to be held for some time. What we want now, and what is really necessary, is a good, big tractor test. Fair, unbiased, comparative, grueling. Let us get some tractor data. Catalogues and literature show up the machine, but it is only in actual, comparative work in the field that forms a thinking basis for the farmer. Watch Western Canada in 1919 for such an event. Details later.

The man who caresses his cows with a fence board always insists that dairying doesn't pay.



IMPERIAL SERVICE

If you are in doubt about the proper lubricant, ask the Imperial Oil man. He will give you courteous attention and sound advice on your lubrication problems. That is part of Imperial Service.

LET US BE RESPONSIBLE

PUT your lubricating troubles up to the Imperial Oil man. It is his job to know the just-right oil for every lubrication need. He will recommend the oil that will end your lubrication troubles.

There is a scientifically correct lubricant for every machine requirement. For high speed motors burning gasoline, for heavy duty tractor motors or stationary motors burning kerosene, for slow-revolving, heavy shafts, for open bearings, for loose bearings, for tight bearings, you require oil that has just the right body, consistency and lubricating qualities.

There is an Imperial Oil manufactured for each particular purpose. You can get it in any part of Canada at any Imperial Oil station. There is one near you.

Imperial Oils are supplied in steel barrels and half-barrels—convenient, economical. No waste. You use every drop you pay for and know that every drop is uniform and clean.

A Correct Lubricant for every Farm Machine



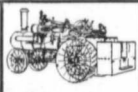
For Gasoline Engines, Tractor, Auto or Stationary
POLARINE OIL
STANDARD GAS ENGINE OIL

For Kerosene Engines, Tractor or Stationary
POLARINE OIL
HEAVY
IMPERIAL KEROSENE TRACTOR OIL
(Recommended by International Harvester Co.)



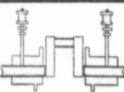
For Open Bearings of Farm Machinery
PRAIRIE HARVESTER OIL
—very heavy body, resists cold, won't thin out with moisture

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



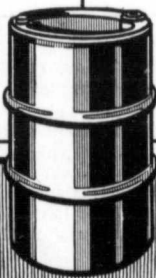
For Steam Cylinder Lubrication, whether Tractor or Stationary Type
CAPITOL CYLINDER OIL

—the standard product for steam cylinder lubrication



THRESHER HARD OIL

For Grease Cup Lubrication of Bearings
a clean solidified oil high melting point



IMPERIAL OIL LIMITED BRANCHES THROUGHOUT CANADA

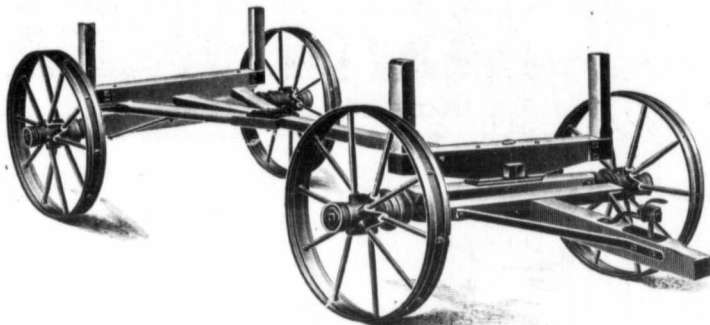
"Northern Chief" Metal Wheel Trucks

Dimensions:

No. 13, Metal Wheel Cook Truck, 3½ x 11; tire, 5 in.; wheels, 28-34, with 6 ft. 8 in. track.

No. 15, Metal Wheel Turn-under Truck, 3½ x 10; 5-in. grooved tire; wheels 28-34.

No. 22, Metal Wheel Truck, 3 x 9; 4 in. tire; wheels 28-30.



No. 22 NORTHERN CHIEF METAL WHEEL TRUCK

Dimensions;

No. 27, Metal Wheel Truck, 3½ x 10; 4-in. tire; wheels 28-34.

No. 35 Metal Wheel Truck, 3½ x 10; 4-in. tire; wheels 28-34.

Also a good stock of Wood Wheel Trucks

We have a fair stock of Wagons and Trucks on hand at present, in all sizes and styles

which we are disposing of at present prices. Just as soon as this stock is exhausted we will have to pay more for later delivery. Place your orders early by writing us direct, or seeing our nearest dealer, and save money.

Common Sense Trucks and Universal Farm Gears (With Wood Wheels)

Common Sense Truck, 3¼ in. skein, | Universal Farm Gear, 3¼ in. skein
tire 3 in. x 3½ in., wheels 36 in.-44 in. | tire 4 in. x 3½ in., wheels 40 in.-48 in.

The above trucks are made of hardwood, smoothly finished, well painted and striped, and when equipped with box and seat make a first-class low-wheeled wagon.

WINNIPEG, MAN. SASKATOON, SASK.

REGINA, SASK.

CALGARY, ALTA.

EDMONTON, ALTA.

LETHBRIDGE, ALTA.



The Draft of Plows at the Brandon Fair Tractor Plowing Demonstration

Continued from page 10

average of twice 850 lbs., or 1700 lbs. for the three plows. When the plows got into the stubble at nearly 36 min., the draft dropped to twice 650 lbs. or 1300 lbs. The end of the land was reached at 40 min., and about 3 min. was spent in turning and adjusting plows. Coming back down the field, the draft ran very close to twice 600 lbs. on the average, so that the draft per 14-inch plow ran very close to 400 lbs. in the stubble. Note where the plows hit a stone at 47½ minutes.

In the case of chart No. 2 of four plows, the draft going up the field is a little light owing to the fact that the first plow was not cutting its full width. At 15 min. however, after several stops, we got it adjusted properly. The draft of these four plows in stubble would be between 1400 and 1500 lbs.

From the tests made, the draft ran from 350 to a little better than 400 lbs. per plow; 400 lbs. may be taken as a safe average of all the plowing done.

The writer had one engine pull the plows at the high and the low speed of the tractor, and the dynamometer showed scarcely

any difference in the draft. Neither did going up or down the slope seem to affect the draft, though the engines worked harder going up the grade as might be expected. The charts show very clearly that the draft for plowing is varying all the time. A spring hitch helps both the engine and the plows.

There is need for more data on draft of plowing for the various conditions found in the west.

It's hard for a modern cow to figure out why she has horns.

THE ULTIMATE TYPE OF ENGINE FOR MOTOR TRACTORS

THE battle of the engine types is developing, and distinct progress has been made by the attacking force. In this instance the attacking force is the relatively high speed four-cylinder vertical engine, and the opponent is the well entrenched slow speed horizontal engine. Arriving first on the ground, the latter type of engine by its good performances (and, in two notable instances in this country, by its

proved ability to run satisfactorily with paraffin as the fuel) has secured a firm hold of the market. However, I anticipate that eventually the vertical four-cylinder engine will displace the horizontal engine just as it has done in the case of motor cars, motor lorries and motor boats.

I have been examining the specifications of 140 motor tractors of 1918 types, and the following figures are clear evidence of the progress in public favor which the higher speed engine is making in competition with the older type which works at 500 revolutions per minute or less.

Engines working at 500 r.p.m. or less	20
Engines working at 500 to 700 r.p.m.	21
Engines working at 750 to 800 r.p.m.	30
Engines working at 850 to 1,000 r.p.m.	58
Engines working over 1,000 r.p.m.	11

It will be noted that the largest number is that of the group 850 to 1,000 revolutions per minute, and 99 of the whole 140 machines have engines which work at 750 or more revolutions per minute.

It is a good plan to talk to your horses, but avoid politics as much as possible.

The farmer who is careless about his seed-corn will never be lending money to Rockefeller.



WHAT WE HAVE WELL HOLD

Australian: "Stick it, Jock. We're coming."
Jock (clearing Hun dug-outs): "Hae ye nae Boshes o' yer ain that ye mun be wantin' some o' mine?"

MANURE—HANDLING AND VALUE

From "Hoard's Dairyman"

A correspondent writes:

If manure is drawn from the stable during the fall and winter and spread on meadow or stubble ground to be plowed in the spring, what fertilizing elements are lost, if any, providing no flooding or washing of the fields occur from rains washing the manure or its juices off the land on account of the ground being in a frozen condition?

In your reply to a recent inquiry you say a ton of cow manure will produce a certain quantity of nitrogen, potash, and phosphoric acid. Would this be a ton of manure as it comes from stable or a ton of rotten manure coming from an unprotected pile in corral or barnyard? What is the relative value of the fresh ton and rotted ton of manure when spread on stubble or meadow as stated above?

Is horse manure more or less valuable than cow manure?

The answer is:

"There are practically no fertilizing elements lost when manure is drawn direct from the stable and spread on the meadow or stubble ground. On the whole, this method brings to the soil the largest amount of plant food, as risk of loss due to destructive fermentation, leaching, etc., is avoided. Providing a sufficient amount of absorbents is used, there is comparatively little loss of nitrogen, for in dry weather the manure dries quickly and fermentation stops, while in wet weather the soluble portions are washed into the soil and so are not in danger of loss by evaporation. This method also economizes in the time and labor entailed in handling the manure, and is most convenient because of the season when the work is done.

"The reference made in our pre-



Private Parker, of the 14th New Jersey, is afflicted with a sudden mania for clean clothing. This is the fourth time to-day he has washed the same garments.

20 Reasons Why You Should Wear "MASTER MECHANIC" OVERALLS



- 1 Most liberal guarantee (It's in the hip pocket).
- 2 Size where size is wanted.
- 3 High bib.
- 4 High back.
- 5 Extra roomy seat.
- 6 Workmanlike appearance.
- 7 Comfortable to work in.
- 8 Seven handy pockets (six more in coat).
- 9 Four-piece sliding web suspender.
- 10 All seams double stitched.
- 11 Continuous facing on fly and on side openings to prevent tearing.
- 12 Brass slide-snap button fasteners on bib.
- 13 Extra large trimmed pocket.
- 14 Reinforced where most wear comes.
- 15 Detachable brass buttons on coat.
- 16 Cinderproof collar.
- 17 Close fitting cuffs.
- 18 Whip stitched button holes.
- 19 Made from best quality materials.
- 20 Two combination watch and pencil pockets.

Don't be deceived by substitutes or imitations. Insist on "MASTER MECHANIC" the OVERALLS that are best made.

They have stood the test of years, and have proved their durability, comfort and convenience. If you want to know how they fit, go to your dealer's and ask him to let you try on a suit of

"MASTER MECHANIC" OVERALLS.

All First-Class Dealers Sell Them

If your dealer does not have your size in stock, send us his name and we will send you your size direct.

WESTERN KING MANUFACTURING CO., LIMITED WINNIPEG

vious article was to fresh manure or to manure which had been properly taken care of in the yard and which had not suffered any particular depreciation in value. Fresh manure is especially desirable for lightening heavy soils, but in some cases it is not desirable to use it on light, porous soils, particularly in dry seasons. Fresh manure when plowed under supplies decaying organic matter that assists in rendering the plant food of the soil more available, supplies desirable organisms that promote chemical changes, and favors a good growth of foliage. Its disadvantage is that it may carry over weed seeds into the succeeding crop and is not desirable for certain kinds of crops. It is best used when plowed under for corn; while rotted manure would be preferred to grains, for vegetable crops, and, in some cases, for topdressing meadows in the spring. However, fresh manure can usually be applied to the proper crop where a rotation is followed.

"Manure which has been properly stored in pits or ricks is richer

Full o' flavor!



Tea with a Guarantee

The Codville Co., Ltd., Winnipeg



In Pound and Half-Pound Packets and Three or Five Pound Tins.

proportionally in plant food constituents; that is, the fresh manure shrinks much in bulk and in the process of fermentation there have been some losses. That is to say, a given quantity of fresh manure will carry more plant food elements to the soil than the same quantity when allowed to decompose even under the best condi-

tions. However, in the decomposed manure, the phosphorous and potassium are rendered more soluble, while the nitrogen is made somewhat less so. The manure which has decayed in the manner indicated in the inquiry will ordinarily be no more valuable ton for ton than fresh manure.

SPECIAL TRACTORS FOR LIGHT CULTIVATIONS

By "Plowshare" in English "Country Life"

TO judge by the application of motor power for field purposes, one might think that plowing is the one and only operation on the farm. Almost without exception the tractors built have been designed primarily for plowing and it is more or less an accident that the same machine can be used for hauling the binder, mower, roller, drill and other implements.

Generally speaking, the tractor is not ideal for any of these accidental purposes. The power unit produced for plowing is equipped with greater horse power than is required for other farm operations; probably it is also very much heavier than is necessary, and a greater number of gear ratios are provided. Further, the width of wheel necessary for a plowing tractor is too great to allow it to be used for cultivation work between rows of growing crops. The net result is a machine more expensive to purchase and more expensive to run than a type of machine designed specially to lighter farm duties, even for the duties which its construction allows it to perform. I be-

lieve that a lighter form of mechanical power unit would be greatly in demand if it were available. Such machines would enable great saving of time and labor to be effected, or, more important still, would enable a vastly increased amount of work to be done in a given time on occasions of vital importance to the farmer, such, for instance, as drilling seed at intervals of favorable weather and soil conditions.

Another point in favor of using motor power for drilling and seeding operations is the accuracy with which the machine can be steered and the straight rows which result. Straight drilling in turn makes hoeing and inter-row cultivation less difficult. With regard to cultivation between rows, the accurate steering of the mechanical power machine is of first-class importance.

Horse hoeing is a relatively slow process and a troublesome one, but with a light motor cultivator with plenty of clearance for the growing crops, a number of rows at a time could be cultivated with absolute precision at a speed of, say, four miles per hour, and one man should be able to work many acres per day at a very low cost per acre.

From my own knowledge of the great benefits to be derived from the constant working of the surface soil, I cannot doubt that such a machine as I refer to is very badly required, whether the farmers realise it yet or not. Certainly the implement makers and the tractor makers in this country do not seem to be giving much thought to this lighter type of machine.

THE VALUE OF THE DISC HARROW

EVERY farmer knows that before putting in his grain the land must be plowed and worked in order to obtain what is known as a seed-bed, namely, the working up of the surface soil into small particles. It is, however, very much to be doubted whether all farmers realise the importance of a really fine soil in the preparation of the seed-bed, and certainly the use of the disc harrow in this country is not so general as it inevitably must be when its advantages are more widely known. Immediately after the grain harvest a crop of weeds is produced, or else the land for want of covering is dried out and baked by the late summer sun.

The practical way to overcome both these disadvantages is to give the land immediate surface cultivation. If the surface soil is well stirred and a mulch of fine soil prepared, this will have the effect of killing the weeds, check-

ing evaporation of the moisture already in the soil, and will enable the soil to absorb and retain any rain that may fall. No implement does this as well as the disc harrow.

If the land is well worked with the disc harrow preparatory to being plowed for autumn seeding, it has an extra effect in ensuring good connection between the furrow slice and the subsoil, as the deep discing either cuts or weakens the slice so much that it does not lie rigidly, leaving air spaces underneath, but falls in a loose manner and, with the assistance of the loose surface soil turned under, makes complete contact with the subsoil.

In the case of lea land or sod which is being plowed under, this working of the surface with the disc harrow has the additional effect of cutting up the surface trash and mixing it well with fine soil, the result being that the trash does not form an insulation course between the furrow slice (furrow slice) and the subsoil cannot be overestimated. If this contact does not exist, capillary attraction cannot operate, the moisture from the subsoil cannot rise, and, unless frequent rain-falls occur, the surface soil will dry out and poor crops result.

The general use to which the disc harrow is put is that of cutting up the clods and working the land after plowing, and for this purpose it is the finest implement made. The benefits of discing land previous to plowing as well as after plowing are not so fully realised. If, when the seed-bed has been prepared, the land appears to be lying too light and to want compacting, the disc harrow, if the discs are set straight, will make a very fair substitute for the subsoil packer. For tractor or work two sets of discs, one following behind the other, give the best results. The first set throw the soil outwards from the centre, and the following set throw inwards again.

On land which has been deeply plowed in the spring or in the previous autumn, and has since carried a root crop or green crop, it is frequently sufficient to well disc harrow the land and then put in autumn-sown wheat without plowing at all. The condition of the land, of course, affects this procedure. In some parts of America it is quite common practice to plow and disc harrow alternate years only, as a regular system.

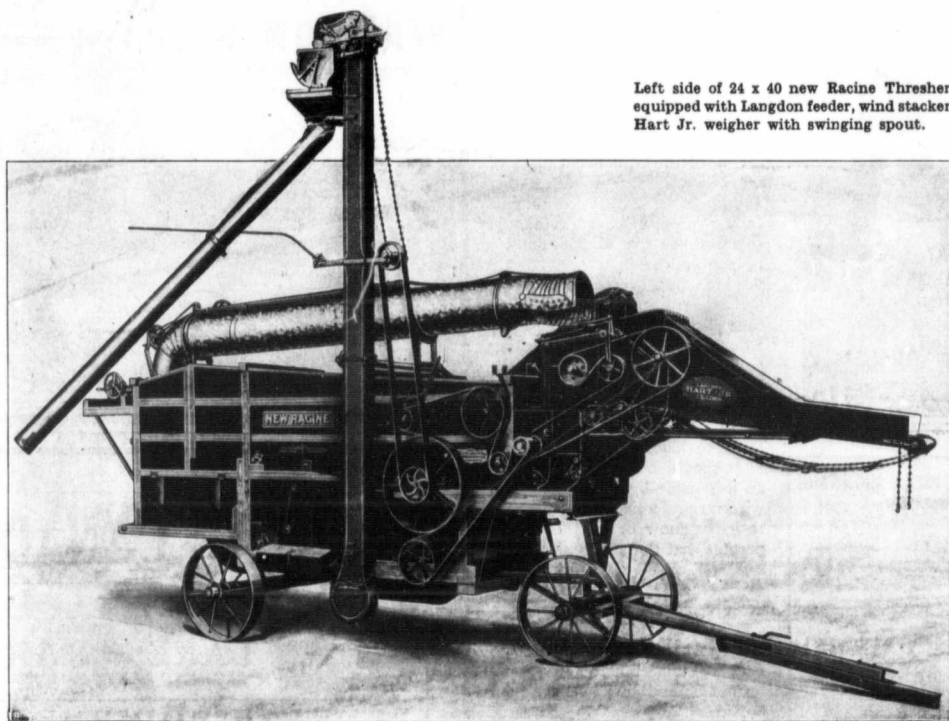
FOR SALE—20 H.P. L.H.C. Type C Gasoline Engine. Also 22-36 Separator, bolts in good condition. Rose, c/o Box 314, Winnipeg.

PATENTS: CANADIAN, FOREIGN—Egerton R. Case, Patent Solicitor, Temple Building, Toronto. Valuable booklets free.







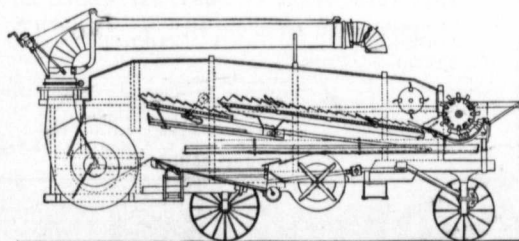



Left side of 24 x 40 new Racine Thresher, equipped with Langdon feeder, wind stacker, Hart Jr. weigher with swinging spout.

Do Your Own Threshing In the Up-to-Date Way

THRESH as soon as your grain is seasoned and when it is in prime condition. Get to market when prices are highest, or while roads are in best condition for hauling. Get your ground cleared of shocks in time to do the fall plowing properly. Instead of having a large crew to be fed and cared for, take a little more time and use your own help. That is the modern way. Therefore—own a GOODISON or a NEW RACINE thresher.

The GOODISON in 20 x 38, 24 x 42, 28 x 42 and 20 x 34 (combination) sizes, gives you a thresher for your own farm or crop—one that can be depended upon to handle as much grain and thresh it more thoroughly than other threshers of equal size.



Interior Construction of Goodison Thresher

The 20 x 32 NEW RACINE thresher is just the right size for the average individual farmer. It can be operated with a light kerosene tractor, and will thresh 30 to 60 bushels of wheat an hour. For the man who needs a larger machine, there is the 24 x 40.

A TITAN or MOGUL or an INTERNATIONAL KEROSENE TRACTOR furnishes the most economical power for GOODISON and NEW RACINE threshers. Ask the International Harvester, Deering or McCormick dealer to show you one of these outfits and give you prices, or write to the nearest branch house address below for catalogs.

International Harvester Company of Canada, Limited

BRANCH HOUSES


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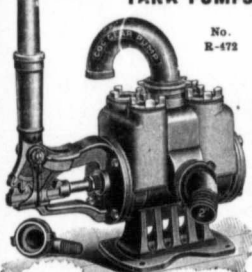
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Get a box of Dickmore's today. When your horse suffers from sore or galled shoulders apply a little and keep your horse working. Dickmore's is used successfully on a million horses a year.
PRICES:
2 oz. box, 35c 6 oz. box, 70c 16 oz. box, \$1.40

WANTED—To hear from owner of good farm for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

WANTED—To hear from owner of threshing rig for sale. C. C. Shepard, Minneapolis, Minn.

PREPARING BEES FOR WINTER

IN all parts of Canada there was a heavy loss of bees in the winter of 1917-18. Most of this loss was preventable. The increased value of honey urges us to make a special effort to prevent it this coming winter.

One of the principal causes of the loss was insufficient protection of the bees wintered outside. In no part of Canada should colonies be wintered outside without an outer case covering the hive, and everywhere, except perhaps on Vancouver Island, this case should be large enough to allow for 3 to 6 inches of packing around the sides and beneath the hive, and 10 inches or more on top. It is advisable to have the case large enough to take 2 to 4 hives en bloc, and the entrances in it should be reduced to 3/8 of an inch wide by 1 1/2 inches high with no projecting ledge beneath to lodge snow or ice. It is important that the apiary should be sheltered on all sides from wind, say by an 8 foot board fence of evergreens.

In very cold districts or during an extra hard or long winter, the bees will winter better in a well-insulated and dry cellar than outside.

Another important cause of loss was unwholesome or insufficient stores. Honey-dew, fruit-juice, molasses and syrup made from low grade sugar, will kill the bees before spring. The most reliable stores for winter are well ripened clover honey, buckwheat honey, and syrup made from refined sugar. Some honeys gathered in the fall are unwholesome. Be sure that the stores are well ripened and capped over before cold weather, and that each colony has about 30 pounds.

The remaining causes of loss were weak colonies, queenlessness, too high a proportion of old bees to young bees due to old or drone-breeding queens, and the depredations of mice.

Weak colonies should be united and the hives packed in the wintering cases about the middle of September, and any feeding that is found to be necessary should be completed before the end of September except in Southern Ontario when a week longer is allowable.

Owing to the shortage of sugar, some capped combs of the purest clover honey should, if possible, be reserved for wintering. Be sure that this has been gathered by bees free from foul brood. These combs should be left in the care of the bees until required.

Teacher—Do you know Johnnie where shingles were first used?

Johnnie (modestly)—I'd rather not tell.

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When you buy SAWS!



Absolutely best value in their line. Heavy steel shafts and boxes, solid fly wheel, three pulleys, strong, rigid frame. Watson's Pole Saws are specially designed for the purpose. Equipped with ratchet pulley. Regularly furnished with 26-inch saws. If you want saws that are safe and easy to run, strongest on the market, and that stay sharp.

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We Sell
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FOR SALE OR TRADE—Stewart Sheal Leader, good repair; also American Abell 28 H.P. Steam Engine. Wanted, 4-cylinder Gas Engine. C. S. Thomas, Hartney, Man.

FOR SALE—25-50 Avery Gas Tractor, equipped with extension rims and in best of condition. Also six-furrow Cockshutt Plow. A. L. Bates, 496 Teller St., Winnipeg.

IN PERFECT ORDER—Aultman-Taylor 30 x 60 tractor. A real bargain in one of best engines built, but don't answer this ad. unless prepared to inspect the engine. Address C. Box 3164, Winnipeg.

WANTED to hear from owner of good farm for sale. State cash price, full description, D. F. Bush, Minneapolis, Minn.



The Whitney Tractor, Kipp-Equipt, Built by The Ohio Manufacturing Co.

They Help Your Tractor Stand Up Under Overwork

THE informed tractor owner never knowingly overworks his tractor but overtaxing is bound to take place at times.

If at such times lubrication is insufficient or if the lubricant used is full of grinding sediment, it is even more dangerous than usual.

Bearings and other parts are very seriously worn down and breakdowns and costly repairs are the certain consequence.

One of the many savings effected for you by manufacturers equipping with Madison-Kipp Lubricators is a maximum protection against the effects of such unconscious abuses.

In Kerosene and Gasoline Tractors Both

Kerosene and present-day gasoline both condense on the cylinder walls.

This condensation wipes the polished metal clean of oil just as kerosene anywhere cleans off oil.

Unless the oil film is properly and regularly renewed by means of "live" oil the unoiled surfaces grind and wear each other down.

Under conditions of overwork this evil becomes especially serious because the resulting wear is greater.

With Madison-Kipp Lubricators the oil film is unflinching renewed because they are built on the positive Kipp Valveless Principle.

They Reduce Repair Costs

Two out of every three tractors now in use are equipped with these lubricators to guard against the costly repairs and replacements due to improper lubrication.

The manufacturers of good lubricating oils have told you for years how the sediment gathering in oil,

used over and over again, grinds the piston rings, cylinder walls and bearings.

The Madison-Kipp Lubricator, because it uses oil but once, does away with this cause of costly delays and repairs.

As a reducer of repair costs due to unusual as well as normal conditions, this lubricator constitutes a strong recommendation for the tractors equipped with them.

It should be on the tractor you buy.

It costs you no more and is worth much more.

The worth and reputation of Madison-Kipp Lubricators are so well established that the factory making them is now the largest in the world devoted to the manufacture of lubricators.

The Madison-Kipp Lubricator Co.
Madison, Wisconsin

The Products of These Tractor Builders Are Kipp-Equipt

On All Sizes of Tractors

Advance Rumely Thresher Co.
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Gile Tractor and Engine Co.
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International Harvester Co.
Titan Mogul
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Klumb Engine & Machine Co.
La Crosse Tractor Co.
Happy Farmer Tractors

Nichols & Shepard Co.
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On Some Sizes of Tractors

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The Russell & Co.
Russell Tractors—30-60

Madison-Kipp Lubricators

VALVELESS **FORCE-FEED**



Uncle Hiram ON CONSERVATION

UNCLE HIRAM

AN old friend of mine used to say that the richest girls make the poorest wives. From my own experience I am inclined to believe that he is right—not that I married a "poor" wife, the very reverse being the case in so far as character and ability counts, and these are the only things that really count, whether it is a wife, a windmill, or a washtub you are choosing.

What my friend had in his eye as a "rich" girl was the girl who had been "genteelly" brought up on a bottomless stocking of spending money. The poor soul who got her soon came to his wit's end in the puzzle of keeping her or meeting the inexhaustible demand. Perchance she was a freak of fashion. She was a "fine figure of a woman," with a waist like a wasp. But that waist developed into a ruinous waste.

There are not many men who have got to the top of the ladder who would have got there had their wives not steadied it for them. "A virtuous woman is a crown to her husband," but a jade who lives to dress, or is "dying to disport herself," is a bigger drain on family life, and subsequently on the national interest than a professional thief with the freedom of the First National Bank.

Nat Goodwin said that "in marriage, money should be no object—also it should be no objection." But one of the first requirements of marriage must be a real union of mutual interest. There are lots of reasons why so many of these "unions" end in tragedy, but one of the most prolific sources of domestic infelicity is the inability of one or both parties to trim the expenditure to the income.

The woman who can conserve, "who can make one pound of flour do what a shiftless cook needs two to 'get there,'" is worth her weight in rubies to her man and her household. To the world at large, when "conservation is the very life of the people," there is nothing on the North American continent that can set the "price" of a few thousands of such women all working to one common end.

The fancy man and the woman of frills are a menace in this day of national stress. The great Burke said that "the human system which rests for its basis on the heroic virtues is sure to have a superstructure of weakness or of profligacy." The really great things in life are after all the common things; common home-spun principles—one of which is that the man who spends less than he earns is a happy man and is a big national asset.

One of the greatest "secrets of success" that the state of war has dug up from its long entombment is the potentiality of little things when it comes to saving or "conserving"! Just think how little six or eight ounces of fine wheat flour saved by substitution from the day's family baking seems to the woman who wields the rolling pin! But do you know what the enforcement of this saving on a few millions of families has meant?

That simple idea instituted and insisted upon by the American government has meant the salvation of the food supply where it was sorely needed and where disaster dogged the footsteps of the brave fellows who held the line for civilization. Humanly speaking, we can now say to every man, woman and child we are expected to feed: "You shall not want." And we are able to guarantee this solely by the saving of the multitude of little things.

I'll bet any reader of these two columns they expect me to fill every month—a new "Stetson" or "Panama" that greater loss of priceless foodstuffs can be traced to careless threshermen in the fields than can be laid to the charge of women in the kitchen.

"Threshing" outfits are being rushed out into the grain fields in a condition that is almost criminal in view of the crushing demand of the times. They "thresh" the straw and the grain in a way, but because of the looseness in their joints and for other reasons they will deliver an aggregate of millions of bushels of fine grain into the straw pile before the season is over unless the mischief is stopped with a Grain Saving Wind-stacker.

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. Weigh 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.



4 H. P. Cushman on a Binder. Same Engine Does All Other 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 378 lbs. Boy can pull it around from job to job. Same engine used on binder.

Cushman Motor Works of Canada, Limited Dept. C.T. WINNIPEG
WHYTE AVENUE and VINE STREET, MAN.
Builders of High Grade, Light Weight, High Power Engines for General Purpose Farm Work. 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—Shinn-Flat Lightning Rod.

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FREE POWER
Running water in your home, barns, and pastures, without a cent of cost for power! Wind power, of course! Not the old style wind power, accompanied by sleep destroying rattle, constant repairs, frequent oilings, and trouble half the time. To-day a TORONTO Windmill gives all the pumping power you need—no repairs, no expense for upkeep beyond an occasional oiling. "What is the main difference?" The Toronto Windmill is built with **double gears** removing side strain, saving wear on bushings, stopping rattling and enabling the mill to run in the lightest breeze. It is a revolution in windmills that has brought wind power back to favor! We are sending out windmill books as fast as we receive requests. Send us your name and address without delay. 145W

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The Country needs grain.
You want to save all you possibly can.
You can do that only by equipping yourself with the very best
threshing machinery obtainable.
There are no two kinds alike.
Some one must be better than the others.
It is up to you to get the one that is better.
You can make sure of this if you will properly investigate.
You have the judgment.
You can tell the difference by looking them over carefully. Good
work always shows.
Look a Red River Special outfit over carefully.
Compare it with any other made.
You cannot afford to place yourself among the grain wasters.
Get a Red River Special outfit and head the list.
Remember it is the only one that BEATS OUT THE GRAIN.
It is the only one that has "The Man Behind the Gun", the Big
Cylinder in combination with the Beating Shakers.
Get it NOW because there are but few of them left. Write

NICHOLS & SHEPARD CO.

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Builders EXCLUSIVELY of THRESHING MACHINERY

Red River Special Threshers, Feeders, Wind Stackers, Steam and Oil-Gas Traction Engines

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H. P. NORTON COMPANY, CALGARY, Alberta

WINNIPEG, Manitoba

OUR WOMEN FOLK

CONDUCTED BY
PEARL RICHMOND HAMILTON

The Dear Old Lady

By Antony E. Anderson

The dear old lady on our street,
I wonder if you've met her?
She's slightly deaf and slightly blind
To many a thing that passes,
That no one could forget her!
She hasn't read a hundred books
In all her life, she tells me,
And if you were to judge by looks,
The honest truth compels me,
To say she does not seem so wise
As many girls of twenty,
And yet no friend of hers denies
She knows a lot and plenty.

Her twinkling eyes are hid behind
A pair of gold-rimmed glasses;
She's slightly deaf and slightly blind
To many a thing that passes,
She'll see the sunset in the west
And note its radiant glories,
And speak of mansions of the blest
And sweet old Bible stories;
She'll see the bluebird and the thrush
She'll hear the cricket calling;
She'll listen in the twilight's hush,
For sudden raindrops falling.

But if you say that Jane is proud,
And John is so conceited,
Although you say it very loud,
You find yourself defeated!
She softly answers, "Jane is good,
She helps her widowed father;
There are not many girls that would,
And make no fuss or bother.
Yes, John is quite considerate,
And handsome, too, and manly,
Reminding one, he's so sedate,
Of outs of Henry Stanley!"

She simply will not hear or see
The faults in all her neighbors;
You point them out persistently,
But vain are all your labors!
She finds the good in every heart,
In child, or man, or woman;
And so she always takes their part,
And says to err is human,
Ah! do you wonder, when you know,
That we have learned to love her?
That form is withered, bent and slow,
But heaven is just above her!

Things Worth While

By Neil DeWitt Rowell

These are the things worth while:
The rainbow after rain
The peace that follows pain;
The touch of little children's hands,
And sweet affection's subtle bands;
The blue sky up above;
The tender thrill of woman's love;
The sacrifices that are part
And parcel of a mother's heart;
The good, the beautiful, the true,
The melody that stirs anew
Strange yearning after nobler things;
The simple song the robin sings,
The dew upon the garden rose;
The flower that by the wayside grows
To claim a homeless urchin's smile—
All these are things worth while.

Hard to Tell

Helen annoyed her father with questions
while he tried to read the newspaper.
One evening, among other things, she
demanded:
"Papa, what do you do at the store
all day?"
"Oh," he answered briefly, "nothing."
Helen was silent a moment, then asked:
"But how do you know when you are
dope?"

Mother's Corner

"A little child shall lead them."
"A babe is a mother's anchor, she
cannot swing far from her mooring," says

The Miracle

By Reina Melcher Marquis

Oh, little child of mine,
It seemed, before you came,
I was a weary woman grown,
My world a rose too faintly blown;
Too many Springs had bloomed the same
For one to be divine.
Before I knew your eyes,
The magic of your hand,
A little dusty seemed my way,
And dull each oft-repeated day,
And faded seemed the Summer land,
And faded, too, the skies.

And then, my sweet, you came;
Behold the world made new!
New flowers springing left and right,
The sun new gold, new stars alight,
And vouchsafed unto me through you
New youth—a deathless flame!

Have you told your daughter what she
should know? Dr. William Lee Howard
says: "I have seen in private and
hospital practice thousands of girls whose
health was ruined for life through igno-
rance."

What Is Your Opinion?

She was quite excited when she arrived
at the station. "Do you know of an
institution that would take care of my
children while I do patriotic work? My
husband is at the front and I feel I must
do patriotic work, so I have come to the
city to place the children in an institution."
How would you reply?

BABY CONTEST

OUR baby contest is arousing great
interest among our women readers.
Child welfare is a most vital issue
of to-day. Everywhere we are seeing the
need of child conservation. We believe
these letters of experience from mothers
will save the lives of many little children.
We must not neglect the care of children,
but double our efforts in their behalf.

Infant mortality is the most sensitive
index we possess of social welfare.
Bishop Murray has said that "Mothers
stand next to God." A great wave of
interest in child welfare is moving over
this continent. The little child in our
midst has rights. He has a right to a
happy home, a home whose atmosphere
is not defiled with nagging and fault-
finding and complaining. Home should
be to the child a magnet that shall never
lose its power. Earthly treasures alone
never make a home. The child has a
right to work, a right to play, a right to a
clean father and a pure mother, a right
to kindness, a right to religion. The
common child becomes uncommon when
God directs the life. The child has a
right to physical and moral strength.
Let us not only have the experiences of
young mothers, but let the grandmothers
write as well.

A prize of two dollars is awarded
every month to the mother who writes us
the best description on the "Care of
Children."
We are also holding a Baby Contest.
A prize of twenty-five dollars will be
awarded to the mother who sends us the
picture of the most perfectly formed
child with a description of the care of the
child. The second prize is ten dollars,
and the third is five dollars. We hope to
have the pictures of a hundred babies
for this department. Do you want to see
your baby's face in our department?
You will help other mothers by sending us
your experience on the care of children.
We believe we have the most helpful
mother's department in Western Canada
because the information is practical, it
comes from the hearts of mothers.

Your particular letter may save the
life of a little one. Is that not worth
while? Send us, then, the photo of your
little one with a description of your care
of the child. Give weight, height, chest
measurement and general condition.
Every photo will have a place in our
department. We all want to see the
picture of your little one on our page.
Send all letters and photos to Pearl
Richmond Hamilton, 983 Grosvenor Ave.,
Winnipeg, Canada.

Prize Letter

I AM the mother of four children,
two girls of six and four years and
two boys of three years and seven
months. As the girls are beyond the
age limit of this contest I shall just deal
with my care of the boys, though it has

been practically the same for all of them.
Billy was born on July 7th, 1915, and
weighed 9 3/4 pounds. Now, at exactly
three years, he is a fine big boy, weighing
42 pounds, is 39 inches tall and has a
chest measure of 23 1/2 inches.

Frank, born December 20th, 1917,
weighed 11 1/4 pounds, and now at seven
months, weighs 22 pounds, is 27 1/2 inches
tall and has a chest measure of 21 inches.



FRANK WILSON at 6 months.

I have heard that a large baby at birth
does not gain as rapidly as a smaller one,
and this has been so in Frank's case.
This may be due to my own health not
having been very good, however, he has
gained steadily since the first week and is
now a big, strong boy, trying his best
to creep.

I have nursed all of my babies, and
not one of them ever had colic as so
many babies do. I cannot account for
this unless due to the fact that right from
the first I always gave them all the pure
water they could drink. I boiled the
water and at first gave it to them warm
from a bottle, and as they grew older I
just gave them the pure cool (not cold)
water.



BILLY WILSON—3 years.

When my first baby was born I bought
a copy of Dr. Holt's "Care and Feeding
of Children," and found it a great help
in many things, though I did not follow
it exactly. For example, I never awakened
my babies to feed them, and I cannot see
that it harmed them in the least. At the
age of four or five months when the teeth
are bothering and everything goes into
the little mouth, I supplement the nursings
with arrowroot biscuits, one a day at first,
gradually increasing to three or four. A
baby will bite on one of these for a long
time, and when a bit does become softened
it instantly dissolves and is very easily
digested. At the age of nine months I
start weaning, substituting one feeding
in the day of bread and diluted milk for
one nursing. After several days I sub-
stitute two feedings and so on, also
using stronger milk, until the baby is
completely weaned and is taking bread
and pure milk. Later on I give him small
portions of codded egg, bread and
butter, porridge, potato and gravy, etc.,
but no meat until after the second summer



Mistress (as the new troops go by): "Which of them is your cousin?"
Nursemaid (unguardedly): "I don't know yet, Ma'am."

and then very small helpings until six years old. Unlike some mothers, I believe in giving a child a little candy after they are about a year and a half old, say one piece a day but never at bed time as it lodges in the teeth and causes decay.

Now as to clothes, I do love to see a wee baby in long robes, but profiting from my own experience, I would never again put a summer baby in long clothes, for the short ones are so much more comfortable. For the first three months my babies wore a flannel band, mixed cotton and wool vest, napkin, flannelette barrowcoat and cotton crepe petticoat and dress, these latter chosen on account of being so easily laundered. At three months I shorten them, substituting short



JEAN, BESSIE, BILLY and FRANK WILSON

flannelette petticoat and short crepe dress and stockings and moccasins. I leave on the flannel bands until about six months. As soon as they begin to creep I make them rompers of brown holland, buttoning up the inside of the leg. If the weather is cold a woollen petticoat may be worn under this. I think these rompers are splendid for both girls and boys until they are three or four years old.

Sleep plays an important part in a baby's life. For the first three months they sleep most of the time then they begin to lie awake and play by spells. By and by it dwindles down to a nap in the morning and another in the afternoon, and finally just the after-dinner nap which my kiddies take until five years old, always, if possible, outdoors.



ROY HOTSON aged 3 years and 3 months.

I bath my babies every day until they become perfectly clean in their habits, which is usually about the ages of a year and three months. The bath includes proper cleansing of eyes, ears, nose and mouth with a solution of boric acid applied by means of swabs made of a toothpick and a bit of absorbent cotton. As soon as they are old enough they learn to clean their teeth properly with a brush and also to gargle. This latter is great fun for the little tots and often proves invaluable in the case of cold or sore throat.

With the exception of whooping cough, which was brought into our home unknowingly by a visitor, our children have had none of the so-called children's diseases, and so long as I can safeguard them from these I shall do so, for these

diseases so often leave some weakness. Just here, children should never be kissed on the mouth. The only medicines I have used have been an occasional Baby's Own Tablet as a laxative, camphorated oil applied to chest at first sign of a cold, and a little lime water given in their drinking water in very hot weather or if stomach does not seem just right.

I have tried to explain my methods as to the physical well-being of my children, and I'm sure you would search the country over to find four healthier, happier children than ours, and I believe that their fine condition may be mainly attributed to three things—cleanliness, fresh air and plenty of pure drinking water.

Mrs. S. K. Wilson,
Seven Persons, Alberta.

PURITY

OATS

The World's
best substitute

Use this for PURITY FLOUR (Government Standard) Write us for Recipes

Save this

WESTERN CANADA FLOUR MILLS CO., Limited
Winnipeg Brandon Calgary Edmonton

Brandon, July 8th, 1918.

HAVING noticed in The Canadian Thresherman and Farmer paper a piece entitled "Baby Picture Contest," I would like to enter my little boy, aged 3 years on the 12th of April, 1918. I will enclose or send with this letter his picture. He is strong and well developed, has blue eyes and beautiful yellow natural curls. His weight is 37 lbs.; his height, 36 inches; his chest, 23½ inches; his waist, 21½ inches; his neck, 11 inches; his arm, 15½ inches; his leg, 16 inches long; his head, 21½ inches; his thigh, 13 inches; his arm above elbow, 8 inches long; his name, Roy Hotson.

Description of Baby Hotson's Care

This boy was raised on breast milk till the age of 11 months, when he was taught

to drink milk from a cup. I also fed him bread and milk, a little potatoes and different kinds of milk puddings and some fruits such as part of an orange or part of an apple cut very fine or any easily digested biscuit such as arrowroot, until he had his teeth. He got his teeth quite easily between the ages of 8 months and 2 years. I used very little medicine, as I think we have healthier better babies and children without. However, a little castor oil when small, and castoria once in a while as they get older does not hurt them.

I gave him lots of fresh air, lots of sleeping outside but never in a draft, and lots of sunshine, which I believe is the life of children. I took him out in winter as well as summer, as I think children need lots of fresh air in winter,

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for making homemade candy—for all baking—as a sauce for desserts—on griddle cakes and hot biscuits—use this delicious table syrup, made from corn—and thus save sugar. Ask your grocer.

THE CANADA STARCH CO., LIMITED, MONTREAL, CARDINAL, FORT WILLIAM.

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too. I used to wrap him warm and take him out every day that was fit. Now he is outside all the time, and never sick. He has never had measles, whooping cough, nor any disease subject to children excepting a cold. As I think this is all I have to write I will close. Hoping my boy will stand a fair chance. Yours,

Mrs. James Houtson,
145-1st Brandon,
Edgerton, Alta.

Dear Editress:

THE photo of my girlie enclosed was snapped out-of-doors, and the sun in her eyes was what caused the "squinty" appearance of the eyes. She was 8 months 3 weeks at the time she was a bottle fed baby, and because all too many are also, I will tell of her and my own experience together at it. The formula for her milk as first advised by the doctor was two parts boiled water to one part top milk, but that was not strong enough, so had to increase to half and half. Of course, one only milk is really best for a baby, "Mother's milk for mother's



BERTHA MARIA MAC FADYEN
aged 8 months and 3 weeks.

and reaching for cup, so I let her have it. Soon after that she started walking and running about, also talking. There was very little fuss about teething, just kept her cool and quiet. It was summer time, gave plenty of cool water, and a good old-fashioned clothes pin to bite on, also when we had it a clean picked chicken leg bone to chew at. Some solid foods were gradually worked into her diet as soon as actively moving about commenced. A little baked or boiled potato with butter, plain boiled beets with butter, she would reach for these, the red I guess took her eye, but nothing spicy or much salted, the natural salts being best unaided.

Mrs. D. MacFadyen.

Women's Winnings

IN a book of essays by Stephen Paget I find this quotation: "By all that has happened since August, 1914, you are sworn, body and soul, to be of use to your world and you will not find it easy. Nothing that you can do to fit yourself for that service will be more than you will need for it. Self-reverence, self-knowledge, self-control, these you will need at every step of your work; and reverence for others, and the divine gift of knowing what is in man. Your country has been saved for you. Your life may help to uphold your country's life. Think daily of them who saved it for you, remember their loyalty, obedience, endurance. We talk of the darkness of the war, but the people that walked in darkness have seen a great light; for we have seen what our men are."

Women can keep secrets. This important discovery was made by London bankers and has been cabled to America. According to the reports women were first admitted to employment in British banks with fears and misgivings on the part of the directors lest the women divulge the business secrets. All this is changed now, according to the "Bankers' Magazine," which says: "It is gratifying to think that after three years' experience with the new conditions no ground whatever has been found for these fears."

Clara Graecen, of the U.S. Treasury Department, expert accountant and law clerk, has joined the force of the Comptroller of the Currency in France. She has been fifteen years in the Treasury Department, and is described as an "investigator of difficult questions, giving special attention to naval tangles."

Hittite tablets in the University of Pennsylvania museum recently deciphered by Prof. Sayce of Oxford, show that men and women shared the government in the cities of an empire which stretched from the Mediterranean to the Black Sea. "Each province," says the New York Herald, "was subdivided into cities, and these were supervised by a mayor and prefectess, whose powers were co-ordinate. In one instance the woman mayor had an official status independent of the male official."

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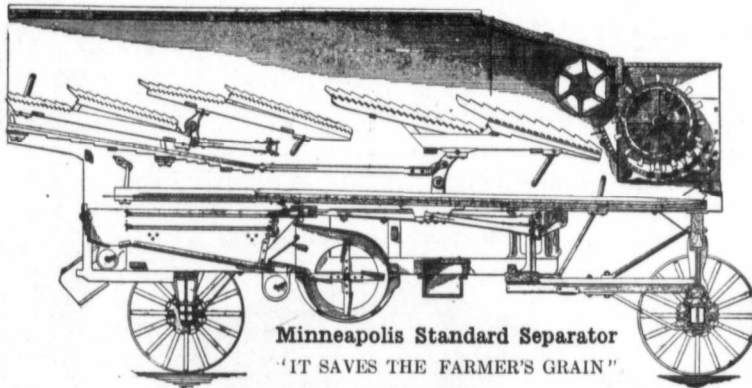
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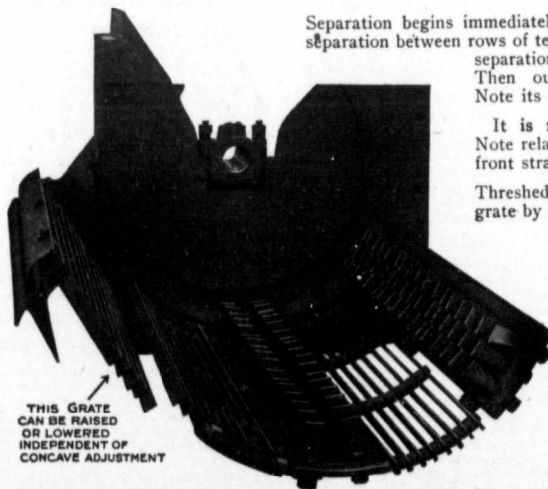
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DEPENDABLES AND THEIR WAR

Dr. Elsie Inglis—Women Munition Workers

DEPENDABILITY is winning this war. That sounds good, but not too good to be true. Facts warrant the assertion. The great question that faces every woman to-day is: "How many Dependables are there and how do I rank?" The answer to that question shows just how near each one is to the firing line. Women are, to-day, an integral part of the army and navy and are just back of the firing line in France. The reason is because they are Dependables.

Some one may say: Oh! but I do not count! I can't do anything but knit and sew. It takes brains to be a Dependable. "Right you are about the brains but as wrong as can be about your not counting. The war would long since have been won by Germany had there not been, right here in Canada, an immense army of Dependables stretching all the way from Labrador to Alaska and every one of them knitting and serving in the way known only to Dependables. That endless stream of Red Cross supplies that started as soon as war was declared and has never slackened, is testimony enough to the existence of Dependables in Canada. The comforts for soldiers bear witness to the fact that there is a dependable generosity in Canada which links it right up to the trenches in spite of the intervening Atlantic.

Being a Dependable consists in the determination to be a Dependable. It was that one thing that marked the difference between Dr. Elsie Inglis, who died last November, and thousands of other women of equal ability and training. It was her dependability which caused her to accomplish a task which will forever be the highwater mark of a Scottish woman's devotion to duty and humanity. It was nothing but dependability that enabled her to lead 8,000 Serbian soldiers safely to England from Roumania by a circuitous route through Finland because of possible ambush laid

by the revolting Russians. Transportation, nursing supplies, everything was superintended by this capable woman, and when the end was gained she paid for the success with her life. "For every shell you fail to send over ten of us are killed," was the message from the trenches soon after the war began. Germany was sending ten shells to our one. English women read the message and read between the lines also. They know that, sooner or later, it would be their work, their privilege to make those shells. Without even waiting to make sure that anyone else felt as they did about the matter they began preparing themselves to make munitions. They trained along the same lines as men. They were skilled workers when the munition factories opened their doors to women. There is the secret of the wonderful work of support and substitution carried on by British women the world over. They trained themselves and became dependable. One million English women volunteered for munitions making and Canada answered with her thousands of Dependables.

The world with difficulty accustomed itself to the thought of women facing real danger and doing arduous work. Women faced it because of some loved one in the trenches or some grave "over there." Scarcely had the army of munition workers commenced its magnificent work when another army of a quarter million organized to do whole or part-time work on the land. The same spirit of dependability that guided the other women workers characterized this new body.

To-day, in England, there is almost no branch of work in which women are not employed and in no place have they failed to make good. The quality of their work is excellent and, in some cases, the output has more than doubled that of men. Even quarrying and mining are open to women to-day and, in Canada the same condition will exist if the war continues. But every one knows that the Canadian woman is a real Dependable!

Our Young Folks

The Younger Brothers

By Aldis Dunbar

"Too young to volunteer," you said; and chaffed
When they left us out entirely from the draft.
What you told us,—(sort o' kind)
That we'd help, who stayed behind—
Seemed like mocking us. We choked
(it hurt!) and laughed.

But the most of us by now have seen a light.
We are facing things, and starting in to fight.
Every muscle we make strong
Means more help in righting wrong;
And we're backing you with all our growing might!

It's for you, in camp and trenches over there,
That we save each single penny we can spare.
You shall know us in the yield
Of the Nation's Harvest Field;
And the lift you gave at home we've learned to share.

We are drilling—as we tramp along to school,
Gripping facts—and seeing sense in every rule.
It's some battle—to obey—
But it is the only way,
For the Second Line can't halt for dunces or fool!

So, we've braced ourselves, and mean to see it through.
It's no children's work you've left with us to do.
Brothers, over there in France,
You are giving us our chance,
And we're taking it—and making men—like you!

The Dropped Stitch

By Harriet Sutherland

Upon the porch Miss Polly sits,
And very busily she knits.
If you should happen to be near
And listen closely, you would hear;
"I'll cast on nine and slip off four,
And then I'll knit across once more
Until, perhaps, it's a time to purr."
Oh, Polly is a busy girl!

But, see, a horrid little frown
Across her forehead hurries down.
It crowds into the dancing eyes,
Where laughter almost always lies.
It drives the dimples all away
That in her cheeks are wont to play.
The clicking needles now have stopped.
"O dear," she sighs, "a stitch I've dropped!"

Her Brother Jack is playing near,
And what she says has reached his ear.
Straightway he falls on hands and knees,
A willing hunter, if you please.
His eager eyes look here and there
And high and low everywhere.
"I find no stitch," says Brother Jack.
"It must have fallen down the crack!"

Dear Boys and Girls—We are delighted to receive so many beautiful letters, and trust you will continue doing so well. Write us about your work, your ambitions, your part in winning the war. This department is for boys' and girls' clubs, boy scouts, camp-fire girls and all other boys and girls in Western Canada.

We are anxious to hear from every boy and girl who reads this department. A prize of two dollars is given every month to the boy who writes the best letter and also a prize of two dollars is awarded to the girl who writes the best letter. We believe this will be the most interesting department in the magazine

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Now that the new government standard flour is in general use, the quality of the yeast you use is more important than ever. Use Royal Yeast Cakes. Their quality is absolutely reliable. Bread made with Royal Yeast will keep fresh and moist longer than that made with any other.

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FOR SALE—One 37 h.p. Sawyer-Massey engine, run about 90 days, in first class condition; one 32-inch Aultman-Taylor separator, almost new. For particulars, write V. C. McCurdy, Moosomin, Sask.

because our boys and girls will make it so. The two most interesting subjects these days are your part in winning the war, and your ambition in life. We want every reader of this department to become a splendid citizen. Let me close with this poem from the pen of S. W. McGill, of the Rotary Club of Nashville, Tenn.

The Way to Win

If you think you are beaten, you are.
If you think you dare not, you don't.
If you'd like to win but you think you can't,
It's almost a cinch you won't.
If you think you'll lose, you're lost.
For out of the world we find
Success begins with a fellow's will—
It's all in the state of mind.

If you think you're outclassed, you are;
You've got to think high to rise.
You've got to be sure of yourself before
You ever can win a prize.
Life's battles don't always go
To the stronger or faster man;
But soon or late the man who wins
Is the one who thinks he can."

Box 368, Wapella, Sask., May 28, 1918
Dear Cousin Doris:—I am writing to tell you I enjoy reading the letters in your club. I like it very much. I am thirteen years old. I have a sister and three brothers. We live on a farm 2½ miles from Wapella. Doris and Lewis and I go to school. Doris and Lare in grade six. Lewis is in grade two. We have some very nice games at school. One is cricket and we have a basket ball club but I do not play as it is for the high school room and grade seven and eight. I play cricket with some other girls. The town girls have a tennis club. We are having a show at our school and the country schools around Wapella this year.

I had a garden last year but it was not very good but I am going to try again. We have two dear little colts, one which we call Trixie and the other we have not named yet. We have four cows milking and I milk two. We have 4 calves and 14 little pigs. Last summer I raised a calf and Doris a pair of pigs. Daddy has a tractor and does a lot of plowing with it. I like outdoor work and did some harrowing for the first time this spring. I like it very much. Daddy has a small pumping engine and I can start and stop it. We have a Homemakers' club here and they held a social at Easter. Daddy won a raffled quilt which was for the Red Cross. I like crocheting and would like to get new patterns if any of the girls have any to spare. I can play the organ a little. I wish the dreadful war would stop and I guess the Belgians do too. It must be awful to be starving like them. Well I must say good-bye. Wishing Cousin Doris and the club every success, bye-bye.
Phyllis Grabham.

Hay Lake, Alta., June 28, 1918
Dear Cousin Doris:—Having seen in the valuable Canadian Thresherman and Farmer that two dollars was awarded for the best letter written to Cousin Doris, I thought I would also try my luck, as many other boys and girls have done. I might be lucky enough to win a prize. Who knows?

I am a farmer's daughter of which I am proud, and we are doing our best to raise grain for the Allies.

I have eight brothers but no sister, two of them being in the army. Two of them have tried to enlist but have been rejected on account of not being physically fit. So I think we are doing "our bit" in this wide-world war.

We live 30 miles southeast of the city of Edmonton, and our nearest railway station and post office is three miles. We have a big garden planted full of vegetables of every kind. We also have two little apple trees, the largest one being about 3 feet in height. I was eating an apple one day and found one seed sprouting so I planted it; it started to grow, which it is still doing. Perhaps we will get some kind of apples off it later on. A neighbor of ours had an apple tree, and he got quite a few apples, but they were still green when he picked them.

Well Cousin Doris, my letter is getting long so fear it won't escape the waste paper basket. I will close, wishing the club all kinds of success. Sincerely your new cousin,
Age 15 Astrid Sikstrom.



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Free Engineering Service McClary's own heating engineers are at your service when you buy a Sunshine Furnace, to give you free expert advice on your home-heating requirements. Write to the nearest McClary Branch and ask for particulars about this service. A booklet, "Comfort in the Home," makes clear all the things you want to know about furnaces, and it is sent free on request.

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BOYS AND GIRLS—Everybody—Chew spruce gum, it is the best. Send 25c. for 3 big chunks. A. Wallace, Tees, Alta.

FOR SALE—Small threshing outfit, complete, in good running order. Sykes, Russell, Man.

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Fitzmaurice, Sask., May 22nd, 1918.

Dear Cousin Doris:—I am a farmer's daughter. I have three sisters and one brother. Their names are Lillian, Lorna, Winnie and Alex. I saw in the paper that any boy or girl that got a prize received \$2.00. We have five little colts; we had six but one died. We have two little calves. We are milking two cows. My mother always milks the cows night and morning. I go to school every day. I am in grade six. I am eleven years old; I will be twelve on the 29th of November. My brother and sister and myself catch gophers. We have a hundred and seventeen now. One of the boys at our school got 600 gopher tails; some of them got 300 and some only got 20 and 40. I like catching gophers when it is fine weather. We had a snowstorm yesterday and the day before. The snow was very deep. The snow has not all gone away yet.

We are nearly done seeding. We have a little more barley to sow. My brother was harrowing on Saturday and Monday morning. I saw a story in the paper written by Cecil London. I thought that was a very good story. He did quite a bit of work. His mother also did a lot of work. I am not a very good writer. We have the phone in our house. We have had it in for quite a while. My father has been taking The Canadian Threshherman and Farmer for a long time. I just come across this club the other day, so I thought I would write to you. I like to live on a farm. I think it is very nice. You can go out and pick strawberries and saskatoons and lots of flowers. We have some raspberries growing in our garden; also some black currant trees. Every year I help to pick the black currants that grow on them. We had a cherry tree, and one year it had a lot of cherries on it, but they all got frozen off one night. Ever since then we have had no cherries. Our teacher's name is Miss McLellan. She is a very nice teacher. The name of the school is Lansdowne. There is another school not far from us; that is called Pipestone Lake school. Well, I am afraid my letter is getting quite long now, so I will close for this time. So, bye-bye, from your cousin,

Marion McDonald.

Calmar, Alta., RR. No. 2, May 24th, 1918.

Dear Cousin Doris:—This is my first letter to your interesting column. I am 14 years of age and in the eighth grade. I have three miles to go to school; our road is mostly always muddy, as we have to cross two creeks it makes it very hard to go.

I am a farmer's daughter and live 18 miles from town. I have lived on a farm ever since I was born, excepting three months of school in Edmonton.

We have five horse and two colts, named Dick and May, and we expect to get two more this spring. We have ten cows and we had seven calves, but the one bloated and died. We also have a lot of pigs, as papa takes a delight in raising pigs; and our four sheep are named Nanny, Billy, Nigger and Dolly. Dolly is just a little lamb, so she is very cute. I have a pet dog named Fannie,

she is a very good cattle dog. Last week when she was after the cows she got poison and when she came home she got so sick that she threw herself around, and all at once she got stiff and we gave her a quart of pure cream and a whole lot of warmed grease, and next morning she was as well as ever. This morning she killed a great big hawk just as it was going to take one of our small chickens. She caught it by the wing and killed it. We have 78 small chickens and will soon have some more. I have a white hen, her name is chippy. She is so tame that she will eat right out of my hand. Mama said I could have all the small white chickens—there are five so far.

I have several cousins in the U.S.A., and one cousin from Canada is over in France, and has been over there for quite a while.

Well, I guess my letter is getting quite long now, so I will have to quit. Yours lovingly, Hilda Ohrn.

P.S. I would be very pleased if any of the girls of your club would write to me.

BOY'S PRIZE LETTER

Drinkwater, Sask., May 21, 1918.

Dear Cousin Doris:—I have read the prize letters in "The Canadian Threshherman and Farmer," but have never written. So I think I will try my luck.

My four brothers and one sister came West with my Uncle George. We reached Drinkwater the 25th of December, 1912. Since then I have lived with Uncle John. Until this spring I am working for another uncle of mine. He is paying me twenty dollars a month from now until freeze up.

Last spring I bought a pig from Uncle John for ten dollars. If this pig would have been sold to the butcher he would have got twelve dollars. But he knocked off two for me.

We have finished seeding wheat and are seeding oats. When we finish seeding oats I am going to start to school. Our school is only half a mile away, so I will walk.

We had four mares and four colts. But one mare died when her colt was only 14 hours old. We fed the small colt on another mare, while the other colt was fed cow's milk. I think I feel more sorry for the colt who gave up his mother than the one who lost it's mother.

We have a pig and a small calf. We call the pig "ink," because we put him in a pin pen and he ran out.

I will close now, hoping to see my letter in print. Yours truly,

Cecil Arley, age 13.

May 6th, 1918.

Dear Cousin Doris:—I am a reader of our young folks department. I will tell you how I helped with the garden. We always use hen house droppings for onions to make it grow good. We sow onion seed in boxes early. As soon as the garden is ready, I help to transplant them. In about two weeks I start to cultivate it once a week all through the growing season. So this is all I can think of. I am eight years old and am four feet and five inches high.

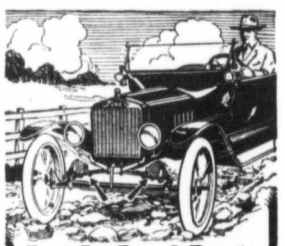
Frank Dusabek, Fisk, Sask.



Every 10c Packet of **WILSON'S FLY PADS**


WILL KILL MORE FLIES THAN \$8⁰⁰ WORTH OF ANY STICKY FLY CATCHER

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IT ISN'T NECESSARY. Hassler Shock Absorbers on your Ford will make "rough spots" feel almost as smooth as an even stretch of road. Their gentle, springy action absorbs every jolt and jar.



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Hassler Shock Absorbers make your Ford ride as easily as a \$2,000 car. They increase tire mileage 20 to 100%, save gasoline, cut your up-keep bills one-third, and increase the resale value of your car. 300,000 Ford Owners recognize their economic necessity.

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Phone, write or call for FREE TRIAL BLANK and we will have a set of Hasslers put on your Ford without a cent of expense to you. Try them 10 days. Then, if you are willing to do without them, they will be taken off without charge. Don't ride without Hasslers simply because someone discourages you from trying them. Accept this offer and see for yourself. Over 300,000 sets in use. Do it now.

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The Bishop (to boy with annoying snifle): "Have you a handkerchief, boy?"
Boy: "Yes; but muvver says I wasn't to lend it!"

Got Gophers? Kill 'Em Quick

Don't Feed Gophers All Fall. Kill 'Em Now. Use **KILL-EM-QUICK**

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If you have not already tractorized your farm, you will do it sooner or later. Then you will want a tractor that you can depend upon, one that has plenty of reserve power.

This Case 9-18 kerosene tractor is rated at 9 H. P. on the drawbar, easily exerting a pull of 1500 pounds while traveling at 2½ miles per hour. It readily handles a 2-bottom 14 inch plow at a depth of 7 or 8 inches under all reasonable conditions. The horsepower rating is very conservative. Under dynamometer tests in the field this tractor has developed a drawbar pull of 2100 pounds at normal speed which is 12 H.P. or 33% more than it is rated. The reserve power is always at hand when that emergency arises.

An Air Washer keeps all dust out of cylinders. The Syphon Thermostat controls the cooling circulation, this keeps motor hot. It prevents raw fuel passing by the pistons and diluting the oil in the crank case.

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