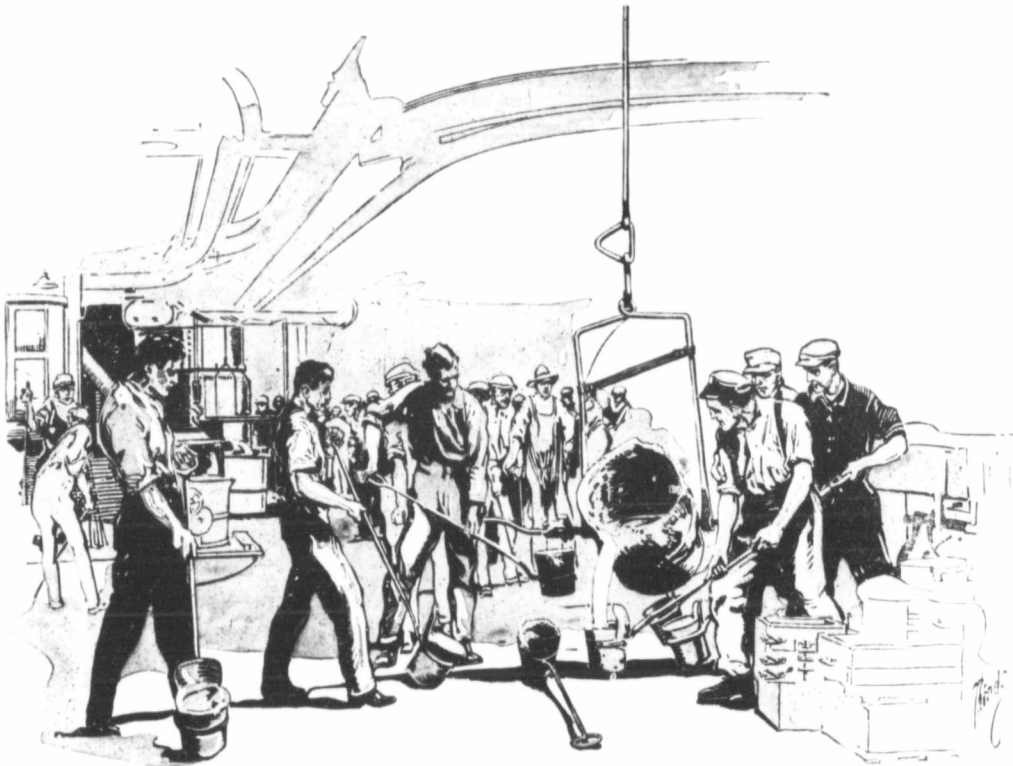


The CANADIAN THRESHERMAN AND FARMER

WINNIPEG CANADA
JULY
NINETEEN SIXTEEN



Published Monthly by E. H. HEATH CO. LIMITED — Our Fourteenth Year



Each Case Machine is Made Complete at the Case Factory by Case Workmen

The above view is a corner of our new mammoth daylight foundry. Men are getting their supply of hot iron from the big ladle, preparatory to filling the moulds. Every appliance to facilitate accurate work has been installed throughout the Case factory. No concern can boast of a foundry more complete and more modern than this. You want to remember that Case machinery is designed and built at the Case factory. It is not an assembly of purchased parts.

What Case Stands For

When you buy a Case machine, you can be very sure of getting a reliable product backed by the reputation of a concern that has been doing business since 1842. In every department of our mammoth works we have instilled into the Case organization the fact that *Quality* comes first. Tests that must

pass the rigid eye of inspectors are made of the various parts that go into the making of Case machinery. For seventy-four years we have maintained *Quality* in every Case Product. It has been our aim to build good reliable machinery. This kind of machinery is always the most economical and the kind that brings farmers the biggest returns. Four generations of satisfied users have proved to our satisfaction that farmers insist on performance rather than price.



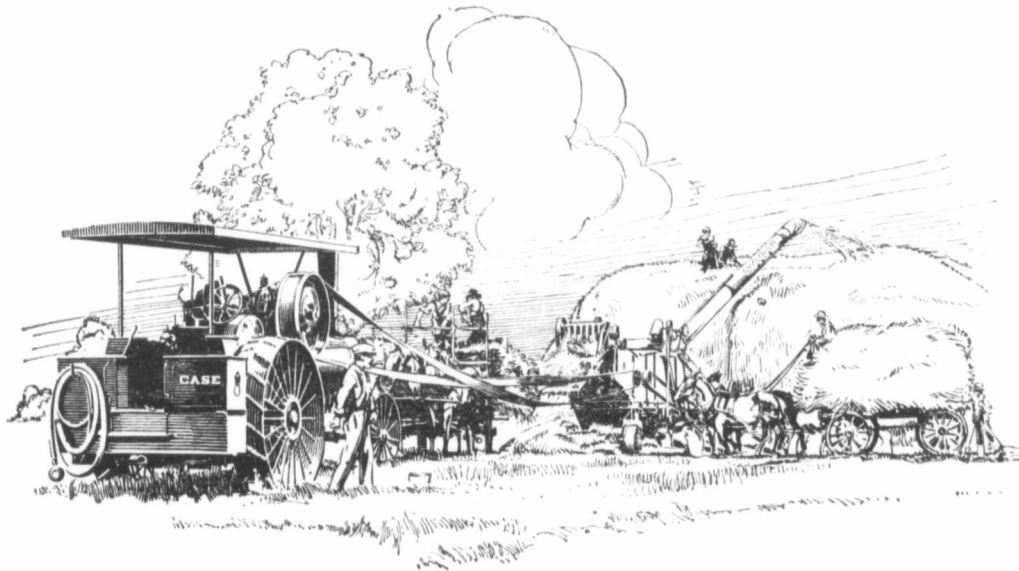
The Sign of
Mechanical Excellence
the World Over

J. I. Case T. M. Co., Inc.

An Interesting Book

You will be interested in the 1916 Case Catalog. It is a book brimful of interesting information for farmers. It contains fine scenes, photographs, and color reproductions. Every farmer and thresherman should have a copy of this book. Send us your name and address and we'll send you a copy, postpaid.

722 Liberty St. Racine, Wis.



If Others Prefer Case Threshing Outfits There Must Be Reasons Why You Should

Most men who buy threshing outfits demand Case. We build and sell each year more rigs than the next three concerns combined. This surely means that the safe way for you is to join the majority and to buy the one threshing rig which has won practically universal approval.

This popularity is proof of merit. In the threshing field Case has won first place because we have been specializing in threshing and power machinery since 1842. Our experience—our resources—our efficient industrial organization—means for you a maximum of value for minimum cost.

Why Men Prefer Case Threshers

The frame of Case Machines is solidly constructed of steel channels. There is no danger of warping or parts getting out of line.

You grain growers or threshermen must insist upon a Case separator because it saves the grain and operates at the lowest cost. The big cylinders of Case machines, with their

steady motion are thorough. Unfavorable weather conditions do not stop threshing. Damp and wet grain is handled easily.

Case machines being constructed of steel are fire, wind and waterproof. There is no danger of holding up the crew and crippling your earning power.

The grain threshed with Case separators brings the highest prices, because of their clean and perfect separation. Case threshers get all the grain there is to be gotten.

Men Prefer Case Steam Engines

The chief reason is that every owner can depend upon the ability of his Case steam engine and his Case separator to work from morning 'till night—any number of hours without wasting any time.

We have always maintained that steam in certain localities is the best and to prove our faith in steam we have continued to add new and improved features that make Case steam engines a leader in their class. This is illustrated by the butt and lap joint now used on Case boilers. Case boilers meet the requirements of boiler laws of every state in the United States and Canada.

In the past 74 years, Case has tested out all kinds of power for agricultural use. Today we sell three final types, in steam, kerosene and gasoline classes.



The Sign of
Mechanical Excellence
the World Over

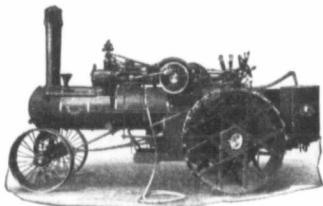
J. I. Case T. M. Co., Inc.

722 Liberty St. Racine, Wis.



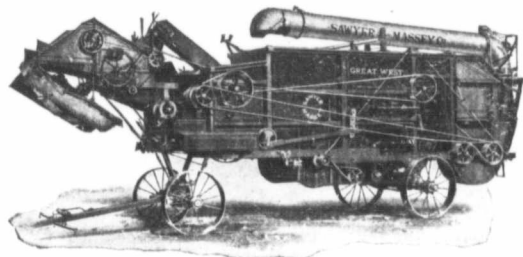
BUY YOUR THRESHER NOW

The success of Sawyer-Massey Threshers has been so well proven by years of satisfactory service that the name has become a recognized guarantee of quality. The testimony of users shows that they are equal to the most exacting requirements. This reliability under adverse conditions is a point no thresherman can overlook.



STEAM TRACTORS
(High Pressure Boilers)

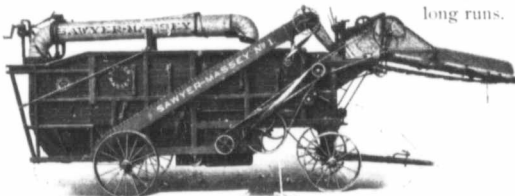
- | | | |
|------|---------|----------|
| C. 3 | 22 H.P. | Draw Bar |
| C. 5 | 25 H.P. | Draw Bar |



GREAT WEST

- 32 inch Cylinder x 56 inch Body
- 36 inch Cylinder x 60 inch Body
- 40 inch Cylinder x 64 inch Body

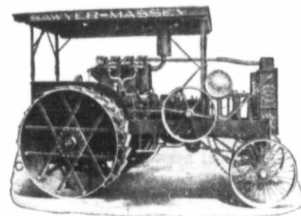
A big, strong thresher, just the machine for heavy work and long runs. Fast, powerful and economical of power.



SAWYER-MASSEY

Two sizes, 20 inch Cylinder x 36 inch Body, and 28 inch Cylinder x 44 inch Body.

This is a separator we have only recently put on the market, but it has been fully tested and proven in actual work. It is full Sawyer-Massey quality in every respect.



4-CYLINDER GAS TRACTOR
27-54 H.P. and 16-32 H.P.

Write for our illustrated Thresher Catalogue describing these machines fully. Catalogues of Sawyer-Massey Steam and Gas Tractors sent on request.

SAWYER-MASSEY COMPANY, Limited

Builders and Makers of Steam and Gas Tractors, Threshers and Road-making Machinery

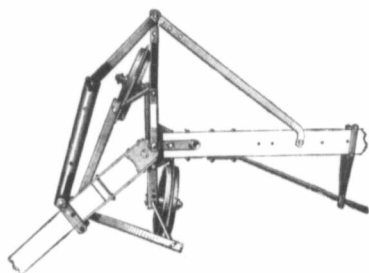
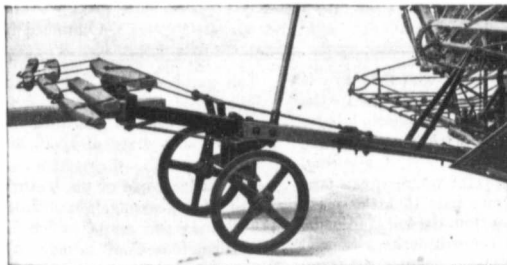
Head Office and Factory: **HAMILTON, CANADA**

Branch Offices and Warehouses: **WINNIPEG, Manitoba; REGINA, Saskatchewan; CALGARY, Alberta; Agency, BUENOS AIRES, Argentina**

SAWYER-MASSEY

Auto Tongue Truck

on Deering and McCormick Binders



Showing how Truck Wheels turn faster than tongue.

A Gain Worth Making

WITH the new auto tongue truck, Deering and McCormick 8-foot binders cut a full 8-foot swath. That means a quicker, easier harvest — a saving of time when time is worth money. The driver's work is easier, too; on the straight-away because the horses are not crowded into the standing grain; and at the corners because the binder turns a natural square corner.

The wheels of this new auto tongue truck are fitted with removable dust proof bushings equipped with hard oil cups. This construction does away with the expense of buying a new wheel every time a bearing wears out.

The new auto tongue truck is only one of the important improvements on these binders. For instance, compare the wide, strong, deep-lugged steel main wheels with those on other machines; and compare also the arrangement for keeping canvases running true, which make them last so much longer.

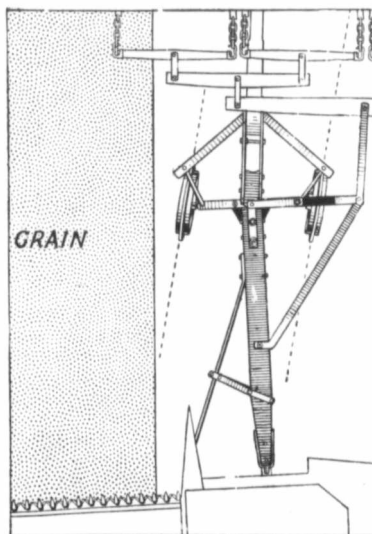
Decidedly these are the binders to buy. See the I H C local agent or write the nearest branch house for full information about their good features.

Self-Steering Features

THE binder is purposely thrown out of square in this illustration in order to show clearly the steering action of the tongue truck wheels. When the outer end of a binder platform starts to hang back, it pulls the tongue truck toward the grain.

Any movement of this tongue truck toward the grain turns the truck wheels in the opposite direction and at so great an angle that they automatically steer the binder back to its proper square cutting position, with the horses moving steadily straight ahead.

The binder cuts a full 8-foot swath with less work for both driver and horses.



International Harvester Company of Canada, Ltd.

BRANCH HOUSES: At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal,
N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton.

HOW THE WORLD IS FED

Continued from May issue

SYNTHETIC chemistry is delving deeper into the mysteries of nature's laboratories in the roots and stalks of the plant world, and is gradually coming to the point where it can take the raw materials that the plant itself takes from the soil, and make foods in factories perhaps as well as nature makes them on the farm.

Continental Characteristics

In any study of how the world is fed, one discovers very soon that the various continents are characterized by widely varied forms of diet. Australia, smallest of continents, is the largest meat eater of them all. Asia, the largest continent, is the smallest meat eater among them. Africa and South America lean toward vegetarianism, while North America and Europe are large consumers of meat and other animal products.

Although Asia has fifty-three out of every hundred of the world's inhabitants living within its boundaries, it has, outside of India, comparatively few cattle, only a negligible number of hogs, and not a great many sheep. Fish, rice, and vegetables form the principal articles in the Asiatic market basket.

The average meal of the laboring class of China consists mainly of rice, a little cabbage boiled in a lot of water, and a small piece of turnip, pickled in brine, as a relish. From our standpoint, the Asiatic is a greatly underfed being, and yet wherever men are employed every tribute is paid to the physical endurance of the Chinese coolie.

The food of the 180,000,000 people who live in Africa is almost as simple as that of the Asiatics. It is largely vegetable, although roasted elephant foot is still one of the favorite dishes of the jungle dinner. South Africa eats largely as Europe eats, while the make-up of the North African market basket is almost identical with that of southwestern Asia.

It is probable that less than one-third of the earth's population gets what an American would call three square meals a day.

The world at large uses in the neighborhood of 47,000,000,000 pounds of meat a year. This would be an average of about 39 pounds per capita throughout the world. The people of the United States a few years ago were eating 172 pounds per capita, which is more than four times as much as the average for the race.

Next to the Australians, the American people are the largest of all meat eaters. In butchers' meat, the latest statistics showed the American to be eating 172 pounds, the Englishman 119 pounds, the German 113 pounds, the Frenchman and the Belgian 89 pounds, the Austro-Hungarian 64 pounds, the Russian 59 pounds, and the Spaniard 49 pounds. The average

much beef as the German but less than half as much pork.

Meat Supply of Central Europe

It is interesting to study the per capita production of meats in the countries of the Central Powers at the present time. The statistics of the United States Department of Agriculture reveal the fact that Germany, Austria-Hungary, Bulgaria and Turkey had a total of approximately 50,000,000 cattle before the war began.

The Department of Agriculture says that about one-fifth of the total number of cattle in Germany are slaughtered annually. Assuming that the net weight of those of Germany and Austria-Hungary corresponds with the net weight of our own cattle, and that the net

German ratio of the sheep killed to those found on the farms of the country at a given time, the annual slaughter of sheep in the region controlled by the Central Powers is 31,000,000.

Assuming that the average dressed weight per sheep is only 30 pounds, as compared with 41 pounds in the United States, this would be a production of 941,000,000 pounds of mutton, or 67 pounds per capita. This gives a total production of meat, omitting horse and goat meat, of 857 pounds per capita among the Central Powers. The Department of Agriculture gives the average German consumption as 113 pounds, and the average Austria-Hungarian consumption

as 64 pounds. It is probable that the Bulgarian and Turkish consumption approximates that of the Russian, which is 58 lbs.

The Rise of Refrigeration

How one step in the progress of catering to the world's food demands makes another possible is nowhere better shown than in the case of the packing industry. When that humble citizen of Florida, John Gorrie, invented the ice-making machine, he not only enabled the whole world to know

the delights of a plentiful supply of cold water, but he also made it possible to exchange its perishable products, so that the tropics might give to the temperate zone their fruits, and the temperate zone might send to the tropics their excellent corned meats and other cold-stage foods.

Once there were entire nations where only the favored few ever knew the refreshing experience of a cold drink, and it always happened that these nations were situated in those regions where a cold drink means most to humanity. The ice factory, which has meant so much to us in its relation to our own food supply, has brought the delights of ice-cream and soda water to those hundreds



The Staff of Life—Still in the Primitive A Mexican Out-door Bakery.

American eats 80½ pounds of beef, 7½ pounds of veal, 78 pounds of pork and lard, and 6½ pounds of mutton and lamb a year.

Where we eat 89 pounds of beef, the Englishman eats 56 pounds, the Frenchman 37 pounds, and the German 36 pounds. Where we eat 78 pounds of pork, including lard, the Englishman eats 33 pounds, the German 67 pounds, and the Frenchman 26 pounds.

We eat 7½ pounds of veal where the Englishman eats 4 pounds, the German 7½ pounds, and the Frenchman 8 pounds; and we eat 6½ pounds of mutton and lamb where the Englishman eats 26 pounds, the German 2½ pounds, and the Frenchman 9 pounds.

From these figures it will be seen that the Frenchman eats less than half the beef we do. He eats as

weight of those of Bulgaria and Turkey is only 300 pounds where ours is 543, it would appear that there is a 34 pound per capita production of beef in the Central Powers.

Since the foregoing was written, war conditions of course have entirely changed the content values of the central powers but at or about the date at which war broke out there were 37,000,000 hogs in the countries of the Teutonic Alliance. The Department of Agriculture's statistics show that the annual slaughter in Germany is 110.4 per cent of the total number of hogs on hand at a given time; therefore it would appear that there is a per capita production of pork amounting to 45 pounds in the Central Powers. Based on the

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of millions of people who live between Capricorn and Cancer.

Cold storage is destined to play an increasingly important part in the handling of the world's food supply as the years go by and the demands for food increase. It is less than four decades since the first cargo of beef chilled by machinery instead of by ice was shipped, but to-day the funnels of refrigerator ships trace their lines of smoke upon every horizon.

Any one who has lived on a farm and has seen the amount of wastage there is in the vegetable garden and the truck patch by reason of a lack of facilities for taking care of the surplus, will readily understand what a saving there could be if a cold-storage plant were convenient. Gradually these plants are coming closer and closer to the farmer, many of whom already are making use of them to store their perishable products, like fruits, vegetables and eggs, until the higher prices of the winter months set in.

The Fish Supply

As the world fills up with people, the more humanity is bound to look to the sea for food, and a rich field will there be found.

It has been conservatively estimated that the world's fish supply exceeds twenty billion pounds. Japan's fisheries produce about six billion pounds a year. What our western grazing lands have been to our meat supply, that has the sea been to Japan's.

A census of the sea would reveal more animal life to the square mile, perhaps, than the land itself possesses. There are all sorts and shapes and varieties of aquatic life to be found, and the rich treasures of food which the rivers of the earth carry down to the ocean defy measure.

Gradually new fishing grounds are being opened up and new varieties of fish introduced to the public. Just now the efforts of the United States Bureau of Fisheries to restore the tile-fish to the American dinner table, and its plans for a campaign of education in favor of the edibility of the dogfish, are straws which show the direction of the wind in the utilization of the vast food treasures of the sea.

Chinese Great Fish Eaters

The Chinese are among the greatest fish eaters of the world, and they have accepted so many varieties in their list of edible fishes that they can have a different kind for breakfast every morning in the year. Not only are their seas filled with fish, but their rivers as well, and while no other nation has gone as far as the United States in scientific fish propagation in fresh waters, the Chinese have cared for their fish supply through a hundred generations.

All sorts of methods for catching fish have been developed by the nations of the earth. It is a far cry from the big steam trawler of the North Sea to the hook and line of the small boy on a country creek bank. But most picturesque of all the ways of fishing in the world is that resorted to by the Chinese—fishing with cormorants.

The cormorants are hatched under chicken hens, and when about three months old are taught to fish.

The trainer ties a string to one of the bird's legs and drives it into the water. He then throws out some small fish which the bird promptly catches. It is taught to dive and come back at the call of a whistle. When trained, collars are put about the bird's neck, so that it cannot swallow the fish it catches. A fisherman goes out with the rail of his boat lined with string-tipped cormorants. At a given signal they dive, and the fish that can outswim them under water is as rare as a small fish in an angler's description of his catch.

Our own Canadian fishermen have developed enormously in recent years and one who is thoroughly in touch with the supply points (both on the sea-board and

from the inland lakes) has said that if Canada had the population of the U.S.A. and by any chance was robbed of her cereal crop, the fish food readily available would suffice for practically every demand.

The Place of the Potato

It has been the honor of America to contribute to the world its greatest crop in point of yield—the white potato. Making its bow to civilization from the land of the Incas, in Peru, the potato has girdled the globe, winning the esteem of every land and every people.

No other plant in the entire range of the vegetable kingdom has ever gone so far or met with such universal favor in so short a time as this apple of the earth. To-day North America produces more than half a billion bushels,

Some time ago we published a snapshot of an interesting feature of the British sea coast fisheries; that of the Aberdeen lassies packing salted herrings for exportation to the Baltic and other European continental ports. Aberdeen offers one of the most impressive sights in human industry during its great herring fishing season—from July to September inclusive. That photo was taken in normal time, however. The menfolks of these brave, toiling women are now

engaged, many of them as minesweepers or are taking their place as naval reserve men in the great battle fleet.

We mention this here because those salted herrings form in combination with the humble potato the staple diet of a big population—in North Britain and on the European Continent. What Scotsman who has ever tasted it will ever forget the toothsome meal of "herrin' and tatties?"

Vegetables and Fruit

The Department of Agriculture estimates that one-fourth of our country's diet consists of vegetables—products of the truck garden. If this is true of the United States, which, next to Australia, is the world's largest per capita mcatcater, it is more true of other countries. Our census returns show that we produce, exclusive of potatoes and sweet potatoes, vegetables to a value of \$216,000,000.



A Modern Bakery

FARMERS!

THE big feature of the PROVINCIAL EXHIBITION at Brandon, July 17 to 21, will be the LIGHT TRACTOR PLOWING DEMONSTRATION.

This is the first of its kind to be held in Western Canada, and the large number of entries insures a real treat for those farmers who are interested in mechanical power on the farm.

The demonstrations will take place on July 18-19-20 from 10 a.m. to 12 o'clock in a field adjoining the fair grounds and every opportunity will be accorded visitors to see the tractors at work.

- The following firms will take part in the demonstration:—
- International Harvester Co., Ltd. Goold, Shapley & Muir Co., Ltd.
 - J. I. Case Threshing Machine Co. Canadian Avery Co., Ltd.
 - Marshall Sons & Co. Emerson Brantingham Implement Co., Ltd.
 - Waterloo Gasoline Engine Co. Bull Tractor Co. of Canada.
 - Sawyer Massey Co., Ltd. Happy Farmer Tractor Co.
 - The Grain Growers' Co., Ltd. Peoria Tractor Co.
 - Hart-Parr Co. Minneapolis Steel and Machinery Co.

Over 20 tractors will take part in the demonstration and a big tractor show is promised.

DON'T MISS IT.

Single Fare Railway Rates from all points in Manitoba and Saskatchewan.

A. C. McPHAIL, President.

W. I. SMALE, Secretary.

A Universal Provider in Farm Machinery

SUCCESS invariably waits upon the man who is "a whole man to one thing at a time." The "one thing" well done and "done to a frazzle" usually leads to many other things, all of which in their turn spell success. This has been the experience of the Western Steel and Iron Company of Winnipeg, and the subsequent history of their movements from the time they started (in 1906) to do their one speciality of designing and manufacturing architectural iron for buildings is one of the most remarkable episodes in Winnipeg industrial history.

From art work in metals, the company subsequently passed on to certain lines of new ideas in farm machinery and agricultural implements which offered the most promising features in economizing time and labor. The men behind the gun in this company have never had much to say for themselves but they had come into a goodly heritage of common sense and quick perception. The evidence of this is stamped on the many and remarkably diversified lines to which they have applied their wits, their capital and their really splendid manufacturing plant.

While several of their more important lines have had their origin in other fields, the Western Steel and Iron Company are not distributing agents but have a proprietary right in everything they turn out in whatever department of farmers' hardware.

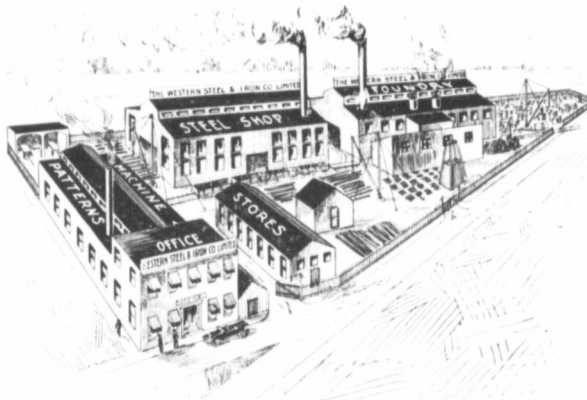
It has been their policy for several years to scour the United States in search of improved machinery and to secure the exclusive manufacturing and selling rights in these, covered by a royalty from the owners or inventors of these.

On this page we reproduce the factory buildings of the company at Elmwood which are being added to from time to time. At the moment of writing they cover over 3 acres of ground and include a complete equipment of foundry, machine shop, fitting and blacksmith shops. As already stated, this is essentially a Western Canadian manufacturing business. It is not a branch house of anything else but a self-contained business in which all designing, manufacturing and marketing are done direct and solely by the house. This feature is of prime importance to Western farmers inasmuch as it rids them once for all of any anxiety arising from what might happen and does often happen in a transaction made with a

disent or "foreign" base of supply.

The Western Steel & Iron Company do not claim a monopoly in brains and business advantages

of this kind which has built up what is now one of Winnipeg's finest manufacturing concerns from what less than ten years ago was but a small blacksmith's shop.



Plant of the Western Steel and Iron Co., Ltd., at Elmwood, Winnipeg

but they do undertake to back up to perfect satisfaction any business deal to which they are parties. It is a simple, honest record

On another page will be found some details of the personnel of the company which enjoys a financial rating of the first rank.

In the matter of terms: the Western Steel & Iron Company are in a position to meet the special condition of any farmer. If he is a rustworthy man they can help him to any "time" in reason, if he can pay cash he gets the very best deal he can secure in any market.

The following are a few details of the leading lines now in full swing. They are all already well known in Western Canada and require no "boosting" and very little indeed in the way of explanatory literature. First is the "Dreadnaught" gasoline farm engine. This engine has had a tremendous sale and has become its own recommendation wherever it has been tried out. At first sight it commends itself to the novice and to the expert alike because of its remarkably neat, compact appearance and evident simplicity. There is nothing whatever of the complex or fantastic which so often "scares" the prospective buyer who is not yet "at home" in the handling of gasoline equipment. All the latest improvements are incorporated in the "Dreadnaught." A heavy oil auxiliary for operating on Engine Naphtla or Kerosene can also be furnished and a five years' guaranteed certificate is provided with every engine sold. Sizes made are graduating from 1 1/2 to 10 horse power, mounted on skids or semi-portable on sills.

One of the company's achievements which is of special interest in these days is their "Stay put" all-steel granary. It is of 1,000 bushels capacity and gross weight is 1,200 pounds. It is the only upright portable granary built, consisting of only sixteen sections and a like number on the roof. It is all steel, fire, damp and vermin proof and guaranteed flax tight. One of its outstanding features is the interlocking joint which overlaps and "locks" in the interior, the effect of which is that the greater the pressure from within the more securely are the joints sealed up and made proof against the smallest leakage of flax or other small content.

The "Manitoba Universal" Tractor is another of this company's leading lines. After a long manner of tests under the most exacting conditions, this fine "one man engine" has now been declared to be humanly perfect. At all events, the Western Steel & Iron Company are prepared to back it against all odds and to sell it on the basis of "satisfaction or your money back."

DREADNAUGHT ENGINES

A HARNESSSED HURRICANE FOR DOING WORK

CANADIAN MANUFACTURE	QUALITY FIRST	STARTS WITHOUT SNEEZING
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3 YEAR GUARANTEE WITH EACH ENGINE
IS ABSOLUTE PROTECTION TO YOU.

**ITS
A REPUTATION MAKER FOR 'S**

The Specifications

Massive frame
Capacious water jacket
Perfect piston fit
Forged crank shaft.
Piston rings tight and springy.
Valves mushroom type.
Suction feed, safe and reliable.
Ample bearings
Perfect lubrication
Absolute balance of mining parts.

The Profit Producer in

Pumping.
Churning.
Lighting.
Grain Cleaning.
Cream Separating.
Clipping.
Feed Chopping.
Wood sawing, etc., etc.

1 1/2 Horse \$40.00
(No. 1) Cash
Bore 3 1/2 Stroke 4 1/2
Speed 500 Pulley 3
Weight on wood skids 260
High tension, battery ignition, kerosene burning attachment, not recommended for this size.
For Separators, Churns, Washers, etc.

BE SURE TO SEND FOR HANDSOME FREE ENGINE CATALOGUE

Guarantee Certificate:
We guarantee every Dreadnaught Engine to be made of first class material and workmanship to develop full rated horse power and to be economical in fuel consumption. We will furnish free of charge all parts proving defective in material or workmanship within (5) years from date of purchase.
Engines take First Class Freight Rate.

2 1/2 Horse \$55.00
(No. 2) Cash
Bore 3 1/2 Stroke 6
Speed 500 Pulley 5
Weight on wood skids 480
High tension, battery ignition, kerosene burning attachment extra.
For fanning mill grinders, etc.

4 Horse \$99.00
(No. 3) Cash
Bore 4 1/2 Stroke 7
Speed 450 Pulley 12
Weight on wood skids 650
High tension, battery ignition, kerosene burning attachment extra. Feed cutters, grinders, light pumping, etc.

WESTERN STEEL & IRON CO. Limited
WINNIPEG

6 Horse \$143.00
(No. 4) Cash
Bore 5 1/2 Stroke 10
Speed 350 Pulley 16
Weight on wood skids 1200
High tension, battery ignition, kerosene burning attachment.
Sawing, grinding, pumping, etc.

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Portal inforce joints Bolted Price o

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See it Lift

It makes t... about five... at applied to... It will make... operate... more than... in li... the day...

Regular Special

A new handle now, but t... We deliver...

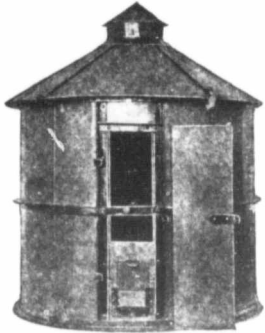


The case wit

Regular co

Don't Depend on Car Service! "STAYPUT" All-Steel Portable Granary

Capacity
1000
Bushels



Weight
1200
Pounds

DIAMETER 13-ft. 8-in. WALL 8-ft. HIGH

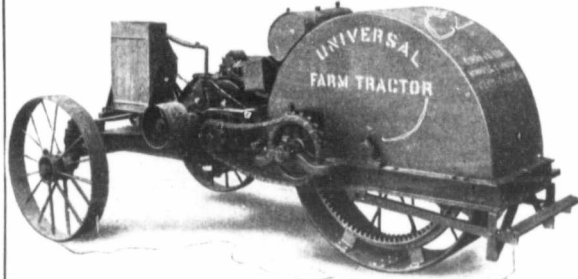
The only upright portable granary built consisting of sixteen sections and a like number in the roof. It is easily erected. The only tool required is a wrench. We guarantee that one man can set it up in less than an hour. Very few bolts are required and these are placed in the angle iron frame **NOT ONE IN THE STEEL!** The cupola on the top of the "Stayput" granary may be raised or lowered to get the necessary amount of air for ventilation.

FOURTEEN SPECIAL FEATURES

Portable—All steel fireproof—All steel frame—Reinforced interior construction—Reinforced roof—Interchangeable sections—Easily erected and taken down—Interlocking joints on interior—Flat tight—Exclusive bunker board system—Roof bolted solid—Bolted to platform—Cannot blow away—Lasts a lifetime.
Price only \$110.00 f.o.b. Winnipeg. We are manufacturing a limited number this year. Please order early. The "Stayput" is built by a reliable firm you can depend on to render good service. Write for further particulars and circular "G" to-day.

Biggest \$110.00 value in the West

Fall Plowing Wins Out in Western Canada!



Fall Plowing Needs POWER—this power is supplied by the UNIVERSAL FARM TRACTOR

The LIGHT WEIGHT with the BIG PULL

It is a three-wheel machine with its whole tractive effort concentrated in one big drive wheel, 60 inches diameter, with a 20-inch face. This wheel runs on the land, not in the furrow, thus giving it the best possible grip in travelling. By carrying the driver on the land a direct pull is obtained thus eliminating side-draft which would otherwise have to be met by complicated hitches that mean trouble and a big waste in power.

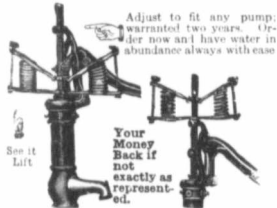
What the MANITOBA UNIVERSAL will do for you

- (1) It will pull 2 1/4-inch plows in breaking and 3 in stubble at a speed of two miles per hour.
- (2) It will pull a 24-inch drill, an 8-foot cultivator or a 10-foot disc harrow.
- (3) It will pull an 8-foot harrow at 24 miles per hour—24 hours a day if necessary.
- (4) It will haul a 4-ton load on practically any road with ease.
- (5) It will drive ANYTHING requiring belt power up to 23 horse-power.

Send Coupon for special plan of sale

Always give when ordering, Name of Pump, Depth of Well, Distance to Draw Water

You're Losing if not Using the Patent Pump Governor



Adjust to fit any pump; warranted two years. Order now and have water in abundance always with ease

Your Money Back if not exactly as represented.

It makes the hardest working pumps work easy. It can be adjusted to lift any weight desired, from about fifteen to two hundred pounds, by turning the nuts at the top ends of the levers. It can be applied to all pumps that have verticals either cast-iron, iron or wood, all lengths of strokes. It will make your pumps work so easy that a child can operate them. Your windmills will pump more than double the amount of water, for they will run in lighter winds. The days of light winds are the days the most water is needed.

	Man.	Sack	Alta
Regular.....	\$2 80	\$2 75	\$3 00
Special.....	\$1 95	\$2 10	\$2 25

View hundred to clear at this Extra Special Price now, but never again. Send cash with order. We deliver at these prices free to nearest Post Office.

THE Western Steel & Iron Co. Limited MANUFACTURERS

ESTABLISHED 1906

Authorized Capital, \$300,000

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OUR GUARANTEE
All material is the best.
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DEAL with the Canadian manufacturer where you can get a square deal, and your repair parts promptly. Pay cash where possible—the cash man always gets the lowest price—the quickest delivery.

Give Makers Name of Engine, Horse-Power, and Type and Size of Axle

Cuddy Patent Steering Device



Big Engines have gone out of favor. Their place has been taken by small tractors. One reason being the small tractor is easier to steer. If you own a big Engine make it just as easy to steer as a small one by purchasing a Cuddy Patent Steering device. At the price below it is a winner for you.

Our regular price is \$100.00 each, but we will sell a limited number— \$49.00 new and fully guaranteed at \$49.00
F.O.B. Winnipeg. Cash with Order.
Send Order now—the first received the first filled.



The ease with which corners are turned with the Hansman Binder Hitch is shown in this photograph. This picture shows two big Four "30A" each pulling eight-foot cut binders, cutting wheat in Western Canada

REPAIR PARTS are stocked in Winnipeg and no delay is necessary in getting your parts.

Regular cash price, each \$42.00. Special price to those ordering from this adv., \$35.00. F.O.B. works Winnipeg

When you buy "HANSMAN" you know it's right.

The HANSMAN BINDER Hitches

MADE IN WINNIPEG
(Patented)

The Device which alone makes Horseless Harvesting possible. The Hansman Binder Hitch doubles the value of your engine

In ordering, state make of harvester to which the hitch is attached

WESTERN STEEL & IRON CO., LTD.,
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Please send me full particulars of your harvester as advertised in Canadian Thresherman and Farmer.

Name

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CANADA'S LEADING AGRICULTURAL MAGAZINE

E. H. HEATH,
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PUBLISHED MONTHLY BY

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E. H. HEATH COMPANY, Limited,
WINNIPEG, CANADA



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(MEMBER WESTERN CANADA PRESS ASSOCIATION)

AUTHORIZED BY THE POSTMASTER GENERAL, OTTAWA, CANADA, FOR TRANSMISSION AS SECOND CLASS MATTER

July

1916

A PRIVATE FROM KAMSAC

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."

"IT was a private from Kamsac, Saskatchewan," says **The Times** correspondent. "Under the awful artillery fire to which there was no replying with rifles, he had busied himself in caring for the wounded, and had bandaged one officer, two non-commissioned officers and two privates, and was looking after them as well as he could behind a forlorn bit of battered sand-bag breastwork out in the open, for the trenches were all gone. The fragment of his company was told to fall back, but he refused. He had got his private hospital there, and one of the wounded privates was a pal from his own small town in far Saskatchewan. **So he stayed with his pal.**" Another correspondent adds:—"When the shell-fire lifted, and there was just a chance of escape it was utterly impossible to move him. This young soldier said: 'You go' to the other wounded men who were

the white-livered gentry, the rank corruption and humbug that is going on at home they are not familiar with; and still they hold on with the tenacity of tigers bereft of their whelps. Thus indubitably does the "Private from Kamsac" and his comrades prove their manhood and fidelity. How our hearts warm to those nameless heroes and what a glow of confidence do they not shed abroad on the coldest outlook! How can anything "fail" that is placed in the keeping of such men?

They are the salt of the earth, in death as well as in life. "No one can say," said a British officer, "that the Canadians do not know how to die," and says Mr. Philip Gibbs of one little deathless incident of the Ypres salient: "They (the little group of Canadians) died to a man fighting.



"They died to a man, fighting. It seemed to me one of the most pitiful and heroic things of this war, that little crowd of

men, many of them wounded, some of them dazed and deaf, stumbling forward to their certain death to oppose the enemy's advance.

"From the network of trenches behind, not altogether smashed, there was time for men to retire to a second line of defence, if they were still unwounded and had strength to go. An officer in command of one of these support companies brought several men out of a trench, but did not follow on. He turned again, facing the enemy, and was last seen—a big, husky man," says one of his comrades—as he fired his revolver and then flung it into a German's face."

Thank God our men are all at the front or straining at the leash to get there. Not necessarily "rankers," because some of the "bluest" blood of Britain has mingled again and again in the same trench with the common red fluid of the ancestral serving man. Thank God that our grafters are slated for the penitentiary, or are safely headed for same under satisfactory escort! Thank God that our white-livered "nuts" are safe at home, tied up to the maternal apron or permitted to wander no farther afield than the golf links, the pool-room or the tennis courts! All our men who would be of any use now have put their names down long ago. Conscripts and cowards are useless and worse than a menace at this stage of the job and recruiting rallies for all such had better be abandoned. The man of the hour is the man who forgets himself at any crisis of his country's life and the man of all men we honor is the **Private from Kamsac.**

just able to walk, and then he sat down again by his comrade's side and said: 'I am staying.' **So he stayed with his friend.**"

What a friend to have! Newspaper men and magazine writers have striven to out-do each other in glorifying this simple story. But what commentary or florid embellishment can elucidate or "illuminate" an incident of the kind? What need is there for any words beyond the bald statement of the war-journalist? The ungrudging official account is all that is needful to a splendid panegyric upon the nobility of a nameless man who refuses to be known as a hero; upon an act of common decency that is outlasted by nothing in human history. And the glory of it is that it is by no means a solitary example of its kind. There was the earlier story of that other nameless one, a toil-worn, weary Highlander, who volunteered to scale the parapet, go far out on the open, in a tempest of shrapnel and bring in a wounded officer. He succeeded, and disappeared to return hours afterwards with a wounded private of the German army! His sole explanation was that he "couldna stand the thoct o' the poor blighter lyin' oot there alane, cryin' for watter."

This is the day of the **Common Man**—may it never go down in darkness and blood. On the "Private from Kamsac" and his pals of the trenches hangs the fate of the British Empire. Never before has the courage and constancy of men been tried as it has been in this war of liberation. And they are "sticking it out," those indomitable, white-souled brothers in arms. There is nothing of

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Built on years of experience and standard the world over.

A size to fit your needs and Advance-Rumely service back of every machine.

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THE sense of hearing is a great aid to detecting irregularities in the running of a gas engine.

From the sound of the exhaust one can tell whether some of the charges taken into the cylinder are being expelled without having been exploded. Knocking or pounding is made evident entirely by the sense of hearing. A sharp knocking sound may be due to lost motion in the bearings of the connecting rod, either at the crank pin or piston pin end, or to side movement of a piston ring because of the groove having widened from wear; or, a loose key in the flywheel may be the cause of the trouble. Knocking sometimes is caused by wear of piston or cylinder. Sometimes a shoulder wears in the bore of the cylinder and striking this shoulder causes knocking if there is any play in the bearings. Foreign bodies may accidentally have been drawn into the cylinder and knocking results when the piston strikes them. In automobile engines knocking or pounding is sometimes due to the looseness and resulting rattling of some external part. Nuts work loose or bolts are too small for the holes to which they are applied. All of these causes are easily detected upon careful examination and when located the remedy is apparent.

Scored and leaky cylinders result when the ends of the piston pin or wrist pin protrude through the hole or bearing in the piston. Some pins have their bearing in the piston itself while others are tightly secured in the piston and have their bearing in the upper end of the connecting rod. If the scoring or marking in a cylinder consists of several parallel marks on the side where the inlet port is located in an engine of the two cycle type usually this trouble is the result of sand working in from the core formed when casting. If on the exhaust port side it is usually an indication of faulty lubrication. Scoring sometimes results from small pieces of porcelain breaking off the insulation of the spark plug.

Cylinders have been ruined as a result of the pin or nut which holds in place the spring on an inverted inlet valve dropping into the cylinder.

In an engine in which the inlet and exhaust valves are tight and the gasket does not leak it will be found that sometimes when compression is considerably reduced trouble is caused by leaks from scored or imperfect cylinders because the piston or piston rings have been worn considerably. In such case the remedy is to remove the piston and examine it for the possible trouble and correct it. If

the cylinder is found out of round or marked it usually will require reboring and new piston and rings fitted.

Sometimes piston rings stick in the slots or grooves in the piston. This is usually due to two causes: Water gets into the combustion chamber, causing the rings to rust; or, the sides of the slots are slightly tapered instead of parallel. Where tapered sides are found it is usually necessary to straighten them up in a lathe and use slightly wider rings to take up some of the play. Piston rings need renewing oftener than is common in general practice. Broken piston rings unless detected and at once replaced are often the cause of annoyance. Frequently considerable injury to the engine results from leaving them in place. Although piston rings do not break often, broken rings will cause loss in compression and this may be distinguished from leakage due to the rings being worn by the fact that the broken ring will make a distinct clicking sound at the end of every stroke. Piston rings are supposed to be held in position by small pins, one in each ring, so

that the joints of adjacent rings are diametrically opposite. If for any reason these pins break, a ring may slip around until its joint is in line with that of the next ring above or below. This will cause loss of compression, and may often be very difficult to locate.

Joints between the cylinder head and the cylinder of stationary gas engines are usually kept tight by packings cut out of asbestos 1-32 of an inch thick. If the packing becomes damaged as a result of overheating or excessive pressure, water from the jacket leaks to the outside or into the cylinder. The latter is more serious since it interferes with the running of the engine by corroding the points of contact on the igniter and the valve seats and stems, and prevents proper lubrication of the piston and cylinder. As soon as the leak of water from the faulty packing develops the packing should be renewed at the first opportunity. If the leak is toward the combustion chamber the engine will generally stop in a short time.

Leaky inlet and exhaust valves

are the cause of frequent trouble. Usually the remedy for leaky valves is to regrind them to their seats. This requires considerable skill to prevent injuring both valve and seat. Grinding is usually accomplished by emery and oil and finishing up the surface with powdered oil stone, ground glass or similar fine abrasive. Although there is not much danger of getting emery or other abrasive material into the cylinder when grinding exhaust valves, care should be taken to avoid doing so. The grinding of inlet valves is a very particular operation, for if any of the abrasive material is left behind and drawn into the cylinder it is likely to cause trouble.

Sometimes the inlet valve spring, especially where the valve is of the automatic variety, will weaken from becoming overheated. This is certain to occur sooner or later if the engine has been allowed to overheat from lack of water. In time a spring loaded too near the elastic limit of the steel will break as a result of the perpetual vibration and jarring to which it is subjected.

Unequal tension in the springs of automatic inlet valves permits one cylinder to take more gas than another. At high speeds part of the charge will be blown back through the valve having the weak springs so that the other cylinders will get stronger impulses. A quick way to test the uniformity of valve spring tension without taking out the valves is to run the engine slowly with the throttle almost closed. When this is done the cylinders in which springs are stiffer will receive scarcely any fuel while the cylinders having weak valve springs will do most of the work because being supplied with fuel. Whenever the tension of valve springs is suspected of being other than it should be, the valve should be taken out and the spring tested.

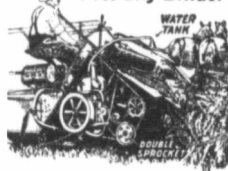
Owing to the heat to which it is constantly subjected the exhaust valve spring is more likely to weaken than that of the inlet valve. The symptoms are loss of power because of the valve hanging open at the end of the exhaust stroke and rattling when the valve closes.

To be continued in August issue

Troubles and Remedies in Farm Tractors

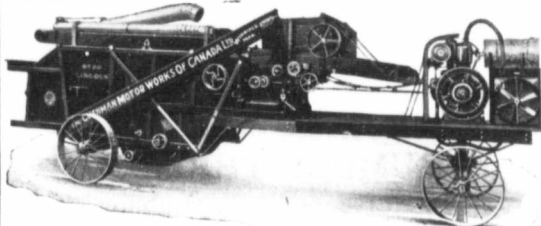
4 H.P. CUSHMAN SAVES A TEAM ON THE BINDER

Fits any Binder



Cushman 4 H.P. Engine on a Binder. Fits any binder. Same engine does all other work.

Cushman Engines are so light and so reliable that they do so many jobs other engines cannot do. 4 h.p. weighs only 190 lbs., 8 h.p. only 320 lbs., 15 h.p. only 780 lbs., 20 h.p. only 1,200 lbs. Throttle governed and equipped with Schebler Carburetor and Friction Clutch Pulley.



CUSHMAN COMBINATION THRESHER

8 h.p., with Straw Carrier and Hand Feed; 20 h.p. with Wind Stacker and Self Feed; 15 h.p., with Wind Stacker and Hand Feed. Equipped with the famous Cushman 2-Cylinder Engines.

Talk with your dealer about the Cushman Line or write for Free Catalog.

Cushman Motor Works of Canada, Ltd.
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Builders of Light Weight Engines for Farm and Binder use. Distributors of Reliable Power-Driven Machines, such as Fanning Mills, Grinders, Saws, Cream Separators, Power Washing Machines, etc. Also Barn Door Hangers and Mountaineer Neck Yoke Centres.

A young fellow recently applied for a job as life saver at the municipal baths in Minneapolis.

As he was about six feet six inches tall and very well built, the chief life saver gave him an application blank to fill out.

"By the way," said the chief life saver, "can you swim?"

"No," replied the applicant, "but I can wade like everything."

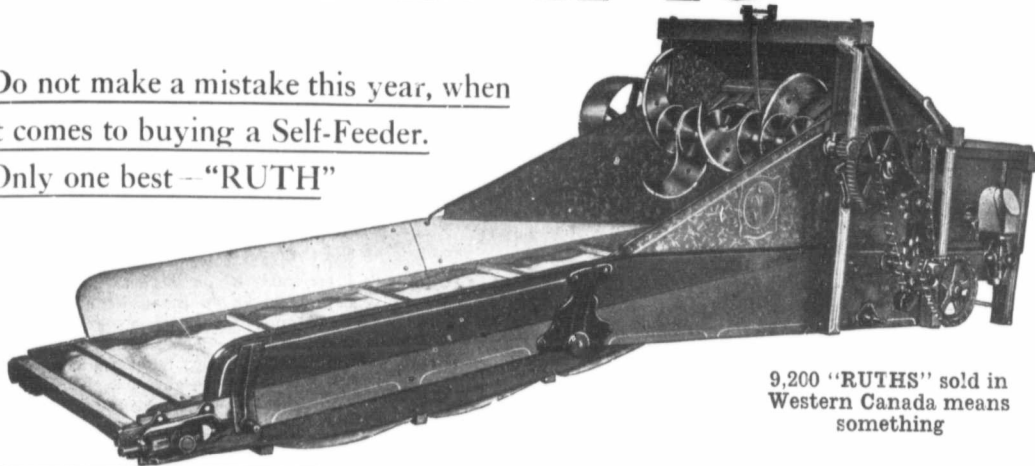
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MAYTAG^{CO} LTD



Do not make a mistake this year, when it comes to buying a Self-Feeder.
Only one best -- "RUTH"



9,200 "RUTHS" sold in Western Canada means something

The durability of the Ruth Feeder is as remarkable as its ability to do a wonderful amount of work—more work and better work than any other feeder you can buy.

There are self-feeders that cause all kinds of delays, disappointments, money losses, because they cannot stand up under the work during the threshing season.

We know—and probably you know of feeders that are notorious for the fact that they rarely run one single season without shaking themselves to pieces. They are built flimsily. Their mechanism is weak. Their entire make-up is a mistake.

Yet—some people buy these other feeders. If one doesn't investigate, one is liable to invest in the wrong feeder—one that you'll have to replace at the end of the year, or even before the season is over. It may fall down on you right in the middle of the season.

This Guarantee Protects you for 3 years--Read it

Here is the strongest guarantee ever given with any self-feeder.

Such faith have we in the Ruth Feeder that we guarantee every Ruth Feeder to feed any make or size of separator to its full capacity, with any kind of grain in any condition whatsoever, BOUND, LOOSE, STRAIGHT, TANGLED, STACK BURNED, WET OR DRY, PILED ON THE CARRIER ANY WAY YOU PLEASE, without slugging the separator cylinder or loosening a spike, and do a FASTER, CLEANER and BETTER JOB of feeding than any feeder manufactured by any other company in the world.

Repairs and Extras

While it is an undisputed fact that the Ruth Feeder requires less repairs than any other feeder in the world, the cost per machine for repairs during the past 10 years averaged less than \$2.00, an occasional piece is needed, and when the accident does happen it is wanted quick. We understand this and in order to make it more than ever to your interest to buy a Ruth, we are doing something that no other Feeder Company has ever done, and that is we will have a good stock of repairs this year and in all the years to come at central points throughout Canada. This year you can get them from

H. A. KNIGHT at REGINA, and INTERNATIONAL HARVESTER at SASKATOON, Sask. The W. S. COOPER CO. at CALGARY, and THE MAYTAG CO. at WINNIPEG.

Feeders are also stocked at Winnipeg, Regina and Calgary.

Write at once for our large illustrated, colored Ruth Feeder Catalogue and also for our Catalogue describing and pricing a most complete line of Threshers' Supplies, such as Oils, Greases, Drive Belts, Belting of all kinds, Belt Guides, Cylinder Wrenches, Spark Arresters, and in fact everything needed except Separators and Traction Engines. You will find the prices right and we are here to give you satisfaction in every respect. As we are paying the War Tax, prices are practically same as last year.

RUTH

The Self-Feeder with an Established Reputation

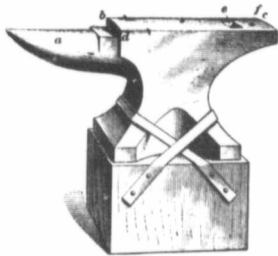
The Maytag Co. Ltd.

WINNIPEG, MAN.



**ARTICLE No. 5
ANVIL AND TOOLS
The Anvil**

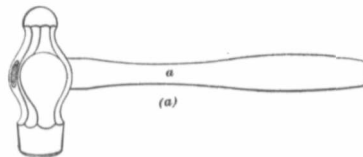
Construction of the anvil, the ordinary blacksmith's anvil, as shown in cut.



It has a horn (a) on one end, around which bending is done. The body of the anvil may be made either of wrought iron or of a special quality of cast iron, or it may be a steel casting. The top is faced with steel which is sometimes planed true and then hardened and finished by grinding. Anvils having cast iron bodies usually have unhardened steel horns, which are tough and not easily broken. Anvils having wrought iron bodies usually have horns of the same material. It is claimed that the cast iron bodies give a firmer backing for the steel face of the anvil than does wrought iron. The face of steel is usually hardened under a flow of water. If too soft, it will nick, and if too hard, it is liable to chip at the corners and edges. Anvils made of the usual qualities of cast iron are brittle. A cast iron anvil with a horn of the same material cannot be used for heavy work because the horn is liable to be broken off, which is not the case with the wrought iron anvil. For light work, however, the cast iron anvil will give good service. Square-faced anvils without horns are frequently made of cast iron, but the edges chip off easily.

The face of the anvil is straight lengthwise, as shown from b to c, but it is slightly crowned crosswise from b to d, as shown somewhat exaggerated. If the face of the anvil were perfectly flat, a straight piece of iron would show a tendency to curl upwards while being hammered when held crosswise of the anvil, and unless it were held perfectly flat on the anvil it would sting the hand, besides, there would be danger of

nicking the iron where it rests on the corner of the anvil. When hammering a piece of iron on the crowned face of an anvil, the ef-

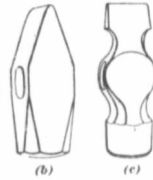


fect of the blow is more nearly confined to that part of the face where the hammer strikes; thus the crowned face acts to some extent like a bottom fuller, which is described later. A portion of the edge of the face is sometimes rounded as shown at d. At the right hand end of the anvil there is a square hole (e) called the hardie hole, in which cutting and forming tools are held. The small round hole (f) near it is called the

pritchel hole, the core of small holes is punched out through it.

Setting an Anvil

The anvil should be placed on a



solid block of wood, preferably a butt end of oak, and should be fastened to it with iron straps, as shown in cut, or with staples. Anvils on which soft metals are to be worked often have a layer of leather, felt or cloth beneath them. The height of an anvil should be such that when the workman stands beside it his knuckles will just reach its face.

The Weight of Anvils

The weight of anvils vary

greatly; small ones are used for light work and large ones for heavy work. An average anvil will weigh from 150 to 200 pounds. Formerly, most of the anvils used in the United States were imported from England. These generally have the weight stamped on the side, and on many anvils it is given in hundred weights of 112 pounds each. If a person stands facing the anvil, with the horn to the right, the weight is generally found stamped on the near side, the figures towards the left designate the number of hundredweights of 112 pounds, the figures in the center denote the quarters of a hundredweight, and the figures at the right side show the number of extra pounds. Thus, if an anvil is stamped 2-2-17, it means 2 hundredweight of 112 pounds each, which is 224 pounds, and 2 quarters of a hundredweight, which is 56 pounds and 17 pounds, making the total weight of anvils 224 + 56 + 17 = 297 pounds. However, the present practice among American makers is to stamp their anvils with the direct weight in pounds.

CHEAPER GASOLINE

THROUGH MORE POWER PER GALLON
BY USING

WONDER OIL

Wonder Oil is a lubricant and being of such a nature that it mixes readily with gasoline, it is easily taken into the combustion chamber. There, combustion separates the oil from the gasoline, and the explosion sprays the oil on the surrounding parts.

Briefly, Wonder Oil does the following:—

1. Produces Perfect Lubrication.
2. Prevents Carbon Trouble.
3. Prolongs the Life of the Engine.
4. Saves Gasoline.

It has been shown that Wonder Oil effects a saving of at least 25 per cent in gasoline consumption, which at present gasoline prices means a great deal to every farm engine user.

Just figure up the number of gallons of gasoline your tractor uses per day, and then figure on a saving of one-fourth, and you can see just one of the things that Wonder Oil will do for you. Apart, however, from the saving that is effected in fuel, it will greatly prolong the life of your engine by lubricating every vital part, which cannot now be reached by mechanical means provided with the engine itself.

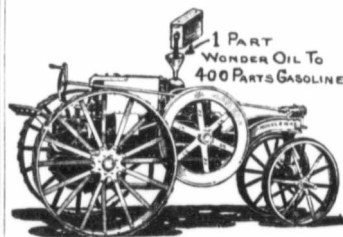
Wonder Oil will also prevent the formation of carbon, thus saving you a great deal of unnecessary trouble and delay.

Wonder Oil is perfectly harmless. As a matter of fact you can drink it with perfect safety, consequently if it will not harm the delicate membranes of your stomach it will not hurt the metal parts of your motor.

Only a small amount of Wonder Oil is required, about one to two ounces to five gallons of fuel oil. It mixes readily with the gasoline, without stirring, and remains in suspension until combustion takes place in the cylinder.

For further particulars apply to the

Wonder Oil Co.
506 McArthur Bdg.
WINNIPEG



HAND TOOLS

Hammers and Sledges

Classification — hammers are classified, according to weight, as hand hammers, hand sledges and swing sledges; according to the peen, into ball-peen, shown in cut (a), cross-peen, shown in cut (b) and long peen or straight-peen, shown in cut (c).

Hand Hammers

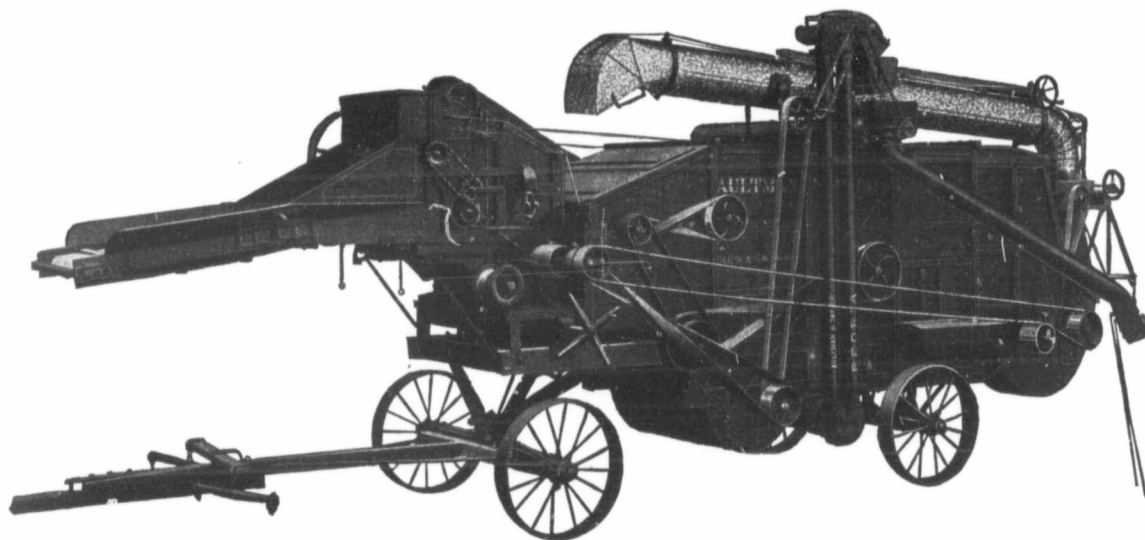
The hand hammer is made to use with one hand and is handled by the smith himself. It should not weigh more than 2½ pounds, a 1 pound hammer being a very convenient size for small work. The handle should be well formed, elliptical or oval in section and a little thinner towards the head, as shown at a cut (a), this is done to give it a spring, in order to avoid stinging the hand. It is from 14 to 16 inches long, and is made of a size that will fit the hand comfortably. A handle of improper shape is apt to tire or cramp the hand. It should be durable, not a makeshift, for the smith soon becomes accustomed to a hammer and knows what effect a blow will have. It is dangerous to use a hammer with a loose head.

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WHY TAKE CHANCES WITH SOMETHING REPRESENTED TO BE "JUST AS GOOD,"
WHEN YOU KNOW THAT THE

"NEW CENTURY"

is the Biggest Separator Value the Market Offers To-Day? Accept
No Substitute. Insist on Having a NEW CENTURY. It's the Best



What's the use of running any risk in the purchase of your separator? Base your decision on quality, rather than price—and just as sure as you do this, we'll wager that your next separator will be a New Century. The New Century is the biggest separator value the market offers to-day. Not only have quality and competent workmanship been the watchwords in every process of its manufacture, but considerable energy and thought have been expended in the development of the principles involved to the highest degree of perfection. And let us remind you right here that New Century principles are right—supremely efficient. Every feature in its construction is high grade and put there to perform a certain function. No trappy contrivances have been added for mere sales argument sake, but instead, our aim has been to perfect and simplify its mechanism from one end to other.

Do you think that if the New Century were not a machine of unusual merit—rare qualities—that it would enjoy such world-wide popularity? Do you think that Threshermen would come back and buy the second, third, and in some instances, the fourth and fifth New Century? Do you think we could sell a thousand or more of these machines each year if the New Century were not better than the majority of machines you are asked to buy? No, not for a minute. Performance talks these days—results count; nothing else. Performance alone has won fame for the New Century.

Now we know you want a machine that ranks high; that does your work best and earns you the most profits that not only satisfies you, but is a favorite with the farmers. Where in all this world would you find a machine that would better fulfil these requirements than the New Century? Where would you find a machine that has the ability to "deliver the goods" as the New Century does without cutting a big slice off of your earnings by reason of big repair bills. The New Century is long on work and short on break-downs and that's the kind of a machine you want.

THESE, AND MANY MORE NOTEWORTHY FEATURES, IN THE 1916 NEW CENTURY: Large Open Grate under cylinder—at a point where most needed. At least 95 per cent of the separation in the New Century is performed here. Open Web Conveyor directly back of cylinder, insuring prompt delivery of the straw from cylinder to straw rack under all conditions, at the same time affording all loose grain an opportunity to drop through to the grain pan. Patented Rotary Rack. This rack gives the straw the worst beating you have ever seen and keeps it continuously moving to the rear of the machine in a thin layer. After the straw has once passed over this unbeatable rack it is ready for the stack with every kernel extracted. The New Century is an engine and fuel saver, because it runs from two to three horse power lighter than most machines. The days of the heavy, cumbersome machine are rapidly passing. The New Century is simple, light, compact and convenient, but strength has not been sacrificed for light weight. The New Century is a staunchly built machine—made of the stuff that stands for service.

You must feel that you want one. At least you want more information about the best separator buy the market offers. WRITE FOR FULL PARTICULARS TO-DAY TO ANY BRANCH OF

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MAGNETOS AS USED ON AUTOMOBILES AND STATIONARY INTERNAL COMBUSTION ENGINES

By
J. MAGEE

MAGNETOS as used on automobiles and stationary internal combustion engines are mechanical devices used to supply the current for igniting the fuel charges. A magneto consists primarily of a heavy permanent magnet and a coil of fine wire that is revolved between the poles of the magnet.

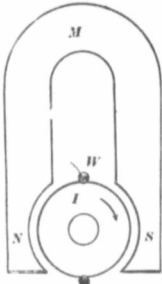


FIG. 1. DIAGRAM OF MAGNETO.

The diagram in Figure 1 shows the general arrangement of a magneto. The large horseshoe magnet M has its north and south poles N and S curved to embrace the coil of wire W fastened on an iron core I that may be revolved as noted by the arrow. The power that is expended in revolving the coil in the magnetic field is transformed into electric energy that may be transmitted through suitable wires to the spark plugs in the engine cylinders.

The diagram of the magnetic field of a magneto is shown at F in Figure 2. While such a magnetic field is imaginary as far as any visible lines of force streaming across the space from the north pole N to the south pole S is concerned, yet it is a real active thing in a magneto. A coil of wire moved through such a field requires considerable force to keep up the motion, the "feel" of the pull being akin to that when moving against stretched rubber bands.

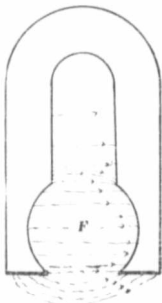


FIG. 2. DIAGRAM OF MAGNETIC FIELD.

The setting up of an electric current by means of a moving coil through a magnetic field is

known as electro-magnetic induction. The pressure of the current, known as the voltage, depends upon the strength or density of the magnetic field and upon the speed of the coil through it, the speed changing the number of lines passing through the coil. In practice the coil is made up of a large number of turns of fine wire connected end to end so that the total voltage of the magneto is the sum of that induced in each individual turn of wire. The rotating part carrying the coils is called the armature. Spark plugs require an electric pressure of twenty thousand volts or so, and hence the magnets must give a strong field, a large number of turns are needed on the armature, and it must be run at as high a speed as is practicable. The different methods of securing the voltage required at the spark plugs will be explained fully later.

There are two reasons for using an iron core I in the armature.

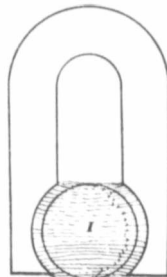


FIG. 3. DIAGRAM OF MAGNETIC FIELD WITH IRON CORE BETWEEN THE POLES.

One is to support the wire coils and make it possible to rotate it rapidly. The other is to make a low resistance path between the magnet poles. Soft iron is a much better conductor of magnetism than is the air. The effect of this low resistance is twofold. It increases the strength of the field, and it causes practically all of the lines of force to pass through the armature coils instead of straying across the space outside of them. The action of a soft iron core as compared with an "air" or open field will be seen by comparing Figures 2 and 3. In Figure 2 the magnetic lines are curved and are widely distributed, while in Figure 3 they are strongly concentrated through the armature core I.

The form of an armature core in a magneto is shown in Figure 4. This is notched to receive the wire that must be wound lengthwise around it. This notched

effect on their particular makes. These features and the wiring connections will be fully explained later.

In Figure 5 is shown in a general diagram the relation between the amount of voltage or current and the position of the armature core during each revolution. Beginning at the left-hand side of

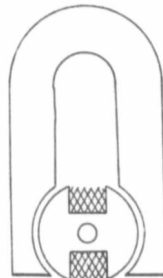


FIG. 4. DIAGRAM OF ARMATURE CORE.

the diagram the armature core is shown in a horizontal position on the zero line. Now revolve the armature in the direction of the hands of a watch—right-handed—a quarter turn to the position shown ninety degrees to the right. Here the core is vertical and at this point the current and pressure will be the greatest, as marked by the plus sign (+).

Another quarter turn brings the core horizontal at one hundred and eighty degrees, and the current has dropped down to the zero line the same as at the start. The third quarter gives a maximum pressure below the zero line, which is marked minus (-). Its value is the same as the plus at ninety degrees, but it is in the opposite direction. The fourth quarter brings the armature core again horizontal, completing a turn, or three hundred and sixty degrees, and with the voltage at zero. This is called an alternating current because its value swings from

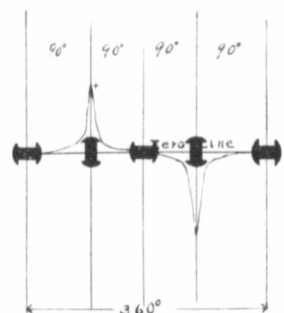


FIG. 5. DIAGRAM OF CURRENT FLOW FROM MAGNETO.

zero to a maximum plus, and then from this value down to an equal minus value. The timing should

be arranged so that the magneto armature will be at the ninety-degree and the two hundred and seventy degree points just when the spark must be made. If this is not done, either there will not be a "fat" spark or more likely there will not be any at all. The next article will illustrate some of the up-to-date magnetos, and explain their advantages.

LIMITATIONS OF THE TRACTOR

HORSEPOWER for horsepower there can be no further question of the relative economy of the tractor over the horse. Were it as true to say that whatever the horse is able to accomplish might be done equally as well by the tractor under existing conditions, the former would disappear before the latter like snow before a summer sun. But experience has demonstrated that neither is the tractor likely to displace the horse, nor is it possible for it ever to do so entirely. As long as there are farms, so long will there be horses at work upon them. This does not mean that the future of the tractor admits of any doubt. Far from it, in fact. But it does mean that there are natural and insurmountable limitations to the use of the tractor and that the best opinion of to-day is that the tractor will supplement but not displace the horse, or that the horse will supplement the tractor, whatever the sentiment or the preference of the individual may decide. And this brings us to that which shall be the real test of the value and usefulness of the tractor of the future upon any farm, namely, the individual ideas of the man who owns and operates one.

Whether a tractor shall be an economical investment or not for the individual will depend primarily upon what that individual wants that tractor to do and how well his selection of any particular machine satisfies his ideals. Theoretical and incongruous ideas here must give way to practicable considerations. Such a theory as that the tractor of the future is to be the universal machine concerning which so many have dreamed, for instance, or such an incongruous idea as that the tractor shall be equally useful and satisfactory pulling a gang plow or jangling along the road to market will have to be dismissed as hopelessly impracticable.

The truth of the matter is that there is a legitimate field for the

Continued on page 18

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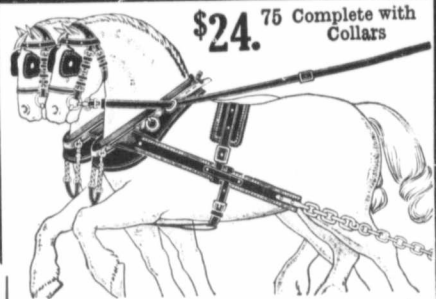
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Twin Tulp style of full auto seat, large and roomy, with genuine leather cushion and back, 4-bow. Top is covered with our best rubber lined covering. Will not crack. Has back curtains and side curtains. Full round double rear gear throughout, with full circle fifth wheel. Three- and four-leaf springs. Arched axle, curved ends, double screwed bolted rims. Shafts, all full Southern hickory, with brass iron and full southern bolts. Fully guaranteed. Painting. All hardware.

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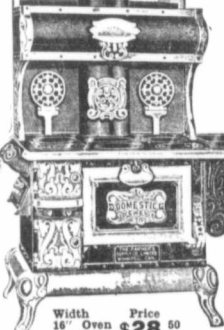
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\$24.75 Complete with Collars

Here's the specifications, showing how the wonderful Harness is made up. Remember you are not buying a chain harness when you purchase this set, but an actual 1 1/2 in. 3-ply Leather Trace; Bridles are 3 1/2 in. with Concord Blinds; Traces, 1 1/2 in. 3-ply Trace, chain end; Lines, 5/8 in. Back Pad, left lined; 1 1/4 in. retained buckle; 1 1/4 in. Martingale; Chain Pole strap; Collars, duck 1 1/4 in. short straw Bolt Harness. **\$24.75** Complete with Collars.

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Burns wood or coal. Full asbestos lined. Fully guaranteed. 18 in. Oven, six 9 in. lids. Complete with High Closet and Reservoir. Price...

\$30 Extra large ovens bakes to perfection. Body is made of Wausau polished steel and the nickel-plated parts are high silver nickel. Has four or six lids, high closet, long front danger proof feed and is full asbestos lined. A range to last a lifetime.

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Here's the very best in an Auto Seat Buggy. We have put every improvement possible into this buggy, making it equal to any \$100.00 vehicle offered elsewhere. The wheels are screw and lotted between each spoke; the gear is our time-tried double reach full round, the plate body is large and roomy, securely braced and has patent leather dash. The seat is upholstered with genuine leather, extra large and roomy full spring and has high automobile back. Throughout we have given every detail the minutest attention. Painting is the acme of perfection. Don't hesitate to order this buggy on approval. Money returned and all charges if not satisfactory. Price at Winnipeg **\$69.00**

CHALLENGE WASHER



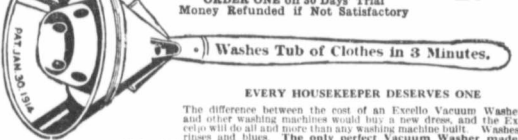
Has been successfully sold for the past 19 years and nearly one million machines in use is the best argument for its reliability and real merit. Machine has two semi-circular rub-boards which oscillate in opposite directions by turning the fly wheel one way. The action thus afforded is similar in effect to the rubbing and squeezing action of washing on the washboard. Will wash the most delicate and filmy garments with absolutely no wear or injury. Sold on 30 Days Trial. Price F.O.B. Winnipeg **\$10.50**

KITCHEN CABINET



Compare it with what you have seen offered elsewhere at \$25 to \$30, and you will have some idea of the cabinet we are offering. Made of high-grade maple. The base is 14 inches wide by 28 inches deep, contains large pastry boards, long linen drawer, three smaller drawers, large tilting flour bin, large cupboard with rack and shelf. Panels end and heavy corner posts. Top has two large china cupboards, below which are two tilting sugar bins. In centre a large cupboard with bevel plate mirror, 10x14, drawer and large shelf neatly shaped. Plate rail along top adds greatly to its appearance. Finished in natural. Regular \$28 value. No. 46—Kitchen Cabinet Bargain Price **\$21.65**

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Washes Tub of Clothes in 3 Minutes. EVERY HOUSEKEEPER DESERVES ONE. The difference between the cost of an Excello Vacuum Washer and other washing machines would buy a new dress, and the Excello will do all and more than any washing machine built. Washes, rinses and blues. The only perfect Vacuum Washer made.

We ship this to you on 30 days' trial—if unsatisfactory return of our expense. It is shipped by parcel post and our price of \$1.50 is delivered at your station. The Vacuum Washer will last a lifetime and you will be surprised at the amount of work it will turn out. Order by return subject to our 30 days' free trial offer. No. 762. Vacuum Washer post-paid **\$1.50**

SPEEDWELL ROAD CART

WITH BOX **\$28.00**

On this Phaeton Body Road Cart we use selected grade Sarven's Patent wheels, 46 inches high; 5-inch rims, fitted with oval edge steel tires, made of selected hickory; long, easy riding, oil-tempered springs, adjusted and hung so as to balance the seat perfectly and lay back upholstered in imitation leather. Small articles carried in box under the seat. Built to carry two passengers. The body painted black, carrying gear, shipping at about 20 lbs. No. 17A—As described above **\$28.00** Without box under seat and without cushion. **\$26.00**

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BUY YOUR OIL IN STEEL DRUMS and save 25%

DO YOU DRIVE AN AUTO? If so, use "FASCO" XXX Auto Oil. There is nothing to equal it on the market. Has highest fire test and will not carbonize. Light yellow in color. Price: In 45-gallon Barrels **\$20.25** In 30-gallon 1/2-Barrels **\$14.40** In 5-gallon Cans **\$2.80** Each

No. 75 'Fasco' Steam Cylinder Oil Made from Pennsylvania crude. Has 650 fire test. Nothing like it on the market. Order on approval. Five gallons will last as long as seven gallons of any other brand. Price: In 45-gallon Barrels **\$21.60** In 30-gallon 1/2-Barrels **\$15.30** In 5-gallon Cans **\$3.20** Each

No. 76 'Fasco' Dynamo Engine Oil A pale red oil, guaranteed the best engine oil made. For dynamos, motors and engines of all kinds. Has good cold test and high fire test. Price: In 45-gallon Barrels **\$14.40** In 30-gallon 1/2-Barrels **\$10.20** In 5-gallon Cans **\$2.30** Each

Heavy Welded Steel Drum Made of 16 gauge steel, corrugated in centre for easy rolling, fitted with top. If ordered with oil deduct \$2.00 off price of drum. Price: No. 33—1 Barrel, 42 gallons **\$6.25** No. 34—1/2 barrel, 26 gallons **\$4.40**

The WRITE TO-DAY FOR YOUR SUPPLY Ltd. **Farmers' Supply Co.** Dept. C.T.F. 179 Bannatyne Ave. E., WINNIPEG, Man.

FARMERS' SUPPLY CO. LTD., Bannatyne Ave. East, WINNIPEG. Please send me your Free Catalog. Name: _____ Address: _____ (Dept. C.T.F.)

tractor; that the tractor is here to stay; that in all probability the particular type, or types, of tractor which is most nearly to fulfill the need of the future, already is here. Out of the diversity of present design, and from out of the ruck of the types now on the market, some one or two or three or more will emerge as the practical and successful tractors of the future, under the test of actual and continuous field operation amidst the most general of farm conditions. This point of view contemplates rather an elimination of types than a development of new types during the next few years. The tests are to be actual field work and individual owner ideas. The former must be very general. The latter must be very sane. For exceptional conditions and for impracticable ideas there always will be special machines and freak machines, but the real, economic, practical tractor of the future will be that one which will meet most fully the widest range of common conditions and which will satisfy most nearly a conservative and sane idea of what a tractor can and ought to be. We do not doubt but that this tractor already is in existence waiting only to be discovered and accepted.

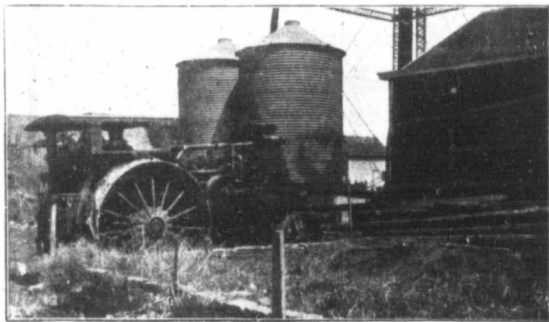
pany, Vleck Brothers (who owned the engine) were able to get through their application when the town council failed to secure another motor.

The local newspaper refers to the purchase of the Avery Motor and a test made on same by the City Engineer. In the test, fuel oil was used—no gasoline whatever. The motor was run for 24 hours, during which time 121 gallons of fuel oil were used and only one gallon of lubricating oil put in, enough of which remained after the test to run six hours longer. The article goes on to state that the previous engine used in operating the light plant would have used no less than 200 gallons of fuel and about 1½ gallons of lubricating oil for the same run.

The article continues: "The regulation of the engine was perfect while the load was changing, no adjustment being necessary to pick up or drop any of the load, a feature that is not common in all makes of engines when using this low grade fuel."

OUR CONTEST

The number of estimates to which you are entitled may easily be increased by getting additional subscriptions. For instance, if



The Tractor is a "Maid of all Work"

The above shows one of the thousand and one economic uses to which a gas tractor may be harnessed. This is an Avery Tractor operating the electric lighting plant of the hustling town of Wilson, Kansas. The engine was first of all hired to the city council by its owners, but so marked was the efficiency of its motor that the council decided to purchase an Avery Motor to install in their plant.

The order was placed, but as the supplying of a motor only would mean just one less Avery Tractor, and consequently a disappointed customer, the order was not filled. The council, however, were so insistent on having this particular motor, they persuaded the tractor owners to take their's off the outfit and sell it to them. Subsequently, as old customers of the Avery Com-

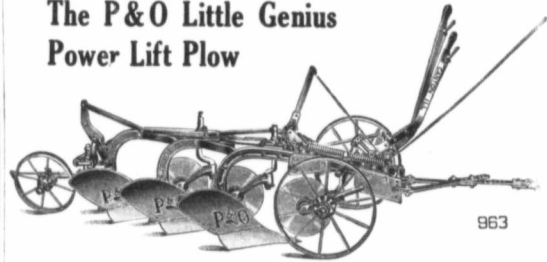
pany, you get five of your friends to send in \$5.00 in one envelope, each one would receive five estimates (or 25 in all) and a year's subscription. These five subscriptions, however, must come to us altogether in one envelope.

From the fact that only 3½ lbs. of wheat are used in the contest, the counting will not prove a laborious job to anyone, while in point of fairness and generosity, the contest cannot be criticized.

\$1.00 entitles the participant to one year's subscription to the Canadian Thresherman and Farmer, and three estimates as to the number of kernels in the glass jar or three distinct chances of winning the automobile. \$2.00 will pay for three years of the magazine, mailed free to any address and 11 estimates. See page 64.



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The P&O Little Genius
Power Lift Plow



When you think of power plowing outfits you are bound to include the P&O Little Genius. Why? Because it was the first successful plow of its kind to be placed on the market, and because it has been consistently and persistently successful ever since. We won't say that it is the only successful plow now on the market, but we do say that it has demonstrated in test after test that it is the logical plow for use behind your little tractor because of its **PROVEN ABILITY** to stand up under any and all conditions under which plowing may be done; because of its light draft, which means longer life to your engine; and because of the extreme ease with which the engineer handles both plow and tractor. A new catalog, "P&O Power Plows" illustrates and describes power plows for every plowing purpose. A postal request will bring it to you. Write for it at once.

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Made in all standard sizes.

"BEARDMORE" LEATHER BELTING

and lace leather is also a standard where leather belting is required. Threshermen should keep the above brands in mind when getting ready for the 1916 run.

We also handle and carry in stock a full and complete line of **SHAFTING, HANGERS and WOOD PULLEYS**. Our line of **FOOS ELEVATOR GAS ENGINES** is second to none. Made in all sizes from 3 to 90 horse power.

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THE FAMOUS CASWELL ADJUSTABLE BELT GUIDE

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The Garden City Feeder Co. of Regina, Sask.

Write for Prices

WHILE touring the country the writer has always noticed how many gas engines are put to use as hen roosts when not employed as power producers and what excellent roosts they make with their numerous rails, spokes, hoppers, etc. Many people thoughtlessly lay a cloth or piece of tin over the open end of the cylinder and connecting rod and deprive the hen of an excellent perch, but usually nature takes pity on the hen, sends a gust of wind along and removes the objectionable covering.

If the owner happens to have the engine inside and does not permit the chickens to have access to it then the engine serves excellently as a dust allayer and the liberal supply of oil which is usually well smeared over the engine catches all the obnoxious dust which floats through the air and mayhap a microbe or two. The oil quickly saturates the dust so there is always an ample supply exposed and an accumulation of dust and oil half an inch thick is not unusual.

Gas Engines as Hen Roosts

By R. D. GOFF

Should the accumulations, in either of the above circumstances, interfere with the operation of the engine to such an extent that ordinary punching, probing and cussing will not remedy matters, it can be sold to an unsuspecting neighbor or thrown away and one of a different make purchased which will give better service as a power producer, hen roost and dust accumulator—for a while.

Forgetting the foolishness, a gas engine is as a rule an "ornery" thing to keep clean but particularly to clean it after it has once become coated with a thick layer of dust, dirt, grease, etc. We might say that keeping an engine clean is the lesser of two evils to choose from, the other being the damage, dirt, etc., will do to an engine. Sometimes one can quickly locate trouble which is the result of allowing an engine to get

dirty but it is pretty hard to explain, as an example, just how an accumulation of dirt on an engine will interfere with its operation, but there are many ways such as grinding out bearings, causing lost motion in the mechanism, throwing various parts out of time, wearing out the cylinder piston, getting into the gas passages, short circuiting the electrical parts, etc.

Some years ago a large mill was being erected near the writer's home and they were putting in heavy cement foundations, using a concrete mixer, which was run with a 10-horse power gas engine, and about fifty Italians with wheelbarrows to transport the mixed concrete to the forms. They had a man to look after the engine who knew as much about gas engines as the average "expert" and who would have gotten along

very well except he was always tired and lacked ambition. Well, the engine would stop anywhere from four to six times a day and be shut down from five minutes to one half hour each time. Each Italian was getting \$1.75 a day, or seventeen and one-half cents an hour, and so a shutdown of ten minutes meant \$1.45 loss, and it was a hurry-up job besides.

The superintendent knew nothing of gas engines and so quickly condemned this engine. Had a steam engine been available the gas engine would have been pulled off the job forthwith. He didn't like the way the operator he was hiring moved around, was "peeved" generally so decided to try another man at running the engine and the writer was recommended. He said he would pay five dollars a day if I could keep the machine going but I thought three dollars was about enough for I knew if I could fill the bill it would be easy money. He let the other man go and I started work Monday morning. Sunday I sneaked over to look it over; for I



IT'S GOOD

Your Duty to the Empire Now, Mr. Farmer, is Food Production!

The first question in your mind is how this is to be accomplished with the shortage of good farm labor. The answer to this question is—Replace manual labor by efficient farm machinery.

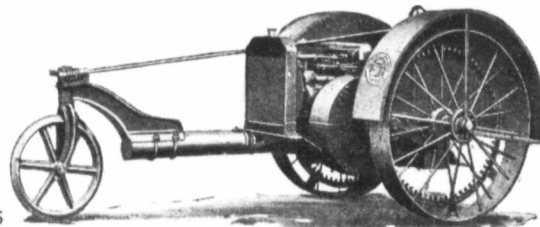
THE "HAPPY FARMER" TRACTOR

Is recognized as being the leader in small tractors for Efficiency—Durability—Power—Economy—Simplicity.

THE MASTER FARM POWER

88 per cent of its Weight on the Traction Wheels

DOES THE WORK OF 8 HORSES



33 1/3 per cent less complicated than the Average Tractor

DOES THE WORK OF 8 HORSES

WHAT'S THE USE OF HORSES IF YOU HAVEN'T MEN TO HANDLE THEM?

This is putting it up straight to you. With the big majority of farmers this is the case to-day. Labor is scarce, and horses are useless without men to handle them. The "Happy Farmer" takes the places of both men and horses and does more and better work at half the cost. The "Happy Farmer" takes one man only to handle it. Figure out for yourself how many hours a year you will require to use it as compared with ordinary horse power. Make allowance for the additional work it WILL do each day when working as against the feed bill. Notice the saving!

PARTICULAR "HAPPY FARMER" POINTS PUT PLAINLY

Weight—only 3,200 pounds. Its efficiency is unlimited. It is a one-man tractor. Plowing Speed—2 1/2 miles per hour. Has a powerful horizontal 2-cylinder opposed motor. Does the work of 8 horses. Will do your plowing, handle your grain drills, discs, hay binders, diggers, and in fact, anything horses pull. Guaranteed for two 14-inch plows, but has ample reserve power to handle three 14-inch plows under ordinary cultivation. You can save your wood, chop your feed, in fact, do ALL your sundry chores 24 hours a day if necessary. Lastly, and what is considerably more important to you, it ensures bigger crop areas—increased yields—lower costs—less labor.

HAPPY FARMER TRACTOR will be demonstrated at Brandon

THE HAPPY FARMER TRACTOR CO. - - - - WINNIPEG

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\$850.00

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TWO DRIVE WHEELS

The Happy Farmer Tractor Co., Winnipeg, Man. Send full particulars of The Happy Farmer Tractor

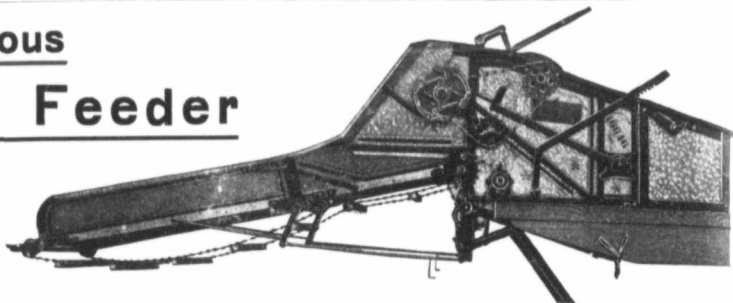
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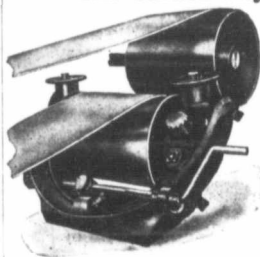
The Famous Garden City Feeder

The Feeder is the most important part of your threshing rig. The work of the separator depends almost entirely upon the work of the feeder; therefore you should be sure that your feeder is a real feeder, not merely a contraption to cut the bands and carry the grain to the cylinder.



The Feeder that Has Brains is equipped with a Governor that acts before the grain gets out of the feeder and prevents any reduction of the cylinder speed. The Governor on other feeders acts after the grain has been dumped upon the cylinder and after the damage has been done. An Ounce of Prevention is Worth a Pound of Cure.

The Garden City Feeder prevents trouble; other feeders make trouble and then try to cure it. How about yours? You cannot afford to start out again with the same old trouble maker. It will pay you to throw it off and get a Garden City Feeder.



We also sell the Caswell Belt Guide. Satisfaction Guaranteed or your money back.

THE GARDEN CITY FEEDER COMPANY, LTD.
REGINA, SASK. - - - - - BRANDON, MAN.

knew nothing about it, and my gas engine knowledge was more theoretical than practical, and I didn't want to show up on the job knowing nothing about it. It is well I made that call, for I found the engine, as well as all its surroundings covered with dirt. I wanted to make good so was on the job at four a.m. Monday and I first had a grand cleanup, not a thorough one, as I didn't have time before starting time, but when I got ready to start I had it pretty well uncovered and had no trouble starting it.

It didn't pull very well and I had my troubles finding out why, but finally discovered that it was equipped with a compression relief cam, a new contrivance to me, to facilitate turning the flywheels through compression for starting. This was in action and as soon as I threw it out my troubles were over. I finished cleaning the engine that night after work and after the first day never had a shut down, in fact, after the first week I started the engine in the morning after oiling it and also at noon, filling the oil cups once in the fore and again in the afternoon and the balance of the day I was all over the job—never going near the engine.

I never found anything wrong with the engine and could not account for the trouble the other man had except that he let it get

filthy and that is why I say that the harm which will result from such practice is hard to explain.

Because of the many nooks and corners it is difficult to keep an engine clean, but an old paint brush and a little can of kerosene or gasoline will be of great assistance in getting the dirt out of such places and should be used occasionally. Have a cloth handy and wipe the engine off after use, or whenever you have spare time, and wipe all bright parts with an oily rag to keep them looking nice.

This business of leaving an engine out of doors exposed to the elements with just a board, piece of tin or iron or a loose canvas over it is all wrong, and will surely cause trouble sooner or later, and a balky gas engine will make a good Christian a backslider quicker than anything I know of, especially if the operator is not thoroughly familiar with engines and a good "trouble shooter." It is best to have a place where the engine can be put in but if this is not convenient provide a good covering for it with sides, say of canvas, so it can be closed in. A cover over the top which will keep out rain will not keep the dew from condensing on the engine and dew is worse than rain, for it gets up under places where rain will not.

Dampness not only is liable to

cause electrical trouble but rusts all bright steel or iron parts and while this may not seem to do much harm it will in time. For instance, the valve stems will get slightly rusty. This is quickly worn off when the engine is run, but this rust or scale lodges in the valve stem guides and causes excessive wear, also the rust minutely pits the valve stems, decreasing their size. As the guides wear larger and stems get small the valve gets out of alignment, does not properly seat and power drops accordingly.

Also the wind will carry particles of sand, grit, etc., which will be blown over the engine, get into the working parts and work havoc.

In going through the country it is bad enough to see farm implements such as mowers, binders, etc., standing out in the weather though they will stand much abuse, first, because of their crude construction and, second, because they are used so little during the year, but it gives me a pain to see a good gas engine standing out in the yard with a board over it. The same man will probably have an auto in the barn or a special garage for it and a dust cover over it to keep the paint looking nice. And if the engine doesn't stand up under such treatment it is no good, of course. Your gas engine deserves just as good care as your

shot gun and is a great deal more useful in most localities these days.

"I cannot sweep the darkness out, but I can shine it out."—John Newton.



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Let us quote you on any quantity from a can to a tank car

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Gasoline and Kerosene Contents

KEROSENE and gasoline, while derived from the same source, petroleum, are essentially different in composition. Gasoline of the higher grades or lighter gravities will vaporize completely on exposure to heat. This is shown in the operation of gasoline stoves, in which the liquid flows directly to the burner. Kerosene will not burn in a gasoline stove. All kerosene stoves are constructed on the principle of a lamp with a wick. The fuel is fed to the flame slowly by the capillary attraction of the fabric of the wick. Here the heat of the flame acts upon the thin film of oil at the surface of the wick and heats it to the vaporization point. The resultant gas burns above the wick as cleanly as does the vapor of gasoline if mixed with the proper amount of air.

This proves that with the proper treatment kerosene can be completely vaporized. In the process of distillation, kerosene is first vaporized and then condensed to liquid form. Vaporization begins at about 302 degrees Fahrenheit and continues to about 550 degrees. Evidently, therefore, any carbureting device, to be efficient, must break up the kerosene in a very fine spray and then apply a sufficient quantity of heat to bring the kerosene to its vaporization temperature. When this temperature is reached the gas should be held at that temperature until it is introduced into the engine cylinder.

Naturally there are many difficulties to be met with and overcome in producing a carburetor that will, under variable conditions, supply the requisite heat in exact quantity with certainty and precision. If it were not difficult

the problem would have been solved long ago. Up to the present time heat has been supplied in two ways; by heating the air before it enters the carburetor and by heating the mixture in the carburetor either with a water jacket connected with the engine jacket or a hot gas jacket connected with the exhaust of the engine. Neither of these two methods are entirely satisfactory for the reason that no means are provided for regulating the quantity of heat the fuel requires. Consequently, either too much or not enough heat may be supplied for the amount of fuel passing through the carburetor in any given instant.

Up to the present no carburetor has yet appeared with a certain and definite means for heat control. Kerosene is a peculiar chemical compound. If it is heated very hot it will decompose with the formation of tar, carbon and gas or, in other words, it will "crack." If cracking takes place either in the carburetor or in the cylinder, serious trouble is sure to ensue.

It would seem as though it might be possible to obtain the necessary heat through the use of electricity and a quick, sensitive thermostat. With a small generator and storage battery it should be possible to supply the needful current at relatively small expense. It would then be possible to start on kerosene by first heating the vaporizing element in the carburetor or manifold with current from the storage battery. The manifold should be short and should be insulated to prevent radiation and re-condensation of the gas.



IN THE BIG DRIVE

"Ere—'op out o' that hole, I saw it first."
"Go away, I was 'ere when it happened!"



WHY White Rose Motor Gasoline?

The Haynes Automobile Company, speaking of low grade commercial gasoline, says:

"When the motor is started, and particularly while it is still cool, the so-called Commercial Gasoline is taken from the Carburetor into the Cylinders, that part of which is nearly Gasoline is volatilized, and that part which is Coal Oil works down between the cylinder head and the walls of the cylinders, passing the rings, and mixing with the Lubricating Oil, kills its viscosity and its lubricating properties, thins it out, and will cause unnecessary wear on the bearings, and thus create costly repairs."

WHITE ROSE is ALL gasoline; no heavy ends, no residue. **EVERY DROP** burns up clean. Nothing in it to pass through and dilute and spoil your lubricating oil.

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"THE GOVERNOR WITHOUT JOINTS"
give greatest efficiency
FITTED TO EVERY BUILD OF ENGINE
Patent Ball Ranger Speed Changer Supplied
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Straight and even folding by machine insures true running on the pulleys.

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Endless Stitched Canvas Belts

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Nothing but the famous Sawyer Red Elastic Belt Paint is ever used in painting these belts.



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Stitched in close parallel rows one-quarter inch apart, with an extra row of stitching on the edges.

CALENDERING

The heavy rolls of the Calendering machine make the belts smooth and even.

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Extreme care is exercised in the choice of oils used in the waterproofing compound.

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STRETCHING

Thoroughly stretched before leaving the factory. This means no stretching on your pulleys.

THE E. B. PLEWES CO., Distributors

WINNIPEG

Any good style of carburetor that provides fine pulverization of the fuel might be employed. Then just beyond the carburetor in the intake of the manifold the heating element should be inserted. Care would have to be exercised to maintain a proper velocity of the gas at all points in the system by providing the correct cross sectional area at all points. With the kerosene reduced to gas either just before or just after its introduction into the engine cylinder, there will be much less tendency for it to overheat the motor than at present. There will, in consequence, be little or no necessity for using water in the cylinder. It would seem as though water might be entirely dispensed with just as it is when gasoline is used. This, however, may not be possible for the reason that the vapors of the heavier fractions burn more slowly than those of the light fractions. The result is that instead of all of the fuel burning at the beginning of the stroke as does gasoline it burns throughout the entire stroke and may be still burning when the exhaust valve opens.

The constant liberation of heat throughout the stroke apparently heats the motor more than if it were liberated all at once at the beginning of the stroke as is the case when gasoline is used. It is

stated that the lower grade gasoline, especially those by the new cracking processes, burn much more slowly than the natural gasolines. They require more careful handling in a motor but they will yield just as much power if handled right and water is not required. The principal thing for the operator to observe is the feed. It should be less than if natural gasoline is used. There are possibly a few of the later kerosene carburetors that will give good service but as a rule they do not work quite as well as

with gasoline because of the necessity for perfect heat control.

The light, high speed engines do not work quite as well as slow speed heavy engines as a rule on kerosene. Some of the one and two cylinder horizontal tractor motors do quite well when handled properly but they are not efficient kerosene burners with the ordinary carburetors. They will run, it is true, but as a rule only a part of the kerosene is consumed. A horizontal engine burning kerosene in this way appears to do a little better than any other

type, especially if the intake is on or near the upper side of the cylinder and the exhaust is on the bottom. In that case, gravity aids the kerosene in entering and the unconsumed portion is dropped out of the exhaust.

There is always danger in using kerosene that a certain proportion will be forced past the pistons into the crank case and dilute the lubricating oil. Care must be exercised to see that this does not happen else lubrication of the entire motor which depends upon the splash system may fail. There is need for a really efficient kerosene carburetor—one in which the temperatures are absolutely controlled and doubtless it will soon be forthcoming. Either that must be done or else enough cracking plants must be provided in the very near future to supply the tremendous demand for gasoline.

It has been proven that with the new processes from sixty to seventy per cent of the crude can be transformed into gasoline. This is a tremendous increase over the older process of fractional distillation which yielded an average of only three to twelve per cent or the older cracking process which yielded about sixteen per cent. In 1915 the production of the wells was approximately 290,000,000 barrels of forty-two



Lonely Sentry (very fed up): "Who goes there?"
Pedestrian: "Friend."
Lonely Sentry: "Gosh! Didn't think I had one in the world."

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gallons each of crude oil. The production of gasoline was only 2,500,000 barrels, of which 25,000,000 were used for domestic consumption. This quantity under the new cracking process could, if reports be true, be increased to about 175,000,000 barrels or five times the 1915 production. It is in this direction, we are inclined to believe, that the ultimate relief for the motor fuel situation lies. The time will soon come, we prophesy, when the price of kerosene will equal the price of cracked gasoline. Then all the motors will use gasoline and we shall see little or no demand for a kerosene burning motor. This situation may come about in a very brief time.

There are also a number of other substitutes that may be used for gasoline which sooner or later will come into general use. It is probable that motor fuel will never be much cheaper than it is at the present time but we do not look to see it become appreciably higher. Means are at hand to take care of two or three times as many motors as are now in operation without great difficulty. When occasion arises and it becomes necessary to utilize every source of motor fuel, the output of the country can be tremendously increased as we shall presently attempt to show.

WHAT IS FARM ENGINEERING?

SOME time ago we heard a speaker define farm engineering as "the elimination of waste and the getting of farming upon a scientific basis." As a definition of science is but "organized knowledge," this means merely that the object of farm engineering is to put farmers into a position where they know what they are doing and so that they shall work according to a definite plan to a definite end. When this shall have been accomplished, then much of the waste accompanying present farming methods will disappear automatically.

Too many farmers seem to hold the impression that the term engineering applied to farming means that a man must be technically educated. This is true only in a sense. Technical education on the farm does not mean that every individual farmer must have a sheepskin diploma setting forth the fact that he has gone the course of the agricultural curriculum from agronomy to veterinary. All that is essential really is that the farmer be brought to see the value of the facts which have been established by experts, to be willing to view them with an open mind and be willing to admit that "organized know-

ledge" and common sense have some validity as against custom and tradition.

Already there has been collected a vast mass of data bearing upon farming operation, which is being put rapidly into shape as organized farm knowledge. Applying these determined facts to the modification of old time farming methods is the work of the agricultural engineer. Nor is it altogether a mass of new facts which the farmer must mas-

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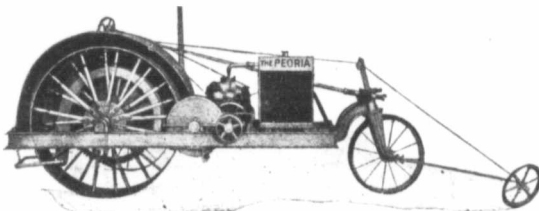
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ter and substitute for old ones, but just a new angle on the same old facts. As soon as more farmers can be brought to understand that it is not the intention of farm engineering to make them unlearn anything they already know, but only to apply that knowledge which they already possess in a new and orderly way, much of the apparent indifference and coldness to present effort to improve farm conditions will disappear.



"When I don't work—I don't eat"

**Uses the only
Cheap Fuel KEROSENE**

The Peoria Tractor gives remarkable results with Kerosene. Compare the big saving in the cost of this cheap fuel with the high-priced gasoline. One farmer writes: "I believe it gives MORE power than gasoline."

**Burns KEROSENE, The Only
Cheap Fuel**

- Has speed of from 2 to 3 miles an hour
- 20 h.p. slow speed, heavy-duty motor
- Strong, heavy gearing
- Inclosed dust-proof radiator
- Self-steering attachment (free with each machine)
- Simple construction—to LAST
- Sets close to load and PULLS
- Weight only 3900 lbs.
- No experience needed to operate

**Cheaper, Stronger Power For
You than Horses or Men**

THE new 1916 Peoria Tractor is an all-purpose tractor for any farm, large or small, and stands unequalled in the light-weight class. Weight only 3900 lbs. Gives power to plow, disk, harrow, seed, harvest; will do any manner of belt work, saw wood, haul wheat to market, move buildings. Travels at a speed of from 2 to 3 miles per hour. Dispenses with the expense of horses and men to handle them. Does not eat when idle, saves barn room, saves chores, never gets tired nor sick, not affected by heat. Gives continuous, dependable power ALWAYS. The new 1916

**\$1050.00
F.O.B. WINNIPEG**

Peoria Tractor

reduces hard farm work to pleasure and pays for itself in time and money the first season. Time-tried, time-tested—hundreds now in use—farmers more than enthusiastic. You can bank the money you are now losing steadily the old way. You should not—you cannot afford to be without particulars. Write to-day, NOW, for illustrated folder and full particulars.

Fill in and Mail TO-DAY

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Send full particulars of Peoria Tractor at once.

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PEORIA TRACTOR COMPANY, Winnipeg

THE object of any industrial enterprise, whether this enterprise is farming or manufacturing, is to produce a good product in large quantities and at the lowest possible cost. The wonderful growth of our manufacturing enterprises is due mainly to the introduction of methods which resulted in large-scale production. Large-scale production is of comparatively modern development in manufacturing establishments and has been brought to its highest perfection in the iron industry, the automobile factories, the meat-packing plants and the electrical industries. The success of large-scale production is dependent upon the use of mechanical power and of mechanical devices.

The agricultural industry of Western Canada is not concerned as much with intensive farming, as it is with extensive farming, which requires the application of modern manufacturing systems and large-scale production methods to the problems of the farmer.

In the earlier days when the wants of man were few, when women and slaves were willing to do all the hard work and land was cheap, the power problem of the farm was very simple. As civilization advanced and the people increased in numbers the demand for power other than human became urgent. The horse, mule or other animal was forced into service. Then a little later the development of farm machinery made it possible for one man to control the work of several horses. Desire on the part of farmers to raise large crops and to put under cultivation greater and greater areas of land created a demand for still larger power under the control of one man. With animal power one man can control at one time four horses; with mechanical power the number of horsepower under the control of one man becomes unlimited, if the man controlling mechanical power is willing to learn the fundamental processes which govern the conversion of fuel into mechanical energy as well as the simple laws of mechanics which enable one to keep machines and mechanisms in adjustment and in perfect working order.

The demand for mechanical power is further augmented by the scarcity of farm labor and by the increased cost of draft animals suitable for farm work.

In the earlier "home-made" days of the traction-engine development, small stationary engines were mounted on various farm machines and an attempt was made to do farm work without regard to principles of engineering or of construction. Then followed the line of large traction engines which developed sixty to

The Traction Engine Problem

By A. A. POTTER, Dean Division of Engineering and Professor of Steam and Gas Engineering, State Agricultural College, Manhattan.

eighty horsepower on belt and thirty to forty horsepower on the drawbar. These traction engines were expensive, poorly designed, complicated and unsuited for practical farm conditions.

It is only within recent years that the largest and best engineering manufacturing companies began to realize that modern farming is, to a considerable extent, an engineering problem, which offers an excellent field and market for engineering ability and for machinery carefully designed and built.

About one hundred and seventy-five manufacturers are building traction engines. The designs differ greatly. Some have engines with horizontal cylinders, others with vertical cylinders. In some cases the power of the engine is given to one wheel, in others to two, while still others pull with all four wheels. Several makes are of the so-called "creeping grip" types. The diversity of styles is very great, but, after all, a careful examination will reveal the fact that the best makes of traction engines are very similar. In fact, the whole traction-engine

industry is undergoing a standardization process, weeding out freak designs and retaining only such types as are sound in accordance with the best mechanical-engineering practice. Before long the standard type of traction engine will be available, and, like the standard type of automobile, will give satisfaction in every detail.

Low first cost of any machine should not be made the most dominating feature. A high-grade traction engine must be the product of the best engineering talent, which means brains and money, and this must be included in the price of the machine.

The backing of a company whose financial standing is an assurance that the company will remain in business for many years is an important consideration. Expert service and repair parts may be needed at any time. A high-grade manufacturing company is usually very careful about maintaining its reputation and will see to it that it does "deliver the goods."

Before making up his mind to purchase a traction engine, the

farmer must analyze very carefully himself, his farm, and the work of the traction engine.

In analyzing himself the farmer must decide as to whether he can plan his work so as to keep the traction engine busy. The average person spends too much time working and too little time in planning his work. Can the farmer lay out the work of his farm so that the traction engine can be used for belt work and for hauling as well as for field work? To make most of the investment of a traction engine the farmer must keep the traction engine busy.

Proper tillage is a very important factor in farming, if good crops and big crops are expected. The traction engine will probably never replace the horse, but will replace many horses, on large farms, and especially in connection with the very heavy farm work. The traction engine has advantages over the horse in that it is not affected by the heat, can be used for deep plowing, eliminates to a considerable extent the "hired man" troubles, as it is a concentrated form of farm power, can work continuously day and night, and can be used to advantage at all seasons of the year, if the farmer is a good manager and plans his work. Like horses, traction engines are liable to internal disorder on account of overwork. Some farmers overload their animals and use the same practice when dealing with traction engines. They get by with it for a time, but all at once when least expected and most needed, the engine breaks down—and who is blamed? The engine and its manufacturer.

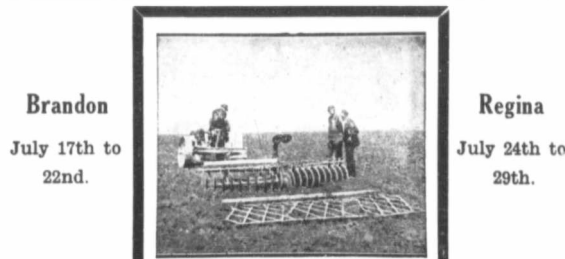
The traction-engine field work can include: Clearing the land; tearing out hedges; pulling up trees, stumps and stones; preparing seed bed and seeding, with the operations of plowing, discing, harrowing, drilling, seeding; harvesting operations, such as mowing, hay loading, hay hoisting, and drawing binders and diggers.

The traction engine is suited for heavy belt work, such as hay baling, pumping water for irrigation and for other purposes, grinding feed, ensilage cutting, sawing wood, threshing, filling silos, crushing rock and elevating grain.

The traction engine can be used for hauling grain and other farm produce to the shipping-point or to the market; also for hauling fertilizer and other material to the farm.

In connection with road work traction engines have been utilized for graders, scrapers, etc.

A farmer who can find many uses for a traction engine and who can make use of this form of power the whole year round will find the traction engine a profitable investment.



Brandon

July 17th to
22nd.

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July 24th to
29th.

LOOK FOR THE BIG BULL TRACTOR —AT— Brandon and Regina Fairs

Be on hand when the Big Bull is working.

Note its sturdiness and simplicity; its light weight, but superior power; the accessibility of all parts; the ease with which it is handled; its economy in operation; its evident durability; its general design and construction.

Examine the Big Bull Special Features—the Bull Wheel in the furrow, the Patent Steer Wheel, Patent Levering Device, Direct Drive, Gear Shifting Device and many other exclusive features—and particularly the

Kerosene Carburetor Equipment

which can be attached to any Big Bull tractor, enabling it to burn either Gasoline or Kerosene.

Remember Prices:

f. o. b. Fort Arthur, Ont. \$500.00	(Equipped with additional kerosene Carburetor)
f. o. b. Winnipeg, Man. \$525.00	f. o. b. Fort Arthur, Ont. \$525.00
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Then compare the BIG BULL with any other light tractor at the Fair
The BIG BULL will have the PULL.

Bull Tractor Co. of Canada, Ltd.
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THE RIGHT OIL IN THE RIGHT PLACE

NO lubricant is good enough for *every* purpose. You don't want to use the same oil on a high-speed, low-power tractor as on a low-speed, high-power tractor. You can't use the same oil in your thresher as you do on a spindle.

The Imperial Oil Company makes a special oil exactly suited to every part of every farm machine.

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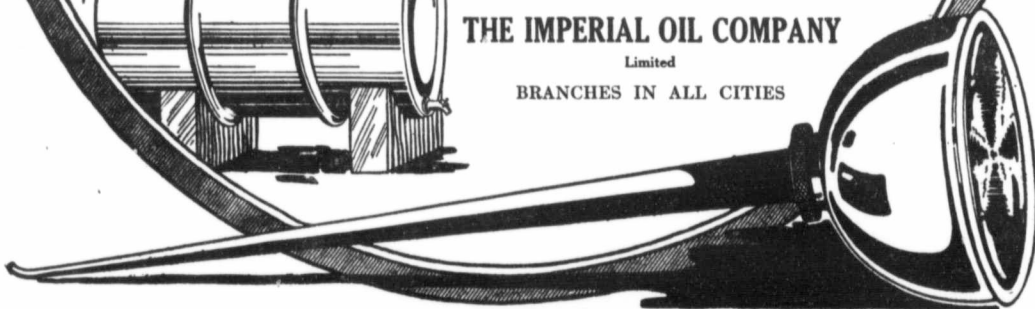
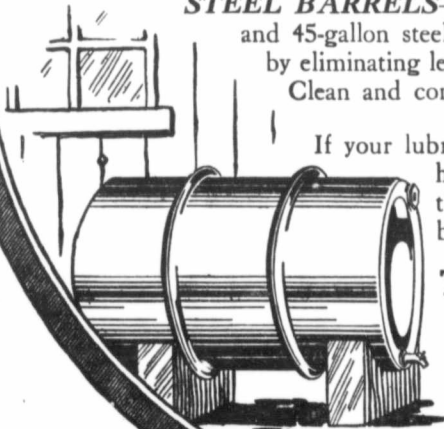
STEEL BARRELS—All our oils can be obtained in 28-gallon and 45-gallon steel barrels. These barrels save their cost by eliminating leakage. You use every drop you pay for. Clean and convenient.

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PRACTICAL TALKS TO THRESHERMEN

CXIV.

THE effect of a grade on a tractor is to reduce its hauling capacity. It is difficult to express in figures exactly what the reduction amounts to but an analysis of the known factors will at least throw some light on the problem. Since grades are generally expressed in per cents, it will first be necessary to understand what is meant when we refer to a grade of five or ten or any other per cent. These will be best understood by referring to Figure 253 and the table of gradients.

The width of the figure and the altitude both represent one hundred feet each. The slanting lines are drawn at various angles. The figures on the right show the elevation in one hundred feet of travel in a horizontal direction while the figures on the lines themselves indicate the per cent of grade. A grade of one hundred per cent means a rise of one hundred feet in a horizontal distance of one hundred feet. The angle in that case is, of course, forty-five degrees. A grade of fifty per cent represents a gradient of only twenty-six degrees and thirty-four minutes. It represents a rise of fifty feet in a horizontal travel of only one hundred feet. It is a pretty steep grade and is the same as what carpenters designate as quarter pitch of a roof.

On a perfectly level, hard road the pull required to move a load is a measure of the frictional resistance of the road surface and the friction of the wheel axles. If the vehicle is self propelling there must be added the friction of the motor and transmission mechanism; that is, of the gears, chains, shaft, bearings, etc., between the motor and the road wheels. It was shown in the last lesson that the pull required to move a wagon on a hard level road at two and one-half miles an hour amounts to 106.4 pounds per ton of weight. This pull represents the friction of the road surface and of the wagon axles only. If the wagon were self-propelling, it would require a considerably greater effort than 106.4 pounds per ton of weight exerted at the motor. Just how much more depends upon the character of the transmission mechanism, the number of bearings, the number and kind of gear wheels or chains, the quality of the work-

manship, the truth of alignment and the character of the bearing surfaces.

TABLE OF GRADIENTS

Per cent of grade	Equivalent angle	Ft. rise or fall in 1 mile
2.5	1°-26'	132
3	1°-43'	158.4
4	2°-18'	211.2
5	2°-52'	264
6	3°-26'	316.8
7	4°-00'	369.6
8	4°-35'	422.4
9	5°-9'	475.2
10	5°-43'	528
11	6°-17'	580.8
12	6°-51'	633.6
13	7°-25'	686.4
14	7°-58'	739.2
15	8°-32'	792
20	11°-19'	1056
30	16°-42'	1584
40	21°-48'	2112
50	26°-34'	2640

We have no definite figures on the efficiency of tractor transmission systems but it is reasonable to suppose they are on the whole rather low. Heavy bronze or babbit bearings and rough cast gearing are the cause of a great amount of friction. It is impossible to overcome friction entirely but a good deal can be overcome

by using gears with accurately cut teeth; by having all the shafts and gears in perfect alignment, by providing a thorough oiling system and by using ball or roller bearings where possible to do so. The mechanical construction of tractors is getting better all the time and the time is right at hand when they will compare favorably with other high grade machines in the matter of internal friction. Instead of a propelling force of 106.4 pounds per ton for tractors, a force of 150 pounds is probably nearer the truth for well built machines. For the rougher, cruder types of machines a higher value undoubtedly obtains.

In going up grade the tractor not only is obliged to overcome

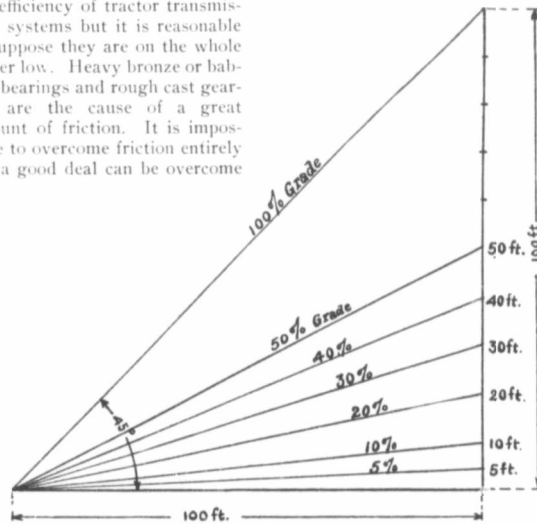
road friction and internal friction but it must, in addition, lift its own weight. If it hauls a load it must overcome the road friction and internal friction of the vehicle hauled and also lift its dead weight through the vertical distance measured between the bottom and the top of the grade.

For illustrative purposes, suppose we take a 15-30 four wheel tractor weighing 8,500 pounds. This machine has two speeds, two and one-half and one and three-fourths miles an hour respectively. The power developed by the motor is given at 30-horse power and at the draw bar 15-horse power. This means presumably that on a level road or field that it requires approximately one-half the horse power of the motor to propel the tractor. On a hard level road it will require considerably less for propulsion.

A horse power represents thirty-three thousand foot pounds of work per minute and 39 horse power represents 990,000 foot pounds. This is the capacity of the motor. At the draw bar the capacity is one-half of this amount or 495,000 foot pounds. At a speed of two and one-half miles an hour the draw bar pull, corresponding to 495,000 foot pounds of work, amounts to 2,250 pounds. The pull is found as follows: Two and one-half miles an hour is 13,200 feet of travel in an hour at the rate of 220 feet a minute. Now foot pounds of work is equal to pounds of pull multiplied by distance in feet in one minute. We have the total foot pounds of work, 495,000, and the distance per minute 220. All that remains to be done to find the amount of pull is to divide 495,000 by 220. The quotient is 2,250. This is the draw bar pull on level ground. If the tractor is going up a grade the pull will, of course, be less, as we shall endeavor to prove.

Let us assume that the grade is ten per cent or equivalent to a vertical lift of ten feet in one hundred. At a speed of two and one-half miles an hour or 220 feet per minute, the total vertical rise in one minute would be approximately twenty-two feet on a ten per cent grade. Therefore the work of lifting the engine through this distance will amount to $22 \times 8,500 = 187,000$ foot pounds. Di-

Continued on page 45



Re WORKMEN'S COMPENSATION ACT, 1916

THE Government has not yet issued Proclamation bringing into force the above Act. As soon as the Commissioner is appointed the Act will be proclaimed in the "Manitoba Gazette."

Meanwhile write us for application blanks so that your policy may be issued as soon as Act is proclaimed.

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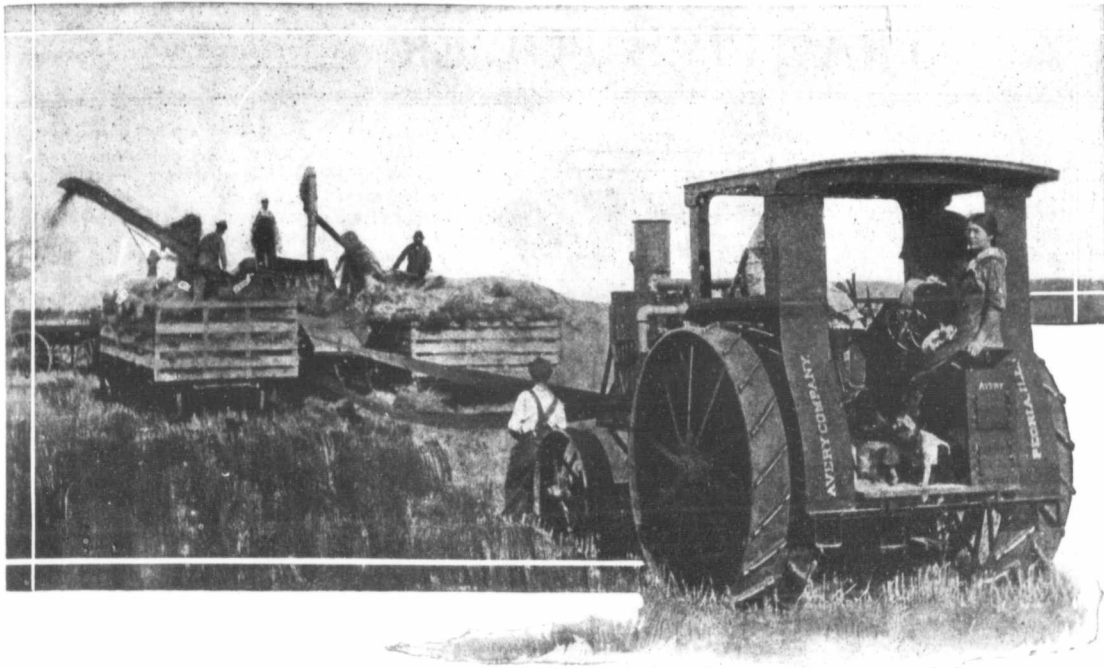
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WHY MR. SULLIVAN BOUGHT AN AVERY

Last Fall Mr. L. W. Sullivan, County Treasurer of Dickey County, North Dakota, bought an Avery outfit. On Dec. 4th he wrote us a letter telling why he bought an Avery and what his experience had been with it. He says: "We bought of you during the month of August, 1915, one complete Avery threshing outfit, including a 32 x 54 Separator and one of your 25-50 Gas Tractors. We threshed 24,000 bushels of grain (mostly wheat) in 18½ days, practically without a stop. We paid less than \$2.00 for repairs and this machine was run

without any experienced help. We are proud of it. I think if we were to buy another one it would be an Avery. **There are seven of these Avery outfits in this locality, all giving satisfaction. That is why we decided on an Avery.**"

Seven outfits of one make in one locality is pretty good proof of the success of that make of outfit, isn't it? It really wasn't necessary for him to say that they were all giving satisfaction for there wouldn't be seven Avery outfits there if the first one and each succeeding one hadn't given satisfaction.

Why Avery Outfits Give Satisfaction

If Mr. Sullivan had gone on to give the reasons why his and the other Avery outfits there were all giving satisfaction, he would probably have spoken particularly of some of these special features—that because of the I.X.L. Separating Device and the Adjustable Grate behind the Cylinder an Avery Separator was a good grain saver; that because of the Special Avery Fan it was a good grain cleaner; that the Jumbo Tool Steel Teeth didn't break; that the Avery Wind Stacker didn't clog

up; that the Handy Belt Tighteners kept the belts from slipping; that the Avery Conical Belt Guide kept the main belt in the center of the drive pulley.

Mr. Sullivan pulls his Avery "Yellow-Fellow" Thresher with an Avery Gas and Oil Tractor. Other threshermen use Avery Steam Engines. No matter which a man buys he has an engine that is economical, handy and that will stand up under hard traction and belt work.

There's a Size Avery Outfit for Every Size Run

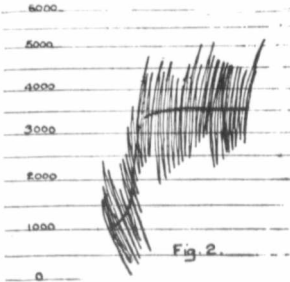
You can get an Avery Separator in any one of seven sizes from 19x30 to 42x70 inch, an Avery Gas and Oil Tractor in any one of six sizes from a 5-10 to a 40-80 h.p., or an Avery Steam Engine in any one of three sizes, 16, 20 or 25 h.p. Write to-day for the latest complete Avery Catalog and get all the facts.

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TRACTIVE POWER

By D. O. BARRETT, M.E.

IN the operation of a gas tractor there are two kinds of power in which the operator is directly interested, the developed or brake horse-power of the engine, and the tractive or draw-bar horse-power of the tractor. Where the engine is used for belt work, the developed horse-power of the engine alone enters into the calculation, and upon this depends the efficiency of the engine. Where the tractor is used for plowing or other tractive purposes, it is important of course that the engine should develop its maximum power, but this is secondary in considering the power delivered at the draw-bar. There should, of course, be as high an efficiency as possible between the engine



pull exerted by the tractor in pounds, and, knowing the speed at which the tractor is moving, the horse-power may readily be calculated. Because of the fact that the pull exerted by the tractor varies considerably, that is, it is not steady, dynamometers are usually made with a recording chart, so that an average value may be obtained over a specified distance.

The most common form of dynamometer is that shown in Fig. 1.

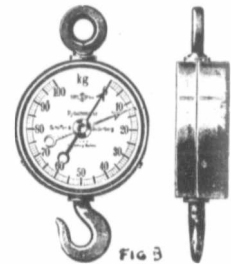
This dynamometer is simplicity itself, the only mechanism being that employed in the clock work to drive the recording chart. Two flat steel springs of semi-elliptical form are bolted together at the ends and supplied with clevises, so that one end may be attached to the tractor and the other end to the load. There are also two center bars, which are simply safety stops which allow a certain elongation of the instrument before acting. These prevent overloads which would soon ruin the action of the springs. One of the steel springs carries the case in which is mounted the scale and pointer, one end of which is provided with a pencil, which moves over a strip of graduated paper, which is wound on one drum and unwound from another by the action of clockwork. To the other steel spring is attached the linkage which is connected to the pointer. When attention is exerted to the dynamometer these springs tend to close together, thus producing a movement of the pointer relative to the case. The movement of the springs and consequently of the pointer is directly proportional to the pull, within the limits of the instrument. The pointer C is a maximum hand which remains at a position corresponding to the maximum pull. A is the paper drum which is driven by clockwork and is ruled to correspond with the graduations on the scale. A pencil at one end of the pointer B moves over the ruled paper and

makes a record such as shown in Fig. 2.

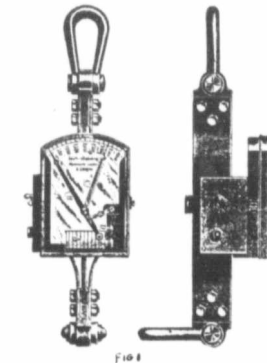
There is considerable movement or vibration in the hand due to the variation in the pull, and the average pull is found by drawing a line through the record which represents the average position of the hand, as shown by the heavy continuous lines. Actually the lines are drawn somewhat closer than here shown. This particular chart was taken from a single cylinder tractor when pulling a seven-gang stubble plow. The first portion of the chart, that is that at the lower, represents the turning at the end just before the plow bottoms were inserted. The average pull in plowing about 3,500 pounds as shown by the chart.

Let us now calculate the tractive horse-power developed. The tractor was moving at the rate of $2\frac{1}{4}$ miles per hour. Since horse-power is calculated as so much work per minute, this speed should be reduced to feet per minute; one mile per hour equals 5,280 divided by 60, or 88 feet per minute, so that $2\frac{1}{4}$ miles per hour equals $2\frac{1}{4}$ times 88, or 198 feet per minute. Now, since one horse-power is 33,000 feet pounds

To obtain the percentage of the developed horse-power delivered at the draw-bar, divide the tractive by the developed horse-power, and we have 21 divided by 38.77, or 54 per cent. Now a tractor should develop from 50 to 70 per cent of its engine power, depending, of course, upon the conditions. The operator is the proper judge of conditions, these conditions being, first, whether the



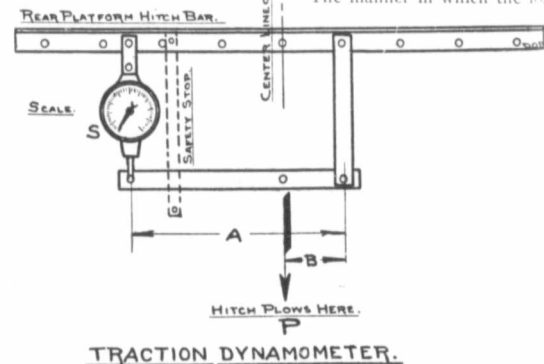
soil is loose, allowing the tractor wheels to settle, or whether the ground is firm, yet allowing a good foothold, also the mechanical condition of the tractor determines to a great extent the percentage of loss between the engine and the draw-bar. Then again the condition and the adjustments of the engine itself may be such that the engine is not developing its maximum power. The manner in which the load is



and the draw-bar, that is, the maximum power should be available for hauling purposes, for any certain developed engine powers.

The method of obtaining the developed horse-power of an engine will not be taken up here, as it is probably familiar to most of our readers, as it is being constantly explained through the columns of our magazines and books devoted to the gas engine. What we wish to discuss here is the tractive or draw-bar horse-power with its use, and a simple method of obtaining the same, so that the average tractor owner may, by means of a few simple calculations, be enabled to determine the efficiency under which his tractor is operating with reasonably close results, in fact with results close enough so that he is enabled to check up on the operation of his machine. An experienced operator will, of course, gauge to a considerable extent the power which the engine is developing from the manner in which the tractor is pulling.

The traction dynamometer is an instrument which is attached between the tractor and the load to be drawn; its readings show the

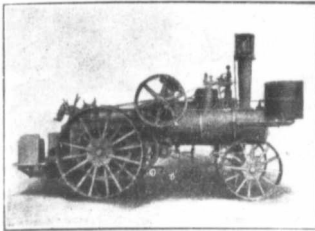


per minute, the tractive horse-power developed equals 3,500, 198 divided by 33,000 or 21. In this particular case the engine was a single cylinder having a bore of 11 inches and a stroke of 16 inches, running at 255 revolutions, per minute. Applying the author's rule of 10,500 cubic inches per minute of piston displacement per developed horse-power, we have: area of 11 inch cylinder equals 95.03 then $95.03 \times 16 \times 255 \div 10,500 = 38.77$ developed horse-power.

hitched to the engine has a bearing upon the amount of load which may be drawn. This is more noticeable with a horse drawn load, perhaps where it is a well-known fact that the closer the load is hitched the easier it may be drawn by the animal. The operator can easily tell, of course, whether the engine is drawing its very maximum, and can tell, within fairly close limits, how much greater a load might be hauled.

Continued on page 32

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POWER Your power problem will be solved in a most satisfactory and profitable manner if you make your selection from

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They are built in a most pains-taking manner, of the best materials the market affords and under the direct supervision of past masters in the art of mechanical construction.

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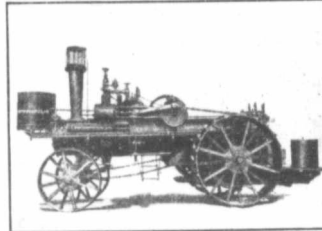
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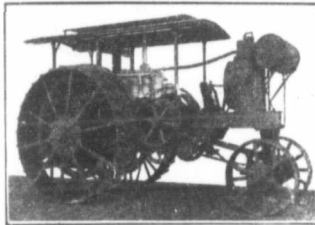
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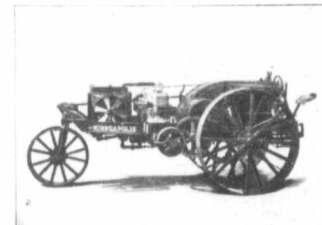
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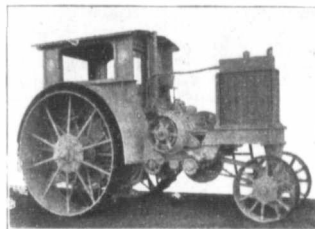
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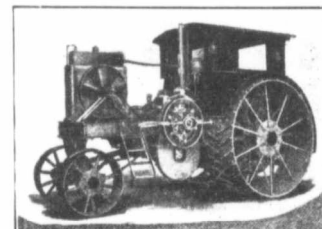
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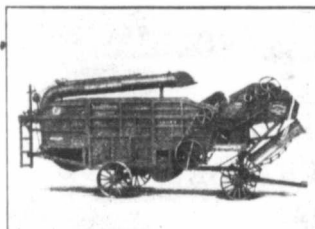
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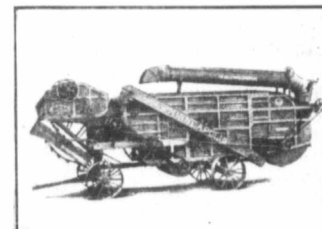
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However, such instruments as the one just described are usually not available for the use of the average tractor operator, being mainly employed at the factory or in special tests, and it is our purpose to show a form of dynamometer which may be easily constructed, and which will, with careful use, produce quite satisfactory results. Fig. 3 shows a form of scale or spring balance which is quite common, and which is shown here as being adapted to such a dynamometer, although any other form of extension scale might be used. In Fig. 4 is shown the application of this scale to dynamometer use.

To the rear platform bar is attached the scale, as well as the bars shown at the right of the scale and extending back from the hitch bar, preferably two flat bars should be used here, one above and one below the hitch bar. A long flat bar extends from the ends of these bars across to the scale and is attached to same; this constitutes the elements of the dynamometer, although in dotted lines is indicated a safety stop, which will prevent injury to the spring scale; this consists merely of a couple of flat bars attached to the hitch bar and extending over the rear bar as shown, and bolted together at the outer ends. These are made just the right length so that the scale can not be extended beyond its intended load, so that in case of a sudden jerk or heavy pull, the rear bar will catch in the stop and this heavy load will not be thrown upon the scale. The load should now be hitched to the rear bar, the point of attachment being determined by the amount of load and the capacity of the spring scale. The effective length of the rear bar is shown by A, and the distance from the point of attachment of the load to its connection with the two bars at the right by B.

Let us suppose, for instance, that the spring scale had a capacity of 500 pounds, and we wish to use this dynamometer in the case previously mentioned where the pull exerted was 3,500 pounds; we shall assume that we expected the tractor to develop a draw-bar pull of, say, 4,000 pounds, so that our spring scale would be capable of handling only one-eighth of this pull, then the distance B should only be one-eighth of the distance A. Then for a pull of 3,500 pounds at P, our scale would register one-eighth of that, or 437 pounds. Whatever reading was shown on the scale, the actual pull would be eight times as great. In attaching the dynamometer to the platform of the tractor the hitch should be directly in line with the center of the tractor, so that the scale and the bar at the right would extend directly back,

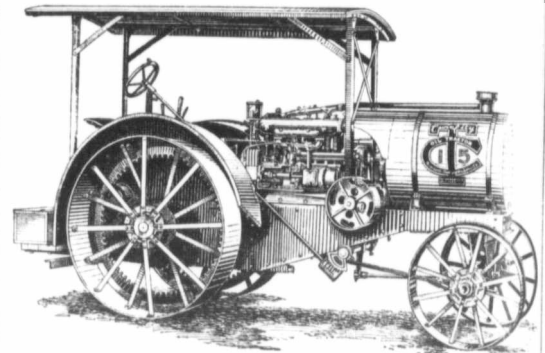
in other words be at right angles to the hitch bar of the tractor, otherwise the relationship as shown above will not hold, that is, if pulling at an angle. It may require a little experimenting to find the proper points of attachment, and the proper ratio of lengths, yet this will not be found laborious.

The scale and the bar at the right should, of course, be parallel at all times.

There are many variations which may be employed in the construction of such a dynamometer as this, but which will not be shown here, as they would apply only in particular cases. For instance, in place of the scale shown here, a heavy coil steel spring might be used with a steel scale and a pointer attached at either end so as to show either the elongation or the compression of the spring depending upon its method of attachment. This spring could be easily calibrated and quite accurately as well, by either hanging or placing upon it known weights.

The tractor operator who has any spare time at all at his disposal, and who is at all inquisitive as to the pulling capacity of his tractor, can quite easily and cheaply construct such an outfit as shown here, and he will learn many things concerning not only his tractor, but tractive problems connected with plowing and hauling. He will be well repaid in the end for his efforts exerted. Of course, with this outfit, without the recording mechanism the readings, perhaps, will be a little difficult to take, due to the varying pull, but is only necessary to select a certain specified distance over which to make the test, and to carefully watch the hand of the instrument over this distance, and it will be found that an average reading can be readily obtained, and from this the horse-power can be calculated, as previously shown in this article. When the operators and owners of traction engines learn that they themselves are capable of determining the power producing properties of their outfit there will not be so much misunderstanding after sales have been made, and the gas tractor proposition will be placed on a firmer and much more stable basis.

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The Twin City "15"

The Smallest Tractor That Will Do Every Kind of Work

YOU know light, cheaply constructed farm machinery will not stand up. It constantly causes repair bills and breaks down just when you need it most. The Twin City "15" weighs

8500 lbs., has four-cylinder, vertical motor of most efficient type; burns kerosene, distillate or gasoline; has two speed and automobile control. It will handle four 14 in. plows under ordinary conditions, run 24 in. separator and all other stationary work. It is large enough to do the work required on most farms with considerable reserve power to spare.

Back of its quality and efficiency is the reputation and guaranty of one of the largest manufacturers of tractors and construction steel in the country. We will be glad to send you information on the Twin City "15" or any of the other sizes upon request.

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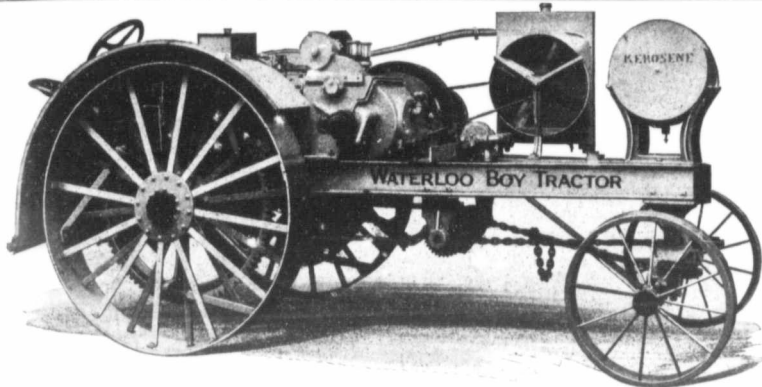
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The "WATERLOO BOY" Kerosene One-Man Tractor

The Manufacturers' Guarantee Fully Protects You

Here's the Proof!

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The Gasoline Engine & Supply Co.,
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(Signed) M. R. CARLEY.

Weight only 4,800 lbs.
Brake Test, 24 h.p.; Draw Bar, 12 h.p.
It is a Kerosene Tractor, built especially to operate on the heavier fuel.
It has Twin Cylinders, cast en bloc.
Ignition—High Tension Dixie Magneto with Impulse Starter.
It has a Cooling System of the most approved type.

When plowing, is Self-Steering, and will turn in a 25-ft. radius.
Easy to operate—Economic on fuel.
All working parts are very accessible and easily kept in perfect adjustment.
Transmission—Sliding Gear, with Shifts for one speed forward and one reverse.

Gasoline at the end of January, 1916, was 31½¢ per gallon. The price of gas is soaring all the time. It is highly probable that it will touch the 50¢ per gallon mark before the end of the year, and at a time when you will want it most. When you buy a tractor you need to figure out the cost of operation. Fuel should be one of the chief determining factors. The initial cost of the tractor itself is but a minor consideration. With the positive advance of gasoline, farmers will naturally turn to a low-grade oil as a substitute. The Waterloo Boy One-Man Tractor, which is specially constructed to operate on low-grade oil, will give gallon for gallon equal and even greater efficiency at a consequent lower cost per acre. It should not be overlooked that The Waterloo Boy is a Kerosene One-Man Tractor, and we guarantee it to fulfil every requirement we claim for it.

The Waterloo Boy will pull a light engine gang with three 14-inch plows in stubble any depth you wish. It will pull two 14-inch plows in any prairie breaking. On your summer fallow it will handle a disc with harrows behind at from 2½ to 3 miles per hour. It will drive a 24-46 thresher with all attachments at a capacity of 700 bushels of wheat to 1,400 bushels of oats per day. The Waterloo Boy performs this work with efficiency, economy and durability. All in all, it is Special Value. Under the circumstances it will pay you to obtain information, price, etc. Mailed free. Write us to-day. We also handle Gas Engines, Grain Grinders, Cordwood and Pole Saws, Electric Lighting Machinery, Hand and Power Washing Machines, Grain Elevators, Pump Jacks, Small Threshing Machinery, Belting and Threshers' Supplies. Live Dealers wanted in Territory where we are not represented.

The Gasoline Engine and Supply Co. Limited, 104 Princess St., Winnipeg

Lubrication and Engine Life

HAVE you ever seen a man who was running an engine run around hurriedly and investigate every bearing with a worried look on his face? Something had told him that some of the bearings were running hot and he would have to be careful. This often occurs, and you will notice that for the bearings that have been getting a little too warm he will go and get some more oil or else open up the oilers a turn or two. In nine cases out of ten this will remedy the matter and the bearing will then run cool.

But what caused the bearing to get hot? you ask. Why, it was the heat generated by the shaft rubbing on the bearing. It always generates some heat even if the bearing is well oiled, but if well oiled no more heat would be generated than would radiate from the bearing without it getting hot. But if the bearing does not get enough oil, or the right kind of oil, the friction in the bearing will be greater and more heat will be generated; then the bearing will get warmer and warmer until it is hot enough to radiate this increased amount of heat. If the tempera-

ture gets too high, the soft-bearing metal is apt to melt out or the bearing will "grab." The danger of this is most prominent in bearings that must operate with considerable weight.

How does oiling the bearing reduce this heat? The shaft of a bearing properly lubricated with the right kind of oil does not rub on the bearing. Instead, it rides in a film of oil, so its friction is the friction of the oil sliding on itself, rather than the friction of the metal rubbing on metal. The oil, like any other liquid, is made up of minute particles, spherical in shape, which can flow over each other. In the well-oiled bearing the particles of the film of oil roll and slide over each other as the journal revolves. The friction of this well-oiled bearing will be only about one-eighth to one-twelfth the friction of an unlubricated bearing and about one-fourth the friction of a scantily-oiled bearing, and the heat generated will be proportionately less.

Animal and vegetable oils have practically gone out of use for lubrication purposes of any kind, and they have entirely gone out of



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Premier "Red Ball" Sign

RELIABILITY in the fuel your tractor uses is just as important as reliability in any of its parts. Premier Gasoline is a reliable fuel. It is clean-burning and powerful always—uniform in quality. Buy direct from our stations.

THE IMPERIAL OIL COMPANY Limited
BRANCHES THROUGHOUT CANADA

use for engine lubrication. They break down when heated and form a gummy, sticky carbon deposit which increases the friction of the bearing and also prevents fresh oil from getting to the bearing.

Petroleum oils are one of the products obtained by the distillation of petroleum. They are mineral oils, so they will stand high temperatures, without breaking down, and they will not gum up as badly as animal or vegetable oils will, and they will not get rancid with age.

There is considerable knack in selecting the right kind of oil for each case. If too heavy an oil is used on a bearing, the friction will be more than it should be; if, on the other hand too light or thin an oil is used for the weight on the bearing, it will be squeezed out and cannot lubricate the bearing properly. Of the two cases the latter is the worst, but both are bad from an economy standpoint.

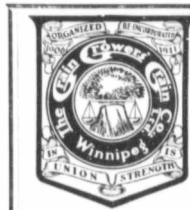
Like anything else, oil wears out. When it is worn out it should be expelled from the bearing and replaced with fresh oil. The accomplishment of this depends upon the design of the bearing, the way the oil is gotten to it and how much oil is applied.

The bearing should be so designed that it will hold the oil while it is being used, and the fresh oil coming into the bearing will force the old used oil out. In this way the dust and grit that may have worked into the bearing is carried away by the old oil and the bearing is kept clean.

The best way to achieve this result is to have the bearing running in a bath of oil forced to it by a pump. This is not practical on most farm machinery. Forced lubrication by a pump instead of lubrication with an oil cup is much used, however, and is used on some farm machines, especially automobiles and tractors. By the use of a force feed pump the supply of oil to a bearing can be regulated to a nicety till it is getting plenty, and yet is not getting a wasteful oversupply.

Oftentimes, especially with stationary gasoline engines, the oil will collect in the crank case or the bed of the engine frame. This oil is not worn out, but it is full of dirt. The operator does not like to throw this oil out, so he uses it over again. Sometimes he strains it and sometimes he does not, but even an ordinary straining will not remove all the grit and dirt. Consequently the engine is injured.

The author at one time operated an electric light plant run by a gasoline engine. The operator before him had made a practice of using the waste oil over after straining it through a cheesecloth. When we overhauled the engine we found it in very poor shape. The



JULY—AUGUST —THRESHING!

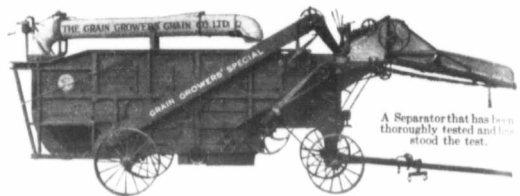
That's how near it is. Have you thought about this year's threshing? Don't you think it would be a good plan this year to thresh your own crop—to get it cleaned up and safe in the granary instead of lying around waiting until a dozen others have been attended to? Our Grain Growers' Special Separator or G. G. Humming Bird Separator belted to the Grain Growers' Special Tractor make an ideal threshing outfit, capable of handling up to 1000 bushels of wheat per day.

THE GRAIN GROWERS' SPECIAL SEPARATOR is a light weight, light running machine. It's equipment numbers every latest attachment known to threshing manufacturers—feeder, high-wagon loading elevator and weigher, side fan, wind stacker, adjustable sieves and chaffers, belt guides and tighteners. It is especially easy to lubricate and keep properly adjusted as all hangers, crank shafts, pitmans and bearings are on the outside. Its 31 square feet of separating surface in the straw racks insure thorough separation of the grain from the straw.

SPECIFICATIONS:—Width of body—36 inches. Length of cylinder—25 inches. Diameter of cylinder—21 inches. Size of cylinder shaft—2 1/2 inches. Twelve bars to cylinder. Its capacity runs from 500 to 1000 bushels of wheat per ten hour day depending on state of crop.

THE G. G. HUMMING BIRD, is an all steel separator. It has a sagless solid steel frame which keeps the shafts properly aligned and ensures easy running, endless tining elevator completely enclosing the machine; eccentric drive for shoe and grain pan; No-Choke Chaffer; adjustable chaffers and sieves. 24 inch cylinder, 40 inch rear, equipped with feeder, blower, or wind stacker, and 15 foot Perfection Register and Stackyard.

The Grain Growers' Grain Co., Ltd., guarantees the G. G. Humming Bird Separator, the Grain Growers' Special Separator and the Grain Growers' Special Tractor, when properly operated, to meet all requirements of the Saskatchewan and Alberta Implement Acts.



A Separator that has been thoroughly tested and has stood the test.



The motor is of the horizontally opposed type four cycle, two cylinder; 6 inch cylinder bore and 8 inch stroke. Fly-ball governor, high tension magnet, no batteries. It will burn gasoline, kerosene or distillate, and will develop a 12 horse power traction pull or 24 horse power on the belt.

Price Complete with Patent Steering Device
F.O.B. Winnipeg

\$1200.00

THRESHERMEN:
Write for our Threshers' Supplies Price List. It gives particulars and prices of Oils, Greases, Belting, Hose and other materials used in your business.

The Grain Growers' Grain Co. Ltd.
Branches at REGINA, SASK., CALGARY, ALTA., FORT WILLIAM, ONT.
Winnipeg-Manitoba Agency at NEW WESTMINSTER, British Columbia

piston rings were gummed tight in place and the cylinder was badly scored. The whole inside of the cylinder was very dirty. After cleaning up the engine we made an oil filter by cutting the top out of a five gallon oil can and the bottom from a one gallon can. The top of the five gallon can was then punched full of very small holes and set on little blocks in the bottom of the big can. The small can was filled about three quarters full of waste and turned upside down in the big can, with the cap reaching below the perforated top of the other. The big can was then filled with about one-fourth full of water. When oil was poured onto the waste in the small can it seeped through it and spread out in a thin film under the perforated plate, then trickled up through it and collected on top of the water

with all the dirt out of it. It was still slightly discolored, but it was fit to use and it never gave any trouble in the engine.

It is all right to use oil over as long as it retains its lubricating properties and contains no grit, but it is decidedly poor economy to use it over if it has not been filtered. It will cut an engine out very rapidly.

Engine oil that has become very badly burned or carbonized should not be re-used in an engine; it will foul the cylinder too much. It can, however, be used on many other machines about the place.

Twelve Months of this Magazine for \$1.00

Get a Farm of Your Own

TAKE 20 YEARS TO PAY

The land will support you and pay for itself. An immense area of the most fertile land in Western Canada for sale at low prices and easy terms, ranging from \$11 to \$30 for farm lands with ample rainfall—irrigated lands from \$35. Terms—One-twentieth down, balance within twenty years. In irrigation districts, loan for farm buildings, etc., up to \$5,000, also repayable in twenty years—interest only 4 per cent. Privilege of paying in full at any time. Here is your opportunity to increase your farm holdings by getting adjoining land, or secure your friends as neighbors. For literature and particulars apply to

ALLAN CAMERON, General Supt. of Land, Desk 17, Dept. of Natural Resources, C.P.R., CALGARY, ALTA.

Strite Variable Speed Governor



Is the best by every test for running cream separators, washing machines, faning mills, or any light machinery. More cream separator driven by Strite Governor Pulleys than any other combined. THERE'S A REASON—ASK US.

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MANITOBA PLOWING MATCH RULES

The following rules and regulations, which have just been drafted by the Agricultural College Extension Service for use in connection with plowing matches in Manitoba, are of interest to all plowmen at this time of year:—

1. No person will be allowed to interfere with the plowman except in the setting and removal of stakes, and no person will be allowed to accompany the plowman.

2. Land to be plowed will approximate $\frac{3}{4}$ acre for single furrowed plows and $1\frac{1}{4}$ acres for gangs.

3. Lands must be measured out and numbered consecutively before the time set for the match to commence.

4. Plowman must be on the grounds before 10 a.m., at which hour lots will be drawn and stakes set. Plowmen must finish by 4 p.m.

5. Each plowman will have one strike-out and one finish.

6. In the strike-out all lands must be opened and all weeds cut.

7. Stakes must be set only once for the strike-out.

8. Five rounds complete the crown. The stake bearing the land number must be replaced as soon as the crown is finished.

9. The first two rounds thrown to the adjoining land are not judged. In case the neighbor's crown is crooked or otherwise defective, it is not necessary to conform to it.

10. Depth of furrow, 5 inches; width according to plow used.

11. A sole furrow must not be turned in finishing the land.

12. The use of gauge wheels and skimmers is permitted.

13. No pulling or covering of weeds with either hand or foot or tramping the land with the feet will be allowed. A man in each class will see that each plowman conforms with the above rule. Every one not conforming thereto will be reduced one point for each offence.

14. Judges have the right to withhold a prize if they consider the work deficient in merit.

15. All protests must be in writing accompanied by a fee of \$2.00 and lodged with the Secretary before 6 p.m. on the day of the match.

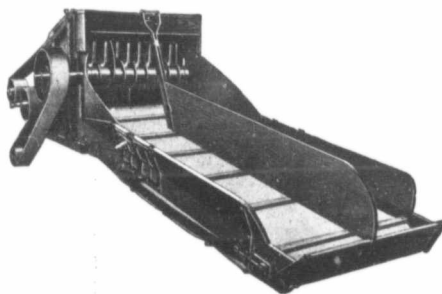
16. Plowmen who do not conform with the above rules will be disqualified.

THE END OF SOME GOPHERS.

A gopher shooting contest was recently conducted in Oak Lake district. The winner of first prize, Mr. W. H. A. Alford, shot 1706 gophers. Altogether close to 5,000 gophers were disposed of.

**A LANGDON FEEDER
FREE**

**For Every Thresherman in
Canada**



The Hart Grain Weigher Co.

GUARANTEES:

THE LANGDON FEEDER will feed a separator so much better than any other feeding device, that the saving made by its use in an average season's run will more than pay the cost of a Feeder.

THE LANGDON FEEDER governs so well that you can thresh with two to three less horse power than would be possible if any other feeding device were used.

THE LANGDON FEEDER is built so well that it will save the price of a new feeder each year long after others have worn out and been scrapped.

THE LANGDON FEEDER does not cost you a cent—it pays for itself long before you have to pay for it.

THE LANGDON FEEDER is an investment that no thresherman can afford to overlook. It pays dividends instead of being an expense account.

For Catalog and Prices write

Cushman Motor Works of Canada, Limited
DISTRIBUTORS - WINNIPEG

HART GRAIN WEIGHER CO.,

PEORIA, ILL.

Stocks of Machines and Repairs carried at Winnipeg and Regina

Just What Every- one Wants

To completely realize that ideal which the public has yearned for— which producers have long striven to attain—

That was the definite purpose behind the \$850 Overland.

A small car with comfortable, roomy seats that would ride as easily as a big one—

A small car with "big looks" that a man could buy and yet keep on speaking terms with both his pride and his pocketbook—

A small, light car that would reach a new low level of operating and up-keep expense—

That has been the ideal.

That was the definite need which the \$850 Overland supplies with definite finality.

You must see this car to appreciate its beauty.

You must ride in it to appreciate its comfort.

See the Overland dealer at once.

Catalogue on request. Please address Dept. 662

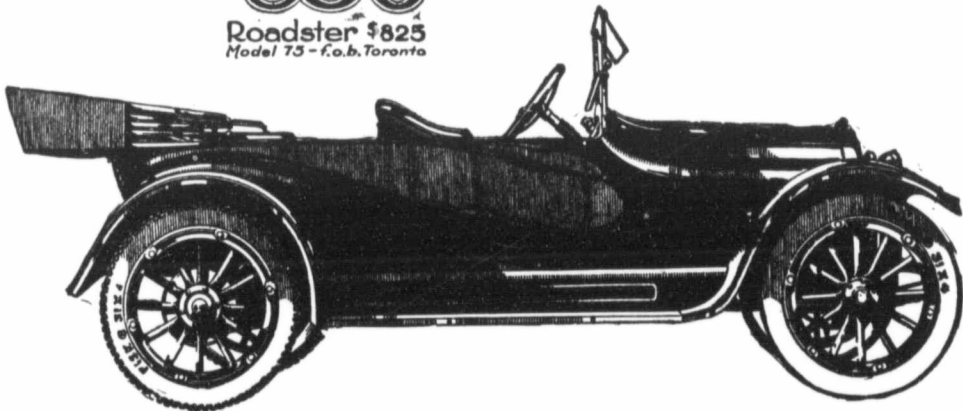
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Roadster \$825
Model 75 - f.o.b. Toronto



1,000 Cars a Day Not Enough

A luxurious small car—like most ideals—was difficult of attainment.

And to attain it and still keep the price lower than any other complete automobile had ever been sold for, meant quantity production on a scale never before attempted in cars of this class.

We increased our capacity to 1,000 cars a day—more than double any previous output of cars of this class.

And the result is this comfortable small car, beautiful and complete, for \$850.

Never before has any complete automobile been sold at anywhere near so low a price.

And never before has any small, light, economical car been anywhere near so comfortable or so beautiful.

But so completely have we realized a popular ideal that 1,000 cars a day is not going to supply the demand.

If you order yours today, it will not be a day too soon to avoid delay.

See the Overland dealer at once.

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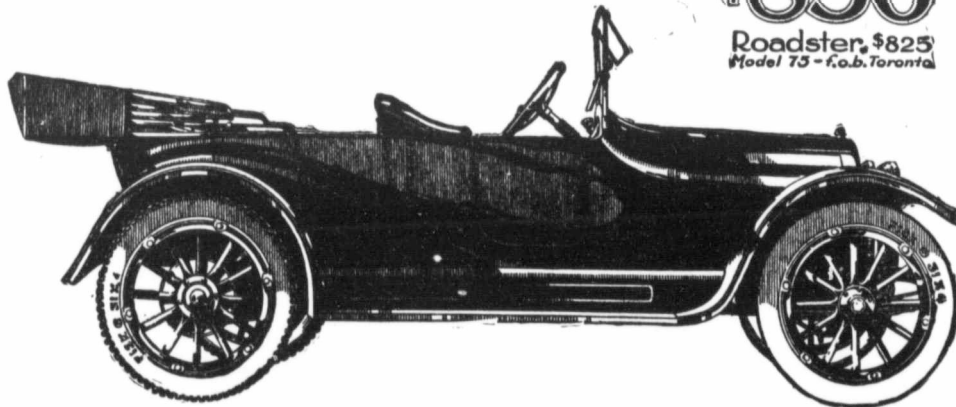
Willys-Overland, Limited

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Overland

\$850

Roadster, \$825
Model 75 - f.o.b. Toronto





Canada's Golden Opportunity

There is no branch of agriculture in which increased production is more desirable than in live stock. In both Canada and the United States, despite the ever progressive inroads of artificial means of locomotion, horses have grown in numbers since the beginning of the century. Cattle and swine have increased in Canada to some extent, but not in anything like equal proportion with the percentage that has been added to the population. Sheep, a most economical animal to keep and breed, have decreased materially. In the circumstances it is hardly strange that prices of meat, of wool, of dairy products, are in the ascendancy, and well maintained. That they will go higher yet is the opinion of all who have studied the situation. In their report the commissioners of inquiry into the cost of living tersely describe the state of affairs in this fashion:

"The increased cost of live stock is due to under-production. The increase in cattle has not kept pace with the increase in population in the principal cattle-raising countries, excepting Australia.

"Farmers tell us they have found dairy work, and some other productions of the farm, more remunerative than raising live stock, and that those conditions have tended to a falling off in the supply of cattle."

The conditions here described are more marked in the United States. There between 1900 and 1913 the population increased 24 per cent, while the cattle decreased 30 per cent. In Russia, Argen-

tina and Brazil there were also decreases. In France, Germany, the United Kingdom, and Austria-Hungary there were slight increases, but only in France at the same ratio as the population. In Australia alone was there relatively a greater growth in the number of cattle than of people. In Canada the population during the period mentioned increased 35 per cent, but in cattle only 20 per cent. These facts are surely pregnant with significance of the opportunity that lies before Canada in the breeding of cattle. The same state of things exists, only in a more emphatic way, as regards sheep, and even as regards swine the depletion last year was of such extent as to produce a certain measure of scarcity this year. While prices fell in 1915, owing to an overstocked market and the demand for money, this year for hogs and all bacon products there has been a marked rise.

With the foregoing outline of home matters before them it is hard to believe breeders will fail to recognize the profit that will likely accrue from increased production in all lines of live stock. If, with the present difficulties of shipment overseas, the market is buoyant, it is surely reasonable to expect that its activity will be greatly accelerated when the warring nations shall have reached an agreement, and decimated flocks and herds have to be renewed and revived. When that good time arrives, not only the twenty million men under arms, but a large part of the general population of Europe will hail with eager anti-



A Winner and therefore an Enthusiast

Bank on Butter-Fat



for a QUICK and CONTINUOUS income from money, brains and labor invested. The BRAINS of the dairy business is in the SEPARATOR—the skimmer that skims out every available ounce of butter fat. For little money and less labor than you will spend on any other machine of its "family," we guarantee that the

"MAGNET" Cream Separator

will beat any record you have made or know of for clean skimming at a minimum of time and toil

THE MAGNET

The Clean SKIMMER

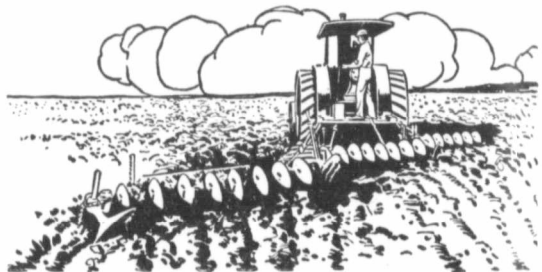
is not the lowest priced machine made but it is the best value in any Cream Separator known. Quality, Character and the highest possible efficiency is first guaranteed by the severest tests, then a modest profit to the manufacturer is added over bare cost of material and construction.

The "MAGNET" is made in Canada by Canadian engineers who have first of all gained their experience on Canadian dairy farms in all essentials to a separating machine that fits in perfectly and economically to every requirement. The result is the "MAGNET"—a separator that more than fulfils the last promise made in its name.

We will easily prove what we say by showing you the "MAGNET" in your own dairy. The design and construction of the machine is what has compelled us to double the output of our factory this year.

The Petrie Mfg. Co. Ltd.

Head Office and Factory: Hamilton, ONT.
WINNIPEG, CALGARY, REGINA, VANCOUVER, MONTREAL,
ST. JOHN, EDMONTON, LETHBRIDGE



ARE YOU GETTING THE MOST OUT OF YOUR TRACTOR?

ARE you getting the maximum power out of every cylinder stroke? Will your tractor be in as good shape next year as it is this? The answer to these questions rests upon one thing—proper lubrication.

Polarine FRICTION REDUCING MOTOR OIL

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has proved its worth to tractor owners who have given the lubrication problem real study. It keeps an unbroken lubricating film over the cylinder walls. It keeps its perfect lubricating body under the greatest cylinder heat. It flows freely at zero—and protects and preserves every moving part of the engine. Buy it in steel barrels direct from our stations.

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icipation the chance to once more enjoy fresh-killed beef, mutton and pork. Breeders, too, will hasten to restore their vanished or decimated stocks. A dozen countries will then clamour for cattle, sheep and pigs. Canada, with her channels of supply open, with her nearness to the sources of demand, will then be in the most favored position to avail herself of the situation to the full, and to obtain a reputation that will last, Canada must build up her reserves now. Her farmers will find it necessary to exercise to the limit of industry and judgment in improving and increasing their stocks. They will need to maintain a steadfast eye upon the best. They will have to practise with the utmost and wisest assiduity that thrift for which they have always been noted. In meeting these conditions they will enjoy the happy satisfaction of knowing that in serving themselves they are serving their country. They will also be taking advantage of a golden opportunity.

BIG PROFITS IN DAIRY COWS

Showing as they do the excellent results that are obtained by farmers of Alberta from their dairy herds, the following figures obtained from one of the largest creameries in the west are very interesting. The figures in detail are the prices paid by the creamery to the farmers for milk and cream throughout the year 1915.

The price paid for sweet cream varied during the year from 26 cents to 37 cents per pound, and sour cream brought as high as 33 cents, the average being 29 cents. As the table shows, the prices paid during the month of April and up to May 15th for No. 1 sweet cream were the highest during the year, 37 cents; No. 2 sweet cream bringing 35 cents during the same period. In the months of December, January, February, March, and from the 15th to the 31st of May, the price for No. 1 was 35 cents and for No. 2 during the same period 32 and 33 cents were paid. During October and November 32 cents was paid for No. 1 and 27 and 30 cents for No. 2. During the months of June, July, August and September No. 1 remained at 30 cents while No. 2 ranged between 26 and 28. The average during the year for No. 1 cream was 33 cents; for No. 2, 30 cents; for sour cream about 28 cents. The creamery, which is located at Calgary, has a very large export trade in both butter and ice cream.

The average price paid by the company for milk throughout the year was \$1.75, though during January and February the price

was \$2.10 per hundred pounds. It ranged all the way down to \$1.55 during June, July and August, but was around \$1.90 in March, part of April and October. All the milk had to test 3.6 per cent butter fat, though the company makes the practice of paying according to the quality, so that the farmer supplying the best milk receives the highest price. Thus any one shipping in milk that made a higher test than 3.6 would receive a higher price than the shipper whose milk barely met the test.

These prices must prove of great interest to the dairymen of the east, and especially to those in some of the states where the prices paid for cream and milk are not nearly so high, and where it also costs a great deal more to keep their stock on the high priced land.

Dairy cattle thrive on all lands of the west, and the cost of upkeep of a dairy herd is much less than in the east or south. Fodder and winter feed of all kinds are also much cheaper, and this being so the margin of profit is proportionately larger.

PROGRESS OF DAIRYING IN MANITOBA

The June crop report of Manitoba Department of Agriculture has this encouraging review of the dairy situation: While it is unsafe to make too positive predictions, with the season of largest production still ahead, yet it can be said that the present season has opened well for the dairy industry. We feel justified in the hope that there will be a fairly large output of butter and cheese, that there will be a steady improvement in quality of product, and that prices will be maintained at a fairly high level.

Considerable increase manifests itself in winter dairying. More than twenty creameries were in operation throughout the past winter, and none of the city dairies found it necessary to import any milk or sweet cream. While in past years there has usually been a shortage and we have found it necessary to make importations of creamery butter during the winter and spring months, this year we exported three carloads during the month of April. All told, we have, notwithstanding the fact that the season has been nearly two weeks late in opening, shipped out seven carloads of creamery butter up to June 10th. All reports received upon these shipments have been to the effect that they were quite satisfactory. This does not mean that all of the butter was all that it should have been. In fact, a portion of it had to go out as second grade, and this meant a



You need a new DE LAVAL SEPARATOR NOW

1st If you are still using some gravity or setting process of creaming—

BECAUSE YOUR WASTE IS greatest and quality of product poorest in mid-summer when the milk supply is heaviest.

BECAUSE THE SKIM-MILK IS poorest without a separator in hot weather and often more harmful than helpful to calves.

BECAUSE TIME IS OF GREATEST value on the farm at this season and the time and labor saving of the good separator counts for most.

BECAUSE THE WORK OF AN improved De Laval Cream Separator is as perfect and its product as superior with one kind of weather as with another.

2nd If you have a very old De Laval or an inferior separator of any kind—

BECAUSE THE LOSSES OF THE poor separator from incomplete skimming and the tainted product of the hard-to-clean and insanitary separator are greatest at this season.

easily handled and cared for than any other and you cannot afford to waste time these busy days "fussing" with a machine that ought to have been thrown on the junk-pile long ago.

BECAUSE OF THE GREAT ECONOMY of time at this season in having a separator of ample capacity to do the work so much more quickly.

BECAUSE THE DE LAVAL SEPARATOR of to-day is just as superior to other separators as the best of other separators to gravity setting, and every feature of De Laval superiority counts for most during the hot summer months.

BECAUSE AN IMPROVED DE Laval is so much simpler and more

These are all facts every De Laval local agent is glad of the opportunity to prove to any prospective buyer. If you don't know the nearest De Laval agency simply write the nearest main office, as below.

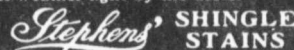
DE LAVAL DAIRY SUPPLY CO., Ltd.

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

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

Protected Shingles Mean Economy

The shingles on your house act as its lid they are there to shut out weather. Left unprotected, they can't serve their purpose long, because the very weather they are supposed to withstand soon cracks, warps, and finally penetrates them just as though the "lid" had been lifted. Make your shingles weather-tight by the use of



These come in seventeen soft, velvety, artistic, durable colors. Made with creosote, strong in staining power, and affording thorough protection. Ask your hardware dealer.



G. F. Stephens & Co. Limited
Paint and Varnish Makers
WINNIPEG CANADA

Twelve Months of this Magazine for \$1.00

loss that could have been avoided. Strict grading and the co-operation of all concerned will gradually reduce the proportion of butter in this class.

Our output of cheese for 1915 was over 50 per cent in advance of that for 1914. The high prices of cheese are stimulating production of this food, not only in Manitoba, but also in the big cheese provinces of Ontario and Quebec, and elsewhere. This, in turn, will undoubtedly help to maintain the price of butter at a fairly high level. At present creamery butter is in good demand—around 27 cents for first grade, and the market is strong.

Insofar as the future can be forecasted at present, this should prove a satisfactory year for the dairy industry in Manitoba, and especially so if all concerned "do their bit."

Our output of creamery butter for 1915 was practically double what it was for 1912. The following table illustrates the growth that has occurred in our dairy industry annually, during recent years:

Product	Quantity, Lbs.	
	1914	1915
Creamery Butter	4,761,355	5,839,665
Dairy Butter	3,880,000	4,130,444
Cheese	471,355	728,725
Milk	48,925,000	44,079,000
Sweet Cream		
lbs. of fat	737,838	496,334

THE PLACE OF THE HORSE

There are few ways in which Canada can be more benefited than by breeding good horses. Every horse bred that is of any value materially enriches both his own and the country. The automobile and the traction engine have not yet produced the horseless age. On the contrary, the more the country is opened up, the busier the country gets, and the greater will be the demand for the horse.

In every European country and in the United States artificial power, both for pleasure and for business, had made immense strides before the war and yet each year saw the number of horses increase. In Canada there was no slump in numbers, although there was in prices.

The latter had three causes, first the approaching financial crisis, and cessation of the real estate boom; second, the reduction in construction works consequent either upon completion or financial stringency; and, third, the superabundance that had been caused by inflated prices in the boom period. Then came the war and uncertainty increased, while financial matters went temporarily from bad to worse.

Now there are plentiful signs of improvement. Orders are circulating from the West, the trade in pure breeds has greatly developed, and the prices realized at

recent sales are significant of promise. Meantime two factors are working for the improvement of the horse himself, as well as for a decrease in numbers.

In the first place the stallion enrolment laws that have been enacted and the suppression of scrubs cannot but have a progressive effect on values; and, in the second place, the poor market of the last few years has checked breeding to a considerable extent.

There will not be the surplus of 1912, 13 and 14. In addition there is a spirit of great hopefulness apparent in the United States as well as in Canada. Every horse-owner and every breeder is agreed that the outlook has materially improved in the last month or two, and that the prospects favour still further advancement.

How far the export trade may extend in the near future, considering the difficulties of shipping, it is impossible to say, but of a certainty when hostilities cease there will be a rush for quality in quantity such as the world has never previously seen, and the rush will not be confined to one type.

All classes will share to some extent. Undersized ponies being a luxury for the little children of the rich may take some time to come to their own, but draught horses and saddle horses will be in demand. Carriage horses will be slow in returning, although they, too, and the ponies as well, will have their market for the show ring and the park.

But ring and park will also take time to reach the height of that luxurious existence which characterized them in the late years of the last century and the early years of this.

Looking the situation full in the face and having regard to the times and signs, it seems impossible not to feel optimistic regarding the future of the horse. The wastage in the war, owing to the system of trench fighting, on the one hand, and machine building on the other, has not perhaps been quite as great as was at first anticipated but it increases in volume as the volcanic disturbance goes on, owing to the destruction of automobiles and the scarcity of sundry material used in the component parts.

Horses, too, have the advantage in being more easily transported and in the climbing of mountains, in the threading of forests and in the crossing of sand, extra soft places and streams. In open fighting and over widespread areas also they are in demand.

Hence as the war extends the call for the horse will extend, for the draught horse perhaps more than the saddle horse, and yet for both sufficient to promise great depletion and a huge demand before sufficient years have rolled round to

Twenty-Five-Cents Will Buy the Greatest SONG of the WAR

And every cent of this will go to the funds of **The Returned Soldiers' Association of Winnipeg**

THE SONG IS

"I'll Be a Long Long Way From Home"

A really great patriotic song, powerful in its pathos and irresistible in its lilting melody. It is of the kind that makes an instantaneous "capture," and is never stale. It haunts the memory at every conscious moment, and has certainly taken Canada by storm. **OVER 14,000 COPIES HAVE ALREADY BEEN SOLD OUT WEST.** Every military band has it in every programme. Newsboys are whistling it on the streets; and a venerable D.D. Army Chaplain was heard to hum it as he descended from the pulpit the other Sunday evening.

THE COMPOSER—The song was written and music composed by **HOWARD MILLER**, better known by his stage name of **"THE GREAT HOWARD."** When in Winnipeg recently, Mr. Miller was deeply impressed with the work being done by the **RETURNED SOLDIERS' ASSOCIATION** for our returned soldiers and the widows of our brave old pals who have made the supreme sacrifice. He immediately dedicated this song to the Association—absolutely free of charge or royalty.

DO YOUR BIT, as Mr. Miller has done, and buy a copy. **REMEMBER**—not one cent of this goes to any private or capitalistic enterprise. Winnipeg stores are handling it free of any profit to themselves. For 25 Cents you get words and complete musical score, in finely illustrated patriotic cover. See Page 63 of this issue.

Mail Remittances to
A. H. SMITH
Secretary of Finance Committee

Returned Soldiers' Association
Care of **BLACKBURN & MILLS**
Grain Exchange, WINNIPEG



Are you tired of trying **GOPHER** poisons?

which are expensive, unsatisfactory and **DO NOT** exterminate.

"SUREDETH"

the new scientific preparation, offers the **ONLY** solution of the gopher problem.

The old method of dropping poisoned grain in and around gopher holes is not only wasteful but a source of death to wild fowl. **"SUREDETH"** is prepared differently and more easily and **KILLS QUICKLY.**

The gopher picking up the poisoned grain finds it bitter and spits it out, thereby getting rid of the poison and **living to destroy.** **"SUREDETH"** being different cannot help but reach the stomach and **KILL.**

"SUREDETH" is put up in one size only, \$1.00 per package of 25,000 doses, and absolutely guaranteed.

To be had from your druggist, or write us for a trial package and full instructions. Circular fully describing "Suredeyth" mailed on request.



Empire Chemical Company Limited
Dept. A BASKATOON, Sask.



What This because clear aw we have and fam fence be true rela Webst says, "a about yo prevent

see the maturity of the foals of 1916. Hence by breeding now horse owners will be building up a future for themselves and their country; in other words, helping in production, while by using judgment in their breeding, and utilizing the best, they will be practising the best element in thrift.

INCREASE IN MANITOBA LIVE STOCK

According to the figures contained in the June crop report, just compiled by the Manitoba Department of Agriculture, there has been a satisfactory increase in the number of live stock during the past year. The figures below show the comparison between the report this year and that of June, 1915:—

	1915	1916
Beef Cattle	36,843	41,593
Milk Cows	183,229	187,130
Horses	329,094	341,496
Pigs	286,433	261,774
Sheep	76,577	89,475

This report is compiled upon returns from 700 departmental crop correspondents located in every part of the country.

WINTER ANNUALS HAD GOOD START

Over a considerable area of Manitoba this spring farmers, in their hurry with spring seeding, failed to give many fields the necessary cultivation to kill stinkweed, pepper grass, shepherd's purse, blue bur and other winter annuals. At present in many such fields these weeds—stinkweed especially—are in the early pod stage and promise to produce an immense quantity of seed. In some cases where the grain is not yet too tall and the weeds are very thick, an immediate use of the mower would give the grain a chance to outgrow the weeds, thus reducing the opportunity of the latter to do so much harm.

PERMANENCE ON THE FARM

One of a series of articles showing how the modern farmer may make every stroke count in farm improvement and why money invested in permanent construction is equivalent to an account in the savings bank.

1 Fences.

What is a fence?
This is not a foolish question because it will be necessary to clear away a lot of rubbish notions we have in regard to so simple and familiar an object as a farm fence before we see a fence in its true relation to farm economy.

Webster, the dictionary man says, "a fence is an enclosure about your field or other place to prevent intrusion from without

and straying from within." But your notions may be quite different from the coldly precise phrasing of Mr. Webster when you find that Bill Jones' mules have "intruded from without," and are destroying your corn, or that your milk cows have "strayed from within" during the night, necessitating a time-wasting ride through your fields on a wet morning in search of crop-damaging bovine. Under these circumstances you will realize that what you thought was a fence is not a fence but an aggravation, and an expense both in time and money.

Fencing material, as we all know has been confined in the past to stone, wood and iron. Because wood has until now been plentiful, it has been the material most widely used, and the forms in which it has been used have ranged from the plain rail to the smooth, graceful picket made pleasing to the eye with paint. But wood, in whatever form it may be used, is at best a temporary material and because of its certainty or decay it was an economic fencing material only when it was plentiful. As it became scarcer and consequently cost more with its constant need of repairs and replacing, it has become less practical and more expensive until to-day its use in fencing is looked upon as a form of waste to be avoided on every modern farm.

This form of waste—repairs and replacing of decaying fences—is absolutely preventable to-day with the use of concrete—an artificial stone which hardens with age, and which may be molded into any form while in its plastic state, requiring neither paint nor repairs, and costing little if any more than wood.

Cost: You will select concrete from the standpoint of cost because timber suitable for fence posts has become so scarce in many sections of the country that the concrete post can, in many localities, compete in first cost with the best cedar post. Aside from the value of the material involved, the time element involved may be made less in the case of concrete, where from four to twelve posts may be cast at a time, as compared with cutting and preparing one post at a time from timber.

Permanence: You will select concrete for your fence posts from the standpoint of permanence because it is a known fact that concrete, when properly made grows stronger with age. Concrete posts have been in use many years and there are many engineers and other persons whose opinion is of unquestioned value who believe that concrete fence posts properly made from suitable materials care-



SOMETIMES a man is tempted to buy a cheaper engine than the Alpha, hoping to save a little money. If you are tempted to take such a chance, it will pay you to first study engine construction carefully. It is only reasonable to assume that if other engines were as good as the Alpha they would cost just as much. Why shouldn't they?

In considering the purchase of an engine, do not let the first cost blind you to the vitally important things you wish to buy in an engine. You want an engine that has plenty of power; that is simple and easy to operate, that is free from weak, complicated, troublesome parts; that is strong and durable enough to give you years of good service. With these things in mind, compare the Alpha, part for part, with any other engine. You will then see that for the slightly higher cost of the Alpha you get by far the most for your money.

Then talk to any of the thousands of Canadian farmers who are using Alpha Engines and they will tell you they are glad they did not take a chance on some "cheap" engine. It does not pay to take chances. Be on the safe side and buy an engine that sells on its merits; that has something more than its price to recommend it.

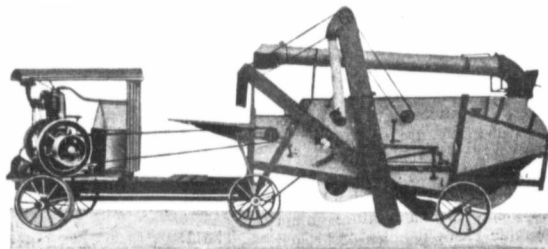
There is nothing mysterious about the superiority of the Alpha. The better design of this engine, the quality of material and workmanship that go into it, are easily seen. Ask for a copy of our catalogue. It illustrates and describes every feature of the Alpha and every feature of this engine has in it some sound reason why the Alpha will give better service and last longer. Read the catalogue carefully and you will see where the extra value comes in.

Alpha Engines are made in eleven sizes—2 to 28 H.P.—each furnished in stationary, semi-portable, or portable style, with hopper or tank-cooled cylinder.

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MONTREAL PETERBORO WINNIPEG VANCOUVER



"LISTER" Ideal Threshing Outfit

Remarkably simple to operate. The little machine that does big work. It cleans the grain equally well, does excellent work on all grains.

Patented combination 6-wheel truck does away with vibration.

Built in two sizes, 24 inch and 30 inch, supplied with or without truck, bagger, tailings, elevator, straw carrier or blower

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Family Group Photos a Specialty

AT **STEELE & CO., Limited**

MAIN ST. and BANNERMAN AVE. WINNIPEG

fully selected and proportioned should last indefinitely.

Advantages: You will select concrete for your fence posts from the standpoint of advantages to be gained in having posts that will require neither paint nor repairs and be free from danger of destruction by fire when strips of ground occupied by fences are being burned to destroy weeds and debris.

For all of these reasons you will select concrete and thereby make every stroke in fence building on your farm count for permanence.

Like every other building material, concrete, for best results must be used in a certain way, and for best results in concrete fence post manufacture, one must carefully observe certain requirements that have been proved necessary to success. Concrete fence posts should be made from concrete mixtures definitely proportioned. Many post manufacturers use a 1-2-3 concrete mixture, in which 1 cubic foot of Portland cement is combined with 2 cubic feet of clean, coarse sand ranging from the finer particles up to those of 1/4-inch in greatest dimension, to 3 cubic feet of clean, well graded pebbles or broken stone ranging from 1/4-inch up to a maximum of 3/4-inch. Others recommend and use successfully a 1-2-4 mixture. In some cases fence posts are made from a mixture consisting of 1 cubic foot of cement to 3 cubic feet of sand. Unless one is able, however, to know positively that the materials (sand and pebbles or broken stone) which he is using are uniformly graded from fine to coarse in accordance with the specifications just given, then no doubt the 1-2-3 mixture is more dependable. If, however, the materials are proved to be without variation in uniformity of grading, the 1-2-4 mixture can be relied upon. As regards the 1-3 mixture in which the 3 represents 3 cubic feet of sand, there is no excuse for using such a mixture unless suitable clean pebbles or broken stone cannot be obtained, because the 1-3 mixture necessitates more cement to produce strength equal to that obtained by using the other mixtures. Hence it is usually true economy to use a 1-2-3 mixture.

Editorial Note — We shall be very glad to supply free of charge to any of our readers a booklet covering all details of the work described in this article.

GOVERNMENT WILL LIST FARM LANDS FOR SALE

As soon as the war is over we may look for a decided movement in immigration, and many settlers with money will be prepared to buy first class farm lands. This, at least, is the view held by Hon. Mr. Winkler, Minister of Agriculture

and Immigration for Manitoba, and those agents in the United States who are handling Canadian lands. In order to enable the bona fide land seekers to purchase the lands they will require direct from the present owners, the Manitoba Department of Agriculture and Immigration, through its Immigration and Colonization Branch, announces a plan whereby lands for sale may be listed at a nominal charge in all the immigration offices under direction of the province.

The Department has now prepared the literature in connection with the whole scheme, and anyone writing a request to the Immigration and Colonization Office, 439 Main Street, Winnipeg, will be supplied. The blank forms furnished the farmer or other land owner wishing to dispose of his land enable him to give a very complete description of his property, and this description is reproduced in multiple form and the information kept on file at the different colonization offices, where it will be inspected by any land seeker.

Colonization experts agree that the only effective way of inducing settlers now to locate in Manitoba is to submit to them detailed description of land available, together with price and terms on which it can be acquired.

FOR HEAVY, TANGLED FIELDS TRUST YOUR Frost & Wood Binder

Many binders will cut grain that is standing nice and clean, but for tangled, heavy, rough and tumble cutting you certainly need the strength and light draft of the Frost & Wood Binder.

Bear in mind that the crop you lose through bad cutting may well represent your net profit. Most of the crop goes to pay expenses—its the last few bushels that represent your PROFIT. You can't afford to lose an ear of grain.

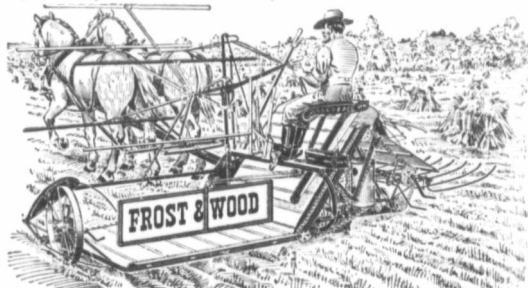
The Frost & Wood Binder is built of the toughest, strongest, yet lightest materials that money can buy. We use wonderful, dustproof, roller bearings at every

The sheaf compressor and ejector is worked by a smooth-running eccentric sprocket that does its work without jerking or strain. Hardly know it is at work—easy on the binder and the horses!

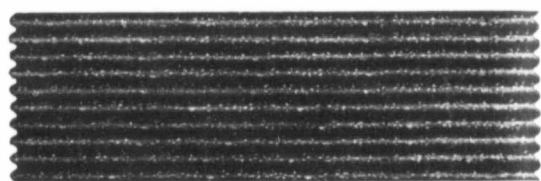
Big power wheel, strong bracing, improved cutter bar construction and many other good features. You ought to have our new catalogue at once and make a careful study of the Frost & Wood Binder. Don't take chances with your crop. See our nearest dealer at once or write us to-day for Catalogue.

friction point which makes long life and easy work. The elevation is worked out on new lines, it can handle any crop, no matter how choked or heavy.

Handy levers work the reel to any position and bring the train to the cutters, no matter how tangled or short it is. The Frost & Wood Knotter is very simple, and get-at-able. Needs no constant adjusting and it won't fail you.

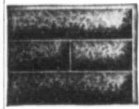


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WINNIPEG CALGARY REGINA SASKATOON



Make Your Buildings Storm and Lightning Proof

BY USING



Sheet Metal Building Materials



METAL SIDING of various designs and **CORRUGATED IRON**, Galvanized and Painted, in sheets suitable for all buildings.

Make very durable, neat and inexpensive coverings for Implement Sheds, Barns, Stables, Granaries and every other building used on the farm.

Send for Catalogue and Price List to

Metal Shingle and Siding Co. of Manitoba, Limited
WINNIPEG

The Metal Shingle & Siding Co. of Manitoba, Limited, Winnipeg.

Send Booklet on Farm Buildings as advertised

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INSURING HEALTH WITH SEPTIC TANKS

Time was when "havin' a spell of fever" was looked upon as an inevitable occurrence on the farm; and the country doctor, galloping along the lane with saddle-bags well stocked with quinine, was a common sight. Quite a few folks began to feel "porely" about the same time in the late summer or early fall, due to bad sanitation on the farm. At this annual low stage in community health, the country doctor jogged along more lanes during more hours with more quinine, and before cool weather set in more newly made mounds appeared in the churchyard cemetery. All of which was but another form of community waste which could have been prevented by better sanitation on the farm and which to-day is being prevented by making the farm houses more healthful through the various uses of concrete.

Concrete septic tanks should be on every farm. The saving through prevention of ill health and consequent loss of time with possible danger of death, will more than repay the cost.

Since the modern conveniences of indoor toilet, bath and kitchen sink have become almost as common fixtures of the rural home as of that in the city, it is necessary to insure that the wastes from these indispensable appointments will be cared for in a manner that will not result in endangering the health of the community.

As there must be some way of disposing of the house wastes from the dwelling equipped with modern plumbing appointments, where a town or city sewerage system is not available, the concrete septic tank has been developed, as an approved means of meeting requirements under certain conditions.

In disposing of sewage from a dwelling that cannot be connected with a city sewerage system there are several problems to be taken into consideration. House wastes consist of a combination of liquid and solid or semi-solid matter, and the solids must in some way be "digested" or separated from the liquid matter. After this has been done, proper arrangements must be made to dispose of the liquids.

Experience has proved that the solid matter in ordinary domestic sewage will, if confined in a suitable compartment, practically airtight and away from light, undergo a rotting or decomposition as a result of the development of certain bacteria which might be referred to as Nature's scavengers. These bacteria feed, so to speak, upon the solids and semi-solids in the sewage, thus converting them into gas and relatively harmless compounds. It must not be un-

QUALITY MADE OUR FRIENDS CONSISTENCY RETAINS THEM

Permit us to say that you can make your threshing outfit pay you bigger dividends.

Many threshermen in Western Canada have done so by equipping their outfits with Dunlop Thresher Belts, Agricultural Suction Hose and other rubber goods and thus cut their operating expenses down to the minimum.

Dunlop-made threshing supplies are dependable and, being dependable, naturally they are economical.

DUNLOP RUBBER THRESHER BELTS

Take Dunlop Rubber Belts, for instance — "Prairie" or "Reliance," stitched—and you have the best the market affords. That's no idle boast either, for hundreds of men like yourself have attested voluntarily to the supreme worth of the Dunlop product.

HERE ARE THE REASONS WHY

1. Dunlop Thresher Belts are superior belts for the simple reason that they are consistent in make-up—manufactured by proper materials in a uniform way and by expert workmen.
2. They will not slip—the rubber surface prevents that by giving the belts a natural pulley-cling, whether wet or dry.
3. Dunlop Thresher Belts are practically immune to stretching, because every inch of the belt is made by that uniform, secret process that eliminates this evil.
4. In wet or dry weather Dunlop Rubber Thresher Belts will pull evenly and transmit with certainty all the power the engine can develop. And by their pulling evenly they tend to minimize the jerky motion caused by tangled sheaves being drawn swiftly into the cylinders.
5. To give double security Dunlop Rubber Thresher Belts are stitched every inch by an improved method that sinks the stitches to avoid a lumpy surface. That's why Dunlop Belts are noted for such a smooth, evenly-balanced face.
6. These belts are built on principles that wide experience in belt-making have proven to be correct—another perfectly good reason why you should consider the purchase of a "Dunlop" this coming season.

Dunlop Canvas Belts

While we manufacture rubber belting right in our own immense factories, we cannot overlook Dunlop Canvas Belts which have qualities strongly recommending them for threshing use.

Dunlop Agricultural Hose

Dunlop Agricultural Hose is the most serviceable kind, too, because it is made especially for the purpose after we understood thoroughly the conditions affecting its use. It is supplied with a heavy rubber cover, Long Life Cover or Woven Cotton Jacket.

Remember This

When overhauling your outfit and making notes of your requirements for the coming season, don't forget that we have one of the finest-equipped factories devoted to the manufacture of Belting and Hose in the Dominion. These factories are capable of turning out large or small orders at great speed and this, combined with the fact that our branches are situated at convenient points, is an assurance of prompt and efficient service.

You simply cannot afford to buy a dollar's worth of rubber-made goods until you know the splendid qualities of the Dunlop-made products. You will find Dunlop prices right, too.

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

derstood, however, that this action is by any means likely to destroy disease germs that may be present, since the processes taking place in the septic tank are not chemical ones and the discharges after this "breaking down" process of the sewage must still be properly disposed of to prevent them from being a possible source of disease.

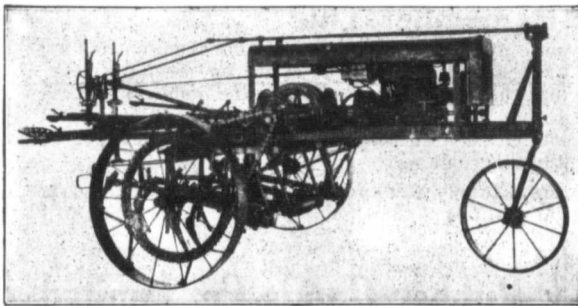
Septic tanks can best be constructed of concrete, particularly because such structures must be leak-proof, and if a 1:2:3 concrete is used this end will be secured. The mixture mentioned means 1 sack of Portland cement, 2 cubic feet of clean, coarse sand, evenly graded from the fine particles up to those which will just pass a 1/4-inch mesh screen, and 3 cubic feet of clean, screened pebbles or broken stone, the particles of which vary in size from 1/4 to 1 1/2 or 1 1/2 inches. Enough water should be used to produce a mixture of quaky consistency so that the concrete when placed will settle into all parts of the forms when slightly jogged or puddled with a spade or similar tool. Reinforcing, of course, must be chosen and used in accordance with the size of the particular tank.

Before you decide on a septic tank for your house sewage problems, consult with the local county health board and get its recommendations as to the details of the system best suited to the soil conditions on your farm.

Editorial Note — We shall be very glad to supply free of charge to any of our readers a very helpful booklet covering all details of the work described in this article.

THE AVERY MOTOR CORN CULTIVATOR

The Avery Motor Corn Cultivator is a two-row cultivator and the cultivator part proper is practically like the Avery Doublet



The New Avery Motor Corn Cultivator

Cultivator. The motor of the machine is placed on the frame near the front. It is especially designed for this machine and has already proven to be a successful motor. It has heavy duty bear-

ings, large crankshaft, heavy drop forged connecting rod and other up-to-date characteristics of a first-class motor. The cylinders are cast en bloc, with removable cylinder head. Ample water cooling space is furnished and the cooling is further assisted by means of a radiator placed in front of the motor. The specifications of the machine are as follows: 4-cylinder, 4-cycle, vertical motor, 3-inch bore, 4-inch stroke. The wheel base is 84 inches; both rear wheels are drive wheels and are 42 inches high, with a 6-inch face. Angle iron cleats are provided, which can be quickly attached or detached so that perfect traction can be secured in all conditions of ground.

The main feature about the Avery Motor Corn Cultivator is that the two drive wheels are operated separately by means of a friction drive transmission. Each of the drive wheels are easily controlled by the operator, who sits behind the entire machine, and the mechanism is such that one wheel can be held stationary while the other travels forward or backward at the same time. To further facilitate turning around in this manner at the end of a row of corn in order to go up the next row of corn, all the operator has to do is to throw out the gear connection in the steering apparatus at the front of the machine and the front wheel will then act as a castor. Then by operating the rear wheels as previously described, the machine can be made to turn completely around in its entire length, as the center of the circle circumscribed would coincide with the wheel that is held stationary.

The spark and throttle levers are near the steering wheel, within easy reach of the operator, while the moving of the cultivator gangs are operated by the driver's feet, in the same way as it is done on all cultivators. In driving down a row of corn, the gear

in the steering mechanism is thrown in and the operator keeps the machine straight in its course by means of the steering wheel.

The machine has been tried out in the field and all tests have been

BRANDON'S BIG FAIR

Provincial Exhibition

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very successful, the machine being under easy control of the operator at all times in practically all conditions of farm ground. Just what the price of this machine will be when the Avery Company gets it on the market cannot be told at this time, although it is expected that the price will be within easy reach of most all farmers, costing, no doubt, not any more than three good horses. The machine has a speed of about 1/2 to 3 miles per hour when in operation. It operates on gasoline and the fuel is carried in a tank placed above the motor.

Practical Talks to Threshermen

Continued from page 28

viding this quantity by 33,000, we find it represents an expenditure of 5.6 horse power. If the tractor could develop only 15-horse power at the draw bar on level ground it would only be able to develop 9.4 horse power on a ten per cent grade. And instead of a draw bar pull of 2,250 pounds the drawbar pull will amount to only 1,400 pounds. Here is where a slow speed can be used to excellent ad-

vantage. This particular tractor has a second speed of one and three-fourths miles an hour or 154 feet per minute. On level ground at this speed the drawbar pull would amount to 3,124 pounds and on the grade it would amount to 2,000 pounds or nearly as much as the pull at normal speed on level ground. With a still slower speed an even greater draw bar pull can be obtained.

So far we have considered the engine alone and its draw bar pull but for practical purposes it is necessary to consider the weight of the load additional. Let us suppose the load is an engine gang plow that weighs 1,500 pounds. In addition to the draft on level land there must be considered the power necessary to lift the plows through a vertical distance of twenty-two feet—figuring as we did in the first case on the normal speed of two and one-half miles an hour. $1,500 \times 22 = 33,000$ foot pounds or exactly 1-horse power. This reduces the available draw bar horse power to 8.4 and the effective drawbar pull from 1,400 pounds to 1,250 pounds at two and one-half miles an hour or to 1,785 pounds at one and three-fourths miles.

In going up hill the soil has to be lifted through a slightly steeper angle than on level land. So consequently the draft will be slightly increased. This, however, has not been taken into account because the value probably is quite small and it is an unknown quantity. Enough, however, has been presented to show the effect of a grade of tractor performance. Our figures show that a ten per cent grade cuts the hauling power of a tractor in plowing to about fifty-six per cent of what it is able to handle on level ground. Of course if the tractor has a slow speed of one and one-half to one and three-quarter miles an hour, nearly the same number of plows can be hauled. This emphasizes the necessity for slow speed, otherwise it becomes necessary to drop a number of plows if the tractor is loaded to its capacity on level ground.

As a further illustration of the effect of speed on pulling capacity, let us consider the same tractor with a speed of one mile an hour or eighty-eight feet a minute. If the drawbar horse power is fifteen or equal to 495,000 foot pounds per minute, the pull will amount to 495,000 divided by 88 or 5,625 pounds. If, on the other hand, the speed were five miles an hour, the available drawbar pull will be one-fifth as much or only 1,125 pounds. These calculations, it is hoped, will give a clear idea of the relation between speed and drawbar pull.

Even with a knowledge of the pulling capacity of a tractor, it is

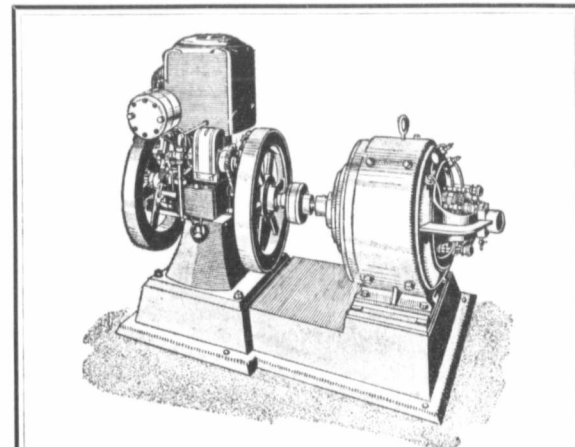


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**The Mainer Electric Co. Limited
WINNIPEG**

simply impossible to tell with any degree of accuracy how many plows a tractor is able to pull. Soil resistance varies with the kind of soil and the amount of moisture it contains. Soils containing clay will plow very easily when moist and are very hard when dry. Sand is more nearly uniform. Some of the black, waxy soils along river bottoms are nearly as tough as as-

phalt when dry and plow quite easily when moist. Draft tests of plows are valueless unless one knows the kind of soil and the percentage of moisture. There is need for careful experimental work along this line which should be taken up by the agricultural engineering departments of our various state colleges.

The depth of plowing also has



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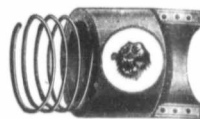


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Fully guaranteed and no doubt a better quality than you have been using. Our price only 37c. per foot. Water Hose, Packing, Gaskets, Pure Manilla Rope, Wire Cable, etc., proportionately low.

Myers Cog Gear Low Down Force Tank Pump

With Brass valve seats and valves easily get-at-able; double acting cylinder 5 x 5, capacity 2,000 gal. per hour. The best pump made, and the price is only \$7.75.

For your Engine we carry Headlights, Steam Gauges, Whistles, Brass Goods and Fittings; Swift Lubricators and Mason-Kipp Valveless Oil Pumps; Tube Cleaners, Wrenches, Taps and Dies.

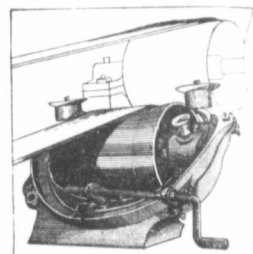
Do you use a Caswell Adjustable Separator Belt Guide so that you can set your engine 10 feet out of line, if necessary.

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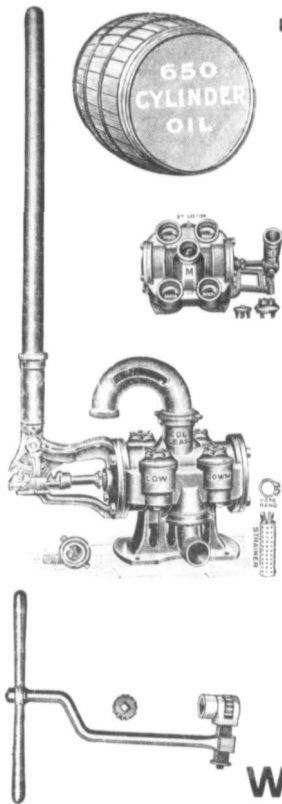
Read our books:—Young Engineer's Guide, Farm Engines and How to Operate Them, Practical Gas and Oil Engine Hand Book.



Write for our Catalogue; "Engineer's Bargains"



WINDSOR SUPPLY CO., Windsor, Ont.



an effect upon draft which, according to tests made by Ocock in Illinois, amounts to an increase of seventy per cent in draft when the depth is doubled. This figure is based on only one series of tests and should be verified by other experimenters.

AGRICULTURAL WOOD-WORKING SHORT COURSE

The normal boy loves to use tools and there is no period in his life during which he can so readily be taught to develop his constructive faculties as while in his teens. It might also be said that there is no other line of training that is of more practical value, taking it from one end of life to the other, than the education of the hand and eye—leading to scientific mechanical skill.

The next few weeks will see the initiation in Manitoba of a movement to extend to a large number of provincial centres the blessings of manual training, which has become so popular in advanced city schools. Through the Boys' and Girls' Clubs, the Extension Service of Manitoba Agricultural College has joined hands in many practical issues with over 10,000 boys and girls of this province, and to the boys who are in these Clubs, the Agricultural Wood-

working Short Course will make a mighty appeal.

The courses, which will be presented in about 25 places in Manitoba this year, will average from a week to ten days in duration, and the dates to be selected will be during the summer holidays.

In announcing the plan, it was stipulated that in order that any point might be favored with a course, it must enrol at least 15 or 20 boys who are over 12 years of age. From 15 to 30 boys can be taught wood working by a good manual instructor, and if more than 30 enrol at any place, an additional instructor will be needed there.

Much of the work can be done out of doors, as well as indoors, but it is part of the plan that in each case access will be had to some suitable building or room, so that work may proceed through rainy as well as fine weather. The arrangement at Souris presents a fine example of how the short course may be made a red letter week in the boys' lives. Here the citizens are providing a big tent, and the boys will camp for ten days, cooking their own meals, working with their own hands and enjoying a few fine sport features sandwiched in between.

The instructors who will assume charge of these 25 short courses are technical teachers

either in the Agricultural College or the manual training departments of the Winnipeg public schools. In each case they will seek to adapt the training so that it will best meet the rural situation. The things made will be such as a farm boy should know how to construct. The course might be called a farm wood working course.

In the matter of tools, the co-operative idea is being inculcated. The boys will get together in groups of five and, by each boy furnishing two or three tools, quite a respectable kit for joint use will be available. One of the first and most important lessons taught will be on how to care for tools and keep them in their places.

In some centres the girls will also be given a course in sewing.

In connection with each course, one sports day will be arranged for, and at least one lecture on agriculture given by some member of the Agricultural College staff. At the close of each course, study clubs will be organized for the purpose of making a further study of agricultural subjects during the fall and winter months.

The places where courses will be held will be as follows: Oakville, Dugald, Minnedosa, McCreary, Souris, Grandview, Bois-sevain, Miami, Carberry, Minto,

Poplar Bluff, St. Andrews, Swan River, Austin, Ninette, Belle Plains, Birds Hill, Benito, Durban, Binscarth, Gladstone, Gilbert Plains, Pilot Mound, Morden.

A hen at Northallerton has, in successive weeks, laid two eggs weighing $3\frac{1}{2}$ and $3\frac{3}{4}$ ounces respectively. If she continues thus to improve she will, in the near future, be capable of laying a foundation stone.



EDUCATION!
"You're a bloomin' fine soldier! 'Ere I me taught yer everythink I know, an' you stand there an' don't know no think!"

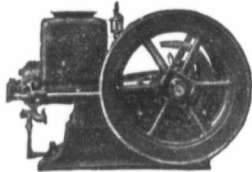
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Crushing Outfit
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7 inch, per pair.....	\$1.50
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7 H.P. Price **\$185.00** Equipped with self-starting Webster Magneto

This Engine will use less fuel than any engine of the same rating, and is guaranteed to develop more horse power than any engine of the same or nearly the same rating.

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Prices subject to change without notice. If money is sent in good faith goods will be shipped.
12 in Shares, each, \$2.10 14 in Shares, each, \$2.40 16 in Shares, each, \$2.70
13 in Shares, each, \$2.40 15 in Shares, each, \$2.70 18 in Shares, each, \$3.00
Give number and letters stamped on share—and name of plow—we do the rest.



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Fully Guaranteed

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will steadily advance in price. Send in your order at once and be on the safe side.

Channel Steel Harrows

A very popular high grade harrow at a very low price.

Thresher Belts

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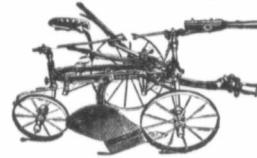
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Harrow Teeth

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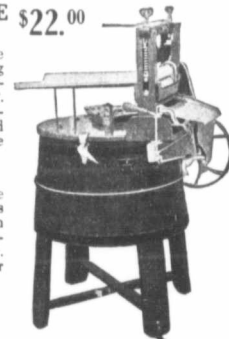
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Write for Special Prices on Gangs and Sulkeys.

STOVER POWER WASHING MACHINE \$22.00

Our complete Power Washing Outfit, consisting of 1 1/2 H.P. Engine, Washing Machine and Belt. Complete at **\$60.50**.



All gears are covered. Has safety release on wringer. Reversible Wringer. Pure Rubber Rolls.

CLEAN YOUR GRAIN WITH
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1 1/2 H.P. ENGINE

THE CANADIAN STOVER GASOLINE ENGINE CO. Ltd.

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RISK IN HANDLING GASOLINE

TECHNICAL paper 127 of the Bureau of Mines, Department of the Interior, is entitled "Hazards In Handling Gasoline" and was prepared by George A. Burrell.

The author quotes from a tabulation by K. G. Martin of the fire prevention bureau of New York

City which shows that during the year 1913 in the United States 1,040 persons were burned to death and 3,120 persons injured on account of gasoline fires.

The author calls attention to the danger from improperly made joints in gasoline lighting systems, gasoline cooking stoves and other devices where the fuel is used in gravity or pressure systems. "Many fires originate from

the cleaning of silks with gasoline, the violent rubbing of the silk generating static electricity which produces a spark that ignites the vapor.

"Many jobbing tailors cause fires by using gasoline in an open vessel and smoking a cigarette or cigar at the same time.

"A dangerous practice, common in many garages, is the cleaning of automobile parts with gasoline from an open can. Employees find it easy to clean grease and oil from the motor and other parts with a brush saturated with gasoline, and the gasoline is readily ignited by a spark. Such a spark may be caused by striking two pieces of metal together, by the

ignition system on the automobile when the starting crank is turned, and in other ways. In one instance a nut was struck with a wrench, causing a spark.

"Empty gasoline barrels should be stored with bung holes down, in safe places in the open air.

"Joints in tanks, pipes, conveyors, etc., used for storage of explosive liquids, gases or vapors should be kept tight.

"Before work is done on vessels, pipes, etc., sufficient time should be given to allow gas to escape. Special care should be exercised before work requiring the use of heat or flame is done. Apparatus that has contained explosive gas should be filled with



LA LANGUE FRANCAISE

Tommy to Jock (on leave)—"What about the lingo? Suppose you want an egg over there, what do you say?"
Jock: "Ye juist say 'Oof!'"
Tommy—"But suppose you want two?"
Jock: "Ye say 'twa oofs,' and the silly auld fule o' a wife gie ye three, an' ye juist gie her wan back. Man, it's an awfu' easy language."

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water or steam to force out the gas.

"Don't spill gasoline. "Don't fill the tank of the liquid fuel stove full.

"Don't use a liquid fuel stove that leaks.

"Don't fill a gasoline stove in a closed room. Have plenty of ventilation to carry the vapor out of the room.

"Don't use gasoline or naphtha for washing the hands."

The author recommends the use of sand or sawdust for extinguishing gasoline fires. He calls attention to the fact that water usually tends to spread gasoline fires. A substance that will form a blanket over the fire must be used. Carbon tetrachloride, the basis of many fire extinguishers, acts in this manner.

The author shows that gasoline vapor mixes with air much as water vapor does. The amount of gasoline vapor taken up by the air depends on the grade of the gasoline to a large extent. Sixty-four degree gasoline will mix with the air until the vapor constitutes eleven per cent of the whole (at 63.5 degrees F.) while 73 degree gasoline under the same conditions will mix with the air until it constitutes twenty-eight per cent of the whole.

"It is fortunate that gasoline vapor, like other gases and vapors, needs a certain proportion of air before an explosion can take place. The author found that in one hundred parts by volume of air and gasoline an explosion will not take place if there is less than one and four-tenths parts of gasoline vapor or more than six parts. In other words, the explosive range is between one and four-tenths and about six per cent of vapor.

Although the range of explosibility mentioned is narrow as compared to that of many other mixtures of combustible gases and air, yet the proportion of gasoline vapor representing the lower limit

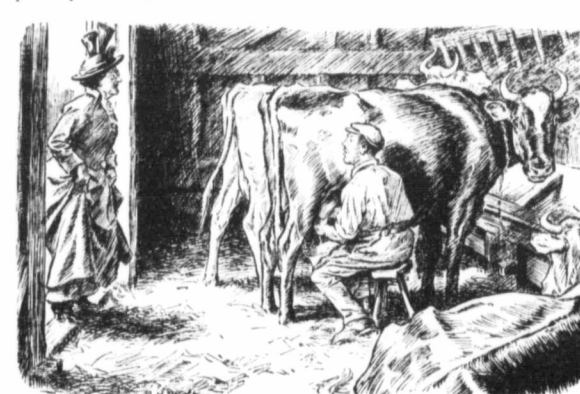
is small, and indicates the great importance of not allowing even a little gasoline exposed in the room, because of the small quantity of vapor needed to make an explosive mixture with all the air in the room. If one gallon of gasoline is allowed to change completely into vapor simply by exposing it to the room air and if the room is gas tight, the gallon can render explosive 2,100 cubic feet of air, the amount contained in a room measuring 21x10x10 feet.

"A dangerous feature of gasoline vapor is that it may travel a considerable distance from the gasoline and there be ignited, the flash traveling back to the container of the liquid and causing a roaring fire in a few seconds."

MIND AND MATTER ON THE FARM

PERHAPS most of us have been too prone in the past to regard farming as primarily a physical process. We have exalted muscle over mind and the entire course of farm development, mechanically speaking, has been devoted to saving muscle strain, with very little regard to what effect farm conditions were having upon the farmer mind. But a change and a most radical and beneficial change is at hand. Present attention is rather toward the development and conservation of the brain on the farm, in the conviction that what the farm needs to-day is brain rather than muscle.

It has been well said that there is a mechanical substitute to-day for everything about farm labor but the brain which directs it. It might have been added that the efficiency of these mechanical substitutes depends upon the health and efficiency of the brain which must direct them. This modern conception of the importance of a good brain for efficient farming has turned attention to



A GOOD AND SUFFICIENT REASON "How is it you are not at the front, young man?" "Cause there ain't no milk at that end, mum."

MENTION THIS PAPER A. STANLEY JONES, North Battleford SASK. The Original Small Threshing Machine 28-in. Separator, alone, with all fittings, as shown, freight paid Manitoba and Saskatchewan. CASH \$317.00 24-in. Separator, alone, with all fittings, as shown, freight paid Manitoba and Saskatchewan. CASH \$284.00 Complete Outfit, consisting of 8 h.p. Engine and 28-in. Separator, with all fittings, including main belt and truck, with 16-ft. reach, delivered anywhere in Manitoba or Saskatchewan, carriage prepaid, for CASH \$670.50 Write for Terms and Fully Illustrated Catalog MADE IN CANADA AS SOLD TO NORMAN M. ROSS, Esq., Government Experimental Farms, Indian Head. PAUL GERLACH, Esq., Dundurn, Sask., winner of the World's prize, 1913. JOHN ILLINGWORTH, Esq., Rocleiff, Sask., who came within three quarters of a point of Mr. Seager Wheeler of the World's prize in 1914. W. S. Simpson, Esq., Pambrun, Sask., winner of World's prizes for Flax; winner of 1st and Diploma, Spokane, 1st Provincial Fair, Regina; 1st Best Current; 1st Dry Farming Club, Denver, U.S.A.; 2nd Open to Irrigated and Non-Irrigated Farms, Denver, Colorado; 3rd Provincial Seed Fair, Saskatoon. Just as it came from A. Stanley Jones Small Thresher. KEROSENE BURNER IS DESIRED Write for fully illustrated catalog with details and also a copy of the report of the Government Expert, as published in the tenth report of the Department of Agriculture, telling you about these machines. ORDER NOW! My price for cash this year is the same as last and my time price is only 2 per cent more. Other companies have advanced from 10 per cent to 25 per cent. You will notice I PUBLISH ALL MY PRICES IN MY ADVERTISING and catalog and do not have two or three different ones for the same article. General Sales Agent for La Compagnie Desjardins

SAVE MONEY By keeping the Scale out of Your Boiler U.S.G. CO.'S MEXICAN BOILER GRAPHITE "The Guaranteed Scale Remedy" is positively guaranteed to soften old hard scale of long standing, so that it may be easily removed, and to prevent further hard formation. It does this by MECHANICAL—not chemical—action, working equally well in ANY water and under all conditions, making it ideally suited for traction boilers which draw water from different sources every few days. It is far superior to chemicals or chemically-acting compounds, because the former attack and weaken the metal while Mexican Graphite acts on scale only and cannot injure the boiler in any way, shape or form. The cost is so slight—ONLY A FEW CENTS A DAY—and the saving in fuel and repairs so great in comparison, that no traction operator can well afford to be without it. USE THE ONLY GENUINE U.S.G. CO.'S MEXICAN BOILER GRAPHITE Manufactured by The United States Graphite Co., Saginaw, Mich. MONEY REFUNDED IF IT DOES NOT PROVE ENTIRELY SATISFACTORY, and refund will be made without question, upon request. The U.S.G. Co.'s MEXICAN BOILER GRAPHITE is put up in 50 pound kegs especially for the traction engine, which is sufficient for an average season's run. Write for booklet on "The Care of Traction Engines," to the MAYTAG CO. LIMITED, WINNIPEG, CANADA, who have a large stock on hand at all times and are prepared to fill orders promptly. (Copyrighted 1916 by The United States Graphite Co.)

HOW ARE YOUR EYES R. J. PATTON Optometrist and Ophthalmologist, 211 Enderton Bldg., Portage and Hargrave St. Office Phone: Main 9502. Residence: Fort Rouge 2915. (Formerly in charge Eaton's Optical Dept., Winnipeg.)

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The Engine that is years ahead of any engine offered DIRECT TO THE FARMER—
THE JUDSON THROTTLE GOVERNED COAL OIL ENGINE

FOR USE ON COAL OIL, GASOLINE OR DISTILLATE.

30 DAYS' FREE TRIAL.

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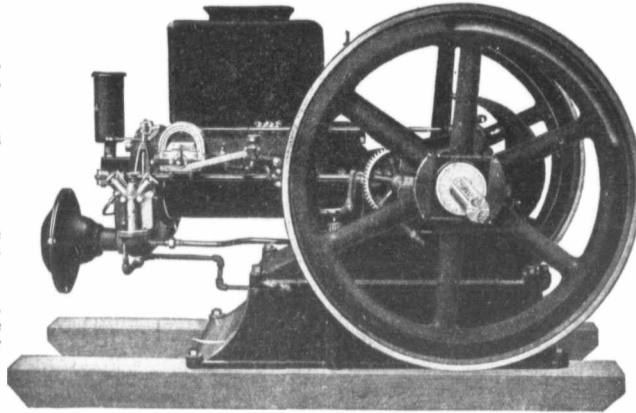
The Best Engine Made, Regardless of Name, Make or Price.

Our Price Saves You Money.

Self-starting Magneto.

A nicer running Engine has yet to be manufactured.

A real Kerosene Engine. Guaranteed to operate without giving any trouble whatever.



Note the solid, heavy base of our Engines, which contains the fuel (reservoir) in contrast to the wooden base and tin tanks as used by others.

A pleasure to operate and own.

Always ready to run.

The above is an actual illustration of the Judson Horizontal Hopper Cooled, Throttle Governed Coal Oil Engine. The Throttle Governing Kerosene Engine is not an attachment to replace a gasoline mixer on a hit-and-miss engine and use kerosene, but consists of a different governor, mixer, heating chamber, with automatic fuel control, which must be built into the engine. The engine explodes a charge every working stroke, the governor graduating the amount of fuel and air taken into the cylinder in proportion to the load being pulled. To burn kerosene successfully the engine must be kept at an even temperature and to form a gas from kerosene requires wholly different methods than when using gasoline. To accomplish this it was necessary to completely change the method of governing to obtain an even temperature in the cylinder. The speed regulation is very close, making it an ideal engine for electric lighting or other power purposes, where a uniform speed is required.

Our policy has always been to meet every practical demand from users of power—and this Engine is as far ahead of any other coal oil engine offered to the farmer.

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3½ H.P., \$125.00; 5 H.P., \$185.00; 7 H.P., \$225.00; 9 H.P., \$275.00; 10 H.P., \$360.00; 12 H.P., \$400.00; 14 H.P., \$475.00.

See our Farm Power Exhibit at the Brandon Fair.

Our catalog illustrates the most modern labor-saving machinery made. Send for a copy to-day.

C. S. JUDSON CO., Limited, Winnipeg, Canada

farm conditions as affecting brain power and capacity.

It is an axiom in other lines of industrial endeavor that good housing conditions, sanitation, comfort, light, warmth, good food, bathing facilities, all are essential for the best physical and mental results. Up to very recently none of these things has occasioned more than occasional attention on the farm. While the efforts of manufacturers and inventors have been directed toward lightening the sheer physical labor of farming, all other considerations have been neglected, and living conditions upon a vast majority of the farms are little if any better than they were years ago.

The connection between effi-

cient brain capacity and ability and bodily comfort is close and intimate. Under conditions as they exist on a majority of farms, brain development is impossible. If farming is to be improved it must be by way of better mental efforts, and the essential for better brains is better living conditions. But, as was said, attention now is turning pointedly and actively in that direction and this presents the most hopeful aspects for the agriculture of the future.

THE EXPENSE OF CO-OPERATION

DESPITE THE very satisfactory success which has attended farmers' co-operative associations here and there, it cannot be doubted that there have been far more failures of such organizations than successes. This has given the idea of co-operation a bad reputation in some localities, and farmers who have lost, or who feel that they have been bitten, are mighty chary of trying it again. The burnt child dreads the fire.

But, notwithstanding the many, many failures, it may be asserted confidently that co-operation promises to be the solution for most of the farmer's marketing troubles, even if it does not always work so well when it comes to

buying. This is an assertion in advance of the fact, for real co-operation has only begun to make itself felt as yet.

There are four primary causes why co-operation has failed in so many instances, and of these it may be said that three of them are purely mental, that is, that they represent a mental attitude of the average farmer, which, however, can be eradicated by the application of a little common sense.

In the first place, whether with

justice or not, the ordinary farmer carries around with him all the time a conviction that he is being more or less abused. To him it always looks as if he always is compelled to sell in the lowest market and to buy in the highest. In a certain sense this is true, and from his individual point of view he is perfectly justified in nursing a sense of injustice. For individually he is helpless. Single handed and alone he is more or less impotent to protect himself against the organized forces of the busi-

A Monthly Income

is the greatest boon the average man can leave to his widow. As a rule, such provision best continues the household custom.

A Monthly Income Policy

of The Great-West Life is issued on the attractive terms characterizing all the Great-West plans.

A descriptive pamphlet is now in print—and will be mailed to any interested enquirer. State age, and personal rates will be submitted.

The Great-West Life Assurance Co.

DEPT. "X"

Head Office : Winnipeg

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Any person, however inexperienced, can readily cure either disease with FLEMING'S FISTULA AND POLL EVIL CURE even the old cases that skilled doctors have abandoned. Easy and simple; no cutting; just a little attention every fifth day—and your money refunded if it ever fails. Cures most cases within thirty days, leaving the horse sound and smooth. All particulars given in Fleming's Vest Pocket Veterinary Adviser. Write us for a free copy. Ninety-six pages, covering more than a hundred veterinary subjects. Durable bound, indexed and illustrated. Fleming Bros., Chemists Church Street, Toronto, Ont.

ness world. To meet these he must organize himself, and naturally he turns to co-operation, as that is the only way he knows. Where he goes wrong, psychologically speaking, is in placing too much dependence upon the mere principle of co-operation without taking into consideration what co-operation as a business principle involves. He overlooks the fact that co-operation, just like any other business, to be successful, requires a management which will enable it to meet on common ground the rules and regulations, the customs and habits of the business world. Co-operation of itself, merely as a principle, is as helpless as is the individual himself unless it meets conditions as they exist. The farmer will not, or cannot, understand this.

Where he goes wrong again is in failing to realize that co-operation costs something. A co-operative society is a business organization, and it cannot conduct its business for nothing. Now, the ordinary farmer knows nothing first-hand about overhead or fixed charges. He never has considered them in the conduct of his own business, and he does not appreciate their inevitable importance in the conduct of his co-operative efforts. Expected profits do not materialize in consequence, and he blames the principle instead of the method, not seeing that entry into competition with long-established business customs entails expense which he had not figured on. He expected co-operation to wipe out all the hated middleman profit, and it is a disappointing shock to him to discover that some of the middleman profit is represented by a part of a legitimate expense which business in any form must pay, and which he himself must meet as soon as he attempts to displace the middleman with his co-operative society.

Another rock upon which so many of these co-operative societies have gone to wreck is mutual distrust. This is a delicate subject, but it is something the farmer must recognize and overcome. There must be real democratic mutuality in any co-operative society if success is to come, and the individual must give way to the good of all. Maybe the isolation of farming has resulted in making some men more or less selfish. Maybe the business disabilities, in the way of unfamiliarity with business methods in the merchandizing field, have resulted in distrust of each other as a natural growth. In business there must be confidence or the business organization will fall. But, however this may be, selfishness and distrust have no place in co-operation, and they must be subdued or overcome if co-operation is to be a success in any instance.

Lastly, there must be capable management, and this is something too many co-operative endeavors have not had. Management is intimately connected with the matter of expense. Good management costs money, while poor management costs even more. At first it looks to a good many farmers as if the cost of capable management, especially when newly in contact with the business world, is unnecessary expense. Only after he learns that by spending money to save money is the only way true economy in business management can be attained is he in a position to appreciate the value and the advantage of good management and to realize that it is worth what it costs.

To succeed co-operatively the mental attitude of a good many farmers must be turned around. They must bring themselves to look at business from a new angle and reason from business conditions as they must be met.



Sandy—"They tell me that some solgers trench-diggin' on McTwadde's farm hiv unearthed a skeleton o' a prehistoric man."
Mrs. Sandy—"Losh keeps. I hope puir auld Mac will be able tae clear himsel' o' any suspechun."

Barrett Money Savers for Farmers

Made in Canada

DON'T eat more dinner than you can hold simply because the cook has prepared more than you can eat. If you do, you'll probably have "inside information" that things are not quite right. By the same token, don't buy something that you don't need merely because it's cheap. If Robinson Crusoe had paid one cent for a postage stamp he would have been a spendthrift.

But, when you find things that have an every-day need, selling at moderate prices, then is your time to *economize by buying*. Such products will save you money. We make such commodities. This page describes seven of them. Sold by good dealers everywhere.

Everjet Elastic Paint

We have a product called Everjet Elastic Paint that will save you many a dollar every year. It is a wonderful roof paint. Applied to ready roofings, it adds years to their life, makes them leak-proof and improves their appearance. Everjet is invaluable for farm implements. Protects them from rust and keeps them new. It never peels, scales or cracks. The best carbon paint made. Good wherever you have exposed surfaces. Try a can.

Everlastic Roofing

Insurance against wind, weather and water can be had very cheaply by laying Everlastic Roofing wherever you have a slanting roof. The best "Rubber Roofing" on the market at the price. It is easy to lay, costs little and gives satisfaction for years. Just the thing for barns, out-buildings and poultry houses. Comes in rolls of 1.2 or 3 ply weight, each roll 36 inches wide. You could pay twice as much and not get as good.

Carbonol, Disinfectant and Deodorant

The most necessary thing you could have around the house is a bottle of Carbonol. It is the best disinfectant, healer and cleaner ever made. Removes grease, germs and odors. Therefore, put some in the water with which you clean house. Heals cuts and wounds; prevents blood poisoning. Wonderful in the sick room because it prevents contagion. It will keep your stable and hen house clean, and drive flies away from garbage pails and cattle pens. The best thing you could have for a hundred different uses. Get a bottle today.

Creonoid, Lice Destroyer and Cow Spray

One of the little things so often overlooked is the relation between contented live stock and profits. Best results cannot be secured if your live stock is infested or worried by flies. Spray your horses, cows, pig-pens and hen houses lightly with Creonoid. It positively and permanently destroys vermin and lice. Keeps flies away. Makes healthy porkers, happy cows, good tempered horses. More flesh from your live stock. More eggs from your hens. More milk from your cows. Follow directions carefully.

Amatite Roofing.

Amatite Roofing is distinctive for two reasons—its bright attractive, sparkling appearance and its great durability. It has wide fame, too, as the roofing that needs no paint. Its mineral surface is waterproof and fire resisting. Amatite is made in rolls, each roll containing enough to cover 100 square feet with a 3 inch lap.

Barrett's Grade One Liquid Creosote Oil

The best fence post made will not if not protected with a good preservative. You can make an ordinary good fence post last 20 years by using Barrett's Grade One Creosote Oil. It is the best wood preservative on the market. Penetrates deeper than any other Creosote product. Hence it accomplishes more. We can show you tests to prove this. Save the expense of timber renewals. It's a big item. Wherever you have wood exposed to moisture or earth, preserve it with Barrett's Grade One Creosote Oil.

Elastigum Waterproof Cement

Many a farmer or house owner has saved the day, by having Elastigum handy. This tough, elastic, adhesive cement is a wonder for those quick repairs that are daily coming up. And it makes those repairs permanent. If you have a leak to fix, a joint to seal, use Elastigum. Unexcelled for joining or re-lining gutters of wood or metal, and for flashings around chimneys. Elastigum is a real "handy man" and you ought to have it on hand. Good for a hundred uses.

Send for illustrated booklet describing Barrett Money Savers in detail. Address nearest office.

THE PATERSON MANUFACTURING COMPANY, LIMITED
MONTREAL TORONTO WINNIPEG VANCOUVER

THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED
ST. JOHN, N. B. HALIFAX, N. S. SYDNEY, N. S.

Breakages WELDED BY Oxy-Acetylene

impart a strength to the machine greater than it ever possessed, while the job is the most finished bit of work ever attained in repairing a fracture.

WE ARE THE PIONEERS OF THE PROCESS

ARE EXPERTS IN EVERY DETAIL OF OXY-ACETYLENE

If anything breaks or is worn out on your threshing machine or traction engine, have it welded by the Oxy-Acetylene process.

YOUR BLACKSMITH OR REPAIR EXPERT CAN DO THIS WORK FOR YOU See him now about your broken castings. If he has not a welding plant write us, giving his name, and we will supply him with full particulars. It will save you time and money.

L'Air Liquide Society 328 WILLIAM AVENUE
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Largest Manufacturers of Oxygen and Welding Plants.

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YOU EXPECT A BIG CROP

Are You Prepared to take Care of it?---Are You Sure of Your Supply of Help?

Never before in the history of Western Canada was it so necessary that every bushel be gathered. You need it. Canada needs it. The World needs it. Nature has charge of the "PRODUCTION," it is the part of "THRIFT" in YOUR HANDS to do the ingathering. You cannot afford to take any chance on securing help at threshing time.



Stewart Sheaf Loader Company,
Moose Jaw.

Eskbank, Sask.
March 22nd, 1916.

Dear Sirs:

In reply to yours of some time ago I may say that your Sheaf Loader gave entire satisfaction. I used a 40-64 separator and had no trouble keeping it busy with the Loader and six bundle teams. I threshed 55,316 of wheat and 1,000 bushels of oats in twenty-seven days, making an average of 2,308 bushels per day.

I had a top drive attached during threshing season, which I consider was quite an improvement on the drive.

Yours truly, WM. P. McACHLAN.

WHAT YOU REALLY NEED AND SHOULD HAVE IS A

Stewart Sheaf Loader

It is Western Canada's "HIRED MAN" at threshing time. Four years of real efficient service has placed it in the front rank of farm labor and time-saving devices. Hundreds have testified to its merits. Let us send you our big book of testimonials.

The Stewart Sheaf-Loader Co. Ltd.

WINNIPEG MANITOBA

A NEW INDUSTRY FOR WINNIPEG

WE have known for some time, but we are only now at liberty to announce the fact that a brand new industry affecting the farmers of



JOHN HERRON

Western Canada has sprung up in Winnipeg.

This industry is the building of grain threshers, and when we take into consideration the fact that more cars of grain are inspected in Winnipeg every fall than in any other city on the American continent, it would seem that nothing would be more appropriate for the Canadian West than a thresher factory. When we stop and think of it, there is no machine on the farm that is needed as much as a grain thresh-

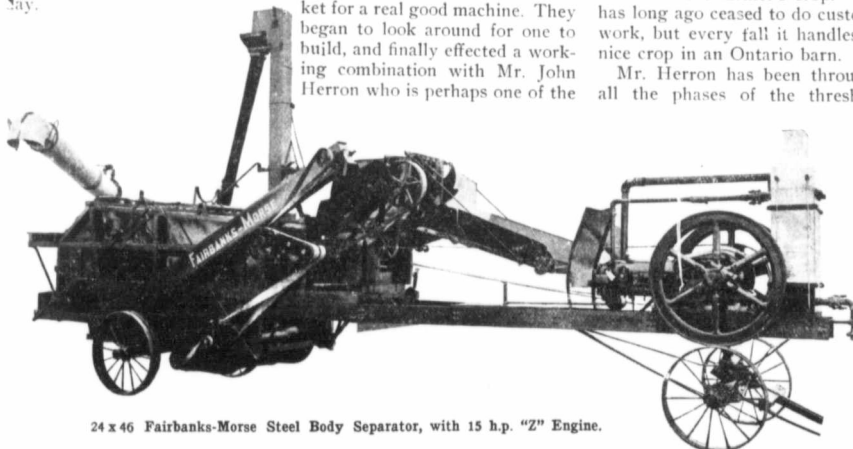
er. The plow is necessary to turn the soil, the drill is a most efficient labor-saving device in the planting of seed, and few of us would care to go back to the days of the cradle. However, all of these various machines are used preceding the grain thresher, and the labor has been expended upon the crop when it has reached a stage where it must be turned into a marketable product. This process can only be performed by the grain thresher. The flail and the fanning mill would scarcely clean all our grain as the markets of the world require it to be cleaned today.

The grain thresher in question is being built by the Stewart Sheaf Loader Co. of Winnipeg, who for several years past have been building the Stewart Sheaf Loader. As a matter of fact this concern were really the pioneers of the sheaf loader business, and are to-day practically the only firm building a successful implement of this kind. The growth of the gas tractor, more particularly the smaller type of tractor, as well as a demand for a combination thresher on the part of the farmer, led the Stewart Sheaf Loader Co. to the belief that there was a market for a real good machine. They began to look around for one to build, and finally effected a working combination with Mr. John Herron who is perhaps one of the

oldest threshing machine men in Canada to-day.

Mr. Herron's first introduction to the thresher was in 1875 when his father purchased a Clinton machine which was then made by the Clinton Thresher Co., of Clinton, Ont. Mr. Herron used this machine for seven falls, and what is more to the point this same separator is still threshing, having been in use over forty years. This particular machine was first operated by horse power, but was later driven by steam power, and is now attached to a gas engine to handle the farmer's crop. It has long ago ceased to do custom work, but every fall it handles a nice crop in an Ontario barn.

Mr. Herron has been through all the phases of the thresher

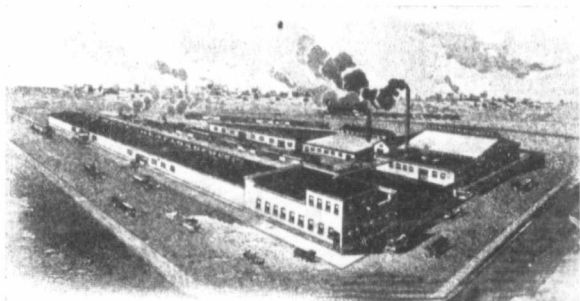


24 x 46 Fairbanks-Morse Steel Body Separator, with 15 h.p. "Z" Engine.

game. He has operated machines, he has built machines, he has sold machines. His first thresher order bears the date July 9, 1880. This was for a horse power outfit, and on the 5th of September 1881, he took his first order for a steam outfit. Mr. Herron was for a number of years with the Macdonald Manufacturing Co., of Stratford, Ont. Later he became manager for Waterloo Manufacturing Co., in the west. He remained with this concern up until about two years ago, when he again went back to the Macdonald people, having charge of their business in Western Canada. During all these years Mr. Herron has been studying the grain thresher. He has seen it pass through all its various stages of development. He has seen the introduction of steam power, the

with a 15 h.p. Fairbanks-Morse Z engine. This particular machine was built specially for the Canadian Fairbanks-Morse Co. The very fact that a concern of the standing and reputation of the Canadian Fairbanks-Morse Co. has adopted this machine for their own 1916 requirements is a stamp of approval upon the machine itself, for the reputation of the above concern is such that they could not afford to handle anything but an implement of quality. The new Fairbanks-Morse thresher was thoroughly tried and tested before even a decision was made to handle it.

The particular machine illustrated is a 24x16 complete with feeder high bagger and wind stacker. It has a heavy double bar cylinder, large grate surface, a large steel drum cylinder beater, a two



Buildings of Stewart Sheaf Loader Factory, Winnipeg

wind stacker, the high bagger and weigher, and has seen hundreds of improvements added to this most necessary of farm implements.

Mr. Herron in designing this machine has taken into consideration, not only his own experience of the thresher business, but the experience of others who have built machines for years. His idea has been in designing, and the idea of the Stewart Sheaf Loader Co. in building is not "How cheap can we build, but how well can we build." The machine embodies only well tried principles, and no experiments have been allowed in its construction.

The Stewart Sheaf Loader Co. have a large and well equipped plant in Elmwood. This plant handles every part of the construction of the machine excepting the foundry work which is also done in Winnipeg, thus making the machine an exclusive Winnipeg production. It is not the intention of the Stewart Sheaf Loader Co. to go into the retail trade, but to manufacture machines for the jobber under the jobber's own name, but it is their intention to put just as much quality into their goods as possible.

Upon this page appears an illustration of the new machine, attached as a combination outfit

section straw deck, "No choke" steel chaffer and many other features recognized by the best thresher practice of to-day. The machine is also a beautiful example of the wood workers' and painters' arts. It is pleasing in design and of excellent finish.

An Appreciation of a Great Labor Saver

Webb, Sask., Feb. 8th, 1916.
Stewart Sheaf Loader Company,
Winnipeg, Man.

Dear Sirs:

In regard to your letter of January 18th, wanting to know how we like your Sheaf Loader. I must say she is "Johnnie-on-the-spot." It is a good machine and is built good and strong for this uneven land around here, and I found out it makes a cleaner field than pitchers and four horses can handle it as easy as a binder after they are used to handling it. If the rows are straight one man can handle it and keep a good sized machine running.

Our machine is a 28 inch by 42 inch, and my man was resting half the time. We used four teams, our racks are 10 feet x 16 feet, 3 1/2 feet on one side and 7 on the other. Before we got your machine we used eight bundle teams to keep it going; our bundle teams cost us \$6.00 a day and two teams and the men to run Loader,

MANITOBA AGRICULTURAL COLLEGE

Opens October 24th, 1916

Courses for young men and young women in Agriculture and Household Science.

Live Stock, Field Crops, Horticulture, Farm Engineering, Dairying, Poultry, Sewing, Cooking, Housekeeping.

Courses from five months to five years in length, leading to up-to-date farming, competent housekeeping and professional careers in Agriculture and Domestic Science.

Teachers with first-class certificate are offered a three-year course to prepare for teaching Agriculture in High Schools.

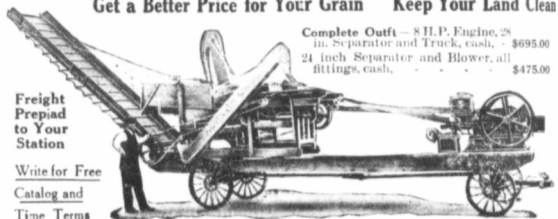
Send for Calendar

J. B. REYNOLDS, M. A.
President

Manitoba Agricultural College
Winnipeg

STOP Paying Threshing Bills!

Get an Outfit of Your Own Save Your Grain
Get a Better Price for Your Grain Keep Your Land Clean



Complete Outfit - 8 H.P. Engine, 28 in. Separator and Truck, cash, \$695.00
24 inch Separator and Blower, all fittings, cash, \$475.00

Freight Prepaid to Your Station

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Cast Iron Breakages Welded

We can save you many dollars—not to speak of loss of time and endless rejections if you will send us all your metal breakages. We can do any repair job that can be welded by the Oxy-Acetylene process in Cast Iron, Steel, Bronze, Malleable Iron, Cast Steel, Copper, Aluminum.

WE OWN AND OPERATE THE Oldest and Largest Oxy-Acetylene Welding Plant in the West

Do not hesitate to send us your Broken Cylinders, Cylinder Heads, Connecting Rods, Crank Shafts, Engine Beds, Bull Pinions, etc. We will return them as good as new, and stronger, where mended, at a great saving.

We do not attempt to repair certain castings on which a saving cannot be effected. Send your inquiry now. Do not wait until spring before you have your work done. We will be pleased to give you figures on any work before sending to us.

TRUST US WITH YOUR WORK—SATISFACTION POSITIVELY GUARANTEED

ALL INQUIRIES PROMPTLY AND CHEERFULLY ANSWERED BY MAIL

Manitoba Welding and Mfg. Co.

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58 PRINCESS STREET

WINNIPEG

\$11.00 per used were team weigh and the otl and as fo run it, it road. It e days till th and the pa bearings ge that it ran

The crop heavy, from of wheat to bers told a great mist that I had l told me that of them for the States. I would have chine if I w that their fi that their st one another, and forty sh it was impos to handle it. into their fie it handled it a light field, were too big had to narro We put on otes and the going some, through thres pleased with handled their

ARMERS AND THRESHERMEN—ATTENTION!

Have you purchased your Season's Supply of Oils and Greases? If not, you should immediately get in touch with us on our special proposition. We are a Winnipeg house selling direct to the consumer, thereby saving to you all dealer's profits.

We do not handle job lot oils. All our oils and greases are strictly high grade lubricants put up specially under the name of

"SUNBEAM"

We positively guarantee every oil and grease we sell. Your money back, as well as carrying charges, if you are not thoroughly satisfied. Our line consists of—

STEAM CYLINDER OIL
GAS ENGINE CYLINDER OIL
HARVESTER OILS
COOLING OILS, MACHINE OILS

GRAPHITE, CUP GREASE
TRANSMISSION GREASE, AXLE
GREASE AND GEAR GREASE
BELT DRESSING AND SUCTION HOSE

Do not delay ordering until you absolutely need Oils and Greases, but fill in the Coupon to-day and allow us to show you just how much we can save you on your season's requirements.

PHILLIPS & WINDRUM Ltd.

WINNIPEG - MANITOBA

Phillips and Windrum, Ltd., Winnipeg.
Please send me your special oil proposition. I will require about gallons of oil and pounds of grease. I shall also want feet of suction hose.
Name Town Prov. C.T.F.

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Grain
Clean

695.00
475.00

ROSE
RTA

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\$11.00 per day. The horses we used were of a small size, one team weighing twelve hundred and the other ten hundred pounds, and as for a gasoline engine to run it, it would only be in the road. It did run hard for a few days till the horses got used to it and the paint got off it and the bearings got oiled up and after that it ran easy.

The crop this year was very heavy, from forty to fifty bushels of wheat to the acre. My neighbors told me that I had made a great mistake when they heard that I had bought a Loader; they told me that I could get a carload of them for nothing if I went to the States. They told me that they would have to get another machine if I was going to keep it, that their fields were that heavy that their stooks were touching one another, and as many as thirty and forty sheaves in a stook, that it was impossible for the machine to handle it. But when we got into their field with our machine it handled it just the same as in a light field, only any stooks that were too big for the table my man had to narrow them down to fit. We put on our loads in two minutes and they thought that was going some, and when we were through threshing they were well pleased with the way that it handled their crop for them.

There were quite a lot of men came to see your machine working, and they told me they had no idea that it could do the work that your machine was doing, with the stooks so heavy, and so much loose sheaves. Now for what it saved the farmer this year was from five to eight bushels to the acre, for in a heavy crop like this year there was a lot of loose sheaves, for it was a hard year to keep their binders in repairs. Now for what it saved me per day is this: other years eight teams at \$6.00 per day—\$48.00 per day; this year four teams at \$6.00 is

\$24.00, and two teams and Loader man at \$11.00 per day, \$35.00.

Other years \$48.00
This year 35.00

Saved 13.00
Three men's board ... 2.25

Saved per day \$15.25
For threshing thirty days, saved \$457.50.

I think that I have made it plain that a man with a threshing machine, big or small, cannot run his machine successfully without one of your Sheaf Loaders.

Yours truly,
CHARLES KEYES



Fair Stranger—"Oh, Sir! Do stop my dog fighting!"
Nervous Patriot—"Er-w-we are all fighting to-day, Madam. H-he's got the right spirit. I-I must not interfere." (Makes off hurriedly)

A Granular Mulch—Not a Dust Mulch

By a Canadian Farmer

THE treatment of summer-fallow will necessarily be widely different on soils of varying texture and mechanical condition. To preserve a granular mulch on sand is more difficult than on heavy loam or clay. As the granular mulch is less liable to drift, it is important that it should be conserved on fallows. Quite as important is the fact that capillary evaporation is lessened when the surface soil particles are large and of irregular size, the small particles in the dust mulch aiding capillary rise of moisture to the surface, where it is lost.

On friable loam I find it necessary and advisable to put an extra horse on the plow and turn up an inch of firm, unweathered soil; not necessarily new soil, but a little deeper than was plowed since the last fallowing. This is packed as plowed with a corrugated surface packer, which leaves the surface in small lumps. If well plowed, this packing will leave the surface level, and it is as well not to harrow till weeds germinate. By harrowing when dry, weeds are easily killed and the granular condition will be preserved. For stistles, grasses and wild oats other implements are needed than the harrow. The

cultivator with narrow teeth gives excellent cultivation in stinkweed, wild oats and grasses, works well in trashy ground and leaves the surface in better condition than the disk—both granular and level.

For thistles and other deep-rooted plants the duck foot teeth are necessary to cut the plant off below the soil. This is a more difficult implement to handle. To ensure good work the land must be packed and trash roots and sods pulverized or removed. The teeth should scour and be kept bright and sharp. In sharpening, care should be taken to grind on the under side only. To repeat the cultivation it may be necessary to again pack the land unless it is quite dry.

The tongues of cultivators are adjustable, and the best work will be done when running the blades level; in fact, any adjustment that will make the machine cut clean, as this is necessary in thistles especially. The disk harrow is more generally used because it can be handled by any one and works under almost any conditions, and for this reason will always be popular, but it destroys the granular mulch and makes the surface liable to drift with the wind. If care is used to take advantage of suitable conditions for cultivating, the cultivator will give better results. Weeds should be killed when very small. It is easier and more cheaply done and there will be less loss of moisture by transpiration.


To obtain good results, four points must be observed: Plow deeper than usual to bring up an inch or two of raw soil to the surface that will not pulverize too easily. Pack the fallow to hasten germination of weeds at the surface and facilitate work later with the duck foot cultivator. Kill weeds with the drag harrow rather than the disk, working when the land is dry. Use the narrow teeth for weeds other than thistles and cultivate lightly with this implement late in the fall and do not harrow after.

THE CO-OPERATIVE MARKETING OF EGGS IN MANITOBA

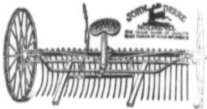
During the past six months considerable activity has taken place in connection with the organization of co-operative marketing associations in the Province of Manitoba. A number of the associations, which have been organized are now shipping their eggs co-operatively, and others will commence shortly. In contrast to the usual methods of marketing eggs, those produced by the members of the co-operative associations are shipped direct to the larger centres, and the members receive a cash price for their produce.

This method of marketing has

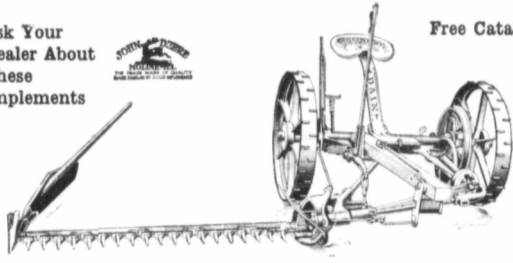
Ask Your Dealer About These Implements



Free Catalog



John Deere Sulky Rake



John Deere Mowers

THE SIMPLEST SELF DUMP RAKE EVER CONSTRUCTED.

THE LEVER CONTROL IS PERFECT.

The mower with compensating or balanced gear. Gears arranged in pairs; each pair holds the other in mesh, giving the best transmission. Cuts all the grass over any ground on which a mower can be operated.

JOHN DEERE PLOW CO. LIMITED

WINNIPEG
REGINA
SASKATOON
CALGARY



CHEW

STAG

TOBACCO

"Ever-lasting-ly Good"

many advantages over the old system of trading eggs for goods at the local store; viz., for the improved quality of eggs marketed a higher price is received; shipments are made more frequently; the quality of a perishable food product is conserved; by means of the "case plan" method of identification the goods are paid for according to quality; and finally, the farmer himself is given, in cash in hand, definite tangible evidence of the magnitude of the returns received from the poultry on his farm.

That the work initiated to date has met with general approval is evidenced by the number of requests for meetings which have been received. These requests have been complied with as quickly as possible, but owing to the inclement weather previous to seeding, there still remains quite a number of places to be visited. Plans are being made to follow

up this work immediately, and as many meetings as possible will be held during the month of June.

It is proposed, when a sufficient number of local associations have been organized, to federate these and form a Provincial Association which will operate its own warehouse and grading station in Winnipeg.

In brief, the method of organization recommended for local units is as follows: In districts where a number of producers have expressed themselves as anxious to undertake the marketing of eggs and poultry co-operatively arrangements are made to hold a meeting and the whole subject explained. If the matter under consideration meets with general approval, arrangements are made to adopt a definite constitution and by-laws. A number of directors are appointed, and they select from among themselves the officers of the association, who in turn ap-

point a collector or business manager, whose duty it is to arrange for the collection, shipment, and disposal of the eggs.

It is customary, also, to arrange at the time of the organization, for the system of financing, whereby the necessary cases, fillers, and other equipment necessary to properly carry on the business may be purchased. Some capital is also necessary in order that the members may be paid with reasonable promptness for their eggs.

Anyone desiring further information regarding the co-operative marketing of eggs as outlined above would do well to communicate with Mr. R. J. Allen, Hargrave street, Winnipeg, the Manitoba representative of the Poultry Division, or with the Assistant Live Stock Commissioner, Ottawa, in charge of the Market Policy of the Dominion Live Stock Branch.

35 H. 29 H. 22 H. 20 H. Also h. \$39

Cash

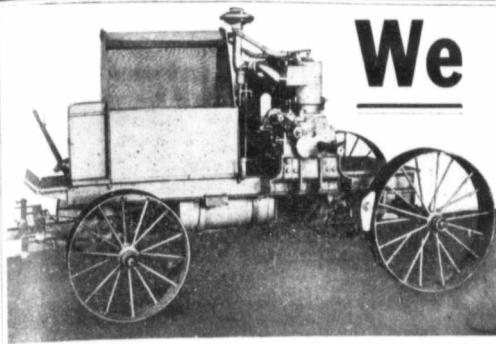
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Another to sunstroke or h is brought and insuffic The direct responsible which very animal on Some of symptoms weariness, p cult breathin temperature which grad and upon th muscular tr The treatme heat stroke move the an well ventilat a stream of over the hor



We Need the Money!

and to get it quickly and honestly we propose sacrificing all profit and a big slice of original cost on the following lines of

Farm Power Machinery

TRACTORS, STEAM	
35 H. P. Double Cylinder (rebuilt)	\$2,900.00
23 H. P. Northwest (rebuilt)	1,000.00
PORTABLE ENGINES	
22 H. P. single cylinder, portable, Geiser (new)	\$805.00
22 H. P. single cylinder, portable, Geiser (rebuilt)	603.00
20 H. P. single cylinder, portable, Geiser (rebuilt)	500.00
Also have a couple of 20 to 22 H.P. portables which will rebuild and sell at about \$350.00 each.	

GADE AIR COOLED GAS ENGINES	
6 H. P. (new)	\$150.00
6 H. P. (rebuilt)	115.00
OHIO ENGINES	
15 H. P. Standard (new)	\$328.75
12 H. P. Standard (new)	306.50
11 H. P. Special Hopper cooled (new)	189.00
12 H. P. Standard (rebuilt)	200.00
8 H. P. Standard (rebuilt)	175.00
INGECO KEROSENE ENGINES	
10 H. P. Farm Engine Hopper cooled (new)	256.35
2) H. P. Farm Engine, Hopper cooled (new)	65.00

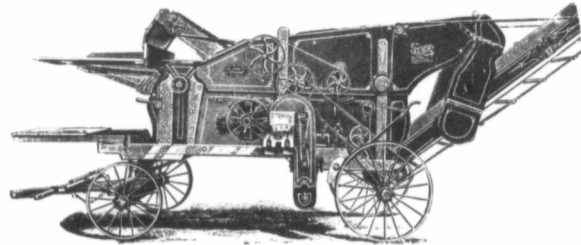
BADGER ENGINE GAS STANDARD	
14 H. P. (rebuilt) good order	\$150.00
GASOLINE TRACTORS	
45 H. P. 4 cylinder Tractor (rebuilt)	\$1,200.00
45 H. P. 4 cylinder Tractor (new)	1,750.00
Manitoba Universal (rebuilt)	600.00
GEISER SEPARATORS	
AA Sep., 40x60, complete (rebuilt)	\$1,000.00
A Sep., 36x36, complete (new)	1,064.29
B Sep., 37x39, complete (rebuilt)	600.00
4 Sep., 24x32, Straw Car (new)	400.00
4 Sep., 24x32, with Blower (rebuilt)	550.00

A FEW FEED GRINDERS

6 Inch Superior Grinder, \$18.00

Cash Prices, but Reasonable Terms Can Be Arranged in the Case of Tractors.

Write for any details you want, and merely state what you need.



R. S. EWING, 200 Union Trust Building, WINNIPEG

Heat and Horses

Sunstroke is caused by the direct rays of the sun falling upon the skull. A horse so affected may die suddenly as though stricken with apoplexy or he may have a gradual paralysis of respiration. The symptoms which usually present themselves are restlessness, pawing, spasms and a marked redness of the mucous membranes lining the cavities of the head. The temperature in sunstroke may not rise above normal during the whole course of the disease.

Another condition very similar to sunstroke is that known as heat stroke or heat exhaustion. This is brought about by over exertion and insufficient heat elimination. The direct rays of the sun are not responsible for this affection which very often occurs to an animal on a cloudy, sultry day. Some of the more prominent symptoms of heat stroke are weariness, profuse sweating, difficult breathing, an extremely high temperature, and a rapid pulse, which gradually grows weaker and upon the approach of death muscular tremors will be noted. The treatment for sun stroke and heat stroke are the same. Remove the animal to a cool, quiet well ventilated place and permit a stream of cold water to flow over the horse and if possible ap-

ply ice packs to the head. If ice is plentiful apply it all over the body.—S. O'Toole, North Dakota Experiment Station.

Hot-Weather Rules for Horses

1. Load lightly, and drive slowly.
2. Stop in the shade if possible.
3. Water your horse as often as possible. So long as a horse is working, water in small quantities will not hurt him. But let him drink only a few swallows if he is going to stand still. Do not fail

to water him at night after he has eaten his hay.

4. When he comes in after work, sponge off the harness marks and sweat, his eyes, his nose and mouth, and the dock. Wash his feet but not his legs.
5. If the thermometer is 75 degrees or higher, wipe him all over with a damp sponge, using vinegar water if possible. Do not wash the horse at night.
6. Saturday night, give a bran mash, lukewarm; and add a tablespoonful of saltpetre.

7. Do not use a horse-hat unless it is a canopy-top hat. The ordinary bell-shaped hat does more harm than good.

8. A sponge on top of the head, or even a cloth, is good if kept wet. If dry it is worse than nothing.

9. If the horse is overcome by heat, get him into the shade, remove harness and bridle, wash out his mouth, sponge him all over, shower his legs, and give him two ounces of aromatic spirits of ammonia, or two ounces of sweet spirits of nitre, in a pint of water; or give him a pint of coffee warm. Cool his head at once, using cold water, or, if necessary, chopped ice, wrapped in a cloth.

10. If the horse is off his feed, try him with two quarts of oats mixed with bran, and a little water; and add a little salt or sugar. Or give him oatmeal gruel or barley water to drink.

11. Watch your horse. If he stops sweating suddenly, or if he breathes short and quick, or if his ears droop, or if he stands with his legs braced sideways, he is in danger of a heat or sun stroke and needs attention at once.

12. If it is so hot that the horse sweats in the stable at night, tie him outside, with bedding under him. Unless he cools off during the night, he cannot well stand the next day's heat.



EXPLICIT.

Officer—"There is a mine just about here. It is finished now, and may go up at any moment. When it does, I want you to blow this whistle."
New Arrival in Trenches—"Yes, sir. B-but w-when . . . ?"
Officer—"When?"
New Arrival—"G-g-going up, Sir, or c-c-coming down?"

OUR YOUNG FOLK

CONDUCTED BY Cousin Doris.

Girls' Cosy Corner

Queer Little Historians

Just a raindrop loitering earthward.

All alone,
Leaves a tiny "tell-tale story,"
In the stone.

Gravel tossed by teasing water
Down the hill,
Shows where once in merry laughter
Flowed a rill.

In the coal bed dark and hidden
Ferns (how queer)
Left a message plainly saying:
"We've been here!"

You may see here tiny ripples
On the sands,
Leave a history written by their
Unseen hands.

Why, the oak trees, by their bending
Clearly show
The direction playful winds blew
Years ago.

So our habits tell us, little
Maids and men,
What the history of our whole past
Life has been.

ADVANTAGES OF HOUSEHOLD SCIENCE TRAINING FOR COUNTRY GIRLS

By Miss Marjorie M. Goldie, Instructor in Household Science, Olds, Alberta

Along with the advances in the study of agriculture and other sciences has come the increased study of housekeeping—more scientific housekeeping or home-making is today the aim of the mothers for their young girls. Economy is the cry, not only of funds but also of time and energy. With the high cost of living and with the great demand on the family purse, economical and scientific housekeeping is necessary.

Years ago everything was done in the home, foods were grown in the fields and prepared in the kitchen, fabrics were woven and garments made, but these industries gradually went out of the home and into the factory.

One of the disadvantages of life on the farm has been the inferiority of the education obtained by the average child in the rural school. Alberta, being an agricultural province, has not been behind in the matter of bettering the opportunities for the education of the country boy and girl. Why have institutions been built for the instruction of agriculture and household science? Simply, because the study of agriculture has become a science, and because the study of housekeeping has become a science also, and if this science of housekeeping were more carefully studied and its principles followed, there would be less need for the services of doctors, dentists and druggists, whose occupations to a certain extent thrive on the ignorance of the people.

For years the men had the preference as far as scientific training is concerned, now the importance of the woman is more fully realized. The woman on the farm has been discovered as it were, or perhaps it is that she discovered herself, and efforts are now being made to better the conditions for her there—to make them more attractive and more comfortable. It is for the man to provide or produce the means for livelihood for the

family, but even though the man "provide the house," it is for the woman to "make the house". A mother is really a jack-of-all-trades. And in carrying out the manifold duties thrust upon her, the more the mother knows, the more successful will she be.

The Value of Scientific Training

Monotony and drudgery are two qualities of housework on the farm to which many country girls make objection. Many of them are ambitious to leave the

course, is necessary, but to bind one's self down seven days in the week to peeling potatoes, washing dishes, etc., is a poor existence. Surely there is something better to live for.

The average girl who attends our school is between the ages of fifteen and twenty-five, the years when the character of the girl is being developed, when habits are being formed. A girl at this age is very sensitive, and self-conscious, but by daily contact with other girls

who came for the sewing and dress-making to enable them to go out into the world and make a living. Some came for the cooking, and the advantage a scientific knowledge of this subject will be to them. Long before the study of feeding babies was scientifically investigated, balanced rations for the farm animals had been drawn up. The health more often is due to improper food than anything else, and a scientific knowledge of proper food for health and for disease, for the infant, and for the aged, would be of great value to the rural housekeeper. There are many good cooks in the country, but there are very few who know the proportions of ingredients for the various food preparations—who know why the various steps in bread making are essential, or who can account for failures in cooking. That is what these young girls are taught—the underlying principles of bread, cake, and pastry making.

Why do some of the girls prefer to sew? What advantage is it to them? Sewing is an art which seems to be going out of the home as the garments from catalogue houses are coming in. Being enabled to make a complete set of garments for herself, she increases her knowledge of textiles, develops her originality, and in the study of embroidery and house furnishings she learns how to beautify her surroundings and make them more attractive and comfortable. Pure textiles are as important as pure foods and a knowledge of good qualities ensures more economical expenditures. The young girl today is rare who can buy the material and make for herself a complete set of garments well fitting, reasonable in price and good in quality. But with the training given in this subject the girls are better fitted to choose suitable materials and make their required garments.

Even though they learn to make themselves more economically, they should be taught to preserve their garments, so laundry work is taught them. Another can wash, you say. Yes, but there are proper and improper methods as in other housework. In the scientific study of the four fabrics, cotton, linen, wool and silk are dealt with, methods being considered of laundering the white to preserve the natural whiteness and the colored ones to preserve the dyes, different agents being necessary for the various fabrics and various colors. She is also taught to remove the various stains without destroying fabric and color.

Owing to unsanitary conditions in proper food, etc., there is much sickness in the rural home, and home nursing is a subject on which every mother should be more or less familiar. The girls are given a very complete course in this subject, and it should be of great assistance to the housekeeper on the prairie, when the doctor is too far distant for emergencies.

The ideal home maker should not have her interest only in the study routine of her work—she should not be weighed down by her household responsibilities. She should be able to take her place in the community, in the social circle and in the literary club. For the young boys and girls at the school literary meetings are held, English lectures being also given, and they are encouraged to do more and better reading during the long winter evenings. Such evenings are also held and these, too, are an important place in the education of the young girl. She observes the opinions of others and profits by her own experiences.

There are some who may say the mother is the one to teach the young girl. But if the mother has not the



"GOOD-BYE, OLD MAN"

An incident on the road to a battery position in Flanders.
(A picture of human interest that needs no explaining.)

farm for city life. Unless they are interested in their work they are not going to make a success of it. The scientific study of various methods creates or develops an interest. Work can afterwards be done with a great deal more intelligence, more interest and with greater success.

Without any preparation in scientific housekeeping it is possible for a young girl to keep house, and it has been done successfully. The only aim of many housekeepers on the prairie is to provide three square meals a day. Food, of

many sharp corners are rubbed off—more easily and more effectively than if at home. She observes what other girls are like and unconsciously she has before her an ideal which she is constantly imitating or following. On the farm her girl chums are few and far apart, she seldom has any choice.

By asking some of our students why they came to the school to study household science, I discovered some interesting facts. Some intend to practice in their own homes, some intend teaching it in the public schools, and there are others

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THE FOLL SCOUT

Scoutmaster, siderable dil quest, from p the Boy Scoo such as coll flags, etc.

"Generally locally, and there against opt is to put



Agricultural Bulletins

... for ...

Manitoba Farmers

Every farmer in Manitoba should possess himself of a good library of Agricultural Bulletins written by the members of the Manitoba Agricultural College staff and other Agricultural authorities. This is the very best possible class of Agricultural literature. The bulletins are concise; they deal with practical questions; their authors know Manitoba conditions at first hand; they present the most advanced information on the subjects discussed. They are FREE to all Manitoba Farmers.

Below is presented a partial list of Bulletins and Circulars recommended to every farmer in Manitoba. Apply to Extension Service, Manitoba Agricultural College, Winnipeg, or Publications Branch, Department of Agriculture, Winnipeg.

VALENTINE WINKLER

Minister of Agriculture and Immigration for Manitoba

BULLETINS
Former Series)
Issued by Manitoba Agricultural College

1. Horses in Manitoba
2. Twelve Noxious Weeds
3. Care of Milk and Cream
4. The Farm Garden
5. Farm Poultry in Manitoba
6. Hog Raising in Manitoba
7. Cow Testing
8. Repairing Farm Equipment and Roads
9. Plans for Farm Buildings
10. Ganning and Preserving (Fruit)
11. The Farm Flock (Sheep)
12. The Care of Cream for Creameries, Storing of Ice and Grading of Butter
13. Boys' and Girls' Clubs
14. Hay and Pasture Crops in Manitoba
15. Silo Construction and Ensilage Production
16. Beekeeping in Manitoba
17. Wood-working Problems

CIRCULARS

1. The Farmers' Beef Ring
2. A Plea for Bird Houses
3. Our Friends, the Birds
4. Hints on Home Nursing
5. Meat and its Substitutes
6. What Every Girl Should Know
7. Poison Ivy and other Poisonous
8. Cream for Creameries (Plants)
9. Method in Dressmaking
10. Pork Making on the Farm
11. Servants in the House
12. Fodder Corn in Manitoba
13. Alfalfa Inoculation
14. Barley Growing
15. Improving the Farm Egg
16. Growing Plums in Manitoba
17. Growing Cherries in Manitoba
18. Control of Insect Pests
19. Pruning Trees for a Cold Climate
20. Spray Mixtures (mate)
21. Tree Pests and Cut Worms
22. Treatment of Alkali Soils
23. Rye as a Weed Eradicator
24. Cultivation After Harvest for Weed Control (Crop)
25. Marketing Manitoba's Wool

Manitoba Farmers' Library

Published Monthly by the Manitoba Department of Agriculture

This is a new monthly Bulletin series, dealing with Agricultural and Sanitary Matters, mailed free regularly to every Manitoba Farmer who applies to have his name added to the mailing list. The Bulletins of this series so far issued are:

Extension Bulletin

No. 1. Lightning Control.

No. 2. Barn Ventilation.

No. 3. Standing Crop Competitions and Seed Fairs.

(Any of the above sent on application.)

If you wish to apply for this monthly series of Bulletins, fill in below and mail

Publications Branch,
Manitoba Department of Agriculture
Winnipeg

Dear Sir:—I am a Manitoba farmer. Please enter my name on the mailing list for the Manitoba Farmers' Library Bulletins.

NAME

P. O.

PROVINCE

C.T.F.

inclination herself, how can she impart it to her daughter? The young girls may not make use of all the information every day, but it is nice to know how to do things when the occasion arrives.

One writer says, "Knowledge gives power and whenever one's knowledge on a subject has passed the stage of drudgery and become a science, its performance immediately becomes a pleasure. The ability to do a thing in the highest known perfection, or a little better than some one else, is always a source of delight, and it little matters what that something is." Another writer says, "There will be no trouble with the kitchen end of the house when the women take the same pains to know their business as men do."

Naturally every specialist thinks his subject is the most important, but for the country girl a course in household science would give her fresh interest, fresh enthusiasm in her work and knowledge to assist her in every branch of her life work. It would make her fit educationally, socially and physically to carry out the many problems that will be placed in her hands in the days to come.

tion of being a sort of cheap advertisement to the detriment of their Scout-character-training."

It is natural that in getting up fetes and demonstrations the first thought of the organizer is: "Oh, let's get the Boy Scouts to parade and do it for their good turn. Tell them it is patriotic and for the good of the cause, and it will be allright."

It may help officers in such a predicament to be able to quote the fact that our movement is an educational one for training the lads in character, and is not an organization for supplying public displays. When it is possible for a Scout to do a public service, which is at the same time educative to him, we encourage him to do, as promoting his sense of duty to others, but where it is a matter of making a display, or of touting and begging, it has a distinctly harmful effect on the lads. I feel confident that those who have the best interests of the country at heart, will take this point of view into consideration, and will absolve the boys from taking part. Baden-Powell.

THE BOYS' PLACE IN THE WAR

"In my mind the boys of the country have a very definite place in the war—in the war that comes after this war—namely, in the struggle for industrial and commercial success which is going to raise the country out of the havoc brought about by the existing crisis, and which will consolidate for us to-morrow the results of victories won by our men on the field to-day, and will compensate for our losses.

"That war will be going on for the next ten or twenty years and will be won by the country whose citizens are then the best equipped in spirit and ability for their great work.

"To this end all our energies should be concentrated on training the rising generation to the fullest possible extent in individual character, technical efficiency, physical health. With this foundation they will make efficient citizens, and equally, if need be, the most efficient soldiers.

"But to dress them up in khaki and to teach them to play at soldiers under the allurements of the existing war

fever, is, to my mind to trifle with a very serious situation and with a very big national opportunity."

Baden-Powell.

SOMETHING EVERYONE CAN DO FOR THE EMPIRE

To the Editor Canadian Thresherman and Farmer:

Dear Sir:—I have noticed a number of communications and articles from some of the citizens of this Province in which they state that they are willing to do anything to help out in the present crisis created by the war. Some are willing to go to the ends of the earth, to ascend into the air, or descend to the depths of the sea, to find an avenue and opportunity for service, and yet, right at their own door there is a field for service lying open, and at their right hand an opportunity ready to be seized which will mean service of the very highest kind. There is an insistent, and I might say, consistent, demand on the part of the boys and girls of this city and province for leadership, such as heretofore, they have not been able to obtain, and a congenial environment such as has not been provided for them in the past. Almost daily I am receiving requests for the organization of troops of Boy Scouts, and companies of Girl Guides, and the only thing that is holding back the development of these kindred organizations, is the lack of leaders. There are men who cannot wear the King's uniform and there are women who cannot serve their country on the fields of France or Flanders, but no man or woman with a desire to serve King and Country, need remain long without having that desire gratified. Men are wanted to lead the boys; women are wanted to act as leaders and advisers to the girls, and we shall be pleased to give all necessary information to any who may be willing to render services that will be of permanent value to the state and this great national crisis in which we are engaged.

Yours faithfully,

A. T. M.

Our Boy Scouts

THE FOLLOWING BY THE CHIEF SCOUT IS OF IMPORTANCE

Scoutmasters tell me they find considerable difficulty in dealing with requests from people desirous of exploiting the Boy Scouts for their own purposes, such as collecting subscriptions, selling flags, etc.

"Generally these people are influential locally, and to decline is liable to set them against the movement, while to accept is to put the boys in the false posi-



Sentry—"Halt! Who goes there?"
The Challenged: "A friend wif doughnuts."
Sentry—"Pass Friend—halt doughnuts!"

OUR WOMEN FOLK

CONDUCTED BY
PEARL RICHMOND HAMILTON

MINISTRY OF THE MOTHER

Stokey S. Fisher

Rocking the cradle, the tasks that be
friendied
Lonely hours of the long day ended;
Rocking the cradle and watching the
road!
Mother rocking the cradle and humming
Lullabies, waiting for father's home-
coming!
Never more richly a woman's heart
flowed
Constant in love,—for love was her
whole life,—
Made into music, true key of the soul-
life!
Summer and winter, winter and sum-
mer,
Rocking the cradle, each little new-
comer
Welcome! So faded the years away;
So I remember her; (God makes such
mothers,
Self all consumed in light to help
others);
Changeless the years as the changeless
day!
Only at night-fall ease from the burden,
Love's hour, at rest-time the toilful day's
guardian!
All the day given for good and for rai-
ment,—
Paid as love's price, and willing the pay-
ment,—
Weary the hand, but the heart un-
fatigued!
Humble her tasks, but high as love's
duty;
Poor was her cottage, but rich as love's
beauty!
Ever the heart with hand's work
leagued,
Serving like Martha, devoted as Mary.
She of the home made a heart sanc-
tuary!
Glassing the Heart divine, and giving
Good of it forth in her daily living.
Wearing love's crown and wanting no
other,—
Wholly womanly, faithful and fervent,
Never she guessed she was God's best ser-
vant,
Holiest minister, being a mother!
She by her gifts made the whole world
debtor,
Never she knew it till snapped was life's
fetter!

HOME ECONOMICS

We feel our readers have a rare treat
this month as this department has
received excellent papers from the H.E.S.
We wish to encourage the societies to
send in papers read at their meetings for
the help it will give other societies.
We should like to give credit to the so-
cieties for they are very helpful and
contain information on the most impor-
tant subject of to-day. Owing to hold-
over on space, we are compelled to pre-
sue several excellent reports till next
month.

A GIRL'S PREPARATION FOR MAR- RIAGE; OR TRUE MARRIAGE

(Read to Deloraine H. E. S. by Mrs. J.
Rankin)

When we speak of preparation for mar-
riage, our thoughts naturally turn to the
many and varied articles of fancy work,
and artistic embroidery, which the bride-
to-be has carefully stowed away in the
bottom drawer, or some such sacred
place. Then in another corner will be
the house linen, house furnishings, etc.,
which the fond mother loves to bestow
upon her daughter, and fortunate is the
girl who has a loving mother to partici-
pate in the important event. But during
the busy and happy days of getting

ready, are we mothers not apt to over-
look another, and far more important
phase of preparation? Do we bear
in mind that our girls are starting out
on a journey that we have already
travelled? We have gained experience,
and learned some lessons. They may be
sad lessons perhaps, but in summing life
up we find that it takes the touch of
sadness to make the joy more compete.
In the anxious days that we are passing
through, I am confident that many of

seed in their little souls, that would
bear good fruit in after years. When
we hear expressions such as this: If I
had only known; If I could only go back
20 or 30 years. It is then we see our
shortcomings, it is then we think of the
generation coming behind us; and it is
for this purpose this subject is under dis-
cussion to-day.

The most perfect marriage is the one
where a young man and a young woman,
prompted by sacred love, choose each

for usefulness and service are being
brought into power. The days of fine
lace and embroidery are on the wane.
We are facing a new age. We live from
day to day scarcely daring to look into
the future. Perhaps you have noticed
the motto printed on our programme
card: "Shall we not be one race, shaping
and welding the nation?" What an op-
portunity for the young mothers of to-
day, shaping and welding the nation,
that sounds very lofty and far-reaching
but nevertheless it is true. How is this
to be done? Nations are not made of
provinces, nor property, but of people,
and after this great world conflict is
over, many of our best nation builders
will be silenced forever. Who, then, is
going to shape and weld the coming
generation. We women must do it. The
young mothers have a large share in
this, the most of the power is in their
hands. But to get at the beginning of
things, we must go back to the perfect
marriage, and the little children who
come as gifts from God, to bless that
home.

Few parents, just at first, fully realize
the responsibility, and the sweet privi-
lege, a little child brings to them. To
train the tender mind is a sacred duty.
Great care should be taken that no tri-
vial, so-called social duties come be-
tween the mother and her little child.
She has a new responsibility and a very
heavy one, although it is a privilege
peculiarly designated to the mother. We
sometimes see selfishness creeping in and
depriving the young child of its right,
and therein the mistake begins. In these
days of scientific research and probing
of theory, we are very delicately inform-
ed (by Dr. Stoll and other authorities)
that we mothers have within us the
power to determine the character of our
child, even before its birth. This seems
hard to believe, but nevertheless
it is worth trying. We have an example
in the bible where Hannah conserved
her unborn babe to the Lord, and we
know she was not disappointed. If the
expectant mother braces her mind on the
ideal child, and lives the life she wishes
for her offspring, thinking only good
thoughts, allowing nothing sordid to en-
ter her mind, keeping before her
mind's eye a picture of the na-
tion builder she wishes to raise. What
an uplifting effect this will have on her
self even if her child received no benefit.

Lord Kitchener said the war would
never end until we have mothers of this
type. He meant that war of some kind
would rage until we have mothers that
will strive and endeavor to raise men
strong physically and mentally—up-
right and full of integrity. This means
much self denial on the mother's part—
but after all it is an easy and pleasant
duty compared with the sacrifice we
older mothers are called upon to make at
the present time. While talking on this
subject we feel that this is a serious
age we are facing.

Our promising boys are passing from
us one after the other and the empty
places remind us who are left behind
that now is the time to take a grip on
things and make a stand for that which
is good. The young woman who will
make the sacrifice and follow along these
lines is just nobly doing her bit for her
country as the soldiers of the king.

ON THE SAME TOPIC

(Paper read by Mrs. Hugh M. Kenzie)

At this time when woman is taking
such a prominent place in the world's
work, when she is invested with the
dignity of the ballot, when she is legally
acknowledged as co-worker with man



"SKIPPER" OF VICE-ADMIRAL SIR DAVID BEATTY: LADY BEATTY

Wife of the youngest Admiral in the British Navy, and only daughter of a world-
known American millionaire, Lady Beatty is of extreme interest to the public in view
of the victory over the Germans achieved on January 24th, in the North Sea, by her husband,
Sir David Beatty, K.C.B., M.V.O., D.S.O. Lady Beatty, who was married to Sir David
in 1901, and has two sons—David Field, and Peter—is the only daughter of Mr. Marshall
Field, Sr., of Chicago, whose vast "dry-goods" store was one of the first and biggest things
of the kind which even the United States could boast. Sir David was only twenty when
he was married to Miss Ethel Field. When the war started, Lady Beatty fitted out her
yacht, the "Sheila," as a hospital ship, and offered to accompany it to any naval base the
Admiralty might appoint. No American lady in Britain stands so high in the affection and
esteem of Queen Mary and the Queen mother, Alexandra, as does Lady Beatty.

us feel, that if we could only once again
be allowed to step back to the days of
preparation, we would lay up with our
treasures some higher ideals for our
future homes, wherein our children are
to be raised, and guided, and influenced
by the atmosphere therein. When we
see our boys and girls grow up, and per-
haps verge away from the path we ex-
pected them to follow, it is with vain
regret that we look away back into the
first years of their little lives, and we
remember how we struggled to provide
their bodies with food and clothing up
to date, and in many cases sacrifices
were made so that our children might
have advantages that we ourselves never
had. But are we quite as sure that we
made the same effort to plant the good

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when grave responsibilities are thrust upon her through changing circumstances, woman is surely coming into her own and more.

With these conditions there is a possibility that woman's influence in its most potent form may not be as fully prized and strongly exercised as it should be. I refer to the direct influence of the mother on her child, even before it is born.

There is a grave danger to the race in this great war, which demands and takes the best manhood of the country. Already there has been a great drain on the best of our men, more and more are preparing to fill the gaps, and we know that many of these will never return. The aged, the physically unfit remain. These may be deemed unfit for military service but many of them will be the fathers of the coming generation. Herein lies the danger. The fall of Rome can be traced partly to this policy, of draining the country of its best men and leaving behind the weaklings to perpetuate the race. The war of Napoleon is another striking example. This war alone is said to have lowered the stature of the French race two inches. These facts speak for themselves. There is a vital need at the present time for a study of the cult of parenthood.

We are not merely the citizens of today, but the trustees of to-morrow. You may ask how are we women to help out in these conditions. Well, right here we may make practical use of vote, in forming laws, which will help make for better condition in motherhood and child life.

But each of us in her own sphere can do her part to uphold the higher ideals of parenthood. If before this war started there was a fear of race suicide, what will the conditions be now?

Parenthood at the present time should receive far more than the usual amount of attention. Until the coming mothers are given direct training along these lines, they are at a disadvantage. How much money, time and energy is spent on higher education for our girls, but how very, very little in the most important duty of all—that of wife, and mother. Why is it that eugenics, the most important of all subjects to the human family is so little considered in our system of education. The greatest need of our age is knowledge of the laws of our being. It is a point on which the future of our race depends. I believe that the enlightenment of mothers and daughters on all topics, pertaining to their mental, moral and physical conditions, is the surest way of correcting many of the physical ills and adverse social conditions. Are we, the mothers, who have learnt by costly experience, frank enough with our children? We acknowledge that we have been blind and ignorant to many of the possibilities that were within our power. Let us teach our girls to make the best of themselves from a physical standpoint, and the mental attitude should accord with the same ambition.

What will awaken our girls to the responsibilities of the immediate future? Perhaps they will be better physically when they have to do more of the manual labor that has up till now been performed by her brothers. This, with a portion of the education so much sought after, will equalize the standard, for it seems to me, much of the higher education of today leads away from the home and its common duties, duties that should be a pleasure, but are now accounted drudgery.

A girl is to be judged, not by the figure she cuts in society, but by her manners in the home circle.

Every girl should hold in her mind, marriage as a possibility, and should therefore prepare herself for its high and sacred responsibilities.

It is easy for a girl to say in a freakish mood, that she will never marry, but no girl knows, or can know, what she is going to do. A girl may at a certain stage in her development have no desire for marriage, because of ambitions for a career, but these are generally short lived, and are apt to die out quite suddenly. Ambition for a career is seldom so deeply rooted as are home making instincts that are at the basis of every woman's life.

Great men of all times have traced their lofty ideals, and indeed the whole

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You save money by using flour that bears this name. And you get Better bread.

PURITY

"More Bread and Better Bread" and "Better Pastry Too"

521

success, to their mothers, and a mother's influence on the mind and body of her child is stronger than that of the father, and on this fact rests the hope of a glorified humanity through the development of an intelligent motherhood. "Know thyself. God given forces. Ne'er should mate with brute or clod; But the high star of their courses, Fight with him, who fights for God."

THE PRESENT DAY WOMAN'S PATRIOTISM

By S. G. Snelgrove. (Read Before Deloraine Society.)

In order to get a good look at our present day patriotism we must look back to those days before Aug. 4, 1914. Till then our ideas of patriotism consisted chiefly of teaching the children to sing patriotic songs and to memorize gems of patriotic poetry. Our conception of love of our native land was expressed by those poets who sang of it as:

"Lake land and river land

Land twixt the seas,
Land of great mountains,
Thick forests, red gold,"
but when the end of that poem came and said:

"Grant us, God, wisdom to value our heritage
Courage to guard what we hold."
We slipped over it and only vaguely grasped its meaning.

The day of war was over. We were too finely tempered to stand such a barbarity of a bygone age, and so we hurried on in a mad rush for wealth, power or pleasure, little dreaming that while attending peace conferences, and making pretended friendly visits to England, Kaiser William was spying out our land and planning to make of it a German colony. What was to have been done with us has not been explained, but judging by subsequent events we can only shudder and pass on.

Then the blow fell. Apparently from a blue sky the thunder bolt of war was hurled over an unsuspecting world. While we were busy with our picnicking, pre-

serving or harvest preparations we saw the storm coming and we shuddered and winced before it. "It is only a passing shower," we said, "it cannot last," and we rushed to cover and to draw our own people closer to us. Some must go, but our boys were needed home, their lives were too promising to be sent out before a passing cloud like that. Thus in those awful panic stricken days of the beginning of the war we felt and acted.

Then came the cry for help from poor broken Belgium and the tales of atrocities which seemed to be beyond belief and yet were only too true. All over the land money, clothing and bedding were subscribed and gathered in great amounts for a peaceable and home loving people rudely thrust from their homes. Just how much was obtained I do not know, but we know it was a great deal and we proved that present day women can work as well as weep. The weeping is unavoidable but while other Rachels weep for their children we shall not be comforted. Our patriotism is beginning to broaden and while we love our own land we cannot love it to the exclusion of all other lands. We, because we want, above all things, to guard the destinies of our land, want also to see that the women of Belgium, of Serbia, of Russia, France, Italy and Britain, and also the women of Germany, Austria, and even Turkey get a chance to guard the destinies of their lands. Because, just as one poor home in a community lowers the standard of the whole community, so the existence of one poor country; one country of low ideals and gross ambitions lowers the standard of the whole world.

Then too came the call for nurses, and nurse after nurse went forth as also did lady doctors in England to do what they could to ease the pain and suffering of those "who die for England." That they were brave enough to face death has been proven more than once. For instance, Nurse Cavell and a body of nurses on a boat on the Mediterranean, who, when help came to take them from a sinking boat said: "Fighting-men first." Many women from the other belligerent nations have done brave deeds and died bravely for the sake of the land and principles they love. Russian women are in some instances fighting with their brothers in the trenches and just as bravely.



Dear Old Silly—"And where do you two come from?"
Wounded Australian—"We're Anzacs, madam"
Dear Old Silly—"Really? How delightful! And do you both belong to the same tribe?"

We can not enumerate for we do not know exactly what women are doing in this great crisis, but we know that the great base hospitals and advanced clearing stations for attending the wounded are reported to be well supplied with materials, and it is principally the work and management of women which gets it there. All this we have done and must continue to do. Woman's sacrifice has been great, but her work is a blessing in that it keeps her hands occupied and her mind a little easy.

But as we look at these facts and record the amount of work done, what are we doing to try and solve the problem of readjustment which must come at the close of the war. While we are in the thick of the fray it is hard to see beyond the chaotic confusion which it causes, but of this must come peace, and what shall it be? Will we be content to take life as it comes, to be satisfied with small social functions and trying to alleviate the suffering in our midst by the present day methods of charity which aims at the effect rather than the cause? Will we be content to "dress in purple and fine linen and fare sumptuously every day," while quite within our reach or the reach of our influence, women are struggling under financial burdens, grievous to be borne, and little children are acquainted with hunger and cold, to say nothing of stunted minds and weakened morals.

Canada is a great country and has a glorious future if we only realize in time our deep responsibilities.

We women of Manitoba are particularly marked. We have the vote, and on us are the eyes of the other eight provinces. What shall they see? Shall we go on as has been done in the past, range ourselves in two opposing groups, each trying to baulk the best as well as the worst efforts of the other? Or shall we try to bring about that ideal state of affairs described by Macaulay as:

"When none was for the party
And all were for the state,
When the rich men helped the poor
And the poor men loved the great
And Romans were like brothers in the
brave days of old."

Dare we revise that spirit and change the word Romans to Manitobans? If we could, Manitoba would indeed be the banner province and an inspiration to the rest.

To the men and women of all Canada has been given the largest task in nation building in all history. I am unable to read that during the boom years in the quote exact figures but somewhere in United States immigration, it meant about four persons to every so many native Americans, but during our boom years of 1911 and 1912 it was many times greater, using the same ratio.

These people come with a great many hopes and fears, but very often, we fear, it is the fears, rather than the hopes which are realized. It is a great task to make Canadians of these people, and one which can never be accomplished by a spirit of condescending contempt. We must realize that while they have a great many ideals of which we cannot approve, they also have a great many traits by which it would be well for us to learn. In teaching a foreign child to learn English I always found him very willing to learn from me if I in turn asked and tried to remember the name which was familiar to him. He believed in reciprocity.

In dealing with this problem we must remember two things of great importance, the first is the golden rule, and the second, that patriotism is loved and "love suffereth long and is kind." Also, realizing our own shortcomings, we must not expect too much of our neighbors.

Now it seems to me this is a pretty large order and one which will need a very great deal of study to learn to handle in anything like a satisfactory manner, because when we begin to study it we will find that the more we learn the deeper will we be drawn into a new field.

In the midst of all our uneasiness it seems to me that the following stanzas from Tennyson have a message for us:
O yet we feel that somehow good
Will be the final goal of ill,
To pang of nature, sins of will
Defects of doubt, and taints of blood.

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That nothing walks with aimless feet;
That not one life shall be destroyed,
Or cast as rubbish to the void,
When God hath made the pile complete;

That not a worm is cloven in vain;
That not a moth with vain desire
Is shrivell'd in a fruitless fire,
Or but subserves another's gain.

Behold, we know not anything;
I can but trust that good shall fall
At last—far off—at last, to all,
And every winter change to spring.

So runs my dream, but what am I?
An infant crying in the night,
An infant crying for the light,
And with no language but a cry.

ORGANIZED PLAY

By Myrtle Taylor Lewis. (Read before Deloraine Society.)

There is no question but that organized play is becoming, and will become, an important phase of school life. Teachers, parents, and even the department of education, are demanding that

during the recess periods the children should be under the supervision of the teacher to avoid increasing the immoral talk and actions, which are only too common among school children; and also to train them in virtues which belong as much to play as to work—honesty, fairness, courtesy, etc. The organized play deals with the three fundamental sides of development, namely, the physical, the mental, and the moral.

Naturally a child becomes more or less cramped, or deformed, from leaning over a desk. To prevent any permanent physical defect, it is necessary to relax those muscles, and develop others, which receive no practice, except in exercise such as belong to play. The parent says: "Well, if that is all they need, I can give them plenty of exercise." That is true, but again, the kind of exercise obtained at home only effects certain muscles, and the others, remaining undeveloped, become practically useless. Running, jumping, ball-throwing, dodging, etc., keep all the muscles in action.

The Greeks said: "One must have a strong mind in a strong body." The better the physical development, the keener

the mind provided that due proportion of time is given to each. Children do only concentrate for a limited time at some take full advantage of their limitations. Hanging around the school-room, or walking in little groups discussing the day's work, the teacher's attitude towards them, some injustice which they consider that they have received, or other similar subject, does not tend to produce good work, because the mind is still working on the same lines. A real laxation, which demands the attention centred on competition from the physical development reacts upon the mental. When a child is running for a game playing tag, or building sand-men, they are not worrying about whether they know their arithmetic or geography, or what punishment they will receive if the work is not prepared.

But more important than even physical or mental development is the development. The supervision of play will overcome a lot of the time-wasting outrages, which are perpetrated on the playground, such as slapping and other's ears, and hand to hand fighting which are often not serious in the

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selves, but which often develop into worse trouble. It is very much easier to right an accident when it takes place, and when the teacher actually observes the various phases of the accident.

A teacher's presence demands a proper restraint in the use of language. Pupils are apt to use language when by themselves, that they would refrain from using in the presence of a teacher, or if they do use it, the evil can be corrected before it spreads.

The general tendency among modern children is to become "grown up" too soon. The girls particularly consider that it is not dignified to play games, and yet conduct themselves in much less dignified undertakings, such as fooling with boys, walking along the street, attracting every person's attention, with their loud conversation, and their unladylike actions. Here again, this notion would be dispelled for the general opinion would be: "I think we can do this, if the teacher can."

In choosing games, one must avoid too many small groups, for they are usually the breeders of any immoral conversation. The games for larger numbers help to create a better social relationship between the classes and groups. The demonstrative and hasty tempered pupils are taught to control their feelings, while the unresponsive and retiring dispositions broaden to the sense of comradeship, and relationship. The playground is the social leveller, where all are treated by the same rules and regulations, and where each pupil stands upon his or her relative merits.

Rules being a necessity, every child must follow the rules laid down, and consequently there can be no cheating, no taking advantage of some child's weakness or nervousness, no little underhand action, that always leaves an unpleasant savour or if such occurs it can be righted before the habit becomes ingrained. If the child really learns that fair play is demanded, and insisted on, it will become part of the child's nature, and will be transferred to his or her outlook on life for a later period, as the habits acquired in childhood are the habits of the adult, only they are more pronounced.

The teacher should direct and demonstrate very carefully at the beginning of the game and after that, the children are quick to see the viewpoint and attack the game. One critic remarked that "Teachers are about as useful on a playground as a policeman at a parade." This should not be, for they should be on the alert, and act as impartial judges in giving decisions, not being swayed by any personal feelings, for there is no place where a child's resentment is so keen as on the playground, and no place where influence can be so easily lost.

The teacher must be quick to see the possibilities of the pupils, and to decide upon the possible leadership, though it is always advisable, where possible, to let the pupils choose their own leaders, for they have a greater feeling of responsibility.

Wherein lies the responsibility of the parent? If this organized play is to become a success, we must have the co-

operation of the parents. The main reason why so many teachers do not take part in the games is because so many children do not prepare any work at home, and as a result, the unprepared work must be done during the period intended for recreation, and the teacher cannot leave this work. Again, too many parents are willing to take the biased view of a child in regard to school events, and do not encourage their children in the very fundamental principle of all character—obedience to proper authority—which after all is the beginning of wisdom. The parents' responsibility lies in the fact that they insist on the children having their work prepared, and encourage them in defence and respect, so that these qualities may be shown on the playground as well as in school.

The department has suggested the following equipment for playgrounds: Sand boxes, football, baseball, basketball, longball, swing, bar for chinning, and jumping standards. For a four-roomed school, the estimated cost is about twenty-five dollars, which would be increased proportionally for a larger school, and the cost of erection would be extra, but the school itself, might be responsible for that work.

Persistent demands from a society like the Home Economics, or pecuniary assistance, might hasten the accomplishment of organized play as a reality, in some of our town and rural schools.

BIG KITCHEN VERSUS SMALL KITCHEN

By Mrs. T. Atkinson, Manitou, Man. Personally I prefer the small kitchen, providing you have doors and windows sufficient to let in lots of air and light. When I say I like a small kitchen I want a large pantry, where all the kitchen utensils can be kept.

If I were building a home of my own, would have the kitchen on the north or east where I would get all the nice morning sun and miss the afternoon heat. Would have it about 12x12 and a nice large pantry between kitchen and dining room with swing door between dining room and pantry and no door between kitchen and pantry. On one side of the pantry would have a cupboard, the upper portion built with glass doors for the china and the lower with wooden doors for all the tins, etc. On the other side for baking and drawers and bins built in. Over one end of the table would have a cupboard large enough for the food.

In the kitchen I would have a sink with an enamel draining board. A table and stove also a leaf table attached to the wall with hinges for special occasions. This is the most convenient thing I have in my kitchen. Want all the wood-work white enamel paint and floor either linoleum or paint. Prefer painted wall to sanitas and would suggest a pale green as a pleasant color. Also a pair of nice white muslin curtains on the window and if possible a nice plant. You know a housewife spends more than half her life in and around the kitchen so I say by all means have it cheerful, as a person working in dismal surroundings cannot be happy and pleasant.

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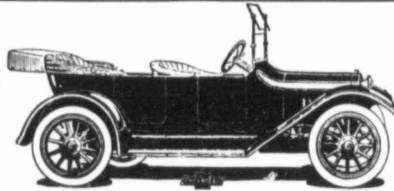
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3 1/4 POUNDS

(three and one-quarter pounds) of No. 1 Northern wheat, between 1st April, and 31st July, 1916. The wheat is a fair sample of No. 1 Northern obtained from the Dominion Grain Inspector at Winnipeg. On the closing date (31st July, 1916), the kernels will be counted by the three judges whose photographs appear on this page. No one has or can have any knowledge of the number of kernels the bottle contains, because the wheat was sealed up in the bottle and locked away without being counted. The contest is open to every bona-fide farmer in Canada except residents of Winnipeg. Seven hundred and twenty-five dollars is the price of the car. It is all complete with Electric Starter and Lights, Mohair Top, Windshield, Ameter, Speedometer, Tools, etc., and will be delivered to the winner F.O.B. Winnipeg.

Please find enclosed \$5.50 for (10) years subscription to The Canadian Thresherman and Farmer. Extend my already paid up subscription which expires January 17 to January 1927. Wishing you success with your paper, also that one of the estimates is the lucky number. I will look forward to 10 more years good reading anyway, also for that car.
Marengo, Sask. Robt. Vorsey

This Is



The Car

SOME ONE WILL RECEIVE IT YOU CAN BE THE LUCKY ONE

Why You Can Win

Don't think that the right number has been recorded. There are a good many thousand kernels in three and one-quarter pounds of wheat and a difference of one kernel will win you the car.

Don't put off another minute. Send your estimates in to-day because the contest positively closes on 31st July, 1916. Estimates received after that date must bear a post mark dated 31st July, otherwise you will be disqualified.

Whatever your age or experience, you enter the contest on equal terms with anybody else. Don't be afraid to try. Winners of previous contests have written us afterwards stating that people tried to discourage them and tell them they would not win a prize. But what a laugh these lucky winners had when they were able to show they came out on top.

Each of the three judges will examine every estimate submitted by each contestant after the wheat is counted. Neither the publishers of this paper, nor anyone else, know any more about the correct number of kernels in the bottle than you do. There are no "correct" answers picked out in advance. The board of judges will have sole authority to award the automobile to the first person making the correct or nearest correct estimate.

Here Are The Judges



W. J. FIELDS
Asst. Inspector of Weights and Measures



D. D. CAMPBELL
Dominion Shippers' Agent



J. B. ATTRIDGE
Scale Inspector Dominion Weights and Measures

On the morning of August 1st these three gentlemen will start in to count the wheat. Mr. D. D. Campbell, Dominion Shipper's Agent, will receive an order on the Union Trust Company for the bottle of No. 1 Northern, which has been locked up in the vaults of that concern since April 1st. It is a tedious task to count three and one-quarter pounds of wheat and in order to insure absolute accuracy it will in all probability be the 4th or 5th of August before the result of the Contest is known.

This Is The Wheat

Can you tell how many whole kernels there are in this bottle?

There is no speculating or guessing in this competition on something which has to be ascertained. The kernels (weighing 3 1/4 pounds) have been placed in the glass bottle reproduced here, sealed up in the presence of two witnesses in the office of the Dominion Inspector of



Weights and Measures, photographed and deposited in the vaults of the Union Trust Company, Winnipeg, where it will remain until the contest closes, July 31, 1916.

The photograph shows the actual bottle of wheat after it had been weighed and sealed. The cut of course shows it very much reduced in size.

Enclosed please find \$5.50, my subscription to The Canadian Thresherman and Farmer for 10 years. The following are my estimates of the number of whole kernels in 3 1/4 pounds of No. 1 Northern Wheat, Hoosier, Sask. W. A. Berry

How To Send Your Estimates

Everyone who sends us a subscription direct to this office between the date mentioned, for The Canadian Thresherman and Farmer, either new or renewal, is entitled to estimates as explained below. These estimates may be credited in whatever way you desire, and you may send in as many estimates as you wish in accordance with the schedule below. Remember every additional estimate increases your chance to win the car. Estimate now and increase your chance of winning, because it is the first one who estimates nearest to the number of whole kernels that wins the automobile. Estimates will be accepted as follows:

- 1 year's subscription at \$1.00 gives you 3 estimates.
- 2 years' subscription at \$1.50 gives you 7 estimates.
- 3 years' subscription at \$2.00 gives you 11 estimates.
- 4 years' subscription at \$2.50 gives you 15 estimates.
- 5 years' subscription at \$3.00 gives you 19 estimates.
- 6 years' subscription at \$3.50 gives you 23 estimates.
- 7 years' subscription at \$4.00 gives you 27 estimates.
- 8 years' subscription at \$4.50 gives you 31 estimates.
- 9 years' subscription at \$5.00 gives you 35 estimates.
- 10 years' subscription at \$5.50 gives you 40 estimates.

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Coupon

E. H. HEATH CO., LIMITED, Winnipeg.

Please find enclosed \$..... for..... years'

subscription for The Canadian Thresherman and Farmer to be sent to

Name.....

Address..... Prov.....

My estimates as to the number of whole kernels in 3 1/4 lbs. No. 1

Northern wheat are:.....

If more space is required for names and estimates, use a blank sheet and attach securely to this coupon.

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HOMEMAR

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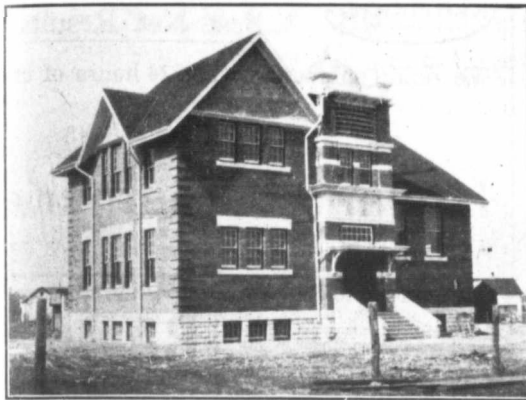
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At Claresholm, Olds and Vermilion



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HOMEMAKERS IN CONVENTION

I have just returned from the Homemakers' Convention in Saskatchewan. It was the greatest yet, and that is saying something. At many of the sessions there were between three and four hundred women, practically every one a farm woman, and what a bright lot they were! They took the bit in their teeth, and they are running away with the University. It will be tagging along behind in a year at the present rate. It will take a pretty modern and active university to keep pace with the women of the Homemakers' Clubs of Saskatchewan.

"What did they do?" you ask. These women, took hold of the great, and the small problems that are facing us all at this time, and with a seriousness and determination most admirable, set out to find a solution if there was one, and if not to make one. There was nothing weak or vacillating in their attitude. They were the sturdy oak and not the clinging vine. This was the woman's opportunity. The men were at home keeping the machinery there in motion, and the women were determined, not only to get something for themselves, but to carry home something of value to their men folks.

The Ruthenian Women

One of the most interesting features of the Convention was the address by Mrs. Kirstuik, the president of the Ruthenian women's Homemakers' Club of Theodore. This is a club of thirty women all from across the Atlantic and most of them divided from us by the barrier of language, but as Mrs. Kirstuik said, they felt like orphans, and they wished to be adopted into the Homemakers family. A club was organized with them last year and thirty of them joined, and when the Canadian women of the district in their Homemakers' Club, offered to assist them they were most grateful, but they declined. They said they would do their best to bear their own share of the work.

Mrs. Kirstuik, is their president, and when she was called upon to give her paper at the convention, she received an

A Woman's Talk to Women

By LILLIAN BEYNON THOMAS

ovation. The women, clapped and clapped, and women have never been considered good clappers, but there was no doubt about the feeling behind that clapping. Never again would Mrs. Kirstuik and her fellow countrywomen feel that they were orphans, if the Homemakers of Saskatchewan could prevent it. Mrs. Kirstuik gave a brief account of the early history of her people and explained the oppression that had kept some of them ignorant, even of their

own past history. She spoke of their longings and dreams of better things, and when she finished, she had made a place for herself in the hearts of her hearers.

The First President

On this page, I am glad to be able to show the picture of Mrs. Thorburn, of Broadview. Mrs. Thorburn is an enthusiastic member of the Homemakers Clubs, and she has the honor to be the first president of the first Homemakers'

Club in Saskatchewan. When the movement was in its infancy, in fact, was only a dream in the minds of a few, and there were many to discourage the idea of organizing the women into clubs, Mrs. Thorburn saw a vision of what might be. She realized the need, of greater co-operation among the women, and she encouraged in every way possible those who were anxious to get the women together, for greater helpfulness.

The first Homemakers' Club was organized in Broadview with Mrs. Thorburn as president. Since that time Mrs. Thorburn has attended most of the conventions, she has taken an active interest in the work through the province, and her own home has always been open to any of the workers who went her way. She is one of that splendid type of pioneers who not only grow with the times, but lead the times.

Municipal Hospitals

A question that came in for a great deal of discussion at the convention just over, was the hospitals. In this time of tragedy when the preservation of life is more important, or at least seems more important than ever before, the question of better means to save life in the country districts faces the people.

It is a well known fact, that many mothers, as high as one in three it was said, are injured in child-birth, simply because they are not properly cared for at that time. This is such an appalling percentage, that it is time both men and women began to seriously consider the question. That is what the women of Saskatchewan have been doing. The question they have been asking is, "How can we get proper care for the rural mothers of this province?"

At the last session of the legislature, they had an act passed allowing a municipality to tax itself for a hospital. It was the general opinion of the women present that there must be municipal hospitals, and that they must have them soon. Up to the present time, the women have been depending on the Victorian Order of Nurses for assistance, and the work done has been good, but the more satisfactory and permanent way is by the establishment of municipal hospitals



AT SEWELL?

Orderly Officer—"What are you doing without your rifle, Sentry?"

Tommy—"Beg pardon, Sir, but I ain't the sentry"

Orderly Officer—"Who are you, then, and where is the sentry?"

Tommy—"Oh, he's inside out of the rain. I'm one of the prisoners."

It is likely that something along this line will be done soon for back of the movement there is not only the Homemakers Clubs of the province, but the Women Grain Growers, and many other organizations of men and women.

NURSES AND MORE NURSES

Many country districts reported that already they have engaged a nurse and without exception the verdict was, that they would not be without one now for anything. There has been no trouble about the nurses' time, as all have been willing to let her go to the one needing her most, and as all realized that she could not be in two places at once, there has been no fault finding.

It was interesting to note, that in districts where they could not have both a doctor and a nurse, most of the women seemed to prefer to keep the nurse. It speaks well for the class of women, who have trained for the profession of nursing, that they have made themselves so quickly a very highly valued part of the community.

The way the nurse is paid in some districts is interesting. She is guaranteed a salary of four hundred and eighty dollars, and her board and room and washing, as well as transportation. The committee in charge of getting the nurses makes the charge for her services, and collects her fees. If the amount collected does not pay her salary, those who have a right to her services subscribe the extra amount or in some cases it is paid by the Victorian Order. So far as I could determine from talking to those who have a nurse in the district, they do not as a rule collect enough fees to quite pay the nurse, but they have no difficulty in making up any extra amount, as everyone is so pleased to have her in the district they would make any effort necessary to keep her there.

There are nurses in other parts, not engaged in this way, but this is the system followed by a number, and it has worked very well. The class of nurses secured seems to have been very good, and the good results of having such a trained woman in the district cannot be estimated in dollars or cents or cures made. No doubt many nurses do their best work in preventing disease and death, which is much finer than curing.

Reading in the Home

One of the most inspiring papers read at the Convention, was one on reading in the home. It was read by Dr. Wilson of the University and the first thing he did was to make his audience feel that he loved books. The second was, that in books there is a hidden world, that may be opened to the poorest child, for a few cents, if the parent only knows where to find the key. Dr. Wilson picked the members of the convention up, and in a sentence transported them back to their environment, in their homes, but a glorified environment, an environment through which marched all the peoples of the world both past and present, and with them in little bound volumes they carried their dreams and visions and discoveries, all an offering laid at our feet, begging us to take it, and make it part of our own.

Eighty books Dr. Wilson mentioned, as books we would find it well to make our own on our march through time. This list, he did not intend to exclude other books, but with these he thought any boy or girl, might open the doors into a thousand joys, they would otherwise miss. Below I give the list of books.

Books, the Key of the World

1. Andersen's Fairy Tales.
2. Hawthorne's Wonderbook and Tanglewood Tales.
3. Grimm's Fairy Tales.
4. Fairy Tales form The Arabian Nights.
5. Aesop's and other Fables.
6. Kingsley's Greek Heroes.
7. Kingsley's Water Babies.
8. Tales of Ancient Greece, by Sir G. W. Cox.
9. Asgard and the Norse Heroes. Translated by Mrs. Boulton.
10. Ruskin's Two Boyhoods and other Passages.
11. Mother Goose's Nursery Rhymes.
12. Lamb's Tales from Shakespeare.
13. Hughes, Tom Brown's School Days.
14. Defoe's Robinson Crusoe.
15. Swift's Gulliver's Travels.

16. Alcott's Little Women and Good Wives.
17. Jules Verne's Twenty Thousand Leagues Under the Sea.
18. Uncle Tom's Cabin.
19. Thomas Bullfinch's, The Age of Fable.
20. Clarke's Tales From Chaucer.
21. The Boy Hunters of the Mississippi, by Captain Maine Reid.
22. Lord Lytton.—Harold.
23. Lord Lytton.—Last Days of Pompeii.
24. Charles Kingsley—Westward Ho.
25. Alton Locke.
26. Charles Kingsley—Hypatia.
27. Goldsmith—Vicar of Wakefield.
28. Blackmore—Lorna Doone.
29. George Eliot—Silas Marner.
30. George Eliot—Adam Bede.
31. Cooper—The Pathfinder.
32. Cooper—The Deerslayer.
33. Cooper—The Prairie.
34. Thackeray—Vanity Fair.
35. Jane Austen—Sense and Sensibility.
36. Chas. Dickens—Old Curiosity Shop.
37. Chas. Dickens—Nicholas Nickleby.
38. Chas. Dickens—A Tale of Two Cities.
39. —40-42. R. L. Stevenson—Treasurer Island, Kidnapped, David Balfour or Catrina).
43. Victor Hugo—Les Misérables.
44. Hawthorne—House of Seven Gables.
45. —46-47-48-49-50-51. Walter Scott—Ivanhoe, Old Mortality, Heart of Midlothian, Kenilworth, The Talisman, Quentin Durward, Tales of a Grandfather, and in fact all of Scott's novels should be within the reach of every child.
52. Jane Porter—Scottish Chiefs.
53. Cervantes—Don Quixote.
54. Bunyan—Pilgrim's Progress.
55. Ruskin—Sesame and Lillies.—Two Paths on Art.—King of the Golden River.



Mrs. THORBURN, BROADVIEW, Sask.
First President of the first Homemakers' Club in Saskatchewan

56. Carlyle—Heroes and Hero Worship.
57. Carlyle—Essays on Robert Burns and Walter Scott.
58. Emerson—Essays, first and second series.
59. Lincoln—Speeches—with introduction by Rt. Hon. James Bryce.
60. Marcus Aurelius—Meditations.
61. Irving—Sketch Book.
62. Bacon—Essays.
63. John Burroughs—Birds and Poets.
64. Plutarch—Lives of Illustrious Men.
65. Darwin—Origin of Species.
66. Darwin—Voyage of the Beagle.
67. Huxley—Essays.
68. Scott—Poems.
69. Longfellow—Poems.
70. Wordsworth—Poems.
71. Poems—Through Business Street.
72. Tennyson—Poems.
73. Browning—Poems.
74. Shakespeare—Macbeth, Merchant of Venice, As You Like It, Romeo and Juliet, Midsummer Night's Dream, King Lear, A Winter's Tale.
75. Homer. Odyssey—translated by Butcher and Lang.
76. The Bible, especially the four gospels.
77. Canadian Almanac—Yearly.
78. Canada Year Book, from Department of Interior, Ottawa.
79. Everyman's Encyclopedia, 12 volumes, for six dollars.



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W. C. T. U. DOMINION CONVENTION

This certainly is the month of conventions and Saskatchewan appears to have its full share. The Dominion Women's Christian Temperance Union Convention is in session while I write this. This body has reason to rejoice as never before, for not only is much of their harvest ripe, but much has already been harvested, and they are rejoicing over the fact of many homes saved from destruction, and many lives saved from ruin, the ruin of

The Convention however is not the meeting together of women who feel that their work is done, rather it is a meeting of women who realize that temperance reaches much further than to a matter of drink, a gathering of women cheered by a glimpse of the light, and urged on to greater endeavor than before. At the time of the Dominion W. C. T. U. convention, the Equal Franchise Board of the province of Saskatchewan met in Regina. The programme before that board for consideration was one of the broadest and most progressive programmes that has ever been presented to a gathering of women of the west. Some of the points under consideration were: Securing the federal franchise, and so far as possible abolish the party system of politics.

In the matter of legislation, the women are aiming to secure for mothers co-guardianship of children, equal property rights for husband and wife, and revision of laws relating to the responsibility for illegitimate children.

The women also believe in equal pay for equal work, and in a minimum wage for girls and women.

For mothers, it is desired to have a maternity allowance, and for widows with minor children, a pension. There should also be a law making the desertion of a child a criminal offence.

The Franchise Board is also discussing the question of rural nurses, municipal nurses, and the state registration of nurses. In regard to the protection of young girls, the Board is discussing a law to protect girls to the age of twenty-one years, making life at least as valuable as property and making the owners of property liable for the respectability of the inmates of their houses.

The Board is also opposed to the manufacture, importation or sale of intoxicating liquor.

It is the desire of the women that no marriage license be issued until those desiring it can present a clean bill of health.

In the matter of the criminal code the women are asking that capital punishment be abolished, that all sentences except for murder be indeterminate, that striped suits be abolished, that the straight jacket and cold showers be abolished as punishment, that wages be paid to prisoners to be applied to the support of their families, and that prison methods be reformed making the aim of the prison to save those who have fallen into temp-

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tion. They advise a system of poor farms and industrial farms. In the matter of education the women are considering the matter of a uniform system of government schools, the teaching of English only in the primary schools and reading of the Bible in the schools. Also it is thought that education should be reformed making mental endowment as not be made a matter of sex. Child

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CHIROPRACTIC

WE KNOW BEFORE WE PROCEED AND THEREFORE WE INVARIABLY SUCCEED



DR. E. A. McPHAIL
Graduate of the National Chiropractic College, Chicago, also of the Foman Medical Review School of that city.

Napoleon said that the successful man was usually the man with the **best information**.

If this holds good in the world of war—with tenfold force does it apply to the treatment of disease.

Here knowledge is **LIFE**. Our first step is to **know** our case.



DR. H. J. MUNRO

We are not magicians or wonder workers even if we have succeeded in many cases which eminent physicians have pronounced incurable.

We simply **know** something that they didn't apprehend and we at once set to work in harmony with the simple course of **Nature**.



DR. G. M. FULLER
Graduate of the Davenport College of Chiropractic, Davenport, Iowa.

PUBLIC CONFIDENCE

As the direct result of so many recent conspicuous successes in the treatment of disease by **DR. MUNRO** (who is well known to many readers) it had become physically impossible for him to do justice to the constantly increasing numbers who have applied for his services. Under the circumstances he has been compelled to find assistance and is now happy to inform readers of the Canadian Thresherman and Farmer that he has been fortunate in securing as his associates the talented gentlemen whose names and status are given above: Since graduating in Chicago, Dr. Fuller has followed his profession with marked success for over 4 years in St. Catherine's Ontario. Dr. McPhail also has achieved an enviable fame in his own department, the post graduate training which he underwent at the Foman Medical Review School specially qualifying him in the accurate diagnosis of disease.

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That, in effect is the whole meaning of "Chiropractic" the underlying principle of which is a **perfect constitution through a perfect backbone**. There is **nothing new** in this branch of natural science. **The facts have always been there**, but men have been slow to apply them in the adjustment of abnormal conditions of the body to a condition which will guarantee perfect health. Chiropractic can not cure everything, but the following are several of the most prominent diseases the cause of which can be removed by Chiropractic adjustment.

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|------------------|--------------|---------------------------|---------------------|----------------|-------------------|
| Abscesses | Cancers | Epilepsy | Headache | Kidney Disease | Pneumonia |
| Anaemia | Catarrh | Eruptions | Heart Disease | Lung and Liver | Rheumatism |
| Appendicitis | Constipation | Eye Trouble | Hemorrhoids | Trouble | Sciatica |
| Asthma | Convulsions | Female Diseases | Indigestion | Lumbago | Spinal Meningitis |
| Bladder Trouble | Deafness | Fevers (Typhoid included) | Infantile Paralysis | Nervousness | St. Vitus Dance |
| Bronchitis | Diabetes | Gall Stones | Insanity | Neuralgia | Tumors |
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| Biliousness | Diphtheria | | Jaundice | Pleurisy | |

If we do not firmly believe we can successfully deal with your case we will not undertake it. In any event, there is nothing to pay unless we are completely successful, in which case our modest charges are what the **POOREST PATIENT** can easily meet.

If you are living at a distance—write us the briefest details of your trouble. If you can conveniently call, so much the better. **THERE IS NO CHARGE FOR A TALK WITH US. YOUR HEALTH IS SURELY WORTH A FEW MINUTES CONSULTATION.**

Drs. Munro, McPhail and Fuller

31 STEEL BLOCK Phone Main 234 WINNIPEG, MAN.

should be taught the duties of parent-hood, in our schools and also the duties of citizenship. It is suggested that there should be a test for the franchise, that there should be free representation, and that all members, Judges, municipal officers and others in office should be subject to recall.

The women are also considering the matter of the nationalization of natural resources such as the banking and transportation systems.

International Relations

In such a time as this no serious gathering of women could overlook the matter of international relations, and it is receiving the serious thought of the women. The matter of an international council of arbitration composed of men and women to ensure permanent peace among the nations, is the dream of some. Also international navy patrol of the high seas.

It is no time now, when the world is bleeding to death, for women to consider little things and they are not considering little things. They have reached out for the big things, and with a prayer in their hearts, and a song of hope on their lips, they are right lifting it forward, ready to stand or fall, fighting for the good of the world.

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in the new style packages? Twenty packages of thirst-allaying Tutti Frutti. A welcome boon to a soldier friend. Each stick separately wrapped in wax paper and tin foil. Opens up as fresh and full flavored as it left the factory. Any of five mellow flavors to choose from. Ask your dealer.

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MANITOU

May 8th, 1916. The May meeting of the Manitou H.E.S. was held on Saturday in the Orange Hall, with a good attendance of members and several visitors.

Letters of thanks were received from Ninnette for clothing sent by the society for the use of needy patients, from the Convalescent Soldiers' Home for a crate of eggs, and from the Red Cross Society acknowledging a bale containing 41 pairs of socks, six shirts, rolls of linen and cotton, and one quilt.

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Shaking down the Sunshine Furnace does not raise a dust. The fine ashes are drawn up the chimney; there is never that fine sprinkling of dust that lights on everything in the basement, and even floats up through the house. No. That is one thing the owner of a Sunshine Furnace never has to contend with. The Sunshine is as clean as a piece of furniture.

There are extra sturdy grates that turn with a long handle to crush with ease the hardest clinkers. A slight rocking that hardly requires stooping, cleans down the ashes. The ashes fall as the grates are shaken, for the sides of the fire-pot are straight. This saves bother—and heat; because if ashes bank up around the fire-pot they stop the radiation of heat. The ashes come out in a big ash-pan. There is no shovelling or spilling ashes about.

And the door is large, as it should be for convenience in firing up. Or if need be, a large chunk of wood will go through this door. The dampers can be operated from the rooms above. This saves you the nuisance of running up and down stairs to shut off the drafts and open up the check damper.

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Would you like to have definite information about the cost of installing a Sunshine Furnace in your home? Send the coupon for our booklet "Sunshine." At the same time, if you wish to know what it will cost to heat your own home, our Heating Engineer will tell you. He will show you how to plan the distribution of heat so as to get the utmost warmth from the coal you burn. No, there is no charge. Simply address him at

Kindly send me without expense on my part—

1. Your booklet on the Sunshine Furnace.
2. Also forms for filling out, so that your heating engineers can tell me how to order and install a system that will properly heat my home.

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It was decided to send another crate of new-laid eggs to the Convalescent Soldiers' Home. As May is always our patriotic month, the roll call was answered by patriotic quotations.

The Boys' and Girls' Club handled the entertainment part of the programme, giving songs and readings of a patriotic character, and the winners at the last Boys' and Girls' Club Fair read short papers, telling How I made my Prize Bread, How I raised my Prize Chickens, etc. The children gave excellent papers and their entertainment was much appreciated. A dainty tea was then served and the meeting closed with the national anthem.

June 5th, 1916.

The Manitou H.E.S. met in the Orange Hall on Saturday, June the third. In spite of a pouring rain the attendance was very good and a pleasant afternoon was spent. Short papers on "The Use

of Left Overs and on Meat Substitutes," were given, and much discussion and exchanging of recipes followed. Every one has some favorite dish coming under either one of these heads, and many helpful ideas were given.

The secretary for Red Cross work reported 28 pairs of socks and four pairs of towels sent in May. A donation of \$23.50 from Mrs. Swanson as a result of her tea and apron sale will go towards buying wool and other materials for Red Cross work. Ever since the H.E.S. took up Red Cross work the materials have been bought with money raised by the members at teas, sales, etc., and at the regular monthly meeting collections, none of the regular H.E. funds being used for this purpose.

Roll call answered by quotations from Cowper followed by tea served by the month's committee and the singing of the national anthem brought the meeting to a close.

Well Drills

For Drilling WELLS or BLAST-HOLES

Built to stand up under heavy work. Most economical and rapid drills made. Sizes and sizes for all purposes, with or without power.

Write for Circular
WILLIAMS BROS.
428 West State Street, Elaca, N.T.

Twelve Months of the Magazine for \$1.00

22-\$1.

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Is the IN THE More babies than any of cause of work milk. Porter's Foo food, and can and most del Porter's Pe from Sum Mothers need if they use 1 recomended sion.

Sold in tins at al Mothers are i sampled bo from George I Wines



Best for Baby

After many years' use by parents of all classes, in Royal Nurseries and humble homes, Savory and Moore's Food has the reputation of being a thoroughly reliable food for infants.

The experience of parents, nurses, and medical men all goes to show that babies do thrive remarkably well on this famous food, that its use prevents infant ailments, and that it builds up a strong constitution so important in later life. You may therefore bring up baby on Savory & Moore's Food with the assurance that you are doing the best you can for your child.

MOTHER'S GUIDE FREE

Savory & Moore's little Book, "The Parent's Guide," is full of useful information on Infant Management and contains chapters on Feeding, Teething, the Toilet, Infant Ailments, and many other subjects. It is just what a young mother needs, and will prove invaluable in the home. A Free Copy may be obtained on application to Savory and Moore, P.O. Box 1601, Montreal.

SAVORY & MOORE'S FOOD

Of all Druggists and Grocers

22-inch Switch \$1.98 Special

Switches Hair Goods

Ladies, send us your combings. We make them up into switches at 60c per ounce. We will add new hair as desired to combings at from \$2.00 upwards.

Satisfaction Guaranteed

Elite Hairdressing Parlors

207 Ederton Building WINNIPEG

Porter's Food

Is the very best for Baby IN THE HOT WEATHER

More babies die in July and August than any other time of the year because of wrong feeding on unsuitable milk.

Porter's Food is a nutritious cereal food and can be given to the youngest and most delicate infant.

Porter's Food Saves the Babies from Diarrhoeas and Summer Complaint

Mothers need not fear to wean baby if they use Porter's Food. Highly recommended by the Medical profession.

Sold in tins, 15c., 35c. and \$1.00 at all Drug Stores

Mothers are invited to send for free sample and booklet about feeding baby, from George Porter, 305 Victor street, Winnipeg.

Among our Advertisers

ELECTRIC LIGHT IN THE FARM HOME

So inexpensive, so convenient, safe and so far superior to any other method, of obtaining artificial light has an effective electric system now become that scarcely a single farm home will be without it any longer than it takes to install the plant.

It is not needful to enlarge on the mess, the accumulated filth and the constant danger associated even with the most approved system of oil, coal gas or acetylene lighting. Anyone who has handled these knows all about it, but he or she is not so keenly alive to the more hidden but no less real danger to health that lurks in the vitiated air caused by either oil or gas combustion.

An ordinary lamp or acetylene gas burner will consume as much oxygen from the atmosphere of a room as would five persons, while it is a thoroughly established fact that many lives have been sacrificed directly from this poisoned air—particularly through the ravages of diphtheria and tuberculosis.

Were it for no other reason than the convenience and safety it affords in the lighting of the stock barns and out-buildings, the comparatively small initial cost of a complete system of electricity would quickly be wiped out of all memory, while the "upkeep" is altogether inconsiderable.

We have great pleasure in directing the notice of our readers to the announcement of the Mainer Electric Company on page 45 of this issue. The Mainer Company has established an enviable reputation for its electric lighting specialties. It is not an "agency" but a Winnipeg manufacturing firm with a financial status of the first rank, always on the spot to make good any disappointment or supply delays without delay or unnecessary expense.

In designing the "Mainer Lighting Plants" the aim has been, first at perfection and secondly, at simplicity. It is a comparatively easy matter for any electrical man to put together a generator and a gasoline and put it on the market as a lighting outfit, but to design a lighting plant which may be safely left in the hands of the most inexperienced person and still have it give, year in and year out, satisfactory service is an entirely different matter.

We regret space in this issue to give many interesting features of this fine outfit for the farm home and country use generally. We can, however, speak in the strongest terms of the invariable success our friends have scored over a wide field in Western Canada and would strongly recommend any interested readers to get in touch with the Mainer Company.

A GREAT WONDER OIL

If the reader will turn to page 14 of this issue, he will find some striking particulars given of a new and remarkable oil which has recently been discovered and is now on the market, one of the effects of which is to sensibly reduce the almost prohibitive price of gasoline while it produces perfect lubrication, prevents carbon trouble and as a natural conse-

ERROR

In the advertising of the INDIANA MANUFACTURING COMPANY on page 25 of June issue, by an unfortunate printer's error, the meaningless phrase, "agents for," was prefixed to the name of "THE STEWART SHEAF LOADER CO." The name of this company should merely have been added to those preceding it as one more of the concerns authorized under license by the INDIANA COMPANY to manufacture the SHARP GRAIN-SAVING WIND STACKER.—Ed.

Visit the Exhibit

OF

The George White & Sons Co. Ltd.

AT

Brandon and Regina Expositions

And become conversant with

The First Quality Line

quence, greatly prolongs the life of the internal combustion engine.

Whether our readers are automobile or tractor owners, this new "Wonder" lubricant is of unusual interest and value to them. It is applied by pouring into the combustion chamber and is thus taken into the combustion chamber. There combustion separates the oil from the gasoline and the explosion sprays the oil on the surrounding parts. Wonder oil supplies the only possible method of lubricating every wearing surface of the engine. One scarcely realizes the wasted energy through friction which all automobile engines have to contend with. It is nothing uncommon for a machine which makes 6 miles per gallon of gasoline to secure 10 or 12 miles per gallon of gasoline with the addition of Wonder Oil. The small machine which has been getting 20 miles per gallon will increase its mileage to 25 or 30 miles per gallon. This is not the work of magic, but merely the every-day performance of Wonder Oil.

We have seen the testimony of quite a number of automobile and machinery men who have tested this oil and they unanimously agree that it does all that is claimed for it.

BIG MONEY AND QUICK RETURNS FOR YOUR CREAM

We are glad to put in a strong word for our friends the "Holland Creameries" whose announcement will be found on page 66. This is a strong company organized and operating in Winnipeg who guarantee to give the highest current prices for cream and to pay for all shipments of same consigned to them within 24 hours after receipt of the cream.

We can give an unqualified guarantee as to the high character and financial rating of the "Holland Creameries" and have not the slightest doubt that any of our readers having dealings with them will experience businesslike treatment and perfect satisfaction.

A NEW OIL PLANT FOR WINNIPEG

On another page of this issue will be found the advertisement of Phillips & Windrum who handle all classes of oils and greases. This firm is making an effort to reach the farmers of the Canadian West direct, and are doing their utmost to bring about the confidence in their product and their methods they feel they deserve.

To this end all their goods are sold on a "money-back" guarantee so that the purchaser takes no chance. If he does not get what he bargained for, he has the privilege of returning the goods and having his money refunded. All moneys that have been advanced for carrying charges will also be returned.

This firm has just moved into a large and well-equipped warehouse at Winnipeg and carry a large and complete stock of oils at all times.



"Personality is not purchasable—no bank book can compass it."—Anne Monroe.



HAWK BICYCLES

An up-to-date High Grade Bicycle fitted with Roller Chain, New Drivetrain or Hercules Coaster Brake and Hubs, Detachable Tyres, high grade equipment, including Mudguards, Pump, & Tools \$22.50. Send FREE 1916 Catalogue, for 60 pages of Bicycles, Sundries and Repair Material. You can buy your supplies from us at Wholesale Prices.

T. W. BOYD & SON, 27 Notre Dame St. West, Montreal.

PATENTS TRADE MARKS AND DESIGNS

Write for booklet, circulars, terms, etc.

FETHERSTONHAUGH & CO.

FRED. B. FETHERSTONHAUGH, E. C. M. E. GERALD S. ROXBURGH, E. A. S. C.

36-37 Canada Life Bldg. WINNIPEG

CHALLENGE COLLARS



Pace, Harrison, Limited

Winnipeg INSURANCE

- LIVE STOCK
- Fire
- Accident
- Sickness
- Automobile
- Plate Glass
- Liability
- Bonds
- Tornado

WRITE FOR AGENCY
Pace, Harrison, Limited
General Agents, Winnipeg



SYNOPSIS OF CANADIAN NORTHWEST LAND REGULATIONS.

THE sole head of a family, or any male over 18 years old, may homestead a quarter-section of available Dominion land in Manitoba, Saskatchewan or Alberta. Applicant must appear in person at the Dominion Lands Agency or Sub-Agency for the District. Entry by proxy may be made at any Dominion Lands Agency (but not Sub-Agency), on certain conditions.

Duties—Six months residence upon and cultivation of the land in each of three years. A homesteader may live within nine miles of his homestead on a farm of at least 80 acres, on certain conditions. A habitable house is required except where residence is performed in the vicinity.

In certain districts a homesteader in good standing may pre-empt a quarter-section alongside his homestead. Price \$3.00 per acre.

Duties—Six months residence in each of three years after earning homestead patent; also 80 acres extra cultivation. Pre-emption patent may be obtained as soon as homestead patent, on certain conditions.

A settler who has exhausted his homestead right may take a purchased homestead in certain districts. Price \$2.00 per acre. **Duties**—Must reside six months in each of three years, cultivate 50 acres and erect a house worth \$500.

The area of cultivation is subject to reduction in case of rough, scrubby or stony land. Live stock may be substituted for cultivation under certain conditions.

W. W. COLE, C.M.G.,

Deputy of the Minister of the Interior.
N.B.—Unauthorized publication of this advertisement will not be paid for.—64888.

William E. Knowles J. Franklin Hare
A. Benson, B.A.
KNOWLES, HARE & BENSON
BARRISTERS, SOLICITORS, Etc.
Solicitors for
Imperial Bank of Canada
Canadian Mortgage Association
Western Canada Mortgage Company
Offices: Walter Scott Building
Suite 409
MOOSE JAW, SASK., CANADA



Conducted for the benefit of Dealers, Threshermen and Farmers who have anything to sell or exchange. Five cents a word for each insertion.

FOR SALE.

Second hand rebuilt machinery at our Winnipeg Branch, consisting of:
Steam engines of all sizes, both traction and portable;

Gas and oil engines, also
Second hand rebuilt separators.
If you are looking for second hand machinery, it will pay you to get in touch with us. We can save you money. Our machinery is rebuilt in our own shops by competent workmen. We have a bargain for you. For particulars, address:
J. I. CASE THRESHING MACHINE CO.,
Princess and James Streets,
Winnipeg, Manitoba.

GEISER SEPARATORS 40-60, 35-50, 30-40, 27-39 and 24-32, new and rebuilt. Will be sold by liquidator this season. Will sacrifice at much less than makers' cost. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

TWO 45 H.P. GASOLINE TRACTORS, one new and one rebuilt, \$2,200 and \$1,700 respectively. These prices are far below what the material would cost at present date. This is a rare opportunity. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

O.A.C. No. 72 OATS—The great new oats introduced by Ontario Agricultural College. The greatest oats for yield and quality ever introduced into the West. We have the genuine article grown from registered. Price 75c per bushel. Eureka Pedigreed Seed Farm, Melita, Man.

"IMMORTALITY CERTAIN"—Swedenborg's great work on "Heaven and Hell" and the life after death, over 400 pages. Only 25c, postpaid. W. N. Law, 486-G, Euclid Ave., Toronto, Ont.

ALL-PURPOSE GASOLINE ENGINES for sale at much less than manufacturers' cost. "Gade" (6 h.p.), air-cooled, rebuilt, \$115; 14 h.p. "Badger," standard stationary, rebuilt, \$150. You cannot buy the quality goods anywhere at anything like the price. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

FEED GRINDERS, 6, 7, 8 and 10 inch—iron bases in each case. Will sacrifice at very low prices. You cannot get these grinders elsewhere at anything near price I am prepared to take for them. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

FOR SALE—20-60 Automan-Taylor Gasoline Kerosene Engine and Gulch; Eight Bottom Deere Plow; 36-60 Avery Separator. Two Tanks; run two seasons. Terms to reliable parties. Paul Edwards, Shaunavon, Sask.

STATIONARY GAS ENGINES—Have six splendid new, water-cooled engines in perfect order, running from 1 1/2 to 6 h.p. at prices from \$40 to \$150. Must realize within a few days and am offering at less than makers' cost. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

WANTED—Information regarding good farm or unimproved land for sale. R. G. List, Minneapolis, Minn.

HALF CASH buys Gar-Scott separator cheap. Cain, Thompson, Alta.

WILL TRADE GOOD QUARTER near Mouse Jaw for gas or oil plowing rig. Give complete description of rig in first letter. Curtis Baldwin, Sparta, Mich., U.S.A.

KITCHENER AND THE GREAT WAR. Thrilling story of conflict on land and sea including Canadian heroism and achievement. New. Profusely illustrated. Tremendous sale. Unusual opportunity for money making. Extra terms. Freight paid. Credit given. Sample, book and full instructions free. Winston Co., Toronto.

WANTED to hear from owner of good farm for sale. Send description and cash price. R. G. List, Minneapolis, Minn.

"GEISER" PORTABLE ENGINES, single cylinder, 20 and 22 h.p., one new and two rebuilt. Liquidator offers these at knock-down prices to effect an immediate clearance. Write for particulars. This is a record opportunity to get the best power machinery made, at less than cost. R. S. Ewing, 200 Union Trust Bldg., Winnipeg.

Myers Tank Pumps
ARE EASIEST TO OPERATE
The Patented Cog Gear Head on Myers Tank Pumps, saves one-third of the operating power. This will be appreciated by the thrasher, for using one of the old style pumps is tiresome work.
The valves are located under removable, imitation caps, where they can be easily reached. Waterways are large, allowing a free passage of the water. Valves are of the poppet pattern with brass seats.
Write for booklet.
F. E. MYERS & BROS.
Ashland, Ohio.
Ashland Pump & Hay Tool Works

BOOK ON Dog Diseases
and how to feed
Mailed free to any address by the author.
H. CLAY GLOVER, V.S.
118 West 31st St., N.Y.

\$1 Automatic Hair Cutter 50c
PATENT PENDING

The Automatic is a wonderful invention. Attaches to any comb in five seconds. Comb your hair any style you wish and the Automatic will cut it smoothly and evenly at the same time. If you can comb your own hair you can cut it in five minutes with the Automatic. Saves a cost many times in a year. The Automatic Hair Cutter is nicely finished in silver and gun-metal. Will last a life time. For a short time only in order to introduce this wonderful invention, and secure agents, we will send the Automatic Safety Hair Cutter complete with good comb in case ready for instant use for exactly the cost, 50c. The price of the Hair Cuts. Send TO-DAY. This offer will not appear again. Agents wanted.
Fisher-Ford Mfg. Co., Dept. 21, Barrie, Ont.

THERE IS JUST TIME

And no more left in which to make decent preparation for your threshing season. The making or the breaking of your success and in getting through the rush smoothly, without worry or waste will rest with the belting you employ. If you would bank on a certainty:—

GET EITHER THE

LION BRAND

RUBBER BELT

OR THE

Yellow Fellow

ENDLESS THRESHER BELT



You can get them from any thrasher company doing business in Canada. They cost a little more than other fabrics that are a big risk from the day they are used in any power transmission, but we guarantee our goods against all disappointments from slippage or breaking. They are the "guards" that will never betray their trust under any pressure—at threshing or at any time.

Gutta Percha and Rubber Limited, Not in Any Trust or Combine
Winnipeg Fort William Regina Saskatoon and Calgary

THRESH FAST BUT THRESH CLEAN ALWAYS

Warehouse and Elevator Dockage is heavy and reduces the profit that you anticipate when fast threshing is done by a sloppy machine.

Beat Out The Grain Throw Out The Straw, Chaff and Dirt The RED RIVER SPECIAL Way

The milling of this marvelous machine is as good as its separation of the grain. The crop comes clean and ready for market, because it is built to do thorough work and plenty of it with every part. The mill is no exception

It Saves The Farmers' Thresh Bill Its Work Comes Clean

There are plenty of big grain farmers who insist on having their threshing done by a Red River Special. Other machines have fooled them on net results. You had better send for a copy of the Home Edition of the Red River Special paper and find out what kind of machine your own neighbors prefer before you buy a new threshing rig. The Big Catalog may help you to make your choice. Have one sent with the paper.

NICHOLS & SHEPARD CO.

(In Continuous Business Since 1848)

Builders Exclusively of

THRESHING MACHINERY

Red River Special Threshers, Wind Stackers, Steam and Oil-Gas Traction Engines

BATTLE CREEK, MICH.

BRANCH HOUSES (With Full Stock of Repairs) At

WINNIPEG, MANITOBA

REGINA, SASKATCHEWAN

H. P. NORTON COMPANY, CALGARY, ALBERTA

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The reason is that every owner can depend upon the ability of his Case steam engine and his Case separator from morning 'till night—any number of hours without wasting any time.

Threshing Case engines have won top place because of their simplicity and dependability.

We have a feature that steam in certain localities is the best and to prove our faith in steam we have continued to add new features that make Case steam engines a leader in their class. This is illustrated by the butt and lap joint now used in Case boilers. Case boilers are so thoroughly built that they meet the requirements of boiler laws of every state in the United States and Canada.

In the past 74 years, Case has tested out all kinds of power for agricultural use. To-day we sell three final types, in steam, kerosene, and gasoline classes.

CASE

Here are few reasons why:

1. Main frame of one casting to which cylinders of engine are bolted. This feature insures perfect alignment.
2. Main bearings run in interchangeable babbitt lined bushings and can be easily replaced in cases of wear.
3. All gearing made of Special Ferro Steel. Transmission completely housed to protect against dust and dirt.
4. Case Boilers are designed so that they meet the most rigid requirements of every country in the world. That means Case engines can be successfully used anywhere.
5. Spring mounting of the boiler to the rear axle and



The Sign of Mechanical Excellence the World Over

spring differential and draw bar is an exclusive feature of Case engines. This takes all strain and shocks from the working parts of the engine. This is an especially good feature in traveling over rough roads.

Generous size firebox makes firing easy and effective. Case engines develop more power per pound of weight than any other make.

Case builds seven sizes of steam tractors 30-40-50-65-75-80 and 110 horsepower. Sizes for every farm.

Our catalog explaining Case Steam Tractors in detail sent on request.