

The CANADIAN THRESHERMAN AND FARMER

WINNIPEG CANADA

APRIL
NINETEEN SIXTEEN



RANSOM LTD.

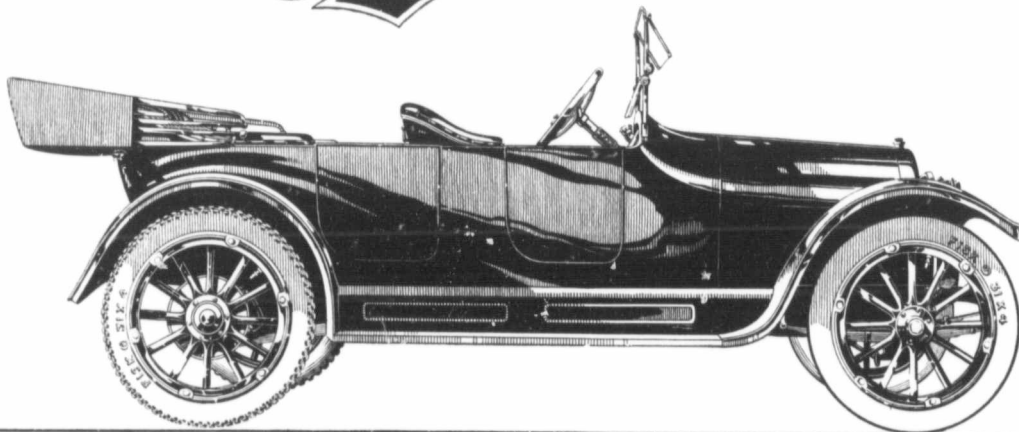
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\$850

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

Overland

TRADE MARK REG.



—so now there's no need to sacrifice pride to economy

This Overland costs only \$850.

But it is every inch an Overland—a perfect beauty.

Though a small, light, economical car, it is roomy, sturdy and powerful.

And it is absolutely complete to the last detail.

Never before has a stylish, comfortable, completely equipped car been offered at anywhere near so low a price.

Now for the first time, exacting pride and strictest economy are fully satisfied in one and the same car.

And for easy riding this newest Overland is not to be compared with any other car of its size.

In fact, many a big, high-priced car is nowhere near so easy riding.

It has cantilever rear springs which absorb road shocks more perfectly than any other type.

Large four-inch tires add to its easy riding qualities.

And the seats are soft and deep and built up over long spiral springs.

The seats are also broad and wide—ample in their roominess for five full grown people.

Of course it is electrically lighted and started and the electrical control switches are located on the steering column—right at your hand.

You should have a car this spring—

And if you want top class at bottom price, it must be this Overland, for no other car meets both these requirements.

No wonder it has swept the country—the biggest and quickest success of all our long line of record breaking models.

But one thousand cars a day is the present limit of our production.

That is more than double the capacity of any other producer of cars of this size and class.

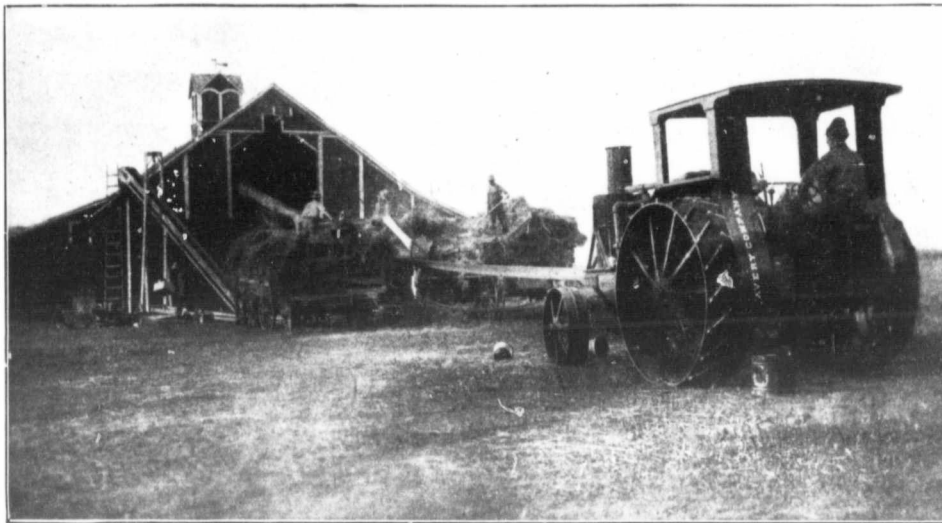
But the demand is in proportion to the excess value of this car.

Order yours now to avoid delay.

See the Overland dealer to-day.

Catalog on request—Please address Dept. 662

Willys-Overland, Limited, Head Office and Works, West Toronto, Ont.



Special Advantages of Avery Tractors and Threshers

Special Advantages of Avery Tractors for Belt Work

Uniform Speed—Recording cards made in testing Avery Tractors show that they run at even more uniform speeds than steam engines.

Variation of Speed—A single-cylinder or a two-cylinder twin engine will run at but very little higher or lower speed than normal. The Avery motor, on account of being perfectly balanced and being equipped with an automatic governor, has a wide variation of speed to take care of the various loads encountered in doing belt work.

Belt Pulley on Same Side as Driver—The operator of an Avery Tractor can easily line it up with any kind of belt power machine by sighting over the belt pulley. Furthermore, with an Avery Tractor, you back into the belt pulley instead of pulling ahead into it.

Belt Pulley on Opposite Side to Fly Wheel—You don't have to take the belt off to start the tractor if you stop with the belt on as you do with tractors where the belt pulley is on the same side as the fly wheel and you have to reach over the belt to get hold of the fly wheel.

Belt Pulley on Outside—It is easy to put the belt on an Avery Tractor and there is no danger of the belt being cut on the wheel as in the case of tractors where the belt pulley is located inside the ground wheel.

Belt Pulley on the Crankshaft. There is no lost power with an Avery Tractor on account of the belt pulley being located on an intermediate shaft or driven through bevel gearing.

Large Belt Pulley. The size of the pulley on an Avery Tractor gives much better friction on the belt than the small size used with high speed motors.

Brake on the Belt Pulley. The brake provided on Avery Tractors enables the operator to stop quickly in case of an accident or should any trouble occur with the machine being driven.

Easy to Tighten Belt. With an Avery Tractor it is very easy to back up tight into the belt, block the wheels, and when this is done, the reverse gear easily drops out of mesh.

Special Advantages of Avery Threshers

There are four special reasons why an Avery Thresher gets the grain out of the heads—First, it has a long concave and grate surface. Second, the concaves are adjustable both front and rear. Third, it has an adjustable grate behind the cylinder. Fourth, it has a moving grate underneath the beater. Because of this concave and grate construction an Avery Separator will get the grain out of the heads and also separate out the largest possible percentage of the grain from the straw right at the cylinder.

Avery Threshers are the Champion Grain Savers. They have made the best proven records of grain saving threshing on canvas ever made. The average saving in 27 tests was 99.9-10 per cent—practically perfect. You get with an Avery Separator the strongest definite guarantee on grain saving given with any machine. One of the reasons Avery Separators save the grain better than others is because they are the only make regularly equipped with the wonderful I. N. I. Grain Saving Separating Device.

And when it comes to cleaning, threshermen, farmers and grain elevators all say that Avery Separators are extra good grain cleaners.

The improved features in Avery Threshers that make for durability and convenience are so many that we can only mention a few of them here and those very briefly.

Avery Cylinder and Concave Teeth are made of such good material that we guarantee them for life against breakage from pitchforks, bolts or anything else accidentally entering the cylinder. They are made from genuine tool steel—they wear an extra long time and are almost unbreakable.

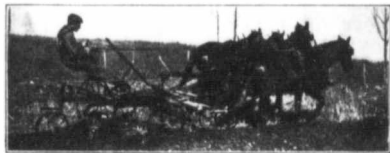
All Avery Threshers are regularly equipped with double cone pulley belt guides, compressed paper center cylinder pulleys, steel axles, tank steel wind stacker fan housings, boiler plate wind stacker fan wings, cast iron wind stacker elbows, special wind stacker hoods, rubber feeder carriers, heavy slip tongues, improved belt winders and are double belted with wide belts on all the larger sizes.

Write now for new 1916 Complete Avery Catalog and Get ALL the Facts.

EVERY COMPANY Canadian Avery Co. Ltd.
675 HOWA ST., PEORIA, ILL.
Western Canadian Distributors WINNIPEG REGINA

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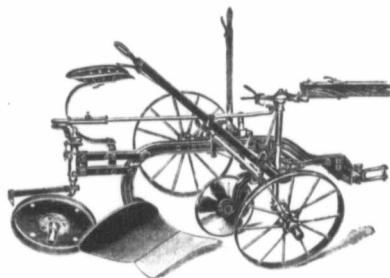
Massey-Harris High-Grade Farm Implements



A Plow You Can Depend On

The Great West Gang Plow can be depended on under any and all conditions. Wheels are set well out, making the Plow run steady. It is amply strong for all conditions of soil. Convenient Levers and easy-acting Foot Lift make it easy to handle.

Bottoms are of the well-known standard of Massey-Harris construction. Also made with Single Bottom.



A Good Sulky Plow at Moderate Cost

The Golden Age meets the demand for a medium priced Plow, simple in construction, easy to operate and light in draft.

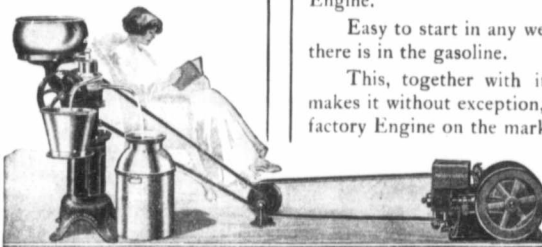
The Beam is of extra heavy, High Carbon Steel and is of good height to give ample clearance. Cross Bars are of High Carbon Channel Steel and extend across from Wheel to Wheel—not divided in the centre. Handy Levers give the operator perfect control of the Plow.

A Cream Separator which saves all the Butter Fat

The Improved Bowl on the Massey-Harris Separator handles hot or cold milk without loss of Butter Fat. All parts of the Bowl are Nickel-Plated, making it an easy matter to keep it clean.

A Simple Speed Indicator enables the operator to turn it at the right speed to get the best results.

From 200 to 1000 lbs. Capacity.



Toronto, Montreal, Moncton,
Winnipeg, Regina,
Saskatoon, Swift Current,

Everything that is Best

In Farm Machinery,
Wagons, Sleighs, Etc.

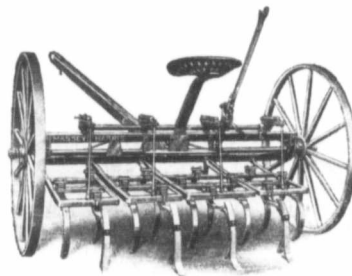
is found in the
**Massey-Harris
Line**



An Effective Disc Harrow

The Pressure Springs hold the Gangs to their work regardless of dead furrows, ridges, etc., and cause the Discs to penetrate soil which would otherwise raise the inner ends of Gangs and leave portions of the field untouched.

One end of either Gang may rise to pass an obstruction while the balance of the Harrow remains at work.



A Spring-Tooth Cultivator

Will Kill out the Weeds

Weeds are Robbers—they rob the plants of moisture and plant food, and also deprive them of the needed light and air.

A Massey-Harris Cultivator will clean out the most obstinate weed pests, conserve the moisture and put the land in splendid shape for the sowing of a crop.

A Reliable and Economical Engine

You'll always have power when you want it, and at a very low cost if you instal a Massey-Harris Gasoline Engine.

Easy to start in any weather and gets all the power there is in the gasoline.

This, together with its simplicity and durability, makes it without exception, the most Reliable and Satisfactory Engine on the market to-day.

Stationary or Portable.

1 1/2 to 20 Horse-Power.

Massey-Harris Co., Ltd.

Yorkton, Calgary, Edmonton.
E. G. Prior & Co., Ltd.,
Victoria, Vancouver, Kamloops.

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GOING, GOING-GONE!

JUST A FEW SHORT WEEKS TO BUY SEEDS FOR YOUR FARM AND GARDEN... EVERY PERSON WHO HAS A HOME WANTS A GARDEN—TRY THESE

VEGETABLES, THREE SPECIAL GOOD THINGS FOR 1916, SWEET PEAS, FIELD ROOTS, CLOVERS, GRASSES, and other seed listings with prices and descriptions.

COLLECTOR'S TO DO'S... McKENZIE'S Farmer's Garden... \$1.60

Quotations F.O.B. Brandon and at Warehouse, Calgary... Bags 25c extra

Special Reduced Seed Rates now in force



ASK FOR YOUR COPY OF OUR TWENTIETH ANNUAL... A.E. McKENZIE Co. Ltd. BRANDON, Man. Western Canada's Greatest Seed House... CALGARY, Alta. The Best of Everything for Farm and Garden.

On page 53 of this issue will be found particulars of the most attractive proposal of the "Canadian Thresherman & Farmer" has ever made to its readers.

War or no war, the cost of printing and mailing this magazine continues to increase. Every day we are adding to our mailing list and every fresh name adds its own quota to the cost.

It is the fourth occasion on which we have organized a contest of this kind and we are doing it for the fourth time because of the success which attended us on the last three occasions and the uniform satisfaction it afforded to every one who participated in it.

Briefly, we will give a handsome "Chevrolet" automobile (1916 model) to the first person who correctly estimates the number of whole kernels in three and one-quarter pounds weight of No.

YOUR Opportunity to get a FREE High Class Automobile

1 Northern wheat, or the first person who is nearest to the exact number of whole kernels. This is not speculating or guessing on something which has yet to be ascertained. The kernels (weighing 3 1/4 lbs.) have

ADVERTISERS—Please Note This (April) is not a "Special" but a regular issue of the Canadian Thresherman and Farmer

been placed in a glass jar and sealed up in the presence of two witnesses in the office of the Dominion Inspector of Weights and Measures at Winnipeg, photographed and deposited in the vaults of the Union Trust Company, of that city, where it will remain until the contest closes on July 31st next.

This wheat is a fair sample of No. 1 Northern, obtained from the Dominion Grain Inspector at Winnipeg. On the closing date, the kernels will be counted by a board of three, who will probably

be well-known farmers, one from each of the three prairie provinces. In any case they will be well-known men who are in no way connected with the Canadian Thresherman and Farmer. Full particulars of the very

simple conditions of contest, also a description in detail of the car (which may be view at any time in Winnipeg) will be found on page 53. No member of the Canadian Thresherman staff will be allowed to take part in this contest. In any case, no person living has any information as to the contents of that jar of wheat that is not common to everybody. These are as described: 3 1/4 lbs. of a fair sample of No. 1 Northern wheat.

As a guide to everybody, we may state that in the "Thresher-

man" contest of 1908 when 15 lbs. of No. 1 Northern were used, the actual number of kernels was 257,885. In the following year 8 pounds and 7-16 oz. gave 143,272 kernels, while in 1910 the number was 197,543 kernels in 12 lbs. of No. 1 Northern.

From the fact that only 3/4 lbs. are used in the present contest, the counting will not prove a laborious job to any one. It will be an interesting past time in some idle moments, while the fact that such a prize as we are offering is at the immediate call of the winner will add a piquancy to the employment that will help to cultivate the habit of accuracy and painstaking care.

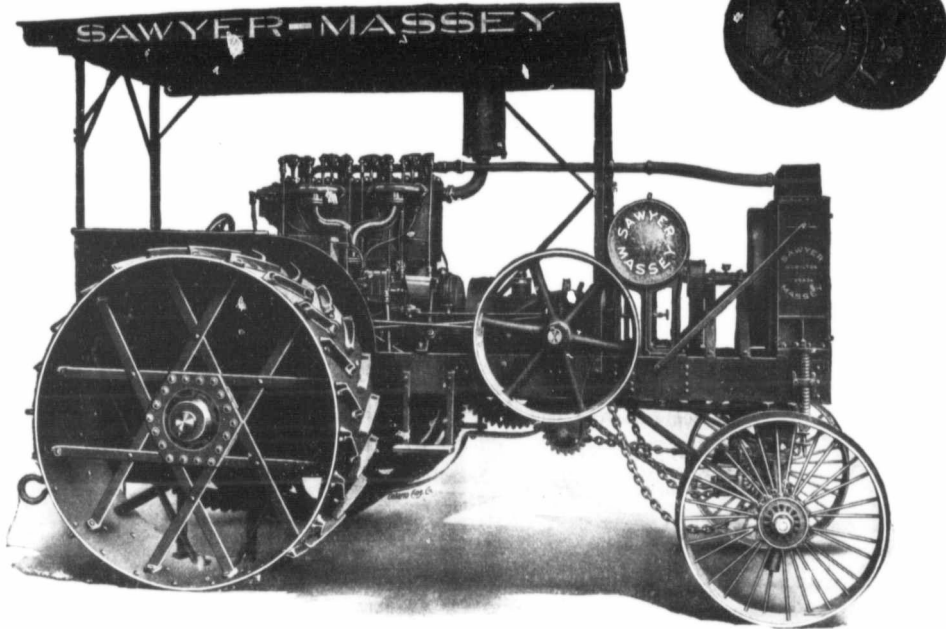
The basis of the contest is surely one that cannot be criticised on the point of fairness, if not generosity. One dollar entitles the participant to one year of the "Canadian Thresherman and Farmer" and three estimates as to the number of kernels in the glass jar or three distinct chances of winning the automobile. Two dollars will pay for three years of the magazine mailed free to any address and eleven estimates. Three dollars constitutes a pre-paid subscriber for five years and entitles the subscriber to nineteen estimates for the prize auto—and so on. See page 53.



THE PREMIER COMPANY
THE PREMIER GOODS

WINNER OF GOLD MEDAL
AT WINNIPEG

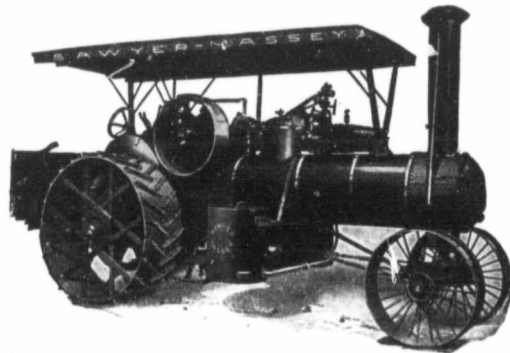
MADE IN CANADA



THE YEAR OF THE GAS TRACTOR

The experimentation time of the Gas Tractor is over. It has been tried and proven satisfactory by years of actual use. Farmers and threshermen all over Canada and the States as well are turning to this last and best form of power. Why don't YOU TOO get in step with progress and gain the profits this tractor makes for its owners?

The Sawyer-Massey "27-50" Gas Tractor has been proven the best machine of its kind in Canada. In economy of fuel and water, quality of plowing, ease of handling, durability and every other point of practical value it excels all others. Write for our new Illustrated Catalogues describing this Gas Tractor and our full line of farm power machinery.



SAWYER-MASSEY COMPANY, Limited

Builders 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

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A MAGAZINE FOR

The CANADIAN THRESHERMAN AND FARMER

THE FARM AND HOME

Vol. XXI.

WINNIPEG, CANADA, APRIL, 1916.

No. 4.

MANITOBA has gone "dry." That is to say, the Province decided by a people's vote on Monday, 13th March that on and after 1st June next no bar, saloon, or wholesale store will be allowed to operate in the Province for the sale of intoxicating liquors. It was what is known as the "Macdonald" Temperance Act that was presented to the provincial suffrage, and the people accepted it by a majority of something like two to one.

The weather on the balloting date was anything but favorable, otherwise the vote would have been much larger and the majority in favor of temperance sentiment correspondingly increased. To say that we rejoice and are thankful does not begin to express the feelings of this household. There isn't a point in harmless fun or social enjoyment we balk at, but this bit of surgery is the greatest step in moral uplift Manitoba has known since she became a province.

There was an element in the voting that appealed to us very powerfully indeed, and that was the attitude of that "class" which is vulgarly herded into the common corral of the "moderate drinker." These men were entitled to say: "No! we can take it or leave it—why should we be deprived," etc. That plea and the liberty of the subject" gag were great buttresses fifty years ago, but to-day they are as obsolete as flint locks and rush lights.

We take off our hats to those gallant sports who said in effect that day: "If a little sacrifice can do any good, the very smallest thing we can give up is the habit of treating or being 'treated' if it will remove a temptation which is an insuperable one to millions of the very choicest spirits of our race. Why it should be so, many of us have not the means to understand, but there it is.

But for the manly support of the "temperate man" it is doubtful whether the act would have carried. His fine sense of decency



state positively what took place and who were the offenders.

He has earned the whole-hearted respect of every one—from the soaker to the root-and-branch prohibitionist. The teetotaler is deprived of nothing, the drunkard most of all rejoices, and the good fellow who can command himself is delivered from a useless, expensive and insidious habit.

If reports from the far West are not seriously exaggerated, several millions of bushels of high grade wheat have been dumped in the open owing to defective transportation or lack of storage at initial points. Imagine it! Five million bushels of the finest threshed grain grown in 1916 exposed on the open prairie, eating its head off! We have not seen any official figures on the matter, but believe the estimate given is substantially and woefully correct.

Should this meet the eye of any one who "stored" his 1915 crop in the open, we will pay him a little better than ordinary space rates for a statement not exceeding 200 words, setting forth (1) reasons why sufficient cash or credit was not available to provide a granary of some sort on the farm, (2) what were the elevator conditions at his point at the date of "dumping," and (3) what chances he took on car service.

Since the intensely regrettable incident of the rioting in Winnipeg on Saturday and Sunday (1st and 2nd April) has been embellished by the newspaper press, the "Camera Man" would like to ease the minds of any reader who has a friend or relative in the ranks at Winnipeg. He did not see the Saturday melee but witnessed the Sunday afternoon incident from start to finish, and can

state positively what took place and who were the offenders.

The city police magistrate has finally, and, it is believed, satisfactorily dealt with the matter, so that these comments are in no way anticipatory. Drink and ignorance on the part of a few unmistakable "bums" (the greater part of them civilians) explains the whole disturbance. In the Sunday crowd of some 200 or 300 men in khaki, the greater portion were merely interested spectators, and the mischief was completed by some dozen or fifteen young hoodlams.

"The Thresherman" has expressed with sufficient clearness its views on the subject of recruiting for the prosecution of this war of liberation. It believes that every man who can must now be reproducing or fighting, or being trained to fight. But this is not to be interpreted as encouraging the spirit of militarism, the rawest form of which was seen with the paint off in those few khaki-clad youths we saw fighting the civic authority.

Taking them as a whole, the soldier lads who are now training in Winnipeg are still the finest type of Canadian manhood. They are gentlemen, and they behave as gentlemen. Even the reputed "toughs" are in many cases men to be proud of—"no better men when sober; drunk, none worse." The real toughs are the mean skunks who, under the ghastly mask of friendship, lure the boys to their undoing. The problem of the drink is the problem of the war.

The civil authority in the plainest terms pointed out that the

King's uniform never granted a man immunity from punishment for any violation of the civil laws. Even the military authorities did not know where they were until Sir Hugh John Macdonald (one of the keenest soldiers of the Dominion) gently but firmly set them in their place. A soldier is something more than a uniform and a riding crop, and he is always a law-respecting citizen.

A facetious friend rung up the editor of this paper the other day and rallied him on his offer to go stooking in the fall. There was a sceptical ring in the voice of the facetious one, and our chief of the shears and paste thought he detected an incredulous smile at the end of the wire. But the presiding genius of the paste pot in this office was never intimidated by sarcasm or incredulity.

It is the old saw of the prophet in his own country. Just about the same time, however, another chap patted him on the back and said it was a bright idea (he was a barber, by the way), and would go, too. The editor has seen the barber feeding a threshing outfit, and the barber will bank his all on the editor's performances in the harvest field.

For the information of "all whom it may concern," this facetious friend is not only a practical farmer but he has a habit of making good at everything he sets his hand to. He was at one time a celebrated, if not notorious, sport—specializing, we believe, in boxing and wrestling. His loins are as supple today as they were twenty-five years ago. He is a willing horse in any good work. There's not a streak of laziness in his bacon and he has a lot of spare time on his hands. Who bids?

Yours truly,



What Will the Future Tractor be?

By C. M. EASON,
Engineer, Hyatt Roller Bearing Co.

IN summing up the bulletin "Farm Experience with the Tractor," Mr. Yerkes of the United States Department of Agriculture states that: "Up to the present time the tractor appears to have made for itself no important place in the agricultural economy of this country." He also said, with reference to the data presented, "It must be borne

placed power farming experience to reach of a great many people who could not otherwise have taken it up. As a result of this the tractor business has increased tremendously in the past two years. Almost one-half as many farm tractors were produced in 1914 as had been built since the start of the gas tractor industry in 1898. During 1915 the previous

dozen or more states this year. All of these things have contributed toward informing the public about tractors and have helped make possible the rapid developments seen during the past two years.

It was at one time the firm belief of many of the pioneers in the tractor business that a new era in agriculture was opening up wherein animal power would be replaced exclusively by mechanical power. They have also believed that the development of the gas tractor for the farm would keep pace with, or even exceed, the development of the automobile. That these expectations will not be entirely fulfilled, has lately come to be the opinion of the better informed tractor builders. Granting this there has come a more certain knowledge as to the possibilities of using tractors on the farm. While it cannot be expected that they will replace horses entirely it has been proven conclusively that tractors can be used, in connection with horses, to better advantage than either the tractor alone or the horses alone. Statistics have been compiled on this basis showing that there are over two and one-half million farms in the United States on which tractors can be used to advantage.

Turning from the broader side of the tractor situation to the matter of detail design one finds an amazing variety of types and constructions. There are, at the present time, on the market

fundamentals of tractor design have not as yet been thoroughly analyzed or clearly established. To produce a satisfactory plowing tractor requires a combination of certain elements. To make this same tractor more widely applicable for crop cultivation, harvesting and road hauling requires the addition of great many elements not necessary in a tractor to be used for plowing only.

The early efforts in the developments of the gas tractor were confined almost exclusively to producing a satisfactory plowing engine. The result was large units whose range of usefulness was practically limited to plowing large fields of fairly level land. They were quite successful when used for breaking prairie sod, but after the vast tracts of virgin land had been broken up their limitations became apparent, since they were too heavy to be used efficiently on newly plowed fields. About three years ago the market for these machines was considerably oversold. It was the necessity for a greater volume of business and wider adaptability that first brought into the field the light weight, low priced tractor. The early developments along this line consisted of merely simplifying and reducing the size of some of the older models. When several thousands of these were placed in the hands of more or less unskilled operators it quickly became apparent that greater reliability with less attention to maintenance and repairs was an absolute



The 3 wheel 2 plow tractor is one of the latest arrivals on the tractor market

in mind that they are a record of a machine in process of development." This was written about two years ago. The tractor has been greatly improved since, although it cannot be said that the evolution is yet complete.

About two years ago there was brought out, and sold in considerable quantities, the first low priced tractor designed for pulling two plows. This machine was sold at less than five hundred dollars and immediately placed within reach of many farmers the means for a beginning in power farming. Up to the time this machine was brought out the smallest tractors were generally about four plow units, and sold in the neighborhood of fifteen hundred to two thousand dollars. To most farmers who already had a reasonable number of horses to meet their power requirements an investment in one of these larger machines necessarily meant taking a considerable chance. They could not be entirely sure that they, personally, could succeed with power farming, however attractive it might appear in theory. The small tractor, at a very low price,

This article which is reproduced from "Motor" contains so much that is worthy the attention of every future tractor owner that we felt it wise to give it to our readers. The Author has made a very close study of the Farm Tractors and knows whereof he speaks.—(Ed.)

year's output was almost doubled, and, the indications are that this year the demand for tractors will greatly exceed the supply, although there is a planned production for 1916 of nearly twice as many tractors as were made during the past year. Judging from this, it is quite evident that the tractor has at least begun to be recognized as having a place in the agricultural development of the country.

While the low priced tractor was chiefly responsible for the increased volume of business, it has been assisted greatly by the vast amount of educational publicity carried on by the tractor companies with the co-operation of the farm journals and numerous publications specializing on farm power requirements. Farmers throughout the country are now thinking about, and discussing, tractors and many of them are quite familiar with the subject, where two or three years ago they had probably only a very indefinite idea as to what tractors, or power farming, meant. Agricultural colleges have given very valuable support by including in their course instructions in the handling and maintenance of gas tractors. There has also been a tremendous interest awakened by the public power farming demonstrations started at Fremont three years ago and carried out in a



10 and 12 and even 14 bottoms were quite the thing in the old days

something over one hundred and fifty tractors, no two of them alike. The designs are so widely dissimilar that it is even difficult to classify them except in a most general way. Each design represents an evolution based on condition as analyzed separately by the different engineers and no two have achieved exactly the same result. One difficulty is that the

lute necessity. Tractor designers were quick to see the weakness of the earlier small machines and they immediately turned their attention to the use of better materials, enclosed working parts, and a general refinement of the entire design. The necessity of providing for a greater range of adaptability has resulted in bringing out an almost endless variety

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of types and combinations all developed with a view to making possible more different kinds of work with the same tractor. In this evolution of detail there has been a great many failures and but few successes. Some tractors have succeeded mechanically as judged from an engineering standpoint, but have failed commercially, and other machines which have been an indifferent success mechanically have attained considerable distribution by virtue of the selling force behind them. No possible agreement can be reached as to the future development of the detail construction or type of tractor by a study of what has either succeeded or failed in the past. In studying the specifications of various types now on the market, one is forced to conclude that the occasion for at least much of the variety is simply a matter of having something different to sell or to promote and that the success of one type and the failure of another are more the accidents of commercial development than any real merit or defect of the constructions involved.

While the detail of tractor construction is, in practically every machine, different from any other, yet it is possible to group the various tractors under three general classifications. First: The heavy type based on stationary engine practice. Second: The so-called automobile type, embodying a great many features found in present day automobile construction, and Third: A composite type, which, in a modified form, contains certain features common to either of the other two types. Back of every tractor design are

vice. To this end they employ slow speed single or double cylindered motors having rather large cylinder dimensions. They make all of the bearing surfaces extremely large, using babbitt or bronze bushings practically throughout. The transmission systems of these tractors are usually rough cast gears of coarse pitch and large diameter. Owing to the difficulty of enclosing these large gears they are usually run in the open, and some mechanical means of lubrication for the gear faces is employed. Frames and wheels are also necessarily very heavy. The carburetion, ignition and cooling systems are usually reduced to the utmost simplicity, and, being designed for practically constant speed and load, there is very little necessity for fine adjustment or flexible control. They point to the fact that all other farm machinery is comparatively crude in design, cast and malleable iron, rough bar gorgings and similar construction being used almost exclusively. They state that while this type of construction may be crude from a mechanical standpoint, it is better understood and more easily taken care of by the average farmer than a machine of higher mechanical refinement. They further state that a single cylinder motor will give a farmer just half as much trouble as a two cylinder, and one-fourth as much trouble as a four, and being less sensitive to delicate adjustment will run for a greater length of time without proper attention than any other type.

The designers of tractors built along automobile lines claim that fundamentally the use of single or

weight of the reciprocating parts. Motors having small bores, small diameter valves, light pistons and light connecting rods, will show a greater effective life than motors of larger dimensions and heavier reciprocating parts. To substantiate this argument they point to the fact that automobile designers

Carrying out this type of construction to its logical conclusion will result in the production of a tractor weighing about one-third as much as a tractor built along the lines of the heavy single-cylinder, slow-speed motor. Whether this construction will be entirely too light for tractor service re-



Scrub breaking is undoubtedly a tractor's job

are working toward greater reliability with less attention and that this has led them to the development of six, eight and twelve cylinder motors which have been proven to have a greater effective life than motors of equal horsepower but fewer number of cylinders. They further state that the life of a motor is dependent upon the ratio of bearing surface to piston area, and that it is possible to get a lower pressure per square inch, on the crank shaft and connecting rod bearings of a multiple cylinder engine, than would be practical with single cylinder motors of the same horsepower. It is also said that for a given power it is easier to build multiple cylinders than single cylinders due to the greater facility for handling small parts in duplicate. As to gears and shafts of the transmission system they point out that an alloy steel gear properly heat treated only weighs about 15 per cent as much as a cast iron gear for transmitting a given power, and after taking into consideration the cutting, hardening and extra handling of the smaller piece they can actually be produced for the same or less money than the heavier gear of cheaper material. They also maintain that the only way to insure reliable operation in transmission system is absolutely to protect it from dust and dirt and run it in a bath of oil. To accomplish this it is, of course, necessary to have dust-proof and oil-tight cases making self-contained units of the transmission system. This type of construction permits the use of some type of anti-friction bearing instead of plain babbitt or bronze and insures a high percentage of the motor power being delivered to the drive wheel.

mains to be proven by actual experience in the field with tractors of each type working under similar conditions. So far there are, at least in fairly successful operation, tractors of both types. It would seem that an answer to the question as to which will predominate in the future must wait until more practical experience has been obtained.

Most of the experienced tractor designers of to-day have brought out during the past year, or are preparing to bring out this year, tractors which show plainly a combination of both the heavy type and the automobile type of construction. The arguments which they advance for this composite type are substantially the same as advanced by the advocates of the two extreme types. They qualify all of these arguments by saying that a tractor is neither a perambulating stationary power plant, nor a pleasure car and is unlike the motor truck, being a distinct and separate type of machine. Some of the tractors produced in this class have been developed from the stationary type as a basis and brought to their present form by cutting down sizes where permissible, using better materials where greater strength was required and applying anti-friction bearings at the joints where the loads are heaviest. Others in this same class have been developed from the light weight construction, as a starting point, by building up and strengthening various parts as they have developed weaknesses in the field. The engineers designing the conservative type tractor frankly acknowledge the good points in both the heavy and light type, and try to reach a

Continued on page 25



Level stretches of prairie yielded quite readily to the influence of the big gas tractor

certain specific reasons for the construction used. It will doubtless be of interest to present some of these reasons as advanced by the engineers responsible for the different designs.

The builders of the heavy type tractors declare that any machine to be a success at farm work must be made very heavy to stand the rough usage and continuous ser-

vice. To this end they employ slow speed single or double cylindered motors having rather large cylinder dimensions. They make all of the bearing surfaces extremely large, using babbitt or bronze bushings practically throughout. The transmission systems of these tractors are usually rough cast gears of coarse pitch and large diameter. Owing to the difficulty of enclosing these large gears they are usually run in the open, and some mechanical means of lubrication for the gear faces is employed. Frames and wheels are also necessarily very heavy. The carburetion, ignition and cooling systems are usually reduced to the utmost simplicity, and, being designed for practically constant speed and load, there is very little necessity for fine adjustment or flexible control. They point to the fact that all other farm machinery is comparatively crude in design, cast and malleable iron, rough bar gorgings and similar construction being used almost exclusively. They state that while this type of construction may be crude from a mechanical standpoint, it is better understood and more easily taken care of by the average farmer than a machine of higher mechanical refinement. They further state that a single cylinder motor will give a farmer just half as much trouble as a two cylinder, and one-fourth as much trouble as a four, and being less sensitive to delicate adjustment will run for a greater length of time without proper attention than any other type.

The designers of tractors built along automobile lines claim that fundamentally the use of single or

IN the production of all crops, the seed and the soil are two indispensable factors. The efforts of your association and its individual members are directed chiefly toward the improvement of the first of these—the seed. I am sure no more worthy or important object of agricultural endeavor could be imagined. You are able to make greater progress in your seed improvement because you concentrate your efforts and specialize in that one line. However, so closely does the second factor of production—the soil—enter into your work that no matter how you specialize on seed, you can never afford to neglect the culture of the soil. The most valuable work in selecting strains of seed of the greatest yielding power and greatest suitability to the purpose for which they are intended, may be brought to naught through injudicious work in the handling of the land. It is the purpose of this address to deal with a few of the important points in connection with the handling of the land for the production of pure seed of high quality under Manitoba conditions.

One of the main objects of such cultural methods is to conserve the purity of the valuable selected seed that has been consigned to the earth. Methods must be adopted that will ensure that there will be no noxious weeds and foreign grains growing up among the crop. Another object of cultivation is to ensure as large a return as possible, and a third is to produce seed of as fine quality and appearance as possible. All these must be accomplished at a cost that will allow of a profit on the whole undertaking.

Previous Crops on Land

No more important factor affects the condition of the land than its previous cropping history. The most desirable land for pure seed growing is the virgin prairie. Where it can be obtained, the problem of the preparation of land for seed growing is easily solved.

Cultural Methods in Pure Seed Production
 By W. C. McKILLICAN, B.S.A.
 Address delivered to the Seed Growers' Association in Convention held at Manitoba Agricultural College.

But on old farms, where the land is all in use, land that has borne crops must be used. It is obvious that the land must go through some cleaning process before being used for seed growing, since it is a well-established fact that grain grown after grain does not have the purity desired. The most common method of cleaning the land for seed growing is the summer fallow, others are the growing of hay crops and the growing of hoed crops.

Let us compare these three methods of cleaning land as judged by the different requirements enumerated above. First, as regards the ensuring of purity; it would appear to me that the seeding-down method is the most effective. The weeds whose seeds are most difficult to remove from seed grain are annuals such as wild oats and wild buckwheat. A single year of summer fallow or hoed crop is not always effective in getting all the seeds of these weeds that are in the ground to grow; they come up the next year and form dangerous impurities in the seed grain. Where land is seeded down for two or three years, these weed seeds decay in the ground and the following crop of grain is freer from weeds than any except on virgin prairie. Choosing between summer fallow and hoed crop, we must say that the fallow is likely to be the most effective in so far as control of weeds is concerned, unless the hoed crop is very carefully hoed.

In regard to size of return, the choice between the three methods cannot be made so easily. Possibly all seasons being averaged up, summer fallow will give the

biggest return. But both the other preparations will give very satisfactory yields when properly handled and in moist seasons are very likely to excel summer fallow.

In regard to quality of grain, I think there can be no doubt but that sod land will produce a harder, more uniform type of wheat than a summer fallow will in seasons of average or abundant moisture. In dry seasons the summer fallow will produce a plumper berry, but when moisture is plentiful there is a great danger of summer fallowed crops lodging and producing grain of very inferior quality. Probably then the probabilities are more in favor of either sod land or corn than fallow.

In regard to profit on the crop, there can be no doubt but that the summer fallow is the most expensive method of preparing the land. It makes no return for the use of the land during the season of fallow. Corn, on the other hand, yields a large return of fodder while the cleaning is progressing, and hay makes a return not so large as that of corn, but is obtained with less cost in regard to labor. Experimental results have shown us clearly that wheat after either hay or corn is more cheaply produced than after fallow.

Probably better than either hay crop or hoed crop alone as a preparation for seed grain is a combination of the two together. The hay crop should come first, then the corn be planted on the sod. This gives a longer period of cleaning and gives two methods of eradicating the weeds. It pro-

duces crops while the cleaning process goes on, and if cultivation is conducted properly the grain crop that follows should equal in purity, yield, and quality anything that could be grown.

Rotation of Crop

In arranging for the most desirable preparatory crops for his pure seed grain, it will be advisable for the seed grower to adopt a regular rotation of crops that he can follow continuously. The rotation should provide for the desired sequence of crops and for the proportion of the various crops that the farmer wishes to grow. Having decided on a rotation, the farmer should divide his land into such divisions that will permit of its operation. Once such a system has been established, the proper preparatory crops for seed production will recur automatically on the different fields and save the operator much worry in figuring out from year to year how he is to get a clean piece of ground on which to grow his selected seed.

Handling Sod Land

The best method of preparing sod land for grain crop will depend somewhat on the character of the sod. An old, well established tough sod will require different treatment from a recently-sown one composed of easily killed tame grasses and clover. Where a rotation of crops is followed, the latter will be the type of sod encountered. In handling sod of this type, we find the following method successful at the experimental farm. We cut off the hay crop about July 1st to 10th. As soon as the hay is harvested, the land is ploughed. This is usually completed about August 1st. The ploughing is done moderately deep, four to five inches. This land is disced frequently enough during the remainder of the season to prevent the grass recovering from the ploughing. Land handled in this way gives us a crop equal to summer fallow and free from impuri-

Continued on page 39



NOT A WEED IN SIGHT

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IMPORTANT It is of the first importance to secure seeds that are known to be the best, but the poorest economy in the world is to pay good money for inferior, cheap and unknown strains. The grower cannot afford such chance—the ordinary risk of an unfavorable season and contingencies over which he has no control is very great with any and all crops—the use of good seeds will save the double risk.

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For the farm a variety is required that produces a good yield without too much attention, that retains cooking qualities for several weeks, and when on the table is the luscious melting kind which everybody wants right along. In our opinion there are two varieties that meet these requirements perfectly—they are **WESTERN BEAUTY** and **RELIANCE**.

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A new early wrinkled pea of such exceptional merit that we are firm in the belief there is nothing to equal it for the average home garden. Grows from 15 to 18 inches high; in earliness is ahead of American Wonder and Nott's Excelsior, and superior to either in productiveness, bearing more peas to the pod and many twin pods, while for quality the rich dark-green pods and peas are of delicious flavor. Western Beauty is very hardy and may be planted first thing in the spring. It will delight every grower who wants a fine early crop of the choicest quality of wrinkled peas. It is also especially suitable for planting at intervals in succession, thus affording a constant supply.

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THE CANADIAN THRESHERMAN AND FARMER

CANADA'S LEADING AGRICULTURAL MAGAZINE

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April

1916

THE PEOPLE'S UNIVERSITY

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 dissatisfied with 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."

CERTAIN reported differences between the savants of Manitoba University and the secondary schools men at a recent conference have stirred some serious thoughts in our minds. These differences appear to skirmish around the question as to whether Latin shall be a compulsory language in University Matriculation. From the newspapers it would appear that the chiefs of the secondary schools are desirous of relaxing the rule which has obtained for some 40 years, and that some at least of the University stalwarts (led by one doughty professor) show a determination to stand pat. Our hearts are with the men of the schools, and we think so also is the judgment of an overwhelming majority of the people in the Province who pay the salaries of the men who have been entrusted with the oversight of its educational interests.

We cannot boast of any extended acquaintance with the Latin classics, but we do know enough of the language to understand that sic transit gloria mundi means "so passes away earthly glory," and with it all the intellectual equipment of the greatest linguist in the history of the world. Sir Walter Scott wasn't a poor Latin scholar, and he might have boasted of other linguistic accomplishments; yet he told a dame of fashion that "all education is as moonshine compared to the education of the heart." "A University education" is or ought to be an intellectual and moral equipment that brings a man abreast of the times he lives in, or it is worthless. What will it profit a man who is an expert in Latin or Greek particples if he cannot make himself felt in a small congregation of worshipping people?

In these days men are concerning themselves more with results than with systems. Let us take results as we see them in the ranks of say the preachers and the teachers who may be considered the main product of the Universities. We will not confine ourselves to Manitoba with its 40 years of compulsory Latin, because that would place the Province at a disadvantage in comparison with the rest of the world. Many of her reputed "best men" in the pulpit or the platform have matriculated abroad, and the Province will therefore neither share the glory nor the blame of having "produced" the character and reputations of these men.

With, of course, honorable exceptions, can it be alleged that the rank and file of the preachers and professors who are our contemporaries are successes—we will not say brilliant successes—in getting their message home to the people or to the students of their class rooms? Of how many men can it be said: "he is a born preacher?" And yet if that pulpit

occupant is not a "born" preacher, he is of all men who are foisted into a position to be despised. The tragedy of the square man in the round hole finds its woeful climax in the "preacher" who cannot preach, and the "teacher" who cannot teach. Nor are the men always to blame. They have felt an itching to preach, it may be, from their cradles. They have even heard a "call" to preach, but as in the case of the young Scotch neophyte under the censorship of the sermon taster—"it maun hae been anither soond ye heard, Willie."

Too often the requirements of the Universities have been responsible for the man running to seed. They have turned out brilliant Latin and Greek scholars by the thousand, doughty exponents of dogma and church history in tens of thousands, but how many men, charged with the living principle of Christianity have they trained in the use of the faculty of speech with that constraining or compelling power that is in the gift of every man who has a message in his heart? We are not referring to mere tricks of "elocution," but to the cultivation of that greatest of all arts, natural eloquence, the power of controlling the will of other men by the gift of speech.

From the standpoint of results, the story is scarcely less disappointing with regard to the teaching profession, and for the same reason. There are many hundreds of young men and women in the Province who are eminently qualified by their heritage of natural parts to teach or to preach. There is a time limit imposed on them within which they must complete their training course, and that period we positively affirm is senselessly overcrowded with subject matter that is abortive for all practical purposes. A very large number of them have no aptitude for the study of dead languages. Many of our very best scholars who pass the entrance examinations into the high schools cannot learn enough Latin to pass the matriculation examination, and so they are debarred from taking a university course—in Manitoba at all events; In Alberta and British Columbia the authorities are wiser in their day.

If the University of Manitoba is not an institution for the people, it has no right to live. The citizens of Manitoba maintain it, not for the delectation of one or two Latin and Greek professors, but for the instruction and training of their young people. Young Manitoba is a terrific worker, mentally as well as physically, but it has a strong objection to and is entitled to "kick" against hours of priceless time given up every day to unproductive drudgery.

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Kerosene Cuts Costs

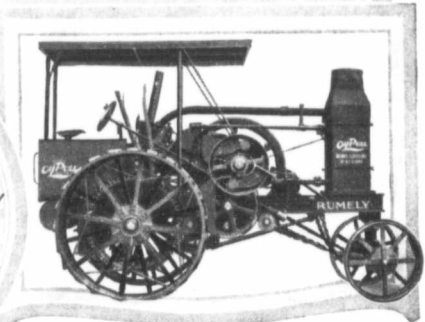
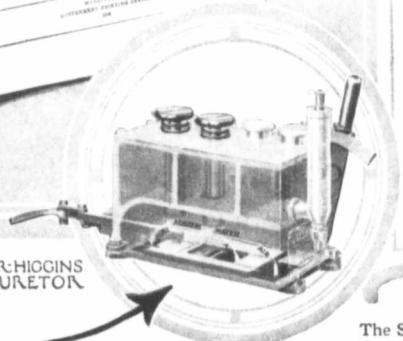
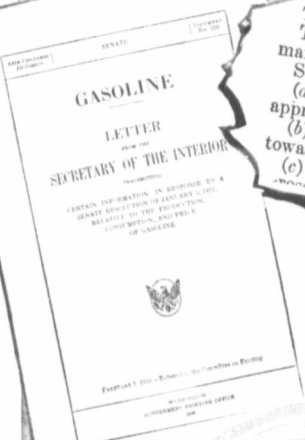
Here is what Franklin K. Lane, Secretary of the Interior, has to say in his report to Congress dated February 2, 1916, on the subject of the present high price of gasoline.

THIS IS THE PROBLEM

The situation may be summed up as follows:
 The consumption of gasoline is rapidly increasing.
 The production of crude has been generally regarded as near its maximum.

Some immediate relief may be afforded by means of the following:

- The use in internal combustion engines of heavier distillates approaching kerosene.
- An acceptable kerosene carburetor would at once go a long way toward relieving the present shortage of gasoline.
- General use of cracking processes whereby gasoline is made from more and other less valuable petroleum oils. Such cracking processes are rapidly developed and promise to increase the production of gasoline.



THIS IS THE ANSWER

The Secor-Higgins Carburetor is the *only* carburetor that will burn kerosene under *all* conditions. It is used only on the Rumely Oil Pull Tractor and is controlled by Advance-Rumely patents.

In belt or tractive work the load varies from nothing to full horsepower. The Oil Pull gives 100% efficiency from no load to full load, and the control is automatic. Two sizes, 15-30 and 30-60 horsepower.

Any carburetor which automatically varies the proportions and quantity of fuel, air and water, is an infringement on the Secor Fuel System as covered by our basic patent, and any carburetor which does not do this cannot possibly use oil under all conditions.

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PRACTICAL TALKS TO THRESHERMEN

LESSON CXI

TRACTORS are much better than they were two years ago or even one year ago. Everybody is learning and applying his new knowledge. No branch of industry is making more genuine progress than the tractor business and none is more difficult because it is difficult to obtain definite values for all the factors involved. With so much real progress in view, any criticism may seem out of place and yet I wish to say that even yet there is not enough study devoted to the refinement of the art of tractor design. There are as yet few formulas worked out covering the fundamental principles. The automobile did not reach its present state of perfection until every piece and part was tested out by mathematical formulas.

I realize these alone are not sufficient with which to design a tractor or any other machine, but I realize also that until they are used and applied the same mistakes will be made over and over again, and that they are needed to check up and correct almost every design. An examination of the various catalogs will show many errors of statement of fundamental principles as regards balance and draft. It would be well, indeed, if some of our designers would devote a little more time to the mathematical study of their profession and publish the formulas they work out and test. It would be an aid to the business, for every poor machine sold kills

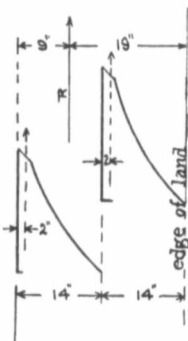
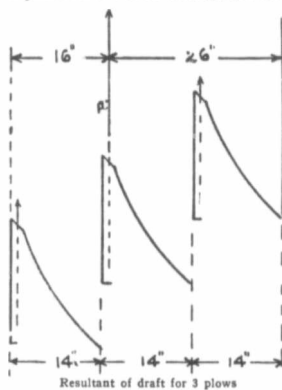


Diagram showing draft resultant from two-bottom plow

the market in its locality for a good machine for a considerable time to come. The best interests of all lie in the success of all.

The advent of a number of automobile companies into the tractor business this year will probably be a very good thing for the industry because it will lead to refinement of design and toward giving more careful attention to details. They may and possibly will make serious mistakes. They are very apt to underestimate the size of motor required and underestimate the magnitude of the stress that will be encountered. They are apt to over refine many parts and make their machines too flimsy, but with their experience in attending to details, figuring balance, etc., they should advance the art in no small degree.

The tractor business has got to a point now where it warrants the



highest constructive talent. There is a vast amount of business in sight. The farmers all over the world, where farms are of any size, are interested. If the tractors prove to be the success expected, this business will be permanent and grow to enormous proportions. There are some pretty good machines now on the market and unfortunately quite a good many that are not up to standard. It is the makeshift machine, the illy designed that will cause the trouble. It is clearly the duty of every manufacturer now to engage the highest talent procurable in his designing room and testing department. These jobs require engineering specialists and not merely handy men.

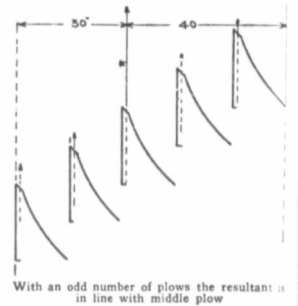
The tendency of design, as has been stated before in these columns, is toward very light weight. This means the automobile style of construction, the use of steel in place of cast iron; cut

and hardened steel gearing and the use of higher speed motors. The reason for the high speed motor is obvious. In order to reduce weight, high speed is essential. But right here there is likely to be trouble. If a high speed motor is adopted it must not be run continuously at its full capacity. At least that seems to be the lesson taught wherever such motors have been used. Obviously the remedy is to design them with a wide margin of power beyond ordinary requirements. It means also greater attention to the matter of balancing; it means larger bearings and more positive lubrication and to a certain extent more care in operating and that is the hardest to obtain. Invariably the men who have succeeded with tractors knew how to take care of them. Everybody is willing enough but it takes more than mere willingness; it requires a certain degree of skill and mechanical knowledge. If the time ever arrives when we can have tractor garages or repair shops within reach of every machine, the tractor problem will be very close to solution. It has been the automobile garage as much as high class construction that is responsible for the success of the automobile.

There is a tendency at the present time to design tractors suitable for every purpose. Some go so far as to say that the tractor must displace the horse entirely, that it must do all a horse does and do it better. By this we suppose that they expect to construct universal tractors that will plow, harrow, harvest, cultivate row crops and haul loads to market and do all these things equally well. Perhaps they are right but it seems to me a universal tractor is a pretty big contract. I can conceive of special machines doing all these things but for one machine to do all of them and equally well looks like a very difficult undertaking.

If a universal tractor is possible there is no limit to the business, but it is not wholly essential to a very large measure of success. There is an enormous demand for tractors of small and medium size for doing the heavy work on the farm, but to be successful in the highest degree it must be reliable and durable. Some one has said it must run for five thousand

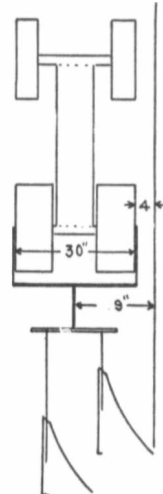
hours without overhauling. If that goal is attained the tractor is assured. It will then be much more dependable than any automobile.



With an odd number of plows the resultant is in line with middle plow

There is a good business for a dependable plowing tractor alone as a number of manufacturers have discovered. But even this task, simple as it seems, has proved a stumbling block to some. While none of what I may say should be new to tractor designers, it will undoubtedly be of interest to purchasers to consider some of the following facts relating to draft and especially to side draft.

The line of draft of a plow is practically parallel with the furrow and in fourteen and sixteen



Showing width of tractor to have no side draft hauling 2 plows

inch plows about two inches from the landside. In a fourteen inch plow, therefore, the line of draft lies parallel to and twelve inches toward the land from the edge of

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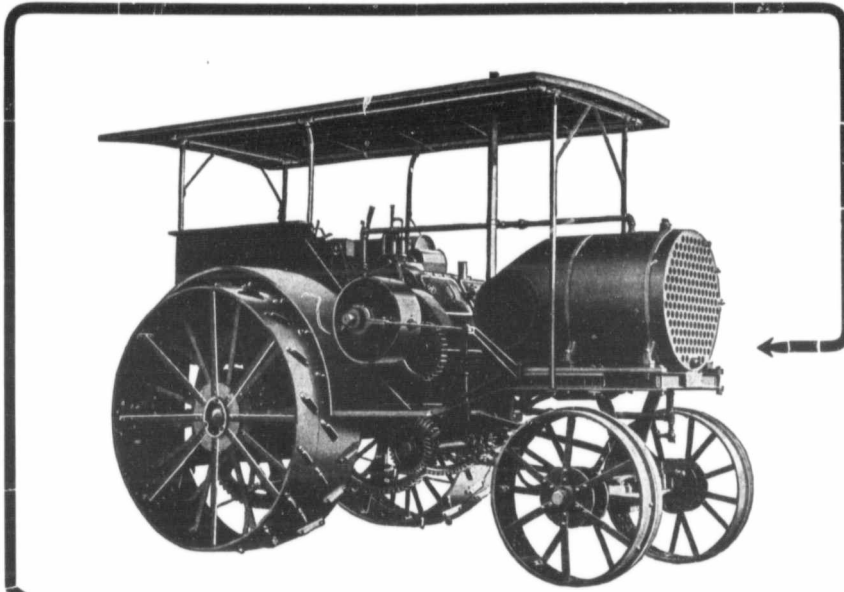
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A Prominent Member of the Aultman-Taylor Gas Tractor Family

THE A. & T. 25-50



THESE, AND MANY MORE NOTABLE FEATURES—SOME HIDDEN FROM THE EYE—MAKE AULTMAN-TAYLOR TRACTORS WHAT THEY ARE TO-DAY.

Just stop a minute and look this fellow over. He's a prominent member of the thoroughbred Aultman-Taylor Gas Tractor Family. Aultman-Taylor Gasoline-Kerosene Tractors are now built in three sizes, viz., 18-36, 25-50 and 30-60 H.P. Yes, and you'll not find anywhere a line of tractors that enjoys the reputation the country over that Aultman-Taylor Tractors enjoy. And mind you, Aultman-Taylor Tractors have attained this world-wide repute simply by actual results produced on the field. By doing more work—better work—with less fuel and fewer repairs than any other. That's it in a nutshell—that's the reason why Aultman-Taylor Tractors are spoken of in the highest terms wherever you go.

Four cylinder, valve-in-the-head motor. Motor placed horizontally on frame, thus practically eliminating all vibration.

Frame of the Locomotive Truss type, built of heavy steel bars and channel. The heavy steel bars provide plenty of stock to bolt to. This frame is light, strong and flexible.

Gearing, all straight spur gear—no bevel gears to cause delays and expense. You want to remember this feature. Straight spur gear is a decided improvement over bevel gear transmission.

Controlling mechanism is so simple that most any boy can operate an A. & T. Tractor. One lever does it all. Every thing is at your finger tips.

Large, wide drivers permit you to pass over soft places where most tractors are powerless. These high drivers afford great purchase in pulling.

A large tubular radiator takes care of the cooling in a most satisfactory manner and every provision is made for drainage.

Lubrication is looked after with great care in the building of A. & T. Tractors. A large oiler takes care of the motor like an expert. The gearing and other bearings are cared for by an oiler that operates only when gearing is running.

You want to know more about the best line of tractors on the market. There is just one way to get this information—send your name in for CATALOG—to-day.

If you are not familiar with the construction of Aultman-Taylor Tractors and the great work they are doing in every part of the country, it's time that you acquaint yourself with these facts.

Our new Gas Tractor Catalog is now off the Press. Send us your name and we shall be glad to mail you a copy.

USE THE COUPON BELOW

The Aultman & Taylor Machinery Company

Lock Box No. 64, Mansfield, Ohio

BRANCHES:

Minneapolis, Minn. ; Great Falls, Mont. ; Regina, Sask. ; Calgary, Alta., Canada

TRACTOR COUPON (64)

I am interested in your Gasoline-Kerosene Tractors and desire information on size herein checked:

18-36 25-50 30-60

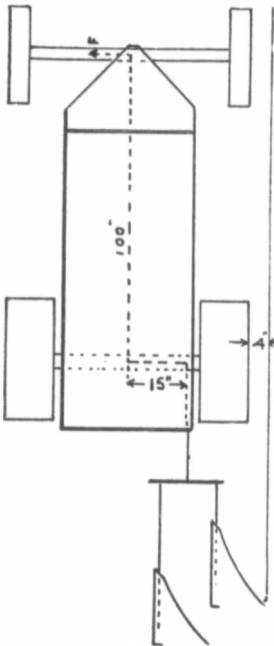
NAME

ADDRESS

You saw this advertisement in this magazine. Don't forget to say so when writing.

the furrow. If there are two plows the resultant of the two forces will lie midway between them and parallel to them. Referring to Figure 1, it will be noted that the hitch for these two plows, to obviate all side draft, should be nineteen inches from the edge of the land being plowed and nine inches from the inside edge of the second furrow.

If three plows are employed, the resultant naturally falls along the line of draft of the middle plow and twenty-six inches from the edge of the land. (See Figure 2.) In like manner it can be shown that when four plows are employed, the line of draft is midway between the resultant of the first and second pairs of plows



Showing effect of side draft on wide tractor and thirty-three inches from the edge of land. The resultant for five plows is shown in Figure 3. It is thus evident that for any number of plows the resultant lies about ten inches to the land side of the median line of the ground that is turned over. This does not take into account any lateral forces caused by the land draft of the plows or of the furrow slice. These are compensated for in the plow itself sufficiently to be left out of consideration and appear at the resultant merely as added draft but with no appreciable change in direction.

Obviously if we are to escape the consequences of side draft in plowing it is essential that the center line of tractor be made to coincide with the resultant of draft. In the case of two plows it must be nineteen inches from the edge of the land; with three plows, twenty-six inches. With four plows thirty-three inches

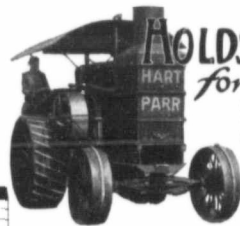
and with five plows, forty inches. Let us now see how these factors will affect side draft and the design of tractors.

Take, for example, the two plow outfit and suppose we use a four-wheel tractor with two rear drivers. To begin with, we should allow about four inches between the outside edge of the wheel and the edge of the land to prevent crushing. In some soils even that much allowance is hardly enough, but let us make the assumption. Now suppose we use a ten-inch drive wheel, and fourteen inches are accounted for. That leaves only five inches to the center line of the tractor. The total width of the tractor must, therefore, be just thirty inches wide with only ten inches between the two drivers. A tractor of these dimensions will not have any side draft but it will be little more than a toy and would not be a practical machine. This explains in some measure, at least, the reason why the small two-plow tractors are made so narrow; it is done to obviate side draft. (See Fig. 4.)

Now let us investigate the conditions if we should use a four-wheel tractor with a width of five feet between the outside edges of the drivers. As before, we will allow four inches between the edge of the furrow and outside edge of the outer drive wheel, then add to this thirty inches and we have the line of traction thirty-four inches from the outer edge of the first furrow, while the resultant of draft is only nineteen inches, a difference of fifteen inches. This has a tendency to pull the front end of the machine away from the land and onto the plowed ground and must be compensated for by keeping the front wheels turned toward the left. The value of the force tending to turn the front wheels can easily be computed. For example, suppose the wheel base is one hundred inches and the draft of two plows is one thousand pounds. We have two levers, one of fifteen inches and one of one hundred, as shown in Figure 5, and a force of one thousand pounds acting on the short lever. Applying the law of levers, we have:

$15 \times 1000 = 100 \times F$, whence the value of F , the force tending to turn the front wheels, is 150 pounds.

If it is a three-wheeled tractor with a single driver running in the furrow, we have still another set of conditions. In this case the driver will probably be twelve inches wide. The center of draft will pass through the mid point of the rim and six inches to the right of the edge of the land. The distance from the line of draft to the resultant of the two plows will be in this case twenty-five inches and, if three plows are used, thirty-two inches. Figuring



HOLD'S WORLD'S RECORD
for **ENDURANCE**
OVER 90 PER CENT OF
THE FIRST YEARS OUTPUT
MARKETED 14 YEARS AGO
STILL IN SUCCESSFUL
OPERATION TODAY

Thousands of farmers owning Hart-Parr Tractors are saving thousands of dollars in low operating costs because Hart-Parr Tractors have always burned kerosene.

An **Old Reliable Record**—Average life, 10 years—Average cost of repairs, less than 3 per cent per annum. The farmers who bought small tractors the first year, find that greater power

is more economical. The tendency is to buy power that covers every farm requirement. Labor is scarce, farm work must be done speedily; the hired man can turn eight furrows, with Old Reliable, as easily as he can turn two with a small tractor. The fuel cost per hour, of turning eight furrows with Old Reliable, about equals that of turning two or three furrows with a gasoline tractor.

Belt It To a Money Maker Separator

In the great tractor specializing shops of Hart-Parr all sizes of tractors are built for every sized farm, including Steel King "40", Oil King "35", Crop Maker "27" and Little Devil "22". Famous Money Maker Separators are furnished to fit any of the above tractors. We will be glad to tell you all about them but as a business proposition, look up Old Reliable first. Ask us to tell you about its wonderful mechanical features.

No matter what your present idea is, it will cost you nothing to be sure that you are safe.

Old Reliable—the perfect power for threshing. Write for our new two color feature circular on Old Reliable.

Famous Money Maker in action. Only separator that is double leather belted—double eccentric driven.

Write for booklet.



HART-PARR CO.
PORTAGE LA PRAIRIE, MAN. CAN. — REGINA, SASK. CAN.
SASKATOON, SASK. CAN. HOME OFFICE, CHARLES CITY IOWA U.S.A.
FOUNDERS OF THE TRACTOR INDUSTRY—BUILDERS OF TRACTORS THAT LAST

You saw this advertisement in this magazine. Don't forget to say so when writing.

Based on a Knowledge of Western Conditions
This Bissell Disk Harrow is built especially to meet and cope with Western soil conditions. The Disk Plates are shaped to reach well under, cutting and giving the soil a complete turnover.

Plan to see and examine this improved Disk at the Brand-on, Regina and Saskatoon Fairs. You will find it interesting.

The Bissell Disk Harrow

cuts, cultivates and pulverizes the whole surface and also has the capacity to penetrate hard soil. No centre strip is left uncut and the two plates on the Trailer make a level finish. Farmers claim that this Harrow saves a second outfit; one man and six horses will do the work of two men and eight horses.

Sold by all Jno. Deere Plow Company Dealers. 91

T. E. BISSELL COMPANY, LIMITED, Dept. L, ELORA, ONTARIO.

You saw this advertisement in this magazine. Don't forget to say so when writing.

one fore a tu tend land inch befo turn fifty acts start front fifty illust and i steeri the furro its ce expen motor culty turain

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Milestone ..
Yellow Grass ..
Estevan ..
Midale ..
Arcola ..
Creelman ..
Fort Qu'Appe ..
Baharrev ..
Sintaluta ..
Indian Head ..

one thousand pounds draft as before and only two plows, we have a turning effort at the front wheel tending to turn it in toward the land. Assuming a one hundred inch wheel base and figuring as before, we find the value of the turning force is two hundred and fifty pounds. That is, the tractor acts as though there were a constant side pull at the hub of the front wheel of two hundred and fifty pounds. These two examples illustrate the effect of side draft and show what effect it has on steering. Of course in the case of the three-wheel machines, the furrow wheel holds the tractor to its course but it is done at the expense of the power of the motor. It also explains the difficulty sometimes experienced in turning or striking out a land.

Grain Growers' Handle Live Stock

After almost ten year's experience in the handling of grain on commission, The Grain Growers' Grain Co. Ltd., of Winnipeg, has opened an office in the Union Stocks Yards, in that city, for the handling of live stock. There are comparatively few who do not know what this Company has done to bring about improvement in the conditions under which grain is marketed in Western Canada. There is no doubt but that they will do much also to improve conditions for those who sell cattle, sheep and hogs.

The G.G.G. Co. has secured an experienced and capable Superintendent in Albert Duncan. Mr. Duncan has been in close touch with live stock and markets for about 25 years, and is a competent judge of stock. He has an efficient staff and a well equipped office. Farmers, drovers, or associations throughout Western Canada need have no hesitation in using The Grain Growers' Grain Co. Ltd., in the marketing of their stock. Write them for information or ask them to send their weekly market letter.

SASKATCHEWAN AGRICULTURAL AND INDUSTRIAL EXHIBITIONS 1916

Regina	July 24-29
Saskatoon	July 31-Aug. 5
Vonda	July 25
Langham	July 27
Radisson	July 28
Carleton	Aug. 1
Shellbrook	Aug. 4
North Battleford	Aug. 7-9
Lashburn	Aug. 10
Lloydminster	Aug. 11
Rosheron	Aug. 15
Bouleau	July 19
Alibon	July 20-22
Yellow Grass	July 28
Estevan	July 27-28
Midale	Aug. 10
Aroola	Aug. 1
Cresman	Aug. 2
Fort Qu'Appelle	Aug. 3
Balarres	Aug. 4
Sintaluta	Aug. 8
Indian Head	

Robart	July 11
Cadillac	July 13
Summercove	July 14
Bengough	July 18
Ogema	July 19
Colgate	July 21
Lampman	July 21
Brownlee	July 25
Central Butte	July 26
Outlook	July 27-28
Southey	July 21
Imperial	July 25
Langin	July 27
Elstow	July 28
Bladworth	July 26
Lipton	Aug. 1
Lumsden	Aug. 3
Elbow	Aug. 4
Melfort	Aug. 8-9
Prince Albert	Aug. 10, 11, 12
Wadena	Aug. 15
Humboldt	Aug. 16-17
Yorkton	July 19-21
Churchbridge	July 25
Foam Lake	July 26
Saltoats	July 27
Fertile Belt	July 28
Kelliher	Aug. 1
Punnihiy	Aug. 2
Nokomis	Aug. 3
Dubuc	Aug. 4
Tantallon	Aug. 8
Woleseley	
Francis	Aug. 11
Watrous	Aug. 15
Melville	Aug. 16
Cabri	July 27
Lemsford	July 28
Swift Current	Aug. 1-2
Herbert	Aug. 3
Mortlach	Aug. 4
Vanguard	Aug. 8
Ettington	Aug. 9
Woodrow	Aug. 10
Hawarden	July 19
Bounty	July 20
Plenty	July 21
Kerobert	July 25
Macklin	July 27
Unity	July 28
Luseland	Aug. 4
Cut Knife	Aug. 1
Paynton	Aug. 2
Bangor	July 19
Govan	July 20-21
Perdue	July 25
Wilkie	July 26-27
Asquith	July 28
Hanley	Aug. 1
Crails	Aug. 2
Davidson	Aug. 3
Carlyle	Aug. 4
Weyburn	Aug. 7-9
Aneroid	July 25
Shaunavon	July 26
Readlyn	Aug. 28
Alameda	Aug. 1
Oxbow	Aug. 2
Carnduff	Aug. 3
Gainsboro	Aug. 4
Redvers	Aug. 8
Mair	Aug. 9
Stoughton	Aug. 10
Assiniboia	Aug. 10-11
Zealandia	July 28
Kindersley	Aug. 9
Alsask	Aug. 11
Brock	Aug. 10
Moosomin	Aug. 1-2
Broadview	Aug. 3
Wapella	Aug. 4
Windthorst	Aug. 8
Fairmede	Aug. 9
Greenfell	Aug. 10
Kennedy	Aug. 11
Whitewood	Aug. 15
Maryfield	Aug. 16
Strassburg	July 19
Togo	July 26
Invermay	July 27
Canora	July 28
Elfros	Aug. 1
Kinistino	Sept. 19
Tisdale	Sept. 21
Silver Stream	Sept. 22
Duck Lake	Sept. 26
Maple Creek	Sept. 27-29
Quill Lake	Sept. 28
Watson	Sept. 29
Maymont	Oct. 3



**A Tank of Oil on Fire!
A lot of Money Wasted—
And a lot of Oil Wasted**

Yet, the contents of this tank does not represent one per cent of the amount of oil wasted annually by the farmers and threshers of Western Canada.

Lubricating oils differ in quality, because of the flash—fire and viscosity tests.

ONE barrel of **GOOD** oil is worth **TWO** barrels of **POOR** oil. In other words, it takes two drops of poor oil to do the work of one drop of good oil.

There is a lot of poor oil used by the farmers and threshers of Western Canada. Therefore, there is a lot of oil wasted.

"National" Quality First Oils

are good oils. Every drop lubricates.

In the year 1882—34 years ago—"National" Oils and Greases first made their appearance. It has taken all these years to bring "National" products to their present point of excellence.

If you are not using our products—let us mail you samples and prices. Use coupon below or drop us a post card. **DO IT NOW!**

Canadian Oil Companies LIMITED

WINNIPEG	PORTAGE LA PRAIRIE	BRANDON	REGINA
SASKATOON	MOOSE JAW	WEYBURN	EDMONTON
CALGARY	MACLEOD	GLEICHEN	NELSON
FERDIE	CARBERRY	CAMROSE	ETC.

CANADIAN OIL COMPANIES LIM TED

WINNIPEG REGINA CALGARY

Dear Sirs:—Kindly quote me on the following goods

also send your 1916 catalogue to:

NAME

P.O. Address R.R. Station

You saw this advertisement in this magazine. Don't forget to say so when writing.

THERE are four methods of lubrication used on gas engines; viz., mechanical or force feed, gravity, grease cups, and the old-fashioned squirt can be operated by arm-strong power. In some engines two of these systems are used; some use three and some require all four methods.

The mechanical or force feed oiler consists of an oil tank with a number of small oil pumps enclosed therein, one for each pipe that carries oil from the pump to the bearing it is intended to lubricate. The oil tank is provided with a gauge, generally in one corner to show how much oil is in the tank. The salesman will tell you when selling this system that it is absolutely automatic and needs no attention except to put in the oil. This is a very nice talking point, but you will find out to your sorrow, if you follow out his advice, that there is no piece of machinery made which does not require attention. The more attention you give to it the better off you will be.

While these mechanical oilers are intended to operate and give general satisfaction without so much attention as other methods, yet they will get out of adjustment and as a result you will have troubles and sometimes the most serious troubles. Let us illustrate. In this instance the mechanical oiler was not to blame so much as the mechanic who should have been with the rig. A large tractor was being delivered to a farmer nine miles in the country. The man who was sent to deliver the engine was supposed to be a good mechanic and probably was good enough for the work in hand if he had stayed on the job. The oil tank was filled and everything put in first-class order and the tractor was started out in the care of a couple of inexperienced men while the salesman and the owner decided to play a few friendly games of pool and then take their car and be at the farm by the time the tractor arrived.

This would have been all right if they had even suggested to these men to watch to see how the oil held out in the tank. The oiler on this tractor like most oilers should be, on a new engine, was set to feed the oil nearly twice as fast as it should feed after the engine is worked out thoroughly and no tight bearings are found. Everything went well until they got about seven miles from town, when they began to smell burning oil, but being inexperienced they did not pay much attention to it and went ahead. They proceeded about a quarter of a mile farther when such a pounding and knocking began in the crank case that from fright they stopped the engine. In a little while the salesman and owner

Lubrication of the Gas Engine

By J. L. HOBBS

came up in their car and after an hour or two of hard, hot work and investigation they found that one of the bearings on the crank end of the connecting rod was gone. They could see that it was caused from the lack of oil and began tracing the pipe back to the tank and found it was all open, but when they looked into the tank there was no oil. This tractor had to sit there in the road until a new bearing could be obtained and an expert to put it in and work it out and get it so that it would run without heating, which spoiled two days of valuable time for the tractor and four men.

If the salesman had stayed on the job he would probably have discovered what was wrong before the damage was done. With a new engine great care should be given to the lubrication, as the bearings are generally as tight as they will run and a failure in lubrication at that time is almost sure to result in disaster.

Another instance will illustrate another phase of the mechanical oiler. The owner of a 20-horse tractor of standard make had used his tractor for about three months in plowing. It began to fail in power and would not pull the number of plows it formerly had pulled. The man was dissatisfied and called for an expert. A man was sent out and decided that the engine needed a new set of rings which were put in, and in putting these in quite a liberal supply of oil was put onto the rings in order to make them enter the cylinder easily. The engine was started up and ran nicely. This expert, being in a hurry to get back to town,

thought he had the trouble located and left. The engine only pulled its load a few minutes and began to fail as before.

Before the first man got back to the warehouse the owner was calling for another man. The second man was sent out, and he, having more experience than the first man, suspected that the oiler was not working properly. He opened the pipe that leads into the cylinder and with a squirt can put in a small quantity of oil and started the engine and began to watch the oiler. He was rewarded almost immediately for his watchfulness by seeing the ratchet gear miss turning the shaft which operates the pumps. Now the reason for this was that the holes in the connecting parts and also the pin had become worn so that the little cog that turns this shaft did not move quite far enough to catch every time, but would move the oiler only occasionally. Without stopping the engine, he made an adjustment to give this little cog a little more movement and the engine almost immediately picked up its load and went ahead the same as when it was new. It is better to see a little oil going to waste than to smell hot bearings.

A word right here in regard to the oil might not be out of the way. An oil to give satisfaction in a gas engine must have a high fire test and good lubricating qualities at the same time. An oil which will lubricate the cylinder of a gasoline engine, perfectly might fail totally on an oil burning engine. You ask why? It is very simple. In a gasoline burning en-

gine the water is made to circulate as rapidly and as thoroughly as possible, because the cooler you are able to keep the walls of your cylinder and the piston, the better results you obtain in burning gasoline, while in burning oil the very opposite is true. You can't use oil in any kind of an engine until the cylinder becomes thoroughly heated and after that the more heat you get in the walls without burning your lubricating oil the better success you will have. The reason for this is that gasoline will vaporize at a very low temperature while oil requires a high temperature. This is also the reason why you cannot start an oil burning engine without the use of gasoline to warm the cylinder.

It is not our purpose to tell you any particular brand of oil to use but to give you the qualities this oil should have and enable you to make your own tests and satisfy yourself as to what is best adapted to your needs. It is well to remove the piston occasionally while making these tests and observe the results. If the inside of the cylinder and piston are properly lubricated every time you remove the piston, and neither the piston nor the inside of the cylinder shows any scratches or any signs of undue wear you are about right on your lubricating oil. The presence of an excessive amount of carbon on the end of the piston is a very good sign of poor lubricating oil.

There are two reasons why good lubrication in the cylinder is necessary. Without the oil on the walls of the cylinder and in and around the rings on the piston you could not maintain enough compression to give any power. The engine might run, but that would be about all, and even though it did run it would soon become excessively hot, because it would require the burning of so much more fuel to produce the required power.

Pipes from the mechanical oiler generally run to the cylinder, both main bearings of the crank axle, the connecting rod bearings, and on a tractor, the gears and gear shaft bearings are sometimes lubricated by this means. In all these places, except the connecting rod bearing, the oil pipe goes direct to the bearing; but this being impossible with the connecting rod bearing, which rotates with the crank axle, the oil is taken to a small cup just above the highest point which the connecting rod reaches. At the bottom of this little cup is a small piece of ordinary lamp wicking and on the connecting rod there is a slight projection which touches this wick at each revolution very lightly, and wipes off the drop of oil as it accumulates on the wick. This makes a very

Continued on page 31

Western King

Union Made Overalls



"Made in Winnipeg"

Made for Wear
and Solid Comfort.

**Every Garment
Guaranteed**

Western King Mfg. Co.
LIMITED - WINNIPEG 84

Please send name and address to C.T.

THE MISSING LINK

between the shortage of farm labor this spring and the large amount of plowing to be done is the

UNIVERSAL FARM TRACTOR



In order to maintain the balance which has been disturbed through so much of our farm help joining the colors, it will be necessary for the farmer of Western Canada to substitute mechanical power for horse power in the plowing field, thus enabling one man to do the work of several.

Regular Price **\$850.00** F.O.B. WINNIPEG SEASON 1916

Special Introductory Price

to first customer in any district where no machines have been sold up to the present time—

\$697.00 F.O.B. WINNIPEG

Hurry up! and be the first customer from your locality, it will pay you.

The "UNIVERSAL" is the Farm Tractor that will completely solve the problem of your farm power and place you on "Easy Street" with regard to the labor difficulty.

FEWER MEN
TO PLOW
IN 1916 THAN IN 1915



LET US ANALYZE THE MACHINE ITSELF AND SEE WHY IT IS

The LIGHT TRACTOR WITH THE Big Pull

First—It is a three wheel machine with its entire tractive effort concentrated in one big drive wheel, 60 in. diameter with a 20 in. face. This wheel runs up on the land and not in the furrow, thus giving it an exceptionally strong grip. By carrying the driver upon the land, a direct pull is obtained, thus eliminating side draft that must otherwise be overcome by complicated hitches that cause trouble and use up power.

Second—It weighs but 4,500 pounds, but with the weight so distributed that the harder the pull, the firmer the grip. It will not pack the soil so much as a team of horses, and nowhere near so much as the number of horses equivalent to its drawbar horse power.

Third—It has a two cylinder opposed motor—the last thing in simplicity. It is practically dust proof with force feed oiler, governor and magneto driven and integral with the motor itself, thus ensuring the perfect working of these vital parts.

Fourth—Its one drive wheel does away with the necessity of using a differential gear and to further simplify the machine, the main drive is through a chain—thus doing away with a noisy chain of gears that are expensive to build and expensive to maintain.

Fifth—The "Universal" is designed in accordance with the best engineering practice. It is strong and heavy where needed and light where little strength is required. In this way we give you a tractor that combines a minimum of weight and low cost with maximum efficiency.

What the Manitoba UNIVERSAL will do for you:—

1. It will do the work of eight sturdy horses.
2. It will pull a 24 disc drill, an 8 foot cultivator or a 10 foot disc harrow.
3. It will pull an 8 foot harvester 2½ miles per hour, 24 hours per day if necessary.
4. It will haul a 4 ton load on practically any road with ease.
5. It will drive a feed chopper, ensilage cutter, wood saw, or any other machine requiring belt power within 20 h.p. capacity.

The "Universal" will render you cheap and efficient power wherever and whenever required. Send for our Books on the "Universal" and let us tell you its complete story.

Western Steel and Iron Co. Ltd.
WINNIPEG, CANADA

WESTERN STEEL & IRON CO. LIMITED
Please send me free of charge, all literature regarding the Universal Farm Tractor.
Name _____
Address _____
C.F. _____

UNIVERSAL FARM TRACTOR

LAND TO PLOW
IN 1916 THAN IN 1915

Will the Price of Farm Machinery Advance?

MOST of us have acquired the habit of not crossing our bridges until we get to them. We are prone to allow matters to drift along in the same old way until we are really brought face to face with a difficulty. We do not keep our ears close enough to the ground to catch the rumbling of coming events, with the result that we are oftentimes obliged to face problems for which we are not prepared.

In this connection we want to sound a note of warning to the farmer of Western Canada in connection with their future farm machinery equipments.

When the war broke out it found the North American Continent plentifully supplied with stocks of goods of all descriptions. As a matter of fact there was over-production in most lines of industry, and prices for raw ma-

terials were at low ebb. For the first six months of the war, in fact for the first twelve months, little or no difference was noticeable, but with the enormous drain made upon the steel supply for war munitions the problem of securing iron and steel for the manufacture of farm machinery became a difficult one, until today it has reached a state that is beyond the comprehension of those who are not on the inside and who do not know the actual conditions that exist.

On this page will be found a chart which shows the fluctuations of the steel market for several years, and it needs but a glance at this chart to show the real situation.

During the past two or three months we have talked with dozens of manufacturers of farm machinery, both in Canada and the United States, and their state-

Continued on page 44

A Floor That Makes You Feel You're in Good Company

Clean, smooth, highly polished floors are possible in any house, no matter what wood they are made of. Even a pine floor will call forth praise if it is finished with

Stephens'
REGISTERED TRADE MARK

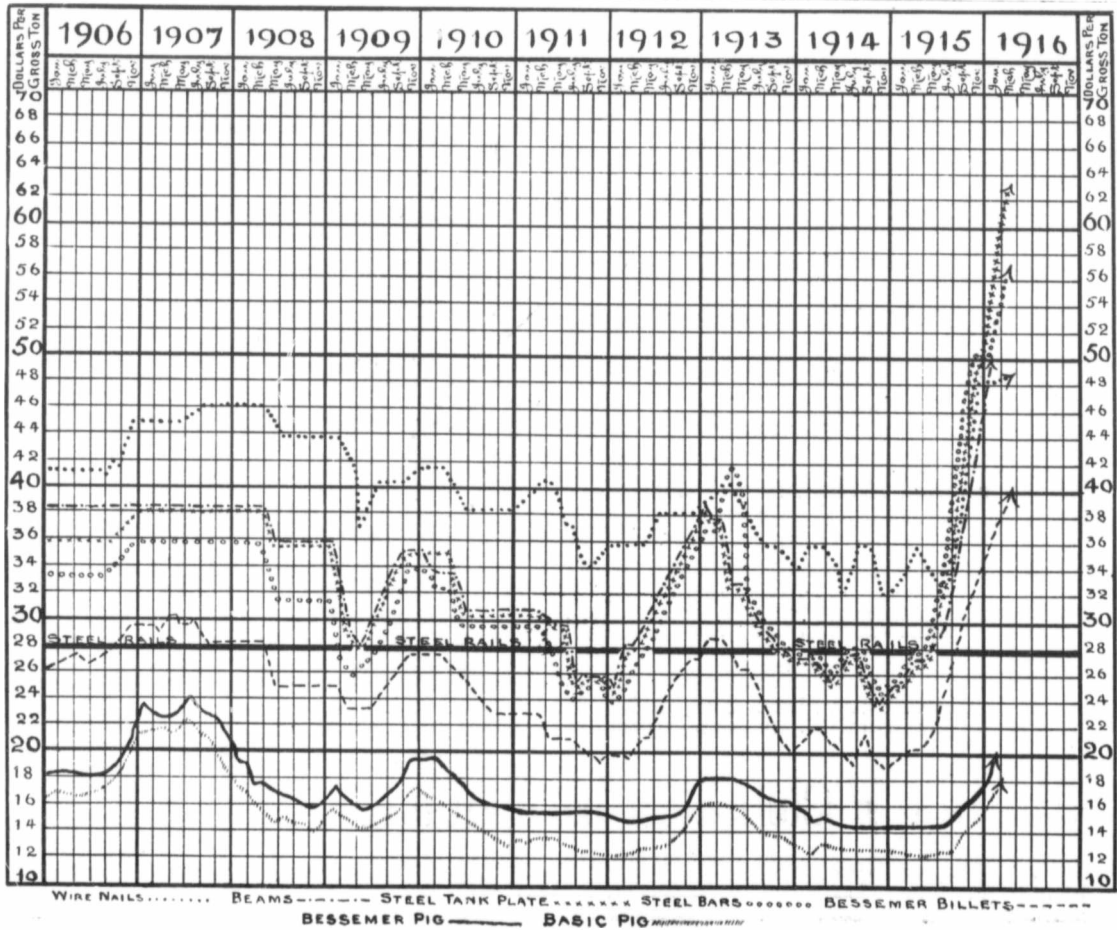
WA-KO-VER STAIN

A strong, elastic, pleasing surface that will last for years with the smallest amount of care, is always secured by finishing it with Wa-Ko-Ver Stain. Your hardware dealer will be glad to give you all information.



G. F. Stephens & Co. Limited

Paint and Varnish Makers
WINNIPEG - CANADA

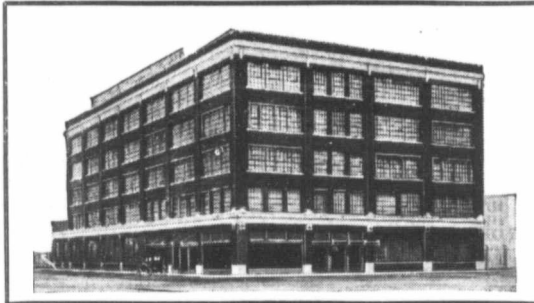




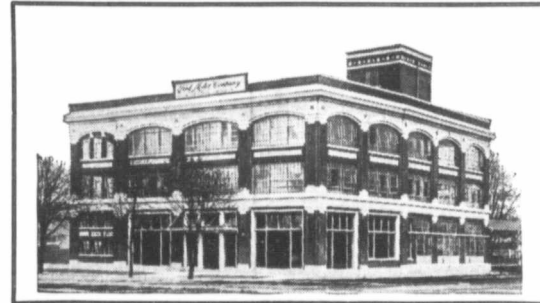
Toronto Branch
Area 133,000 sq. ft. Cost \$328,000



Montreal Branch
Area 124,000 sq. ft. Cost \$333,000



Winnipeg Branch
Area 123,000 sq. ft. Cost \$250,000



London, Ont. Branch
Area 49,872 sq. ft. Cost \$161,000

One Million Seven Hundred and Twenty-four Thousand Dollars for New Buildings in Canada Since War Began

WHY?

Is Canada prosperous?

Are we justified in having the courage and confidence to put on full speed ahead in our business activities?

The experience of the Canadian Ford Company since that never-to-be-forgotten Aug. 1, 1914, indicates that courage and confidence should be away above par, that we are fully justified in casting aside anxiety and putting our full energy into an aggressive and progressive business policy.

It was some time before the outbreak of war that the Ford Canadian Company decided on an extremely broad policy of expansion.

If the demand for Ford cars should increase in the way that it had every indication of doing, then new buildings would have to be started at once to enable the company to meet this demand.

When war came the Ford Canadian executives saw no reason to change their plans—their confidence in Canada's prosperity never wavered.

So work was begun on a new building at Ford City costing \$452,000. This is used as an addition to the office building and to the main factory building. It adds 130,000 square feet of floor space to the Ford Plant bringing the total up to more than 9 acres.

Then followed a new machine shop costing \$90,000.

The power plant was also enlarged at a cost of \$110,000.

In four leading Canadian cities, handsome new buildings were erected as branch assembly plants, sales and service stations. Each one is as large as many automobile factories. All are of similar construction, being modern fire-proof buildings of brick and reinforced concrete trimmed with mat glazed terra cotta. The bases are of granite. The interiors are finished and fitted in accordance with the very best modern practice.

One of the branch buildings is located at Montreal, 119-139 Laurier Ave., East. It is a four story building containing 124,000 square feet of floor space and costing \$333,000. Over 100 people are employed here.

The Ford branch at Toronto, 672-682 Dupont St., is a five-story

building containing 132,000 square feet of floor space. The number of employes is about 150.

The third new branch building is at London, Ontario at 680-690 Waterloo Street. It is a three story structure having 49,872 square feet of floor space and was erected at a cost of \$161,000.

The immensely increasing demand for Ford cars in Western Canada made it necessary to build a fourth new branch at Winnipeg. This is a handsome five story building located at the corner of Portage Avenue and Wall Street. A quarter of a million dollars was put into its construction.

The total cost of these new buildings erected by the Ford Canadian Company since war began is \$1,724,000. Additional to this are thousands of dollars spent to equip these buildings.

Why has this been done?

First, to provide Ford owners with greater service facilities. Each of these branches is so completely equipped with parts and machinery as to be able to build a Ford car complete. Also they act as a base for the hundreds of Ford dealers in their part of the country, each of whose place of business is a well equipped Ford service station, in giving more rapid and more efficient service to Ford owners.

The second reason for this great amount of development work is to be found in the attitude of the Ford Canadian executives. If these men had followed the policy of many Canadian manufacturers they, with seeming good judgment, might have held up these plans for such enormously expensive construction work.

But such was not their attitude. They were convinced that progress and prosperity were assured in Canada.

This decision was of vast benefit to Canadian industries, Canadian merchants and Canadian workmen in such a critical time as this. Practically all the material for these buildings was purchased in Canada. Canadian workmen were employed in their construction. And after the construction work was over, the whole community benefited from the enthusiastic, successful, wealth producing and distributing activities of these big establishments.

Ford Motor Company of Canada, Limited, Ford, Ont.

- Ford Runabout . . . \$480
 - Ford Touring . . . 530
 - Ford Coupelet . . . 730
 - Ford Sedan . . . 890
 - Ford Town Car . . . 780
- f. o. b. Ford, Ontario



All cars completely equipped,
including electric headlights.
Equipment does not include
speedometer.

FARM CROPS IN ALBERTA

LAST month reference was made in these pages to an unpretentious booklet issued by the Alberta Department of Agriculture under the above caption. This booklet necessarily touches the fringe of Alberta's extraordinary results in crop raising, not to speak of the possibilities the province offers. Very few people, even among Albertans themselves, have any decent conception of just what are its crop land contents.

In extent it is larger than any state of the Union except Texas, but it carries a very small percentage of the waste land which forms such a wide area of the Texas plains. And the rich, arable lands of Alberta that need no irrigation represent a productive wealth that will never be approached by any southern state.

At least one hundred million acres of Alberta are distinctly arable lands which may be cleared, broken and placed under cultivation at reasonable cost, and the greater proportion of this requires practically no clearing at all, the land is ready for the breaking plow. In 1906 (ten years ago) the land under cultivation was only 591,614 acres, producing about nineteen and a half million bushels of crop. In 1915 3,184,500 acres were under cultivation and the crop yield for that year is conservatively estimated at 125,000,000 bushels.

It will thus be seen that only about four per cent of this wonderful country's arable land has yet been tapped. This means that in this one province alone there are opportunities in return for reasonable labor and common-sense farming that are scarcely to be met with at any other point in North America.

The province may be roughly divided into three sections: Northern, central and southern Alberta. The northern section for some time has been the subject of special interest pretty well all over the world. It contains the great valleys of the Athabasca and Peace

Rivers and, as we write, "The Peace River" is, figuratively speaking, in everybody's mouth.

These great alluvial stretches of country are not only intensely rich in humus but the climatic conditions are far superior and less fitful than the varying weather records of much advertised countries to the south and east. Even in the farthest north to which settlement has been projected, the crops of cereals and vegetables have been amazing, to put it mildly.

Many photographs of these crops have reached us which we purpose using from time to time and with the solid guarantee that in no instance have they been "faked" or even retouched.

This magazine for some years prior to the outbreak of war had been "doing its bit" quietly but most effectively in pure immigration work, particularly among the real bred-in-the-bone agriculturists. It can number at least a dozen of the very best stockmen and grain growers who were induced to settle in Alberta largely through its representations and in no case have the results been other than eminently satisfactory.

When our friends in the old land have fought it to a finish on the plains of Flanders and the last "little tyrant of his fields" has been sent to his everlasting sleep, there will be a big exodus to Western Canada. That had been settled long ago and the incidence of the war, while holding up the tide for a brief space, has by no means permanently bottled up the flood.

On the contrary, if our compatriots had set their hearts on the peaceful pursuits of agriculture in Sunny Alberta before the war,

when its last camp-fire has burned out, they will all the more eagerly seek a retreat from the horrible nightmare of its battlefields. We know of cases wherein some of the very best in sober, industrious and intelligent agriculturists from sadly battle-scarred Belgium will seek a home in Canada where they can employ their genius for stock-raising and truck-growing to their heart's content.

This leads us to say that in the past too much encouragement has been given to settlers of the wrong type and too little has been done to encourage the right stamp to come out and to safeguard them from exploitation when they do land in Canada. Not the least successful of our later immigrants have been the Belgians. In Manitoba, particularly, they have certainly given a great account of themselves.

Their vegetable gardening success around Winnipeg has been little short of marvellous and in the more extended work of general agriculture, we can point to some brilliant records around Swan Lake. It is not generally known (so quietly do these people work along) that in the neighborhood of Somerset and Swan Lake, a big colony of Belgian farmers have been operating 'or quite a few years.

Last summer it was the writer's privilege to make a tour among some of the older members of this community and the character and cleanliness of the farm buildings, the grain crops and the intense spirit of earnestness and concentration was one of the most heartening experiences he had met with for many a long day. Some of the

best men among them were the women-folk! The "boys" in one family were all girls, except the youngest shaver, who was still at school but the buxom lasses were as much at home driving in fence posts and handling other farm equipment as any man in sight. And they were ladies withal. On Sunday they were attired—not gorgeously or extravagantly but in perfect taste and with a better idea of the eternal fitness of things than some leaders of society who would set the pace in everything.

The picture of cabbage crops at the bottom of this page is nothing unusual for an Alberta field. This is only one of a few score of no less impressive demonstrations now in our possession which will appear in due course. We strongly urge upon the Alberta immigration chiefs to keep their eye on Belgium. Some of these erstwhile Flemings in our own neighborhood are strongly desirous of getting certain of their relatives and old neighbors to cross the Atlantic when they can be released from their military duties and although they read English indifferently, they ask us for back-numbers of The Canadian Thresherman and Farmer containing "fine pictures of farm" to send home to their kindred.

In this war the Sons of Old Scotland have not disgraced the splendid name they have inherited from their fighting forbears. Whole villages, and in some cases entire agricultural districts, have given up the last unit of their manhood who can fight, whether or not he could be spared from

the fields. These boys from "Buchan and beyond" have clasped hands with their Canadian brothers in the trenches, and scores of letters in the writer's possession speak of these glorious reunions and the prospects they open up. One enthusiast says: "Canada has got an advertising that printer's ink never gave her or could give her in a hundred years."



"DRUM-HEAD" BEAUTIES GROWING IN ALBERTA Courtesy of the G.T.P. Railway Co.

YOU CANNOT AFFORD THE WRONG OIL

A GOOD lubricant in the wrong place is just as bad as a poor lubricant. For every part of every machine there is one *right* lubricant---and it is worth money to you to find it. It means less money spent for oil and a longer life for your machine.

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

STANDARD GAS ENGINE OIL

Recommended by leading builders for all types of internal combustion engines, whether tractor or stationary, gasoline or kerosene. It keeps its body at high temperature, is practically free from carbon, and is absolutely uniform in quality.

PRAIRIE HARVESTER OIL

An excellent all-round lubricant for exposed bearings of harvesters and other farm machinery. Stays on the bearings; will not gum or corrode.

CAPITOL CYLINDER OIL

The most effective and economical lubricant for steam engine cylinders; proven superior in practical competition with other cylinder oils.

ELDORADO CASTOR OIL

A high-grade, thick-bodied oil for lubricating the loose bearings of farm machinery, sawmills and factory shafting.

THRESHER HARD OIL

Keeps the cool bearing *cool*. Does not depend on heat or friction to cause it to lubricate.

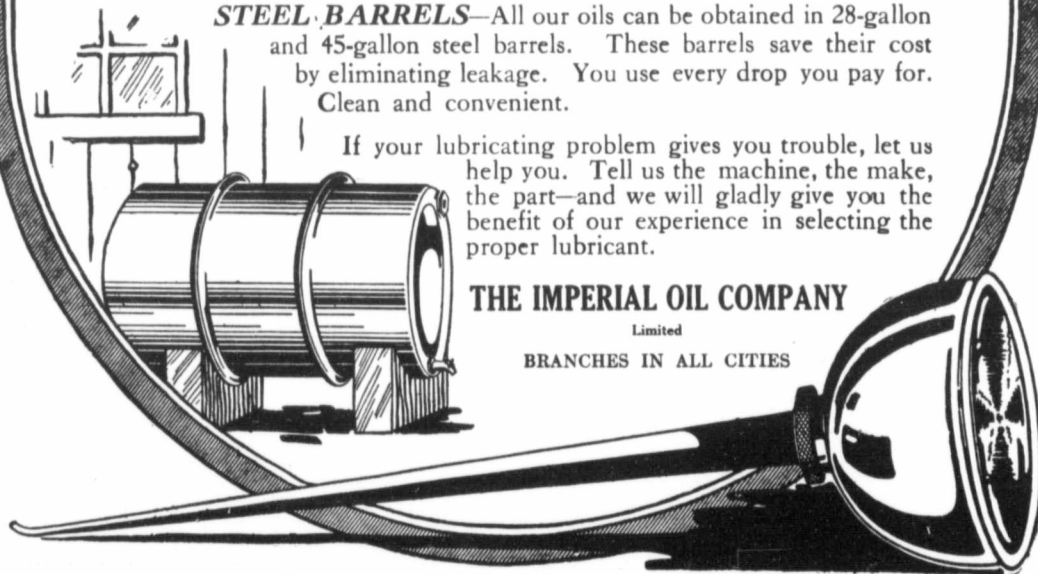
STEEL BARRELS—All our oils can be obtained in 28-gallon and 45-gallon steel barrels. These barrels save their cost by eliminating leakage. You use every drop you pay for. Clean and convenient.

If your lubricating problem gives you trouble, let us help you. Tell us the machine, the make, the part—and we will gladly give you the benefit of our experience in selecting the proper lubricant.

THE IMPERIAL OIL COMPANY

Limited

BRANCHES IN ALL CITIES



The Production of Registered Seed in Manitoba

Address Delivered to Seed Grower's Convention (1916) M.A.C. by L. H. Newman, Ottawa

A GLANCE at statistics will indicate that in this province alone you had under cultivation in 1915 over 5,000,000 acres of land, devoted chiefly to wheat, oats and barley. This area required, roughly speaking, about 8,000,000 bushels of seed grain last spring. Is the seed commonly used as good as it might be? Is it as free from weed seeds, as high in vitality, and as well bred as it is within the range of possibility to be? These are questions which are worthy of the best thought and study of all concerned in the future welfare of the province.

Some small degree of light may be thrown on the condition of the seed that is used on the average farm in Manitoba by referring to the results of an investigation made by the Dominion Seed Branch in the spring of 1913. Samples of seed were taken by seed inspectors from the grain drills of farmers in different parts of the province and submitted to a careful purity and germination test. In Manitoba 146 samples of oats, 60 of barley and 100 of wheat were taken. Of the 146 farmers from whom samples of oats were taken, 62 did not know the name of the variety they were growing; 65 were growing Banner, 7 Abundance, and the remainder other varieties. Sixty-seven treated their oats to prevent smut, while 79 did not treat. The average number of weed seeds per pound of oats was 369. The largest number of noxious weeds found in any pound sample of oats was 2,153, and of the less harmful weeds, 5,993. In germination it was found that the average per cent was 90, the lowest being 18 per cent.

In the case of barley, 55 farmers out of the 60 from whom samples were taken did not know the name of the variety they were

growing; 35 out of the 60 did not treat for smut. The average number of noxious weed seeds per pound of barley was 71, the largest number found in any one sample being 854. Of the weed seed not classed as noxious as high as 9968 were found in one pound of barley. In germination the average was 86 per cent, the lowest being 33 per cent.

In wheat the average number of weed seeds per pound was 78. The largest number in any one pound sample being 967 in the case of noxious weeds and 1,246 in the case of the less harmful species.

Taking the average number of weed seeds pound per pound in the case of the three crops mentioned, we find that by sowing at the average rate there would be placed on each square rod of land 160 weed seeds in the case of oats, 32 in the case of barley, 44 in the case of wheat.

I am sure that all present will admit that the weed problem is one of the most serious problems facing the western farmer to-day. It is incumbent upon all, therefore, at least to see that weed seeds are not sown.

Greater discrimination should also be exercised in the choice of variety and in seeing that the seed sown possesses strong vital energy. The vitality of seed suffers from a variety of causes. Probably the most common are immaturity, frost, weathering, improper curing and heating. When improperly cured moulds often develop which greatly impair the vital energy. The stand of a crop is also very often not what it should be because of the use of small immature or shrunken kernels which produce weak plants or none at all. This is particularly true in the case of oats. This fact suggests the need for careful screening and fanning before sow-

ing. A very light frost when oats are in the milk stage is often sufficient to render them useless for seed. The effect of frost is greater in oats than in wheat. It is important in all cases, however, that a germination test of the seed be made before sowing.

Weed Distribution in the West

The rapid increase in the area of land brought under cultivation in the West during the past few years, together with the system of cropping grain after grain, which is so widely practised, has permitted a great variety of weeds to become established. This fact is only too well known by everyone present to require any extended comment. You are also fully aware of the enormous dockage at our elevators. Sometimes this has run as high as 16 per cent and not infrequently as high as 18 per cent. Last autumn I had an opportunity of looking over the dockage lists of different consignments of grain in one of the big elevators at Port Arthur, and was greatly impressed as never before by the enormous waste which this deplorable situation entails. For the year ending August 31st, 1913, the dockage set on the wheat, oats and barley and flax received at the elevators at Port Arthur and Fort William amounted to over 100,000 tons or over 3,300 carloads. The cost of transporting this enormous quantity of material from the grain fields of the West to the terminal elevators is placed at \$650,000.

Feeding stuffs manufactured from or adulterated with screenings often contain thousands of vital noxious weed seeds per pound. In a pound sample of bran taken from sacks purchased by the writer for his own farm, there were found the following impurities: 16 compions, 30 false flax, 25 great ragweed, 35 sow thistle, 10 Canada thistle, 70 stick-

seed, 1850 stinkweed, 10 ball mustard, 15 wild mustard, 20 hare's ear mustard, 5 tower mustard, 5 worm's ear mustard and 5 lady's thumb. In addition to the above, there was found a large number of partly crushed wild oats, wild buckwheat and lamb's quarters. The presence of so many wild oat hulls and other offal also increased the percent fibre, thereby lowering the feeding value of the bran. A test of this sample was made, which showed that it contained 11.03 per cent fibre or 1.03 per cent more than is allowed by the Feeding Stuffs Act to be present in bran.

Summarizing the examination made of this sample, we find that it contained a total of 2,096 sound weed seeds per pound and also a large number of partly crushed seeds of wild oats, wild buckwheat and lamb's quarters. At this rate, an ordinary car of 400 bags or 40,000 pounds of bran would contain 43,840,000 vital weed seeds. If only 5 per cent of these seeds were to pass out on to the land in an undigested and vital condition, 2,192,000 weed seeds would be distributed. Experiments have shown that weed seeds may grow after passing through the digestive tract of domestic animals. At the Maryland Experiment Station 22 kinds of weed seeds were fed to animals and the manure spread on sterile soil, with the result that all kinds germinated, excepting one Spanish needles (*Bideus bipinnata*).

Bran or other food stuff containing weed seeds should, therefore, under no circumstances be fed, as large quantities of these seeds are not digested but are distributed in the sound condition to contaminate our fields and thus to entail a loss of thousands of dollars to the country.

Commercial Grain Used for Seed
In this Western country many



ARE YOU A GASOLINE FARMER?

Power for the farm is a big problem. Some Farmers, successful ones, too, use oil-gas, others use steam, and still others use the horse or the mule and say that results are good enough. You pay your money and you take your choice; but whatever the choice,

BE SURE THAT YOUR POWER-PLANT IS RELIABLE

for nothing that you possess will pay you better, provided that you keep it at work and that it will work according to specifications.

Some widely heralded inventions in gasoline power devices have done everything but **work**.

Others, less widely known, **do nothing but work**. That's just what the Nichols-Shepard Oil-Gas Tractor has done and is doing. It has a five-year record of work accomplished. It has no record of failure.

So, if you are interested in an explosive engine, let us tell you about one that you won't have to mortgage the farm to keep going, one that will saw in the Winter, plow in the Spring, haul in the Summer, thresh in the Fall, and pick up odd jobs at any kind of power requirement between whiles. We build this kind of an Oil-Gas Tractor and we guarantee it to be a reliable power producer that **will** work.

OF COURSE IT'S A RED RIVER SPECIAL

If you have never had experience with an oil-gas engine it may help you to know what neighbors of yours say about ours. Send your name and address to us and say that you would like a copy of the Home Edition of the Red River Special paper issued for your vicinity. We will be glad to take the matter up with you and send a Big Catalog that covers our entire line.

NICHOLS & SHEPARD CO.

(In Continuous Business Since 1848)

Builders Exclusively of

THRESHING MACHINERY

Red River Special Threshers, Feeders, 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



Gasoline is Going Up!

That is why you should be interested in

The "Waterloo Boy"

Kerosene One-Man Tractor

The Manufacturers' Guarantee Fully Protects You

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 on bloc.
 Ignition—High Tension Dual Magneto, with Automatic Spark Advance.
 It has a Cooling System of the most approved type.

When plowing is Self-Steering and will turn in a 35-foot radius.
 Easy to operate—Economical 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.

The Gasoline Engine & Supply Co.,
 Winnipeg, Man.

Noremac, Sask., Jan. 4, 1916.

Dear Sirs—In reply to your enquiry as to my experience with the Waterloo Boy Tractor, wish to say that I unloaded the machine at Kinderley and drove it home 30 miles. I then broke about sixty acres of very heavy land. You may judge for yourself when I say we always use five horses on one 14-inch plow. I pulled two 14-inch plows at a depth of 4½ inches, which would mean a good ten-horse load, using four and a half gallons of kerosene per acre and barely a quart of Standard Gas Engine oil per day. I then disced the land, made two trips to Kinderley. In one case I hauled 310 bus. of wheat on three wagons, and one empty oil tank behind, returning with three wagons loaded with lumber and oil tank containing 450 gallons of kerosene, using large pinions, making an average speed of three miles per hour.

After threshing my grain, I hauled it with two grain tanks up several steep hills to the elevator. In all, my roadwork would amount to about 250 miles.
 I never had an expert, not even to start the engine. After looking at the connecting rod bearings, I took a thin piece of brass out and the other would not stand taking up at all. I never touched the main bearings and never had to tighten up a nut on the frame since I got it.

I have now enlisted to go to the front and found no difficulty in disposing of my tractor for \$900.00 and can thoroughly recommend it to any person intending to buy.

Yours very truly, (Signed) JAMES H. GRUBB.

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 thrasher 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 full 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, Beating and Threshers' Supplies. Live Dealers Wanted in Territory Where We Are Not Represented.

THE GASOLINE ENGINE & SUPPLY CO. LIMITED, 104 Princess Street, WINNIPEG

of the newer settlers have to buy their seed and occasionally there is a general shortage in many localities on account of frost, hail or other disaster. In New Ontario and in many parts of Old Ontario, Quebec and New Brunswick, many farmers do not thresh their grain, preferring to make hay of it and thus save the extra expense. Such farmers buy their seed. It has been estimated that approximately 30 per cent of those farmers who buy their seed are willing to purchase from reliable seed merchants or from recognized growers of good seed. The remaining 70 per cent are content to buy ordinary commercial grain and use it for seed. Large quantities of the oats sown in Eastern Canada come from the western plains. Unfortunately car lots that are often relatively clean become mixed with other dirty grain in the handling and are thus rendered unsuitable for seeding purposes. Approximately one out of every six cars of oats that are graded Nos. 1 and 2 Canadian Western would, if released and separately binned, be fairly suitable for seed.

An examination of five samples of No. 2 Canadian Western oats taken from consignments sent to the Province of Quebec two years ago from three different elevators at Fort William showed the oats to contain an average of 313 noxious weed seeds per pound. Those weed seeds included nine different species. There is of necessity considerable variation between different lots, but the average of these analyses as given above is considered fairly representative of

the oats that were used for seed on many farms of Eastern Canada that year.

Every spring the Seed Branch at Ottawa received many complaints of severe losses sustained by oats not growing and of the introduction of strange weeds through the use of this commercial grain. An effort has been made during the past season to help correct this evil by providing a grade for grain which is considered suitable for seed. The seed grade provided for the different kinds of grain is as follows:

No. 1—Canada Western seed oats shall be composed of 95 per cent of white oats, sound, clean and free from other grains; shall be free from noxious weed seeds within the meaning of the Seed Control Act, and shall weigh not less than 36 pounds to the bushel.

No. 3—Extra Canada Western seed barley shall be composed of the six-rowed variety, sound, plump, free from other grain, of fair color, free from noxious weed seeds within the meaning of the Seed Control Act, and shall weigh not less than 48 pounds to the bushel.

No. 1—Manitoba Northern seed wheat shall be composed of 85 per cent of Red Fife or 85 per cent of Marquis wheat, sound, clean and free from other grain, and free from noxious weed seeds within the meaning of the Seed Control Act, weighing not less than 60 pounds to the bushel.

For seed purposes Red Fife and Marquis Wheat shall be kept separate.

No grain shall be accepted for

seed which will require a large dockage to clean.

This grade which considers white oats, six-rowed barley, red fife and Marquis wheat is provided through the co-operation of the Department of Trade and Commerce grain inspectors and the Department of Agriculture seed inspectors. A section of each of the government terminal elevators at Saskatoon, Moose Jaw and Calgary is set apart for handling this special grade which will be available after December 1st, 1915. Car lots of the above classes of grain that may be cleaned to the required standards of purity, quality and purity from noxious weed seeds, without entailing a dockage of more than two or three per cent in excess of that required for the commercial grades, may be accepted for seed and submitted for inspection at these elevators.

Let us now see what the use of better seed would mean to this province as a whole. Supposing there were used seed which, on the average, was so well bred and selected that it would give 5 bushels per acre more than we get during the average season. With wheat at \$1.00 per bushel, oats at 45c., and barley at 60c., an increase of 5 bushels in the case of these three crops would mean an added revenue to the province of approximately \$16,500,000 for wheat, \$3,000,000 for oats and \$1,500,000 for barley, or a total of \$21,000,000 annually. In these days when millions of dollars are being consumed by the terrible ravages of war, the figures given are significant.

Many agencies are at work at the present time with a view to instructing and encouraging farmers in securing seed which will give them more bushels to the acre. Possibly one of the most effective organizations concerning itself with this problem, taking Canada as a whole, is the Canadian Seed Growers' Association. This body is composed of actual farmers who are engaged specifically in producing what is known as "Registered" seed. This is a term given to seed, the breeding purity, and vitality of which is known and vouched for. The members operate under expert direction, being closely in touch not only with the headquarters at Ottawa, but also with local authorities whose duty it is to look after the interests of the individual growers. There are in Canada approximately 1,200 men engaged in this work and



Was It 1st of April?

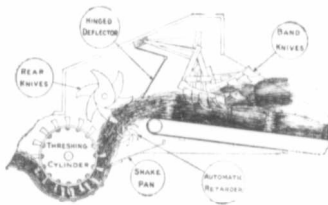
"That new recruit's deserted by accident, Sergeant."
 "Deserted by accident! What do you mean?"
 "Well, it seems somebody 'ad told 'im to sew 'is buttons on wiv guncoot'n."

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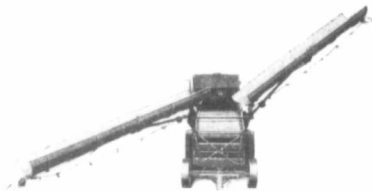
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Save Your Men

DO your work with less help. There is now a scarcity of labor and there will be fewer men to draw on at harvest time, yet the crops **must** be taken care of. The answer is: Let machinery do the work.



The Langdon Ideal cuts the bands, divides and separates the bundles, yet absolutely governs and controls the feed of grain to the threshing cylinder, feeding just the quantity, condition considered, that you want it to take; feeding more perfectly, more uniform and more evenly than it is possible to do by hand.



Langdon Ideal Self-Feeder

The above cut shows the Feeder with crank shaft knives. However, rotary style may be furnished if desired.

After passing the band knives the bundles must pass between the slowly revolving retarder and the rapidly revolving rear knives. Each band is cut, the bundle separated and divided before it reaches the cylinder.

The Langdon handles any kind or condition of grain and absolutely will not slug the cylinder, break or bend spikes or concaves, yet will feed the largest separator to full capacity all the time. Ask about the wonderful Condition Governor.

Hart-Langdon Wing Feeder

This machine consists of a self-feeder, the main body of which is the same as the famous Langdon Ideal, but with strong yet light weight set of wings built into it and made a part of it. The wings may be raised and lowered or swung about as desired. They are provided with a hinged joint at the center so that the outer end may be folded over the inner end for moving or when entering a barn.

An especially big saving running from twenty to forty dollars per day can be made when this machine is used in connection with dump racks.

Hart-Brown Wing Carrier

The Hart-Brown Wing Carrier does the same work as the Hart-Langdon Wing Feeder, but this machine consists only of a set of wings which may be used in connection with any feeder or any separator old or new. Let us tell you how you can save the labor of from six to ten men and four to six teams.

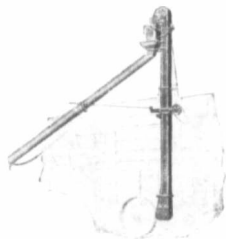
Perfection

Two old Favorites—the Perfection and Peoria Automatic Registers and Baggers.

The grain is elevated, the amount handled automatically registered and delivered into wagons or bins, saving the labor of two or three men.

Write us your needs. Big free catalog.

Peoria



Hart Grain Weigher Co.

Peoria, Illinois, U. S. A.

these are now producing many thousands of bushels of seed. This seed is being distributed in a practical way through the ordinary channels of trade, and every year is demonstrating its value. The offerings of the different growers are listed in a seed catalogue which is distributed widely throughout Canada and in this way the grower and purchaser are brought together. All registered seed goes out in sealed sacks, to which a special tag, bearing the certificate number is attached. In this and other ways the quality of the seed is practically guaranteed. Unfortunately the number of farmers devoting themselves in anything like a

systematic way to the improvement of seed in Manitoba is very much smaller than it should be. There should be hundreds of farmers in these plains engaged in this work. I can conceive of no more potent method of improving agricultural conditions than that of having a whole host of farmers scattered here and there throughout the province engaged in this work and working under expert direction.

While these men may be working quietly and without much apparent encouragement, their work is felt for a very considerable radius. Enquiries, made with a view to ascertaining the influence of these growers, have shown

that their improved stocks have gradually become distributed throughout their neighborhood and often for a very considerable distance with very marked effect.

The records of work performed by members in the different provinces are kept at the headquarters of the Association at Ottawa. This arrangement was consummated as a result of the experience of the live stock people. A few years ago each province had its own registry office, but the disadvantage of such an arrangement was so great that in 1904 a movement was started which resulted in the nationalization of the records, so that now practically all live stock records are kept at

Ottawa. This arrangement makes for uniformity of method and gives solidity to the whole organization. Moreover, purchasers from different provinces and from different countries regard with greater confidence an organization which is nation-wide rather than provincial in scope. We have at present a very considerable amount of interprovincial trade. Such trade can be carried on more easily and with less confusion than where all parties concerned have one outstanding office through which to deal.

Seed Centres

Until quite recently the work of growing registered seed has been in the hands of men who

have been widely scattered, which necessitated each member growing his own "Elite Stock Seed." This resulted in the amount of registered seed available at any point being comparatively small. In view of the fact that many buyers require seed in carload lots, special efforts have been put forth during the past two years to consolidate the work in centres which are known to be suited for the production of high-class seed of given kinds. To accomplish this, provincial representatives, realizing an opportunity to develop a profitable business among their constituents, have taken the initiative in this regard. Where a number of men in such a district organize themselves into a regularly organized "Seed Centre," one or two of their number may be chosen to produce Elite Stock Seed required for propagation by the Centre. This arrangement renders it unnecessary for every grower to produce his own Elite Stock Seed and at the same time makes the production of large quantities of high-class seed at single points relatively simple. Thus far between fifty and sixty of these Centres have been established. Not all of these will be successful, but the present outlook would indicate that the majority will do excellent work.

In this western country there is not the same need for the organization of these Centres, since the areas under cultivation by a given grower are unusually large. At the same time it frequently occurs that a number of farmers living in adjoining farms can get together and agree to produce the same variety and the same stock. By choosing one of their number to produce first-generation registered seed for the others at a given price, they would then be in line

to have all seed produced from such stock entitled to recognition as registered seed, providing the standards of quality, purity, and vitality are complied with. Such growers have only to adopt a suitable Constitution and By-Laws to govern their operations and to appoint officers. The secretary is the most important officer, as he must sign all registration tags which are attached to the sacks of registered seed. These, however, are matters of detail which need not concern us at present.

The value of these centres can be more fully appreciated by considering their place throughout Canada as a whole. Practically every year some large district or districts in Canada suffer through climatic conditions to such an extent that they are not only unable to sell seed but must purchase from outside sources. The Association has been endeavoring to encourage the establishing of many of these Centres throughout Canada in widely scattered districts so that in no season will we suffer a severe shortage of good seed. Many here will recall the large importations which have been made at different times from the Old Country. This seed might have been grown in certain parts of Canada. Very considerable quantities have been taken both east and west from Manitoba, but in recent years it has been found difficult to secure any considerable quantities, especially of oats which are free from such impurities as wild oats. This is one of the pests which the Manitoba farmer will have to fight with increasing energy if he hopes to win out in the production of registered seed.

Happily, that farmers are beginning to realize that they must do something themselves to insure the quality and the purity of the seed from which they expect to harvest crops is evidenced by the increasing interest which is being taken in the subject. Some have an academic interest in seed improvement and are doing considerable work of value. Others are public-spirited and wish to do something which may improve conditions in their community and consequently take up the work of seed selection systematically with that end in view. To all such men the greatest possible encouragement and incentive should be given. These men realize what improved strains of our leading crops mean to those who till the soil and to the country as a whole. They look forward to the day when the great new land shall arise, purged of the sins of those who have gone before and covered with luxuriant crops to feed the world.



Do You Consider Wear and Tear

On your harness when you figure your profits for the year? Ordinarily that's a big item but you can make it negligible by using

EUREKA HARNESS OIL

Keeps the leather soft and prevents cracking. Adds years to harness life.

Dealers Everywhere
The Imperial Oil Company Limited
BRANCHES IN ALL CITIES

Name this magazine when writing advertisers

Barrett Money Savers for Farmers
Made in Canada

Seven short appeals to "horse sense"

ANY man can make money by judicious saving. "A penny saved is a penny earned." Think it over. There are certain things you ought to have for farm maintenance. But don't buy the wrong thing at any price or the right thing at the wrong price. Perhaps right now you are in need of a timber preservative, a lice or fly killer, a durable paint for metal and exposed wood surfaces, a satisfactory cement for quick everyday repairs, a ready roofing that is wear-proof, easy to lay and cheap.

We can fit you out perfectly in these things. The Barrett Money Savers have no superiors. Just glance over the products shown below:

ARE you getting all you should from your live stock? Perhaps they are being pestered by insects—flies, lice, vermin. They must be kept clean. Spray your cows and horses with Creonoid. Keep them from insect annoyance. And your hogs will be better if the rubbing posts and swill pails are Creonoided. A boon in the poultry house—better hens—more eggs. Creonoid comes in cans of 1, 5 or 10 gallons or in half barrels and barrels. And it's the most economical you can buy. Follow directions carefully.



DO your implements rust? If so, they are decreasing in value. Coat your implements and iron work with Everjet Elastic Paint. You know that carbon paint is best for such purposes. Well, Everjet is the best carbon paint made. Never cracks or peels. Wears like iron. Has a large covering capacity and is extremely economical. Has no equal as a roof paint.

YOU will be glad for the day when you meet Everlastic Roofing. Just the thing for all farm buildings. The best "Rubber Roofing" at the price. And the price is low. No excuse for a leak in your roof with Everlastic at your service. It is tough, durable and easy to lay.

EVERLASTIC ROOFING

CARBONOL is a household wonder. It cleans, heals, disinfects, purifies. If you cut your hand, apply Carbonol in weakened solution. If your live stock get leucised, Carbonol will fix them up. If your house, barn or poultry house needs disinfecting, there is nothing like Carbonol. And it is wonderfully effective as a destroyer of vermin. Carbonol belongs on every farm in Canada.

HERE is a ready roofing that needs no painting or other attention to keep it watertight. Amatite Roofing has a mineral surface that laughs at wind and weather. Very attractive because of its bright sparkling appearance. Wherever you have steep roofs, you need Amatite. Amatite is made in rolls of 110 square feet with galvanized nails and cement in center. Try it!



HERE is a product you should never be without—Barrett's Grade One Creosote Oil. It is the most effective wood preservative on the market. Actual tests have proved that it penetrates deeper and lasts longer than any similar product. A good fence post will last 20 years if painted with Barrett's Grade One Creosote Oil. Use Grade One Creosote Oil and add to the life of all your exposed woodwork.



HERE is the way to make everyday repairs quickly, permanently and cheaply—use Elastigum, the adhesive, elastic and waterproof cement. Whenever you have gutters to join or reline, leaks or joints to seal, cornices to stuff, greenhouse glasses to put in or chimney flashings to renew, Elastigum will be your unfailing friend. Cheap, easy to use and always on the job.



Send for illustrated booklet describing Barrett Money Savers in detail. Address nearest office. For sale by good dealers everywhere.

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.

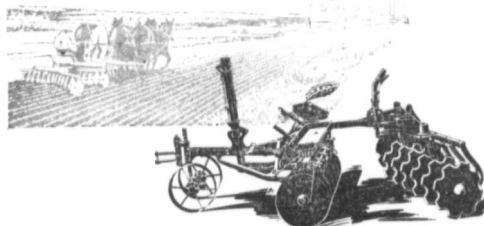
Pickling Tools and Parts

Tools become greasy after being used for some time, and may be difficult to hold. A file may become so greasy and dirty that the teeth will not bite the metal it is used on also, and there are other tools that will similarly not operate well on account of being foul. A periodical cleaning up should be made, the tools

being put into a can in which there is a strong solution of washing soda and water, kept smoking hot. This process is known as pickling. The grease and dirt will rise to the surface and can be skimmed off or left until all the tools in the can are clean. This treatment is first class for parts also. The heat for the solution can be obtained from a steam radiator, stove or blow-torch, as the case may be.

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Profits from the* Best Tillage Implements Deering and McCormick



THERE is more than one good reason why so many farmers use either Deering or McCormick disk harrows and other tillage implements, but all those reasons can be summed up in one word — Profits.

There is profit in disking some fields before plowing.

There is profit in a well-disked seed bed for grain.

There is profit in making surface mulch to conserve moisture.

The fact that these profits show only at marketing time, takes nothing from the credit of the Deering or the McCormick disk harrow which is really responsible for them. The Deering or the McCormick disk, with its bowed set-lever bars, its easily adjustable snubbing blocks, and its direct, right-angle pull on the bearings, does the work that finally results in a heavier stand of better grain, which sells at a higher price and better profit, than if the disk had not been properly used.

Think it over and buy your tillage implements from the Deering or McCormick local agent for this spring's work. Quality counts, and quality runs through the whole tillage lines of disks, peg and spring-tooth harrows, cultivators, scufflers and land packers. Write us at the nearest branch house for catalogues but do not fail to see the Deering or the McCormick tillage line before you buy.

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

Future of the Tractor

Continued from page 9

compromise which will meet the demands of tractor service. They feel quite certain that developments along these lines will result in the production of a design which will be the final answer to the tractor problem.

That a tractor must be reliable in operation, low in first cost and cost of maintenance, efficient in the use of fuel, and adaptable to a wide range of farm work, are points on which all tractor builders agree, regardless of the type of machine which they believe answers these requirements. Some designers place low cost as a first consideration and make their tractor as good as they can for a given price. Others insist that the tractor must be reliable first and then sold for a price consistent with its quality. It would seem from an unprejudiced standpoint that quality will have to be obtained first because a tractor must do the work if it is to be a success. It is universally conceded that a tractor must be capable of running continuously with very little attention other than replenishing the fuel and lubricant supply. When ground conditions are right for plowing, or the grain ready for harvest, a tractor must go out and work straight through until the job is finished. In fact

a tractor should run an entire season without adjustment to any of the bearings, either in the motor or the transmission system. Carburetion and ignition system adjustment must be arranged so that frequent changes are unnecessary. A delay of even a few hours in replacing a broken part, in adjusting a bearing, may often result in the loss of hundreds of dollars. Five thousand hours' service is expected of a tractor before any of the principal parts need replacement and at least twice this service before the replacement of parts would make the cost of repairs prohibitive. In other words, the tractor should be designed to give about ten years of usefulness. This will certainly require the very highest grade workmanship and material and a type of construction superior to any of the existing farm tools of to-day which usually have a life of five hundred to a thousand hours. Some idea of the duty required of a tractor, as compared to an automobile, may be had when one realizes that ten thousand miles running, or in the neighborhood of five or six hundred hours use, is very good service from an automobile before extensive adjustments are required. More service is expected of a tractor than almost any other kind of machinery in common use at the present

time. Even with this sort of service in view, the first cost of the tractor must be kept down, if it is to prove a profitable investment. First cost is governed both by the type of design, by the total weight of materials used and by the quantities in which the tractor is produced. Low first cost can best be obtained by quantity production, and this is only possible by interchangeable manufacturing in large volume, as has been demonstrated by the development of the automobile. With this in view it would seem that the automobile type of construction would have somewhat the best of the situation as regards quantity of output. When we speak of automobile type of design it does not mean automobile proportions. A gear or a bearing in an automobile having a given size motor will only be called upon to take the full power of the motor at rare intervals. In a tractor gears and bearings must stand practically the full load capacity of the motor at all times. This necessarily means larger bearing surfaces throughout, even though the tractor has only the same size motor as is used in an automobile.

Low maintenance cost, or durability, and freedom from repairs are proportional to the area of the working parts with reference to

the loads carried. The advantage in this direction to be obtained from the use of multiple cylinder engines having small piston diameters is at once apparent when it is borne in mind that all parts of the tractor must be proportionate to the area of the piston, regardless of the horsepower transmitted. The heavy explosion shock of a single cylinder motor is, in itself, very destructive to gears, bearings and shafts in the transmission system. With multiple cylinder motors these parts can be made lighter in proportion to the horsepower carried, and still have a considerably greater wearing value on account of the lower shock of explosion.

Efficiency, or fuel economy, is an important consideration. Essentially a tractor is a mechanism for converting heat units of a liquid fuel into useful farm work. To do this efficiently motors must be designed to deliver as high a percentage of the heat value in the form of useful work as is possible. The energy thus developed should be transmitted to the work with the least possible loss from friction and to accomplish this the use of cut and hardened gears, mounted on roller bearings in rigid cases, would seem to have, by far, the best of the situation. In order to absorb as little of the energy as possible in propelling

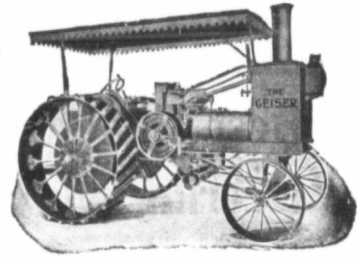
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LIQUIDATOR'S SALE

COMPARE THESE PRICES

In Small Engines, Threshing Machines (both new and second hand). This is positively the finest opportunity ever offered in these perfect goods at

LESS THAN MANUFACTURER'S COST



OHIO ENGINES

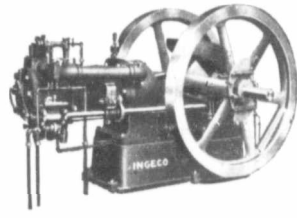
15 H.P. Standard (new)	\$328.75
12 H.P. Standard (new)	306.50
11 H.P. Special Hopper cooled (new)	189.00
12 H.P. Standard (rebuild)	200.00
8 H.P. Standard (rebuild)	175.00

INGECO KEROSENE ENGINES

12 H.P. Standard stationary (new)	\$414.15
10 H.P. Farm Engine, hopper cooled (new)	256.35
8 H.P. Farm Engine, hopper cooled (new)	197.90
6 H.P. Farm Engine, hopper cooled (new)	148.70
2 1/2 H.P. Farm Engine, hopper cooled (new)	55.00

TRACTORS, STEAM

35 H.P., double cylinder (rebuild)	\$2,500
25 H.P., Northwest (rebuild)	1,000



GASOLINE TRACTORS

45 H.P. 4 cylinder Tractor (rebuild)	\$1,700
45 H.P. 4 cylinder Tractor (new)	2,200

GEISER ENGINES AND SEPARATORS

AA Sep., 40x60, complete (rebuild)	\$1,000.00
A Sep. 36x56, complete (new)	1,064.29
C Sep. 30x46 no blower (new)	597.25
S Sep. 27x39, complete (rebuild)	600.00
4 Sep. 24x32 Straw Car (new)	351.12

GADE ENGINE

6 H.P. air cooled (rebuild)	\$115.00
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FEED GRINDERS

6 in. Grinder, iron base	\$ 25.00
7 in. Grinder, iron base	32.50
8 in. Grinder, iron base	43.40
10 in. Grinder, iron base	54.00

1 1/2 H.P., water cooled (new)	\$ 40.00	3 H.P., water cooled (new)	\$ 81.00
1 3/4 H.P., water cooled (new)	51.00	4 H.P., water cooled (new)	122.00
2 1/4 H.P., water cooled (new)	61.20	6 H.P., water cooled (new)	198.00

BADGER ENGINE

14 H.P. Standard stationary (rebuild)	\$150.00
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PORTABLE ENGINES

22 H.P. single cylinder, portable, Geiser (new)	800.00
22 H.P. single cylinder, portable, Geiser (rebuild)	600.00
20 H.P. single cylinder, portable, Geiser rebuild	500.00

Also have a couple of 20 to 22 H.P. portables which will rebuild and sell at about \$350.00 each.

PUMP JACKS
\$7.00 and \$10.00. Write for specifications and any farm machinery you want. We can save you money.

Supply is limited and there will be no "repeating" when these specific machines are sold.

CASH ONLY—Except in case of tractors and portables for which reasonable secured terms will be considered at increased prices.

R. S. EWING ASSIGNEE **200 Union Trust Bldg. WINNIPEG**

the machine it is desirable that the total weight be kept down to a minimum. The kind of fuel used and the market price of same also has a bearing on this problem. Three years ago a great deal of attention was given to kerosene burning tractors, but this has since been more or less abandoned due to the low prices which have later prevailed for gasoline. It is quite likely that the kerosene burning tractor will receive considerable attention during the next few months, since the price of gasoline has lately advanced sharply and indications are that it will reach the former high prices within a short time. So far the larger cylindered, slow moving motor seems to be most satisfactory for burning kerosene. There have been, however, several fairly successful methods developed experimentally for handling kerosene in the higher speed multiple cylinder motors.

The effort to obtain the greatest possible range of adaptability has probably been the primary cause for the present wide diversity in types. It hardly seems possible to combine the ability to perform all of the farm operations efficiently into one piece of mechanism, and it is quite likely that the future development of the industry will bring out several different standardized types which will be

particularly adaptable to conditions which are more or less local in character. For instance, it is quite generally conceded that the endless track type of machine is superior to a round wheel tractor for working extremely sandy or marshy land. A special type of tractor has also been developed to meet conditions of corn cultivation. Soil milling, by the revolving tooth cutter, instead of using plows and harrows, is receiving considerable attention in this country, and it is quite the accepted method in Europe. Up to this time tractors suitable for soil milling operations have been a special type, although there seems

to be no good reason why, with slight modifications, the ordinary tractor designed for pulling could not be arranged to take care of the soil milling operations as well.

The all-around tractor is one which can be used efficiently at plowing, planing, harvesting, belt work, road work, etc.

The foregoing are only a few of the numerous requirements of a tractor. To meet all of them successfully will require the earnest co-operation of the best engineering talent available. The future development of the tractor design will undoubtedly follow logically along the line of combining the knowledge of the agricultural en-

gineer, the automobile engineer and the tractor engineer.

Australia Encourages Inventors

The State Cabinet of New South Wales, Australia, on August 11th decided to appoint a Patents Investigation Committee to assist in the development of inventions likely to be of general public utility.

The board will be divided into a number of sub-committees covering the various branches of industry, and the different inventions-board.

The board will consist of a number of public officers expert in various lines of industry under the chairmanship of Mr. Griffith (Minister of Education), whose technical knowledge as an experienced patent attorney will be of considerable assistance to the committee having technical knowledge in the particular line concerned. Any ideas which, after investigation, the board is of opinion are of value to the public will be submitted by it to the various public departments likely to be able to utilize them.—U.S. Commerce Reports.

Manitoba Thresherman

This space in a future issue will contain an

Announcement

that will be of vital importance to you. The announcement will undoubtedly appear in the May issue of this magazine, but in any case, be sure and watch for it.

STIDOLPH AND NELLERMÖE

SPECIAL AGENTS

Employers Liability Assurance Co.

220 Curry Block **Winnipeg, Manitoba**

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Manitoba's Farm Labor Supply

Realizing the probability of a keen shortage of farm help during the coming spring and summer, the Manitoba Department of Agriculture and Immigration is making a strenuous effort, through its St. Paul agency, to induce the immigration of a large number of farm workers from the United States. A widely reaching publicity campaign is being carried on down there, to secure the men, and it is hoped to direct them from the St. Paul headquarters to ultimate destinations in Manitoba.

In order that the Department officials at St. Paul may be able to distribute the men efficiently, the various branches of the Manitoba Grain Growers' Associations are being asked to meet and receive from individual farmers direct applications for such help as they will require. The applications so signed are not in any sense to be regarded as binding the farmers to accept men sent them, but are gathered rather in order that the needs of the different parts of the country may be intimately known and met.

The Department, however, realizes that there are very many farmers who will not attend any gathering that may be held by the Grain Growers' Association or any other body taking up this question, and so it is appealing direct to the farmers through the papers as well. Any Manitoba farmer wishing to hire a man is therefore asked to write directly to the Immigration Branch, Manitoba Department of Agriculture, Winnipeg, and secure as many blank forms as he and his friends may need; then, having filled these, to mail them direct to the Department's office at St. Paul, according to instructions supplied.

The Department cannot guarantee, of course, to fill all the orders received, but it will do its best.

In order to assist the movement, the Canadian railways are offering a special rate to all such incoming farm workers from the international boundary line northward.

Will Market Manitoba Wool Co-operatively

The Manitoba Department of Agriculture announces that it will again carry on co-operative wool marketing for the farmers of the province, and it is advising wool growers to be in no hurry to accept early bids that may come to them from private quarters. Last year the government's co-

The Engine that Took "arm" out of Farm.



This Engine Will do Anything That requires "POWER"

- CHURNING.** Churning is done without labor and under better conditions.
 - CREAM SEPARATOR.** An engine runs the Cream Separator, just the speed you want for best results.
 - SAWING WOOD.** An engine saws wood, without chips, without waste, just the size you want it, you can cut up and use material, which, by the old method, you would have to throw away.
 - WASHING.** An engine will do the washing, with never a sign of ground.
 - GRINDING FEED.** Grinding feed is simply fun with a gasoline engine. Silo owners, must be engine owners, too.
 - PUMPING WATER.** Discard the old old backache pump. With a gasoline engine, the pumping is nothing. The engine pumps water for the house, the barn and stables and garden.
 - FOR FIRE AND GARDEN HOSE.** You can quench a fire with a hose quick, if you have a water system with engine and pump.
 - WASHING WAGONS AND AUTOMOBILES.** The same horse will wash wagons and the automobiles, and will flush out the barn and stables.
- The fact is, an engine will do so much on a farm that you can't run a farm efficiently without one. No, sir, you can't, you should start selecting one NOW.

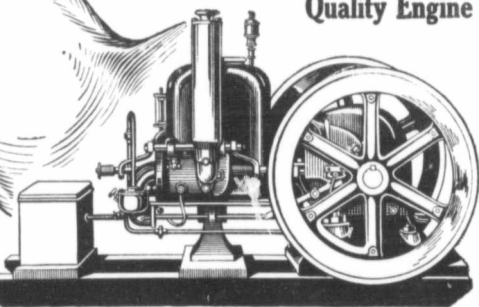
Do less "arm work" in farm work. The "strong right arm," is given a holiday by the "strong, right engine." The Chapman Engine has taken the aches and pains and human drudgery out of farm life. This engine does the work that twenty arms could not do. It is the source of power that a dozen men could not equal for endurance. The Chapman Engine certainly took "arm" out of "farm" and is doing its "thousand-times-as-much" work as arm power could do. It is doing this every week on every farm equipped with this big power producer. There is not one single farmer in Canada, owning from 40 acres up to the limit, who could not save money and make money by having a gasoline engine. Why have factories cut out manual labor and adopted machinery? Because machinery does more work, at less cost, and does it better. It's just as true on a farm. An engine is ten times as cheap as a hired man.

CHAPMAN ENGINES

Big Power—Little Cost—SOLD ON A GUARANTEE

POINTS OF SUPERIORITY. The Chapman Engine has such an excellent reputation that imitations are already on the market, but it is in appearance only. The best Chapman features are patented and cannot be imitated. In selecting an engine, remember that the Chapman is the only engine with (1) a perfect straight line valve motion; (2) a combined suction and pump feed fuel supply; (3) a cast iron fuel tank that cannot leak; (4) a specially designed carburettor; (5) a ball bearing cam motion; (6) a ball bearing gas valve pump action; (7) a full banjo type frame; (8) a cam box that contains the entire operating and ignition mechanism and protects it by a cast iron frame, easily removed when adjustments or repairs are required; (9) a fly ball governor that gives a variation of 200 r.p.m. without stopping the engine; (10) sufficient weight to keep it still while running at full speed. If you want an engine that will never fail you, and cost you least in the end—get a Chapman. It is Canada's great

Quality Engine



Write for Full Particulars, Prices and Illustrated Catalog.

ONTARIO WIND ENGINE & PUMP CO., Limited

MFRS. ENGINES, WINDMILLS, PUMPS, SILOS, STABLE EQUIPMENT, ETC.

BRANCHES: MONTREAL, WINNIPEG, REGINA, CALGARY. 73 Atlantic Ave., TORONTO.

operative wool sale was a decided success, and judging by the present very strong situation in the wool trade, it is believed that even better prices will likely be obtained this season. The whole project, together with many helpful hints in relation to wool handling, is set forth in Circular No. 35, which may be had free by writing a postcard request to the Publications Branch, Manitoba Department of Agriculture, Winnipeg.

Developing the Boy and the Girl

Of the activities encouraged and promoted by funds provided under The Agricultural Instruction Act of the Dominion none is more worthy than the improved means which have been made possible for the development of the juvenile mind. There is but one way that the boys and girls can be rivetted to

the soil, and that is by strengthening their attachment for it. This can only be accomplished by the inculcation of knowledge presented not altogether in utility fashion, but in a manner that will emphasize the brightness, the wonder and the attractiveness of the works of nature.

This the boys' and girls' clubs are doing; this the school fairs are doing. This the nature study classes in the public schools are doing; this the school gardens are doing. They encourage association and sociability in the first instance, a desire for emulation in the second, a favorable disposition for the outdoor life in the third and an appreciation not only of the marvels, but also of the beauties, of creation in the fourth. All four divisions of the work receive substantial support in every province from the grants derived under the Agricultural Instruction Act.

In Ontario in 1913-14 it was \$10,000, it is now \$20,000. In

FRICITION

Blocks wheels and takes profits.

MICA AXLE GREASE

Kills friction and makes profits.

Dealers Everywhere

The Imperial Oil Company Limited

BRANCHES IN ALL CITIES

Name this magazine when writing advertisers

Manitoba it was \$2,000, it is this year \$5,200. In Saskatchewan it is \$2,100. In British Columbia \$1,000 was so used in 1913-14, but this year for boys' and girls' competitions, fairs, etc., and instruction in public schools, \$17,000 is to be spent from the grants. It must be understood that while in some of the provinces the money is directly employed for the purposes set forth, in others it is used in other ways and the sums required for school fairs, school gardens, and so on, are received from provincial and municipal sources. The figures, however, are in themselves abundant indication of the far-reaching benefits conferred by the act.

Employment for Lonesome Days

In the days of boyhood we experienced a great many lonesome dreary hours in which we seemed to have nothing at all to do. Time hung heavy on our hands when the skies kept up a perpetual drizzle and we wished to be any other kind of a boy than a farmer's boy. We were not blessed with a number of brothers and sisters to tease and torment and play with and yet we often came across many other farm boys with a number of such in much the same condition as ourself.

As the years have advanced, however, we have found many things with which to occupy our time on these would-be lonesome days. And looking back we almost pity that boy and all those boys who could find so little employment to divert those hours of enforced loneliness. Many is the day we once looked forward to the time when we should leave the farm for ever and go off to the city which seemed so alluring to us. And the time came when we did go off to the city and became a cog in its vast machinery. How well we remember that morning that we applied for a job and as luck would have it secured employment. It was a very large factory, and the man into whose presence we were ushered had many departments under his control. Each department was represented in this, the main office, by a man at a desk and there were some twenty desks with men behind them who could do two things admirably well. One was to copy some sort of data into large ledgers and the other was to stare rather unceremoniously at a fresh country lad who wasn't exactly sure of his position in their midst. But we got along well with the manager. After a few curt questions as to my age, education, former employment and so on he gave me the first open frank view of his face. It was a young face upon which time and the city

had written or rather developed an unnatural shrewdness.

"And so you came in from the farm," he queried at length, after a space in which his mind seemed to be shifting in lightning-like rapidity from one part of the factory to another. Then he came back with "Well I was in just your position three years ago, I came in here and secured a job as you are doing." Then his mind seemed to revert to that morning and a haziness of recollection swept over his face. "I have succeeded as you may see if success is measured by the city standards, but I have purchased a little farm out of town a ways and next week I am going back to the place where I was raised."

The pressure of business prevented further confidences and my application blanks had to be hurriedly filled out ere I was ushered off to my new work. We learned nothing further from this first acquaintance for the fellow left next week, true to his word, against the earnest entreaties of the firm to remain at an advanced salary. Was it a case of mere dissatisfaction and longing for a change such as we meet with so often in our daily round? Or was it the case of a man who first fled from the farm because of a memory of its lonesome days.

Work or Drudgery

Many farmers get along without any form of power except their horses. It has yet to be shown that engines can take the place of horses. Yet, we admit that for various kinds of work the engine is superior to the horse. Now there was a time when all work was done by horse power. Men were slow to accept the power furnished by steam and gas engines. They did, however, accept it slowly for the heavier lines of work and kept on doing the lighter work by hand or horse power.

A small portable gasoline engine is no longer an experiment. Such an engine has proved itself a great time and labor saving machine for the busy farmer.

When a small, portable, well balanced engine of from 2 1/2 to 4 h.p. can be purchased for from \$109.00 to \$150.00, there is little reason why farmers should not make much of their labor easier. These engines are now so well perfected that they will work with very little fastening to the ground, hence they can easily be taken from place to place for the various jobs for which their services are needed. Such work as running cream separators, pumping water, sawing wood, grinding feed, running washing machines, and many more equally undesirable chores about the farm may be

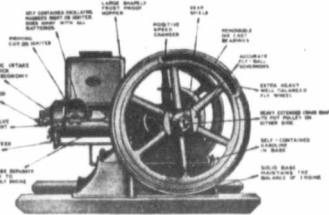
There is Just ONE GASOLINE ENGINE

Sold direct to the farmer—that is good enough to show its Superiority in actual competition with the highest priced engines made—that One engine is the Judson, and it is the engine you need. Don't experiment with second grade engines when you can buy the world's best engine at our money-saving prices. Send your order to-day, or write for catalog.

MORE POWER—LOWER COST

The Lowest Prices ever made on a High Grade Dependable Engine **\$68.50**
2 1/2 H.P. Complete with magneto, only

Judson Engines Deliver More Horse Power for Each Dollar Invested than any other engine offered for sale today.



The same high grade quality that has made Our Engine a World Bester—sold as always under the guarantee that there is no better engine made.

Send for Catalog and Prices of Coal Oil Engines

Proven in actual competition to be the Best Engine Made—regardless of Name, Make or Price

Note the features of this engine as shown above—Absolute simplicity and durability; economy of fuel; evenly balanced; smooth running, and will last as long as any engine built. A surplus of 11 1/2% above our ratings. It is the engine you want, and is sold you on 30 Days' Free Trial!

- 1 H.P. Engine, with 4x4 pulley and batteries **\$35.00**
- 1 1/2 H.P. Engine, with 5x4 pulley, self-starting magneto and slow speed pulley **\$52.50**
- 2 1/2 H.P. Engine, with 6x4 pulley and self-starting magneto **\$68.50**
- 3 1/2 H.P. Engine with 10x6 pulley and self-starting magneto **\$95.00**
- 5 H.P. Engine, with 18x6 pulley and self-starting magneto **\$142.50**
- 7 H.P. Engine, with 20 in. pulley and self-starting magneto **\$187.50**
- 9 H.P. Engine, with 20x8 pulley and self-starting magneto **\$230.00**
- 10 H.P. Engine, with 20x8 pulley and self-starting magneto **\$275.00**
- 12 H.P. Engine, with 22x8 pulley and self-starting magneto **\$325.00**

We can save you money on Farm Supplies of all kinds—Our catalog sent free on request

C. S. JUDSON CO. LTD., Winnipeg, Man.

FROM THE FACTORY TO THE FARMER

You saw this advertisement in this magazine. Don't forget to say so when writing.

Cast Iron Breakages Welded

We can save you many dollars—not to speak of loss of time and endless vexation—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 needed, 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.

ENTRUST US WITH YOUR WORK, SATISFACTION POSITIVELY GUARANTEED. ALL INQUIRIES PROMPTLY AND CHERFULLY ANSWERED BY MAIL.

Manitoba Welding & Mfg. Co.

58 Princess St. (Estab. in 1911) WINNIPEG

You saw this advertisement in this magazine. Don't forget to say so when writing.

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

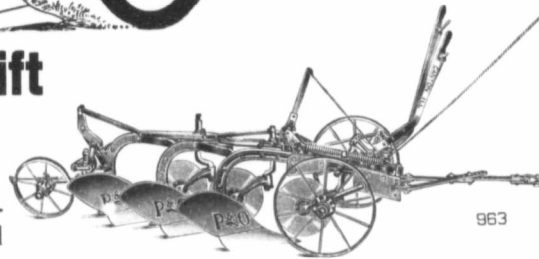
You saw this advertisement in this magazine. Don't forget to say so when writing.

made a realm of in doing of power. Wom our auto run gas let her home w gasoline. Steel a. Years gravely one-mule about fift it was a would w mule. I Farmer n crooked s. To a go is only a different t one purpo such thing exists. type that v. The bes posed of th fourth-inch ers have a make the center laye tough to p side layers. Chilled



Little Genius—Power Lift Engine Gang Plow

Examine these Merit Points carefully. They explain the remarkable success of this wonderful little plow.



- The P&O Little Genius** is a light, efficient little power lift engine plow for the small tractor. With any tractor it constitutes the ideal one man outfit.
- Power** furnished by the land wheel, raises and lowers the bottoms at the will of the engineer.
- High Level Lift** on all three wheels gives ample clearance for trash in turning or transporting. Only one trip rope is required.
- Rear Wheel Lift** responds instantly to action of power lift device. No sliding parts. No strain on lifting parts while plow is at work.
- Bottoms are Forced**—not merely dropped—into the ground by the whole weight of the plow.
- One Half as Much Power Required** to raise the bottoms of the P&O Little Genius as is required on any similar plow. Note absence of spuds on power wheel.
- Swinging Levers**—When the plow is at work the levers are within easy reach of the operator from his position on the engine, but as the bottoms raise the levers swing back over the plow out of the way, and do not interfere with the engine in turning.

- Spring Balanced Bottoms**—The levers and bottoms are counterbalanced by heavy springs, making their operation extremely easy.
- Pin Break Hitch**—Better than an insurance policy—protects both plow and engine against danger of damage from striking hidden roots or stones.
- Hitch Adaptable to Any Tractor.**
Cone Coupler Bearings permit taking up all looseness occasioned by wear.
- Great Bottom Clearance**—The P&O Little Genius has made good repeatedly in ground so trashy as to render other plows almost useless. If you get a chance, compare the 19 inches bottom clearance of the Little Genius with that of any other plow.
- Three Sizes**—No. 2 is made in 2 or 3 furrow, with 12 or 14 inch bottoms. No. 3 is made in 4 furrow with 14 inch bottoms. A third plow attachment can be furnished for the No. 2, 2-furrow.
- Jointers or Knife Cutters** can be furnished.

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

International Harvester Company of Canada, Limited, SALES AGENTS FOR CANADA
WINNIPEG ESTEVAN BRANDON CALGARY REGINA SASKATOON EDMONTON YORKTON LETHBRIDGE NORTH BATTLEFORD

made at least to approach the realm of things we find pleasure in doing if we have a willing form of power at hand.

Women drive a great many of our automobiles. If a woman can run gasoline engines for pleasure, let her also lighten her load at home with power furnished by gasoline.

Steel and Chilled Mouldboards

Years ago I plowed a piece of gravelly land with a cast-iron, one-mule plow. The edge lasted about fifteen minutes. After that it was a question which of us would wear out first—I or the mule. I know how the First Farmer must have felt with his crooked stick hitched to a camel.

To a good many people a plow is only a plow. But of the many different types some are better for one purpose than for another. No such thing as an all-round plow exists. A man should use the type that works best in his soil.

The best steel plows are composed of three layers totalling one-fourth-inch. The two outside layers have an extra hard texture to make the plow scour, while the center layer is made especially tough to present the brittle outside layers from breaking easily.

Chilled plows have a flinty

hardness. The process of casting crystallizes the metal in such a way that the grain is edgewise of the mouldboard surface instead of lengthwise. The edge of the crystals furnish the scouring surface and for this reason a chilled plow will last a long time, even until it is worn down very thin. The mouldboard is about one-half of an inch thick and about half of this is made of chilled metal, so that it will wear and scour until the entire thickness of the chilled portion is worn away. A steel plow lasts until the hard outer layer has worn through. When the soft center is exposed it ceases to scour and a new part is necessary.

A plow scours when its mouldboard presents a polished surface that will not scratch; that is, the surface must wear smooth from the medium in which it works.

Light soils, loams free from sand, stones or gravel, and black waxy soil can be plowed more successfully with steel plows than with chilled ones, because such soils put a dirt polish on the mouldboard without scratching it. Whenever grit is present the wear on the thin layer of hard steel soon exposes the soft center so that the plow refuses to scour in any soil. Little steel is made hard enough to withstand the grit of sandy soils without becoming

scratched. This ruins the dirt polish by making obstructions that catch the dirt; as a scratched plow will not scour well in fine loam or clay soils.

Chilled plows work better than steel ones in sandy, gravelly or stony soils, in heavy clay soils, and in the silt loams containing grit. In such soils a properly chilled plow takes on an increasing polish the longer it is used. So in a way an old plow is better than a new one, as the factory can not put on polish equal to that which comes by wear.

Steel rusts more easily than iron. It is necessary to create a new scouring surface every day if a steel plow is left out in the weather with its surface unprotected by grease.

Properly chilled plows do not rust readily, they only corrode on exposure to the elements. A few feet of travel with the plow in the ground will restore the scouring surface of a chilled plow that has been exposed to the weather for a long time.

So simple a matter as plowing can be made more effective by using a plow adapted to the soil.

Lucky Hubby

Mrs. Green—"Do you ever flatter your husband?"

Mrs. Wyse—"Yes, I sometimes ask his advice about things."

CASH FOR TRASH

We buy Old Brass, Copper, Zinc, Lead, Auto Tires, Bones, Rags, Tailors' Clippings, Rubber Boots and Shoes, Hides and Furs

Write for Quotations

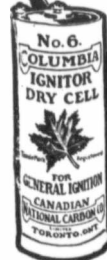
Thompson Commission Co.
JUNK HIDES FURS
Corner Princess & Alexander WINNIPEG

Columbia Batteries

Everywhere Preferred

Four from west coast to east coast—*if every shop you find COLUMBIA preferred for autos, engines, tractors, phonos, lanterns, bells.* And always for the same reason—they're full-powered, dependable; they cost no more but last longer.

Canadian National Carbon Co. Limited
99 Paton Rd., Toronto



Preventing Fires in the Country

Lightning causes the greatest number and defective flues the most disastrous fires in the country.

Rods properly installed protect against lightning. They should be heavy and placed at frequent intervals, well insulated and sunk deep into the ground.

A defective flue is the most dangerous fire hazard. The building of a chimney deserves the personal supervision of the owner who should spare no expense to make it perpetually safe.

Prevention against this kind of loss is to build chimneys in two courses of brick with plenty of good mortar. See that no timbers jut into the flue, or they may char for days and suddenly burst into flames when the soot catches fire.

Precautions prevent loss and give freedom from anxiety. With most fires there is a first period known to underwriters as "the vital five minutes" when prompt action previously planned will usually put out the fire while it is small.

If there is no hose attachment to an engine or force pump, it is well to keep a barrel or two of salt water handy with a few buck-

ets hanging nearby. Brine is a good fire extinguisher, it does not freeze and will not be used up as would fresh water. A few buckets of salt water hung in odd corners of the house, barn and other buildings will often furnish protection in the nick of time.

Dust, dirt, salt and sand are good fire fighters especially when gasoline, kerosene or oil feeds the red-mouthed demon of destruction.

Electric lights are the safest but fires will start from poor insulation or crossed wires. Fires have been started by curtains or other draperies blowing across a lighted gas jet. Kerosene lamps should be handled with great care. It is risky to carry lighted lamps from room to room.

Fires often start in mysterious ways without leaving a trace of their origin. A magnifying glass left in a window drew the rays of the sun to some curtains and started what would have been a bad fire if it had not been quickly discovered and put out.

The "makings" of a fire are present in nearly every building. Fireproof construction is well-nigh impossible, especially in the country, and the only safeguard is insurance and eternal vigilance.

Insurance always pays. The comfort of knowing that some one else is helping to carry the responsibility is worth all the premium costs if a fire never occurs. When fire does come, the farmer is not crippled for years trying to get square with the world.

IT TOOK TWENTY YEARS TO INVENT A GOOD TRACTOR

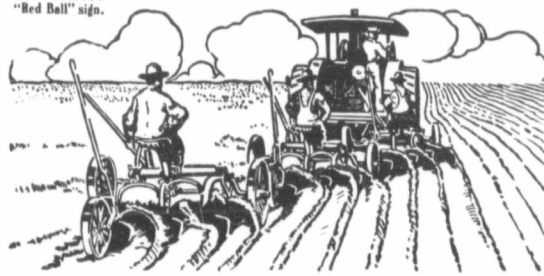
BUT a few months use of an inferior oil will ruin one. Your tractor cost you good money. It is only common sense to lubricate it with the oil most suited for the purpose.



pays big dividends in the form of longer hours and less trouble in your tractor. The ground may be heavy, the air cold, but you, at the wheel, will know that Polarine is earning maximum power in each running part of the engine.

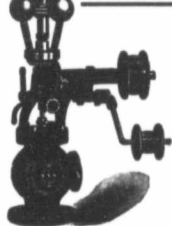
Supplied in two grades—Polarine and Polarine Heavy THE IMPERIAL OIL COMPANY Limited BRANCHES THROUGHOUT CANADA

Buy Gasoline and lubricants under the Premier "Red Ball" sign.



You saw this advertisement in this magazine. Don't forget to say so when writing.

Steam or Gas Tractors



Equipped with THE GOVERNOR WITHOUT JOINTS PICKERING give greatest efficiency

FITTED TO EVERY BUILD OF ENGINE

Patent Ball Ranger Speed Changer Supplied on all Genuine Pickering Governors. Will increase speed 50% or more.

The Pickering Governor Co.

PORTLAND CONN., U.S.A. TRADE MARK (AMERICAN)

You saw this advertisement in this magazine. Don't forget to say so when writing.



BEST Anti-Friction BABBITTS On the Market.

With 40 years experience in manufacturing alloys for all classes of machinery, the HOYT METAL CO. has evolved two alloys which are unsurpassed by anything of the kind now in use.

HOYT'S NICKEL GENUINE Babbitt is especially designed for heavy duty gas tractors. HOYT'S FROST KING Babbitt is especially designed for threshers, separators and stationary engines of all classes.

Less than 28 lbs. Nickel Genuine 75c. per lb. Less than 30 lb. Frost King 40c. per lb. 28 lb. box 70c. per lb. 30 lb. box 37c. per lb. 56 lb. box 65c. per lb. 60 lb. box 35c. per lb.

Delivered to your nearest express or post office station. Hoyt Metal Co. Eastern Ave. and Lewis St. TORONTO FACTORIES—London, Eng.; Toronto, New York, and St. Louis

You saw this advertisement in this magazine. Don't forget to say so when writing.

Lubrica

satisfacto bearing have a slo be satisfi engine a would ha Above a would be ing inste enter. C gines diff be used bearing. this style with a sp to the be employed This cup time the Where the enclosed c kept in t where the time and s crank case bearings ar lubrication. Quite a main parts called a sig really a gri placed in a arranged at can see eac to the part these oilers regulate the should rang

"Maltese Cross"



"Non-Skid"

SMILES OF SATISFACTION

are never absent from the face of the car owner who has had the good sense to have his automobile equipped with the

"Maltese Cross" Tires

Their quality, comfort, and "Sense of Security" cannot be expressed in descriptive language. It cannot be appreciated till it has EXPERIENCED.

LOOK FOR THE Trade Mark ON THE ROAD



"The TREAD Mark of Quality"

The latest addition to the "Maltese Cross" family is the "PARAGON" a pattern tread at a moderate price.

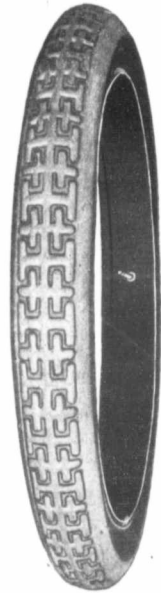
Manufactured Solely by

Gutta Percha and Rubber Limited

Not in any Trust or Combine

Factories: Toronto. Western Branches: Fort William, Winnipeg, Regina, Saskatoon, Calgary, Edmonton, Vancouver

"Maltese Cross"



"Paragon"

Lubrication of the Gas Engine

J. L. Hobbs

Continued from page 18

satisfactory way to oil the crank bearing of large engines which have a slow motion, but would not be satisfactory for a high speed engine as the centrifugal force would have to be reckoned with. Above a certain speed the oil would be cast off from the bearing instead of being allowed to enter. On these high speed engines different methods have to be used to lubricate the crank bearing. On a large number of this style of engine a grease cup with a spring to feed the grease to the bearing as it is needed is employed with good success. This cup should be filled every time the engine is stopped. Where the crank axle runs in an enclosed case a little oil may be kept in the bottom of the case where the crank will strike it each time and splash it around over the crank case and it will drip on the bearings and provide satisfactory lubrication.

Quite a few engines have the main parts lubricated by what is called a sight feed oiler which is really a gravity feed. The oil is placed in a glass cup which is so arranged at the bottom that you can see each drop of oil as it goes to the part to be lubricated. In these oilers means is provided to regulate the amount of oil, which should range from about six drops

per minute for a 1-horse engine up to as high as twenty drops per minute for a 15 or 20-horse engine.

The parts of the oiling system which we have already mentioned are comparatively easy to look after as they are as nearly automatic as can be made, but we now come to the part where the operator must use his head and also his armstrong system with the ordinary squirt oil can. The operator must oil every moving part of the engine which is not already provided for in some of the above methods. This means every moving part, be the movement ever so slight. The old adage "constant dripping will wear away stone" should be reversed here and made to read the absence of regular drippings of oil on all moving parts will in a short time put the best engine to the bad.

The valve stems should be kept thoroughly oiled more especially the intake, for the reason that if it is allowed to run without oil the opening in which it runs will soon become worn and this wear will permit air to enter the mixture which is already properly made, just as it is entering the cylinder, which is very disastrous to your power, unless it is offset by opening the needle valve a little to admit a little richer mixture. If the opening in which the valve stem for the intake runs is worn very much it will make the engine hard to start, and the more it is

worn the harder the engine will be to start. The reason for this is that the mixture is spoiled just as it is entering the cylinder. This is one thing which makes some engines so hard to start.

There are exceptions to all rules. There is one of the above rules, viz., the magneto. The magneto should have only small quantities of oil, as an overdose of oil on the magneto will injure its efficiency. The manufacturers generally provide for this by inserting wicking into the oiling holes so that only a drop at a time can be put in. They also provide extra fine bearings for these little machines which do not require as much oil as the coarser bearings of other machines. These bearings are generally either ball bearing, similar to those in bicycles, or a good grade of phosphor-bronze, either of which requires a small quantity of oil.

Let us suggest right here that if your magneto fails to work at any time, before calling an expert remove it from the machine noticing, of course, how to get it back the way it was, and give it a thorough cleaning with gasoline and allow it to dry for a few hours, after which it will nine times out of ten run the same as when new.

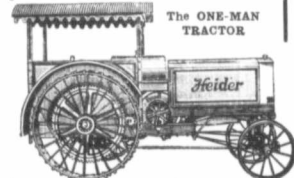
Well Won

"I got his cup for running."

"Whoja beat?"

"The owner and six policemen."

Solve Your Hired Help Problem with a HEIDER



Perfectly adapted for doing any kind of work in the field, belt or on the road, at the lowest possible cost. You can cut your farm operating expenses 50 per cent.

The most economical and easily operated tractor made—Four Cylinder, Heavy Duty Motor of the long-stroke type—constructed throughout for strength and service. Entirely new system of transmission. The HEIDER is the pioneer lightweight tractor and no experimenter.

Get the new HEIDER Book on Tractor Farming free. Write for it to-day. GILSON MANUFACTURING CO., Ltd. P.O. Box 671 Winnipeg, Man.

Lump Jaw

The first remedy to cure Lump Jaw was Fleming's Lump Jaw Cure and it remains to-day the standard treatment, with years of success back of it, known to be a cure and guaranteed to cure. Don't experiment with substitutes or imitations. Use it, no matter how old or bad the case or what else you may have tried—your money back if Fleming's Lump Jaw Cure ever fails. Our fair plan of selling, together with exhaustive information on Lump Jaw and its treatment, is given in

Fleming's Vest-Pocket Veterinary Adviser Most complete veterinary book ever printed to be given away. Durably bound, indexed and illustrated. Write us for a free copy. E. S. FLEMING BROS., Chemists Church Street - Toronto, Ont.



ARTICLE No. 2

Manufacture of Steel—
Definitions

THE steels commonly used in making tools are compounds of iron and carbon, and are classified as high carbon steels to distinguish them from the alloy steels, which contain in addition to carbon, some one or more of the following elements: Manganese, nickel, aluminum, chromium, tungsten, molybdenum, copper, arsenic, sulphur and phosphorus; the last four elements being impurities that when present in any considerable quantity injuriously affects the quality of the steel.

The high carbon steels are also known as tool steels, the various grades of which differ from one another principally in the amount of carbon they contain. The most valuable property of high carbon or tool steel is that it can be hardened and tempered. The best grade of tool steel is made by what is known as the crucible process and is called crucible steel. Other forms of tool steels of lower grades are called blister steel and shear steel. The process by which these are made may be briefly described as follows:

Blister Steel

In the manufacture of blister steel, wrought iron is packed in charcoal and then heated to a high temperature. The iron absorbs carbon from the charcoal and is thereby converted into steel. Blister steel is made of bars of very pure wrought iron which is practically free from carbon. The bars are usually about 5/8 in. by 5 ins. and 12 ft. long are packed with pulverized charcoal in boxes, made of fine resisting material, which is usually a special stone cut into slabs to make boxes about 3 feet wide by 3 feet high.

Layers of iron are alternated with layers of charcoal to fill the boxes, after which they are sealed to exclude the air. The boxes are placed in a furnace in which the temperature is gradually raised to about 3,000° F. and maintained so for several days, after which the furnace is allowed to cool. The carbon in the metal is not uniformly distributed, however, the proportion of carbon being greatest at the surface.

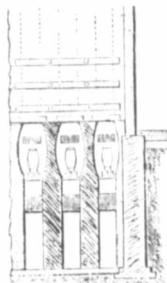
Since this process of manufacture causes portions of the surface

of the metal to swell out or blister into scales, the product is called "blister" steel. This steel is quite brittle and because of its uneven structure, is unfit for general use. Sometimes the blisters are scraped off and the bars heated to a cherry red for a few days in order to distribute the carbon more evenly throughout the metal.

Shear Steel

Shear steel is made from blister steel by cutting up or breaking the bars into short lengths, then piling, heating and fluxing them, and bringing them to a welding heat when they are welded together under a heavy hammer and rolled out into bars.

If the bars of shear steel are again cut up and the short pieces



Crucible Melting Furnace (Longitudinal Section)

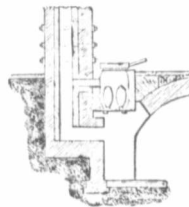
welded into a block and then rolled into bars, the product is called "double shear" steel, which possesses greater uniformity of structure than single shear steel. Shear steel and blister steel are now seldom used directly in tools except in cases where it is necessary to weld steel as, for instance, in anvil faces.

Crucible or Cast Steel

What is known as crucible steel is made by melting blister steel or some combination of other suitable materials in a crucible and then casting the charge into an ingot, that is reheated and rolled into bars. One method of making crucible steel which is also called cast steel is to pack blister steel, which may be broken into small pieces, into crucibles and then melt it.

These crucibles are about 2 feet high and 10 inches in diameter and are capable of withstanding very high temperatures. The melting furnaces are of various forms but all are either lined with,

or made entirely of refractory material. Frequently these are rectangular in form and large enough to hold two crucibles, with the necessary fuels for melting their charges. They are arranged



Crucible Melting Furnace (Transverse Section)

side by side in a row and connected with a common flue. Their tops are usually on a level with the floor while the ash pits are reached from a pit extending along the front of the row.

Sometimes manganese and also material for a flux are added to the charges in the crucibles, after which the crucibles are carefully covered with air tight lids, made of the same materials as the crucibles. After the charge is fused, it is cast into an ingot, which is more uniform in structure than the blister steel from which it was made.

This ingot is reheated and worked under the hammer, then rolled or hammered into bars and placed on the market. This working greatly improves the quality of the metal. The product of this method of working was the first to be called crucible or cast steel, but now the term is applied also to the product obtained by fusing together in sealed crucibles as described above, wrought iron and carbon, to which there are sometimes added manganese, tungsten, chromium, molybdenum and a flux, and casting them into an ingot that is treated in the same manner as that just described.

In the material called cast steel, the use of the term is herein confined to crucible tool steel. Cast steel must be carefully distinguished from the material represented by the term steel casting. The latter term denotes a material made by a different process and is altogether different from cast steel.

Many of the modern furnaces are fired by gas or crude oil. The

contents of the crucibles are sometimes poured into a large ladle which mixes the charge and insures a more uniform grade of steel. The contents of this large ladle are then poured into ingot moulds and these ingots are subsequently worked down under hammers or with rolls. The best tool steel is worked down entirely under hammers.

Temper of Tool Steel

The steel makers use the word temper to indicate the amount of carbon in the steel, thus steel of high temper is steel containing a high percentage of carbon. Steel of low temper is steel containing little carbon, steel containing amounts of carbon between these is said to be medium temper. This term should not be confused with the art of tempering which is an operation for reducing the hardness of steel to such a degree as to adapt it for doing particular kind of work required.

The temper of steel is often indicated by saying that it has a certain number of points of carbon. A point being .01 per cent, thus when it is said that a piece of steel contains 10 points carbon, it has ten one-hundredths per cent or one-tenth of 1 per cent carbon which is written .1 per cent carbon. The following is a list of useful tempers for various tool steel and tools:

Razor Temper

1.5 per cent carbon—This steel requires very skilful manipulation as it is easily burned by being overheated, when used for turning, chilled rolls it will do much more work than ordinary tool steel.

Saw File Temper

1.4 per cent carbon—This steel also requires very careful treatment although it will stand a higher degree of heat than the preceding temper, it should not be heated beyond a cherry red.

Tool Temper

1.25 per cent carbon—Steel of this temper is most useful for drills and lathe, and planer tools when they are to be used by the average workman. By careful and skilful manipulation, it is possible to weld steel of this temper.

Spindle Temper

1.1 per cent carbon—This is a good temper for very large turning tools, circular cutters, mill

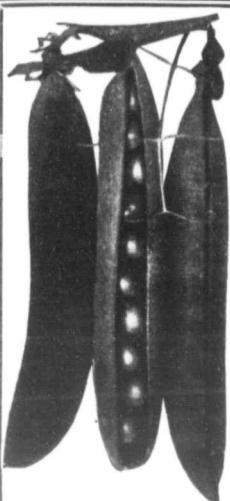
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PATMORE'S

RELIABLE NORTHERN-GROWN Seeds, Trees, Shrubs and Fruits

Seed time, the season when we lay the foundation of a good crop or a poor one, is close at hand. Good crops can be best assured only by using good seed. PATMORE RELIABLE SEEDS are selected from long years of experience, proving which varieties are the best and most profitable to grow here in the West. Reliable Flower and Vegetable Seeds, Grasses, Fodders, Farm Seeds and Seed Potatoes, of all the best hardy varieties.

SPECIAL OFFER
We Grow and Offer For Sale 15 of the Most Productive of Garden Peas.
25 lbs. for \$2.00
Choice Garden Peas, best varieties; Telegraph, Fortyfold, Earliest, Stragadem, and others.
COLLECTION No. 1
Contains 22 varieties of our Reliable Vegetable Seeds in packets and ounces, 2 1/2 lbs. of seeds for \$1.25 prepaid.

COLLECTION No. 2
12 packets of Reliable Flower Seeds for 25c. prepaid.
FARMER'S COLLECTION No. 3
Contains 1 lb. Mangel, 1 lb. Sugar Beet, 1 lb. Swede, 1 1/2 lb. Carrot, 1 1/2 lb. Kale and 4 lbs. Rape—8 lbs. seed for \$2.50 prepaid.
In our Catalogue we offer 60 of the Choicest Varieties of Spencer's Sweet Peas



FODDER AND FIELD SEEDS

Sorghum, a valuable fodder grass	Per 100	\$20.00
Millets, Common, Siberian, Hungarian or Japanese	Per 100	8.00
Spring Tares or Vetches	Per 100	8.00
Spring Rye, per bushel	Per 100	1.35
Field Peas	Per 100	3.25
Nor'West Dent Corn	Per 100	4.50
Longtellow	Per 100	2.50
North Dakota Dent	Per 100	2.50
Yellow Dent	Per 100	2.25
Rape Seed, per lb.	Per 100	.12
Swede Turnip, per lb.	Per 100	.10
Mangels, per lb.	Per 100	.30

FODDER AND FIELD SEEDS—Cont.

Field Carrot, per lb.	Per 100	1.00
Sugar Beet, per lb.	Per 100	1.30
Garden Peas, best varieties, per lb.	Per 100	.15
GRASSES AND CLOVERS Per 100		\$14.00
Brome, No. 1	Per 100	12.00
No. 2	Per 100	12.00
Western Rye, No. 1	Per 100	12.00
No. 2	Per 100	10.00
Timothy	Per 100	12.00
Alfalfa	Per 100	28.00
Clovers, Red	Per 100	26.00
White	Per 100	24.00
Annual Rye	Per 100	12.00
Annual Crimson Clover	Per 100	14.00

SEED POTATOES
Are likely to be very scarce

Bovee, per bushel	\$1.50
Carman No. 3, per bushel	1.50
Drier's Standard, per bushel	1.50
Kidney, per bushel	1.50
Mortgage Lifter, per bushel	1.50
Wee McGregor, per bushel	1.50
White Sunrise, per bushel	1.50
Taber Talk, per bushel	1.50
Six Weeks, per bushel	1.50
Honeyeve, per bushel	1.50

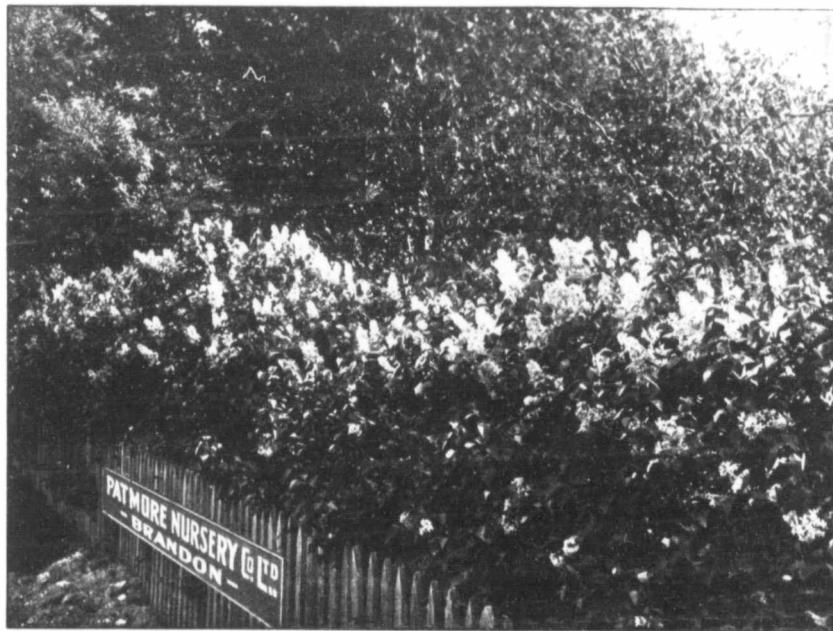
SHRUBS FOR HEDGES

Caragana, 6-10 inch seedlings	Per 100	\$ 1.00
7-15 inch seedlings	Per 100	3.00
2-2 1/2 feet	Per 100	5.00
3-4 feet, selected	Per 100	15.00
Lilac, 15-18 inch	Per 100	5.00
1 1/2-2 1/2 feet	Per 100	10.00
2-4 feet	Per 100	15.00

YOUNG TREES

Manitoba Maple Seedlings	Per 100	\$ 1.00
2-3 feet	Per 100	5.00
Ontario Soft Maple, 3-4 feet	Per 100	10.00
Cottonwood Seedlings	Per 100	1.00
2-3 feet	Per 100	5.00
Elm, 3-5 feet	Per 100	10.00
Russian Poplars, 2-3 feet	Per 100	5.00
3-5 feet	Per 100	10.00
Russian Laurel Willow, 2-3 feet	Per 100	5.00
3-5 feet	Per 100	10.00
Russian Golden Willow, 1-3 feet	Per 100	3.00
3-7 feet	Per 100	10.00

We Have Growing in Our Nursery and Offer for Sale this Spring
500,000 Caraganas, 1 to 4 feet high
25,000 Native Maples, 1 to 10 feet high
6,000 Ontario Maple, 2 to 6 feet high
150,000 Russian and other Poplar in all sizes
30,000 Lilac, 1 to 5 feet high
115,000 Russian Golden Willow in all sizes
70,000 Russian Laurel in all sizes
5,000 Crab Apple and Pome. Trees and a large stock of all hardy fruits, ornamental shrubs, plants, etc.
We grow and offer all of the Hardest of Hardy Fruits, Apples, Crab Apples, Pears, Cherries, Gooseberries, Currants, Raspberries, Strawberries, Rhubarb, etc., the very things that are needed for the comfort and health of the Western prairie home.
Honeysuckle Bushes, Asiatic Maples, Russian Olives, Elders, Spiraea and other Hardy Shrubs, Hardy Rose Bushes, Favourites and the old-fashioned but ever popular Herbaceous Plants.



Lilac Hedge in Bloom. Photo taken Brandon Man.



Sutton's Best of All Savoy

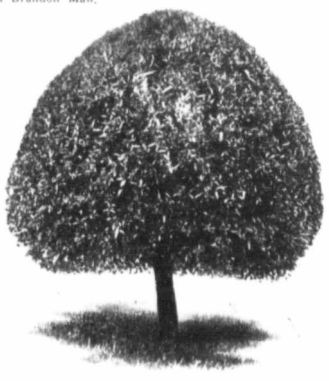
For more than 30 years we have been growing and selling Hardy Trees, Shrubs and Fruits, and all over Western Canada you will find homes made beautiful by the use of

PATMORE'S HARDY TREES and SHRUBS

OUR 1916 CATALOGUE WILL INTEREST YOU. It is free, and illustrated with actual photos of Western growth, and compiled with the experience of 30 years in this Western country. Write for it to-day.

THE PATMORE NURSERY CO., LTD.

BRANDON SASKATOON
Man. Sask.
The Oldest Horticultural Establishment in the West
ESTABLISHED 1883



Russian Golden Willow, Trimmed as a Dwarf Compact Tree. These Willows are Capable of being Grown in any Form Desired, either as Shrubs, Dwarf or Tall Trees

PATMORE NURSERY CO., LTD., BRANDON, MAN. C.T.
Please send me your Illustrated Free Catalogue.
Name
Address
Province

You saw this advertisement in this magazine. Don't forget to say so when writing.

CASE

Threshing Machines

Fast, Clean Threshing.

Elrose, Sask.

Dear Sirs:

In reference to the 65 horse-power steam engine and 12254-inch separator and attachments we bought from you this fall, wish to state that this outfit has given us every satisfaction. Although we did not get the outfit till the 15th of October, we threshed three tanks of water a day, and found engine fired very easily on any kind of straw. We may say the engine is perfect. We did not have a hot box once on engine or separator for the 20 days work. The separator gave us no trouble at all and threshed fast and clean and gave satisfaction to our customers. We would strongly recommend the CASE and clean and give satisfaction to our customers. We would strongly recommend the CASE to prospective buyers, as the Company and clean and give satisfaction to our customers. We would strongly recommend the CASE to prospective buyers, as the Company and clean and give satisfaction to our customers.

Entire Expense for Repairs 80 Cents.

Shanawon, Sask., Nov. 15, 1915.

This fall we purchased one of your 75 horse power steam engines, and 4062-inch separator complete with feeder, wind stacker, and No. 1 grain register. We ran 35 days, put through 74,000 bushels of grain, 58,000 of this was wheat. Our entire expense for repairs was eighty cents. We can gladly recommend your good clean work.

Read about this little Experience.

Dublin, Tex., Aug. 1, 1915.

Gentlemen:

We want to tell you of a little experience we had with our little CASE 1845-bush separator. On July 4, 1915, our territory was visited by a terrific cloudburst that put all the little streams up higher than ever known, overflowing all the bottom farms. On one job in particular, we were called on to go into a crop that had been overflowed and they were digging the wheat out of drifts. They had had a CASE outfit there and did nothing with it. Knowing our CASE, we would do the work we had had to everybody's mind. We did the job to everybody's satisfaction and the farmer and the separator.

From Morning 'till Night - Never a Stop.

Summerberry, Sask., Oct. 30, 1915.

Regarding my 1225 portable gas tractor and 12442 inch separator, wind stacker, feeder, and high loader, we did our own threshing, 1000 bushels of oats in ten hours. I consider this very good considering the length of straw, which was the longest I ever saw. It was also our first experience with an engine and we never had a minute's trouble. The engine would start every time we asked it and would deliver all the power we wanted. We can draw it over all the power over stubble or summerfallow with our smallest team, and it is very easy on gas. We have never used twenty gallons in one day yet. The separator runs from morning 'till night without a stop. Never had a hot box or any trouble of any kind. It is the simplest to operate, and the cleanest thrasher I ever saw. I consider I have the best job I ever had done and that I would think of doing again.

Case Machine a Money Maker.

Abraham, Utah, Feb. 28, 1916.

We are well pleased with the threshing outfit that we bought of you last season and we made a good run with it. Owing to the extra heavy straw it sure cut our average one-third of what it would have been in lighter straw. The machine is in good condition and we will not have to replace any part of it next season. We will say that if we were buying another outfit it would be a CASE as we think that they are the simplest to handle and most economical in the cost of operation. As a money making machine, there is none better.

(Name on Request)

Famous the World Over

When you buy your next threshing machine investigate the many exclusive features that are found in Case threshing machines. Compare the Case with any other make, point by point. The closer your investigation, the more satisfied you will be that, for clean, fast threshing, the Case stands alone in its class.

We have in our files thousands of testimonials on Case threshing machines. From all parts of the world farmers and threshermen are alike in their opinion that Case machines cannot be excelled. Hundreds of letters give evidence to the fact that Case machines are grain savers. One of the testimonials in this ad tells of its long lasting qualities. Another tells of its economical upkeep. Another owner relates an experience of how his Case machine went thru a fire with only the expense of a few burned belts. These are the qualities that make Case machines valuable as profit producers.

Back of Case threshing machines is a record of 74 years of experience in building only those machines which will best serve the threshermen. Today Case has thousands of satisfied customers. Do you want our latest catalog explaining Case Products in detail? It's just out and we'll send you a copy postpaid on request. It's well worth writing for.



J. I. Case Threshing Machine Co.,

Incorporated

759 Liberty St. Racine, Wisconsin

Canadian Branches: Winnipeg, Regina, Calgary, Toronto and Saskatoon.

CASE

Threshing Machines

Features Found in No Other

The popularity of Case threshing machines is best evidenced by the fact that Case sells 3 machines to 1 of any other make. When you come to learn of its many time and labor saving features you, too, will know why Case machines are so popular with farmers and threshermen. Here are a few of the many reasons why. Our catalog explains them all.

1. Frame is solidly constructed of steel channels. No danger of warping and getting out of shape.
2. The big cylinders of Case machines, with their steady motion, are through separators. With this feature the most unfavorable weather conditions will not stop threshing, for the big cylinder handles damp and wet grain easily.
3. The cylinder teeth are made of special steel, made to our own formula and treated in our own shops. The strength of Case cylinder teeth is a great feature and is the result of years of work in the field.
4. Our system of oiling with hard oil compression cups makes it possible to lubricate all working parts while machine is in operation.
5. The steel construction of Case machines makes them fire-wind and water-proof. With a wooden machine there is not only the constant danger of the loss of the machine, but the danger of a crippled earning power in the busy season when time is worth dollars. *But with a Case you are always safe.*

We are limited in space to give all the facts about Case machines. It will pay every farmer and thresherman, who is planning the purchase of a threshing machine, to send for our latest 1916 Case Machinery Catalog. It will save you real money. A postcard with your name and address brings it.

J. I. Case Threshing Machine Co.,

Incorporated

759 Liberty St.

Racine, Wisconsin

Canadian Branches: Winnipeg, Regina, Calgary, Toronto and Saskatoon.



Read this Testimonial.

Gentlemen - Coliver, Kans., Feb. 26, 1915.

Having used one of your threshing outfits for your threshing season. While we had a very poor tough, sticks badly grown together, your 40x22 inch separator pulled, by your 80 horse power steam engine went along and did good work even while the grain was so wet elevator men would not buy it. The CASE separators seem to get the grain and clean it good even though the straw is tough. Our Farmers Union Elevator man in Coliver says, "Inloos' machine in the best cleaned wheat that came to the elevator last season". We have heard of but one complaint in our whole season's run and that was blowing so hard no machine could do good work under such circumstances. I never treated more by any company which I appreciate very much. You will always find a strong advocate of the CASE Machine. I am ready to say a good word for Case any time I get a chance.

Yours,

Twenty Years a Thresherman - Case is Best Machine.

Hutchinson, Kans., Feb. 28, 1916.

Gentlemen - I have been in the threshing business for twenty years, have owned and operated several different makes and styles of threshing machines and I find the CASE as good or better for every kind of work than any I have ever run. I have a CASE 80 horse power engine, 18x28 inch separator and CASE 40 horse power engine and separator. On account of wet weather and poor crop conditions, my average was very low, but I can say that my CASE is in the best condition and ready to go.

He's Glad he had a Steel Machine.

Dear Sirs - Brashear, Mo., Sept. 14, 1915.

In July 1912 I bought one CASE 22x24 inch steel separator with wind stacker and self feeder. Have threshed wheat, oats, timothy, clover and millet and am pleased to say I handled all these crops to my entire satisfaction. It has been through one fire, it burned all the belts off and came out all ready for work again with an expense of replacing the belts. A wood machine would have been a pile of ashes. In the four season's work I have not broken one tooth and at four different times fork teeth have gone through the cylinder. The CASE is practically as good as new. I have not had to buy another.

Not a Cent for Repairs.

Rockfield, Ky., Sept. 30, 1915.

Gentlemen - Last summer I bought a CASE 40 horse power engine and a CASE 28x30 inch separator and I want to say for the benefit of those who want to buy a threshing machine - I started to work and threshed 18,000 bushels of wheat and several hundred bushels of oats without one cent's cost on the part of the machines. This is something no other thresherman can say without owning CASE Machinery. Here is a record I would like to mention. I moved four times and threshed 780 bushels of wheat in one day. The distance from first to last set was 3 1/2 miles. (Name on Request)

The farmers were all satisfied, and the one where we threshed five days said he had not been suited before, and asked us to come back next year. The engine and separator are very simple and easy to operate, and we believe them to be the most economical in upkeep of any machine on the market.

Yours respectfully,
(Name on Request)



FARMING WITHOUT HORSES
What a Farmer Can Do With the Tractor
 By Howard I. Wood

PROBABLY farming without horses is not a probability of the immediate future, but the fact that at least one farmer is working his place entirely without horses is proof that such a realization is possible. It also proves that farming exclusively with tractors is to-day almost solved, and that with the improvements daily being recorded, exclusive tractor farming will eventually be entirely practical.



Starting the Building of a Farm from New Land without using Horses

G. T. Wyckoff, of Marinette county, Wisconsin, is a horseless farmer. Not only is he farming his eighty acres without horses, but he made his farm also without horses. Two years ago his place was unimproved land. This year it held the record for the largest acreage of certified potatoes of any farm in Wisconsin. Fifty-five acres of certified rural New Yorkers—that is Wyckoff's 1915 record.

Wyckoff is a young man who was raised on a farm near Bloomington, Ill. Two years ago he settled on new land in Marinette County. Although he is specializing in certified seed potatoes, he nevertheless does general farming, using a crop rotation system which in the absence of a large herd of livestock insures continued fertility of his land. As fast as possible he will build up a dairy herd to supplement his other farming activities.

How this man subdued eighty acres of new land and brought it under cultivation without horses is best told in his own words.

"Two years ago when I took up my place it had a thick stand of small second-growth pine and oak trees, and a scattering of grub oaks, underbrush, and small white and Norway pine stumps. I used

a twelve-twenty-five tractor and a ten thousand pound steel test chain to pull with. It took two men—one on the engine and one to handle the chain. Trees that were eighteen inches through were pulled out of the ground. Small scrub oak and underbrush were left to be plowed under, as my plow will cut off all roots of such, and the harrow will throw them on the top of the ground to be picked up.

"Plowing was done with a twenty-four-inch breaker, and we plowed six acres a day. One man can do this, as he simply throws one lever down and the plow throws itself out of the ground.

"The ground was then rolled with a corrugated roller ten feet wide and of the largest size. Discing, harrowing and rolling were done at the same time. All of these implements were pulled with the engine, and I am positive that twelve horses could not have done it. The disc is ten feet wide and the harrow is of the old-time A-shape with a ten-foot spread.

"We began our work too late in the summer of 1914 to plant that year, so the ground was left alone until this spring when it was double disced and harrowed. ready for the planter.

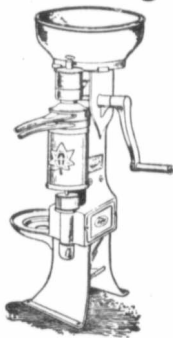


The Land being made ready for Planting

"Our work had prepared fifty-five acres of land ready for potatoes. We completed this work in nine weeks at a cost of \$4.85 cents per acre. Horses could not do this for less than \$10 to \$15 per acre, and there would have been no comparison in the length of time it would have taken by horse power.

"For seed potatoes I purchased pure-bred Rural New Yorkers, which took first prize at the Wisconsin state show at Grand Rapids, Wis., in 1914, and were certified to by the state. Up to the present I have had no potato diseases in my fields. First, my potatoes were dipped, and then cut by hand. A cutter does not distribute the eyes

Why was the Whale



who swallowed Jonah like a dishonest dairyman? Because he took a great "prophet" out of the water. That was a big swallow, but a greater feat in PROFIT-SHARING is accomplished by the honest cowkeeper who handles good cattle and a PERFECT CREAM SEPARATOR. If he is the owner of a

"MAGNET" Cream Separator

he will get the last possible ounce of precious butterfat.

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 it perfectly and economically to every requirement. The result is the "Magnet"—a separator that more than fulfills 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 tired of trying GOPHER poisons ?

which are expensive, unsatisfactory and DO NOT exterminate

"SUREDETH"

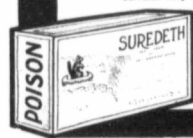
the new scientific preparation, offers the ONLY solution of the gopher problem.

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 "Suredeh" mailed on request.



Empire Chemical Company Limited
 Dept. D SASKATOON, SASK.



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evenly. Two men cut seventy bushels per day.

"We commenced to plant June 1, and planted ten bushels to the acre and eight acres per day. The cut seed was placed in bushel potato boxes and distributed along the end of the field. This plan is a great time-saver. They were cultivated four times with a disc cultivator and sprayed twice for bugs and three times for blight.

"The machine digger and picker is pulled by my engine and I succeeded in handling 1,000 bushels per day by this means. My fifty-five acres yielded over 7,000 bushels.

"This year I will sow clover where the potatoes were and let it stand two years, plowing under the last crop of clover. In the meantime, I will have enough more land cleared by next year to continue my potato business, and I will have my dairy herd as a secondary proposition. In cropping I will follow a three-year rotation plan."

Wyckoff drives an automobile and in marketing products of his farm uses a trailer coupled to his car.

"I won't say there are not some operations where I could use horses to advantage," said Wyckoff, "but there are not enough to make it profitable for me to keep a team on the place. We have taken advantage of power in every other line of business; why not in farming?"

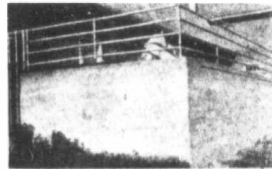
A Playground for the Bull
By H. E. Skott

Trenches and barb wire entanglements have often proved ineffective for keeping the field marshal of the bovine army in his place. Allowed to run loose in the pasture his majesty the bull has probably caused the American farmer more trouble than all the remainder of his livestock. The bull in the pasture is not only a source of much annoyance because continually tearing down the fences and getting into the neighbors' pastures and herds, but because he is also very dangerous. There has never yet been an absolutely safe bull.

Realizing this the more prudent farmers tie up their bull in the barn, but in so doing inflict undeserved punishment on the poor animal, who may likely never have had the chance to act mean. The result is that Mr. Bull pines away for lack of exercise and company, loses his appetite and grows old before his time. It is no wonder that bulls so treated do not remain sure breeders, and often become mean as they advance in age.

H. W. Faville is a Wisconsin farmer who does not believe in

trying to keep bulls tame and in good health by locking them up in some dark and dirty corner of the barn, where their chances of getting regular and necessary care are rather slim. His bull is not only well cared for daily, but has a little yard just outside of his stall, into which he may go to exercise at pleasure. As a result



The Bull's Playground

his bull is good natured, and is sociable with all strangers who come on the place.

The bull's exercise yard is located at the north side of a calf barn, adjoining the main barn on the east. This yard is eighteen feet wide and forty feet long, floored with concrete, and enclosed on two sides by buildings. On the other two sides is a four-foot concrete wall, eight inches thick at the bottom, and six inches thick at the top. Set into this wall and projecting three feet above it, is a gaspipe railing, consisting of four horizontal one and one-fourth-inch pipes held in place by gas pipe posts of the same size spaced six feet apart. At one side of the end of this yard is a heavy gas pipe gate which is always kept securely fastened except when the yard is being cleaned. The yard floor lies above the level of the surrounding ground, and is kept thoroughly drained by a couple of three-inch tile placed in the wall at floor level.

In this little exercise yard the head of the herd plays with perfect safety to himself and to others. He stays healthy and good natured—there is nothing to make him otherwise. Several times daily, his "lady friends" pass his little castle, so he gets a chance to exchange the time of day with them. He does not try to break out; he knows he can't.

Our Dependence upon the Cow

Upon the cow depends more of civilized man's welfare than upon any other animal. Man needs the horse for his motive power, for his pleasure, for his care, protection and love, but its place can be taken by the mule or the motor.

Man needs the hog for its utility and economy as a wealth producer, the cat for its companionship; the dog for its domesticity; the hen for its helpfulness and all for their aid in the conservation of his resources or for his personal

It isn't what you put into a Cream Separator—but what you get out of it that counts.

Price

Value



DE LAVAL
Cream Separators
are by far the
most economical

REAL economy is never short-sighted. It never confuses PRICE with VALUE.

PRICE is what you pay for an article—what you put into it.

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You get by far the greatest actual VALUE for your money when you buy a De Laval—BECAUSE it will give you much better and longer SERVICE than any other separator.

From the standpoint of its greater durability alone the De Laval is the most economical cream separator to buy, and when you also take into consideration its cleaner skimming, easier running, greater capacity and less cost for repairs, the price of the "cheapest" machine on the market is most exorbitant compared with that of the De Laval.

And there is no reason why you should let its FIRST COST stand in the way either, because the De Laval may be purchased on such liberal terms that it will actually pay for itself out of its own savings.

A De Laval catalog to be had for the asking tells more fully why the De Laval is the most economical cream separator, or the nearest local De Laval agent will be glad to explain this and many other points of De Laval superiority. If you don't know the nearest local agent, simply write the nearest De Laval main office as below.

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pleasure, but man has lived and can live without any of these.

With the cow it is different. Milk is the only universal human food without which mankind cannot exist and its supply in adequate quality and quantity affords one of the big economic problems of the day. Beef has ever been the food of the dominant races of mankind. From its fibre is builded that brain and brawn; that vim and energy; the acumen and initiative which has not only conquered the forces of the earth and air to man's use, but has won supremacy over the vegetarian races of his own kind. The leather of our shoes, our chairs, automobiles, mills and factories; the buttons on our clothes, the combs for our hair, glue for our furniture, hair for mortar and mattresses; biscuits for our pets and fertilizers for our farms are but incidental side-lines of production by the cow who is the foster mother of half the human race.

How Much to Feed a Dairy Cow

Dairy cows in milk should have all the hay and silage they desire. In addition to this, a cow that gives milk containing more than four per cent of butter fat should be given one pound of grain for pounds of milk produced. A cow giving milk containing less than four per cent butter fat should be given a pound of grain for every three and a half to four pounds of milk produced.

Experiments with House Fly Baits

Tests made by entomologists show that vinegar in itself is an excellent bait for a fly trap, but when used with sugar or bread its attractiveness to flies is greatly increased. Equal parts of vinegar, sugar, and water appear to be approximately as attractive as equal parts of sugar and vinegar. An attractive combination poisonous to flies can be made with formalin and vinegar, but further tests must be made to determine the best proportions. Formalin (40 per cent) differs greatly on different days in its attractiveness to flies. This variation is evidently due to temperature conditions, and it suggests the possibility of the flies themselves differing from day to day in the degree of the sensitiveness of the scent of the flies. Milk and bread are excellent materials to use with formalin, increasing its attractiveness many times. Commercial alcohol (95 per cent) and water at the rate of 1:20 appears from the experiments already made to be of about equal value with formalin and water mixed at the rate of 1:10, both as to attractive power and killing effects.

Make Alfalfa "Catch" Well by Inoculation

Inoculation is not a difficult job and in no case should a farmer "take a chance" in neglecting this important operation, which is so essential in securing a good stand of alfalfa.

Spread a ton of soil taken from a successful alfalfa field or from the roadside where sweet clover is growing, on each acre of the land you are to seed to alfalfa. Do this just before sowing the alfalfa seed, and harrow it in. Then you have introduced the proper alfalfa bacteria in the soil which are so essential in securing a healthy, vigorous growing alfalfa crop. And, remember, a field once properly inoculated is always inoculated.

All farmers are advised to mix a quart of alfalfa seed per acre with the timothy and clover seed when seeding down, and this will get a few alfalfa plants established in the field which will become bacteria distributors and thus inoculate the soil for future crops of alfalfa.

Can Meat for Summer Use

It is not generally recognized that there is an important winter as well as summer canning season, if an adequate meat supply is to be provided for the family during the summer months when salt meats only are available to those distant from market. Miss Helen J. Sullivan, Agricultural College, N.D., gives the following directions:

If a beef has been killed, part is preserved for the winter use by freezing. The remainder, including the inferior cuts, has been canned successfully by the following method:—Strip the meat from the bones, using that which is well streaked with fat, or add sufficient fat to each can to give it richness and flavor. Cut the meat into suitable sized pieces, pack closely in glass jars; add salt and pepper to taste. Fill the jar almost full of the meat, adding no water. Put on new rubbers which have been boiled for five minutes, and the tops. If glass top jars are used, adjust the top spring only. In the case of screw tops, screw the top on until it touches the rubber. Put the jar into a boiler or any receptacle having a false bottom, and tight cover, which has in it enough cool or lukewarm water to cover the jars. Boil from three to four hours, depending on the age of the beef, counting time when the water begins to boil. Remove from the boiler and tighten cover. Do not invert the jars as it will disturb the layer of fat on top. The canned meat may be used cold for meat loaf, hash and



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It has saved me time, labor and money and I've got better looking, more durable and more serviceable buildings than I ever had before.

The first cost of concrete farm improvements is also the last cost. There's no after expense for paint or repairs—no danger from fire, rot or rust—no trouble of any kind. Besides concrete lowers the insurance rate.

If you haven't a copy of "What the Farmer can do with Concrete", send for one to-day. There's more than 150 pages of valuable building information, 52 practical plans, illustrated by diagrams and photographs, and dozens of other interesting farm facts.

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stews of various kinds. Fish, chicken, pork and all kinds of meats may be canned in this manner. The Extension Division of the Agricultural College has on hand directions for utilizing the bones and scraps in canning soups. These may be obtained on application.

Cultural Methods in Pure Seed Production

Continued from page 10
ties. With old tough sods, especially native or brome grass, it would be advisable to break shallow not later than June 20th, and backset about August, about two inches deeper than the breaking. Such additional packing and discing as is required to kill the sod must be given. This entails the loss of a crop and is equally as costly as summer fallow. It is much better to handle hay production in such a way as to have a more easily handled sod.

Handling Summer Fallow

Where summer fallow is the cleaning method used, it is of the greatest importance that the ploughing be done early. The weeds growing on the land must be destroyed before they form pods. Where it is found possible to do it, skim ploughing the previous fall the land that is to be summer fallowed helps to control the weeds. Or a good discing either in fall or early spring would have a similar effect in causing seeds to germinate which would be turned under by the regular summer fallow ploughing. The proper working of summer fallow on old land requires a good deal of judgment and careful observation. It must be cultivated well enough to kill the weeds and hold the moisture, but if cultivation is ever done, there is great danger of getting such a fine powdery cultivation of the soil that it will blow. The broad-sheared cultivator is a valuable implement in this connection as it does not pulverize as much as a disc, and it is more effective in cutting off the weeds. Whether summer fallow should be ploughed a second time during the summer or not depends on the type of weeds to be combatted and to some extent on the season. If perennial weeds such as sow thistle or Canada thistle are to be eradicated, two ploughings will be found more effective, especially if there has been a wet spell during which surface cultivation has been impossible. But if wild oats and other annuals are the prevalent weeds, one ploughing is best, the surface being kept bare by persistent cultivation or pasturing. If the land is ploughed a second time, there is a danger of bringing to the surface weed seeds that have lain below the level of growth. Some of these are likely to remain unger-

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minated until the next spring and destroy the purity of the crop. By surface cultivation, the effort is concentrated on the seeds within growing distance of the surface, and there is a greater hope of obtaining complete germination. In the control of annual weeds, pasturing is a very effective means of keeping the summer fallow clean. The tramping of the stock induces more complete germination than is likely to occur in a loose cultivated soil. The stock eat off most of the ordinary weeds that occur. This method saves work and provides feed for stock. It is not, however, as effective in storing moisture as a bare fallow. It is therefore suited best to localities where moisture conservation is relatively less important than weed control. It is quite ineffective against perennial weeds.

Handling the Hoed Crop

The use of hoed crop, such as corn or roots as a preparation for seed grain, has been referred to. This should only be attempted on reasonably clean land. Where the land is foul with weeds, cleaning it thoroughly by this method would entail too much work. But on reasonably clean land that it is desired to put in good tilth for seed growing, a well cultivated crop of corn is as good as fallow and makes the cost much lower. In combination with either sod or fallow in cleaning land it would be very effective. It would lengthen the cleaning period, thus increasing its effectiveness, and the cultivation would leave the land in ideal tilth. In order to make this method a success, thoroughness in methods must be enforced. Hoing must be practised in addition to thorough cul-

tivation. The check-row system of planting, by which the corn is planted in hills in rows both ways, allows of more effective work in cultivating, and is, therefore, advisable where the production of clean seed is one of the objects.

Whatever methods are adopted in preparing land for pure seed growing, thoroughness in their application is essential. The best of methods may easily be made non-effective if not carried into execution with thoroughness and good judgment.

Defined

He: "Can you suggest a title for my new book?"

She: "What is it about?"

He: "England's most famous battles."

She: "Ah! Why not call it 'Scraps of English History?'"

The Raising of Barred Rocks for Show and Laying Qualities

By AMY B. COOPER



His Majesty of Treesbank

FOR the last 16 years I have been mating and breeding this strain which is called the Busy "B" strain, a name that was given them because they were always busy winter and summer laying eggs and making money all the year round.

Anyone wishing to take up poultry raising cannot do better than go in for Barred Rocks. My work and study has gone on from year to year, and the more I see of the birds the more I know it is possible to have both utility qualities as well as standard requirements.

My foundation stock was of the best to be had, and ever since taking up the breeding of them I have bred only to the highest standard, and as years go on I find a great demand for high class birds for breeding and exhibition.

The practical problem that con-



One of our best Egg Machines

fronts the poultry men and women is to be able to pick out birds that may be profitably kept, from which he or she will select their breeding stock for another season's hatching eggs.

The only absolutely sure way to find out our best layers is by

the use of trap-nests giving the daily performance of each hen or pullet. When using the trap-nests, selection is merely a matter of going over the records of the past year and examining the individuals to make sure that they are healthy, well marked and of good color. In the great majority of cases on the farms the trap-nest cannot be used as it takes up too much time for the farmers or their wives to put it into working order.

So the only way for them to improve their flocks is to be sure (when buying male birds for mating to their hens or pullets) to get them from a breeder who has good layers.

You will always find the best producers in a flock of poultry are those with the brightest red on their head, the brightest eyes and the most healthy general appearance.



They don't "wait" for something to turn up

With regard to laying qualities, it may be truly said that the Barred Rocks will average as many eggs if bred from a heavy laying straining as any other breed of poultry in our cold winter months, and will at the same time make good table birds when wanted for the dressed poultry market.

We should all know that we must have both eggs and meat to make money out of poultry keeping. To get winter eggs we should try to get our birds hatched early in the spring and keep them growing till it is time to go into winter houses. As soon as the weather becomes cold in the fall the pullets should be put into a laying house where they are to stay for the winter, only putting in 40 or 50 in each house or pen.

After you have had them in the house for a week, begin to give them more feed and feed them up to laying as soon as possible so as



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Make every written record more authentic, accurate, by truth telling photographs. Then, in turn, make the photographs more valuable by writing the date and title on the film at the time of exposure. Such a record becomes a permanent part of the negative, at no extra cost for film and the making of it is only a matter of a few seconds with an

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If he didn't have an alarm in his make-up he'd be the best three dollar clock that ever kept track of the day on any farm.

As it is, he's two good clocks in one—a reliable alarm to get up by, a punctual timekeeper to serve in parlor,

dining room, or kitchen. He goes quietly about his work—you hear him only when he calls.

Handle him with reasonable care,—he'll last for years.

7 inches tall. Price \$3.00 at your dealer's. If your dealer hasn't him, send a money order to his makers and he'll come direct by parcel post, all charges prepaid.

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Makers of Westclox

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to the sta wir the suc roo bef I of and oper sprit obje indi ate had ting. Pr hens mark wint lay, t iency year Suc show a goo fected After pullet spring Hogar each them 13 all eggs a soon a chicks when a with a can tel from in In this togethe are doi It ga find so poultry connect College month college i the splen ing all have ma

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Where farm or plants the tainted ru they have is no caus some foul stances w they have find to be but being and being the time ti On ma where pou remain in tion. Per

to have them start laying before the winter sets in for good. Once started they will keep laying all winter, if they are given the care they should have, and good feed such as wheat, oats and corn and roots at noon; also water or snow before them at all times.

I would like to tell the readers of "The Canadian Thresherman and Farmer" a little about our operations with Barred Rocks last spring with trap-nested work, our object being to keep eggs from individual hens and pullets separate and distinct until sufficient had been gathered to make a setting.

Previous to trap-nesting, these hens and pullets have been marked with a leg band during the winter as soon as they started to lay, thus indicating their proficiency in this respect at a time of year when eggs are most valuable.

Such hens and pullets must also show a good Hogan test, and lay a good size brown egg or be rejected from our breeding pens. After taking the best hens and pullets and mating as early in the spring as possible to a good Hogan test male bird, we keep each hen's or pullet's eggs by themselves till we get a sitting of 13 all from the same bird. These eggs are set under a hen, and as soon as they are hatched the chicks are all toe marked, and when a week old they are marked with a colored leg band so that we can tell at a glance the broods from individual trap-nested birds. In this way we can keep families together and know just what we are doing each year.

It gave me great pleasure to find so much interest taken in poultry raising at my meetings in connection with the Agricultural College short course work in the month of February. I think the college is to be congratulated on the splendid work its staff is doing all over Manitoba. May it have many more years of success.

TAINTED POULTRY RUNS
Disease Breeders That Turn Profit to Loss

Where poultry is raised on the farm or on the large poultry plants there is less danger from tainted runs, for as a general rule they have a wide range and there is no cause for the ground to become foul. Although in some instances we find the yards where they have been temporarily confined to be in very bad condition, but being confined only at times and being on range the rest of the time there is less danger.

On many farms the places where poultry are yarded always remain in about the same condition. Perhaps the farm may

change hands and the new owner will use the same old poultry yard and the consequence is that the ground becomes badly tainted and bad results are sure to follow.

In starting a new plant of course there will be no trouble for a year or so, but if there has been very much crowding bad results will begin to show, then in three or four years' time the trouble will be so bad it eats up about all the profits if things are let run in

this manner. Ground in this shape often becomes infested with gape worms, and it is very difficult to keep the little chicks free from them. Even the freezing of the ground in the winter does not kill these pests, so the chicks that have access to the infested ground soon become afflicted.

A good plan, where one has the room, is to have double yards, that is yards at the front and rear of the poultry house. Keep the

fowls in one yard for a time while the vegetation gets started in the other, then change to the other yard. In this manner the yards may be kept sweet and clean. Plowing the yards after they have had a good coat of air-slaked lime is also recommended.

A southern slope is a good place for the location of yards as it not only receives lots of good sunshine but lots of the impurities are washed away.

There are many good reasons why the use of

Dunlop Thresher Belting

is quite general throughout every threshing community.

Threshermen are beginning to realize that Rubber Belting surpasses any other kind of Belting for the work they have to do, and

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Trapping the Egg Layer

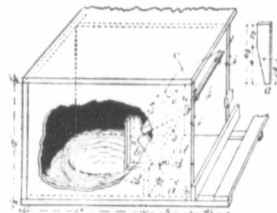
Practical Home-Made Device for Improving the Flock

By HAL McAULEY

The 200-egg hen is here, and the scientific breeders who make a business of egg production are close on the trail of the 300-egg hen. The trap nest and the laws of Mendel is the answer. The trap nest is to the poultry business what the Babcock test is to the dairy industry; it has put poultry breeding for eggs on a

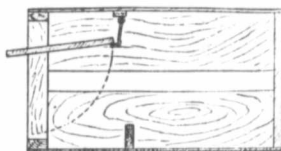
letter from some genius who evidently knew more about a hammer and a saw than about a hen, as he asked about a trap nest that would release the hen after she had laid the egg. Unless she were photographed or marked in some way so that the owner could identify those which had visited the nest, there would be no sense in the use of the trap nest, as its aim is to pick out the layers.

"All these fancy things cost money and eat up any profit there may be in a little flock of hens," says one practical flock owner when trap nesting is broached to him. "Well, we only have a few chickens to eat up the scraps and pick up the waste about the farm," says the farmer, "and it wouldn't pay us to send a lot of time and money hunting out the hens that lay one or two more eggs than the rest of the bunch; we don't go in for fancy chickens, anyway, and the women always manage to find enough eggs to get the groceries." Yes, there is the point with



Trap Nest Advised by the Dept. of Agriculture business basis instead of leaving it a mere pastime for the poultry crank.

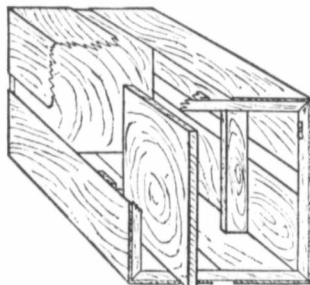
The old theory that "like produces like" is at the bottom of the trap nest idea, of course. In order to breed up a flock of chickens that not only lay lots of eggs during the year, but lay them at a time of year when they are worth good prices, we must keep finding the hens that are the heaviest winter layers for several generations, using eggs for hatching only from the best of these. There are plenty of fuss, you know, that make a lot of fuss and lay for a few weeks in March, April and May, when all the hens in creation are working overtime to knock the bottom out of the egg market, but the hen that registers regularly in November, December,



The Door Open

ninety-nine out of every hundred, who own a flock—probably not that large a per cent use a trap nest yet—the cost of buying patent equipment. There are some thirty manufacturers of trap nests, at least; nearly forty, in fact. Everybody is out to sell the chicken "crank" something while he has the "fever." Trap nests can be made at home with practically no cost, however. An orange or lemon crate, an apple box, or any box about a foot deep, the same width, and two feet or thirty inches long will do for the home-made affair.

Take the middle partition from the box and saw it into five two-inch strips, four of which are mitred together to form the front frame into which the trap door swings when the hen walks into the box to produce her part of the elusive "ham and." The fifth of these strips is fastened to the floor to hold the nesting material in the rear half of the box. The nest should have more than half of the box, this strip being fastened to the bottom just far enough back from the front to allow the trap door to swing back after it



Inside Construction

January and February is the jewel that puts her owner on the winning side of the business at the end of the year. I may mention here that this explanation of the use of the trap nest seems unnecessary, no doubt, but there are still some who are unacquainted with it and its purposes apparently. Only a few days ago I had a

The Feeder that has Brains

The Famous Trouble Eliminator

The feeder that knows more than ignorant or "smart aleck" pitchers, and corrects their errors by delivering the grain to the separator **end first** in a constant and uniform value, thus insuring well threshed, well separated and well cleaned grain at a much faster rate than is possible with a machine fed by the ordinary feeder that is controlled by the whims of the pitchers. Send for a catalogue of the **Fool-Proof, Trouble-Proof Feeder**. Fill out and mail coupon.

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has been raised to its proper position.

The frame is nailed in the crate four inches from one end, which is then sawed off flush. This end of the crate is then hung with the piece of stiff wire and staples to form the door. When you are through trap nesting for the season, the wire may be slipped out, the door removed and put away, and the nest used in the usual way until needed for trapping again. The fine ventilation, economy of construction and lightness makes this home-made nest a popular one. It can be made for a nickel.

Here is another home-made trap nest that is recommended by the experiment stations. This, as is all good trap nests, has two sections. The idea is to leave room for the imprisoned hen to tramp around and protest against her imprisonment without breaking the eggs in the nest and tearing it to pieces. For this nest, twelve by fourteen by twenty-four inches is best, the width being the smallest dimension. A divisional floor cleat of one-inch stuff is nailed half way between front and back, this being about four inches high.

The doorway is made eight inches wide, and ten inches high, a margin being left at top and sides of the door. Two screws to hold the drop piece and the catch are driven into the upper part of the door, the reinforcement inside having been made to strengthen it for these. The bent wire holds the drop piece at the proper angle to admit a hen. The hen's shoulders push it aside as she enters, and it then drops back in place and leaves her a prisoner. The drop piece pivots on washers. A cleat piece at the bottom has a notch into which the end of the cleat falls when the trap is sprung, so that the hen's efforts to push her way out again will be frustrated. The cleat and the catch must work firmly and easily.

Constructing a Three-Compartment Nest

Cut four seven-eighths inch boards for ends and partitions, twelve inches wide by nineteen inches long, enough one-half inch boards thirty-nine and one-half inches long, laid lengthwise, to cover the top, back and bottom, and one strip thirty-nine and one-half inches long and one and one-half inches wide for the front of the nests. Cut three pieces of one-half inch boards twelve inches long and three inches high to insert in the nest to hold the nesting material away from door.

Nail the top back, and bottom to the ends and partitions (see fig. 1), insert the three-inch strips in the nests, and make the guard (b), nailing it to the left side of the nest. Bore a hole in the catch (a) large enough so that the catch will move freely when screwed

into position on the side. Place a washer on the screw between the catch and the side of the nest. Place a screw at lower edge of catch to stop it when set, so that the catch will just hold the door.

Make the doors (c) of seven-eighths-inch material, twelve inches by six inches, and cut a triangular notch in the center four inches wide. Put two screw eyes in the top of the doors, and bore holes in the front of the nests two inches below the top (inside measurement), through which a three-sixteenths-inch wire is run to support the doors.

Attach a narrow strip to the front of the nests for the hens to jump upon when entering the nests. Place a button or block of wood on the front of each par-

tion to hold the door when the nest is closed.

If the nests are to be placed directly below the dropping board, a wire top should be used on the nest, except for a five-inch strip of wood on the front edge of the top to stiffen the nest.

Trap nesting is not such an intricate proceeding, and requires no special education and training. It is the one sure way to the increase of money from egg production for the man with a small capital. With only ordinary hens he may in three or four years breed his flock up to a notch that is surprising. A hen won't lay any more than her breeding and feeding will permit her, regardless of the housing she gets. As scientific investigations has proved there are

plenty of embryo eggs in her, it is up to the producer to get them developed and laid at the time of year when they will bring the most money.



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Use it under our guarantee—your money refunded if it doesn't make the horse go sound. Most cases cured by a single 45-minute application—occasional re-application. Cures Bone Spavin, Ringbone and Sidebone, new and old cases alike. Write for detailed information and a free copy of

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Ninety-six pages, illustrated, indexed and illustrated. Covers over one hundred veterinary subjects. Read this book before you treat any kind of lameness in horses.

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Take The Farmers' Word
They are the Men Who Know!

Galloway goods are superior goods—every article guaranteed. Although always sold at the lowest prices they are made from the best possible materials, and by skilled workmen. The reason why we can sell at such low prices is that we sell direct—cutting out middlemen's profits.

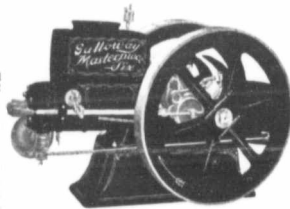
TAKE THE FARMERS' WORD—READ WHAT THEY SAY.

Galloway "Masterpiece-Six" Gasoline Engine

READ THESE SUPERIOR FEATURES—EVERY ONE A BUYING REASON:
Large bore—long stroke. Valves in the head. Hercules cylinder head. Master-piece ignitor. Economy carburetor. No overheating. Perfected oiling. Improved fuel feed. Webster magneto at small extra charge. Made in 1 1/2, 2 1/2, 4, 6, 8, 12 and 16 H.P. sizes. Write for prices. Our 1916 Catalog tells all about it.

READ WHAT THESE FARMERS SAY

J. Fitzgerald, Birtle, Man., Feb. 18, 1916, would like to see it done I will gladly show them. The Wm. Galloway Company is a friend in need and a friend indeed. I remain your friend at Birtle.



6 H.P.—\$159.50

GALLOWAY SANITARY CREAM SEPARATOR

WHY IT SKIMS CLOSEST—The Galloway Sanitary skims closest because it has the most scientifically designed bowl ever put into a cream separator. It cannot break up the fat globules, therefore gives a better grade of cream.
WHY IT TURNS EASIEST—The Galloway Sanitary has few gears, oiling facilities are perfect—all working parts run in oil bath—and all gearing and shafting is machined to fit accurately.

Guaranteed 10 Years



\$45.75
Oil Splash Lubrication
500 lbs. Skimming Capacity per Hour
Gallon a Minute

READ WHAT THESE FARMERS SAY

L. O. Forde, Francois Lake, B.C., Mar. 14, 1916, writes: I received the separator O.K. last week, and am very pleased indeed with it. It is easy to run and does good work. I put away a tin of milk and after standing twelve hours there was no sign of cream on it.

READ THESE FEATURES OF MY

NEW LOW DOWN MANURE SPREADER

Double chain drive—steel drive chains—endless apron conveyor—force feed, an exclusive Galloway feature—heavy shield over drive chains—our famous roller bearing feed device—hard rollers on all truck wheels and beater shaft bearings—heavy steel rear axle reinforced with steel truss rod—drive wheels cannot spread apart at bottom—front trucks cut square under box—beater runs close to ground—heavy steel channels under box trussed like a steel bridge—team close to load—very light draft—capacity large—will handle any kind of manure or commercial fertilizer—strong steel spider legs hold beater bars rigid in centre.



\$69.50 and up

Get My New 1916 CATALOG

It is brimful of direct-from-the-manufacturer money-saving prices on the very things most needed on the farm. Remember every article I sell is backed by a reliable guarantee.

MAIL THE COUPON TO-DAY
WM. GALLOWAY CO. OF CANADA, LIMITED
Dept. 17, WINNIPEG

READ WHAT THESE FARMERS SAY

Christian Enghauge, Dickson, Alta., Feb. 29, 1916, writes: Let me say a few words about my Galloway Spreader, what I think and is my opinion of same. What surprises me most is its Light Draft. Most machine manufacturers fail just in this very point, they generally all say and claim for their machines "light draft". But I have noticed how people talk about this out here in this settlement. They say if you buy a machine for three horses you can be sure you will need the four horses all right. With this No. 5 Manure Spreader of yours you speak the perfect truth when you claim two horses.

Franklin Bover, Charlottetown, P. E. I., writes: Am pleased to say the Galloway Spreader is fully up to your representation. In fact, it has done work which you said no spreader could do, viz: spread seaweed, which it did much better than could be done by hand. The Spreader is simplicity itself, having no cog wheels or complicated gears.

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Manure Spreaders
All Steel Harrow
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WM. GALLOWAY CO., OF CANADA, LTD.
Dept. 17, WINNIPEG

Gentlemen:—Please send me full particulars and prices on items marked with an X. Also I want to have your New 1916 Catalog free.

Name _____
Address _____

Will the Price of Farm Machinery Advance

Continued from page 18A

ments to us are practically the same. They are simply up against it. It is not a question of buying iron and steel at a price, but it is a question of being able to get it at all. In so far as the farmer is concerned, he has perhaps not as yet been made to feel the pinch, owing to the fact that enormous stocks of farm machinery were in the hands of the dealers. These stocks are being depleted rapidly, and it is a question of extreme moment as to just how they are going to be replenished. One manufacturer who was in our office recently told us that a short time ago his concern placed an order with a steel company for several hundred tons of steel. They had been purchasing steel from this concern for the past twenty-five years, and when their order reached the steel company it was promptly returned. The purchasing agent immediately went to the head office of the steel company to find out what was the trouble. He was informed that they would not accept an order for a single ton of steel, but would deliver it just as fast as they could, at the same time giving no assurance whatever of the date of delivery, nor of the quantity to be delivered.

Another manufacturer who manufactures ensilage cutters was in our office and he advised us that only recently his firm wanted 1,000 pieces of steel for the making of cutter knives. These knives were not to be delivered until September 1st next, but in order to have any assurance that they would get the knives at all they had to place their order now at treble the price which they were paying a year ago.

Another manufacturer with whom we have had some correspondence on the subject and who builds tractors, has the following to say on the tractor situation:—

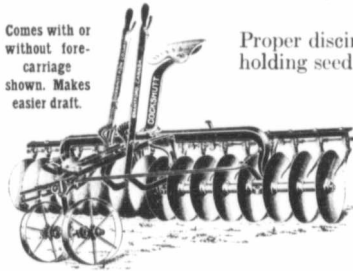
"While the tractor industry has been going through various vicissitudes, the one outstanding fact that agriculturalists everywhere and prairie farmers in particular are all recognizing is that tractors have come to stay. Farmers are going to have them. They are an economic necessity.

"Sentiment has shifted from large tractors to small but owing to the fact that the little tractor, in any present form, is an economic failure, and owing to the fact that the belt power machinery of the most standard and acceptable type requires large tractors, the sentiment is now due to switch back towards larger machines. Most builders have been slow to have any faith in such trend. The large tractors of the past in great stocks which existed a short time ago are now practically exhausted. Builders

A Good Seed Bed Pays Big Dividends

Better to have a small area properly worked than a big acreage poorly cultivated

Comes with or without fore-carriage shown. Makes easier draft.



No. 1 Disc Harrow

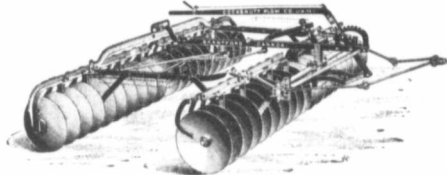
Proper discing means a finely pulverized, compact, moisture-holding seed bed. It will be your best friend in the world in the days of heat and drought.

Cockshutt No. 1 Disc Harrow

Its immense strength and special features specially fit it for Western work. The main beam is a T-shaped bar of high-carbon steel, enormously strong. The two ends are joined to the middle of the two Disc sections, the inner ends of which are again secured by heavy castings to keep every disc at work in the ground. Discs work on SQUARE axles so every one must revolve. Handy, easily-worked lever throws scrapers in or out of work, keeping discs always clean. A life-time of service is apparent in the high quality and splendid materials used in this Cockshutt Disc Harrow.

The Cockshutt Double Disc Harrow Does Double Work

The front Disc sections are Out-throwing, the rear sections are In-throwing. The man who wants his discing done QUICK and RIGHT, and has the power, will find this Implement a big saver of time and labor. One discing with it is even better than two with single machines. Riding platform between disc sections. One easily-worked lever controls this wonderful master disc-harrow. Immensely strong and durable.



Double Disc Cultivator

Write to-day for our new Catalogue, giving full particulars and photos of the above and the whole Cockshutt line.

Cockshutt Plow Company Limited

WINNIPEG

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have made very little provision. Many of the largest producers are no longer producing. The writer predicts that before this season is over there will be a veritable scramble for tractors of all kinds. The supply will be nowhere near equal the demand.

"While this situation is becoming more or less evident, there seems no possibility that additional tractors not already provided can come onto the market in time for the work of the season. For no time in many years have materials of construction been so scarce. Assuming that one were to go into the market to-day to purchase material for a thousand tractors, he would find the prices so high as to be almost prohibitive. Builders who provided largely for their output and have only a few shortages to make up are finding extreme difficulty to meet their needs. Three, six, nine and even twelve months delivery are the shortest and can be obtained on many lines of material commonly used for tractor building.

"We recently placed order for two hundred crank shafts at three and a third times the price paid a year ago. We closed a month ago for some 400 tons of steel, in bars, plates, sheets and structural shapes at two and a tenth times the price of a year ago and there have been two price changes upward since we placed this order. It was impossible for us to get material from mill and we were

CASH FOR YOUR CREAM
EVERY SHIPMENT

FREE CANS FOR A MONTHS TRIAL-SHIPMENTS IF REQUIRED



WRITE FOR FREE ILLUSTRATED BOOKLET

"DAIRYING FOR DOLLARS"

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BUTTER MAKING PLANTS AT

BRANDON CARMAN YORKTON

Ship to the point nearest you and get Money Order by return mail
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MOOSE JAW

bliged to pick same up from store stocks, in order to get delivery within two months.

"Owing to the full employment of labor, we must pay more dearly. It would seem that manufacturers are forced to advance their prices and in the near future they will be forced to do so more radically. Such builders as have been very fore handed and have a good season's stock can view the situation quite complacently. Inasmuch, however, as many tractor builders are not in such fortunate situation, they are in position to be caught between the mill stones and may find a very prosperous year giving them no prosperity.

"It would appear that farmers are going to get caught very unfortunately. Reliable reports show that when both steam and oil tractors are considered that in the larger sizes very few have been purchased within the last two or three years. Not only is this true in the tractor record but it is also true for plows and many others of the implements of the farm. It is a well known fact that in times of great prosperity farmers are quite prone to overbuy and get machinery which they do not need. As a result when hard times come on they are able to make the old thing do for one, two and occasionally as much as three seasons and their purchases

are very light. The time comes, however, when the old thing will do no longer and whether times be good or bad the farmer must come into the market. If you have studied the annual report of the various thresher and implement and plow companies for the past two or three years, you have noticed that sales have been far below the average. The old has about all been used up and the farmer has got to come in and it seems certain that many will find a closed market. It is likely that tractors, threshing machines, plows and other necessary implements will command high premiums before the season ends."

We do not want our readers to feel that we are in any way trying to boost implement sales, as such is not the intention. Any farmer is foolish to buy more machinery than he needs, and has use for, but the farmers of Western Canada may just as well make up their minds now that they are going to pay more for their farm machinery in the future than they have paid for some time in the past. Someone may say that the war isn't going to last for ever, and that just as soon as there is any indication of its being terminated that the prices will again slump. This is perhaps true to a certain extent, but you must not overlook the fact that stocks of iron and steel have been depleted at such an enormous rate that it is going to take a long while to catch up.

The Art of Blacksmithing

Continued from page 32

picks, topes, screw threading dies, and the like. It requires much care in welding.

Chisel Temper

1 per cent carbon—This is a very useful temper for a great variety of tools. This steel is not difficult to weld, is tough when unhardened and may be hardened at a low heat, it is well adapted for tools that must have a hard cutting edge backed by unhardened metal, that will transmit the blow of the hammer without breaking as in cold chisels.

Set Temper

8 per cent carbon—Steel of this temper is well adapted for tools such as cold sets, having an unhardened part that must hold up under severe blows of a hammer. It may easily be welded by a smith accustomed to working tool steel.

Die Temper

.75 per cent carbon—This temper is suitable for tools that must have a hardened surface and be able to withstand great pressure as dies for drop-hammers or for pressing or cupping sheet metal into boiler heads and allied forms. It is easily welded. Recent practice, however, has tended towards

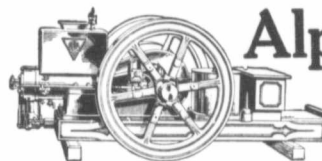
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Alpha Gas Engine

This engine will pay for itself quickest

BECAUSE of its low fuel cost and exceptional freedom from expensive repairs, the Alpha will pay for itself on your farm in the shortest time. You will get greater and quicker returns for the money invested.

You may be able to buy an engine for less money than you can an Alpha, but that should not be your chief consideration in selecting an engine. You should always keep in mind the service you will get from the engine. No other engine will give you as much for as little money as the Alpha.

The Alpha is a simple engine with plenty of power, perfectly controlled by a most sensitive governor, that keeps it running steadily and smoothly under light, heavy or varying loads. The fuel consumption is accurately gauged to the load so that there is no waste.

This engine has no complicated, delicate parts to require constant attention—not even batteries. It starts and operates on a simple low speed magneto. You can use either kerosene or gasoline for fuel and the minimum amount of either will be required.

There is a great deal of work on your farm that can be done better and cheaper by using an engine. You can save enough to pay for the engine in a very short time. The quickest way to save the money that will pay for your engine is to buy an Alpha now, and put it to work.

Ask for a copy of the Alpha Engine catalogue. It contains a lot of valuable information about gas engines. 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 cool cylinder.

DE LAVAL DAIRY SUPPLY CO., Ltd.

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

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the use of steels of higher temper for die work.

Percentages

The percentage of carbon in the steels suitable for different classes of work under average conditions are as follows:

- .5 per cent carbon—For hot work battering tools, hammers, etc.
- .6 to .7 per cent carbon—For drill edge tools.
- .7 to .8 per cent carbon—For

cold sets and hand chisels.

.8 to 1 per cent carbon—For chisels, drill, dies, axes, knives, etc.

1 to 1.2 per cent carbon—For axes, knives, large lathe tools, large drills and dies. If used for drills and dies, great care is required in tempering.

1.2 to 1.7 per cent carbon—For lathe tools, small drills, etc.

The best steel for general work is that containing from .9 to 1 per cent carbon.



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Trees and Shrubs

A full line—mostly Western Grown. Write for catalog

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Woven and Barb Wire

Get our prices, laid down at your station.

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Split or Round

Delivered prices on application.

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Oils, Varnish, etc.

This is our new "Equity" Paint. Equal to the best, at a great saving in price.

GOPHER POISON

(Kill-Em-Quick)

at wholesale prices less full trade discounts for cash and quantities. Write for price list.

IF YOUR ASSOCIATION BUYS SUFFICIENT TO SECURE THE LOWEST PRICE, YOU CAN SAVE THE MEMBERSHIP FEE IN THE COST OF TWO PACKETS OF GOPHER POISON.

Buy through your Local Association and get the benefit of Co-operation.

The Saskatchewan Grain Growers' Association

801 SCOTT BLOCK
MOOSE JAW SASKATCHEWAN

Comparison of Gasoline and Kerosene as Fuel

By LEGRANDE B. MINGES

Let us first consider the most widely used fuel of to-day, gasoline for internal combustion engines. It is the one fuel that is peculiarly adapted for this work on account of its extreme volatility also because it forms an explosive gas when mixed with air through a wide range of temperature, and because the deposit of carbon in the cylinders is comparatively slight when the highest grades are used.

Gasoline is a volatile distillate from crude petroleum; the boiling point ranges from 120 to 250 degrees F. with an average range between 149 and 194 degrees F. Its vapor is 3.05 times as heavy as air and its heating power is between eighteen thousand and twenty thousand B. t. u. Gasoline is a compound of several liquids of varying density and gravity, being a volatile essence, distilled from petroleum oil. When used as a fuel for internal combustion engines it should have a specific gravity between 68 and 76 degrees Baume. Some engine authorities recommend a specific gravity of from 72 to 74 degrees Baume and others between 65 and 59 degrees Baume as being the best for their engines, but the latter is virtually what is known in the United States as high grade benzine. Its vapor is somewhat heavier than the vapor of gasoline and for this reason it does not mix with air as

readily as the vapor of high grade gasoline. It is a fact that gasoline has a widely varying density, the variations being as much as from 85 down to 58 degrees Baume. The specific gravity of gasoline is an index to its volatility, the higher the specific gravity the more volatile the gasoline. For this reason a test of its gravity is important when purchasing the same, for the higher the gravity the more the gasoline is worth per gallon.

It has been my experience that gasoline from 70 to 72 Baume is most suitable for all around purposes, particularly in cold weather when it is hard to get the engine started. There is but little difference in the amount of heat energy contained in the different grades of gasoline; consequently, engines which operate at low speeds will develop just as much power when using low grade gasoline as when using a high grade, the objections to the use of the lower grades are found in the difficulty of carbureting the mixture properly at high speeds, but at low or medium speeds this trouble is not encountered and the low grades of fuels are the cheapest although it is a fact that the lower grades will cause a deposit of carbon in the cylinder quicker than the high grades.

The compression of any gas fuel should be carried as high as possible without igniting the charge. The temperatures at which the different gases will ignite vary with their heating value and because of this fact every fuel has a limit to which compression may be carried, the average being about as follows, gasoline seventy pounds per square inch and kerosene sixty pounds. The richer gases require less compression than the lean ones. The compression of kerosene engines should be only about sixty pounds but if the same engine were to use gasoline the compression should be changed to seventy pounds per square inch.

The rightly designed engine will consume about one pint of gasoline per brake horse power per hour when the cooling water is leaving the cylinder at 200 degrees F. When considering kerosene, we find that it does not form an explosive mixture when it is mixed with air at ordinary temperatures for this reason: when it is used as a fuel it must first be vaporized by heating the liquid or gas to about 200 degrees F. before its vapor is compressed and



Good harness deserves good care; keep the trimmings clean and bright with

Old Dutch



Foaline
TRADE MARK REGISTERED

Will save your Foals from
NAVEL DISEASE
and **JOINT-ILL**
More than 99% successful

A tonic for the dam and for the unborn foal.

Chatham, Ont., Feb. 23, 1916.

Dear Sirs:—Two years ago I lost a colt from Joint-ill; last year I used Foaline with the same mare, and the result was that she raised a good, strong, healthy colt. I strongly advise its use, even for all mares, as it puts the mare in good condition for foaling. Yours truly, A. W. Pugh.

Foaline is insurance against diseases which cause a loss of more than 25 per cent of all foals born in America.

Glenella, Man., Feb. 19, 1916.

Dear Sirs:—I bought twelve bottles of Foaline last Spring and sold them all but four to my neighbors. I had five mares in foal, and I fed the four bottles to four mares. The four I fed it to, their colts all lived, and the one I did not feed to died. So I cannot say too much for Foaline. The other eight bottles I sold proved the same. The eight colts lived.

Yours truly, Robert N. Wilson.

Try it on a mare you have had trouble with before—you get your money back if it fails.

High Bluff, Man., Feb. 18, 1916.

Dear Sirs:—I have a mare that foaled her first colt in 1913. The colt died from Navel Disease. In 1914 this mare's colt of the same sire also had Navel Disease. I bred her back to the same sire again in 1915, but treated her with Foaline. The Navel of the colt dried up in a short time and there was no sign of the disease. I intended treating her again this year, as the treatment seems to prevent the disease. Wishing you success.

Yours truly, Cecil H. Greenlay.

Foaline is easily administered, simply 2 teaspoonfuls in the feed once daily. One bottle for one mare. They like it.

Daysland, Alta., Feb. 20, 1916.

Dear Sirs:—I have used Foaline for a number of years with great success. I probably was one of your first customers. At least I did not lose any in finding out about it when I saw the first ad. I find it does no harm to the Dam or her offspring.

I am not a Chemist nor Scientist, therefore, cannot in detail give the functions it performs on the generative organs. This one thing I will say. I was not like some of our forefathers who would not try, or use any remedy except it had been in use for generations in the family. I got busy and it did the trick.

Yours truly, H. Block.

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Price—\$3.00 a treatment, delivered anywhere in the United States or Canada.

COUPON

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Please mail your booklet on FOALINE to

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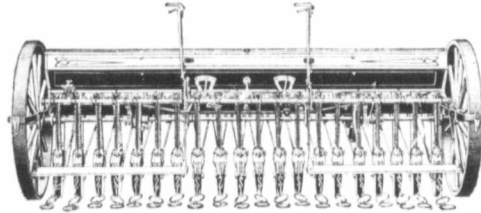
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What Deering and McCormick Drills Do



IT is worth something to have your grain planting done on time. It is also worth while to be able to do it easily, with the least work for horses and men. These two advantages are assured when you use a **Deering** or a **McCormick** drill.

But besides these positive advantages, there are possible advantages just as important. **Deering** and **McCormick** drill planting gives the grain the best kind of a start, it protects the growing grain during an unusually dry or wet season, it betters your chances for a good, full crop of high quality grain.

Deering and **McCormick** drills first make a furrow just deep enough, then plant the kernels regularly, according to the quantity per acre you want to sow, and then cover them thoroughly to an even depth. They are light-draft machines, with strong frames, large, easily-filled grain boxes, and accurate fluted force feed. They are made in single disk, double disk and shoe styles with from 14 to 22 furrow openers.

The local agent who sells these best drills is the man to see when you are ready to look at drills. See the sample line, or write to us for a catalogue showing all the good features of **Deering** or **McCormick** drills.

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

ignited. As a result of this heating of the charge before it is taken into the cylinders, the specific value of the charge is greatly reduced.

Kerosene is a fractional distillate of petroleum, having a specific gravity of approximately 48 degrees Baume; its boiling point is 338 degrees F. It is a mineral hydrocarbon oil; it is the second distillate from crude petroleum, (gasoline being the first) which is termed illuminating oil or kerosene. When this fuel is used, its high heating value causes the cylinders to heat unduly unless a spray of water is injected in the cylinder with the charge. This, together with the difficulty of vaporizing these low hydrocarbon oils, coupled with the rapid carbonizing of the inside of the cylinder and rings, makes its use as a fuel objectionable, as compared with gasoline, besides it has a very disagreeable odor to the exhaust. The consumption of kerosene per brake horse power per hour is about the same as that of gasoline.

Power and the Farm Repair Shop
By XENO W. PUTNAM

The farm work-shop is for two purposes; to create and to repair. Of the two, perhaps the last use of greatest importance, provid-

ing it is put into operation with sufficient promptness.

A good and efficient repair shop on the farm, with a good man back of it usually means that all the tools and implements used on that farm are kept in a condition that will get out of them all the good of which they are capable, something by no means true of the machinery upon a great many farms. There will be no doing of two days' work where, if the implement or tool used was in proper condition, less than one would be necessary. There will be fewer break-downs in the midst of the busiest season and less delay at the village shop because the shop happens to be busy also.

When some part of an implement is seen to be getting a trifle weak, time will be saved in the end if the repairs are made at once but the chances are that the trouble will be noticed in the midst of a busy day when there is no time to go several miles to a neighboring shop. If the farm shop is there to be depended upon, the implement may be hauled directly to that instead of to the barn; then, if there is a spare man about the farm, the work may be done at once, without taking the working team out of the field; if not, at least all is in readiness for making the needed repairs on the first rainy day without the necessity of riding

two or three miles through the wet and over muddy roads.

The first mission of the farm workshop is as a trouble-saver. The complete break-down is always more expensive and difficult to fix than the strengthening of some weakened part. Seldom indeed on the average farm will the merely weakened part be taken to the village repair shop until it actually breaks. This is specially the case if it is so cumbersome a part that it is necessary for the entire implement to go with it. We don't like to put that amount of trouble and expense upon something that has not as yet

broken and may never, so far as we know, more than threaten to break. With the home shop handy though, we take into account the loss of efficiency in the implement which we have continually to favor; in fact, we recognize the fact that the true mission of the farm shop is to prevent rather than to mend breakage.

The home repairing habit soon develops another equally important one, that of noting more carefully the condition of each implement we use at the time when we are operating it and when we are in the best position to judge of its efficiency. Some trifling thing

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Think of it! A galvanized fence so thoroughly galvanized that four years of submersion—summer and winter—could not fade it. That's Mr. Cummings' experience with Peerless Fence. Read what he says. Here's his letter.

Gentlemen—I have handled your fence for four years and find it a good, strong and durable fence, and find that the galvanizing is first-class. In referring to this I have a fence that I put on four years ago across a gully and the water is as high as the second wire and it is not rusted nor broken yet. I have a team of heavy horses that ran into the fence last summer and did not break or damage it in the least, and I am glad to say that in the four years I have handled your wire I have had no complaints about it. Yours truly, DAVID CUMMINGS, Bowesville, Ont.

Incredible—unbelievable—you say? Not when you remember that

Peerless Perfection Farm Fencing

is different—that it is made of Open Hearth Steel Wire. The Open Hearth process burns all the impurities out of the metal, thus removing one of the greatest causes of rust. The wire is also galvanized so thoroughly that it will not flake, chip or peel off. Every intersection of the wire in our farm and poultry fence is locked together with our Peerless Lock. While these locks hold the wire securely together, this fence can be readily adjusted and perfectly stretched over uneven ground. It is easily erected and on account of heavy, stiff stays used, fewer posts are required. Get the details. Our free catalog gives full particulars. It also describes our farm gates, poultry fencing and ornamental fence. You'll save money by sending for it today.

THE SANWELL-HOXIE WIRE FENCE COMPANY, Ltd.
Winnipeg, Man. Hamilton, Ont.

may cause a bit of inconvenience or render the work less perfectly done; still there is nothing wrong of sufficient importance to justify an immediate trip to town. In a few days the defective part will have been forgotten and will not be thought of again until the implement is wanted, perhaps in a hurry, at the beginning of the next busy season.

There is no time for making out our repairing list like the time when the annoyance is still fresh in mind. An entry of it on our shop slate and the presence of the implement in the shop will make the best reminders in the world of the trouble when we next visit the shop with a few idle hours to spare. Many of our most costly break-downs come from little things which we might, had we not forgotten about it, have fixed in a rainy half hour.

Hand repairing, though, is often too expensive even for idle moments. The shops and factories have found it so only the farmer has been content to get along without some form of power in his repair shop. Much of the needed shop machinery is too heavy to be run by hand. Some of it requires a higher speed than power can develop, in order to be efficient. Much of it requires longer and steadier runs than human muscle can stand. The ripping of a hard oak plank with a hand saw is a task, the dread of which has stood between more than one farmer and some needed repair work. With a small gasoline engine, such a task presents no serious difficulty. The work can be done in a few minutes that would in the old way require a good half hour of hard work. Work of this sort is the kind that horse power cannot be used for to any advantage. The work must be done by hand or by some form of mechanical power. In fact, most of the work in a shop for which power is needed is not within the province of the horse to perform.

One caution is necessary in the placing of a gasoline engine in the farm shop; it should never be

located beside an emery stone or wood-working machinery. In fact, it ought to be shut away from machinery of any kind that creates a dust. The bits of fine emery dust, mixing with the oil of the engine as they are drawn in through the valves, will wear out the cylinder as perhaps few other things are capable of doing, and in a little while the engine thus exposed is half ruined. Wood dust is not so bad; still it gums up the various parts which ought to be kept clean and acts almost as severely upon the lungs of the engine as it does when breathed in excessive quantities into the human lungs.

Dust of any kind, but especially abrasive dust like that coming from a grindstone or emery wheel, must be avoided if we expect the best results from our shop engine.

Some Facts about Compression
By A. H. Shoemaker.

Compression cuts a big figure in the operation of the gas engine. It is, in truth, the most essential factor in its operation, not even excepting ignition of the mixture of air and fuel. For it is quite practicable to take advantage of the heat of compression to bring about ignition without the use of any apparatus for ignition. Without adequate compression the burning of the charge will give but little power, even though the mild expansion that follows firing a low compressed charge is not leaked past defective valves and piston rings. But, if adequate compression of the charge, varying according to design and the fuel to be used, is necessary, it is almost as important to the satisfactory operation of the motor that the charge be not over compressed, else a train of evils will pretty surely follow likely to bring grief to the engine.

One of the evils of over compression will be pre-ignition, that is, firing of the charge by the heat of compression before the piston reaches center, usually manifested by a bad knock, and evidencing an unusual strain upon parts taking the shock of too early ignition.

A motor designed for proper compression to use gasoline as fuel will, if its compression is good, have too high compression to use kerosene or any fuel with greater gravity than the gasoline the design is intended to use.

It is, of course, possible to use gasoline and heavier fuels interchangeably in the same motor; and this practice is regularly followed in many tractor motors. But when this is the practice it will be found that the motor is designed with compression not too great for the heavier fuels, and too low for economy and full efficiency when the lighter fuel is

KILL-EM-QUICK—The Time-Tested Gopher Poison



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Don't "fuss around" all spring and summer to get rid of gophers. Clear them out once for all. Just give Mr. Gopher something he likes and see him gorge himself. He doesn't like grain poisoned with strychnine, it's hard to get him to touch it. But there is a poison he likes, a poison that attracts by its pungent odor, a poison so sweet no gopher will spit it out, a poison so deadly to gophers that the tiniest particle kills instantly.

Kill-Em-Quick Gopher Poison

Certain Death

It never fails to kill all the gophers where it is used. Its odor attracts. Its sweet taste pleases. They always find it.

Easy to Use

Simply soak oats or ground feed over night, drain off the water and stir in Kill-Em-Quick. Drop into near holes and within a day all the gophers will be dead.

Cheapest

Never costs more than 1 cent an acre to kill all the gophers. Because of its sure results, if it cost three times as much it would still be cheapest.

Guaranteed

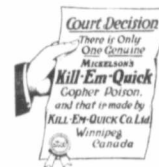
It is guaranteed in writing on each package to kill all the gophers where it is used according to simple directions. If it fails, we refund the purchase price.

The Safest Gopher Poison

Safest, no danger in mixing or handling. Safest, because it absolutely protects your crops and profits from gopher damage. No farmer can afford to be without it.

Get Genuine Kill-Em-Quick

It's the best, safest, most economical. There is none so thoroughly proven, none you can be so sure of. Don't be misled. Avoid imitations, if you want to get rid of gophers. 3 sizes, 50c, 75c, \$1.25; enough for 40, 80, 160 acres. Get it from your druggist. If he can't supply you, we ship direct upon receipt of price. Send for FREE Gopher Book.



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Successors to
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WINNIPEG, CANADA



Same Old Package
Same Old Name
Same Fluffy, White Powder
Same Certain Death

being used. Such motors nearly always use water taken in with the heavier fuel, the injection water being intended to prevent the pre-ignition due to over compression. In such motors it is, or it has been, the practice to use a compression adopted as a compromise — not too low for fair economy with the lighter fuel and not so high but that pre-ignition can be kept down by the use of injection water with the heavier fuels.

The expansion value of a burned charge of air and gas is proportioned to the weight of the charge, as well as to the volume compressed. Having in mind the fact that the higher we go with our motor from sea level the lighter the air is, it follows that the lighter the air the less weight will be compressed in a given volume of air—and compression will also be lowered. Another thing to be considered is that as air pressure decreases with eleva-

tion so does the capacity of a given volume of air to carry fuel decrease, and we shall thus not only have to lower compression but less fuel to be burned to bring about expansion. It will be seen

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CUSHMAN Light Weight ENGINES

For All Farm Work

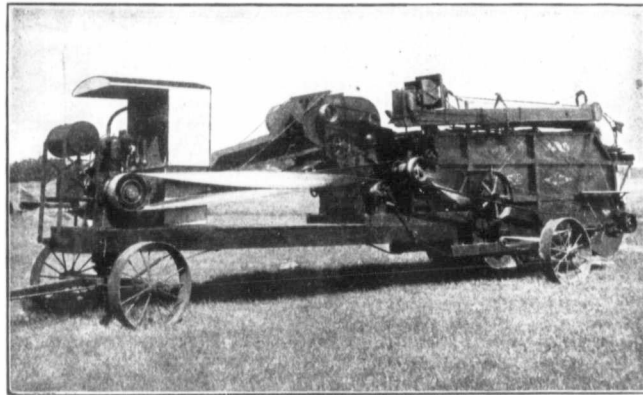
4 to 20 H.P.

Cushman 4-Cycle Engines are built to run without trouble and to do things no other engines will do. They represent a great advantage over ordinary stationary engines, in vertical balanced design, material and workmanship. Highly efficient because of light weight, higher speed, reduced friction and lower operating cost.

Cushman Engines are the lightest weight farm engines in the world, yet they are even more steady running, quiet and dependable than most heavy engines, because of Throttle Governor, perfect balance and almost no friction nor vibration.

Direct water circulating pump, preventing overheating, even on all-day run. May be run at any speed desired; speed changed while running. Enclosed Crank Case, gears running in bath of oil. Equipped with Schebler Carburetor and Friction Clutch Pulley. Mounted on Truck or Skid as preferred.

Because of very steady speed, the Cushman makes the best power for Cream Separators or Milking Machine, or for electric lighting outfits.



CUSHMAN COMBINATION THRESHER

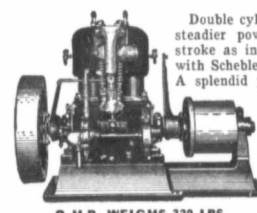
8 h.p. with Straw Carrier and Hand Feed. 20 h.p. with Wind Stacker and Self Feed. 15 h.p. with Wind Stacker and Hand Feed. Equipped with the famous Cushman 2-Cylinder Engines.

The 4 h.p. Cushman is the one practical Binder Engine. Its light weight and steady power permit it to be attached to rear of Binder.

4 H.P. SAVES A TEAM ON THE BINDER



With a Cushman you can cut from 8 to 10 acres more and with less horses. If in heavy or tangled grain, and the sickle chokes, all you need do is to stop the team; the engine clears the sickle. Binder runs the same, whether horses go fast or slow or stop. Binder will wear several years longer, as it is not jerked faster and slower by the horses. Attachments furnished for any binder.



8 H.P. WEIGHS 320 LBS.

Double cylinders mean not only double power, but steadier power. Each cylinder is same bore and stroke as in 4-H.P. Throttle governed and equipped with Schebler Carburetor and Friction Clutch Pulley. A splendid powerful engine for heavier work than 4 H.P. can handle, such as heavy grinding, small threshers, etc., or for any power from 3 to 9 H.P.

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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.

that advantage might be taken of this fact of lower compression with altitude to use a heavier fuel than was possible at sea level; and pre-ignition would not be expected at altitudes where air pressure was sensibly lowered.

In ordinary designs compression cannot be varied at will where the full volume is constantly compressed, unless shorter pistons or shorter rods are substituted to give more compression space, that portion of the piston above the piston-pin being made shorter. Of course compression can be somewhat increased by decreasing the compression space. But such a change is at best only a makeshift, and to correctly change the compression requires the adoption of a cylinder whose compression space volume has been changed in the proportion it bears to the piston displacement volume. For it will be evident that if the piston is added in order to increase compression its displacement will be decreased so that a smaller volume is compressed—smaller in the proportion of the volume added to the piston.

Add Power to Your Car by Use of Caustic Soda

Cleanliness is as necessary to the efficient operation of an automobile is as it to a man, and to expect a piece of machinery of whatever sort to do its work impeded by dirt is to expect reduced capacity.

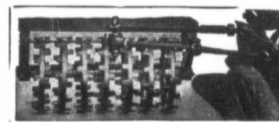
When a car is left in the shop for overhauling, or when the owner does this or some minor repairs himself, the cleanliness of the parts assembled should be an uppermost thought. To realize the importance of this, the differential might be mentioned. This unit will emit all sorts of peculiar noises if the slightest speck of dirt is on one of the gear teeth, and in automobile factories of the better sort a great deal of care is taken to see that the gears are free of dirt when they are placed in position. Such gears are usually immersed in a cleaning solution and then sprayed a few times, with air under pressure, for it is known that if assembled with dirt on the teeth, noise will result. It often happens that a rear axle

is set aside as a noisy one, and then after a good cleaning the noise disappears.

Whenever parts are removed from the chassis, either for adjustment or repair, they should be returned perfectly clean. There are many processes for cleaning parts, some shops using gasoline, others kerosene, caustic soda, etc. The latter is being used in a great number of shops as present for all parts other than aluminum, and is especially effective on parts which are heavily laden with dirty grease.

In using the soda a saturated solution is made and placed in a cauldron or a gas stove or other heater. When the solution is hot the parts are dipped into it by means of a hooked rod. It is not necessary to keep the parts submerged very long and the appearance will tell immediately whether all dirt has been removed. After removal from the solution, the parts may be submerged in a tub of gasoline, then placed upon a metal plate on the floor and there wiped dry with a clean cloth. It should be kept in mind that the

caustic soda is injurious to the skin, and will act quickly on the cloth, so that in handling the parts it might be well to use rubber gloves.



"Jumbo" Land Packer and Pulverizer

Packs and pulverizes the land, conserves the moisture, increases the crop yield. Saves labor, machinery and horses.

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The Farm Help Situation in Manitoba

FROM present appearances the spring activities on Manitoba farms will be considerably curtailed because of lack of sufficient men. For some time the Immigration and Colonization Branch of the Manitoba Department of Agriculture has been seeking, on the one hand, to secure applications from farmers needing help and, on the other hand, to secure the men to fill the orders. Through an order of the Minister of Militia, all soldiers are granted one month's leave of absence to engage in seeding. Up to March 24th, only 1,713 soldiers had indicated their intention or willingness to take advantage of this opportunity. This number may be reduced through some of the battalions being removed from the province before seeding is over. Of these men 127 expect to go back to put in crops on their own farms; 839 will go to the farms of parents or other relatives; and 628 experienced and 119 inexperienced men will be available for hiring. These men will have furlough for only 30 days, and when farmers are filing their applications they should distinctly state whether they wish a man for the season or only for one month.

The Department is receiving applications through its St. Paul office from Manitoba farmers, and is carrying on a vigorous campaign in the central western states to direct the attention of farm helpers to Manitoba. It has been found, however, that the wages in the U.S. are themselves very high this year, and unless Manitoba farmers are prepared to pay about \$40 per month they have little chance of getting men from this quarter. Hon. Mr. Winkler has within the past few days had telegraphic replies as to wages from public agricultural officials in the States of North Dakota, South Dakota, Iowa, Wisconsin, Minnesota, Kansas, and Illinois. Three of these states quote \$35 to \$40 as prevailing wages per month for good men, and the others are only a little lower.

A most important point is that the farmers of Manitoba seem to be very tardy in sending definite applications. Last year there were many unemployed men in our cities, and these could be supplied at once. This year there are practically no such city unemployed. Yet at date of writing the Winnipeg office has only 27 unfilled applications on file. Farmers should remember that when the men must be secured in the States it will take much longer to get them than if they were only to be sent out of Winnipeg. Ap-

plication blanks may be had by writing the Immigration and Colonization Branch, Department of Agriculture, Winnipeg.

Enrolment of Manitoba Stallions

Steady progress is being made in the work of inspecting and enrolling the stallions of Manitoba under the new Manitoba Horse Breeders' Act. For some time the veterinary inspectors have been visiting different parts of the province, and they have now turned in their reports upon about 400 horses, which compares with a total of 971 enrolled with the Department under the old Act during the whole of the year 1915. During the past few days the work of the inspectors has been hampered by the state of the roads, but applications for inspection are now coming in very fast.

Under the Act every stallion stood for public service must be examined by a duly appointed veterinary inspector who shall examine the horse and pass on his report to a board of enrolment. The inspector's report deals with the breed type, conformation and soundness of the horse, and desirability of having such stallion used as a sire. Certain diseases are mentioned by the act as being hereditary, and therefore disqualifying the horse from securing Certificate "A".

After the inspection reports are turned in, they are passed on to a Board of Enrolment. This board then examines the pedigree certificates, considers the report of the veterinary inspectors and recommends to the Department what action shall be taken in each case. Thus the public is not only protected against the danger of using an unsound horse, but also against the horse with a bogus pedigree. It is very important for the stallion owner to realize that he must send his pedigree papers with the application for inspection. Failure to do this only entails delay.

After the certificate has been issued to the horse owner, he must keep a copy of it posted during the breeding season at every stable where he stands, and the Act provides that nothing on any bill, poster or advertisement used in advertising a horse shall be of an untruthful or misleading character. There is nothing in the Act to prevent the owner of a grade or unsound horse from using him upon his own mares or giving his services free to his neighbors, but it is illegal to issue bills about or collect fees for the services of such a horse.

To guard against the possibility of temporary delay in a certificate reaching the owner of a horse for

Red Side Wall and Black Tread The Trade Mark of Firestone TIRES



This exclusive color combination is the result of long experiment to develop a tread of extra thickness without extra weight. This reduces strain on the body of the tire and means longest life to the fabric.

In addition to these practical values Firestone Equipment gives elegant appearance and harmonizes with any car.

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A TALK ON TRACTOR FUEL

MODERN methods, when once established, never become displaced. We are never going to give up the telephone, nor the electric car, nor the railroad. **And we are not going to give up the tractor as farm power.** We may have gone to tractor farming before it was ready for us. We may have purchased machines that were not yet perfected, and which could not be operated at profit. After a first experience many farmers actually gave up tractor farming and returned to oxen or horses. But they will buy tractors again—because the tractor principle is economically sound; and better tractors are being put out every year.

But this much is true.

If we allow the cost of operating our tractor to rise above a certain figure, it must cease to be profitable. Some way **must** be had of keeping operating expense down. These things always work out in the course of time and in answer to necessity. When the recognized tractor fuel—gasoline—is forced up in price by reason of too great a demand, another fuel takes its place.

And that time has come.

It is unnecessary to speak here of the high price of gasoline, or the cause for the high price. Whoever has purchased gasoline recently knows that its cost is at a high record. When the roads open and the millions of automobiles begin their summer jaunts, the scarcity of gasoline and its high cost will be still more apparent. We are all ready to pay high for luxuries, but no one can afford to do his business at a loss. The tractor must have the cheaper fuel, and leave gasoline to the spenders.

What can be done?

Many a tractor owner has tried to burn kerosene, and has had small measure of success. But this should be remembered: the experimental departments of every tractor plant have been working to perfect kerosene engines. They have not all been completely successful; but **some** have, and **all** have had some measure of success. And every new idea can be incorpor-

ated in engines now in the field, through attachments. It will be worth while for every tractor owner, therefore, to communicate with the maker of his engine, to get the latest suggestions. It is safe to say that kerosene will cost not more than half the price of gasoline this season. In using kerosene the operator should be sure to have a high grade product. There are different grades of kerosene, just as there are different grades of eggs. Good eggs proudly bear the autograph of the hen, or her owner. Good kerosene can carry a name, too. The Imperial Oil Company's "Silver Star" Engine Kerosene and "Royalite" Coal Oil are proud of their names and are the highest grades of fuel on the market.

There are many types of internal combustion engines in use. Our reader may own any one of twenty-five makes. It is, therefore, impossible to say here that **your engine will burn kerosene successfully.**

But this much can be said.

Your engine will burn a half-and-half mixture of gasoline and kerosene, provided both are good quality. Get Premier Gasoline and the well-known Silver Star Kerosene or Royalite Coal Oil, mix them in equal parts, and **you will save money, have no trouble, and get more power per gallon than from straight gasoline.**

Whether you use kerosene or the half-and-half mixture, you will, perhaps, need to start the engine on the more volatile gasoline. Has your machine an auxiliary tank for gasoline? If so, it is properly equipped. If not, you should surely write to the manufacturer to learn of his improvements for the use of the lower grade fuel. As soon as the engine is warmed, it will operate properly on the mixture.

One more point should be observed in the use of the mixed fuel: be sure it is thoroughly mixed, either before it is placed in the engine tank, or when it is there. If you drive your tank wagon to The Imperial Oil Company's tank station our agent will deliver the fuel in proper proportions, and the drive

home will mix the fluid thoroughly. If bought in barrels the mixture can be made in the tractor tank by stirring with a stick.

Many a farmer is using this mixture successfully. Many truck owners also use it; in fact, all the thousands of passenger busses on the streets of London are using a mixture very similar to, and no more volatile than this. Even automobilists, thousands of them, are using the mixture successfully.

We have said that the half-and-half mixture of Premier and Silver Star will give more power. That is true. Kerosene has more power than gasoline. Power comes from the "heat units" in the fuel. Kerosene has the same number of heat units per pound as gasoline; but kerosene has **more pounds per gallon** than gasoline, so that kerosene gives from 15 per cent to 20 per cent more heat units—which is that much more power. Therefore, not only is the price lower, but the efficiency is greater, due to more power per gallon.

The reason why straight kerosene sometimes gives trouble in any engine, and always gives trouble in some engines, is that its gravity is too low; in other words, it is not sufficiently **volatile**; the explosions which give the power do not come regularly except under perfect conditions. The higher the gravity, the more surely will the fuel deliver its power explosions regularly. Now weight and gravity of a fuel are related. Premier Gasoline is a scientifically refined fuel which is made heavy for the maximum of power, but not so heavy as to bring the gravity too low to make the fuel **sure** under all conditions. It is ideal for automobile use. It is better than necessary for tractors and trucks, which have engines of a different type. So the half-and-half mixture of Silver Star (or Royalite) and Premier has lots of power, and a gravity high enough to serve in the tractor type of engine. It gets its extra power from the kerosene, and its higher gravity from the gasoline.

Any agent of The Imperial Oil Company will gladly give full information on this whole subject.

which inspection has been asked, the board may at its discretion issue an intermin certificate after the inspection has been applied for, but it is hoped that the use of this intermin report will not be required in a great number of cases, nor for any considerable length of time.

The investigations so far have shown that the inspection was very much needed in some quarters, and with the assurance that Manitob. farmers will now have as to the worthfulness of horses enrolled, a new confidence should be given to the horse breeding industry, and the class of horses produced should be considerably improved.

Those who desire a copy of the new Act should write the Manitoba Department of Agriculture, Winnipeg, and ask for it.

Protect Your Poultry

The "Peerless" fence, is one of the best investments the poultry raiser can make. It turns even small chicks. They cannot roam or get crop bound, lost, or feed on destructive vegetation.

This wire is made from open hearth steel, is securely locked together at each intersection of the wires. By this method of fence construction, less than half the posts are required, compared with the number required where

ordinary poultry netting is used. No running boards for top or bottom are required.

It will stand any kind of weather, cannot rust or sag. Will outlast poultry netting several times over. Will turn large animals as well as small chicks, and it always looks substantial, trim and neat. A faithful guardian of your highest prized poultry.

Better write to-day for the nearest dealer and illustrated catalogue of "Peerless" fencing, gates, etc.

Write to the nearest office: Banwell-Hoxie Wire Fence Company, Winnipeg, Manitoba—Hamilton, Ont.



War's Refining Influence
The Victor: "Now I s'pose I got to give you first aid."

Brandon Fair to Put On Light Tractor Plowing Demonstration

Light tractors are being purchased by the farmers of Western Canada in such numbers and such vast sums of money are being tied up in this class of farm power machinery that the matter is of considerable importance to Western Canada's agricultural situation.

Realizing all this, the Provincial Exhibition Directors at Brandon have decided to lend every possible aid to the demonstration of light power farming machinery during its annual summer exhibition, July 17th to the 22nd, 1916. The Brandon summer fair has always enjoyed a most liberal exhibit of farm machinery, especially tractors and threshing machines. The grounds are high and dry and afford a splendid site upon which such goods can be displayed to advantage.

The farmer should have every opportunity to study this class of machinery at first hand. Tractors cost a considerable amount of money and must be handled properly if they are to prove profitable to their owners. It, therefore, seems that a demonstration of these tractors in the hands of skilled operators will furnish lessons that should be of untold benefit to the farmers.

The Provincial Exhibition at Brandon is recognized all over Western Canada as the "Farmers' Fair." It gathers within its gates thousands of farmers from all over the Canadian West. A light tractor demonstration is therefore something that will provide a most exceptional opportunity for manufacturers of this class of machinery to demonstrate their machines to the Western Canadian farmer.

A field adjoining the fair grounds has been secured for the purpose of this demonstration. It is an excellent piece of land that has been under cultivation for some time but has not been plowed for two years. It will be carefully mowed and raked before the demonstration, thus making it nice and clean. On account of its close proximity to the fair grounds, the farmers can reach the field without any difficulty. There will be no fuel or draw-bar tests—in fact, there will be nothing whatever in the nature of a contest. It isn't the desire to make the demonstration a stiff, formal affair, and only such rules are laid down as will reasonably insure everything working smoothly. The dual object is, first of all to give the manufacturer a chance to demonstrate his machine in operation, and second to give the farmers every oppor-

PULL STUMPS The Quick, Easy Practical Way



Stump fields cost you money. You can't afford such waste—such loss. Get rid of the stumps—make every acre return big profits. Clear your land the Kirstin way—the quick, easy, practical way. Use the method endorsed by Government and State Officials—and by thousands upon thousands of farmers and land owners—the way that is easiest, most practical and costs you the least, both in first cost and for labor. The Kirstin One-Man way is the proven way. From Maine to California and from Canada to the Gulf, there are thousands of Kirstins at work and every one of them will repay their cost many times over. A Kirstin will make good in your stump fields.

Kirstin One-Man Stump Puller Easily Handled and Operated By One Man.

The improved Double Leverage Kirstin has every quality needed in a stump puller—gigantic power—variable speed—enormous strength. Yet, with all its great power and strength, the Kirstin is the lightest stump puller made, so that one man can carry, handle and operate it with ease.

No Horses Required

In clearing land the Kirstin was, one man alone pulls stumps—your team driven by a boy can be kept busy dragging them away. Just think of the enormous difference in cost between the Kirstin One-Man way and the horse power method—where it takes a team and a man or two to operate the puller alone.

The improved double leverage Kirstin, the new short lever model, stands the extreme tests of the very hardest stump pulling. The Kirstin's wonderful compound leverage principle develops enormous power—one man alone can easily pull all kinds of stumps—big, little, tough or green—also trees and hedges. In addition to its practically unlimited power, the Kirstin

Changes Speed While Pulling a Stump

No other stump puller at any price contains a similar device. With other machines you keep pulling at the same rate of speed even after the stump has broken loose and the hard pull is over. This is a big waste of time that the Kirstin Multiple Speed-Changing feature entirely overcomes. The Quick-Detachable connections also mean a big saving of time. Furthermore, with the Kirstin you can

Clear Over An Acre From One Anchor

No time lost in having to re-set machine for every stump—no

unwinding cables from a heavy drum—no driving a team round and round—no wasted time or effort at all. Just a steady, easy, back-and-forth movement of the Kirstin lever brings stumps out quick and easy. Small trees, ledges, brush, etc., can be pulled in few hrs. The Kirstin gives you unlimited power. It also has a surplus strength in every part—and the right speed at the right time. Can be used anywhere—hills, swamps—rough ground or thick timber where no other puller could be used.

If you have any stumps on your farm you need a Kirstin. Why the Kirstin? Because the Kirstin is the simplest, most practical, most efficient land clearing device ever invented. Lowest first cost—lowest in cost of operation. It weighs much less than any other, is a great deal stronger, and is covered by

The KIRSTIN Iron-Clad Guarantee

You cannot afford to start to clear your land before you get the Kirstin Catalogue. This will be sent you FREE. It contains invaluable land-clearing information and full details about Kirstin One-Man Stump Pullers, our Liberal Ten Day Try-Out Offer, the Kirstin Service Bureau, Time Payment Plans, etc. We'll also send you ABSOLUTE PROOF that the Kirstin is and does all we claim. Try a Kirstin on your land—prove its value to yourself.

Mail The Coupon

or send a postal, but be sure to write at once for your copy of free book.

FREE BOOK Coupon

A. J. Kirstin Canadian Co. 6100 Dennis St. Sault Ste. Marie, Ont. Please send me your free book on Stump pulling.

Name
Town
R. F. D. or P. O. Box State



A. J. KIRSTIN CANADIAN CO.
6100 DENNIS ST., SAULT STE. MARIE, ONT.

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Agents Wanted

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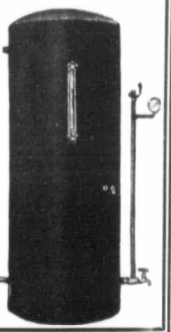
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Stevens' Water Supply Systems

Pressure Tanks must be made right to hold Air and Water after the rough handling they often get in transit. Our Tanks are both Riveted and Welded—made to give satisfaction after they are set up.



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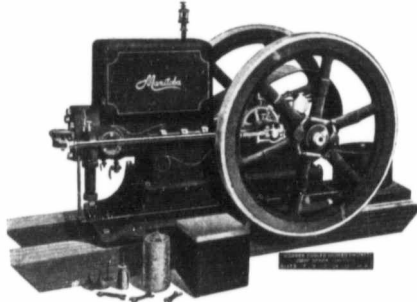
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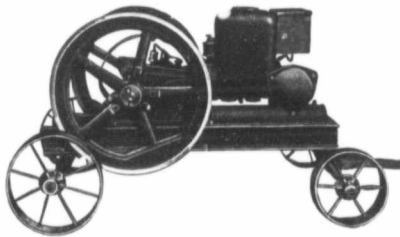
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Act Instead of Wishing

Every day you are getting nearer Spring. Don't wait until you must have your machinery and then wish you had ordered it. Attend to it now.



5 h.p. Engine on Skids. Price \$127.50 F.O.B. Brandon, Man.; \$140.00 F.O.B. Calgary, Alta. On Hand Trucks \$12.50 extra. Just the right size for running a seven inch chopper. Engine complete, with chopper and rubber belt, \$158.00 F.O.B. Brandon Man.; \$175.00 F.O.B. Calgary, Alta.



We are now prepared to furnish either water cooled or air cooled combined pumping engines with direct connected pump jack, or with pump jack separate. Price of complete outfit \$47.50 F.O.B. Brandon, Man. \$51.00 F.O.B. Calgary, Alta. Either one well suited for any light work on the farm. Both engines fitted with a separate slow speed shaft for running Washing Machine, Fanning Mill, Cream Separator, etc.

GRINDERS

	F.O.B. Brandon, Man.	F.O.B. Calgary, Alta.
7 inch Grinder	\$24.50	\$27.25
8 inch Grinder	27.50	30.60
10 inch Grinder	31.50	34.90
12 inch Grinder	37.50	41.50

Can furnish grinder with Standard legs or low down. Two sets of plates furnished with each machine.

CRUSHING OUTFITS

The following crushing outfits complete. Most economical sizes for individual use.

7 h.p. with 8 inch crusher and rubber belt, \$215.00, F.O.B. Brandon, Man.; \$235.00, F.O.B. Calgary, Alta.
9 h.p. with 10 in. crusher and belt, \$260.00, F.O.B. Brandon, Man.; \$282.50, F.O.B. Calgary, Alta.

12 h.p. with 12 inch crusher and belt, \$350.00, F.O.B. Brandon, Man.; \$390.00, F.O.B. Calgary, Alta.

Bosh High Tension Oscillating Magneto \$30.00 extra. Unlimited guarantee against defective workmanship and material goes with every article we make.

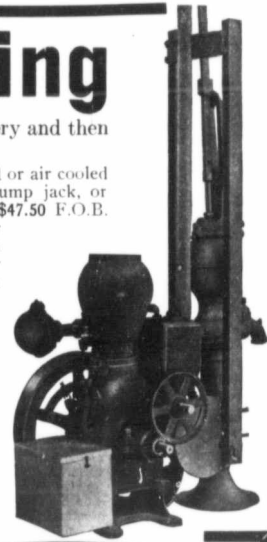
If you live in Alberta or British Columbia write Calgary. If you live in Saskatchewan or Manitoba write Brandon. Ask for our general Catalog if you haven't one. It covers many other lines outside of the ones advertised.

All terms cash or Sight Draft against Bill of Lading.

Manitoba Engines

LIMITED

Brandon, Man. Calgary, Alta.



ing it before removing the machine from the demonstration field.

9. An entrance fee of \$10.00 per tractor will be charged, except in cases where more than one tractor is entered by the same firm, in which case \$10.00 will be charged for the first tractor and \$5.00 per tractor for all others entered by the same firm.

10. The demonstration will be conducted wholly and solely as such and will in no way be in the nature of a contest. No awards or medals of any kind whatever will be given.

11. The demonstration will be in charge of a field man who will have full control of the plowing field. He will be on the demonstration field at all times during the demonstration days and will have full power to handle the entire demonstration. No deviation from any of these rules can be made without his consent.

12. Each entrant should provide himself with a half dozen pointed stakes about 6 feet long for marking out his first furrow, and he must see to it that all such stakes, as well as any other material that he may have brought to the demonstration field, is removed at the close of the demonstration.

The "Calf-Way" Milker

There are several ideas of the milking machine now at work, all of them working by the vacuum system. This appears to be the only method of getting the milk out of the udder by mechanical process. There are only two ways in which it can be got by vacuum pressure; the one is to apply vacuum directly to the

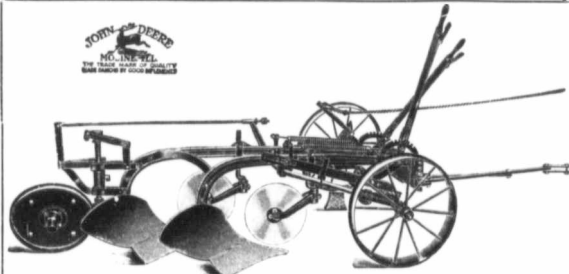
teats strong enough to draw it out, and the other is to get it with a natural downward squeeze, exactly as it is done in hand milking.

The "Calf Way" milker seems to be the only machine on the market at present which obtains the milk by actually squeezing it from the teat as it is done in hand milking. This machine is certainly a wonderful adaptation of mechanics to this very delicate process. The rubber "cups" used are designed to imitate a calf's mouth, hence the name of the particular machine—"The Calf-Way."

One side of the outer wall is hard, inflexible, just like the roof of a calf's mouth, while the other side is very flexible, just like the tongue of the young "sucker." On another page will be found the announcement of the Farm and Dairy Machinery Co., of Toronto, who are handling the "Calf-Way" milker for Canada.

This machine, under severe tests over a wide field, has proved a complete success in every way, and it is priced at an extremely moderate figure, having regard to all that it means in time and labor saving. The diagrams are conclusive evidence to any one who has milked a cow that the principle followed is in perfect accord with nature.

A Real One-Man Tractor Plow



The John Deere Pony Tractor No. 3

Has the size of your farm kept you from using a Tractor Plow? If so, this plow is designed to meet the requirements of the average farm. It is a one-man outfit, entirely controlled by the man on the tractor. Pull the rope to lift, pull again to drop—a boy can do it. High and level lift, the rear plow raises practically as high as the front one. Bottoms are lowered or raised in fourteen inches of ground travel. Our No. 3 is the last word in Motor Plows.

JOHN DEERE PLOW CO.

LIMITED

Winnipeg Regina Saskatoon Calgary



BEATING THE LIQUOR TRAFFIC

The liquor traffic in Manitoba has had a death blow. It has had many a blow before, but this time it was fatal. In spite of a raging blizzard in many parts of the province the men went to the polls, and did their bit to kill the hydra-headed monster. It will no more show its vile face in this province. The men declared against it, two to one, and the women will soon have a vote and they always declare against it, almost all of them.



MRS. DUFF SMITH

Provincial President of the Manitoba W. C. T. U.—a Society that has created most of the Temperance Sentiment

Mrs. McClung, who helped in the fight against liquor in Alberta, came back to Manitoba to help. She reached the city on Friday, and she was kept as busy as she could be until Sunday night. On Sunday she spoke six times, and she spoke to over twelve thousand people, and still there were some who went away disappointed that they did not get in to her meetings. Mrs. McClung knows so well the stories of ruined homes that have been whispered by white trembling lips into her ear, that she is ready to give everything she can to beat the awful traffic. She is never afraid to do right, and she only laughs when cowardly sneaks who are afraid to come out in the open write anonymous letters to her, threatening her life, as they did in the campaign in Manitoba. No, Mrs. McClung is not afraid to do right; and she has been a great factor in the temperance campaign in Alberta, in Manitoba, and in British Columbia.

It seems likely that the temperance sentiment in the far western province is going to win, and Mrs. McClung had something to do with creating that sentiment. The liquor traffic and corrupt governments are afraid of Mrs. McClung, just as the evil is always afraid of the pure and good.

Another woman who has taken no small part in the temperance campaign is Mrs. Duff-Smith, president of the provincial W.C.T.U. of Manitoba. Mrs. Duff-Smith was tireless in her campaign work, and in her educational work for years past, she has never faltered. She has visited many parts of the province, and has done much to keep the enthus-

iasm of the women alive. Mrs. Duff-Smith is a bright speaker, and no doubt the platform will know her well before the campaign for federal prohibition is over.

Thousands of men and women have been working tirelessly for temperance for years, many have passed on, and to the amazement of those working now, the great nations of the world with one-leap are doing away with the nefarious traffic. Education is slow but it is sure, and the world is marching on.

The Women Reaching Out.

The three prairie provinces have enfranchised the women. British Columbia is in the midst of a great political upheaval, and when the dust has cleared away, the women may find themselves enfranchised. If they are not it will not be the fault of the women for they are doing splendid work. But women voters have already found that the provincial franchise is not enough. They must have the federal franchise if they are going to accomplish all they desire.

The federal government at the present session discussed the matter, and the women of Alberta and of Saskatchewan have reason to be proud of some of their members in the federal parliament. Dr. Michael Clark, Mr. Turrieff, and Mr. McCraney, all spoke strongly in favor of giving the women the federal franchise. Not one member from Manitoba spoke in favor and Hon. Robert Rogers opposed it. Premier Borden, who told a deputation of women some years ago, that if they secured the provincial franchise, it would give them the federal franchise, so long as the provincial lists were used, at Dominion elections, now has decided that it would not be fair to give to one province what is not given to all. He did not appear to think of that when he was speaking to the women.

The exact words of Premier Borden do not matter. He gave the women to understand that the provincial franchise included the federal franchise. The women will be ready at the next Dominion election to see whether they will be shut out or not. If the same lists are used it will be a matter for the courts to decide, and the courts will have the chance.

What the Women are Going to Do.

What are you women going to do with the franchise now that you have it, is a question the suffragists are answering in every province in which the women are enfranchised. Some women are saying we do not know what we are going to do. Others are pointing out that the first thing the women will try to do, is to alter some of the laws so unfair to women. Some of the women are interested in prison reform, especially in this case with the women of Manitoba. The women of Alberta are starting right at the criminal code, which is a federal matter. They wish to abolish capital punishment.

Homesteads for women is another question that will no doubt be taken up by some body of women especially interested in that matter. The women will now, more than ever, need the right to take up land and make a home in the country. So far, only widows have had that privilege, and only widows with children. This had been a great injustice to the unmarried women and the married women who wished to have something for themselves. The why of it has never been explained. There has been a great prejudice against it, but with a great band of women demanding a

change in this law, the prejudice should soon fade away.

It is a great thing that politicians can change. Public opinion can change the ideas of a whole government, and change them mighty quickly, if the public opinion is public enough. That is all that is necessary in a democracy. The trouble with democracy in the past has been that the people have not been interested enough. Now, with a lot of new voters the interest should be much greater than ever before.

It is impossible for the women to say what they are going to do with the franchise. The future alone will tell, but there is one thing sure, they are going to do something with it. A few days ago, I met a little woman who said she did not want the vote. She would rather not have it, because having it, she felt she must study and be able to use it intelligently. That is what it will do with a great body of women. It will make them think and study, and every bit of brain power that it brings into use, adds to the wealth of the nation.

We Killed the Bear.

The women of Manitoba did not vote on the referendum on the temperance question. They had no choice in the matter, so as they have done for years they worked, and prayed, and worked some more and let the men do the voting. Just after the results came in saying that the province had gone dry about two to one, a man said to me: "Well, you see, the men did it all themselves."

I did not say anything, for I did not wish to get into an argument right then at the moment of rejoicing, but I felt like telling him of the years of tireless work of the women in the W.C.T.U. I felt like telling him of the hundreds of women who had worked tirelessly during this campaign. I felt like telling him of the hundreds of women who spent a whole day at the polls on Monday, March 13th. I felt like telling him of the advertisement in the paper asking for ten thousand women voters to send in a dollar each to help, and many did. I felt like telling him of the meeting I attended where Mrs. Duff-Smith, the provincial president of the W.C.T.U. in Manitoba, asked two women to be at each poll in Winnipeg. She then stated that they would provide lunch for the men at the polls, but could not supply the women, so asked them to take a few sandwiches to tide them over until they could get home and get something. Just let me say that I felt like getting up in that meeting and asking her, why if they could supply the men with lunches they could not supply the women. I suppose it was the same old idea that women have always had of themselves, i.e., that anything will do for them. Well, the sooner they get over that notion and respect themselves, the sooner they will be respected.

I remember a woman telling me once that she had balked on being the family scavenger. I asked her what she meant and she said, "Well, I used to take all the left-overs to the table and I ate them, while the family ate the fresh food. My idea was to save, and let nothing go to waste. I don't do it any more. I decided that I had as much right to the best food as the rest of the family, and they did not respect me any for eating what they did not want."

No, and the men at the polls would not respect those women any more for sitting down with their few sandwiches in a handkerchief, nor as much as

though they had the same treatment as the men.

Women, whatever you do, don't despise yourselves.

Now, to go back to the referendum. The men voted, and voted right; but the women did all they could and have been doing it for years and years. The victory was as much theirs as it was the men's. It is our victory, and a big one. The men rose to the occasion, and we



MRS. NELLIE L. McCLUNG
Who spoke to over fifteen thousand people in ten days in the Temperance Campaign

are proud of them. May all our voting in the future be our voting, and all lunches in the future be served to us all men and women alike.

THE STRIKE OF MARY SMITH

[John and Mary Smith are husband and wife. They have homesteaded, and last year had a wonderful crop. They have paid all their debts and still have some wheat in the granary. Mary has worked just as hard as John and feels that she should have a share of the profits. John always shared everything with her, when there was nothing. This year he is quite penurious.]

Mary Smith—I think I will go to town with you. I want to get some things.

John Smith—You were in town two weeks ago, and you spent all the money I have to spare. What do you want?

Mary—I want twenty dollars.
John (laughs)—Well, why not ask for a hundred, or a thousand when you are at it?

Mary—You might let me have a hundred.

John—Nonsense. You would ruin me in no time if I would let you. I cannot give you any more.

Mary—I am not asking you to give it to me. It is mine. I have worked on this here homestead for three years without any pay.

John—So have I.

Mary—Yes, and you are taking all we have made.

John—I need it to run the place.
Mary—You have spent a thousand

Continued on page 56



Beautiful Array
of
Spring
and Summer
Styles at
EATON'S

DESPITE the war with its hazards of transportation and resultant shortage of materials, the **EATON** Store Canada a more varied and up-to-date assortment of Spring and Summer Styles than is at present in stock and on display at our Winnipeg Store.

Extensive Range in Selection

EATON buyers have scoured the world's markets, and what Europe, in her crippled condition, has failed to supply, has been adequately provided by Canadian and American manufacturers. The result of these efforts is exemplified in a glance through the pages of the **EATON** Spring and Summer Catalogue.

A more pleasing and extensive range in selection of wearing apparel for men, women and children than is shown in this **EATON** Catalogue is hard to imagine.

Beautiful gowns, coats, waists, skirts, millinery, lingerie, shoes, men's clothing and furnishings,

hats, pretty dresses and clothing for children of all ages and sizes, are attractively described and illustrated.

The materials are of the finest qualities obtainable, carefully tested and examined, and the fit, finish and workmanship are guaranteed the very best, being products of factories where only the most skilled workmen are employed.

EATON buyers, purchasing goods in large quantities at lowest cash figures, enable us to place these latest fashions of the finest materials before the public at the most reasonable prices.

It will be of material benefit to you to have your name on the **EATON** mailing list, to study the lines listed in our General Catalogue, and to be open to the opportunities and advantages in buying that the **EATON** system places before Mail Order customers.

THE **T. EATON CO.** LIMITED
WINNIPEG CANADA

The EATON Catalogue
—A Home Necessity



Just as the latest and best in fashions are available through the **EATON** Service, so are all your household and personal needs.
*From cover to cover the **EATON** Catalogue is a guide to buying—a guide that you will find an aid to greater satisfaction in your purchases.
Get your name on the **EATON** Mailing List to-day by sending for a copy of our latest Catalogue. With it handy for reference, you have a feeling of security in knowing that the greatest economies in buying are within your reach.
Write your name and address on a postcard with a request for this Catalogue, and send it NOW.

OUR YOUNG CONDUCTED BY Cousin Doris. FOLK

Girls' Cosy Corner

KINDNESS.

The memory of a kindly word
 Long gone by,
 The fragrance of a fading flower
 Sent lovingly;
 The gleaming of a sudden smile
 Or sudden tear;
 The warmer pressure of the hand
 The tone of cheer;
 The hush that means, "I cannot speak
 But I have heard;"
 The note that only bears a verse
 Such tiny things we hardly count
 As ministry,
 The givers deeming they have shown
 Scant sympathy;
 But when the heart is overwrought,
 Oh, who can tell
 The power of such tiny things
 To make it well!

Prize Letter.

Editor Canadian Thresherman and Farmer. — We aer readers of the Canadian Thresherman and Farmer, and I noticed your prize offering on Gardening. I will tell you how I made a nice flower garden out of a roof back of our kitchen window. The roof is over part of our cellar, and covered with earth, so I went to work and carried some nice soil and manure on it and sowed wild flower seeds on it, and I had the loveliest flower bed anyone can imagine; some were early and others later, so when the early ones died off the later ones started to bloom, and I had flowers always different colors, beautiful, until the frost killed them off. My mother and myself made a bed on the same roof last spring, so we had early plants for our garden. Near our barn was a somewhat deep place, so I went and put some manure in it and when it rained I had some liquid manure to put on cabbages and cauliflowers. I sold \$1.50 worth of cauliflowers and quite a lot of other things. My mother bought my clothes with the money. And now I want to tell you what I took in the cellar out of my garden: 1 bushel of cucumbers (which we pickled), carrots 4 bushels, beets 2 bushels, sardles 5 bushels, parsnips 7 bushels, salsify 1 bushel, turnips 2 bush, onions 1/2 bush, cabbage about 20 good solid heads for sauerkraut and lots of others not quite so solid but good enough for cooking, about 30 heads of red cabbage. I had about 4 bushels of green tomatoes which my mother preserved and pickled. I also had plenty of beans of which I pickled one bag and sold quite a few, and gave some to the neighbors, besides, I had lots of lettuce, spinach, radishes, and a few sweet herbs.

H. J. L.
 A Farmer Girl 14 years old.

Canadian Boys' Camp

THE COUNTRY'S CALL

Give me men to match my mountains;
 Men, to match my inland plains;
 Men with empires in their purpose;
 Men with eras in their brains.
 Give me men to match my prairies;
 Men, to match my inland seas—
 Men whose thoughts shall have a path-
 way
 Up to ampler destinies. —Thompson.

SCOUT SERVICES IN WAR TIMES

Good public service continues to be rendered in various directions. The Admiralty still find the Scouts of value for coast-guard duties, and have lately raised their numbers to 1,800, and have also increased their subsistence allowance.

Nearly 7,000 Scouts of over sixteen have set themselves to learn drill and marksmanship as the Scouts' Defence Corps, in case of their services being required.

Invited to replace the Motor Ambulance which they sent to the front in the early days of the war, the Scouts, by doing a day's work apiece and handing over the takings, have contributed £3,000 to supply a new ambulance, and also some Y.M.C.A. huts, both at the front and at the base in France. These are managed by Scoutmasters and Lady Scoutmasters.

B. P.

B.P. stands for Baden Powell. Known to every Boy Scout well. B.P. stands for B.P.'s motto—Meaning, therefore, that you've got to be prepared for everything. That the passing hour may bring. Be Prepared—Zing-a-zing, Bom-bom.

When with your patrol you start, Like a good Scout, clean and smart, Be Prepared with everything: Paper, pencil, matches, string, Water, knife and hatchet—all Ready for a sudden call. Be Prepared—Zing-a-zing, Bom-bom.

Be Prepared to play your part When your daily work you start; Be Prepared and eager too, Good and helpful turns to do; Be Prepared to conquer sin, By the grace of God within. Be Prepared—Zing-a-zing, Bom-bom.

Be Prepared with Heavenly grace For the perils you must face; When your morning prayers you say, Draw your rations for the day, Endless trouble you'll be spared If "Prepared" be spelt P-R-E-P-R-A-Y-E-R-E-D. Be Prepared—Zing-a-zing, Bom-bom.



"Patriotism."

Officer: "Didn't I tell ye 'e was no good? Look at 'im—playin' football when us fellers is drillin'!"—Punch.

THE SCOUTS' HUTS IN FRANCE

We Have Now Practically Four Scout Institutes and Two Ambulances Working Among the Troops in France.

On revisiting the "Mercer's Arms" at Christmas time I found a change in the place since I made a sketch of it in the Gazette.

The swampy surroundings have given place to good metalling and raising of the ground surface. The verandah has been walled in and forms a valuable addition to the accommodation, and good stoves now add to its comfort on a cold night. In fact the whole place is as well adapted to its work as it could be.

And the staff have done wonders to make it homely and attractive to men frequenting it.

The Christmas festivities included a Scout tea at which French and Belgium Boy Scouts were present, and a good number of "Old Scouts" recently enrolled. It was a jolly informal gathering of all grades of Scouts, and several new members took the opportunity of being admitted to the brotherhood. Thanks to the liberality of the Mercer's company, a very cheery entertainment was arranged for the men at the hut on Christmas Day and Boxing Day and was very fully appreciated by them.

Our new hut at the Ataples Camp is a splendid one and promises, owing to its position, to do great work and to form a particularly convenient rallying center for ex-Scouts in H.M. Service. It is one of the most up-to-date institutes in France, and is a great credit to the Boy Scouts, whose name it bears.

Then our immigration commissioner, Mr. Ashton, not only supplied an institute but is also acting as its "leader," or manager right up to the front. It had the honor of being wounded by a shell splinter recently.

And we have been able within the last few days to send another institute to the front occupied by the Canadian Corps. This one has been purchased and equipped with the money sent over by the Canadian Boy Scouts, and will cause the men in the fighting line to bless the boys they left behind them. Thus the Scout movement is doing its bit to help to maintain that cheery good spirit among the men at the front,

which is going to be the highest possible value to their fighting efficiency.

But in addition to this, the spirit of scouting which pervades our institutes is fast drawing men to take an interest in our aims, and the brotherhood of "Old Scouts" promises to become a widespread useful branch.

Enclosed in this copy of the Gazette, you will find a slip and an enrolment notice regarding "Old Scouts." I earnestly hope that each one of my readers will make use of these, and with them gain an adherent to our cause, we greatly need them.

Also we badly want more good men for work in our huts and institutes. It is grand work and brings tangible results, such as makes a man realise that he is doing his bit by being there. Send in your application.

OUR LOSSES

Our brotherhood has sustained very heavy losses during the year. Of our commissioners, not less than 338 are on service, and of these seven have fallen in action.

We have between 25,000 and 30,000 of our members serving with the colors. These generally have won a most gratifying name for the military value of the Scouts' training, as well as individual honors for themselves, (including one V.C.), but it is only natural that out of such a force we should have to deplore the loss of a very large number of promising young comrades. They have, however, done well. Their sacrifice is not thrown away. Their splendid example has set a standard for others to follow, and is vitalising a living memorial to themselves in the form of an efficient, duty-bound, young citizenhood.

The actual losses among our Scoutmasters have been exceedingly heavy, and it is this that threatens the movement with a serious set-back after the war, unless we take adequate steps to discount it.

On the other hand, I feel that wonderful possibilities lie before us if we only put ourselves in position to deal with them.

But what we shall need most will be a supply of good officers directly peace is proclaimed.

To this end we are already enlarging the interests of a number of sympathisers by making them honorary associates of the movement, under the title of "Old Scouts," in the hope that they may help us to fill our gaps. We have been fortunate enough to secure the services of 181 gentlemen to act in the place of commissioners absent on service, and a goodly number of Scoutmasters have joined us.

But the full supply of such officers is a matter of vital importance to our ultimate expansion of success.

AN APPRECIATION

Half the fun of life—though very many people don't realize it—is making bricks without straw.

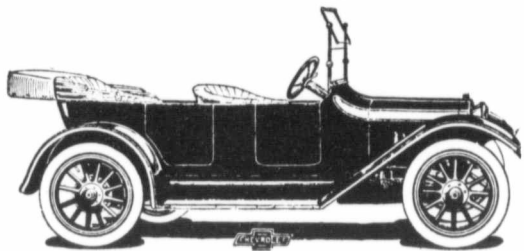
One of those little glints of sunshine that gladdens one's heart has recently come to me in the shape of a note from an ex Scout now an officer on service at the front. This is what it said:

"To-day a brother officer and myself were discussing the chief lessons we had learnt out here in a couple of months. We agreed that one of the principal, if not the principal lesson, was the importance of the Scout instinct, by which we meant the ability to make bricks without straw." And as a mark of his appreciation he enclosed a thank-offering for our funds.

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Do You Want This Car FREE?

A Gift For All The Family



Don't Miss This Opportunity

Any reader of the Canadian Thresherman and Farmer has a chance to win this

1916 Chevrolet Car

Just as sure as you are reading this announcement, you can be the possessor of this beautiful, powerful, speedy and comfortable automobile. All you have got to do is to get started right away in

Our Fourth Wheat Estimating Contest

Here are the particulars:—Commencing April 1st, 1916, and ending July 31st, 1916, The Canadian Thresherman and Farmer will carry on a **Wheat Estimating Contest**, open to everyone in Canada, except residents in Winnipeg, and are giving away to the first person who estimates nearest to the number of **whole kernels in 3/4 lbs. of No. 1 Northern wheat**, this \$725 Chevrolet automobile, all complete with electric starter and lights, mohair top, windshield, ameter, speedometer, tools, etc. The car will be delivered to the winner f.o.b. Winnipeg.

Read This Carefully

This is the fourth time that we have put on a Wheat Estimating Contest, and the same general rules that have governed our former contests apply to the contest this year.

The wheat is a fair, clean sample of No. 1 Northern, procured from the Dominion Government Grain Inspector's office, Winnipeg. The wheat and bottle were taken to the Dominion Weights and Measures Office, and exactly 3/4 lbs. of wheat weighed out and poured into the bottle, which was immediately sealed up in the presence of two witnesses. The bottle was then photographed and deposited with the Union Trust Company, Winnipeg, and will remain in their vaults until the contest closes July 31st, 1916, when it will be taken out and counted by a board of three judges, none of whom are in any way connected with the Canadian Thresherman and Farmer.

Everyone who sends in a year's subscription 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 desired, and you may send in as many estimates as you wish. Remember every additional estimate increases your chance to win the automobile. Estimate early and increase your chance of winning, for it is the first one that estimates nearest to the number of whole kernels that wins the car.

The subscription price of the Canadian Thresherman and Farmer in Canada and Great Britain is \$1.00 per year. In United States and foreign countries \$1.50 a year.

Previous Contests

In the winter of 1908 we ran a contest as to the number of whole kernels there were in 15 pounds of No. 1 Northern wheat. When the contest closed it was found that there were 257,883 whole kernels in the bottle. In 1909 the number of whole kernels in 8 pounds and 7-16 ozs. was 143,272, while in 1910 the number of whole kernels in 12 lbs. of No. 1 Northern wheat was 197,543. With these facts to work upon, you should be able to form an estimate as to the number of kernels in the bottle this year. Or better still, get some No. 1 Northern wheat yourself and count it out and form your estimate from that.

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.

NOTE:—By taking out a subscription for more than one year you reap the benefit of a lower rate in addition to increasing your chance of winning the car by receiving more estimates. Subscribers who have already renewed their subscriptions may also enter the contest—their subscriptions being extended from the date they are due to expire

Or Better Still, Get Your Neighbors

to club with you. The subscriptions to cover one year, these subscriptions and estimates must be received in one envelope, so that we may credit them properly.

- 5 persons sending \$5.00 get 25 estimates and each have 1 year's subscription.
- 6 persons sending \$6.00 get 30 estimates and each have 1 year's subscription.
- 7 persons sending \$7.00 get 35 estimates and each have 1 year's subscription.
- 8 persons sending \$8.00 get 40 estimates and each have 1 year's subscription.
- 9 persons sending \$9.00 get 45 estimates and each have 1 year's subscription.
- 10 persons sending \$10.00 get 50 estimates and each have 1 year's subscription.
- 15 persons sending \$15.00 get 100 estimates and each have 1 year's subscription.
- 20 persons sending \$20.00 get 150 estimates and each have 1 year's subscription.

Extra subscription blanks, sample copies, etc., sent free on request.

Contest Closes July 31st, 1916

Send all communications to:—E. H. Heath Co. Ltd., Winnipeg, Canada

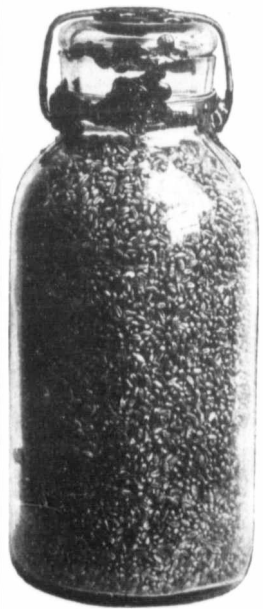
E. H. Heath Co. Limited, Winnipeg.
 Please find enclosed \$..... for years' subscription for the Canadian Thresherman and Farmer to be sent to

Name

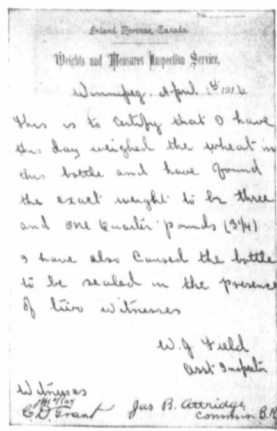
Address

..... Prov.

My estimates as to the number of whole kernels in 3/4 lbs. No. 1 Northern Wheat are:.....



This is a photograph of the actual bottle of wheat after it had been weighed and sealed. The cut shows it considerably reduced in size.



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OUR WOMEN FOLK

CONDUCTED BY
PEARL RICHMOND HAMILTON

SKY-BORN MUSIC

Let me get where'er I will,
I hear a sky-born music still.
It is not only in the rose,
It is not only in the bird,
Not only where the rainbow glows,
Nor in the song of woman heard;
But in the darkest, meanest things—
There always, always something sings.
—Ralph Waldo Emerson.

A lesson to my heart is sent
Of cheerfulness and sweet content,
When'er I see the snowdrops pale
Uplift their heads in wintry gale,
And bloom as sweetly 'midst its snows
As summer's lily or its rose,
Rejoice! the snowdrops say to me,
Whate'er thy lot in life may be!
—Dunbar.

AN OPEN LOOK

To me the world's an open book
Of sweet and pleasant poetry;
I read it in the running brook
That sings its way toward the sea.
It whispers in the leaves of trees,
The swelling grain, the waving grass,
And in the cool, fresh evening breeze,
That crisps the wavelets as they pass.

The flowers below, the stars above,
In all this bloom and brightness given,
Are, like the attributes of love,
The poetry of earth and heaven;
Thus, Nature's volume, read aright,
Attunes the soul to minstrelsy
Tinging life's cloud with rosy light
And all the world with poetry.
—Morris.

THE LITTLE CARES

The little cares that fretted me,
I lost them yesterday
Among the fields above the sea,
Among the winds at play;
Among the lowing of the herds,
The rustling of the trees;
Among the singing of the birds,
The humming of the bees.

The foolish bears of what might hap-
pen—
I cast them all away
Among the clover-scented grass,
Among the new-mown hay;
Among the husking of the corn,
Where drowsy poppies nod,
Where ill thoughts die and good are born
Out in the fields of God.
Elizabeth Barrett Browning.

Mother's Corner

THE WISDOM THAT IS WONDER

The gray world caught me by the hand,
The sad world looked into my eyes,
The dull world brushed my shoulder,
Yet could not make me wise;

But when I kissed a young child's cheek
And taught my heart his world to see,
The wisdom that is Wonder
Came home to dwell with me!
—Marguerite Wilkinson.

FOR MOTHERS

1. To bring up a child in the way he should go—travel that way yourself.
2. Stories first heard at mother's knee are never wholly forgotten—a little spring that never dries up in our journey through scorching year.
3. Children need models more than criticism.
4. We can never check what is evil in the young unless we cherish what is good in them.

5. Line upon line, precept upon precept, we must have in a home—but we must also have serenity, peace and the absence of petty fault finding, if home is to be a nursery fit for heaven's growing plants.

6. There are no men or women, however poor they may be, but have it in their power by the grace of God to leave behind them the grandest thing in the world—character—and their children might rise up after them and thank God that their mother was a pious woman, or their father a pious man.

Every expectant mother should sweetly and sacredly prepare body, mind and spirit for the trust of a human soul.

During the first impressionable years of a child's life, when mind, body and spirit are plastic as the artist's clay, the character of his thoughts, the shape of his brain and the trend of his life are moulded by the mother love, the home atmosphere and thought influence.

The evolution and perpetuation of an ideal people, of an ideal civilization, rest largely with the mother in fixing elevated ideals for her children.

As long as there are mothers, ignorant and narrow, or others who are contented merely to be pretty and wear fashionable gowns—who cannot or do not, rise above the trivialities of gossip and senseless vanities of fashion—children with similar tendencies will be conceived. And just so long as the world holds mothers who are avaricious, greedy for power, or who regard wealth, beyond their personal needs, as their god, will these tendencies be transmitted to their children? Yes, and just so long as mothers harbor jealous, envious, bitter, unclean and unworthy thoughts, will these like-

wise be transmitted to posterity, through the great law of spirit impress.

We need rational, intelligent, mentally morally and physically sound mothers, mothers with sufficient courage and stamina to sustain their convictions. The impress of one strong, well balanced character can color the tone of a community; one strong community can carry a city, and a city a province. The far-reaching influence of the life of one single man or woman will never be known, but it is the privilege of each to make the influence of his life vibrate through the ages.

The evolution and perpetuation of an ideal people, of an ideal civilization, rest largely with the mother in fixing elevated ideals for her children. Nature has entrusted her with this responsibility, which is far higher than any within the gift of man.

The primary responsibility of the reformation and redemption of the world, of society, politics and commerce, rests with the individual members—with the sons and daughters—and it devolves upon the mothers, whom nature has vested with the inspiration—to rear sons and daughters of staunch principles, uprightness of character and purity of thought. There may be leaders, but real advancement comes through a change in the hearts and minds of individual citizens—through the establishment of just principles, of high ideals, and the recognition of moral obligations.

When a mother looks into the depths of the eyes of her babe it seems like looking straight into heaven. How can she entertain any other than high ideals when God speaks to her through baby's eyes?

Food Too Strong.

Mrs. A. R.: Your husband is quite right in thinking that good cow's milk properly modified is excellent food for a young child which must be artificially fed. You say that the stools of your three-weeks-old baby are exceedingly hard and dry and wonder if the use of gruel in place of water would not benefit her in the preparation of her food.

A young baby cannot digest starch, consequently gruels and cereal waters are not given until after the end of the second month. The trouble is that you are giving her food too strong by using two-thirds milk and one-third water.

In order to help the condition of constipation, try a top milk formula. Set a quart bottle of pure milk in a cool place for three or four hours. Skim off six ounces of the top. Add to this twenty-four ounces of boiled water. While this water is still warm dissolve in it a pinch of soda and six teaspoonsful of sugar of milk. If you use granulated sugar, only take half as much. Stir these ingredients until blended and give three ounces at a feeding, every two hours during the day and twice during the night. The second month strengthen the formula by using the same amount of top milk, boiled water, and sugar and by adding three more ounces of the milk from the quart bottle after you have gently stirred the contents with a spoon. A pinch of salt will also add to the palatability. Give three and a half to four and half ounces at a meal and lengthen the feeding times to two and a half hours apart.

Busy Work for Little Fingers

"Mother, I don't know what to do." How often mothers hear this complaint from little children. They do want to be busy. Here are some ideas for little hands and little minds. Let the child plan for next Christmas. Get an empty box for her to put the little gifts in after they are finished.

Scrap Books.

Get cheap cambric and make into books. Then have the little one cut pictures from papers and magazines, and paste in the book. Children are very much interested in this work and the books when finished give them many a delightful hour.

"Perhaps some other mothers would be glad to know of some simple gifts for small children to make for Christmas and other occasions. My little six-year-old and four-year-old girls are enjoying so much making some cross-stitched gingham holders for grandmother and the aunts. I bought pink and blue checked ginghams, in the check that is about three-sixteenths of an inch square, and they cross-stitch on the deep blue or pink checks with white embroidery cotton. We are making just a border of the cross-stitch and it is easier for the little people to do it before the holder is made, for then they can see where to put their needles in on the wrong side. This is not too fine work so that there is any danger for young eyes, and it certainly is proving fascinating for my girlies. They enjoy keeping it so secret, and planning it for a surprise, and I believe they will not tire of it until they have made several. I intend to try cross-stitching initials on wash-cloths after we finish these, and those will be useful Christmas remembrances, too."

"The children and I made a curtain for their room, by cutting animals out of blue gingham, and sewing them on unbleached muslin. I make the patterns out of pasteboard, the children lay them on the cloth, trace all around them and cut them out. Ed-



"The Coming of Spring, A Young Man's Fancy and—a Diamond Engagement Ring"

YOU CAN BUY A DINGWALL DIAMOND RING WITH ABSOLUTE CONFIDENCE IN ITS FINE QUALITY.

Our fullest guarantee as to its fineness of color,—a pure white,—freedom from flaws, and perfect cutting goes with each ring we sell, and backing the guarantee is our reputation for straightforward merchandising gained in 33 years' business in Winnipeg and the West.

The rings illustrated are our special \$75.00 line in 3 different style settings; others from \$10.00 up are fully shown in our catalogue.

SEND FOR A COPY OF OUR ILLUSTRATED CATALOGUE NOW. IT WILL BE SENT FREE-OF-CHARGE.

D. R. DINGWALL

JEWELLERS AND LIMITED WINNIPEG MANITOBA
DIAMOND MERCHANTS



Lady V
Orderly
Lady V
Orderly

er children are able to represent the eyes of the duck with a stitch and make the bunnies' tails look as though they really had hair on them. Young children cannot turn the edges under when they sew the figures on themselves but it really does not ravel much."

"I bought half a yard each of light colors of five-cent cambric, making a cost of twenty cents. These I cut into pieces five inches square and into strips five inches long by one-half inch wide. I slit the squares like the kindergarten weaving the mats, and the girls of 4 and 6 years had great fun weaving the mats. They were basted on stiff paper to keep them smooth, and as each mat was woven I stitched all around it and then tore away the paper. When all were finished I stitched them together. When lined, it made a doll's quilt that the children have enjoyed for over a year, while I enjoy thinking of the many rainy days the weaving of it kept them busy and happy."

"Tell your little girl that you and her father work for what you have. Ask her if she would not like to work for a doll. Tell her you will give her one, if she will do a certain task for a set time. Then buy an undressed doll, without her knowing it. When she is not present, cut out patterns for its clothes. The clothing should be such as a new-born babe ought to have. Be sure to cut corresponding necks in the patterns, so they may be as easily joined together as the patterns one buys. Perhaps it is best not to use too durable material for the clothes. If you have nothing else, take some old garment and cut it in as large pieces as possible, and wash, starch and iron: strong material lasts too long. I once gave my niece several calico dresses for her doll, and now she is too big for dolls, and still has those dresses. She told me once, that she never got around to make any doll-clothes, herself, because the ones I gave her never wore out."

"When the patterns and cloth are ready ask the child if she would not like to make clothing for her doll, as you did for her, before she was born. Do not let her know that you have the doll, as that will spoil the fun and mystery. If she has had no experience in sewing, have her hem wash-cloths and towels, then allow her to cut and make the little bands and diapers. Then try simple underwear. Tell her how to lay the goods so she will cut them properly, and do be sure to show her how to sew the sleeves into the armholes correctly. I once saw a woman sew a sleeve into a dress half a dozen times and always wrong. If she had been taught how when little, it would save her time and nerves now. The finished garments should be laid away in a box with some tiny safety-pins and other necessary articles. Stockings and shirts can be made out of old ones. When the child has earned her doll, bring it to her wrapped in a blanket that she may have the pleasure of bathing and dressing it for the first time."

"Oh, I can just see her motherly little hands lovingly attending to her baby!"

"If she does not know how to put on the band, shirt and diaper and how to pin the stockings on the latter, so they could not come off a real baby. Then perhaps sometime you can trust her to dress your baby even if you are too busy or too sick to watch her. As the clothing wears out she may make others for an older baby."

"If this plan is properly carried out your little girl will learn how to cut, baste, fit, gather, hem, make French seams, buttonholes, plaquettes, sew in sleeves, sew on fasteners, hooks and buttons. It will not be long till she can cut and make simple dresses and she will learn something about the care of babies which will develop the mother-love in her heart."

"My boy of nearly seven and another of four years have helped me to tear carpet rags this summer and clip rags for rags, and they have also made balls and bean bags for themselves. I make sewing cards for them. One can get a set of stencils for ten cents and draw the outline, then perforate with a large pin. A half dozen spools of silk-tenet, assorted colors, will last for months. They like to sew leaves and flowers, etc. in the natural colors. The neighbor children who come, help in much of this work and play. The sewing cards can be made interesting if they are a part of the various holiday preparations. Let it be a rabbit or a lily for Easter, a turkey or pumpkin for Thanksgiving, a cat or caldon or apple for Halloween, a Christmas tree or stocking or camel or star for Christmas. I tell them stories about the pictures as they work. It all takes time, of course, but everything in life worth while takes time and effort. I do all of my work and sewing and do a little reading and studying all the time. I take the children to Sunday school but do not have time for any society or club work. I am always busy, working or studying or playing with the children."

"Nothing delights small girls more than sewing if they are really making something. My own, five and seven years of age, are making bibs for baby who is one and one-half years and just learning to feed himself. The bibs are made from Indian Head muslin at twelve and one-half cents per yard. One yard cut into pieces, 12x18 inches, will make six bibs. A half circle is cut from one end for the neck. A hem is then basted all around and the child allowed to hem it. Mine do it on the machine. A simple picture in bold outline is transformed to the bibs by means of carbon paper. The children outline the design with coarse red floss. The pictures we have used are ones that please a baby. For instance, a rooster on one and a pig on another, brought forth "Cook-oo!" and grunts from baby, much to the delight of the little workers. Pieces of tape for tying finish the bibs."

"If there is no small sister or brother to be provided for, some neighbor child

will be just as joyfully sewed for and some neighbor mother will find the bibs very useful."

"We always save the wish-bone when we have chicken for dinner, and the children and I make 'Merry Thoughts' for pen-wipers, from them. With common red sealing-wax, we fashion a head and feet on the bone, using tiny white beads for eyes. These stick easily if put in while the wax is warm. The children cut circles from cloth for skirt and petticoats, using a cup to mark around for a perfect circle. Then they notch the edges carefully to look like embroidery. We cut small holes in the centre of the cloth, and slip them over the heads of our 'Merry Thoughts.' We made several for Christmas last year, and they were useful gifts, besides having some of the children's own work on them. The six-year-old girlie printed this verse for each one:

"Once I was a wish-bone, and grew inside a hen; Now I am a merry thought, made to wipe a pen."

"I send these suggestions in grateful appreciation of your department."—Mrs. E. A. W.

TEACHING CHILDREN THE VALUE OF MONEY

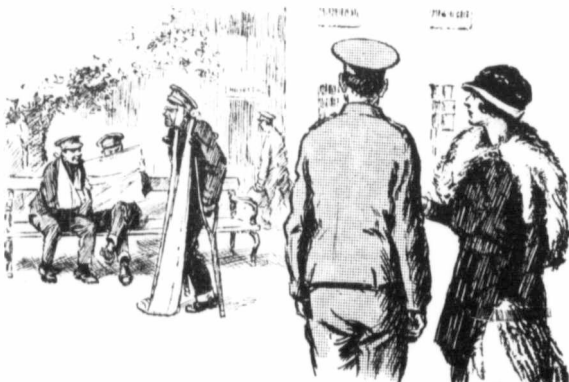
By Nancy D. Dunlea.

A mother who wished to teach her children not only the value of money, but how to spend it wisely, gave each child a quarter; both children were required to think over what twenty-five cents would buy and then make a list. The girl made the first list and the boy, the second.

List No. 1—1, Hair ribbon; 2, 5-in. doll, 10c; return ball, 10c; tissue paper, 5c; 3, handkerchief; 4, set of paper dolls with outfit for making dresses; 5, paint box and book; 6, lead pencil; 7, story book; 8, embroidery outfit; 9, fancy note paper; 10, kaleidoscope.

List No. 2—1, Tennis ball; 2, baseball; 3, Guinea pig; 4, pair of wheels for a coaster; 5, pennant; 6, rabbit; 7, foreign stamps for collection; 8, seeds for a garden; 9, a piece of wood to make things out of; 10, kaleidoscope.

"A fellow expects anything of his mother. If there's any one place on God's earth where a male creature lets up on the corners of the mask, it's with his mother. And he expects her to love him and work for him and protect him and believe in him, even if the mask is entirely lifted and she sees the horns. What is more, she does it."



Lady Visitor—"That's a bad case—what are you going to do with him?"

Orderly—"Oh, 'e's goin' back again to the front."

Lady Visitor—"Good heavens—what for?"

Orderly—"E thinks 'e knows who done it."—(London Opinion)

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We have recently published one or two ideas of small, inexpensive and artistic bungalows or cottages for the farm home. Here are details of something a little more pretentious but at the same time perfectly in keeping with the very least in home comfort that the farmer's wife and his young folks are entitled to. We have answered again and again the question "Why may we not have as comfortable, convenient and as completely equipped a home on the prairie as we are accustomed to visit and to live in the city?"

The answer is that there is no reason in the world why the farm home should not be the very choicest that science and art and modern thought can make it. The very fact of its comparative isolation and the reflection that its inmates cannot run out and take the street car to the theatre or picture show when they like are final reasons why the farm home should be more attractive, if possible, than the average city residence. If it is not self-contained with respect to its comforts, convenience and beautification, the family will suffer and suffer unnecessarily.

The drawings explain themselves, and so far as the disposition of the rooms, etc., are concerned, it is hardly necessary to say anything. We should just like to add a few words with regard to the heating and ventilation system which after all are perhaps the most vital points to be considered in home designing and construction. This particular (eight-roomed) plan is fitted with a steam heating system, but whether it is to be steam, hot water, or hot air the owner will decide according to his preference and he will be guided no doubt by local conditions.

But as heating has everything to do with creature comforts in our long Canadian winters, the matter of initial cost will not influence the wise man whose single purpose is to do the right thing by his family.

Until a few years ago very little was done in the use of steam or hot water for heating farm homes, the reason being that the men who could install them were as scarce as tulips in midwinter.

A Real City Home for the Country

(Drawings from plans of 8-roomed home by courtesy of Clare Bros. Western)

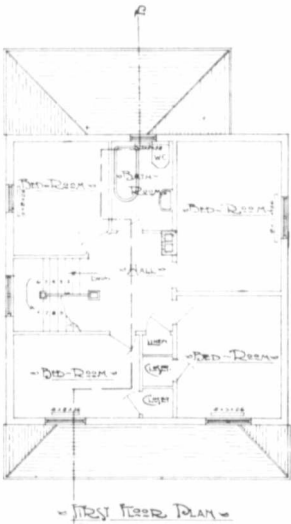
The writer (who has had experience both of country and city home life) leans towards the hot air system, possibly because he understands it and because it seems to occasion less trouble from freezing and irregularities of tem-

THE STRIKE OF MARY SMITH
Continued from page 50B.
dollars now, for things to run the place, that you got along without, alright.
John—Yes, but I needed more machinery.



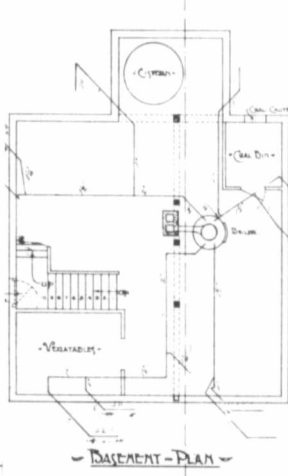
perature. As yet, its simplicity appeals very strongly to the country resident and the fact that most farmers are not out of range of a good fuel supply seems to make it the general favorite.

But it is merely a matter in which a little education from a man who knows his business will put any country resident up to the last detail either in steam or hot water heating. This subject of heating (which also has everything to do with thorough ventilation), we will return to in a later issue. It is a big subject and our space is limited at the moment of writing. We shall be glad to hear from any interested reader as to any feature in this disposition of a farm home. We believe we can obtain any information arising out of it; in any case we shall be happy to respond to any inquirer or critic.



And the science of steam and hot water heating for domestic municipal purposes was very little understood. There were even very few country tinsmiths who knew their business and could satisfactorily carry out the furnace piping equipment. The old stove or the open hearth was the one solace for the householder as he came in to thaw out or for the children to swarm around while they wrestled with their educational problems.

Now this is all changed, and to-day it costs no more or little more to install the most luxurious and up-to-date system than it would to fix up a poor outfit on the old time system. And it goes without saying that a good system badly installed only means subsequent trouble and recurring expense.



Mary—Yes, and I need more things in the house.
John—I wish you wouldn't be so unreasonable.
Mary—Won't you take me with you?
John—No, I haven't time to-day.
Mary—Will you give me some money?
John—I can't spare it this year. Perhaps if we have a good crop next year we can get some things for the house.
(John went out and hitched up a team to a wagon loaded with wheat, and drove off without saying anything more.)
Mary watched him until she saw that he was not going to come back to the house. As soon as he was out of sight she ran out, and called the hired man, and told him to hitch up another team to another wagon and put on a load of wheat. The hired man protested, that the wheat was not cleaned, but she over-

ruled his objections, and soon she was on the road to town after her husband, with her load of wheat. Her husband was standing in front of the hotel when she drove in. He was so astonished he let her pass without saying anything, but he followed her down to the elevator, and heard her sell the wheat. When she tied the horses up to a post, and took the wheat checks toward the store, John joined her.

John—What are you going to do with those checks?
Mary—Put them on the collection plate, of course.

John—That is my wheat.
Mary—Is it? How strange! I thought it was ours.

John—I need that money.
Mary—So do I.

John—I need it more than you do.
Mary (walks in and gets the checks cashed, John standing beside her)—I will be some time. Do not wait for me if you are in a hurry.

John—What are you going to do with that money?
Mary—You may come and see if you like.

John—You are not going to spend it all.
Mary—I will not make the least difference to you, for you won't see any of it anyway.

John—I will not have this. That is my wheat.
Mary (walks on until they are on the street, then she stopped and said in a low tone)—Now, John, that is enough. I have witnesses to the fact that you promised to endow me with all your worldly goods when you married me, and I am only asking for a half. If you make any fuss now or any other time about what I am doing, I will sue you, and call them witnesses to prove what you said.

John—That promise is no good. No-body ever believes in that.
Mary—No, I guess it ain't; but I'll make the courts decide that it ain't any good. Then, if it ain't any good, the rest of the ceremony ain't any good, and I ain't your wife.

John—Don't talk nonsense.
Mary—I ain't. I am talking sense; the first time I have ever talked real sense to you about this money question.

If I am your wife it is my money as much as yours. If I am on wages, I'll go some place else, for I can make a living a mighty sight easier than working on a homestead.

John—What do you want?
Mary—I want that you and I pay all our debts out of the money we get, and then we divide what is left between us.

John—But I need more than you do, for machinery and things.
Mary—If I think you do, I'll maybe lend it to you.

John—I don't think you should have—
Mary (interrupting)—It is not what you think just now. If it is not ready to do as I say, I'll not go back.

John—You don't mean it?
Mary—I do.

John (walks away a few steps).
All right.

Mary—Thank you.
John (turns back)—Mary, let us go to the hotel and have supper.

Mary—Sure; do you know I have never been there for a meal since the day we came out here.

John (later over the table in the hotel)—Mary, I am sorry. It has been such a hard struggle. I guess it has made me grasping. I didn't mean—
Mary (interrupting)—Don't say any more, dear. They say the want of money sometimes drives love out of the window. It was the arrival of money that did it with us.

John (blushing, but keeping his eyes on her face)—It hasn't gone, has it, Mary?
Mary (reaching under the table where his hand means hers)—It has all come back.

John—Was it going?
Mary (looking serious)—It had a dreadful fright; but, say dear, isn't this like our honeymoon?

John—Mary, will you ride home with me and tie your team behind?
Mary—No, John; I'll go with you, beside you, dear. That is all I want to do.



The "H

The 100th anniversary of January months' hand-pick engaged that are The bar 100th anniversary of everything; the comic of the men who been accepted at it but a rigidly efficiency more upon men than c As a n that some is obvious talion. In one feature than another spirit which make very largely development of care in charge of the strong a is along the ling. There athletes in wrestling are the 100th anniversary in sporting even of the office of champion of 1905 B, this 100th anniversary receive in the ranks.



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"MEN—BE BRITISH!"

The "Hundredth" Overseas Battalion Calls You

The 100th Battalion Winnipeg Grenadiers commenced active recruiting on January 1st this year, and within three months has secured some 800 men of a hand-picked type who are now actively engaged in training under conditions that are in every way ideally favorable. The barrack accommodation of the 100th could not be improved upon, and everything possible is done to enhance the comfort and increase the efficiency of the men in training. Had all the men who have offered for enlistment been accepted, the battalion would have been at full strength a long time ago but a rigid standard has been set and closely adhered to, as it is felt that the efficiency of the battalion depends far more upon securing the right type of men than of speedy enlistment.

As a unit grows it is always found that some specially outstanding feature is obvious in the make up of the battalion. In the 100th if there is any one feature of this kind more apparent than another it is the sportsmanlike spirit which prevails amongst the men, very largely occasioned by the encouragement given by the authorities to the development of clean sport. By a process of careful selection, the committee in charge of recreation has found that the strong athletic element in the 100th is along the lines of boxing and wrestling. There are, of course, all kinds of athletes in the ranks, but boxing and wrestling are the two branches in which the 100th is expecting to achieve supremacy in the various inter-battalion sporting events. With Lieut. Tait, one of the officers, amateur lightweight champion of the south of Scotland, 1905-8, this line of sport will undoubtedly receive a great deal of attention. In the ranks are found such well-known



Who Said We Were Short of "Equipment"?

Gallant attempt by a member of the F.E.F. to do justice to all the comforts sent him by his girl friends.

Exceptional Factory Bargain Offer

THIS APRON SET OF FIVE PIECES

1.00

An EATON Factory Product

Which Every Woman Can Use

The demand for this Set will be Heavy.

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Order Early to Avoid Disappointment



A Neat Model that is fashioned in a Durable Print. 3

A Prettily Cut All-Over Apron, for use in Cooking, Housework, etc. 2

Bungalow Apron of Servicable Gingham, slipped on or off in a second. 1

Heavy Quality Apron of White Cotton, Strongly and Durably made. 4



Dust Cap, to be worn with any of the Aprons, giving complete protection from dust. 5

Add to this price postage charges: Man. 14c; Sask. 16c; Alta. 20c; B.C. 24c.

Order This Set by Order No. 19C71

This Apron Set, consisting of four aprons and one dust cap, will be sold only as a set at this extremely low price of \$1.00. It is offered much below the regular price to convince those getting it of the genuine merit and exceptional value of EATON-MADE goods.

Made in EATON sanitary work-shops, this Apron Set is a product of the best possible in Workmanship. Made from real good quality durable materials, cut in liberal proportions and not skimmed, this Set will be found both attractive and practical while in use.

POSTAGE CHARGES EXTRA AS GIVEN ABOVE

HOW MANY SETS FOR YOU?

THE T. EATON CO LIMITED. WINNIPEG CANADA

boxers as Joe Thorburn, whose record is known to every boxing man, and Percy Buzza, who holds the amateur championship of Western Canada. The two amateurs named are to compete in the forthcoming Canadian boxing championship contest to be held in Toronto at the end of April, when it is expected they will both give a good account of themselves.

The 100th battalion has been fortunate in enlisting the well-known trainer, Harry Sullivan, under whose capable guidance the numerous aspirants to athletic honors will undoubtedly make the best of progress.

Hard work and hard play is the rule in the 100th battalion and the recreation committee are not unmindful of the lighter forms of recreation. Concerts are arranged weekly in the commodious recreation room and these are always crowded to capacity. The regimental

band is usually in attendance and all manner of interesting items are given at these weekly affairs. The 100th has made such a name for itself in this direction that the services of its musical members and of the band are constantly requisitioned for outside affairs.

A large number of recruits are coming in from the country, the majority of these being induced to do so by friends who are already in the battalion. Any man in either city or country who would like further information concerning the battalion, may have it upon request, addressed to Headquarters, 92 Arthur Street, Winnipeg.

A BIT TIRED

A somewhat weather-beaten tramp, being asked what was the matter with his coat, replied, "Insomnia; It hasn't had a nap in ten years."—Christian Register.

MUST SELL THESE FARM LANDS

I have TWO exceptional opportunities for anyone who seeks a really great snap (even in war times) in a Manitoba farm—TWO in Saskatchewan and ONE in Alberta. Really extraordinary terms for cash or will accept part cash and most liberal terms for balance.

Richest land in West, clean property, good buildings—all at **KNOCK DOWN PRICES** F.W., c/o. Box 3164, Winnipeg

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THE PIANO IN THE HOME

The day is past when the piano is classed as a luxury to be possessed by the favored few. Now-a-days every one wants a piano, or perhaps the choice is an organ, and the home is not considered complete without one of these pleasure-giving instruments. Rare is the home in which there is no one who can play the piano. Even where this is the case, there is always the player-piano, which any one can play even if they do not know a note of music.

In many cases the matter of price is the big objection. A long time seems necessary to save up the required amount. Even if only part cash is paid and the balance in instalments, the amount is too large to handle comfortably and the monthly payments seem hard to meet. This is going on the supposition that the purchaser is buying a new piano or organ. This need not be the case.

A big firm like Ye Olde Firme of Heintzman & Co. Ltd., 1930 Yonge St., Toronto, always have on hand large numbers of instruments of other makes. These come to them as part payment on sales of their own famous pianos and player-pianos. As soon as they are received, they are sent to the factory to be thoroughly over-hauled and renewed. In some cases this means scraping and revarnishing, and in some cases even putting in complete new actions. In every case they are gone over so completely that when ready for sale they are practically as good as new. Now these instruments, though in splendid condition, are sold at a mere fraction of their original price and on very easy terms. The idea is to sell them as quickly as possible, in order that they be not allowed to accumulate and take up valuable floor space needed for the firm's new pianos.

In buying one of these instruments by mail, the purchaser takes no chances. Every instrument is guaranteed and big lists are sent from which to make a choice. All that is necessary is a post-card or letter to the Mail Order Department asking for lists of the particular kind of instrument desired — organ, square piano, upright piano, or player-piano. The low prices and terms quoted on these instruments makes it possible for anyone to own one.



Home Economics

H. E. S. REST ROOMS

Paper Read by Mrs. A. McNevin at the H.E.S. Convention in Winnipeg, Feb. 15th, 1916.

Blessings on the one who suggested the name with all its delightful associations. Not that I would have you think of it as a place where we do nothing for ever and ever. Far from it. Our bodies may rest there but the rest we enjoy is one where our thoughts move in new channels and we leave our ordinary work-a-day world for a time.

Women are beginning to play a greater part in the public life of the province and we need to meet one another often. The newspaper, the magazine, the telephone bring us closer together, but we must meet face to face if we are to learn all that is possible from each other. Men have many informal meeting places, the barber shop, the corner grocery, the hotel rotunda, the social club. Women need a place where they can meet one another and all be at home.

In the country village the Rest Room is the only available place and it possesses advantages over any of the ordinary meeting places of the men. The voluntarily supported Rest Room is our own. It reflects our tastes and the personality, so to speak, of the women of the district. It is not like the stuffy angular hotel parlor. It is a combination of our ideas of what a home-like room should be. We love it because we have made little sacrifices for it. Its management and support are the beginning of our training in co-operative business and co-operation is the key-note of the rural community life of the future. Were the keeping up of a comfortable room, well heated and lighted, the main thing to be desired a tax on the whole municipality might easily accomplish the purpose. But just as the search after truth is of as great value as truth attained so work to be done in establishing a voluntary Rest Room is an end in itself.

A Community centre for the women of each rural district, one open to all parties and creeds we must have at earliest possible moment. We women have need of lessons in the art of obtaining some item of useful knowledge from every sister woman whom we meet. A common home such as the Rest Room will in the larger centres perhaps in time be superseded by clubs, where all sorts and conditions of women may meet, but the Rest Room is the rural club of the present.

Here we may read all the different magazines which are read in the district, novels which we have found worth reading we may pass on to our neighbors, tried out recipes are kept on file with the names of the notable local housewives who have made them a success.

Doubtless the government, local or general, might furnish public libraries, and when intelligent women are elected to parliament we'll have a reading room in connection with each post office. In the meantime the Rest Room fills the gap. The Rest Room library is better advertised than Carnegie, and we value things very largely in proportion to what they cost us.

It is sometimes said of the insurance furnished by a friendly society that it makes every man his own banker. The members pay the money only as the claims come in. So it is with a voluntarily supported Rest Room. The patrons give what they can most readily spare. What opportunities we have to show a fine loaf, a rich cake, or some of the pies "mother didn't make." If a member has literary taste she can bring a magazine with o.k. on the best articles. If one is an artist she may select and present a picture, or, better still, form a committee and direct its taste in arranging suitable color schemes, etc.

The Rest Room may have space enough around for a flower garden. Here is a chance for our flower loving sisters to do missionary work in encouraging the beautifying the unsightly places such as vacant lots. The Rest Room plot may be made a model. Even if we have little space for a flower garden about our common home flower culture may be encouraged by the presentation of house plants. The care of these will fill the spare minutes when the matron is not busy.

Whenever demonstrations in cooking, sewing or millinery are given a Rest Room is indispensable. Where else would the chatter of the eternal feminine be thought a delight? Where else could every woman bring the loveliest baby in the world and be sure of a cordial welcome? Perhaps some day we shall be advanced enough to give awkward young matrons extra practice in minding a band of cherubs furnished by their more experienced sisters.

When better equipped and more liberally supported the Rest Room and its surroundings may yet be the thin edge of the wedge for the woman's demonstration farm. Here the labor-saving devices may be tried out. Here steam and electric power must soon become our servants as they are the servants of the men and our sisters in the city. Here seed testing and flower pollination may be demonstrated. But I must not look too far into the future and perhaps I have said enough to show that the Rest Room in some form has come to stay, and to emphasize the fact that the work which we do, not from a sense of duty but from love of service, brings its own reward.

VALLEY RIVER

The January meeting was omitted on account of the stormy weather. In February we met at the home of Mrs. Weir. The husband of one of our members very kindly drove a party of the ladies up from the south end of the district, which added greatly to the success of our meeting. Just here, I would like to say how highly favored we are in having the sympathy and co-operation of our men-folk. On ordinary occasions, many of them are ready to turn out, and take us to the meeting, and when we are making any special effort, they will always come forward and do all in their power to make the undertaking a success.

There was some little difficulty in selecting delegates for the annual convention of the home economics societies, at the Manitoba Agricultural College, owing to the inability of those, who were eligible, to attend. It was sub-

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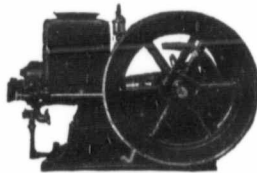
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- 14 in Shares, each, \$2.00
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- 18 in Shares, each, \$2.50
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Give number and letters stamped on share—and name of plow—we do the rest.



\$1.80

Channel Steel Harrows

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



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From \$5.50 up

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Guaranteed Quality, 5c

WE HANDLE—Conifwood Saw Frames, \$18.00; Power Straw Cutters—\$35.00; Wheel Harrows, Pulpers, Pump Jacks, \$5.50 and \$7.50; Dry Cells, 35c each.

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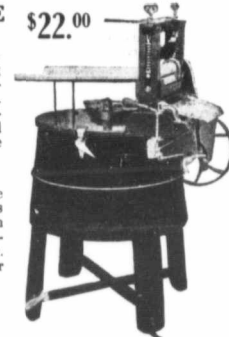


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mentally agreed that we would not send representatives this year.

The approaching referendum, concerning prohibition, and the women's vote, came under discussion in an informal way, but nothing definite transpired. The usual half hour's social chant, and cup of tea were much enjoyed, before dispersing to our several homes.

We accepted Mrs. Spencer's kind invitation to meet at her house on March 1. A pleasant afternoon was spent, although the meeting was not largely attended.

The subject has been discussed for some time and steps have been taken to establish a rural delivery in this neighborhood, but it has not yet become an accomplished fact. It was, therefore, proposed by one of our members, that the matter should receive further investigation. We are hoping to have a new school in this district before very long, so we thought it advisable to pass a resolution, asking that a room be furnished, suitable for meetings, and equipped with a cook-stove for demonstration purposes. In this way our facilities

would be increased, and we should be in a better position to benefit by the advantages derived from the M.A.C. through the extension department. When the business of the afternoon had been concluded, Mrs. Balmer favored us with a selection on the pianoforte, which is all enjoyed.

Our meeting terminated in the usual way, with a lunch, kindly provided by our hostess.

NEEPAWA

The Neepawa Home Economic Society. Dear Mrs. Hamilton:—It is some time since you have heard anything from us though we have not been idle. We began the year particularly well, as the Agricultural College sent us teachers for a month's course. One week each of nursing, milinery, cooking and dressmaking. And although it came at the very coldest and stormiest time, students were so interested that they drove in from the country every day. We had over seventy all the time, and once more than a hundred attending the lectures. We also got a great many more members for our society this year we have arranged a very nice programme. One of our numbers being a debate: resolved "That the business girl proves the best home-maker." Other items being: "Pickling and Preserving," "Home Gardening," "Curing of Meats." We have something arranged for each month and find it a good plan to have our programme made out for the year. I hope to send you in some good reports this year. Wishing you department every success. Yours truly,

Annie Simpson,
Sec. Treas. Neepawa H.E.S.

OAK LAKE

Regular monthly meeting of the Home Economic Society was held on Saturday, Jan. 15th.

In the absence of the president the vice-president, Mrs. Borthwick, presided. Minutes read and adopted. Letter was read from Agricultural College reminding us of the convention and urging us to

send delegates. It was suggested that we ask our late president, Mrs. Burns, who was already in Winnipeg to act as our delegate, carried.

Re Home Nursing Course by Nurse Clarke. The secretary was instructed to write to Mrs. Dayton, Virden, to ascertain how they were going to defray expenses in connection with the same course which they were having the week before.

A splendid address was given by the Rev. W. A. McLean, of Winnipeg. He spoke on the possibility of women's work generally, and said that we should strive for higher ideals and try to live up to them. The franchise would bring us greater responsibilities and we should, therefore, be better prepared, to fill our place in life. Solo by Mrs. Newlove and duet by the Misses Hogg and Black were much appreciated. After the sing-

ing of the National Anthem tea was served by Mesdames Gordon and Cochrane.

Executive meeting, January 26th. The following resolutions were passed:—

That a collection be taken up to defray the expenses during the Home Nursing Course.

That the hours for the daily lectures be: afternoons, from 3 to 5; evenings, from 7:30 to 9:30.

That 100 membership tickets be issued at once.

That the rent of the Best room for any outsiders be \$1.50 per night, unless fuel and light were require in which case it would be \$2.00.

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Regular monthly meeting of March held on Saturday 18th. Resolution passed: Letter of appreciation of Nurse Clarke's lectures on Home Nursery to be sent the College; note of regret at departure from the society to Mrs. Cooke; that flowers be sent Mrs. E. M. Dicken, who was ill in the hospital. Mrs. Loyons brought out some very beautiful thoughts in a paper entitled: "Little Everyday Kindnesses." Tea was served at the close of the meeting by Mesdames Williams and Smith.

EMERSON

The Emerson Home Economic Society have been going on steadily with regular meetings and good attendance. Mrs. McRae and Mrs. Wallace are the delegates to attend convention and we are arranging for dressmaking and millinery demonstrations in March. A large class are expected to take advantage of this offer of free instruction.

As there is no separate Red Cross Society in our town a great deal of our interest and energy has been expended in patriotic work. Besides the knitting and sewing accomplished, a large amount of flour was secured from the farmers, through the soliciting of the country members and this was forwarded to the Returned Soldiers' Association. We are preparing for a Patriotic Auction Sale on March 4th. This promises to be a success. We are also working on the garments for ten hospital patients and these will soon be ready to forward. Our members (and the women of the town outside of our members) have responded heartily and generously to the call to do sewing and knitting and have shown themselves ready and willing and eager to do what they can for their country.

VANGUARD

The Prairie Rose Homemakers met at the home of Mrs. Leonard Elise on Dec. 30th. On account of severe cold the attendance was small so the afternoon was devoted to making patches for a Red Cross quilt. A sewing meeting held a week later finished the patches and it was decided to put the quilt together at the January meeting, which was to be held at Mrs. C. D. Richmond's. The day was so stormy that the meeting proved a failure. On February 16th ten ladies met at the home of Mrs. R. B. McBain ready for a big afternoon's work, but Mrs. McBain had a very pleasant surprise in store for all. After refusing any one to work until lunch was served, a dainty repast was enjoyed by all and the hostess produced the quilt not only put together but tied and bound; the work of herself and daughter, Miss Mable McBain. This was very much appreciated by all and a delightful afternoon was spent. Patches for an autograph quilt were distributed, and plans made for a Red Cross social. Five new members were added to the number.

L. A. Fahy, Sec. Treas.

Several reports received too late for this issue will appear in May.—P.R.H.

ginbottom, Jas. McFarlane, Banister, R. L. Lang.

The regular monthly meeting of February was held on Saturday 19th. The president, Mrs. R. K. Smith, in the chair.

The meeting was opened as usual with prayer. Minutes read and adopted. Letter from Mrs. Burns stating that she would act as our delegate at the convention and also that she was willing to leave the disposal of \$53.45 which she had voted for the R. S. Fund until another decision was reached as to its disposition. In the meantime it was decided to turn it over to Oak Lake Patriotic Society to be held in reserve.

Letter from librarian read re shortage of funds for keeping the library open every Saturday. Decision that it be opened only on monthly meeting days until the weather changed.

The Rev. Mr. Sarkissian spoke splendidly on the various topics which had been discussed at the convention in Winnipeg. Viz.: (1) "Our Name Home Economic"; (2) "Privileges of the Franchise"; (3) "Medical Inspection"; (4) "Social Life as it Should Be"; (5) "Bilingualism"; and other topics.

National Anthem was followed by afternoon tea served by Mesdames J. L. Lang and Borthwick.



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Visitor: "Yes, I suppose it gets very cold this time of year."

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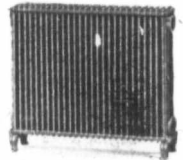
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IN A FAIRYLAND OF FLOWERS
Conclusion of Mrs. Dumbrell's Article
from March issue

Stocks

Is another annual which is a great favorite, and are very easy to raise. These too are raised in the hot bed, coming up within a few days after sowing. We transplant these in the open fully a foot apart, some varieties more than that. Stocks are very satisfactory plants to have, as we have them in bloom from the first of July until heavy frosts. The flowers are very sweet and have a wide range of colors, nearly every desirable color in a Stock. Try some this year.

Sweet Peas

This is a subject that I am very much interested in. But as the culture, varieties, supports and all the details would take a paper in itself, I will just touch on the most important points. Sweet Peas to do well should have the soil prepared the fall before. But as it very often happens with us it does not get done, so we have to depend on spring digging. The soil should be dug out about two feet and well rotted manure mixed with the soil. Sow the seeds and when well up thin out to have about four inches between each plant or vine. Provide support early for the vines to run on. Keep the blossoms well out, as having some go to seed weakens the vines and poor blossoms are the result. The more you cut them the more you have to cut. Here is a little item I took out of "Sweet Peas Up-To-Date" called Sweet Pea culture condensed, in twelve words. Trench deeply, manure liberally, plant thin, stake quickly, water freely, dispo promptly. Sweet Peas should be sown as soon as possible in the spring.

Now I find this paper already longer than I expected, but you will have noticed that several times I have referred to sowing in the hot bed. Our reason for doing so is, that using soft coal in the stove is not good for the seedlings. Also that they dry out so soon and very often damp off. We get much stronger and earlier plants by using the hot bed, which means early flowers which only last three months at the most in this country. I find that the culture of plants such as Pansys, Asters, Stocks, Verbenas, etc., are all alike. Plants that are tall growing such as Chrysanthemums, we put in the back ground as a protection and wind-break to the more tender plants. Give good soil and plenty of room so that you can get around them with a hoe. By a hoe, I do not mean a man's hoe with a wide blade, but a light hoe. There is one that I got from Rennie's last year which worked fine amongst the plants and was very light to handle, and being small you can get up quite close to the plant. But keep the hoe bright by using it and keep the soil well stirred up. A woman can attend to quite a large garden, if she takes her time and does not try and do it all at once. I should like to say be sure and use good reliable seeds even if they are dear, they are cheap in the end.

And don't be afraid to cut the flowers, especially Sweet Peas, the plants will be all the better for it, and how many people you can cheer by giving them a bunch. If you want to see faces brighten take a few bunches to such girls as you see behind the counters of the department stores. The poor creatures almost go wild over them. I find that it's not safe to put out plants in the open ground until the weather is settled and the ground warm, from the 24th of May until June the first, and some later than that, as we are in danger from late frosts.

I have also found it very handy to keep a record of the garden, such as when you started gardening and what seeds you sowed, how long they take to come up, their habits, and which are your favorites, and very often in that way you can save and settle disputes that sometimes come up. I also keep a record as to when the potatoes are first planted, when we get through, and all such stuff. You can compare one year's record with another and find many a handy thing; it only takes a few minutes in the evening, if you have your book hanging handy.

Selena Dumbrell.

GARDENING

The soil in flower gardening, as in all horticultural operations is of more importance than aspect or location, and whether it be a person of means or the working gardener let them be certain that the spot chosen is in such condition as will reward their labor's with success.

Soils are so varied that it is difficult to convey by description what the proper character should be. The best soil for all gardening purposes is a sandy loam, not less than ten inches deep. The subsoil usually determines the quality of the soil. If it is sandy or gravelly, then the top soil will almost invariably be sandy loam.

The question of fertilizers is an important one. If the soil is naturally a rich deep loam it is not necessary that any manure at all is used the first season, although in every case it would be an advantage, and is really essential if the soil is poor and light. To get the soil in the best condition for spring work, fall digging or plowing is the best, as the frost has had time to mellow the soil and it will not dry out so soon as spring digging. You can also get on the land much earlier by having the land prepared in the fall. The location of the garden when choice can be made should be toward the south and if sheltered by trees from the north-west many plants and shrubs can be safely grown that could not otherwise succeed without this shelter. Such a situation also permits operations to be begun earlier in spring making the season two or three weeks longer than if the aspect had been to the north or north-west. The garden should be well drained and have full exposure to the sun.

In planning for your garden a good plan is to draw a plan of the piece of ground and figure first where you want your vegetables, flowers, and shrubs. In this way you can save yourself many

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steps and know just what you are going to do. It's a great help. Put such vegetables as celery, cauliflower, and such like heavy feeders in the richest part of the garden, nearly every plant and and vegetable needs rich soil, nasturtiums being an exception.

Put the hardy, tall growing shrubs and perennials at the back of the lot, the low growing ones to the front. Leave plenty of room for them to grow, and for you to work amongst them. They need a great deal of care and will well reward anyone who is not afraid to stir up the soil around them. Unless one is prepared to get a little sun scorch the plants will not give the returns one would wish. I know of nothing that will respond to a little care and nursing more

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It was Coming to Her
Visitor: "And what did you do when the shell struck you?"
Bored Tommy: "Sent mother a post card to have my bed aired."

than flowers. Stir up the soil quite frequently, especially a short time after a shower to conserve the moisture.

FOR TEACHER AND PARENT TIDE IN THE AFFAIRS OF BOY A Superintendent's Wife

There is a tide in the affairs of men Which, taken at the flood leads on to fortune.

Omitted, all that portion of their lives is spent in shallows and in miseries.

There is a tide in the affairs of boys as well as of men. The kind of teacher a boy of a rural school has in the seventh and eighth grades determines, in many instances, whether he will go through high school and college and live a rich, broad, and useful life, or whether he will drop out of school, give up all further attempts at education, and spend his days in ignorance and obscurity. Many boys, and girls, too, have been driven out of school by the harsh criticism and biting sarcasm of the teacher, or have dropped out because she was simply lifeless and indifferent; while others have been led through sympathy and tact to unfold the best that is in them.

In a rural district ten miles from the nearest high school, a dainty and refined young girl taught school last year. Her eighth grade class consisted of a boy of about fourteen, healthy, well-formed, with broad shoulders and a good head; but he lived on a farm and his large hands and feet, especially his rich, deep voice, were built for outdoors. And here he was, alone in a class, reciting in his awkward, self-conscious way to this slender, low-voiced girl. How easy it would have been for her to drive him out of school! But she was so sympathetic and tactful that she not only ignored his awkward self-consciousness, but she succeeded in making him forget it, at least partially. She held him in school and up to his work until the end of the year, when he passed the test for admission to the nearest high school. Now he is in a central school in a class with many others, where his large limbs and full voice are not specially in evidence. He is maintaining himself well and will probably get the inspiration to work his way through college.

One Saturday morning in October, some years ago, a big boy of seventeen rang our door-bell and inquired for the Superintendent of Schools. He was not at home, but the boy stated his message and told me about his plans. He had come seeking admission to the town schools (it was before the days of free transportation and tuition). As he descended the porch steps I wondered if he knew what was in store for him. He was nearly a full-grown man, deep-voiced and large-limbed and I knew he would be classified with children much

younger than himself, with a lady teacher, and I asked myself, "Has he the courage?" On Monday morning he was at school early and was put into an eighth grade. He found the work very hard, but he had pluck, and a strong, sympathetic teacher helped him all she could until he got a firm grip. Then they worked! He had not been well taught in his earlier years and they had that handicap to overcome, but they did it. At first the other pupils were amused and laughed at him, but he didn't want them punished. He said to the teacher "I don't wonder that they laugh at me. I only wonder that they don't laugh more. I'm big and clumsy and I don't dress like town boys, but I've come here for an education and I'm getting it, and as long as you don't laugh at me it's all right." His earnest effort and his rapid progress soon turned their innocent laughter into open admiration, and the later years were not so hard. Several times circumstances at home were such that he felt he must quit, but each time he overcame the obstacles; he worked his way through college and is now a member of the faculty of a western university.

In an obscure rural school teaches a man who will always be held in reverent memory by one who is owed to him as pupil years ago. The boy was poor and an orphan and he stammered. Like all children he was very sensitive; so the more he stammered the more embarrassed he became, and the more embarrassed he became the more he stammered. No one but those who have suffered similarly can know how he felt. But one happy day he went to school and in a new teacher found a friend. After an acquaintance of a week or two, the teacher said to him, "John, you've got a good, bright mind that you and I must educate and I don't want you to let your stammering stand in the way. You can overcome that stammering and I'm going to help you, so when I make you say things over and over again don't think I'm ridiculing you—I'm going to help you master it." The very fact that the teacher was sympathetically interested and trying to help, gave the boy confidence and some of the as-

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| Little Road Home, The. D, Eb, F, G. Canada Ever! F, Ab, Bb. L. Lemon | John Bull. D, Eb, F. Stephen Adams | Lead Kindly Light. Db, Eb, F. Wilfred Sanderson |
| Billy Boy. E, G minor. David Emmel | Canadiana Follow the Drum. A, Bb, C. J. Arlio Dix | Nearer My God to Thee. F, G, Ab. Lewis Carey |
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| In An Old-Fashioned Town. C, D, Eb, F, G. W. Sanderson | Trumpeter, The. F, G, A, C. J. Arlio Dix | Star of Bethlehem. Eb, F, G. (Xmas). Stephen Adams |
| Little Playmates. F, G, Ab. Ellen Turkfield | Up from Somerset. Bb, C, D, F. W. Sanderson | Light of the World. Eb, F, G. (Xmas). Stephen Adams |
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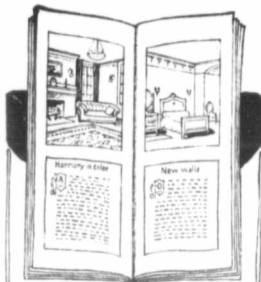
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insurance that is so necessary in cases such as this, and he made wonderful progress. The teacher had no special knowledge of the treatment for stammering, but he had sympathy. A few years later the man said, "I'm going to prepare you to take the teachers' examination and then I'll help you get a school." The young fellow was amazed, but he did his part, and the next year he secured a school. This enabled him to educate his younger sister and put his foot on the rung of the ladder which he has been climbing ever since.

In one of the New England States a young man selling merchandise in a country store spoke to a boy at the right moment, urging him to save up his pennies and go to college. At the end of one year the boy had three dollars. Next year he added five dollars more. It was a small beginning, but he was headed in the right direction, and he is now a college graduate, holding a position where he has constant opportunity to help other boys turn their faces toward larger development. The young storekeeper who advised him is now Governor of his State.

The seventh and eighth grades are critical years, especially in the rural schools. If the teaching is mechanical and lifeless, if the teacher is not interested in her work and in her pupils, if she fails to make learning and education attractive, her pupils will get no inspiration from her and no impetus to carry them over the gulf that lies between the eighth grade and high school. The step between them and a high school in some distant town is so great and so undefined that a little influence on one side or the other often decides the pupil's future, just as one stone or one small obstacle near the source of a stream may change its entire course.

The boy is awkward and sensitive and somewhat indifferent about going to school any longer; and as he is old enough to be of use at home his parents will the more readily consent to his leaving school, instead of thinking of his future. Here is the teacher's responsibility and opportunity. If she is sympathetic and tactful, she can ignore his big, awkward body and his gruff uncertain voice; she can even make him appreciate to some extent how generous nature has been to him in giving him this fine body which only needs training; she can make his thoughts trend college-ward by incidentally speaking of the larger development it affords, and especially can she stimulate his ambition through biography. When he learns that many of the great men of the past rose from obscurity greater than his, and gained help even from seeming handicaps, he will realize that after all it depends largely on himself. How many rural boys know that it is entirely possible for a boy to work his way through college and derive benefit from that experience? How many know about the Rhodes Scholarships? A Rhodes Scholarship is a long reach for a country boy, but it is by no means an impossible one. If he can be made to feel that the next higher step is the only one to be concerned about, that when he has taken the next step a way will open for the following one, education will not be such an impossible problem for him.

In the late seventies a boy was studying in a small academy, and meeting his expenses by a country store-keeping. He did his work and studied his lessons, and when a competitive examination for a college fellowship came along he took it. At the end of the term he went back home to work on the farm. He didn't sit down and wait—he took hold of the work available at that moment. One day, to his amazement, it was announced to him that he had won the college fellowship. At the end of his college course another scholarship enabled him to spend three years in a foreign university. He could not see the end from the beginning, but he took each higher step as the opportunity came, and to this country boy, Jacob G. Schurman, the Presidency of Cornell, which came to him in later years, was a far more unattainable goal than a Rhodes Scholarship, or a higher education by any other means, is to the eighth grade boy of to-day.

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See how You can Win a
High Class
AUTOMOBILE
On page 53

by rugged cliffs that it seems to the pas-
sengers as if the captain were heading
straight for the rocky ledges. They see
no opening ahead, and it is interesting to
hear them speculate as to the possible
route. But the boat steams calmly on
and presently we round a promontory
and lo! a way lies open before us. It
may be a narrow pass and rocky too,
that requires careful sailing; neverthe-
less it is a pass and it leads to an open
bay beyond.

Lives of successful men all prove to
boys that obscurity and poverty are not
impassable barriers; but these men are
so far removed from the actual everyday
life of the boys that their stories should
be supplemented with biographies of
men who more nearly touch the lives of
the boys or that of their teacher. If
she can say, "I know a man," etc., and
tell about the struggles and achieve-
ments of a man whom she really knows,
it brings the lesson much nearer home
and makes it more forceful.

Quotations from prose or poetry some-
times arouse the spirit and ambition in
a marvelous way, and should be memo-
rized in generous quantity. The pupils
are old enough to feel the spirit in
Stonewall Jackson's "I can do whatever
I will to do," and they can get Shake-
spear's meaning when he says, "It is
not in our stars, but in ourselves, that
we are underlings." Let them get the
thrill in Henley's:

I am the master of my fate,
I am the captain of my soul.
Or Walt Whitman's:
Henceforth I ask not Good Fortune—
I myself am Good Fortune.

These are a few of the ways of bring-
ing inspiration to pupils. Teaching arith-
metic is important, but arousing a
worthy ambition is more important.
Life is worth more than meat—it is also
worth more than arithmetic and geo-
graphy. Too often the lower claims at-
tention to the exclusion of the higher.
It seems wise and right to reverse the
process and determine that whatever else
is done or left undone, there shall always
be made the supreme effort to arouse the
boys and girls to make of their lives all
of which they are capable.

Recipes

Banana Custard
Cream one tablespoonful of butter
with three-quarters cupful of sugar;
then add the yolks of two eggs, two
mashed bananas, one heaping tablespoon-
ful of flour, and one cupful of cold water.
Put into a pie crust and bake. Beat up
the whites of the eggs, then beat in two
tablespoonfuls of sugar. Place this
meringue on the top of the pie and
brown lightly in the oven.

Peanut Cookies
Cream together one tablespoonful of
lard with three tablespoonfuls of peanut
butter and one and one-half cupfuls of
sugar, with two unbeaten eggs. Then
add three tablespoonfuls of sour milk,
mixed with one teaspoonful of baking
soda. Stir in enough flour to make a
stiff dough, then roll out, cut with a
cutter and bake for twenty minutes in a
moderate oven.

Bean Muffins
This is another novel recipe, and one
which has proved to be excellent. The
ingredients are one cupful of mashed
beans (baked); one egg; one cupful of
flour; and one-half a cupful of Indian
meal; one teaspoonful of baking powder
and a cupful of milk, with a half cupful
of sugar and one small spoonful of salt.
Beat well and cook in muffin tins in a
quick oven.

Pork Cake.
Chop one pound of fat salt pork and
put it into a large basin, then add one
pint of boiling water, three cupfuls of
sugar, one cupful of molasses, mixed
with one tablespoonful of baking soda,
seven cupfuls of sifted flour, one table-
spoonful of powdered cinnamon, one tea-
spoonful of powdered ginger, one tea-
spoonful of powdered cloves, one table-
spoonful of grated nutmeg, one pound of
stoned chopped dates, and two pounds of
seeded raisins. Divide this mixture into
four buttered bread pans and bake in a
moderate oven for two hours.



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Little Frank was trying hard to sit up late, but had grown very sleepy. The visitor in whose honor bedtime had been retarded noted and made comment: "I reckon you usually go to bed with the chickens," he smiled. "No, I don't," snapped Frankie, insulted. "I have a room all to myself."

HIS ONE REGRET
Little Robert was very bright and at the end of his first term at school was promoted to the second grade. He was much attached to his first grade teacher, "Miss Eva," he said, with tears in his eyes, "I do wish you knew enough to teach second grade so I wouldn't have to leave you."

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Here is a partial list of our Easter Bargains. Write to-day and secure the one you want or fill in coupon and mail it to us for complete list of bargains in the kind of instrument you want. Every instrument is guaranteed—you take no chances. Write to-day or it will be too late.

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- 3 Sample Bargains in Organs**
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 - DOMINION SIX OCTAVE ORGAN**, walnut case with imitation pipe top, has sliding fallboard, 11 stops including Vox Humana, Couplers, Diapason, Melodia, etc. Grand organ and knee swell. A sweet toned instrument very suitable for a small church. Special at **\$49.00**
 - BELL 7 OCTAVE ORGAN**, piano cased model, rosewood finish, has roll top with mirror, sliding fallboard, 3 panels in top door, lamp stands, has 11 stops including Bass and Treble Couplers, Vox Humana, Forte, Diapason, etc. Grand organ and knee swell. A 7 octave organ is out of the ordinary and any kind of music can be played on an instrument of this description. The tone is very rich and the organ is in perfect condition. Is genuine snap at **\$82.00**

- Square Piano Bargains**
- JENNYS & SON**, New York, square piano, rosewood case, octagon legs, harp scale, 6 octave keyboard. This instrument is in perfect order and has a very sweet tone, and would make a fine little practice piano. A special bargain **\$52.00**
 - MILLER BROS.**, New York, square piano, dark rosewood case, hand-some carved legs, full metal frame with long over-string scale, 7 octave keyboard, 2 pedals, has been carefully over-hauled and renewed in every part both inside and out in our own factory. The tone is very rich and this instrument is a snap at **\$89.00**

- Upright Piano Bargains**
- NEW SHOMER, BOSTON, CABINET GRAND UPRIGHT PIANO** in polished mahogany case, colonial design, Boston fallboard, automatic full length music desk, has full metal frame with bushing tuning pins, over-string scale, 7-1/3 octave keyboard, 3 pedals. This is a simple instrument and has been carefully tested by our experts. The tone is rich and sonorous, and this piano will give splendid satisfaction. Regular **\$255.00** \$350. Special bargain
 - HEINTZMAN & CO. CABINET GRAND UPRIGHT PIANO** in handsome polished rosewood case, folding fallboard, 3 plain panels in top door with centre swing music desk, long over-string trichord scale, 7-1/3 octave keyboard. Has been carefully renewed in every part in our own factory and is practically as good as new. Has genuine Heintzman tone and touch and is of **\$285.00** offered special at

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Apple Timbales.

Six fine flavored apples, two tablespoonfuls of sugar, one tablespoonful of water, butter the size of an egg, two eggs, one cupful of breadcrumbs, one-half cupful of milk or cream, grated lemon rind and nutmeg to taste. Cook the apples, sugar, water and lemon rind to a pulp; stir in the butter while hot; when cool add the well beaten eggs, the breadcrumbs and grated nutmeg. Mix and divide into buttered tins and bake for twenty minutes in a moderate oven. Serve with whipped cream, hard sauce or butter sauce.

A Reliable Salad Dressing.

Pour one-half cupful of strong vinegar into a saucepan, add one-quarter cupful of water, two teaspoonfuls of sugar, one-half teaspoonful of salt, one teaspoonful of celery salt, one-third teaspoonful of mustard, and one-eighth teaspoonful of pepper. Stir all together until smooth, then add very slowly the well beaten yolk of an egg, mix well, and cook until the mixture begins to bubble. Remove from the fire and add the stiffly beaten white of the egg. Stir and set aside to cool. When cold add slowly one cupful of rich sweet cream.

Griddle Cakes

Beat up one egg, then add one-half cupful of sweet milk, one-half cupful of sour milk mixed with one-half teaspoonful of baking soda. Sift together one and one-half teaspoonfuls of baking powder, one teaspoonful of sugar and a pinch of salt, and add them with enough flour to make a batter of the right consistency. Cook on a hot griddle which has been sparingly greased. Serve with hot syrup made as follows: Put one cupful of sugar into a small saucepan, add three-fourths cupful of water and a pinch of salt. Boil together until it forms a syrup and flavor with vanilla or any preferred flavoring.

Cocoanut Rice Pudding.

Wash one cupful of rice, then boil it until tender in plenty of boiling salted water. Beat the yolks of two eggs with one cupful of sugar, one teaspoonful of vanilla extract, and one cupful of grated cocoanut. Drain and cool the rice, then add the cocoanut mixture, with one quart of milk. Turn into a buttered baking dish and bake until firm. Beat up the whites of the eggs to a stiff froth, then add one tablespoonful of sugar; spread on the top of the pudding and brown in the oven.

Cabbage with Cream Dressing.

Remove the outer leaves from a head of cabbage and quarter the remaining part. Boil it in salt water until it is nearly done; then drain in a colander. Put over the fire, adding one cupful of rich cream. Let it come to a boil and thicken with butter and flour; add salt and pepper to taste.

Custard Tartlets

Line some patty pans with pie crust. Make a custard, flavor it nicely and fill the pie shells about two-thirds full. Bake the tartlets in a gentle oven. Take them out, let them cool, and spread with a little sugar icing. Strew a little more sugar on the top and bake them in a moderate oven until the icing is crisp. If a richer tartlet is wanted, a little jam may be put over the custard. It requires about one-quarter of an hour to bake them.

Apple Dumplings, Peanut Butter Crust

Sift together one pint of flour, two level teaspoonfuls baking powder and one-quarter teaspoonful salt; rub in lightly half a cupful of peanut butter; then moisten with ice water as for pie crust. Roll out and cut into large squares. Lay on each square a pared and cored apple over which sugar and cinnamon have been sprinkled. Wet the edges of the crust and press and fold together over the apple. Bake as usual.



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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 50 acres extra cultivation. Pre-emption patent may be obtained as soon as homestead patent, on certain conditions.

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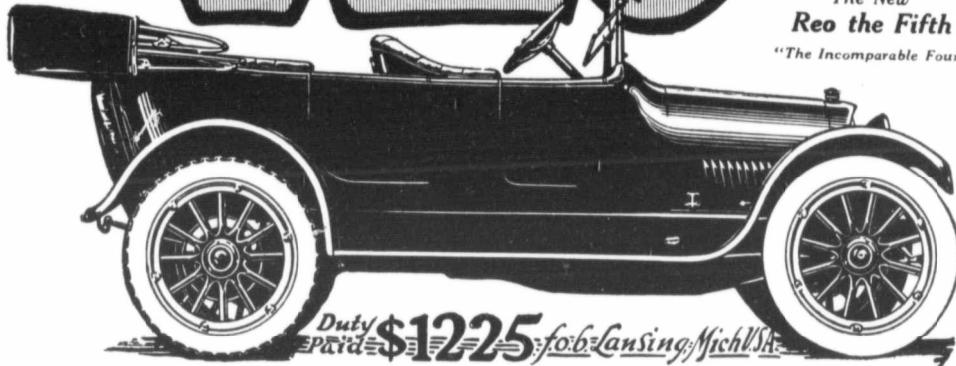
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IT WOULD NOT MATTER how much money there was back of the Reo guarantee if there were not also Reo Integrity and Reo Good Intent.

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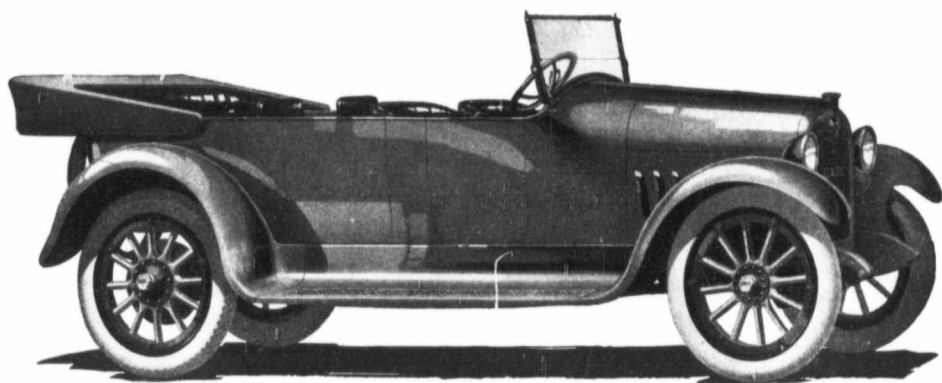
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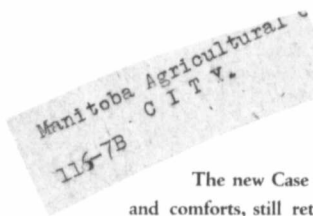
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