

J. H. Grisdale z t feb 20, 1901  
Exp Farm, Ottawa

MANITOBA AND WESTERN EDITION

# THE FARMER'S ADVOCATE

AND HOME MAGAZINE

\* AGRICULTURE, STOCK, DAIRY, POULTRY, HORTICULTURE, VETERINARY, HOME CIRCLE. \*

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Vol. XXXV. LONDON, ONTARIO. JULY 5, 1900. WINNIPEG, MANITOBA. No. 505

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WHEN WRITING MENTION THIS PAPER.

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Income, 1899.....	53,878,200.86	Insurance Declined.....	31,054,778.00

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1899.			
"Death claims paid".....		\$ 109,573	50
Surplus for security of policy-holders.....		665,648	01
Assets.....		1,810,155	17
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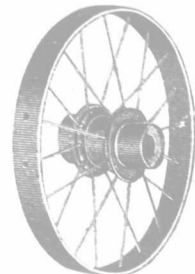
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PLEASE MENTION FARMER'S ADVOCATE

# THE FARMER'S ADVOCATE

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VOL. XXXV.

LONDON, ONT., AND WINNIPEG, MAN., JULY 5, 1900.

No. 505

## Summer-fallowing.

The best method of treating a summer-fallow becomes an intensely important question after the experience of this past spring, when in so many cases the finely-worked surface soil of the fallows drifted to such a fearful extent. Thinking only of preventing drifting, doubtless many will give the land no work after plowing. Of course, if the only object is to have the land ready for next year's seeding, this might answer well enough, but if there are weed seeds in the soil, then something more than plowing is demanded.

Under the extreme drought conditions that exist at this writing, it seems like ridicule to talk about conserving soil moisture; but laugh if you will, it is an absolute fact that soil moisture is conserved by providing a firm subsoil and a finely-worked, mellow surface. It is a well-recognized fact that even after weeks of excessive dry, hot weather, crops on many fields have retained a wonderfully green, vigorous look, while adjoining fields that were not in as good tilth withered up at the beginning of the drought. The peculiarly favorable conditions of early spring greatly assisted in putting the soil into the best possible condition for resisting drought, and had rains come in any reasonable time, the crops would have withstood a deal of hardship and come on all right.

If there are weed seeds in the soil, something more than a plowing must be given, or they will simply be dormant, waiting a favorable opportunity to germinate. The necessity of getting grass roots and fiber back into the soil is clearly evident, for no matter what treatment is given (without root fiber to hold it together), the surface soil is almost sure to drift, under anything like the conditions that have prevailed this season. While determined to get our farms under grass rotation as soon as possible, we must, however, go on with the summer-fallows.

Conditions of soil and district must govern whether one good deep plowing in June or a shallow plowing or cultivating early, followed by a deeper plowing in early July, is best, but this being settled to the owner's satisfaction, the best treatment we can suggest would be to follow the plows closely with a subsoil packer, in order to close all air spaces and firm the subsoil. If a packer is not available, and the soil tends to be open and loose to the bottom of the furrow, try a disk harrow, run almost level and perhaps loaded down. Following the packer or disk, use a cultivator at frequent intervals right up to late fall.

There are a number of weeds, annuals, under ordinary conditions, that seem to acquire the power of adapting themselves to other conditions and become perennials for the occasion, such as stinkweed, shepherd's-purse, peppergrass, etc., which will germinate on summer-fallows in the late summer, and form a strong, low-lying plant, in which stage they live through the winter and make rapid progress the following season. Our present style of seed drills are no use to knock out weeds, and the farmer, thinking he had worked his fallow well and that any green thing left on it would be killed by the winter's frost, is surprised to find he has a dirty field after all his pains. Every point must be watched and every effort made to make next year's crop make up for this year's shortage.

One of the great advantages of having the study of plants taken up in our schools is forcibly set forth in the following account of a sad poisoning case at Cardston, Alta.: A girl of 11, named Maggie Oakley, was out with her two younger sisters and a little brother, and finding some wild parsnip roots, ate some herself and gave some to the children. All of them were almost at once seized with convulsions, and the eldest girl died before the arrival of medical assistance. The lives of the others were only saved through persistent efforts on the part of the doctor.

## Scarcity of Live Stock.

The acknowledged uncertainty of the wheat crop as a main dependence for Canadian farmers, and the low price so long prevailing for that cereal, a condition which even a war of considerable proportions, once a sure precursor of higher prices, now fails to appreciably affect, has properly led to a more general dependence upon live stock and its products for returns from the farm. The active demand for live stock and the improved market prices now ruling for all classes of meat and milk producing animals and for dairy products, as well as for good horses, has only one drawback, and that is the fact of the scarcity of stock in the country at the present time. A keen demand and good prices are welcome experiences and are doing much to relieve the conditions for farmers and stock-breeders, and the only element of regret in the situation is that they are not in a position to reap the benefit more largely without unduly depleting their reserve of breeding stock, and thus, it may be, seriously discounting the future. The increased demand and rapid rise in values in the last three years, following a period of depression, found farmers anxious to avail themselves of the opportunity to realize on everything in the way of stock they could reasonably spare, and as a consequence the feature which most forcibly strikes the observant traveller through the country is the undoubted shortness of the supply of stock on Canadian farms. The stereotyped complaint of the market reporters is the paucity of the supply of suitable animals for the export beef trade. Feeders complain that they cannot find the class of cattle likely to make paying returns for the feed required to prepare them for market, while for the inferior class available higher prices are asked than they feel justified in paying with any hope of a margin of profit. A letter recently received at this office from a dealer who in the last two years had succeeded fairly well in filling orders for several hundred stockers for the Western States shows that he is utterly unable to repeat the experience this year, as the cattle simply cannot be found, and one man, met upon his travels, who, by taking time by the forelock, had managed to get together a considerable number on pasture, was assured of 5½ cents per pound for them in the near future. In an extended trip through a considerable section of Western Ontario, fairly representative of the Province, in the last two weeks, visiting a number of breeders of Shorthorn cattle, the writer found the herds in every case noticeably short in numbers as a result of numerous sales, the owners in a majority of cases apologizing for the smallness of their herds and enquiring where they could buy to replenish their stocks. Not only were bulls fit for service found closely sold out, but the supply of females reduced to a very considerable extent, while buyers from the States were still scouring the country for more, a carload of pure-bred females leaving London for Iowa only last week, and three carloads from this district in the last three weeks for different destinations.

The temptation to sell when good prices are offered, and the natural aversion to seeing a buyer with good money go past, is more than the average breeder can successfully withstand, and, as a result, many have sold animals which they have felt in their better judgment ought to be retained in the herd to breed from and to build it up to better proportions. Justification for this course may be found in the determination entertained by some, at least, to fill up the blanks by importations, or the purchase of high-class imported animals, and by this means infusing fresh blood into their herds, and it is gratifying to find enterprising men of means so ready to take the risks of importing so largely as they are of the best that can be bought, and disposing of them at a reasonable margin of profit. The smaller breeders who have not advertised their

stock are finding customers among the more prominent breeders who have made extensive disposals and are looking for replenishing stock, but these in turn are offering only for the best, and generally that is the kind that is changing hands. As a consequence, it is largely of the best of our stock that is leaving the country, for, in the main, it is from the United States that the demand for our breeding stock comes. And the shortness of breeding cattle in that country is so very great that it must of necessity take years to recruit sufficiently to supply the requirements.

The obvious lesson for Canadian farmers, in view of these facts, would seem to be to increase their stock of cattle by raising more calves, improving the breed and quality by the use of pure-bred males of the best type, and feeding the young animals generously so as to bring them to early maturity and fit them for the highest prices in the market. Good sires are far too scarce in almost every section of the country, and there is little excuse for this fact, as pure-bred bulls of the beef breeds can even now be bought at a price which they will almost certainly bring in the market for beef at the end of a two or three years term of service, to say nothing of the increased value of their offspring as compared with common stock. In many sections where the services of superior sires may be had for a reasonable fee it is regrettable that so few farmers avail themselves of their use, as by this neglect they prejudice their own interests and the reputation and prosperity of the country.

These remarks apply equally to all classes of stock in the country at the present time, as the great demand for horses, sheep and hogs, as well as for cattle, and the well-known scarcity in all these lines, abundantly show. The present condition of the live-stock industry calls for serious consideration and a pronounced forward movement for increase and improvement, as it is undoubtedly the sheet anchor of successful farming in Canada and the most important of all our industries.

## Breeders Should Lead, Not be Led.

A great reform is needed in hog-raising in the West, says the editor of *The Wallace Farmer*. The breeders can help it along if they will. They will delay it if they keep on selling hogs that have no other recommendation except their good looks and prizewinning capacity. It is quite true that the farmer will buy fat rather than merit. Breeders are supposed to be able to educate the farmers, to lead them instead of being led by them, and if they will start out this year and raise pigs for the fall sales with plenty of growth, muscle, activity, energy, vigor, and show by their feeding that the farmer is at fault, they can do much to put a solid stone foundation under the edifice which the breeders are rearing.

The great trouble with breeders of all kinds of live stock is that they are always looking at the present market. They ought to breed what the farmers want. Unless the farmers want the right thing, the whole breeding business is on a sandy foundation. Refuse to sell farmers fat pigs. Send to your feeding pens all the pigs that are deficient in bone, length, depth, breadth, in get up and get there. Do not figure so much on prizewinning, and take the scale of points only for substance of doctrine. You breeders buy show pigs on the scale of points; you know mighty well you don't buy your own breeding stuff on that scale. Either change your scale of points, or keep it for show purposes exclusively. If the breeders don't do this, the farmers will buy red, white, gray, brown, black, grizzled, spotted, or any other color of hogs that are prolific, rangy, and have strong vitality. They will go down to the forests of the South if they can not do any better. It has been our firm conviction for fifteen years that the faults of the Poland-China hogs were not in the hogs at all, but in the breeders. If they wish to retain the confidence of the farmers they must breed not what the poorer farmers or less intelligent farmers think they want, but what all farmers really do want and which the breeder knows they want, whether they think so or not.

## THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN  
THE DOMINION.

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1. THE FARMER'S ADVOCATE is published on the fifth and twentieth of each month.  
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### Protecting Birds of Plumage.

The Legislature of the State of New York is to be commended for its recent enactment protecting the lives of wild birds of plumage. It is to the effect that wild birds, other than the English sparrow, crow, hawk, crane, raven, crow-blackbird, common blackbird, kingfisher, and birds for which there is an open season, shall not be taken at any time, dead or alive, except under authority of a certificate issued under the act for scientific purposes, and under heavy bonds. No part of the plumage, skin or body of any bird protected by the section, shall be sold or had in possession for sale. Nests of the protected birds must not be robbed or destroyed except when necessary to protect buildings or to prevent their defacement.

Birds or game (except fish taken in the State) shall not be transported without the State, nor be taken or possessed with that intent. Any person who violates any provisions of the act is guilty of a misdemeanor and is liable to a penalty of \$50, and to an additional penalty of \$25 for each bird or part of bird taken or possessed in violation thereof. We hope to hear that the new law will be rigidly enforced. When we consider the rapid increase of insect pests, preying upon the grain, fruit and other crops of the farmer, these birds of plumage must be regarded as his very best friends, to say nothing of the added charm of their cheerful songs and appearance in the trees about the homestead or in the woods. Their slaughter, out of pure wantonness, by boys or young men, so called, or to minister needlessly to human vanity in the form of millinery, ought to be firmly put down by the State. We are satisfied that if women would give this matter a second thought they would do a great deal to protect the lives of these beautiful friends of agriculture by abstaining from purchasing the adornments of plumage, feathers or bonnets.

### Rural Mail Delivery.

At the recent annual meeting of the East Middlesex (Ont.) Farmers' Institute, the subject of the free delivery of mail daily in the country was discussed and the principle endorsed by the unanimous adoption of the following report from a committee to which the preparation of a suitable resolution had been referred:—

"We, a committee appointed by your Institute to draft a resolution dealing with the question of 'Rural Mail Delivery,' beg to report that we consider the time has come when the farmers and all residents of rural districts should have a daily mail delivery, and we recommend that this Institute adopt this resolution requesting the Postmaster-General to use his influence in that direction; and, further, that a copy of this resolution be sent to the Superintendent of Institutes, requesting him to bring this matter to the notice of other Institutes."

(Signed) J. K. LITTLE,  
THOS. KNAPTON, } Committee.  
R. H. HARDING, }  
A. M. MUNRO, Secretary.

Though at first regarded as impracticable on account of the expenditure involved, the rural free delivery of letters and papers in the United States is steadily growing since its first trial in 1836. It now includes 383 distributing points in 41 of the 45 States, the exceptions being Idaho, Montana, Mississippi, and Wyoming, the appropriation increasing from \$20,000 to \$300,000. At the head of the States served by rural free delivery is Ohio, the most favored State, with forty-nine routes, Indiana having forty-four, and Iowa twenty-three. Thus in Texas there are only two rural free delivery routes, while in South Carolina there are twenty-one. In Washington there is one only, while in California there are fourteen, and in Louisiana, Alabama and Florida there are three routes only, while in Maine there are seven. In the opinion of post-office authorities, however, the present system is only in its incipiency, and among the plans in view for its further extension is one for rural free delivery of mail by electric cars. One remarkable and salutary effect of the extension of the rural free delivery system has been the great improvement it has brought about in country roads. The extension of the system being optional with the government, the plan has been adopted of favoring those regions in which the roads are best, and as a consequence there has been a general improvement in the condition of roads traversed by rural carriers. This has been especially the case in the west, and it accounts for the apparent preference accorded to Ohio and Indiana, in which States the construction of good roads has been a prerequisite to the establishment of a rural free delivery service. In one county in Indiana the farmers incurred an expense of \$2,600 to grade and improve a road in order to obtain free delivery. Referring to this advantage of the system, Mr. E. E. Rothermel, an Indiana farmer, writes:—

"Being a patron of a rural free delivery route, I know the value of it, and also its advantages. At this time of year it is often very inconvenient for the farmers who live from three to five miles from the post office to get their mail regularly if they must go after it, as they are too busy during the day and too tired at night. Then during the winter it is often very stormy and disagreeable. As the farmer has more time to read during the winter, it is a great convenience to have his papers brought to the door, no matter how the weather is. It is also a great advantage in mailing letters. The farmer very often has stock or grain to sell; if he can get his paper regular he can see the markets daily and will have a good idea of their condition. A great many think if they have free delivery they will be taxed extra to pay for it, but this is a mistake. The farmer has just as much right to demand free delivery as the city people. Rural free delivery has proven such a success that more routes are being established all the time. Some of the requirements to secure free delivery are good roads, the signature of the heads of one hundred or more families on a route of not less than twenty miles. The route must be so located that the carrier can travel it and not double any part of the road. Each patron must provide a suitable box for receiving the mail, and all the boxes must be located on the route, as the carrier does not drive in to houses off the road. Applications for routes must be made to the post-office department through your representative in Congress. Rural route No. 1, Richmond, Ind., is about twenty-three miles long. Our carrier gets around very regularly, varying but a few minutes from day to day. The mail comes every day in the year except Sundays and legal holidays. The carrier of route No. 1 receives \$100 a year and furnishes his own rig. He goes in a one-horse buggy and has a change of horses. He never stops for bad weather."

The horse industry is enjoying a prosperous season in Eastern Canada, pastures and prices of the product being good.

### Salt Packages.

Through the efforts of Mr. R. Holmes, M. P., member for West Huron, Ont., a bill has passed its third reading at Ottawa amending the Weights and Measures Act as it affects packages of salt. According to this new Act every barrel of salt packed in bulk, sold or offered for sale shall contain 280 lbs. of salt, and every such barrel or sack of salt sold or offered for sale shall have the correct gross weight thereof, and in case of a barrel, the net weight also marked upon it in a plain and permanent manner. It is also required that the name or the registered trade-mark of the packer of this salt, if it is packed in Canada, or the name and address of the importer if it is packed elsewhere than in Canada, shall be marked, stamped or branded on every barrel or sack of salt sold or offered for sale in Canada.

### Some Phases of Breeding.

The statement attributed to the Nebraska breeder who said, "Whether inbreeding or out-crossing, the breeder is a fool who uses animals that have defects which are objectionable, and my experience leads me to believe that when perfect or nearly perfect sires and dams are used there is no danger to be feared from the very closest inbreeding," is an extreme one. Many men who are not fools do things which are not wise, and sometimes animals that are in some respects defective have qualities that it may be desirable to perpetuate, though it is sometimes a very close question whether, in case of unsoundness which is known to be hereditary, if it is not better to forego the advantage of these good qualities than to take the risk of repeating the bad ones. It is not extreme to say, however, that it is always unwise to inbreed at all closely in a strain afflicted with hereditary unsoundness. That a great deal too much of this has been done by gentlemen who are enthusiasts for some particular lines of breeding is undoubted, and in spite of the manifest objections to it, it is equally certain that much more greatly infatuated with the merits of an animal that they will run any risk in order to reproduce his qualities, and even inbreed to him when the almost certain effect will be a reproduction of an unsoundness, and possibly its indefinite multiplication. It may possibly be true that all of the evil resulting from inbreeding is due to the intensification of defects, and that were sires and dams absolutely perfect, inbreeding might possibly proceed *ad infinitum* without injurious results. But such a thing as a perfect sire or dam cannot be found, and when one inbreeds at all he is sure to have some common defects in sires and dams. If these are not glaring, they may not become appreciable in the first few crosses, but as the inbreeding proceeds the intensification of defects increases, and a fault that may have been very slight in the first two or three crosses may before a great while be very much exaggerated.

There is now getting to be a pretty strong consanguinity between the different members of the whole trotting family. They are now pretty nearly all Hambletonians and Membrinos. In a very few years there will not be a trotting horse in America that does not trace to one or both of these strains, and in most of them these strains will be repeated. There will have been, however, a very great number of out-crosses absorbed, and in so many thousands of different proportions and in such an immense number of different admixtures that this general inbreeding is not apt to be hurtful, as inbreeding—possibly it will not be more than enough to give the proper homogeneity to the entire family. The fact that with nearly every instance of inbreeding there is an out-cross will be of immense value in preserving the great bulk of the family from the effects of too close inbreeding. We do not think there has ever been any great danger on this score at any rate. Another thing that to a certain extent exercises a counter-acting influence is the almost perpetual change of location and surroundings that our horses are undergoing, thus furnishing an almost continuous climatic out-cross, and while the effects of this may be at times exaggerated, there is no doubt that it is considerable. There are a good many very well known cases where stallions that have been failures in particular sections have changed their locality and become very successful sires.

While there are a few breeders that are apt to inbreed unwisely and to carry their inbreeding too far, we do not believe that the number of these is very great. There are more that are willing to take all sorts of risks of unsoundness to get speed, and this probably is the greatest fault of ambitious breeders. Some appear to be rather indifferent as to the future soundness of their stock. They are encouraged in this by the fact that so many foals escape the unsoundness of their parents, although of course this immunity may only be temporary with the individual and the unsoundness may reappear with the next generation. It is true also that an hereditary unsoundness is very liable to reappear in the offspring, when it reappears at all, at about the age it came on the ancestor from whom it was derived. This fact makes breeding from unsound ancestry appear more innocent than it really is—the bad effects being postponed. We frequently hear it said of a stallion, "He has never been known to get an unsound foal." This may be very true, and yet the horse be a very unsound breeder, the unsoundness rarely appearing at a very early age, but usually developing in the matured or partially matured horse.—*Kentucky Stock Farm.*

### The Show Pig, from Birth to Maturity.

Paper read by Henry Johnston at the Iowa Swine Breeders' Annual Meeting.

As the majority of breeders who fit swine for exhibition use practically the same methods, different somewhat in details, I have no new or startling revelation along this line to present you, but will give you, briefly, an outline of the methods we have used and that have been instrumental in bringing to us a reasonable measure of success. Like most other breeders, we have sows that have produced something good in the past, and we very naturally look to them for material for a show herd. When their litters are of sufficient age to turn out we usually put two and sometimes three litters together in a pasture where there is a good warm and dry building, and plenty of good grass. Near where the sows feed is a small enclosure with a low trough in it, and by a little persuasion and some tempting bits of food we expect to have the pigs feeding nicely at three to four weeks of age. The feed is increased as their capacity for handling is increased, but we are careful to underfeed rather than overfeed—feeding no more at any time than they will eat clean. We allow them to run with the dams until they wean them, unless we wish to breed the sows again. When the sows are removed and the pigs growing nicely, we feed them liberally twice a day, and have not yet found use for the third or noon feed that some advocate when fitting stock for show, believing that the pigs will be healthier, will eat grass, take more exercise and make larger and stronger hogs when the noon feed is discarded. The first part of each feed is made by mixing water and what milk we have with shorts and low-grade flour. It is made just thin enough to pour and is always prepared immediately before feeding. We feed nothing sour to our pigs, not even a roasting ear or immature ear of corn. We feed no bran to pigs and young hogs, and especially not to those being fitted for show. There was a time when bran and shorts made a good growing food for pigs, but with the advent of our new modern milling machinery, things have changed until to-day the bran we get has about as much feeding value for growing pigs as so many flakes of condensed air, while the shorts we get is but very little more than bran itself. So, for our show pigs especially, we discard bran and use shorts and low-grade flour, using about two-thirds of shorts to one-third of flour, mixed quite thick, so the pigs will not be forced to take too large an amount of water into the stomach in order to get what food they need. The second part of each feed consists of soaked corn, with a change to soaked oats or barley, the per cent. of corn being decreased and the shorts and flour increased as the pigs grow. We have never been a believer in feeding sugar, sorghum and sweetmeats to show stock. They increase the formation of fat, but give practically nothing toward the building up of bone and muscle, and as show stock is usually used for breeding purposes, the practice should not be encouraged. Eggs are a splendid food for animals being fitted for the showing. Aside from being a complete food, they will aid digestion, will make the skin pliable and the coat glossy. We aim to keep salt and hardwood ashes before our show stock all the time, but we keep it separate so the stock will not be compelled to eat more than they want of one in order to get what they want of the other.

We never confine in a small pen an animal intended for the showing, nor do we keep one alone. We want each bunch to have a clover or rape pasture of reasonable size, where they can take exercise and grow a frame and bone as well as to put on fat. We want the fitting period to extend over several months; in fact, from infancy to the time of showing, it should be a gradual and complete development of all parts of the animal, and not a short crowding period, that will cause the formation of bone and muscle, and it is much less likely to injure the breeding qualities of an animal, in bringing it up to the high state of flesh required by many of our judges, when the fitting process is a gradual development.

In the growing and fitting of swine for exhibition there are a great many details that must be attended to, such as keeping the appetite in the best possible condition; feeding a balanced ration; keeping the feet trimmed; seeing that each one takes a proper amount of exercise each day; that they have good shade, where there is a complete circulation of air; and that the animal will be so handled that it will be at its best at the time of showing. Every exhibitor is aware of the fact that success or failure in the showing often hinges upon one or more of these details.

Now a word for the show man. While the show pig is developing, the show man should also be developing; if he does not, it will be a one-sided development, for they must appear on the scene of action together and, in victory or defeat, stand together. As a breeder watches carefully over his show pigs from infancy to maturity, attends to their every want, watches the development of those qualities that are so pleasing to breeders, there is very apt to creep into his mind (and especially so if he is a young exhibitor) the idea that his stock is so very near the ideal that it cannot be defeated, and often in his fancy he already sees the ribbon swinging from his belt. Such a man is doomed to disappointment. He will find the path through the showing rough and rocky, whereas he had pictured it smooth and pleasant. He should develop the faculty that will enable him to understand that every pig he drives into the showing will not return with a ribbon.

That will enable him to see and recognize a good pig even if he is not the owner; that will enable him to accept all results like a man; and to talk as quietly and smile as pleasantly while the ribbon goes to his competitor as when it comes his way. This, like raising a show pig, is just a little hard to do, but it can be done.

### Sheep at the Royal Counties Show.

For the Hampshires and Southdowns this meeting is the most important show of the year. True, the awards at the Royal Show have a greater value, but those that win them are more often than not winners at this meeting previously. At any rate, the competition at the Royal Counties Show is always far and away keener and stronger in these two breeds than anywhere else. Taking the Hampshire Down breed first, we find that for the six classes into which the section was divided there were no less than one hundred and seven entries; a truly grand and typical lot they were. The yearling rams numbered twenty-four—a strong class; in fact, we have not seen a better one for several years. Mr. James Flower, of Chilmark, led the way with a grand type of Hampshire Down, full of that high quality and true type for which his flock holds so high a record; a typical ram from Lord Rothschild's well-known flock came in for second honors; and one of Mr. R. W. Hudson's secured third; with a big, useful ram from Earl Carnarvon as *rn*. The Old Ram class was another good class. Mr. Cary Coles here led the way with a very grand, good ram with splendid ears and color; Mr. R. W. Hudson's last year's champion ram being a very close second—so close, indeed, that a referee had to give the decision. The Yearling Ewes were the strongest and best class of this age we have seen for years past, and the honor of winning so easily as Mr. James Flower did with his most excellent pair was no small one; this pen also with equal ease secured the champion award as best pair of females of their breed. Whoever from your side are lucky enough to secure these ewes will secure a lot that will not be matched. The second prize went to the worst pen in the whole class—by an error of judgment is the most charitable way to put it. Mr. C. A. Scott-Murray should have won it, and then Mr. James Flower been *rn* with his second pen. The Single Ram Lamb class was a truly grand one, twenty-six entries, and here, after a tremendous sharp struggle, the Earl of Carnarvon went to the top with a wonderfully grand lamb with splendid head and ears, first-class back, loin and legs, securing also at later contests the male champion of the yard, and special prize as best lamb of its breed. Mr. J. Flower came second with a lamb many preferred to the winner, but he had gone over a bit in his joints, and this defect lost him his first prize. Mr. L. H. Baxendale was third, Mr. Cary Coles fourth, and Mr. E. Whalley-Tooker *rn*, besides quite a number honored by *hc* and *c*. Pens of Three Ram Lambs, another exceptionally strong class of sixteen pens, the first and second awards in this class went as in the preceding class, first to Earl of Carnarvon and second to Mr. J. Flower; in fact, the contest all through the present season for premier position has rested with these two excellent breeders, both of which are breeding the best, the latter having the better character of wool and a wee bit more quality; it is hard to judge this year between the merits of their grand exhibits. Mr. C. Coles was third, and T. Palmer *rn*. The Ewe Lamb class was another very excellent class, the Earl of Carnarvon again taking the leading place with a capitally matched trio, and despite of the judges' award, the pen that should have followed these, if it had not ought to have beaten them, was the pen of Mr. J. Flower. However, the judges for some reason or other relegated it to the rear, putting in for second a splendid pen of Mr. Cary Coles' as second, and a very even and taking pen from W. B. Greenfield as third, Mr. Palmer's most typical pen being *rn*.

The Southdowns made a very good entry in respect to numbers, though hardly so large as in former years. There were twenty-five rams in the Yearling Ram class, the first prize falling to a very deep-fleshed typical ram from Mr. W. Toop's flock, which will be sold off in August next; a highly meritorious ram of the Pagham Harbour Company coming in for second honors, a ram of the highest merit and quality. Mr. H. Penfold's old flock was well to the fore, securing third and fourth prizes in this very strong class. The Old Ram class was a wonderfully good class. The Pagham Harbour Co. led the way with a grand ram, whose merit is best proved by the fact that he took the champion prize as best ram, another medal of the Southdown Society, and also that several very high offers were at once made for him, including one on behalf of the Duke of Richmond, to the effect that he was not to be let until His Grace's agent had had the first offer of his services, where he was used last year, his stock being so good they wanted him again. Testimony of this character proves what class of sheep he is. Mr. W. Toop, with a well-developed, good-fleshed sheep, came in for second honors, and Mr. C. R. W. Adeane, with as good a ram, both in respect to fleece and flesh, as one could desire, had to be content with the barren honor of *rn*. The Yearling Ewe class was one of credit to the breed. A grandly matched trio from the Earl of Cadogan's flock won the first prize, these ewes being wonderfully good in their flesh; they also secured the champion prize as best pen of females. The Pagham Harbour Company came in for second honors with a pen of three most excellent individual

ewes, but they did not match, hence why they had to take second place. Mr. W. Toop took the third place with a pen of good-fleshed ewes with very excellent fleeces. In the Single Ramb Lamb class, Mr. H. Penfold was an easy winner, showing a lamb which combined size and quality to a marked degree. Col. H. McCalmont, M. P., was second with a grand lamb of high merit and quality, and fourth with another very useful one, whilst the Pagham Harbour Company secured third honors with an excellent lamb of typical character, with a splendid head and eye. In Pens of Three Ram Lambs class, Mr. H. Penfold and Col. H. McCalmont took the same position as in the former class, the former gentleman, it may be remarked, selling one of his winning lambs for New Zealand for \$125; Mr. W. Toop's pen being third, a well-matched and even trio, and Mr. A. Heasman being fourth or *rn* with a splendid pen of lambs. In the Ewe Lamb class, Mr. W. Toop had no difficulty in winning first with a very grand pen indeed; Mr. Penfold being second with a useful pen; whilst Mr. A. Heasman had a very good third. We may remark the Pagham Harbour Company only sent one lamb, the ram lamb that came in third, reserving their lambs for the Royal Show at York.

The Kent or Romney Marsh sheep made a very capital display, Mr. C. File being first in the Yearling class with a very capital sheep, Mr. W. Millen following with a nice even-fleeced teg, and Mr. F. Neame came in for third honors. The Old Ram class was a good one, Mr. W. Millen secured both prizes with a pair of grand typical old rams; and in the Yearling Ewe class, this same breeder, with two pens, secured first and third places; the intervening space being filled by a very excellent pen from Mr. F. Neame's noted flock.

Shropshires made a very grand entry. Their Shearling Ram class was a very strong one, Mrs. M. Barrs being at its head with a grand typical ram, followed very closely by one from Mr. A. E. Mansell's noted flock, who pressed the winner very close indeed; Mr. R. P. Cooper's blocky, deep, wide ram having to be content with third honors, with the *rn* going to a very lengthy, deep sheep from Mr. W. F. Inge. The Old Ram class was another grand class, Mr. Cooper's entry leading the way, he being bred by Mr. D. Buttar; the second prize going to Mr. A. E. Mansell for a grand ram of more masculine character than the leader, bred by Mr. J. Bowen-Jones; whilst the *rn* fell to one bred by Mr. A. E. Mansell, and exhibited by Mr. A. Tanner. In the Yearling Ewe class, which was not so strong a class, Mrs. M. Barrs won first with an even and well-matched pen. Mr. A. Tanner being very close up, but had to take second place, there being but little to choose between these two capital pens; Mr. R. P. Cooper's being *rn*. In the Ram Lamb class, Mr. A. E. Mansell was unmistakably first, with a grand trio of most excellent lambs; Mr. R. P. Cooper being second, and Mr. A. Tanner *rn*.

The Oxford Downs made a very disappointing display, only Mr. J. T. Hobbs competing in the Yearling Ram class, wherein his grand rams were of course awarded the premiums; and in the two classes for lambs, Mr. R. W. Hobbs was awarded both first prizes for two most excellent pens of lambs of the highest merit and quality.

### English Sheep Notes.

(SPECIAL FOR FARMER'S ADVOCATE.)

The sheep at Nottingham Show were limited to Lincoln Long-wool and Shropshire. In the former breed, in strong competition, Mr. Henry Dudding secured both first and second prizes for Lincoln Long-wool yearling rams, the leading winner of which was a very tiptop specimen of its breed, and there did not appear to be any real objection to its being made champion as well as first-prize winner; but in respect to the second sheep, some thought it a wee bit lucky to secure its place, though the judge seemed to have no doubt about it; but it was very evident that Mr. J. E. Casswell's very excellent sheep, which came in for third honors, was pretty close up to the second winner in very many respects; whilst Mr. Tom Caswell, who came in for R. N., was just about on a par with the preceding sheep; in fact, there was a very close shave between the three rams named above; all the better, for it betokens the very high merit and character of the three noted flocks from whence they came. In the yearling ewes, Mr. H. Dudding's Riby flock once more asserted its pre-eminence and secured both the leading prizes with pens of superior merit, well matched both in respect to type and wool; Mr. J. Pears being third with a very taking pen of nice quality.

In the Shropshire classes, which were of high merit, Mr. P. A. Muntz, M. P., led for rams, with a first-class, blocky sheep, being followed by those exhibited by Mrs. M. Barrs and W. F. Inge, this latter exhibitor taking first for pen of three yearling ewes, a grand, well-matched trio, who were followed by a very excellent and typical pen of Mr. P. L. Mills', particularly good in their skins; and Mrs. M. Barrs, with a well-matched and level trio came in for third award.

At the Suffolk Agricultural Society's Show, the principal sheep exhibit is that of the Suffolk breed, which at this show are generally seen to the best advantage. Lord Ellesmere, one of their most prominent breeders, secured the principal prizes for old rams, yearling rams, and yearling ewes; whilst Mr. H. E. Smith came in for the premier honors for ram lambs and for untrimmed yearling ewes; and Mr. S. R. Sherwood took the leading honors for ewe lambs. W. W. C.

### Our Scottish Letter.

In these days of victory it is difficult to settle down to the prosaic occupation of writing a letter on agricultural topics. There is no lack of variety in the material lying to our hand, but its very abundance causes embarrassment. The outbreak of foot and mouth disease has been one of the most serious subjects of consideration during the past spring. The Board of Agriculture took a somewhat lax method of dealing with the first outbreak, and in consequence the second and third created great uneasiness. It was a foolish proceeding not to stamp out all affected animals right away, but what happened once is not likely to occur again. There was no fresh outbreak during the whole of May, so that it may be hoped the plague is stayed. Apparently none of the bovine scourges is more insidious than this, and it is interesting to look at the theory advanced to explain the third outbreak. The butchers who came down from London to Norfolk to slaughter the second lot of affected cattle wiped their boots, when finished with their gory task, on the sides of a hay stack, and forthwith this hay was carted away and fed to cattle grazing on the "broads" or meadows along the river banks. These cattle were not near to a steading and consequently were not under daily supervision. Hence the disease had got a firm hold before it was recognized, and a big slaughter had to take place to secure its eradication. Apparently these efforts have been successful, and now we are able to declare that Norfolk and Suffolk are clean. More than a month has passed since the outbreak in Herts, and there is every reason to hope that the disease has been got under control.

A serious feature in the situation is the diseased condition of the cattle in the Argentine republic. A large quantity of beefs have been sent from that quarter in recent years, and the meat being cheap, its importation was of value in keeping down prices here and keeping up the supply. So serious, however, is the state of matters that the importation of Argentine cattle has been prohibited, and certain cargoes having been found affected, landing was refused to them. This led to certain ships putting out to sea, and having got beyond the three-miles limit, the captains jettisoned their cargo, with the result that along the Essex coasts many carcasses are coming ashore. Besides the risk of health, the presence of so many dead animals on their shores entails heavy expense on the counties which require to bury them, and not unnaturally the farmers in these localities are crying out against the dual injustice of having to run risk of getting the disease and at the same time being compelled to bury other people's cattle. I don't know how you would settle such things in Canada, but I have an idea that you would make short work of the difficulty. The upshot of shutting out Argentine beefs here has been to send up the price of beef in the home market. During the past week the average in all reporting markets has been up to 40s. per cwt. of 112 lbs. live weight, a good paying figure, and feeders should be making a little money.

Our present Government is great on Departmental Committees of Inquiry. At present no fewer than three are under way. One is inquiring into the right standard for milk. At present we have no legal standard in this country, but the theory is acted on that all milk showing 2.75 per cent. butter-fat is genuine. The idea is that this figure should be raised to 3 and possibly to 3.5 per cent., and farmers generally expect that this will benefit them. Their idea is that the produce of a fairly sized dairy will always exceed 2.75 per cent., and that at present they do not get full value for their milk, because dealers buy on this basis, whereas the milk actually stands nearer 4 per cent. butter-fat. Some allege that dairymen are well aware of this, and reduce the milk which comes from the cow by the dexterous use of separated milk, so long as it does not go below the standard which is safe. Whether this be so or not I cannot tell; it is certain that an average herd of Ayrshire cattle, well fed and cared for, will yield milk well over the 2.75 limit, and it is a pity the cow does not get credit for all she actually does. This committee have completed the taking of evidence, and are now busy incubating their report. It may be several weeks ere it sees the light.

A second Committee of Inquiry is dealing with the modes of striking and publishing market prices. This is a subject of pressing interest, and the importance of which, fortunately, in a new country like Canada, you can hardly appreciate. Each locality here has its own method of selling grain; the one way not in vogue is that of selling by the pound, as I presume you do in Canada. Possibly the main reason for this is the widely divergent results obtained from grain crops in this country. The Lothians and the high lands of Moray produce grain very different in weight from what is produced in the higher parts of Ayrshire and generally in the west country. A standard applicable to one district could not apply fairly to another, and so long as measure and not weight is the norm, any proposal to have a uniform standard cannot be looked at. What would be useful is the substitution of weight for measure. If grain and other things were sold by weight, a uniform standard might be hoped for, but I much fear that in any case we are a long way here from the adoption of the decimal system.

The third committee is to deal with a most important subject, testing of cream and milk. Alike in regard to this and the method of separating cream from Canada would possibly be more assisted than any witness to be called in this country. I understand

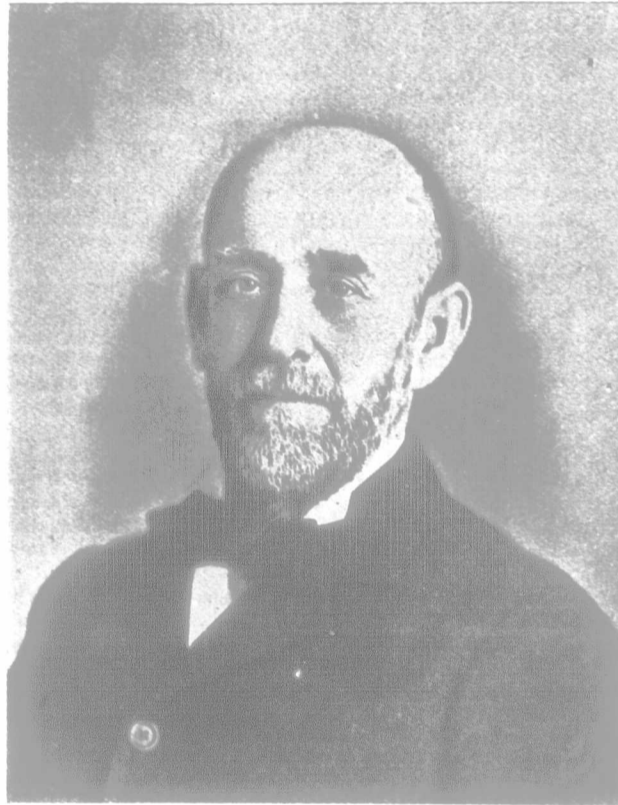
you have a system of seed-testing which is simplicity itself; here our farmers are so much beholden to old methods, and so trust their merchants, that they regard as sacrilege any proposal to act independently of them. Fortunately, seedsmen, as a rule, are worthy of the trust reposed in them, and attach great importance to the germination of their seeds. All reputable firms now sell on a guarantee of germinating power, and the work of the committee will be chiefly confined to learning whether better facilities can be afforded to farmers for testing seeds after the manner current in Canada. Much of our seed, especially natural grasses, is imported, and the firms engaged in this business have a big stake in getting wise measures adopted for testing. The laying down of permanent pasture is becoming a great feature in agriculture, and unless the seed used be genuine there can be no guarantee that this important work will be successfully accomplished.

Parliament is endeavoring to do something for agriculture in the way of amending the Agricultural Holdings Act, 1883, but it does not appear as if much success were likely to attend their efforts. Farmers do not seem to be very sure about what they want, and in these circumstances possibly it would be best to leave well alone.

"SCOTLAND YET."

### Artificial Impregnation of Mares.

This method of impregnation has not, to my knowledge, been practiced in Ontario, but has, to a greater or less extent, in some of the States of the Union, with a variable degree of success. Under certain conditions the method is worthy of a trial. In cases where the services of a stallion are in such demand that individual service would be too great a tax upon him, or in cases where mares are vicious or hard to impregnate in the ordinary way; where



THE LATE JOHN HALLAM.

the production of jennets (the produce of a stallion and the she ass) is desired and the stallion refuses service (as is sometimes the case), copulation may be performed with a mare, and the above-mentioned method practiced to impregnate the asses. Where sufficient care is practiced, and thorough cleanliness observed, the practice should be followed by reasonable success. Two different methods have been tried; one is as follows: The mares to be bred must be on hand, and, of course, must be in oestrus. A thoroughly sterilized vessel—glass probably the best—must be kept at the normal temperature of the body or nearly so, say between 98 and 100 Fahr., by the use of a water bath or other contrivance. A small syringe, capacity, say, one-half ounce, with a long handle to the plunger, must also be thoroughly sterilized. These may be sterilized with any good antiseptic—a five-per-cent. solution of creolin acts well. They should then be thoroughly washed in boiling water to remove all traces of the antiseptic. The act of copulation is performed on a mare. When the stallion is spending he should be forcibly pulled from the mare, and the man with the glass vessel already mentioned will catch the discharge and immediately set the vessel back into the warm-water bath. The operator, who has thoroughly sterilized his hands and arms, will then fill the syringe with the semen and inject into the uterus of one of the mares. It is well to dip the syringe into hot water after each injection in order to destroy any germs that may have become adherent to it from the mare just injected. In this way several mares may be impregnated by one service. Another plan is to use gelatin capsules instead of the syringe. The same caution must be observed as to sterilization, the semen secured in the same way, but instead of using a syringe, the capsules, say one-half ounce capacity, are filled with semen and the cap carefully fitted on. They should be

kept at the proper temperature by means of dry heat, as warm water might dissolve the gelatin before the capsule be used; then a capsule is carefully introduced into the uterus of each animal; the normal juices of the uterus dissolve the capsule and liberate the semen. Of course it must be understood that it is necessary, in order that impregnation may take place, for the female to be in heat in order that the semen may come in contact with the ova of the female. Of the two methods I consider the latter the more easily practiced, and probably the more successful.

J. HUGO REED, V. S.

[NOTE.—In the August 5th, 1889, issue of the FARMER'S ADVOCATE, page 413, there appears an article upon the subject of artificial impregnation, by a veterinary surgeon, who describes the operation as performed successfully by Mr. O. A. Coates, of Bothwell, Ont. Mr. Coates fills the capsule by means of a syringe, and inserts it into the womb. By this means he has succeeded in causing many mares that were for a long time barren to produce healthy and vigorous foals.—Ed. F. A.]

### Death of Mr. John Hallam.

Thousands of Canadian farmers who knew and respected ex-Alderman John Hallam, of Toronto, will deeply regret to learn of his death, which occurred at his home in that city, June 21st. He was one of the largest wool-buyers in the Dominion, and took a keen interest in sheep-breeding and in agriculture generally. He was for many years a director of the Toronto Industrial Exhibition, and took a great interest in its success. In this capacity he made the acquaintance of a large number of the stock-breeders of the country, and his genial manner and hearty greeting made him a host of friends. Mr. Hallam was distinguished for his public spirit, and was liberal in the gifts of his time, talents and means for the improvement of the city in which he lived. He was for many years chairman of the Parks and Garden Committee of the City Council. His love of nature and knowledge of trees and flowers made his services of inestimable value in that respect. He introduced into Canada many of the rare bulbs and flowering shrubs now found so plentiful on almost every lawn. At his country house, Chorley Park, he conducted valuable experiments with regard to the acclimatization in Canada of rare foreign trees.

The career of Mr. Hallam is one of the romances of business. He was born the son of poor parents, at Chorley, Lancashire, England, in 1833. When but a child he was sent to work in one of the cotton mills of the district, under conditions of labor that were little short of slavery, for humane factory legislation had not yet begun. At every moment's leisure, however, he took advantage of the scanty opportunities offered for self-education, and taught himself to read and write. It was a slow and painful process, and mill life was hard and exacting. When Mr. Hallam arrived at man's estate he saw there was no future for him as a mill hand, and came to Canada, arriving in Toronto in 1856. After ten years of general work, he embarked in the hide, wool and leather business on a very modest scale in 1866. The enterprise prospered, and he became one of Toronto's wealthiest merchants. The struggle at first was keen, but Mr. Hallam spared time to continue the education begun in the old land, and developed a passionate love for books, art and the culture that had been denied him in his youth. Thus it was that he became the leader of the free-library movement in Toronto, successfully championed the by-law under which the library was established, and gave his own splendid library to the people.

### Judges' Report of Jersey Butter Test at the Royal Counties Show, Winchester.

There were eighteen entries received for the test, out of which three were absent, so that fifteen cows were tested. They were milked out on Wednesday evening, June 6th, at 5.10, the milk of the next twenty-four hours being taken for the test at 7.10 on Thursday morning and 5.10 in the evening.

The milk was separated through a Farmer's Alfa turbine machine on Thursday evening; separation began at 7.00, and finished at 8.15.

Churning began at 6.12 on Friday morning. Champion churns being used, and the awards, which were as follows, were exhibited to the public at half-past one:—

	No. of days in milk.	Milk yield, lb. oz.	Butter yield, lb. oz.	Butter ratio.	Points.
Gold medal to Dr. Watney-Sherbet	32	41 10	2 2	19.16	39.95
Silver medal and 50/- to Mr. Buckley, Baderick-Granville	24	32 6	1 10	19.73	38.25
Bronze medal and 25/- to Mr. Buckley, Baderick's Cloud	12	38 12	1 12	21.75	36.50

The 5/- prize for the best butter was awarded to the gold medal cow Sherbet.

The following is a summary of the results obtained:

	No. of days in milk.	Milk yield, lb. oz.	Butter yield, lb. oz.	Ratio.	Points.
6 Jersey winners tested	12	35 6	1 11	20.77	34.68
15 cows tested average	30	34 2	1 8	22.52	29.82

### Portage Plowing Match.

The first plowing match ever held on the Portage plains was held June 20th, and was in every sense an unqualified success, and had the Farmers' Institute, under whose auspices the match was held, never done anything else, its existence would be more than justified. When all the directors took such an active part in making the event a success, it were perhaps invidious to mention names, but to the untiring efforts of the energetic secretary, Mr. McVicar, unstinted praise is due. Any one who has driven over this wonderfully fertile district knows full well that there are many excellent plowmen on the Portage plains, yet none will deny that there is still room for improvement, and to this end nothing can possibly do so much to encourage and stimulate to greater efforts than the plowing match. The effects of such a practical demonstration of what good plowing really is are far-reaching. To be able to plow well, a man must not only understand his plow and know how to manage it, but he must be a good teamster, and his horses must be thoroughly trained, all of which implies not only good feeding and care, but careful handling and driving in every operation of farm work; consequently, a good plowman is also pretty sure to do good straight and intelligent work all through the season.

There were some thirty contestants in the several classes, and in nearly every section the competition was keen. The prize list aggregated about \$300 in cash and kind, contributed by the merchants and dealers of the town and the leading farmers. The attendance was phenomenal, fully 1,000 buggies and carriages being on the grounds. The match was held on the farm of Mr. Thos. Sissons, the field fairly level, and the soil conditions as perfect as could be expected in such a dry season. One noticeable feature was the entire absence of single sulky and the large number of 4-horse gang plows, the work done by the latter being almost uniformly excellent—better, on the whole, than that of the walking plows. The entries in the boys' classes were not as large as one would like to see, but the work of these boys, both with walking plows and gangs, was exceedingly good, and judging from the very large number of boys and young men among the spectators, there will be a largely increased representation among the boys next year. And right here it might be well to suggest to the managers of all plowing matches, that it is the boys that most of all should be encouraged, for they are our coming farmers. While there is no desire to fault the prizes offered at this year's matches, we would see more medals given, as these can be kept, and are more commemorative of the events than store goods.

The score card used differs slightly in some details from that used at the Blyth and Oak Lake matches (see reports of these in this issue), it being as follows: Straightness 15, feering 15, in and out of ends 5, depth and width of furrow 10, evenness of surface 10, finishing 15, covering weeds and stubble 30—total 100.

The entries, all local men, were as follows:

Class 1.—Professionals—Robt. Brown, Jos. Chisholm, Jas. Campbell, Robt. Millar.

Class 2.—Alex. Brydon, Tom Barnaby, Alex. McKay, John McKay, William Rodger, John Cuthbert, Geo. Rowley, Robt. Fletcher.

Class 3.—Boys under 18—Wm. Dow, Fred Smith, Chas. Thompson, F. H. W. Rutledge.

Class 4.—Four-horse gangs—W. C. McKay, D. Little, Rod. Craig, Thos. Yuill, F. Burgess, W. Jardine, W. J. Smith, G. McVicar, I. Jones, A. Beam, H. S. Garrioch.

Class 5.—Boys under 18, gang plows—Tom Carrol, Jas. McCartney.

The prizewinners in the various classes were as follows:

Class 1.—Walking plows, open to all comers—Robt. Brown, 91 points; Jos. Chisholm, 83; Robt. Millar, 71; Jas. Campbell, 59.

Class 2.—Walking plows, for men never having won a prize at a plowing match—John McCowan, 86; John Cuthbert, 78; Wm. Rodgers, 76; Alex. McKay, 70; Alex. Brydon, 68.

Class 3.—Walking plows, boys under 18 years—Chas. Thompson, 75; Fred Smith, 67; Fred Rutledge, 61; Wm. Dow, 54.

Class 4.—Four-horse gangs, open—Thos. Yuill, 87; John Jones, 78; Arthur Beam, 67; David Little, 64; Geo. McVicar, 63.

Class 5.—Gangs, boys under 18—Jas. McCartney, 84; Thos. Carrol, 68.

Best gang plowing in the field.—Thos. Yuill.

Best groomed and handled four-horse team.—David Little 1st, Geo. McVicar 2nd.

Single team.—Chas. Thompson 1st, Robt. Brown 2nd.

Best plowed land in the field.—Robt. Brown.

Best crown and best finish by boys.—Both won by Chas. Thompson.

Youngest plowman, walking plow.—Fred Smith; gang plow, Thos. Carrol.

The judges on gang plows were: T. W. Connor, Jas. Fulton and Wm. Edwards; on walking plows—Messrs. Webster, Thompson and Muir. Teams and harness were judged by Messrs. Swale and Gardner.

### Brandon Farmers' Picnic and Plowing Match.

The annual Farmers' Institute picnic and Provincial plowing match will be held on the Experimental Farm, Brandon, on July 5th.

### The Subsoil Packer.

In our last issue, June 20th, reference was made in an editorial on soil drifting to the use of the subsoil packer, an implement that has been introduced during recent years. It is an American invention, but has been placed on this market by the Brandon Machine Works and the Wilkinson Plow Co. Below will be found several letters from farmers who have been using the packers one or more years, and their evidence will prove of interest. The point should never be lost sight of, however, that no implement can satisfactorily take the place of brains on the farm. The use of subsoil packer may for a time greatly assist in preventing soil drifting, and in conserving moisture, but that alone will not do for long. Humus or root fiber must be restored to the soil in some form or other. By making it possible to apply fresh unwasted manure to the land, the packer will greatly assist this object, but the great natural source upon which we must depend is GRASS. This season has convinced most people of the necessity of restoring humus to the soil, and although up to this writing the season has been decidedly against the grass, still a greater average than ever has been sown, and rain may still come in time to insure a good catch.

#### THREE YEARS' EXPERIENCE WITH THE SUBSURFACE PACKER.

To the Editor FARMER'S ADVOCATE:

The subsurface packer, as its name implies, is an implement for packing the soil just beneath the surface. It is composed of wedge-shaped wheels strung on an axle six inches apart, with a box over it to load. At first glance one would think that it would sink deeply on soft plowing, but it is impossible, no matter how much it is loaded, to sink it more than two inches. The wheels wedge the ground firmly beneath the surface, it being just as firm half way between the wheels as it is directly under them, making an ideal seed-bed, loose on top to hold the moisture. For best results with the packer land wants to be plowed 5 or 6 inches deep; on land plowed 3 or 4 inches it is no use. Packer should follow plows as close as possible. When ground is wet it should be left a few hours or packer will ball up. On land that had previously given me a lot of trouble to get plows to clean in, after plowing deep and using packer I have not had the least trouble the next plowing. I have not had an acre of land blow that I have used packer on. I plow, pack and seed, and sometimes give a stroke of harrow or weeder as grain is coming up. It is just the thing for using where manure has been plowed in, as it does not leave ground open, and manure rots quickly. The binders run a lot easier where packer has been used. I use it on all kinds of land, heavy and light spring plowing, fall plowing and fallow, and potatoes after they are plowed. In a wet season it will firm the land and it will not go so much to straw. In a dry season it will hold the moisture better than any other way of treating the land. Used on breaking it will do better work than any other kind of roller. Some men think that the disk harrow, loaded, and run straight, will do as good work as the packer, but I am sure they will not; as the disks are not wedge shaped, it will not pack the ground at all. The packer can be used with either three or four horses; I use four and load it. I regard it as one of the most necessary implements on the farm. And in conclusion would say, plow deep, load packer and you will get good results.

Oakland Municipality.

S. MARTIN.

#### GOOD EFFECTS OF PACKER.

To the Editor FARMER'S ADVOCATE:

I first used the subsoil packer in 1899, but, owing to there being so much rain, there was not much difference between packed and unpacked land that year. I plowed down manure drawn from the stables and spread on the snow in the winter. I used the packer on it, and in plowing the same land this year I found the manure well rotted and no trouble with the plow choking, as was the case in unpacked land other years. I always pack as soon after plowing as possible, and I find it is a great deal easier on the horses, both on the drill and binder. I do all my harrowing after the seeder. I do not think a disk harrow would do as good work, owing to the shape of the disk. I have never seen the packer tried on breaking. I consider an eight-foot packer is too heavy for three horses. I use four, and find it is the hardest work they have to do. I load the packer with about 300 lbs. besides the driver. I find that the land plows better after being packed, and I believe it helps to retain the moisture.

Municipality of Oakland.

T. J. KELLY.

#### THE PACKER SATISFACTORY.

In my opinion, the best way to use the packer is to use it directly after the plow on spring and fall plowing and summer-fallow. I have never tried the packer on breaking. Its effect on manured land is particularly beneficial. After using the packer I prefer a cross stroke of the harrows. The packer leaves the land in better shape for seeding, preserving the moisture, and thus assists germination. In my opinion, it is as easy for three horses to seed after the use of the packer as for four horses without the use of the packer. I loaded my packer with from two hundred to three hundred pounds, and used four horses. The binder will run about one horse lighter after the use of the packer.

Oakland Municipality.

W. ANDREW.

### Oak Lake Plowing Match.

Early in the year a few enterprising members of the Oak Lake Agricultural Society and Farmers' Institute proposed having a plowing match, and a joint committee was formed for the purpose of arranging details. Through the efforts of this committee many of the business men and leading farmers of the district contributed liberally towards the prize list in cash and value.

The match took place on the farm of Mr. James Jackson, 27-9-24, near the town of Griswold. A large number of representative farmers turned out, as well as many townspeople, and none of them were disappointed.

The judging was done on the following scale of points: Straightness 10, feering 10, in and out at ends 10, depth of furrow 10, evenness of top of land 10, covering weeds 30, finish 10, width of furrow 10: total 100.

The judges were Mr. Buck, of Virden; Mr. P. S. Milligan, of Reston; Mr. McKenzie, of Bradwardine, and Mr. Wade. These gentlemen certainly endeavored to do justice to all, and appear to have given every satisfaction.

The following is a list of the prizewinners in the various classes:

Class 1.—Men's 14-inch walking plow; open to all comers. First prize in this class went to Wm. Croy, 85 points; James Sutherland took second place, with a score of 76 points; and William Turner third, with a score of 54 points.

Class 2.—Men's 14-inch walking plow; open to those who never won a first prize in the Province. There were seven competitors in this class, and the work was more even. However, in the opinion of judges they did not score as high; the first prize going to John Stott, with a score of 68½; the second prize to William Gild, with 62 points; Thomas Doherty, third place, with 52½ points; Arthur Rippon, 4th; James Smith, 5th. This is a class that should be encouraged, as no one will take as much actual benefit out of the plowing match, no matter how interested an onlooker he may be, as he would had he a hand in the competition.

Class 3.—Men's 16-inch walking plow; open to all comers. The competitors all did splendid work, with very slight difference in the scores. Thomas Hill and W. A. Crowley tied for the first place, with a score of 84; Duncan McFarlane and James Gillespie tied for second place, with a score of 75 points each.

Class 4.—Special prizes from Massey-Harris Co.; open only to parties using 16-inch Massey-Harris walking plows. Only two competitors: Alfred Stott, with a score of 81, winning first place over J. E. Tolton, with a difference of only one point.

Class 5.—Gang plows; open to all comers. The competition in this class was close, and the work was well executed, the finishing being, in a couple of instances, perfect—in fact, as well as it was done by the walking plows, doing away with the idea that proper finishes cannot be made with the gang plows. A noticeable feature was that the men who drove their horses tandem (4 horses being used in each case) did better finishing, and, in fact, all through the horses seemed to do their work better, than where four were hitched abreast. W. Young was awarded first prize, scoring 77 points; Alex. E. Ross being second, with 76, and H. Wright 3rd, with a score of 73; the successful men being within a very few points of each other.

Class 6.—Sulky plows; open to all comers. H. Caldwell won first, with W. Mason, his only rival, a few points behind him.

Class 7.—14-inch walking plow; open to all young men under 20 years of age. Three competitors, the prizes going, first to D. A. Goodwin, 2nd to David Guinn, and 3rd to James Anderson. The judges did not score the work of these young men very high, but no doubt the knowledge they received will be useful, and they will score up higher next season.

Class 8.—14-inch walking plow; open to all boys 16 years of age and under. The competitors did well, ages considered, and they will improve as the years go by, and will be able to turn down some of the crack professionals when they are old enough for open competition. Leslie Wisner won 1st place, with a score of 57 points. This young lad was successful last year in several matches, and did excellent work; in fact, he is deserving of more than passing mention, and the spectators showed a keen interest in the work done. Earl Tomlinson and John Holt won 2nd and 3rd places respectively, and showed themselves to be well up in the handling of a plow, although young in years.

The sweepstakes for best plowed acre on field was won by Wm. Croy, with his score of 85 points.

After awards were made known, the prizes were distributed by Mr. J. J. Arsenault, President of the Plowing Match Committee, closing the day's programme with a short speech, in which he expressed his satisfaction at seeing so many competitors at this their third annual plowing match. It was encouraging to the Committee to see the competitors increase each year, and also to see a large number of farmers and others in attendance. There was also great encouragement in the marked improvement in the plowing throughout the district since the holding of these matches.

Mr. Arsenault, President, and Mr. Isaac Young, Secretary-Treasurer, and the officers of the committee deserve the thanks of everyone in the district for their efforts towards making this plowing match such an unqualified success.

### Horse Raising in the N.-W. Territories.

BY JOHN HAWKES, CARNDUFF, ASSA.

The horse-raising capacity of the Northwest Territories is little realized outside of those Territories. There are enormous stretches of magnificent pasture upon which no domesticated animal ever grazes. The grazing has been shown by chemical analysis to be more nutritious than any of the tame grasses; yet, it is all going to waste year after year. It flourishes beneath the summer sun; cures with the fall frosts, and becomes natural hay as it stands; remains excellent and nutritious feed all winter and next spring till the new grass comes; but no one is the better for it. The amount of natural wealth thus wasted is incalculable. If the conditions under which horse-raising can be pursued were fully realized by the horsemen of Eastern Canada and of the Old Countries, we cannot but believe that a great deal of this rich pasture would speedily be utilized for horse-raising. The prairie provides abundant nutritious and readily available horse pasture the whole year round. No prettier sight of its kind is to be seen in all nature than a band of western horses on a keen sunny winter's day industriously pawing away the snow, feeding on the grass thus exposed, and taking up with each bite a little snow to supply the place of water. It is difficult for those not familiar with the facts to realize that horses can exist, cut their own meat, thrive and remain in fine health and spirits, without stabling and without care of any kind whatever, all through the severity of a western winter. But so it is. Before the limitless capacity of the West along the line of horse production is realized, this fact must be grasped, not hesitatingly or doubtfully, but confidently, that horses winter themselves, not with hardship, but with ease and comfort, on the prairie. There is on the face of it something repellent in the idea of a horse being allowed to rustle without care or shelter in a possible temperature of forty below zero. It seems against nature and humanity, but they do well and are full of spirits. In the spring they are, as a rule, low in flesh, but in fine health. An ounce of fact is worth a ton of assertion. A very large proportion of the horses procured for the 2nd Canadian Mounted Rifles, now in South Africa, were taken off the prairie, where they had wintered. The writer saw them in Regina. They were a little bare of flesh, but hard as nails. Their long coats literally shone, their eyes were bright, and there was a good deal more exuberance of spirit than lack of it, as any unaccustomed horseman would soon discover. It is a common practice to use horses all summer and fall, and turn them out in the winter to shift for themselves. The percentage of loss is very small. All that is required, practically, is that they shall be in fair condition when set loose. When it is realized, then, that a man can raise horses in the Territories practically without providing them with a mouthful of grain or hay or with any kind of shedding or stabling, winter or summer, it becomes evident that horse-raising in the Territories can be prosecuted under very economical conditions, as regards feed and labor. One all-important fact should be added, and that is, the pasture never fails. The only drawback in this line is the prairie fire, but in the event of a stretch of country being burned over, there is sure to be an illimitable supply within easy striking distance. Compare now the raising of a colt under Eastern or European conditions with raising the same colt on the prairie, and it is easy to see where the balance of profit should be.

The horse industry in the Territories is not confined, by any means, to the Chinook belt of Western Assiniboia and Alberta. The fact that the snow, as a rule, remains on the ground for a long period in Eastern Assiniboia does not militate against the profitable raising of horses. There is no part of the Territories where horses cannot be properly raised, and there is no class of horse that cannot be raised with success without shelter, whether heavy or light. All this has passed out of the experimental stage, and the horse industry in the Territories has, we believe, a great and permanent future before it.

With such great natural advantages, the question will naturally arise why the production of horses has not been more extensive in the Territories. The explanation or explanations are simple. What I will call haphazard horses were raised, and are being largely raised to-day. It goes without saying that a horse must be planned beforehand in relation to the use to which it is to be put and the market for which it is intended. To breed any kind of a mare to any kind of a horse, and leave a chance product to a chance sale is not the way to establish the industry, but there has been too much of this hitherto. Then the word "broncho" and the reputation attaching to it has not been helpful to the western trader; but the time will come, when under different treatment, with more careful handling, the objectionable features of the broncho will be left undeveloped or be bred out. The fine qualities of the broncho will be appreciated as they deserve. His hardiness, strength and pluck will procure him a favorable reputation, and his unreliability of temper will become less and less. When a good many years ago Captain Somerset, of the British Guards, visited the western ranches in respect of British cavalry remounts, his report was not encouraging. The impression conveyed was that the British War Office was too fastidious for anything, and that even with a great deal of care, with

the brood mares at disposal, one might fail to meet requirements. Breeding for army remounts was rather discouraged than encouraged. Another feature in the early days was that droves of cheap culs were periodically brought into the Territories from over the line. Then when horse-raising on better lines was taking root, there came the terrible depression in the horse trade the world over. Horses were a glut, and animals of no particular class were without a value. There was no market for them at all. Electric power and the bicycle contributed to the discouragement, and for the time being the life was literally knocked out of horse-raising. Another feature in raising a marketable horse in the Territories must not be overlooked. We had to deal with the material at our disposal, and breed up from the native horse. It is not too much to say that many of the people who started in to raise horses were not horsemen. Their breeding was zigzag and aimless. I give an instance of the course pursued. The son of a minister started in with a band of native ponies and a "general purpose" scrub; result, a characterless animal whose only improvement was some increase in size. Then he procured a Thoroughbred of great style, but deficient in substance; result, light drivers and saddle horses, for the sale of which he had to rely on the local demand. His next break was with a small Spanish jack; result, a number of undersized mules; and then a Clydesdale and a carriage horse. Such breeding as this reads like a nightmare, but the net result gives an astounding evidence of the possibilities of even haphazard horse-raising in the Territories. This breeder had the great quality of persistence. For sixteen years he has kept steadily on, and with all his zigzag breeding, the net result is that he is a wealthy man to-day.

Something might be said along the line that horse-breeding takes time. A breeder produces a certain class of horse, and if he is making a mistake, it may take him years to find it out. He sees his blunders when he comes to sell or try to sell. The grading-up from the native horse has also taken time, but that native strain, with its invincible hardiness, and which will run more or less through most western horses of the future, will prove of the greatest value. It is not a bad foundation from any point of view, for it traces back in the first instance to the Spanish barb brought in by Cortez, and although it is deficient in size, the native horse has lots of middle. Enough has been said, I think, to account reasonably for the fact that, with a fine climate, limitless pasture, and every natural advantage for raising good horses at a minimum cost, the horse industry has not made greater strides in the Territories.

Turning to the future, the prospect is full of encouragement. Prices are right, and South Africa has been an eye-opener. Fears as to the want of a profitable market need no longer be entertained. The great strides which wheat-growing has made in Manitoba and the Territories, and which will be continuous for many years, makes the market for heavy horses certain. One of the leading features of late years has been the demand in many districts, not for general purpose horses, which can plow, haul, trot or canter, but for heavy draft animals. This demand is persistent on the heavy soils. The progressive farmer generally is recognizing that he must have lots of power. One man must drive three or four horses. If he can't get all the men he wants, he must have all the horses he needs, if he is to succeed to the best advantage.

The market for military remounts has also been widened. Most of the British cavalry are of the medium type of horsemen, and the horses must be weight carriers, but speedy, and go between 15 and 16 hands. The artillery horses are bigger yet; but when we come to the mounted infantry, to which special attention has been directed by the South African campaign, we have a different class of animal called for altogether. They are more of the pony type, from 11.1 to 15 hands, and the Territories should be able to produce them in large numbers and of just the kind wanted, from the native foundation. The Northwest Assembly has petitioned for the establishment of remount stations in the Territories, in connection with the British army, and if the request is granted, it should give a great impetus to horse-breeding, and especially if the stations are made to cover the three classes of horses mentioned. It is not likely that the scare or half scare which existed as to a permanently depressed horse market will occur again very soon. The fact that it was succeeded by a brisk demand and enhanced figures will tend to check any feeling of that kind in future, although, of course, there will be recurring periods of depression, as in the past. The time appears to have come when horse-raising along well-considered and intelligent lines can be pursued in the Territories under conditions most favorable to success. The old haphazard methods, however, must be discarded. The breeder must know clearly what market he is breeding for, and not get a lot of nondescripts on his hands which are without quality or character, and have no special suitability for any recognized purpose. We are not dealing with horse-breeding itself in detail; all we have attempted to show is that the Northwest Territories, with its vast stretches of natural horse pasture, which never fails winter or summer, provides an opportunity for the production of hardy high-class horses of any breed such as we believe taking all things into consideration, cannot be paralleled in any part of the world. The

pampas of South America, the veldt of South Africa, and the grazing lands of Australia have advantages, but for none of them can it be claimed, as it can for our prairies, that the pasture is abundant and unending the year round; while our climate necessarily tends to produce an animal of great constitution, soundness and substance. The need for good sires and kindred topics do not come within the scope of our remarks, which are intended to deal on general lines with the suitability of the Territories for horse-raising. Those who have stayed with the business under all discouragements are now reaping their reward, and the moral appears to be the same in this case as in the case of the cattleman, the dairyman, or the wheat farmer, that the man who has had lots of "stick" has come out ahead in the long run, proving that in whatever line it is adapted to the country, has only needed a fair trial to show its capabilities for profitable production.

### Care of Trees.

In an address before the Brandon Horticultural Society, recently, Mr. Robey, of the Experimental Farm staff, made the following points on the cultivation and watering of trees:

**Cultivation.**—The meaning of the word as used by me in this case, is the stirring of the surface soil with the hoe or other implement; the object of this cultivation is many-fold. It destroys weeds and thus prevents them from robbing the soil of moisture and food so needful for the welfare of the trees. This includes grass. When shrubs have been planted on a lawn, a large ring should be cut out and thoroughly spaded, giving the roots room for development. This loosening and pulverizing the surface soil leaves a fine dust mulch, the object of which is to prevent evaporation and so conserve the water in the soil during dry periods.

Thirdly, it promotes aeration and the absorption of moisture, making the packed earth more porous, and I may say that to this cultivation, in the successful growing of trees, more depends than to any other factor.

The surface should be stirred after each rain, and even then a single cultivation is not necessarily enough, but if a protracted dry period occurs, the surface should be kept loose and dry the whole time. To do this, it may require more than one cultivation.

**Watering.**—Much more depends on good cultivation than to artificial watering, and it is the opinion of most growers that in many cases watering is harmful. For example, where an unlimited supply of water is at hand, often the hose is placed at the root of the trees and let run at its own sweet will. In this case, the water either washes over the surface of the ground, or else runs through the soil and sinks below the subsoil, taking much of the plant food with it. This is especially true in gravelly soil with a sand subsoil. This works in a different way on soil with a heavy clay subsoil. Too much water will settle around the roots, which often begin to rot from excessive moisture.

And although water is the most abundant substance found in plant life, too much is often very harmful.

It must here be explained that different trees grow best with different amounts of water, and we must also recognize that it is not possible nor desirable to maintain the same moisture in all soils, so the question of watering must be very greatly left in the hands of each individual.

On the Experimental Farm for the last ten years cultivation for the conservation of moisture has been relied on rather than artificial watering, which, with very few exceptions, has not been practiced, and I think with very fair results.

### Dates of Summer Fairs.

Wawanesa	July 17th.
Shoal Lake	July 17th and 18th.
Carman	July 18th and 19th.
Portage la Prairie	July 18th and 19th.
Cypress River	July 19th.
Yorkton	July 19th.
Virden	July 19th and 20th.
Winnipeg Industrial	July 23rd to 28th.
Minnedosa	July 30th and 31st.
Brandon	July 31st to Aug. 3rd.
Strathcona	Aug. 1st and 2nd.
Fort Qu'Appelle	Aug.
Moosomin	Aug. 7th and 8th.
Souris	Aug. 7th and 8th.
Neepawa	Aug. 7th and 8th.
Regina	Aug. 8th and 9th.
Calgary	Sept. 12th, to 15th.
Manitou	Aug. 16th and 17th.
Strathlethe	Aug. 21st.

### Barley Meal as a Pig Food.

Barley meal is *facile princeps* in other words, "admitted chief" as a food for pigs. As is well known, however, it is not advisable to employ for pigs or any other variety of stock any particular food by itself; mixtures always give better results than single foods alone, no matter how excellent such foods may be. For the production of pork of the best description there is nothing better than a mixture consisting of two parts of barley meal and one part each of peas and wheat meal; these to be given in conjunction with cooked potatoes or other food, to supply the necessary bulk. — *Farmers' Gazette.*



**The Hog Fashion is Changing Even in the States.**

How rapidly prejudice disappears before real merit is well illustrated in the present attitude of farm papers in regard to the breed of Tamworth swine, which was comparatively unknown in the United States five years ago. When first talked of, the breed was received with ridicule everywhere, and especially in the corn belt, where the impression prevailed that a pig of the Tamworth type was a razor-back, pure and simple. The long snout and the red color were the subject of innumerable jokes. In spite of opposition, the Tamworth was introduced by a few believers in the breed, and its merit has commanded respect, and it is now growing in popular favor. There is no doubt that the breed will prove of immense value as a cross on the too fine American swine as well as a purely bacon breed. The pig that makes the owner the most money as a breeder and a feeder is the one that will win its way to the heart of the sensible farmer, who does not care for a few white or black hairs more or less, or the lop of an ear, except so far as "points" indicate a capacity to fill the pork barrel and make money.—*The St. Paul Farmer.*

**Farmers' Institute Meetings in the Territories.**

The Territorial Department of Agriculture has arranged for a series of meetings in the Prince Albert District, during the month of July, at which lectures will be delivered by Professor Fletcher, the Dominion Botanist, and Mr. Angus MacKay, Superintendent of the Experimental Farm at Indian Head, on agricultural subjects, with special reference to the noxious-weed question. The Commissioner of Agriculture for the Territories, Mr. G. H. V. Bulyea, will attend and probably address the meetings. Places and dates are as follows:

Prince Albert	Friday, July 6th	at 2 p. m.
Colliston	Saturday, " 7th	at 2 "
Melfort	Monday, " 9th	at 2 "
Kinstino	Tuesday, " 10th	at 1 "
Harperview	Tuesday, " 10th	at 7 "
St. Louis de Langevin	Wednesday " 11th	at 2 "
Lindsay	Thursday " 12th	at 1 "
Willoughby	Thursday " 12th	at 7 "
Rosthern	Friday, " 13th	at 2 "
Duck Lake	Friday, " 13th	at 2 "

The Rosthern meeting will be attended by Dr. Fletcher, and the Duck Lake one by Mr. Angus MacKay.

**Influence of Food on the Quality of Milk.**

In the course of the article which he contributes to the last issue of the *Transactions* of the Highland and Agricultural Society of Scotland, Mr. R. Shanks, of Woodend, Biggrigg, Cumberland, gives some interesting illustrations of the influence exercised by feeding upon the quality of milk. The extent to which the percentage of butter-fat and other solids in milk is determined by the nature of the food upon which the animals producing it are kept, is still a matter of much dispute, for while there are those who contend that the quality of milk cannot be improved beyond a certain degree (which varies considerably even with cows of the same breed), there are others who hold that the food so very largely determines the quality of the milk that they would undertake to produce milk of varying degrees of quality by the employment of different kinds of food.

The experiments and observations of Mr. Shanks, as recorded in the article referred to, go to show that no change in the food produces what may be described as a "lasting effect" on the quality of milk. During the month of March, 1888, when the cows with which Mr. Shanks experimented were fed on a concentrated diet of crushed oats and decorticated cotton cake, the average percentage of butter-fat in their milk was 3.35 per cent. In the following month (April) maize meal was substituted for the oats, with the result that the milk yields during the month showed an increase in quantity of about 15 per cent., but a falling-off in the quantity of butter-fat contained in the milk of quite 3 per cent. After the animals had been kept for two or three weeks on the second combination of foods, it was found that the quality of the milk resumed its normal condition.

As corroborative of the contention of those who hold that food does not permanently influence the percentage of butter-fat in the milk, Mr. Shanks supplies a return showing the average percentages of butter in the whole of the milk yielded by a herd of dairy cows for the last four years. In the months of April, May, September, and October the figures were:

April	3.23 per cent.
May	3.16 "
September	3.75 "
October	4.91 "

These figures show an increase for May over April of .23 per cent, and an increase for October over September of .26 per cent. Mr. Shanks specially selected those months for his illustration, because during April and October the cattle were stall fed, and in May and September they were on splendid pasture, so that these cases afforded examples of animals kept on the two extremes of feeding. These averages, taken for purposes of comparison from a large number of tests, tend to confirm what is now believed by many of our leading authorities on dairying, namely, that food has little or no permanent influence on the quality of milk.

**Roadmaking on Correct Principles.**

BY A. W. CAMPBELL, PROVINCIAL ROAD COMMISSIONER.

The making of a road is a matter which is too often undertaken without a knowledge of the real principles involved, and the result has been that on some sections of many roads labor and material has been lavished, year after year, from time almost forgotten, and still these roads are, each fall and spring, almost impassable. The roadmakers are becoming discouraged, and wonder why their efforts are not successful. A solution of nearly every difficulty in connection with these bad sections of our country roads is to be found in the fact that every good road has two essential features: (a) a thoroughly firm and dry foundation, and (b) a smooth, hard, waterproof surface covering.

The foundation of a road is the natural subsoil, the original dirt road, which must be kept dry and firm by means of good drainage. This foundation is firm and strong, capable of supporting any load in dry weather, and the object of the roadmaker must be to maintain dry-weather conditions as far as possible. This cannot be done economically nor



FIG. 1.—TYPE OF ROAD BEFORE IMPROVEMENT.

effectually by piling up the natural soil in a mound higher and higher. Earth is like a sponge, and will soak up from below the water which softens and weakens it.

This means, then, that water must be cut off before it can be drawn into the road in this way. This can be best accomplished by means of tile underdrains; or deep open drains at the side of the road will accomplish much the same purpose. Whether covered tile underdrains or open drains are employed, they must be real drains, not mere receptacles to hold water. They must have a good fall and free outlet, to remove water from the road as quickly as possible.

The surface covering which protects the subsoil from rain and melting snow, and from the action of wheels and the feet of horses, is generally a coating of gravel or broken stone. This should be put on the road in such a way that it will not, in wet weather, be churned up and mixed with the earth beneath. That is, it should form a distinct coating.

To accomplish this, the gravel or stone should be clean, containing little sand or clay. The road



FIG. 2.—TYPE OF ROAD AFTER IMPROVEMENT.

should be crowned or rounded in the center so as to shed the water to the open drains. Ruts should be filled up as soon as they form, as they hold water, deepen and enlarge quickly when neglected. The tile and open drains should, as has been said, have a free fall.

Tile underdrains are not needed throughout the length of the road in all cases. They should be laid wherever open drains of a safe depth are not sufficient, where the ground has a moist or wet appearance, with a tendency to rut readily and absorb gravel. In some cases they should be run diagonally to the center of the road if the soil is very spongy; or if a spring appears to exist underneath the road-bed it can be tapped by this form of blind drain.

The dirt road should be carefully graded and crowned before dirt is placed on it. If a grading machine is available it is well to have all its work performed in the early part of the summer, before the ground, if a clay, is hardened and baked by the heat of the sun.

A fair crown for gravel roads, when newly constructed, is a rise of one inch to each foot of width from side to center. On hills the crown should be greater in proportion to the steepness of the hill, otherwise water will flow down the hill in the at first shallow wheel tracks and quickly deepen them to ruts.

Gravel or stone should not be left on the road just as it falls from the wagon, but should be spread so that travel will at once pass over and consolidate it before the fall rains commence. Gravel or stone should be kept scraped or raked into the wheel and horse tracks until they are thoroughly consolidated. By careful attention to this, in the case of a new metalled road, the lines subjected to greatest wear will be given almost steel-like strength.

Old gravel roads which have a hard center, but are too flat, with high, square shoulders, should be repaired by cutting off these shoulders with a grading machine, turning the sod and earth of which they are composed ditchward, and across the open ditch if necessary. A new coating of gravel or stone should then be placed in the center of the road, to round it up to a proper crown. The old gravel foundation should never be covered with the sod and soft stuff from the edge of the road; so doing has ruined many fine roads.

The width of the roads of each township should be definitely laid down, and not range from ten to forty feet, as is the rule in most municipalities. A width of twenty-four feet between ditches will meet most conditions, the central eight feet being covered with gravel or broken stone.

Every municipality should make provision for an examination of its roads after heavy rains and during spring freshets. The work of a few minutes in freeing drains from obstructions of diverting a current of water into a proper channel may become the work of days if neglected, as water is very destructive. Surface water should be disposed of in small quantities, not gathered into one long drain, as great accumulations of water are difficult to handle, and do much injury. Circumstances must govern each case, but outlets should be obtained into natural watercourses as frequently as possible. Culverts should have a good fall and free outlet, so that water will not stand and freeze in them. Deep open drains by the roadside are unsafe, and where deep drainage is needed it is better to use tile underdrains, which may be placed below the existing open drains.

A degree of moisture is necessary in the summer season in keeping sand roads or roads over sandy ground in their best condition. In an excessively dry season, roads of this kind are apt to "unravel," the gravel or stone covering becoming broken up. Drains are necessary, but they should not be deeper, in ordinary cases, than will provide suitable drainage in spring and fall. One of the most lasting and beneficial improvements to sand roads is the planting of rows of trees on each side of the road, and close enough to provide a continuous shade. Evergreens are not suitable for this purpose, as they shade the roads in fall and spring; but maples, oaks, white elms or similar trees should be selected, which shade the roads in summer only, and do so more effectually than will most evergreens.

A study of the foregoing will point to three main faults commonly to be found in the roads. These are: bad drainage, poor gravel, and improper methods of placing the metal (gravel or broken stone) on the roads. It is doubtful if any of these evils can be fully remedied under the statute labor system. To overcome bad drainage it is essential that there should be a constant system of repairs, keeping the road well crowned, free from ruts, the gravel or broken stone raked into place, and the side drains and culverts open and without stoppages. The use of poor road metal (gravel or stone) is likely to continue until there is someone who, by experience, is able to select the best material available, and is provided with proper implements to screen and crush it when necessary. Nor can statute labor ever provide the means necessary for putting metal on the roads in the right way, first preparing the road by the use of machinery, then properly spreading the metal and rolling it.

Whenever statute labor is employed, however, it is advisable to employ it as far as possible in hauling gravel and spreading it properly on the road. The grading machine should be operated by men employed by the council, before statute labor commences, and the work of ditching, grading, building of culverts, the preparation of gravel or stone, should all be performed under the council by contract.

[NOTE: Fig. I. and Fig. II. represent types of roads in Massachusetts before and after improvement. The illustrations are taken from the Year-book of the U. S. Department of Agriculture, 1899.—Ed. F. A.]

**To Increase and Improve the Potato Crop.**

An expert potato grower points out, in *American Gardening*, that thinning the plants to a single stock in a hill, and then well apart, will materially increase the size and quality of the potatoes. It has been proven to be equally effective with the early and late crops. A test of this treatment may yet be made with a few rows of the late-planted crop which may have been put in up to the middle of June. The writer says he has pruned as much as half a bushel from 7 single stalks. Three feet by 18 inches is recommended as a suitable distance apart for the single stalks.

### Successful Fifth Annual Blyth Plowing Match.

Messrs. P. McIlvride, W. Guild, J. Sutherland, J. Leechman, R. J. Johnston, W. Turner, George Boles, John Stott, Will Elder, George Milne, Thomas Hill, G. R. Charleson, R. Tran, J. Wells, James Mayhew, Andrew Elder, W. Croy, E. H. Barker, Allan Tran, H. Graham, B. Barrager, D. Charleson, D. B. Elder, Fred Wells, A. Ailsby, George Elder, J. Gerry, J. W. Leslie, Allan Leslie, W. McCullough, G. Whiting, J. M. Ross, G. Johnston, D. Foster, Thomas Baker, M. Roddick, L. Nelles, H. M. Johnston, John Elder, J. T. Elder, W. A. Lawson, J. Laidlaw, G. Bruce, John Mayhew, Andrew Elder, were the 45 contestants in the annual match, which took place on Mr. Frank Elder's farm, seven miles south-east of Brandon.

The prizewinners in the men's 14-inch walking plow class were:—1, Will Turner, Carrol, 73½ points, \$22 plow and Institute gold medal; 2, John Stott, Brandon, 69 points, \$15; 3, Jas. Sutherland, 67½ points, \$10; 4, W. Guild, Kenmay, 64½ points, \$7; 5, G. Bates, Brandon Hills, 58½ points, \$4.50; 6, T. Hill, Brandon, \$3.50; 7, J. Leechman, Wawanesa, \$2. Judges—Wm. McCowan, Portage la Prairie, and A. Leslie, Chater.

Men's class—16-inch walking plows.—1, W. Croy, Brandon, 71 points, \$20 and Payne's gold medal; 2, A. T. Elder, Blyth, 66 points, \$15; 3, G. R. Charleson, Blyth, 65 points, \$10; 4, James Mayhew, Wawanesa, 61 points, \$7; 5, J. Wells, Glensouris, 49 points, \$4.50; 6, R. Tran, Blyth, 46 points, \$3.50. Judges—N. Reed, Brandon, and M. Campbell, Portage la Prairie.

Young men's class, under 21 years of age—14-inch walking plows.—1, Allan Tran, Blyth, 84 points, \$22 and Dr. Coxe's gold locket; 2, D. B. Elder, Blyth, 80 points, \$14; 3, B. Barrager, Rounthwaite, 77 points, \$10; 4, D. Charleson, Blyth, 76 points, \$7; 5, F. Wells, Glensouris, 75 points, \$5; 6, H. Graham, Rounthwaite, 63 points, \$4. Judges—Thomas Sissons, Portage la Prairie, and Fred Thornton, Brandon.

Boy's class, under 17 years of age.—1, George Elder, 82 points, \$15 watch and T. F. Butcher's silver medal; 2, A. Leslie, Chater, 80 points, \$10; 3, A. Ailsby, Wawanesa, 77 points, \$5. Special prize for crown and finish.—1, G. Elder, 17 points, \$5; 2, A. Leslie, 16 points, \$3. Judges—R. Smith, Chater, and C. Banning, Chesley.

Gang plow, 14-inch, 4 horses.—1, J. M. Ross, Wawanesa, 74 points, \$22 plow and Nation & Shewan's cup; 2, H. M. Johnston, Chater, 73 points, \$14; 3, W. McCullough, Chesley, 71 points, \$10; 4, L. Nelles, North Brandon, 69 points, \$7.

Gang plow, 12-inch class, 3 horses.—1, J. T. Elder, Blyth, 71 points, \$14; 2, W. A. Lawson, 69 points, \$9; 3, J. James Elder, 67 points, \$6. Judges—J. Jackson, Methven; D. McCowan, Portage la Prairie, and G. Jardine, Burnside.

16 or 18 inch walking or riding plows.—1, John Mayhew, Wawanesa, 86 points, \$15; 2, Willow Elder, Blyth, 85 points, \$10. Judges—Thomas Sissons and Fred Thornton.

Sweepstakes silver cup, presented by T. O. Fowler, M. P. P., value \$35—John Mayhew, Wawanesa, for year. W. Croy, Brandon, Jas. Fleming's silver medal for best crown and finish on the field. Will Elder, best kept and harnessed team, \$8. James Mayhew, Wawanesa, best handled team and carriage of plowman, \$5. J. M. Ross, Wawanesa, best plow team, \$5. Judges—Messrs. J. Carruthers and Hamilton, Chesley.

The judging of the plowing was done by score card, on the following scale: Straightness 15, feering 10, in and out at ends 10, depth and width of furrow 10, evenness of top of land 10, finish 10, covering weeds 30, width of land 5.

The field proved very suitable for the work, but as much could not be said of the condition of the soil, which was extremely dry and loose on the top, making finely-finished crowns almost impossible, and interfering otherwise very generally with successful work. John Mayhew, Wawanesa, achieved the highest success with his Canton Diamond Sulky, scoring 86 points. Willow Elder scored the second highest, with his 18-inch walking plow, making 85 points. Capital work was done by the boys, who took third place for the highest average, with 78 points; the young men following with 76, the 14-inch gang with 72, 12-inch gang with 67, 14-inch men's class walking plow, 65, and the 16-inch class scoring 59.

The closest competition occurred in the 14-inch men's class, the boys' class and the two gang classes, where there were not more than a point of difference between the prizemen. In the 16-inch class, there was a tie between A. T. Elder and G. R. Charleson; McCowan, of Portage la Prairie, deciding in favor of the ex-champion, A. T. Elder.

Much praise was bestowed on the boys' and young men's work by judges and spectators alike. The young men show a possible advance on last year's record, averaging 76 against 69 points. The gangs have fully held their record, considering the unfavorable condition of the soil. Of young lads who have come to the front in their first competition, mention deserves to be made of A. T. Elder, Blyth, and H. M. Johnston, Chater. A. T. Elder, Blyth, who took first place in the 16-inch class, and John Stott, who took second, have been persistently competed for years and have won highly-distinguished places. The match has afforded gratifying and most encouraging success, and the officers are to be congratulated on their successful

labors. A slight diminution in the number of entries and an apparent deficiency in the quality of the work done in a few of the classes, as compared with some of its predecessors, the real interest in the work and the hearty appreciation of its resultant value and influence is felt to be, if possible, deeper and wider than ever, and the promise of continued usefulness and success is fully assured. Hearty and eloquent speeches by T. O. Fowler, M. P. P.; Hugh McKellar; Dr. Williams, Montreal, and R. Waugh and C. Braithwaite, were well received. The proceedings terminated after the distribution of the numerous and valuable prizes to the winners.

### Separators: Their Construction, Care, and Operation.

BY MISS LAURA ROSE.

Owing to the increased interest taken in separators, and the vast amount of good a more general use of these machines would bring to the farmers, I have been requested to write more fully of their construction and operation.

Where a person has a herd of eight cows or more, I strongly advise investing in a separator. A good machine properly handled, and the dairy products profitably disposed of, should pay for itself in a year's time by the increased returns it would bring. An agent told me he sold more machines to farmers having less than eight cows, and they found them a paying investment. Whether the herd be large or small, I, myself, have never yet met a person who has used a separator who would appreciate the thought of returning to the old method of skimming the milk. They seem to give universal satisfaction.

Many times am I asked which is the best separator. There is really no best separator. Each make has some marked characteristic good point; one make may be simple in construction, another very easy to run, another quickly cleaned, and so on, but you will not find a machine in which all the good qualities are combined. In buying, aim at securing as many of the following points as possible:

Strong and simple in construction.  
Thorough skimming.  
Easiest run, with large capacity.  
Quickly and easily cleaned.  
Durable and safe.  
Convenient in construction, with regard to height of handle, height for pouring in milk and for receiving the outflow of cream and milk.  
Strong foundation and steady motion.

There are belt separators, turbine or steam separators, and hand separators. The readers of the *ADVOCATE* will probably have more of the hand separators to deal with, so I shall speak more especially of them, although my remarks are largely applicable to all kinds. The foundation on which the separator is to stand should be firm and solid. It is a good plan before screwing the machine to the floor to tack down a square of good oilcloth or linoleum. It is easier kept sweet and clean than wood. The top of the frame which holds the bowl should stand level in all directions.

Clean thoroughly with coal oil all the running parts before putting together, and repeat this cleaning with oil about once a month. It will add greatly to the life of the machine.

Bowls with a spindle should be carefully handled, so as not to bend the spindle or injure the thread.

Supply all the necessary parts with oil, seeing that the oil cups are kept filled and in working order when the machine is in operation.

Too much attention cannot be given to the directions furnished with each machine. In starting a machine, get up speed *slowly* and *gradually*, and when it is up, be careful not to exceed the specified speed of the machine. Few have little idea at what velocity the bowl revolves. We think a train is going fast at a mile a minute, but a separator bowl travels at the rate of from two to five miles a minute, according to its diameter, and has a pressure of from fifteen to twenty tons to the square inch on the inside of the bowl. If it were not made of the very best and strongest material, it would fly all to pieces. It is a wonder more bowls do not burst, when we think of the extra speed they are often ignorantly subjected to.

So many wonder why such high speed is necessary. It is the speed which does the skimming. In constructing separators, man has utilized that power in nature that which is heaviest flies farther away from the center of motion. When milk is brought under the influence of the separator speed, the dirt in the milk, being the heaviest, is thrown with great force against the sides of the bowl, and sticks there. Then the skim milk, being next in weight, is thrown outward, and finds an outlet, and the cream, being the lightest part, is crowded towards the center of the bowl until it too finds a way of escape. The skimming devices found in nearly all makes of separators are so arranged as to assist in making the separation of the cream from the milk more complete.

When speed is up, put through some hot water to wet and warm the bowl, which will prevent the cream from sticking to the bowl.

Turn on milk to full flow until the milk and cream start to run, after which regulate the flow of milk. When it comes from the cow is in the best condition for skimming. If the night's milk be held

over till morning, it should be heated to about 90° before separating. Cold milk does not give such thorough skimming, and makes frothy cream. When all the milk has been separated, run through a couple of quarts of hot water or skim milk to flush the cream out of the bowl. If you have occasion to leave the machine when separating, shut off the milk and close the oil cups. When resuming work, get up speed slowly, as at first, then turn on milk.

The best time to wash the machine is immediately after the bowl has stopped revolving, and it should be let run down without any force applied to it. First wipe out or scrape off the separator "mud," or refuse, which gathers inside the bowl, then wash *thoroughly* in warm water and rinse in clear boiling water, and place where the parts will drain and dry and be free from dust and dirt.

All machines have some device for regulating the richness of the cream, usually a skim milk or cream screw; still, other conditions influence the cream. High speed and low feed will give a richer cream; slow speed and more feed give a thinner cream. Variations in the speed and feed often account for the fluctuations of the butter-fat when tested with the Babcock tester or oil-test churn.

If the supply of milk be great, it is advisable to have some power to run the separator, as even the easiest machine if turned by hand for any length of time becomes tiresome. A small gasoline engine does the work well and cheaply, and may be utilized for churning, pumping water, etc., etc. I saw one working recently, and the farmer told me it only cost 25 cents a week to run it twice a day. Tread power does nicely, and is not so expensive to procure. Windmill power cannot be depended upon, and is not regular enough in its motion.

In placing a machine, have it convenient to the cows and calves, so as not to necessitate carrying the milk any distance, but at the same time, every precaution should be used to keep the milk from unfavorable surroundings. Farmers setting up a machine in a stable should partition off a small room; should have it well floored, whitewashed, and a window in it to let in sunshine and fresh air. The place must not be damp, or the machine will rust.

O. A. C., Guelph, Ont.

### How the Separator Separates.

Notwithstanding that separators have now been in use in the country for over 20 years, and that there are very few districts in which they are not at present employed, there is still not a little lack of knowledge among ordinary farmers as to the manner in which these appliances work in abstracting the cream from the watery fluid in which it is suspended in the milk. The separator depends for its efficiency on the application of the well-known mechanical principle known as centrifugal force. The cream or butter-fat exists in the milk in the form of very minute globules, which, because of their lighter weight, float on the watery portion of the milk in which they are suspended. When the milk is allowed to stand undisturbed for some time, these globules, under the influence of the law of gravity, have a tendency to rise to the surface and accumulate in the upper part of the milk. When the separator is brought into play, however, centrifugal force is substituted for gravity, and it is in this way that the butter-fat and the watery portions of the milk are separated. An excellent illustration of the principle on which the separator works is afforded by swinging a bucket of water rapidly round the body at arm's length. When so swung the bucket exercises a very distinct pull or pressure upon the arm; this pressure is the result of the centrifugal force, which has a tendency to make a revolving body move away from the center of motion. The faster the pail is swung the greater is the pull upon the arm, and accurate experiments have shown that the centrifugal force increases as the square of the velocity—that is to say, if the bucket is swung twice as fast the pull becomes four times as great. If we were to put milk in the bucket in place of water and swing it very fast, the centrifugal force would pull the milk against the bottom of the bucket just as gravity does when the bucket is at rest, the only difference being that, if the bucket were swung very rapidly the centrifugal force would be much greater than gravity, and the pull on the milk correspondingly greater. The result would be that the cream would rise to the surface of the milk just as it would under the influence of gravity, and more rapidly in proportion as the centrifugal force was greater than the force of gravity. The earliest centrifugal separator was constructed exactly on this plan, the milk being revolved rapidly in small buckets by means of suitable mechanical contrivances. In this apparatus the cream could be raised in from fifteen to twenty minutes. The next step in the development of the machine was to replace the series of buckets by a bowl rotating about a vertical axis. Then followed the famous discovery of De Laval, who just 21 years ago in 1879 introduced a machine for continuous separation—that is, one into which milk could be run at a regular rate as long as desired and separated into cream and skim milk. Great improvements have been made in the details of machines since then, but the principle employed is still the same and always will be so long as the separation of the cream and skim milk are effected by mechanical means. *Farmers' Gazette.*

**Bath and West Show.**

The Bath and West and Southern Counties Society held their annual show this year in the City of Bath, from June 1st to 4th. The entries of horses numbered 224, cattle 516, sheep 141, and pigs 135. The horse classes included Shires, Agricultural horses, Hunters, and Hackneys. The stallions in the first class were not numerous, but mares and fillies made a much heavier competition. The male champion was found in Hitchin Ringleader, shown by Mr. A. Ransom. This horse also won 1st in his class and other premiums in 1899. The 2-year-old Hendre Champion won the reserve honors. In the mature class, Anchorite, bred by H. R. H. the Prince of Wales and owned by Lord Rothschild, won second prize in his class. In a class of a dozen entries of mares and fillies, Savemake Victoria won 1st, also mare championship. She was exhibited by W. H. Golding. Lord Rothschild's Blythwood Nora won 2nd in the brood mare class. The gold medal for best mare or filly, given by the Shire Horse Society, was won by Rickford Lass, owned by Sir W. R. Wills, Dorothy Drew receiving the reserve honor.

There was an excellent display of Hunters, and a select but small show of Hackneys. In the latter class the principal winners were exhibits made by Messrs. H. Livesey, E. S. Goodsell, Sir Walter Gilby, and Capt. E. M. Whitting.

There was a good show of Devon cattle, possibly not up to last year, however, but the Shorthorn classes have seldom if ever been equalled at the exhibitions of this Society. In this latter class H. R. H. the Prince of Wales won 1st on the mature bull, Stephanos, bred at Windsor and sired by Fairfax. He is described as having immense substance, broad, flat back, and full thighs with plenty of flesh. C. W. Brierley's Ben Ledi won 2nd, and Willis' White Silver Plate, bred by Mr. Bruce, won 3rd. The champion of the show was found in H. R. H. the Prince of Wales' Pride of Collynie, a light roan with capital loin and top, full thighs, and a nice handler. The cow class was excessively strong, as were also those of heifers.

Jersey and Guernsey classes were well filled, and the cows are said to be wonderfully meritorious. Of the former breed, the principal winners were Mrs. Murray Smith, Mrs. C. Combe, Mrs. T. L. Brown, Mrs. Greenall, Duke of Marlborough, Lord Rothschild, and Colonel McCalmont. The best English cow or heifer was found in the entry of Hon. Mrs. Murray Smith. Herefords, Sussex, Keries and Dexters were well represented.

Cotswolds, Devon Long-wools, Southdowns, Hampshires, Shropshires, Oxford, Dorsets and Exmoors each had their places.

The show of pigs was fully up to the average of this exhibition, and the breeds usually seen were in good force and form. The gold medal for the best boar in the Large White, Middle White, Small White, and Black or Tamworth classes, was awarded to Sir Gilbert Greenall's Middle White Walton Royal, and the medal for the best sow fell to Mr. Phillips' Tamworth Whitacre Favorite 3rd.

**The Season's Cheese Trade.**

Regarding the condition of the cheese trade generally, the *New York Produce Review* has the following to say in its issue for June 20th:

"The situation of the cheese trade presents features which are both interesting and gratifying. Since the first of May, and up to the present writing, the receipts of cheese at New York made an increase of over 60,000 boxes, compared with the same period last year, and the increase in our export clearances was no less than 90,000 boxes. This is certainly a most gratifying enlargement of trade, and would be especially so if encouraged by conditions which might be lasting, and under which we might anticipate a continued growth toward the great volume which some years ago characterized the cheese trade of our city and State.

"But considering the causes which have led to the increase in the movement of cheese to and from New York, the most important factor was undoubtedly developed during the summer and fall of 1899, when the make of English cheese was shown to be unusually light, and in the closing months of marketing the American crop of 1899. The great consuming markets of Great Britain were more closely cleared of cheese last spring than they had been for a number of years; reserve stocks in this country and Canada, which were comparatively light at the turn of the year, were depleted with unusual rapidity by the excess of export demand incident to the lightly-stocked condition of British markets. Doubtless the world's stock of cheddar cheese at the opening of the present trade year was smaller than for many years, and British markets were more than usually dependent upon the early product of Canada and the States. And this dependence was made the greater by an unusually cold and backward season abroad, in consequence of which the early English make this year has been materially curtailed.

"The total volume of export trade from Canada and the States has exceeded that of last year over 50 per cent. up to the present time, and the relatively high values prevailing in consequence have been most satisfactory to all selling interests, except to those Canadian operators who, failing to anticipate the strength of the demand, are said to have made large contracts with European buyers for June delivery at prices lower than they were able to cover themselves.

"The high prices resulting from the conditions before referred to have left many local operators in a quandary as to the future. There is usually a

considerable storage of surplus June cheese here; but no one cares to pile up stock at present prices, and, in fact, up to this time there has been no surplus to accumulate. It is only very recently that Canada has been shipping very heavily, and it is to be expected that as soon as British markets feel the weight of supply on the basis of present shipments from this side of the water, together with the natural effects of a growing local production, softer markets will ensue, which can hardly fail to produce a corresponding weakening on this side."

**Feeding Brood Sows.**

The feed for the brood sow before farrowing should be nutritious, but not concentrated. Heavy, concentrated feed stuffs may be extended or given volume by using bran, which serves well for this purpose, and roots, which are much relished, and by supplying chaff, clover or alfalfa hay softened with boiling water. Some corn may be fed, but meals rich in protein—oats, beans, middlings, and barley—should supply most of the nutriment. Breeders differ in their management of sows before farrowing, some insisting that they be held in thin flesh, while others would have them in high condition. They will prove satisfactory when in good flesh, provided it is put on under proper regulations as to the character of feed and the amount of exercise. As farrowing time approaches, let the feed be sloppy and limited in quantity. Any tendency to costiveness should be overcome by feeding bran, roots, oil meal, or other feeds of a corrective character. For two or three days after farrowing, supply only a limited supply of feed. A thin, warm slop made of middlings, oatmeal, with a very little oil meal poured a little at a time into the feeding trough, will quench the thirst of the new mother and answer all requirements. Eating her young, an act quite common with brood sows, is unnatural, and reflects upon the management of the feeder, indicating that feed and exercise have not been properly regulated.—*Prof. Henry, in "Feeds and Feeding."*

**Thorough Cultivation in the Garden.**

BY MRS. ANNIE RODD.

Thorough cultivation is necessary in order to attain success in farming. It requires some time and patience, but pays in the end. Here is a bit of experience in gardening. Our garden was plowed last fall and again this spring. Then it was thoroughly harrowed time and again, first with the disk, then with the spring-tooth, and at last with the spike-tooth harrows. Then it was dug up with the spade, the roots of the weeds taken out, drills made, and plenty of manure placed in each drill. Then we planted our vegetables—beans, peas, corn, onions, carrots, parsnips, squash, pumpkin, melons, tomatoes, and cabbage. The land was in good condition, and the garden is looking well. We have been agreeably surprised to see the garden so free of weeds. I expected to see them come up in a hurry, as if trying to get ahead of the vegetables, but the vegetables are ahead of them this time all right. Of course, this is the result of thorough cultivation. It is far better to keep the weeds from starting, if possible, than to have so much trouble trying to get rid of them after they have started. Of course, there are some weeds in our garden, but not half as many as I expected to see. But they need to be exterminated quickly, or they will soon choke the plants.

"O weeds, how very fast ye grow!  
But here comes a determined foe,  
It is the woman with the hoe."

Like a soldier going to battle, she starts out, armed with her hoe, and with a brave heart and willing hands she goes to work resolutely to conquer those hateful weeds that threaten to destroy her vegetables. She perseveres, she does not gain the victory all at once, for the enemy is very persistent, but at last she comes off victorious, and has the satisfaction of seeing her garden "a thing of beauty," and of filling her purse with welcome dollars from the proceeds of her industry and thrift.

The farmer has battles to fight also. He must have courage and perseverance, if he would succeed. Neglect means failure. General Potato Bug will soon muster his forces together and take possession of the field if he is allowed to. But the wide-awake, thrifty farmer is on the lookout for him, and gets his ammunition ready for the first attack of the invader. He does not conquer at once, but he perseveres, and after repeated skirmishes he generally comes off victorious, and General Bug has to relinquish the field.

Queen's, West, P. E. Island.

**Wheat Crop Prospects and Prices.**

At the present writing advices from the leading wheat-growing States, as well as the condition of the crops in Manitoba and the Northwest, are decidedly unfavorable, and for some time past there has been a steady advance in prices. Wheat holds a decidedly strong position, with a favorable outlook for high prices, though official reports do not yet support the idea of holding on to present stock in the hope of extravagant gains.

**Price of Fat Sheep in England.**

In the prices of fat sheep in London (Eng.) the record of the year and several recent years was broken on a recent Monday, when wethers sold up to 96s. per lb., carcass weight, sinking the old. But for some weeks the top price has been higher at Liverpool than in London, 100s. per lb., having been the top price all through May in the latter market.

Dr. William Saunders, on behalf of the staff of the Central Experimental Farm, Ottawa, presented Mr. J. H. Grisdale, the Agriculturist, with a cabinet of silverware on the occasion of his recent marriage to Miss Vipond, of Hudson.

**Taking Comb and Extracted Honey.**

BY MORLEY PETTIT.

Apparatus for taking comb and extracted honey is described on page 95 of February 20th FARMER'S ADVOCATE. Sections are not given to the bees until the beginning of the clover flow, as early or spring honey is usually dark and not plentiful enough to produce more than a few second or third rate sections. Where the brood chamber becomes full to the outside combs with honey and brood during the spring flow, put on an extracting super and mark the hive "For Comb," as it is strong and best fitted for that purpose. About one-third to one-half the number to be run for comb may in this way be chosen. For the remainder, put sections on all swarms which issue from extracting hives after clover starts, instead of transferring the extracting super from the parent hive. Get supers on all the hives as fast as they are ready for them. As soon as honey begins to come in from white clover, insert wedges in all hives except very weak ones, remove supers from those hives marked "For Comb," and put on sections. Extract spring honey from all the supers, that it may not color the clover.

To extract rapidly one requires a wheelbarrow containing a comb box full of empty combs, two or three goose or turkey quills to brush bees, some pry, like a screwdriver, for loosening combs, and a lighted smoker. Smoke at the entrance, then remove the cover and blow smoke between the frames, giving the bees time to run down. Examine the middle comb, and, if it is ready, give it two or three quick shakes before the entrance, jarring off most of the bees onto the alighting board, and set it on the ground behind the hive. In the same way quickly remove all combs that are ready. Honey should not be extracted before it is at least partly capped, unless it is dark and must be got out of the way of white honey. Even then it is a question whether unsalable thin honey is preferable to darkened clover honey to be sold at a reduction. Having removed all combs that are ready, shift the remainder to one side, complete the set with empties from the wheelbarrow, and close the hive. By practice this exchange may be made before the bees have time to recover from their first smoking and assume the offensive. Now pick up the combs one by one, from behind the hive, brush off the remaining bees and hang them in the comb box. On the back of the hive record the date of extracting. Thus X-7-2-00-R, means that the right side was extracted on July 2nd, 1900. On the next extracting day the cloth may be turned back from the left side, where the full combs will be found.

After clover honey comes that from linden or basswood. If much is to be sold, it is well to keep this separate, as the clover was kept separate from spring honey; although linden and clover are both first grade and command the same price in the market. These are the most reliable sources in this section; but often linden is followed by thistle honey, also a first grade article, and then, in some parts, buckwheat, whose redeeming feature is that it comes late and helps fill the brood chambers for winter.

Comb honey should not be removed until the close of the honey season; but wherever one super is filled and partly capped, lift it up and put a fresh one under next the brood chamber, and so tier up until they will just have time to finish the lot before the close of the flow. When a fresh super is put under, bees usually stop work on the others until they bring the new one up to the same stage, and then finish them all simultaneously. Now, if the flow stops before that time you have a lot of unfinished and unsalable sections. On the other hand, if you wait until the first super is completely finished before giving another, the bees will nearly stop work, lose valuable time and probable swarm. Thus a great deal of care must be exercised, and even the best beekeepers are sometimes caught with a lot of unfinished sections when the flow stops suddenly, as it often does.

To take off sections, blow smoke into the top of the super to drive most of the bees down, then lift it off and set on end near the entrance. By looking between the sections you can see where clusters of bees are, smoke these from one side and brush them off the other as they run out. Do not continue this too long, as the smoke may taint and discolor the honey; but leave the super standing a few minutes and more of the bees will fly home. When several supers have been removed pile them one upon another, at various angles, in the extracting room near the door, and the remaining bees will fly to the screen.

By another method, supers are cleared of bees and removed with very little smoke. This requires a "bee-escape," of which there are several kinds, all involving the principle of separating the bees from their brood so they will leave the super and at the same time be unable to return. The queen-bar between super and brood chamber is replaced by a board of the same size, and having the same rim for bee space. In the center of this board is the "escape" proper. The Reese and Lareese escapes consist of wirecloth cones whose bases open into the super. The bees escape through the small end into the brood chamber, but do not find their way back. With the Porter escape every bee has to pass between the points of two very sensitive springs that readily yield as each one passes outward, closing up and absolutely preventing its return.

The best time to put on bee-escapes is in the evening, and by nine o'clock the next morning you may expect the bees to be all out.

### Rules and Regulations for the Test of Dairy Cattle at the Pan-American Exposition.

It is proposed to hold a test of dairy cattle at the Pan-American Exposition, beginning June 3rd, 1901, and continuing for fourteen consecutive days. The Exposition Company will, if the test is held, provide, free of charge, suitable buildings for the care of the animals entered in such test, and will arrange for a commission to take charge of the test, as hereafter explained.

The Exposition Company will not, however, hold such a test unless three or more dairy breeds agree to enter therein. Notice of the decision of dairy cattle associations in this regard must be filed with the Superintendent of Live Stock not later than August 1st, 1900.

The following general rules will govern the test:

1. There will be two tests. First, one composed of cows over three years of age; this will be known as the "Mature Herd Test." Second, one composed of heifers two and one-half years or under, with their first calf; this will be known as the "Young Herd Test." The ages of the animals entered will be computed to June 1st, 1901. Entries may be made in either or both of these tests.

2. Not more nor less than fifteen animals of any one breed can compete in either test. Animals must be entered before May 15th, 1901. Entry blanks will be furnished by the Superintendent of Live Stock.

A statement must accompany or follow each entry, giving the pedigree of each cow or heifer offered for entry, the number of calves produced, the date of birth of her last calf, and such other information as may be requested by the Superintendent of Live Stock. Also, a statement covering the method of feeding and the character of food given each animal during the month prior to the date of entry; and, if any change in the said method of feeding or in the character of food is made after the entry, a statement covering such change must be furnished the Superintendent of Live Stock at the beginning of the test.

3. The test will be conducted under the direction and supervision of a commission, to be composed of five persons to be selected from the staff of the Agricultural Colleges or Experiment Stations of the United States and Canada, each member of said commission to be a specialist in the dairy department of the institution he represents. No member shall be chosen who is not acceptable to each breeders' association represented in the tests. On June 1st, 1901, the commission will take charge of all animals in these tests, in accordance with the rules and regulations then in force to govern the tests.

4. Animals entered in these tests shall be cared for by herdsmen selected by the associations representing the breed to which the animal belongs. Feeds of all kinds, including ensilage, clover hay, and grain, will be supplied by the Exposition Company on the grounds at nominal prices upon requisition being made therefor by the representative of each association represented in the tests. The representative of each association may use such kinds of food as he may decide upon from time to time, but no drug, stimulant or medicine of any kind, except Epsom or Glauber salts, shall be given an animal, unless provided by and given under the direction of the veterinary, who will be selected for the tests by the Superintendent of Live Stock. All feeds used will be weighed and samples thereof analyzed under the direction of the commission.

5. A separate account will be kept with each animal taking part in these tests. Each animal will be charged in this account with the kind, amount and cost of the food she consumes; the cost to be the market value thereof; she shall be equally credited in said account with her milk product, but the loss or gain in weight of such animal during the tests will not be considered. The price at which all foods will be charged in said account shall be made known to the representative of each breed participating in the tests at least two months previous to beginning the tests. The value at which all milk products shall be credited in said account—except for those for which provision is specially made herein—shall be equally made known to the representative of each breed at least two months previous to beginning the tests. The commission will prepare special rules to govern milking and the care, custody and disposition of the milk produced by each animal. These special rules will be given to the representative of each breed not later than April 15th, 1901.

The method of ascertaining the amount and value of total solids shall be determined by the commission, subject to the approval of the Director-General.

6. The following awards will be made by the Exposition upon the certification of the commission and of the Superintendent of Live Stock:

Award No. 1. For the herd producing the greatest net profit during the test, but not being the only product to be credited to the herd. The quantity of butter made to be credited each herd to be determined by the "Butter Fat Test," the value of such butter fat to be based on the highest average price quoted for butter of such grade in New York, Philadelphia and London, on the last of 35 fat.

Award No. 2. For the cow producing the greatest net profit in the competition for Award No. 1.

Award No. 3. For the group of ten cows of any competing breed producing the greatest net profit in churned butter, the quantity of such butter to be determined by chemical analysis upon the basis of 85% fat, and its value to be credited as provided under Award No. 1 above.

The group of ten competing for Award No. 3 must be designated not later than June 1st, 1901, by the representative of each association, from the herd of fifteen representing such association in the competition for Award No. 1.

Award No. 4. For the cow in each group producing the greatest net profit in the competition for Award No. 3.

Award No. 5. For the herd producing the greatest net profit, total solids alone considered.

Award No. 6. For the cow in each herd producing the greatest net profit, total solids alone considered.

Award No. 7.—Sweepstakes. For the cow producing the greatest net profit.

7. If in the opinion of the commission it becomes necessary during the tests to withdraw any animal on account of sickness, the loss to her breed, by reason of such withdrawal, will be credited on the basis of her product while in the test—provided she has taken part for five days, other, wise no credit will be given her.

8. If any association entering animals in these tests purposes placing upon the exhibition grounds, prior to the beginning of these tests, a greater number of animals than is herein specified as permissible to compete in the tests, notice of such fact shall be given the Superintendent of Live Stock not later than September 1st, 1900.

9. If any misunderstanding shall arise regarding the application or interpretation of any of the rules governing these tests, the subject matter in dispute shall be submitted to the Director-General, whose decision shall be final.

All records kept by the commission during these tests will be published by the Exposition.

(Signed) F. A. CONVERSE,  
Superintendent of Live Stock.

(Approved) WILLIAM I. BUCHANAN,  
Director-General.

### Raising Young Pigs in Winter Without Loss—Outdoor Exercise Necessary.

[FROM OUR ONTARIO AND EASTERN EDITION.]

SIR,—I have had considerable experience during the past few years in raising pigs; have had a good deal of trouble and disappointment, but think we have learned how to overcome the difficulty in raising pigs in the winter without much loss.

When I built my new brick piggery, about four years ago, I thought I was going to have a first-class house for raising winter pigs, as I spared no expense in making the place warm, dry, well lighted, ventilated, wood floor laid on the cement floor, and brick walls all wainscoted with matched lumber, so that the pigs could not come in contact with either the stone or brick walls to chill them. We have a wide hall or passageway (11 feet wide) running through the center of the building, longest way (the house is 40 x 80 ft.), in which I have a large box stove, where we keep a fire during the very coldest weather, so that we have no frost in the house; kept roots all winter without freezing. Now, you would think this would be a capital place to raise young pigs in winter, but we found it not to be so. The first winter we lost nearly one half of our young pigs. I was greatly disappointed, and wrote to several of the best breeders, asking them if they could tell me the cause or a remedy? The answer I got was that my pigs wanted more exercise out in the open air. The pigs came all right, were strong and healthy; lost but very few until they were three, four or five weeks old, when they would die very suddenly. When a week old they get as fat, round and pretty as any little pigs you ever saw, clean, lively and in perfect health, but when three or four weeks old they would get so fat that they could not breathe, their throats would seem to fill up with fat so that they could not take their food and had great difficulty in breathing, so I lost about the half of them. We raise from four to five hundred a year—about five litters per month—so we had quite a loss; but we had no trouble in raising them in the summer. The next winter we adopted a different system of management. I have another brick house near by the large one, 30 x 30, divided into four pens and fitted up the same as the large house, except there is no cement floor, but double inch boards with paper laid between the two thicknesses and all laid in hot tar. This building has a high ceiling, over 10 feet in the clear. In each one of these pens I have an elevated sleeping room about four feet above the floor, with stairs for the sows and pigs to go up and down. I have a large box stove in this house, so that in very cold, freezing weather, when sows are farrowing we keep the house just as warm as we think best for the young pigs, but we found the same difficulty with the pigs dying when three or four weeks old in this house as in the larger one, so we adopted the plan of turning the sow and pigs into outdoor yards about fifty feet square, in each of which we have a little house 8 feet square, with a little swing door in one end and glass windows in the opposite, with ventilation above the window or in the roof. For young pigs we have a canvas door hung at the top so the little pigs can run out and in at will; it keeps

out the cold winds. Each pen has a floor and lots of dry bedding, changed twice a week. We leave the pigs in the large warm house until two or three weeks old, and then turn them out into the yards with the little house, where they have lots of exercise and cold fresh air. As the feeding troughs are outdoors in the yard, the sows have to come out into the cold snow for their feed, and the pigs follow the mother. One would naturally think that it would be hard on the little pigs taking them out of the warm house into the cold yard in the middle of winter, but it is not so, as they never get sick or die after putting them out, although sometimes they begin to show sickness before we get them out; they soon recover and come around all right in a few days. Here they keep healthy, thrive and grow nicely; never lose any outside unless something uncommon happens them. Out of some two or three hundred, we lost but very few last winter, and had them coming in all through the winter; and now when fat hogs are fetching such a high price, we are deriving the benefit.

We feed our sows in winter warm cooked slop feed, skimmed milk mixed with bean shorts, with a little barley, corn or pea meal cooked 10 or 12 hours before feeding, and fed warm. We do not cook feed in summer, but soak it 10 or 12 hours before feeding. We feed the young hogs about the same as we do the sow, with a larger proportion of skimmed milk, and three times a day. During the winter we feed all our hogs a little dry whole corn once a day and all the mangels they will eat once a day. In summer we cut and feed green, once a day, alfalfa clover, all they will eat, to all our hogs, except those that are being finished off for the market; the last two months we do not feed them clover. The greater number of our brood sows, after weaning their pigs, are turned out to pasture, but at the same time fed once a day with green feed; this is during the summer months. We have had splendid luck during the past two years, having lost but very few, and the buyers say we have the best bacon hogs that come in to this market. We always get the highest price going. We wean our pigs when six or seven weeks old.

Oxford Co., Ont.

E. D. TILLSON.

### Weaning and Feeding Pigs.

I hardly ever wean any of my pigs under 10 weeks, but if a person has sweet skim milk for them, they might be weaned younger. As soon as the pigs are 3 or 4 weeks old, I put 5 or 6 sows with their little ones all together in one large pen, then I allow the little ones to run in an adjoining pen to feed. I am very particular to keep it clean. I feed them a little shorts, a few peas, and some corn (peas and corn unground), and all the mangels they will eat. I just break the mangels in pieces. I keep the floor clean, and covered with straw to feed the roots on. I do not feed them too much grain, and they eat their roots better.

I feed my sows ground oats and shorts mixed and soaked twelve hours. If I can buy wheat bran for \$10 or \$12 per ton, I mix some with it. I give them one-half pail night and morning, all the roots they will eat at noon. I don't think it hurts the sows for the pigs to run with them 10 or even 12 weeks.

The more I feed pigs, the less I think I know about it. I am satisfied there is as much in breed as in feed, and also that there is as much difference in the same breed of thoroughbred stock as there is in two distinct breeds. I have had three Yorkshire boars. Two of them would impress their breed on their stock, no matter what their dams were like. Their offspring were always good strong pigs right from start to finish, always thrifty, and good doers, and never known to have cripples from being overfed. While the third hog, which was equally well bred, cost considerably more, and was said to be the best I ever owned by all who saw him, his get are very inferior—lots of them ruptured (even some of the sow pigs), more runts, and lots of poor doers. I have given several away between 2 and 8 months old. And further to prove that there is more in breed than feed, I had two young sows, second litters, one York, one Chester, they each farrowed the same day, each had 4 pigs. I took the 4 from York sow and gave them to Chester sow. The York pigs grew right away from the Chester, and were far superior, both being fed the same. I would like to say there is no trouble at the present time with fats. I am putting off January pigs now at 180 lbs., while a year ago last winter I had to keep them 8 months to grow what packers call singers or bacon hogs, then sell some as low as \$3.00 per cwt. Norfolk Co., Ont. S. A. FREEMAN.

Agricultural education is gradually being accorded that measure of recognition which it merits at the hands of those responsible for the control of leading British educational institutions. The establishment of a chair of Agriculture at Cambridge has been followed by the decision of the Senate to create a special examination for the B. A. degree for students in Agriculture. The example set by Cambridge is certain to be followed, if not immediately, at all events in course of time, by most of other leading Universities. The Royal University of Ireland now holds an annual examination for a degree in Agriculture.

**The 1900 Graduating Class from the Ontario Agricultural College.**

We present in this issue a group portrait of the 1900 Guelph College graduates, being considerably the largest class of Bachelors of the Science of Agriculture taking their degree in any single year at that institution of growing popularity. The group lacks one portrait of being complete, that of J. M. Reade, B. S. A., of Toronto. His place is occupied, however, by M. Cumming, who took special work, but did not take the university examinations along with the others. He is a graduate of Dalhousie College, N. S. He proposes however, to take the B. S. A. examinations at a later date. We regret that at the time of going to press we had not been able to learn something of a number of the graduates, regarding their birthplaces, early education, future occupation, etc. It is gratifying to know that so many of the class return to their farms to pursue their selected calling, for which they have had a special training, and in which we wish them marked success.

**T. D. JARVIS, B. S. A.,** is the third son of Mr. L. G. Jarvis, Baltimore, Maryland, formerly Poultry Manager at the O. A. C., and well known as a judge for the different poultry associations throughout Canada and the United States. Mr. Jarvis was born in the City of London, in the year 1878, and received his early education in that city, after which he took a six-months course in the Western Ontario Shorthand Academy, completing his course in 1895. As a student at the O. A. C., Mr. Jarvis was successful, both in the general course of the first two years, and in his graduating year, taking the Biology option, giving attention more especially to Plant Pathology and Entomology. Since completing his course he has taken a position on the experimental department. It is his intention to follow along biological lines.

**FRED W. GOBLE, B. S. A.,** was born in the village of Gobles, in the township of Blenheim, Oxford County, Ont. His mother and father are Canadian born. After passing the High School entrance examinations he entered the second-year course at Woodstock College, and nearly completed his year, which was interfered with by illness. In the fall of '97 he entered the Ontario Agricultural College, and during that year secured a \$20 scholarship in Mathematics. In his second year he was Sec'y-Treasurer of the Athletic Association, and was on the Athletic Committee in his third year. He took a keen interest in sports, and won the championship gold medal in his third year. Mr. Goble's intention at present is to follow mixed farming as an occupation, near the town of Woodstock, Ont.

**E. J. McMILLAN, B. S. A.,** was born at New Haven, P. E. I., of parents of Scottish descent. Received his early education at the New Haven public school. Leaving school, spent several years in work on his father's farm. Entered the Ontario Agricultural College on Oct. 1st, 1897, where, during his first year, he took first place in General Proficiency, and scholarship in Natural Science. In second year held first place in General Proficiency, winning prize and Governor-General's medal. In final year stood first place, with first-class honors in Proficiency of general course, second-class honors in Chemistry and Physics (special course). During the College year 1899-00, was Managing Editor of the O. A. C. Review. His future occupation is uncertain, and he will engage in further study.

**GEO. A. PUTNAM, B. S. A.,** was born in the village of Lyons, county of Elgin, Ont. He worked on his father's farm until 16 years of age, then attended a high school in Aylmer for about two years, subsequently taking a full course in the Forest City Business College and Co's Shorthand School, London. He came to Guelph in

the spring of 1890, since which time he has acted as Private Secretary to President Mills.

In the fall of 1888 he decided to take the College course in addition to performing his duties as Secretary, so, with the consent of the President, he hired an assistant to do a part of his work. Among a class of thirty (second-year students) he stood fifth in Proficiency for the College year of 1888-89, and during the summer of 1889 took supplemental examinations on first-year work. Mr. Putnam obtained first-class honors in his special—Agriculture—in his third-year work, and stood fifth in General Proficiency. He also stood at the head of his class in judging beef cattle, dairy cattle, swine and sheep. Mr. Putnam continues in his position at the College, and is now prepared to do better work than before taking the course.

**WILLIAM A. LINKLATER, B. S. A.,** was born near Goderich, July 9th, 1877. His parents, while born in this country, were of Scotch-English descent, and were among the earliest settlers of Colborne township. He passed the entrance examination at the age of twelve, but only attended the high school for a few months. After an absence from school of about seven years, he entered the Ontario Agr. College, at the opening of the fall session, 1896. During his first and second years he stood second in General Proficiency, and succeeded in winning the Veterinary Science scholarship. In his final year he took his special course in agriculture, and had the satisfaction of taking a first-class standing in his special subjects. In his second year he was Vice-President and in his final year President of the College Athletic Association. He also had charge of the Athletic department of the O. A.

**C. E. MORTUREUX, B. S. A.,** entered the College in his 21st year, in the fall of 1897, and remained three successive years. He took in his third year the Agricultural option, and won honors in his special subjects. He won the English scholarship in his first year, and the valedictory prize in his second year, prize given for best thesis written on a subject assigned. Mr. Mortureux belonged to the O. A. C. Review staff for 2 years, and to the Athletic Committee for one year. He was born in France, came to Canada in his thirteenth year, and followed farming, the occupation he still intends to pursue.

**E. C. DRURY, B. S. A.,** was born at Crown Hill in 1878, of English parentage, being the only son of Hon. Chas. Drury, Sheriff of Simcoe, who was the first Minister of Agriculture for Ontario. As to education before going to the O. A. C., he entered the Barrie Collegiate Institute, and obtained from there a Senior Leaving certificate, in 1897. He entered the O. A. C. in 1898, taking the work of the first two years of the course in one year. He won the prize given by the O. A. C. Literary Society for speaking, in 1899, and was Agricultural Editor of the O. A. C. Review in 1900. Mr. Drury intends to follow farming on his father's farm.

**J. R. HUTCHISON, B. S. A.,** was born in the year 1878, in the township of Leeds, in the Province of Ontario. His father (David Hutchison, Esq.) is of English descent, of the U. E. Loyalist class; his mother is of Irish descent. Mr. Hutchison's younger days were spent on the farm at home. In the year 1894 he wrote on the examination prescribed

for entrance to the High School, standing first among a large number of candidates. After that he stayed on the home farm until 1897, when he entered the Ontario Agricultural College, took the full course, and specialized in Dairying. At present he is in a large cheese factory at St. George, Ontario, and intends to follow the occupation of dairying.

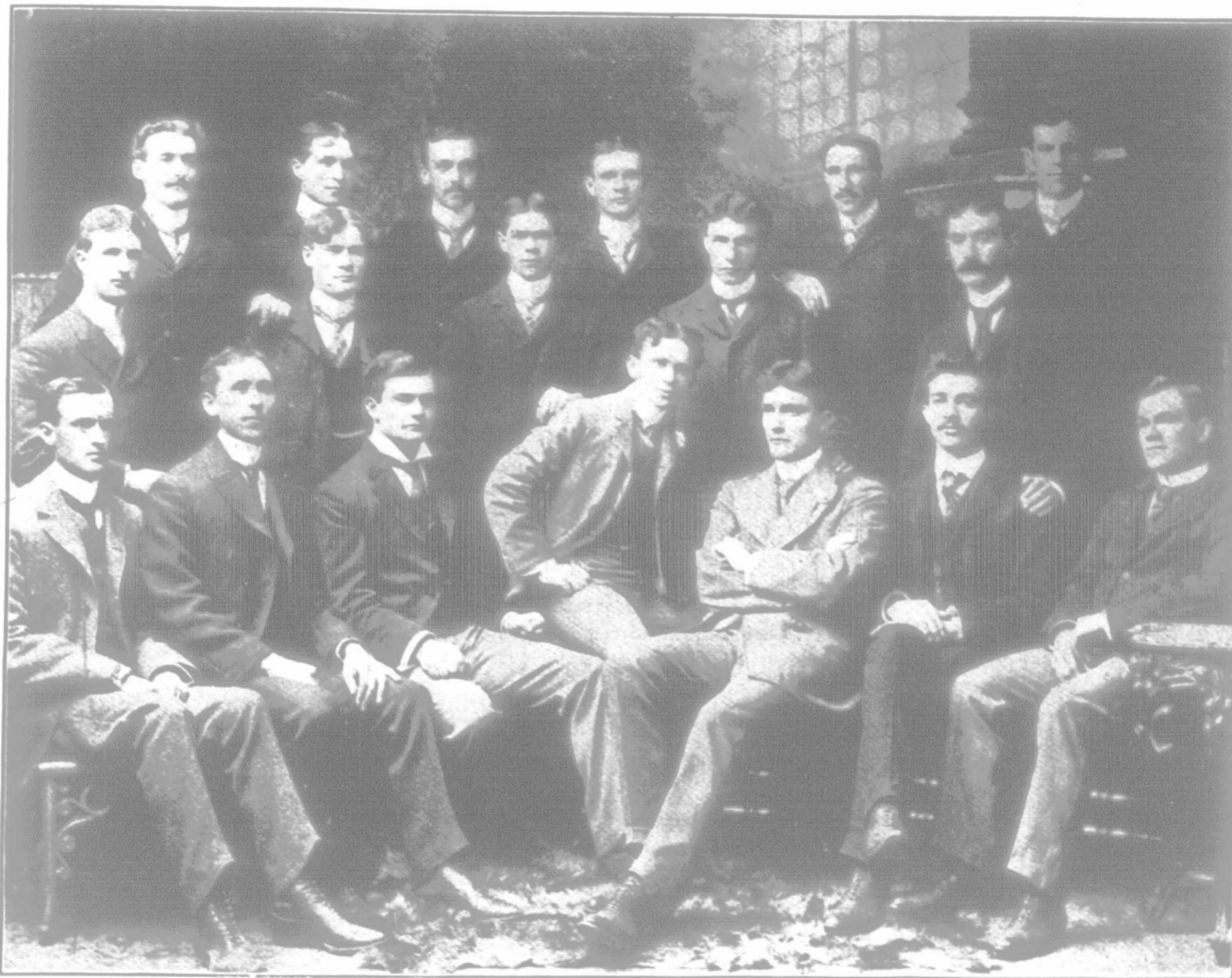
**G. H. HUTTON, B. S. A.,** was born in Grenville, the county of his present residence, in the year 1878. His grandparents came to America from Ireland and settled in the New England States. They joined the general movement of loyal hearts, and leaving the Union, came to reside under the old flag, settling in Grenville County. At the end of a satisfactory public school career, Mr. Hutton entered the Brockville Business College. In September of the same year he joined the Freshman class at the Ontario Agricultural College. Was sent as the delegate from the College Y. M. C. A. to the Northfield Student Conference in '98, and later became President of the Association. He was a member of the business and editorial staff of the

Review for two years. Won third place in the oratorical contest in '99. He won honors in several subjects in his final examination. In the future Mr. Hutton intends to devote his attention to agricultural pursuits, especially to stock-raising.

The remaining members of the class are the following: J. H. Hollis, Shelly Bay, Bermuda; A. J. Wagg, Mindemoya, Manitoulin Island; A. H. Creer, Molesworth, Ont.; J. B. Anderson, St. Mary's, Ont.; J. A. Robertson, Blantyre, Ont.; G. A. McIntyre, Renfrew, Ont.; and J. M. Reade, Toronto, Ont.

The following mixture is what we used last year for flies on cattle, and began using again, three times a week, on June 12th this year: Half gallon fish or seal oil, 1/2 gallon crude petroleum, 1/2 gallon coal oil, 1/2 cup crude carbolic acid. Applied with a coarse-spray hand pump, the most of the flies get wet in spraying, and it kills them entirely.

**W. C. SHEARER,** The inventor of the popular Oliver Chilled Plow, Mr. James Oliver, of South Bend, Indiana, commenced life at the bottom rung of the ladder by digging ditches and other humble honest toil. By the manufacture and sale of his famous plow he amassed an enormous fortune, out of which he gave to his city of South Bend a million-dollar hotel, which surpasses the best hotels of any city of similar size in America. On May 30th, which was the 37th anniversary of his wedding, he and his wife were presented by the citizens of South Bend, in the hotel bearing his name, with an address and a loving cup of superb execution, as a token of their appreciation of his generosity and goodwill.



A. J. Wagg. T. D. Jarvis. C. E. Mortureux. G. A. Putnam. F. W. Goble. W. A. Linklater. J. M. Livingstone. G. A. McIntyre. J. A. Robertson. A. H. Creer. D. J. McCarthy. M. Cumming. E. J. McMillan. E. C. Drury. J. H. Hollis. J. B. Anderson. J. R. Hutchison. G. H. Hutton.

**GRADUATING CLASS OF 1900 AT O. A. C.**

C. Review during fall of 1897. After finishing his course at the College, Mr. Linklater returned home to farm.

**JOHN M. LIVINGSTONE, B. S. A.,** was born in the township of Sarnia, of Scotch Irish parentage, and has spent the greater part of his life on a farm. He began the course at the O. A. C. in the fall of 1896, and, after completing the two years' course, engaged to work in a cheese factory for the summer. The following winter and summer he was in the employ of the St. Mary's Creamery Co. When the College opened in the fall of 1899 he returned to further his knowledge of dairying and general agriculture. Last winter he secured a 1st prize of \$50 in a written competition in buttermaking. It is his intention to follow the dairy pursuit and to further prosecute his studies in that line.

**D. J. MCCARTHY, B. S. A.,** was born in the township of Asphodel, in the county of Peterboro, and received his education in the neighboring public school and the Norwood high school. His parents were Irish, and were among the pioneer settlers of that part of the country. After leaving school, Mr. McCarthy continued agricultural pursuits (mixed farming) until 1897. Entered the O. A. C. in October, 1897. Received Associate diploma in 1899, and graduated in 1900. His intention is to follow agriculture.

QUESTIONS AND ANSWERS.

Miscellaneous.

CANADIAN REGISTRATION NOT ACCEPTED.

Subscriber, Wayne Co., Mich.:—"Will you please inform me, through your valuable paper, if Canadian-bred Clydesdales and Shires can come to the United States free of duty if purely bred and registered in the Canadian Clyde and Shire Stud Books and showing a certificate of registry?"

[In order that live stock be admitted duty free into the United States from Canada, they must be accompanied by a certificate of registration in a recognized United States Record for the breed which they represent. Certificates of registration in Canadian records are not accepted.]

FALSE FLAX (*Camelina sativa*).

AN OLD SUBSCRIBER, Middlesex Co., Ont.:—"I inclose a specimen of weed which I believe to be false flax. Is it likely to have been introduced with grass or clover seed? Will the seed maintain its vitality in the soil more than a year? What is the best method of destroying it?"

[The plant received is undoubtedly false flax (*Camelina sativa*). It may grow to a height of 18 or 20 inches when not crowded and in good land. In the early stages of its growth the plant is some-



FALSE FLAX (*Camelina sativa*).

what leafy, but after its blossoming stage is past the upper portion of the plant consists mainly of stems and seed pods. The blossoms are small and of a pale yellow color. The seed pods are pear shaped, with small pointed projections from the upper end. They grow on slender stems for several inches along the upper portion of the branches. The seed is brown, somewhat resembling common flax, but much smaller. An average well-developed plant produces about 10,000 seeds. It flowers during June, July and August, and commences to seed in July. It is generally introduced as an impurity in flax, clover, or grass seed, or uncleaned grain. It grows on all sorts of soil and infests winter wheat, rye meadows and pastures.

Where the plants are few, hand pulling will destroy it, but where it is more plentiful the rotation should be made so that it is as far as possible the crops it infests. If any stubble land early after harvest, or gang plow and harrow. As soon as the seeds have had time to sprout, cultivate; repeat the cultivation and tillage of the land the last thing in the fall, so as to leave as much as possible of exposed surface. This process should be repeated following spring and cultivation of the stubble throughout the growing season. In the fall after the main crop, sow a crop of spring plow and harrow with clover. Stray weeds in the spring should be pulled

by hand. Take one or two crops of hay or pasture and break up in the summer shallowly, cultivate till fall and rib up before winter. Cultivate and harrow in the spring for a grain or hoed crop. The seed of wild flax will retain its vitality in the soil for years.]

FORMULA FOR WHITEWASH—TRANSPLANTING TREES—COOKED WHEY FOR HOGS.

W. F. B., King's Co., P. E. I.:—"Please give me the best recipe for putting on whitewash, that it may stay on well and retain a good appearance."

"2. If maple or poplar trees be transplanted in June or July, are they liable to grow?"

"3. Is whey from factory better food for hogs if boiled than if fed in its raw state?"

[1. A formula for whitewashing that is recommended by the Spramator Co., of London, Ontario, and which we believe is satisfactory, is as follows: Take 40 pounds of lime, slack it by pouring boiling water over it and in sufficient quantity to cover it five inches deep in a barrel. Stir it briskly until thoroughly slacked. When the lime has been slacked dissolve it in water and add 2½ pounds of sulphate of zinc and 5 pounds of common salt. A beautiful cream color may be given to the work by adding 3 pounds of yellow ochre, or a good pearl or lead color by adding lamp or iron black. For fawn color add 4 pounds of umber, 1 pound of Indian red and 1 pound of common black. For stone color add 4 pounds of raw umber and 2 pounds of lamp black. When applied to outside of houses or to fences, it is rendered more durable by adding about a pint of sweet milk to a gallon of wash.

2. In our experience maples may be planted as late as the first week in June with fair chances of living, provided it is carefully done and the ground is kept moist by rain, watering, mulching or cultivation until the trees have become well established. We would not recommend transplanting at a later date. Poplars are, as a rule, more tenacious of life than many other trees, and if transplanted into moist soil at almost any season their chances of living are good.

3. There is no advantage gained in boiling whey for hogs, but it is well to have it heated up to 160 or 170 degrees while sweet in order to maintain it in that condition. Considerable of the feeding value of whey is due to the milk sugar contained in it. The process of souring or fermentation changes the sugar into alcohol, rendering it useless as food. It therefore follows that if whey cannot be fed raw in a sweet condition it should be heated to the temperature we have mentioned before it leaves the factory in order to give best results in feeding.]

Horses for South Africa.

The first shipment of 713 Canadian horses for South Africa left Montreal a short time ago on the British steamer Lugano, and were pronounced a fine, rugged lot of animals. The Devono followed with about 875 head, the latter having 40 stockmen in attendance.

Chatty Stock Letter from Chicago.

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

	Extreme prices now.	Top Prices		
		Two weeks ago.	1899	1898
<b>Beef cattle.</b>				
1500 lbs. up.....	\$3 25 to 5 75	\$3 90	\$5 50	\$5 15
1350 to 1500 lbs.....	5 00 to 5 85	5 85	5 55	5 25
1200 to 1350 lbs.....	4 80 to 5 70	5 80	5 50	5 15
1050 to 1200 lbs.....	4 65 to 5 60	5 60	5 40	4 10
900 to 1050 lbs.....	4 50 to 5 30	5 50	5 25	4 90
Fed Westerns.....	4 90 to 5 70	5 80	5 50	4 90
Stillers.....	5 00 to 5 10	5 40	5 15	4 75
<b>Hogs.</b>				
Mixed.....	4 90 to 5 30	5 25	3 92	4 12
Heavy.....	4 85 to 5 30	5 25	3 92	4 15
Light.....	4 90 to 5 30	5 25	3 95	4 05
Pigs.....	4 00 to 5 10	5 10	3 85	3 90
<b>Sheep.</b>				
Natives.....	3 25 to 5 40	5 35	5 40	5 25
Western.....	4 50 to 5 15	5 20	5 15	5 25
Yearlings.....	5 50 to 6 75	6 60	6 40	5 75
Lambs.....	6 00 to 6 75	6 00	6 40	6 75
Colorado lambs.....	6 75 to 7 00	6 80	7 00	6 85
Spring lambs.....	4 50 to 7 50	6 80	7 65	6 85

More cheerful reports come from the ranges of South Dakota and Montana. Rain has fallen in that section in volume of 2½ to 4 inches. Rivers are reported banks full and water holes on the open ranges well filled. A letter from Glen Ullin, North Dakota, says: "Grass has dried up on the ranges already, and cattle will be shipped from that region much earlier than usual, showing fair beef condition already."

M. R. Murphy, head hog-buyer for the Cudahy Packing Co. at Omaha, says hogs coming to that market are of very good quality, weighing 15 lbs. less than a year ago. They are mostly young hogs, showing that farmers are marketing them pretty close. He is of the opinion that July, August and September receipts will be decidedly lighter than a year ago, and that prices at Missouri River points will reach \$6 before September 1.

Although 6,840 cattle were shipped for export this week, lower markets abroad caused a marked dullness in this branch of the trade, and at the close of this week, such cattle showed a decline of 10c. to 20c. from prevailing prices a week ago.

Stock cattle, grass fed and of light weight, have been exceedingly hard to sell all this week at a reduction of 25c. Grassy stock is coming more freely, and is being discriminated against in every department.

Combined receipts of hogs at eleven markets this week were 117,000, or 67,000 less than the previous week, and 121,000 less than the corresponding week last year. Since January 1, 1900, the eleven markets received 11,561,000, or 16,000 less than a year ago, and 288,000 more than two years ago. Thus far this year Chicago alone received 3,970,000, or over a third of the combined receipts at eleven markets. Since January 1, 1900, Kansas City received 1,019,000; Omaha 1,080,000; and St. Louis 1,000,000, making a total of 7,927,000 at the four leading western markets.

The sheep trade has lately been badly demoralized through liberal receipts of grassy stock and a bad outlet for dressed mutton. Sheep have declined during the past week 25c. to 40c., while spring lambs show a reduction of 50c. to 75c.

Some of the boats used in the South African transport service are now back in the regular trade, and exporters from now on will not be so cramped.

The flight of the wheat market has put farmers in good humor, especially those in the middle west who are blessed with good crops.

The hog situation has kept the trade guessing for some time, but most dealers believe the values are bound to go higher.

The Best Food for Pigs.

An interesting experiment in pig-feeding was carried out last year at the Yorkshire, Eng., Agricultural College. Four lots of pigs, six in each, were taken at seven weeks old and fed for 124 days on a uniform diet of 1 part barley meal, 1 part bran and 2 parts shorts. This mixture was served to the animals along with about four times its weight of water in which it had been previously soaked. The object of this preliminary 124 days' feeding was to see that the pigs to be experimented with were of uniform thrift. During the 124 days the average increase in weight per head was 1.1 pounds per day, the average for each lot being practically the same, so that after the feed had been changed in conducting the test, any variation in results may be considered due to the difference in feed rather than with the individuality of the pigs.

Having learned that the four pens of pigs were thriving uniformly, a change in the diet supplied to each pen was made on December 12th. The following shows the food given in each case:—

Pen 1.	2 parts barley meal 2 parts shorts 1 part gluten	With four times the weight of water.
Pen 2.	1 part barley meal 1 part maize	
Pen 3.	1 part barley meal 1 part shorts	With twice the weight of water.
Pen 4.	1 part barley meal 1 part shorts	

The gluten given to pen 1 is a material containing over 49 per cent. albuminoids, and was used for the purpose of determining the effect of a ration containing a high percentage of flesh-formers.

The custom hitherto in vogue at the farm in feeding pigs was to steep the meal for a few days in about four times its weight of water, and to supply this in a very sloppy condition. In the experiment here described the same meals were given to pens 3 and 4, but the amount of water used along with them was reduced by a half in the case of pen 4. While the food given to pen 3 was in the usual sloppy condition, that given to pen 4 was of the consistency of oatmeal porridge. Each lot were allowed as much as they would eat. The experiment was continued for eight weeks.

At the beginning of the test, Dec. 12th, pen 1 weighed 1,076 pounds; pen 2 weighed 1,064 pounds, and pen 3, 1,120. During the first 28 days the pigs in pen 1 averaged a daily gain of 1 pound; pen 2, .8 of a pound; pen 3, 1 pound, and pen 4, 1.2 pounds. During the second 28 days the daily gains per head were for pen 1, 1.1 pounds; pen 2, .9; pen 3, 1.4, and pen 4, 1.4 pounds. The pounds of food consumed during the experiment were for pen 1, 1,304 pounds; pen 2, 1,304; pen 3, 1,304, and for pen 4, 2,254 pounds of food. The daily consumption of food for pens 1, 2 and 3 was 5.7, and for lot 4, 6.7 pounds. The pounds of food for pounds of increase in live weight were for pen 1, 5.3; pen 2, 6.1; pen 3, 5.7, and for pen 4, 4.9. The total pork produced from pen 1 was 1,083.6 pounds; from pen 2, 1036; from pen 3, 1,037.26; and from pen 4, 1,132.8 pounds.

In studying the results we may first contrast pen 1 with pen 3. The ration containing the higher percentage of albuminoid, given to pen 1, produced the greater live-weight increase, but the total pork was about the same in each case. There appears to be an advantage in the use of a higher albuminoid ration for finishing pigs than that supplied in food consisting of equal parts of barley meal and shorts. Maize and shorts were contrasted in the food supplied to pens 2 and 3. The pigs receiving shorts yielded a higher percentage of pork, and each pound of increase was obtained with .4 pounds less meal than when maize was substituted.

The most marked contrast is between pens 3 and 4. Both received the same mixture of meals, which in one case was fed in a sloppy condition, and in the other in the form of a porridge with water supplied in a separate trough. The pigs getting the drier food yielded 124 lbs. more increase in total live weight, 73 stones more pork, and produced each pound of increase with a consumption of .8 less meal. What became of the extra food given to pen 3? The answer is evident: It was used in heating up the water which the pigs were obliged to consume.

We conclude, therefore, that the mixture of barley meal and shorts is better than barley meal and maize, and that the latter mixture may be somewhat improved by the addition of a highly nitrogenous meal, and finally, that a great deal of food may be wasted, particularly in winter, when pigs are fed upon food containing more water than is necessary for the requirements of the body. The cost of food supplied to pen 1 was about 19s. greater during eight weeks than that given to pen 3, but the value of the increase of pork for the same pen was 12s. 6d., thus leaving a balance of 2s. 6d. in favor of the drier food.

In studying these figures it should be remembered that the period in which the pigs were on different diets was only eight weeks, and had the period been increased the results would undoubtedly have been more marked.



Belinda and the Boy.

BY MELICENT COOPER.

"And it's my belief as he's seen a lot of trouble, young as he is." And Sarah shook her head sadly, being of a sentimental, tender nature, that loves to weep with the weeping.

"Nonsense! There never was a trouble yet that a man couldn't cure with a bottle of whiskey and a pack of cards," Belinda, from much study of single male lodgers, took a pessimistic view of human nature.

"Yes, here are his boots, though why poor young man I don't see." Sarah feebly pointed to the worn soles, frayed tops, and general decrepit appearance of the said boots.

"Well, these ain't the only ones he's got! Maybe he has corns, and likes 'em easy."

"Ah, Belinda! you're hard on him, you are; and he so nice-looking, and speaking so polite like."

"Carrying the tray with care, she tapped at the door, and, on a genial permission being given, entered. The room looked mean and shabby, for furniture deteriorated as it mounts in lodging-houses."

"Rather! Young man brought it, all buttons, I don't hold with them buttony fellows." And Belinda frowned.

"Belinda, where are my boots?" The question was apprehensive.

"I'm just shining them up a bit, Sir. Do you want them?" "No, I'm in no hurry. The fact is, Belinda, I'm in a fix."

"I've just received an invitation. I should so much like to accept—but, Belinda, it's the boots."

"My other things are fairly good, but a man can't go out to dinner in shabby boots."

"Then I shall accept," he said, joyfully. "Belinda, you can clear away; I'll write a note and post it at once."

"Belinda gathered up the tray slowly; this was her one pleasure in the day, and must not be hurried. Her sharp tongue was tipped with honey in the shabby little room."

As those who inhabited the upper rooms at 16, Baliol Street, were not all provided with latch-keys, this offer of Belinda's was not to be despised. So the Boy departed in a pleasant fever of anticipation.

The hot July sun was bleaching the dusty roads when Belinda made a great discovery. She was dusting the third-floor back sitting-room, and came upon a photograph in a frame.

"Yes," he said, taking the picture up tenderly, "we are cousins, and—but this is a great secret, Belinda, only her own people know of it—we are engaged."

"Belinda!" cried the Boy, almost dancing into the room; "oh, Belinda! she's coming here to see me—she's coming to tea to-day!"

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"Yes, indeed you do! but I fear he will miss me."

"Well, you wouldn't like him not to miss you, would you?" Belinda's tone was not intentionally disrespectful, so Catherine laughed.

"You are right, Belinda. I should not, certainly"; then under her breath she added, "Oh, my poor boy, my poor boy!"

"And we will write every day, Kathie," said the Boy, trying to speak gallily; "I expect to have such volumes of good advice. Trust me, I'll read every word!"

"We have been happy, Godfrey; have we not?" "Happy, darling!" he said, fervently; "I've had a fore-taste of Heaven these last few months. Oh, Kathie, things are going so well with me that, perhaps, when we meet again we can choose our wedding-day."

"Here, Belinda, fearing to listen longer, dropped a tea-cup, and they realized that they were not alone. When she left the room, her last vision was that of the Boy tenderly soothing his still weeping cousin."

"So they parted, and time went on every day bringing clever, amusing letters full of interest to the Boy, who was a trifle sad and distraught."

"But one day, a foggy, dull November day, the Boy came home before his time, looking scared and troubled."

"In his vague terror of coming trouble, he, as usual, came to Belinda for sympathy, fearing, boy-like, to arrange for himself."

"You won't forget, Belinda! I'd like you to do it for her whenever you can. Just a few white flowers. She was so fond of flowers!"

"Some day, Belinda. She would like me to come back; you have been such a good friend to me. I will come back some day."

"So the Boy departed, and Belinda, hidden from Sarah's watchful eyes, wept bitter, bitter tears."

"He has not come back yet, but his cousins talk most respectfully of their handsome cousin, who is getting on so splendidly, and whom poor Kathie loved so dearly."

"This is the story of a tame crow named Richie, who once showed a feeling of penitence, or at least a disposition to 'make up.'"

"At other times he would enter the room unobserved and commit such havoc as only crows are capable of removing the corks from bottles and emptying the contents in perfect torrents over the floor."

"One day he entered the window, seized an unused lead pencil, and, before the indignant servant could snatch it away from him, flew off with it to a neighboring tree."

"His mistress, incensed by this theft, refused to recognize him in any way, and pushed him away from her window when he came for his food."

"We like the idea of simplified spelling," says the editor of the Perkins Junction Palladium, "but we don't think we could ever become used to writing it."

"He wawkt down the ile, leaving the trax of his larj and mudde shuze on the flore. The marx ar vizzibl yet."—Chicago Tribune.



**The Lookout Regiment.**

Names are already beginning to come in, although it is only a few days since the Regiment was organized. I am glad to see so many boys in the ranks, and hope there will be plenty more soon. Surely with *Nelson* in the van our army should be invincible.

Here are the names of the first recruits: (1) Nelson M. Rittenhouse, (2) George E. Ronald, (3) Annie Adams, (4) Arthur Morris, (5) Julia C. Grey, (6) Tom Simpson, (7) George T. Rogers.

One of the soldiers writes:

DEAR GENERAL,—

I think the idea of the Lookout Regiment is just great. Why, if a fellow has to do odd jobs for everybody on the place when he wants to go fishing, it is pretty tough, I tell you. Now when I have to run errands or chop kindling I can just think it is orderly duty. When mother wants me to mind the kid, that can be sentry work. I am an awful unlucky chap, and get wounded pretty often. Just now I am laid up with a lame leg—really in hospital, you know—and, you bet, everybody is pretty good to me, so I have a pencil handy, and make notes on the sly. It won't do to tell the real names, though, for I guess mother and the rest wouldn't like it. The badge will help me to remember that I am a soldier, and must be jolly even if things are uncomfortable. Say, don't you think I might be a corporal or sergeant, or something? I'm in hospital, you know, so I must have seen active service.

Yours to command — (Private) B.K.

P.S.—That's not my real name, of course; we know what that is, don't we, General? But mum's the word.—B.

So I have suddenly become a general, have I, and you want to be promoted too? Well, Ben, my lad, promotion generally comes to the men who deserve it. The question is, how did you get your lame leg? Were you climbing a barbed wire fence to steal berries, or were you playing truant and running barefoot without leave? Perhaps you were helping that kind mother of yours and spilt some boiling water over your foot, or possibly you got hurt in trying to keep "the kid" out of danger. In that case, you may deserve the Victoria cross.

I hope you will all like the badges. The *shield* means faith; the *anchor*, hope; and the *cross*, love. If you don't get your badges promptly, let me know, but remember that you will have to wait a week or two before your names can appear in the paper. The number of prizes given will depend partly on the quality of the work sent in. Be as neat as you can. Blots are very unsoldierly. You will find full directions for enlistment in the *Advocate* for June 20th.

COUSIN DOROTHY.

**To Go A-Fishing.**

It's time to put the lessons by;  
The fields are full of daisies,  
When summer blue is in the sky,  
Who cares for sums and phrases?  
Deep in his heart, his highest joy,  
The boy, I know, is wishing  
To leave the schoolroom's strict employ  
And just to go a-fishing.  
He'll find a grand old willow tree,  
Above brown waters dipping,  
Where catfish glide and minnows be,  
And dainty birds are sipping.  
There, waiting long, with earnest pluck,  
At last his line will quiver,  
And you and I will wish him luck  
Beside that bonny river.

**A Pen Portrait.**

A saucy, brown head, with fine, tossing curls,  
Pouting red lips that shut over pearls,  
Laughing blue eyes, and a tip-tilted nose,  
Fat dimpled fingers, and pink-tinted toes,  
There's a "proof" of my baby; for you must know  
The photo's not finished 'Tis not yet for show—  
She's only two years, and not yet "developed,"  
In short, white dresses she still is enveloped.  
She's a rollicome, frolicsome, mischievous sprite,  
Off giving her mamma a terrible fright;  
First, spilling the ink, upsetting the jam,  
Then finding the "squeak" in her toy woolly lamb,  
Now tearing the leaf from a valuable book;  
Again, knocking a statue from its place in a nook;  
Then smashing a vase of fine Dresden, rare,  
And scratching the crystal and oxidized ware,  
And then in the kitchen, annoying the maid;  
Entering the pantry to her make a raid,  
She'll climb a chair and the sweetmeats will find  
Eat lemons and oranges to madness of mind,  
There, now? What is it? A fish here and write,  
She and the puppets are having a fight,  
Dear me, how she chatters! It's never her best track,  
'Twill talk and a good one she's got,  
Avoid, avoid!

**The Making of Pins.**

One hundred years ago, it was considered a wonderful achievement to produce, in a day, 48,000 pins in a day. Now, it is possible to make 48,000 pins in the same time.

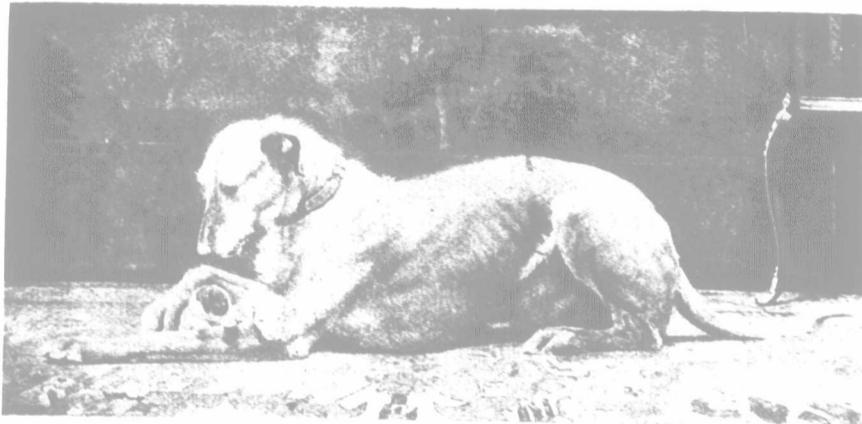
**Origin of Brown Bread.**

Even before coming to Plymouth, the Pilgrims, in November, 1620, found in sandheaps on Cape Cod "diverse faire Indean baskets filled with corn, and some in eares faire and good, of diverse collours, which seemed to them a very goodly sight, having never seen any such before." And soon after "ther was found more of their corne, & of their beans of various collours," as Bradford relates in his history. This corn the Indians well knew how to make into bread, for in the first embassy to Massasoit, made in the early summer of 1621, the Pilgrim deputies came to a body of Indians who were fishing near the present Middleboro. "Thither we came" (as is set out in the Relation published at London in 1622) "about three a clock after noon, the inhabitants entertaining us with joy in the best manner they could; giving a kind of bread, called by them maizium."

It would be interesting to ascertain what was the composition of this "maizium" bread, whether it was like hoe-cake or analogous to our brown bread. If the Indians had anything proper to mix with the corn meal, in the way of other grain, they were all fitted to make brown bread, since nothing yet has been invented to cook it in that can compare with the old-fashioned earthen beanpot, and these pots (it seems) the Indians had; when "Massasowat was like to die" (relates Governor Winslow in his "Good News from New England," in telling how he went to succor the sick sachem) "I caused a woman to bruise some corne and take the flour from it; and we set the grut or broken corne in a pitkin; for they have earthen pots of all sizes." Furthermore, they knew the best method to cook such things as bread and beans, for no oven, Dutch or other, has yet been invented that can equal setting the pitkins in a hole in the ground and building a fire over them, or covering them with the embers of an expiring fire.—*Boston Transcript*.

**"Orphans."**

This is a beautiful, yet sad, picture. The artist, W. Frank Calderon, has managed to convey an amount of expression to this noble dog's face and attitude which denotes accurate observation and



sympathy with animal nature. The exact meaning of "Orphans" may be read in different ways. Either those little tumbling mites are really the orphans of some dog chums, both dead, or is it the one parent who is gone, and the other one carefully watching them and thinking of the lost one gone away to leave these three so lonely? The mingled look of strength and tenderness on this dog's face is most beautiful, and also the curve of the protecting right paw, whilst the left one forms a cushion for the pathetically helpless puppy heads.

**The Bishop and the Bushman.**

During the ten years he was in Australia as Bishop of Melbourne, Dr. Moorhouse, the present Bishop of Manchester, made himself very popular through his geniality, tolerance, and common-sense.

One night the Bishop was about to lecture in a little township perched on a plateau in the Australian Alps. The hall was packed, but a young bushman, attired in a striped shirt and moleskin trousers, and wearing a flaming red comforter, was determined to push his way to the front.

He though he saw a vacant seat on the platform, and made for it.

"Would you mind shoving up a bit, missus?" he said to a quiet, homely-looking lady.

"No, no; you mustn't sit there," interposed the local clergyman; "that's the Bishop's wife."

"Nonsense!" exclaimed the Bishop, who had overheard the remark. "Squeeze up a bit, Mary."

**The Development of the Walking-Stick.**

Probably the patriarch's staff was the first adaption of the walking-stick, and from its first inception to the present day it has undergone almost endless changes. In 1701 footmen attending gentlemen were forbidden to carry swords, these being replaced by a porter's staff. Thirty years later gentlemen were forbidden to carry swords, but allowed to carry large oak sticks. Before many years varnished and polished woods with ornamental heads came into use, and in one form or another have held their own in public popularity. *Washington Star*.

**Recipes.**

**STRAWBERRY SAUCE, NO. 1.**

Stir half a cup of butter until it is soft and creamy, then gradually stir in one generous cupful of powdered sugar. Beat in, one at a time, half a dozen mashed strawberries. Place the sauce on the ice until needed.

**STRAWBERRY SAUCE, NO. 2.**

Cream together the same amount of butter and sugar as in the foregoing recipe, then stir in the beaten white of an egg and a cupful of berries mashed fine. Cool on the ice as for strawberry sauce No. 1.

**STRAWBERRY SAUCE, NO. 3.**

Mash one quart of berries with one cupful of granulated sugar until the berries are a pulp, and let them stand two hours. Just before the sauce is required, stand the dish containing the fruit over the fire in a pan of boiling water and let it come to almost the boiling point and it is ready.

Any of these sauces are very nice served with cottage pudding, boiled rice or plain tapioca pudding.

**STRAWBERRY MOUSSE.**

Mash well in a bowl with a spoon one quart of strawberries and one pint of granulated sugar. Let this stand a couple of hours and at the same time have a quarter of a package of gelatine soaking in half a cup of cold water. Rub the crushed berries through a coarse sieve. Pour a third of a cup of boiling water over the soaked gelatine, and when it is dissolved stir it into the strained fruit. Stand the basin containing this mixture into a pan of ice water and stir until the contents begin to thicken. Then add three quarts of whipped and drained cream. Stir the mixture gently from the bottom of the dish until the cream is well blended with the berry mixture. Pack in a freezer, using more salt than for ice cream.

**STRAWBERRY BAVARIAN CREAM.**

Soak half a package of gelatine in half a cup of cold water two hours. Mash together one quart of berries and one cup of sugar and let them stand an hour. Then press them through a fine sieve, taking as much of the pulp as possible, but rejecting the seeds. Pour half a cup of boiling water on the soaked gelatine, and when it is dissolved, add the strained berries. Stand the pan containing the mixture in a basin of ice water and beat until it begins to thicken; then stir in one pint of cream that has been whipped light and dry. Stir gently from the bottom of the dish until it is quite thick, then pour into a mould and set on ice.

**RHUBARB JELLY.**

Delicious rhubarb jelly may be made by cutting rhubarb into pieces an inch in length and then placing it in a dish, with a cupful of sugar, one of water, a little ginger root and lemon peel, and baking until the rhubarb is tender. Dissolve some gelatine in hot water, strain into the rhubarb, add the juice of a lemon. Pour into a mould and chill. Serve with whipped cream.

**JELLIED HAM SALAD.**

Soak one-quarter of a box of gelatine in one-quarter of a cupful of cold water, add three-quarters of a cupful of boiling chicken stock, and strain. Add one cupful of chopped ham which has been highly seasoned with cayenne and a little lemon juice. Let stand until it begins to thicken, then add one cupful of cream whipped to a stiff froth, and turn into a wetted mould. When firm turn out on a bed of blanched lettuce leaves and garnish with mayonnaise.

**UNCLE TOM'S DEPARTMENT.**

MY DEAR NEPHEWS AND NIECES,—

The victorious entry of the British troops into Pretoria and other important strongholds of the Boers gives us every reason to hope that the war will soon terminate, and our brave Canadian boys return to their well-loved land. How proud we feel to read of their brave deeds, and know that they are receiving from those in authority their proper meed of praise. We think the old couplet might appropriately be changed to read as follows:

"No land has sons like Canada,  
Such valiant sons as they be."

No thought of home or loved ones do they allow to sadden them while fighting remains to be done for the flag of Victoria; but when Peace again spreads her wings o'er the once-turbulent scene, we know that many eager eyes and longing hearts will lovingly turn in the direction of the fairest and best of Her Majesty's colonies—our own dear Canada, and a right royal welcome will we give them.

Never before has our Dominion witnessed such an outburst of patriotism as has been evoked by the present war. The songs of our country are sung by multitudes, and we hope they will continue to hold the prominent place they deserve, and not die away too soon, for—

"Like severed locks that keep their light  
When all the treasured form is dust,  
A nation's songs preserve from blight  
A nation's name, their sacred trust."

If, as we are told, "The shivering tenant of the frigid zone proudly proclaims the happiest spot his



own," how much more should we extol our beautiful country!

The instilling of love for our native land has heretofore received but meagre attention in our schools, where, above all places, it should be most thoroughly inculcated.

No matter how happy one may have been in other places, the return home is fraught with a purer, holier pleasure, particularly after sojourning in a foreign land.

"Long may we ever be Sons of the brave and free, Faithful to God and thee, Fair Canada."

Your loving— UNCLE TOM.

THE QUIET HOUR.

Keeping the Citadel.

"O thou who chooseth for thy share The world, and what the world calls fair, Take all that it can give or lend! But know that death is at the end!"

You are all Christians in reality, as well as in name. I speak rather confidently, perhaps, but then I take it for granted that anyone who doesn't care about these things will not take the trouble to read this column at all.

My dear friends, I don't know much about farming, but still it seems to me that this paper must help you to earn far more than the dollar you pay for it.

Now, what do you think this long preface is leading up to? Just this, the daring statement that I don't believe you do accept all of our Lord's words as truth.

But, you may say, if wealth is such a dangerous thing, why did God bestow it as a valuable gift on the men who pleased Him; on Abraham, Job, Joseph, and others?

Don't neglect any of the foregoing hints. [The following prizes are offered every quarter, beginning with months of April, July and October.]

is a delusion. If we don't do any good now, it is likely the possession of wealth would only result in harm to ourselves and others. Wealth is like fire—"A good servant, but a bad master."

We have all need to be very careful. The love of money is such an insidious disease. It creeps into the soul unnoticed and spreads like leprosy, hardening the heart, drying up the springs of love and generosity, slowly killing the spiritual life.

I do not mean that a reasonable desire to make money is wrong. That seems to be a part of our nature, and is as natural as a woman's desire to be beautiful.

Don'ts for the Nursery.

Don't hang curtains around the cot. Children need plenty of air, especially when sleeping.

Don't place the cot in a position where the light will fall on the child's eyes; nor in a draught.

Don't forget that children's clothing should be warm, but light.

Don't forget to remove the child to a cot, with a hair mattress, when it is old enough to leave the cradle.

Don't forget to air the children's bed clothes every day, taking them in about noon.

Don't allow a child to sleep with an elder person if its rest will be less disturbed and more beneficial alone.

Puzzles.

[The following prizes are offered every quarter, beginning with months of April, July and October.]

This column is open to all who comply with the following rules: Puzzles must be original—that is, must not be copied from other papers; they must be written on one side only of paper, and sender's name signed to each puzzle.

Come now, my friends, let's see the case With which you guess these well known trees. The first with which you have to grapple Is an old, gnarled and knotted x x x x x.

With the fruit of the next one folks make merry I mean the slim and tall x x x x x x x x x x. Here stands a tree, a market staple.

2-DIVIDED WORDS.

(Example: Sweetmeats—sweet meets.)

I never meet upon the street Two lovers idly prating, But that I see in phantasy Another scene elating.

Two huntsmen tall, late in the fall, With cautious tread approaching, Each with his gun is out for fun, With ne'er a thought of poaching.

Now, these two views might well confuse A mind unused to guessing; But they're the same, at least in name, As you'll be soon confessing.

3-NUMERICAL ENIGMA.

I am composed of ten letters, and name a recent battle. 1, 8, 2, 4 is a hardy fruit. 7, 6, 3, 4 is a small ornament. 10, 4, 6, 7, 8 is a bird. 2, 3, 9 is a river in Europe.

4-DOUBLE ACROSTIC.

1—One who kills his master. 2—A beetle that lives on flowers. 3—Power of seeing. 4—A small planet between the orbits of Mars and Jupiter. 5—The scum of metals. 6—An insect we all try to avoid. 7—Without polarity. 8—A bridge over the Grand Canal in Venice. 9—A vault under the choir or chancel of a church. 10—Whitemetal.

5-CROSS AND SQUARE COMBINED.

Across—1, are hostile to another; 2, a girl's name; 3, parts of volcanoes; 4, a well-known place; 5, upon which; 6, a metal; 7, an animal. Square From 1 to 2, preterite of a common verb; from 3 to 4, a sailor; from 5 to 6, sooner than.

6-BEHKADMENT.

Last night our parlor magician— A puzzler, to be more exact— Gave us an exhibition of "A queer behkadmnt in one act." An "unbeliever in a God," At one fell stroke robbed of his head, An unbeliever was no more, But soundly orthodox instead. What other puzzler can so well "Convert" a poor blind infidel?

7-RIDDLE.

You may think that I'm quite lazy, Because each day I lie in bed; You may wonder how I ruffle my face, Since my mouth is larger than my head. What am I?

8-METAGRAM.

Whole, I am to inflame; change my head several times, and I become to trade, to cure, ground grain, a loud sound, not imaginary, a stamp, a young animal, happiness, passionate ardor.

Answers to June 5th Puzzles.

- 1-Mink, link, rink, pink, sink, kink, wink. 2- f o r t e o g h a m r h y m e 3 Heat. t a m e r e m e r y 4 i n s t a n t n a t a l s s t a g e 5-Insert the word "know" in t a g s every space. a l e 6 Farewell. n s 7 d o r d u r o e n o r i m o n r o m a n e o n 8 Faint heart never won fair lady.

SOLVERS TO JUNE 5TH PUZZLES.

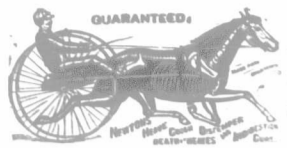
"Diana," "McGinty," "Sartor," "Ike Icicle," M. H. G.

ADDITIONAL SOLVERS TO MAY 21ST PUZZLES.

Sila Jackson, Edna McKimmon.

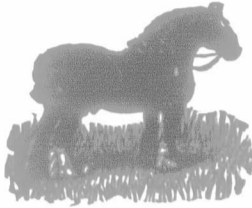


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Trade supplied by Lyman Bros. & Co., Toronto.

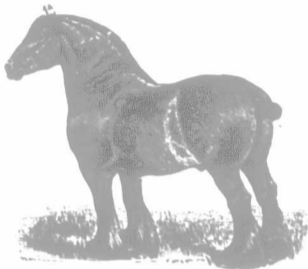
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D. McBeth, Oak Lake, Manitoba

J. E. SMITH

Has received from Ontario a shipment of twelve Shorthorn bulls, which are for sale. Also for sale a number of home-bred heifers, sired by Lord Stanley II. = 22260 =, and supposed to be in calf to Golden Measure (imp.) (72615) = 26057 =.



For sale, a number of Clydesdale mares and fillies, all registered; will be served by Prince Charles (imp.). All animals for sale, except the stock bulls, Lord Stanley II. = 22260 = and Golden Measure (imp.) (72615) = 26057 =, and the Clydesdale stallion, Prince Charles (imp.). These, being the best that money and experience could buy, are required to maintain the high reputation of the stock of the Beresford and Smithfield Farms. Come and see the stock, or write for what you want, to  
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For sale: 1 breeding pen each Indian Games, Golden Wyandottes, and Black Langshans, 1 Pekin ducks and 1 drake, 1 trio Pearl guineas, a few pair of pigeons and Belgian hares. The foregoing include several prizewinners. Will be sold very cheap to make room. Eggs for hatching for sale after June 20th at \$1.00 per setting. Also 3 pairs of English turtledoves. S. LING & CO., Winnipeg, Man.

SWEEPSTAKES HERD OF

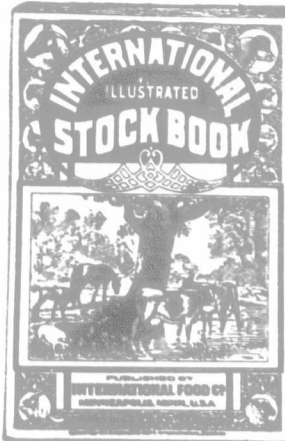
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ALL LIVE DEALERS should make it a point to see the Armstrong Exhibit of up-to-date Carriages, and their new Cutter Styles for the coming Winter, in Carriage Building, Exhibition Grounds, Winnipeg, during the Fair.

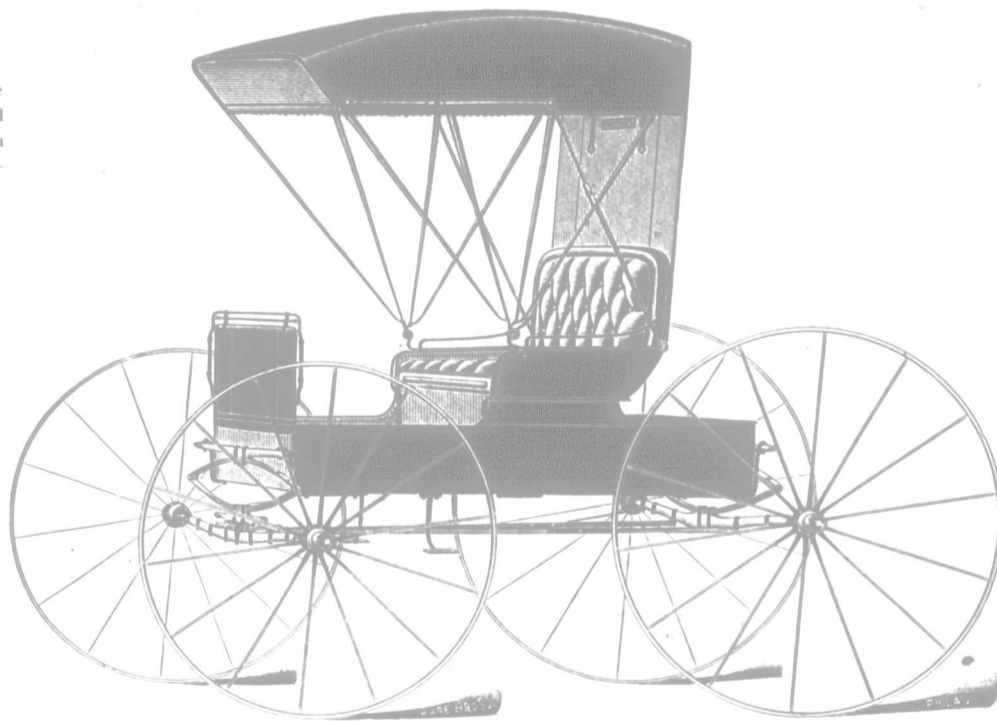
Inspect our Rubber-Tired Buggies, with Thousand-Mile Axles, Rubber-Head Springs, and all latest improvements.

J. B. Armstrong Mfg. Co.,

LIMITED

(The Guelph Carriage Goods Co.),

GUELPH, CANADA.



GOSSIP.

Elsewhere in this issue an important sale of Shorthorns is advertised to take place on August 8th, at Birch Hills Stock Farm, near Yorkton. Mr. Stephen Toye, the farm manager, states the stock are in splendid condition, and their color and symmetry show their good breeding. The calves are good ones. See announcement.

J. E. Marples, Poplar Grove Stock Farm, Delcan, a resident for many years of the district, has gradually been breeding and building a herd of "white faces," until now his herd numbers upwards of ninety head, all pure-bred Herefords. The foundation stock have mostly figured prominently at the leading Provincial shows, and are therefore well known to most of our readers. The bull, spotless of color, which has for the past two years headed the herd, was bred by H. D. Smith, of Compton, Ont. Since last July this bull has thickened down and added greatly to his average. He is a strong, smooth bull of good breed character and of a remarkably even tem-

perament. The yearling bull, Rex of Ingleside, holds second place. He is by Sir Horace, by the famous American bull, Corrector. Rex is smooth, level, well fleshed, and has improved vastly over his appearance of a year ago. He has a wonderfully nice head and a good horn, and his breeding is such that he is bound to make a beneficial impression wherever used. Of the thirty calves, which are divided about equally between the sexes, mention can only be made of a few. One of the gayest and best quality of the bull calves is the 9-month-old Lord Roberts, a Tushingham, by Spotless of Ingleside. Rex of Poplar Grove, another calf of the same age, is a thick, deep, strong youngster, out of the heifer, Duchess of Poplar Grove, the first prize yearling and 2 year old at the Industrial, Doctor is a 3-month-old calf out of Celia, by spotless, and a calf of really extra promise. Of the females, the 8-month-old Mermaid is one of the handsomest and most stylish calves of the bunch. She is as smooth as an egg, with a beautiful head and horn. She is by Pride of Eastview, out of Congress of Ridgewood. Her stall mate, Gipsy Maid, is by Spotless, out of Gipsy Queen. There

are many other calves well worthy of mention, but space forbids. This herd will be strongly represented at the Industrial, and shown without any special fitting.

A nice flock of Light Brahmas, the only breed of fowl kept on the place, receive the special attention of Mrs. Marples. An incubator and brooder has been used this spring with most satisfactory results, and something in the neighborhood of 250 strong, healthy chicks were seeking the protection of their wooden foster-mother the evening of our visit.

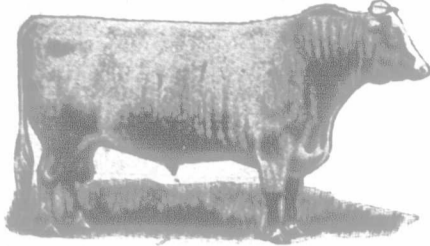
The buildings on Poplar Grove stock farm are located right in the center of poplar bluffs, which give protection from every quarter. The cow-stable has accommodation for about ninety head, and is so laid out as to reduce the labor of feeding to a minimum, most of the work being personally superintended by Mr. Marples. Underneath one of the feed passages is a 1,000 bushel root cellar, which keeps perfectly dry, and is frostproof.

IN WRITING

PLEASE MENTION FARMER'S ADVOCATE.

"PRAIRIE HOME STOCK FARM."

Bulls at head of herd: Judge = 23419 - and Imp. Jubilee = 28858



Yorkshire and Berkshire Swine. Clydesdale Stallions and Shropshire Sheep. Shorthorn and Ayrshire Cattle.

THOS. GREENWAY, Proprietor. m JAMES YULE, Manager, Crystal City.

Bulls! Bulls! Bulls!

We have 9 young Short-horn bulls, home bred, and recently imported from some of the best Eastern herds. All fit for service. We are quoting prices down in order to dispose of the lot as quickly as possible. A few good sows for sale cheap, to farrow May and June. B. P. Rock eggs, \$1.50 per setting of 15. Roland, N. P. R.

Carman, C. P. R. ANDREW GRAHAM, Pomeroy P. O.

THREE BULLS

Fit for service, the best I ever offered, for sale. Also some fine two-year old and year-old heifers.

GEORGE RANKIN, Hamiota, Man.

SHORTHORNS.

One red bull, 21 months old; one 6 months old; also a number of heifers.

A. P. ALTON & SON, Burlington Jet. Station. Appleby P. O., Ont.

FOR SALE:

The Shorthorn bull, Knight of Lancaster [27753] (Vol. 15), got by Knight of Lancaster (Imp.) [17101], dam Missie 142nd (Imp.). Also 4 fine bull calves and two heifer calves, sired by Knight of Lancaster. Will be at Winnipeg Fair. Inspection invited.

G. & W. BENNIE, Castleberry, Man.

THORNDALE STOCK FARM, MANITOU.

JOHN S. ROBSON, PROP.

Females of all ages FOR SALE. Write for particulars.

Shorthorns and Berkshires.

BREEDING AND QUALITY RIGHT. Write or call for prices. 3 nice young bulls for sale now. R. L. LANG, Spruce Bank Farm, OAK LAKE, MAN.

POPLAR GROVE HEREFORDS

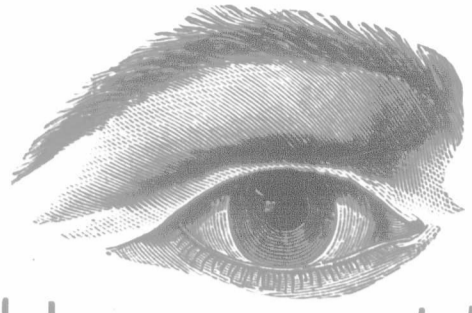
THE LARGEST HERD IN CANADA. STOCK OF ALL AGES FOR SALE. J. E. MARPLES, DELEAU, MAN.

Galloways and Shropshires

BULL CALVES by the sweepstakes bull of 38 at Toronto. In Shropshires we have about 30 ewes and 20 ram lambs for sale. T. LLOYD-JONES & SONS, BURFORD, ONT.

For Galloways

M. CAMPBELL, 1000 St. James Street, Winnipeg, Manitoba.



Do not be misled by having your eyes examined and fitted by so-called doctors who have never taken the practical instructions to enable them to correct the defects in the eyes. They are only transient, and when you wish to find them in three months, where are they?

We have been established 21 years, and carry a stock of all kinds of specs, and eyeglasses to suit all people.

No charge for examining the eyes. Send for test card to fit yourself.

W. R. Inman & Co., OPTICIANS, WINNIPEG.

For sale: 20 Cows and Heifers, all with calves, and some registered Shorthorn cows and heifers with calves. THOS. SKINNER, Katapwa, Assa.

POLLED ANGUS Two Bull Calves. Apply to Aged 4 months. 12-b-m F. J. Collyer, breeder of Polled Angus and Berkshires, Welwyn, Assa.

STEEL BROS., Glenboro, Manitoba, BREEDERS OF Ayrshire Cattle. Choice young stock for sale. 24-2-y-m

JERSEY BULLS 2 high-class Jersey Bulls for sale. Also farm lands. H. R. KEYES, 1-y-m Midway, Man.

Rare Chance to obtain winners for Winnipeg's greatest Industrial yet held. Our entire flock of grand Cotswolds at snap bargain prices. Some good Shorthorn bulls yet. Speak quick. D. HYSOP & SONS, Killarney, Man.

LEICESTERS! Young rams and ewes for sale. Write or call on A. D. GAMLEY, Box 193. BRANDON, MANITOBA.

VISIT THE Boston Optical CO.,

AND see the most complete set of eye-testing appliances. The largest stock of Optical goods, and the finest equipped Optical parlors in the Dominion of Canada, under the management of Dr. H. W. Jordan, D. O., late of Boston, who stands second to none in the successful practice of his profession. Difficult cases which have heretofore baffled the skill of those lacking Dr. Jordan's remarkable training and experience are especially solicited. No cases too difficult for us. All examinations without charge, and glasses sold at a fraction over manufacturers' prices for a few days. When you visit the exhibition don't fail to see our office.

Livingston Block,

COR. PORTAGE AVE. AND MAIN ST., OPP. QUEEN'S HOTEL. Very Resp'ct'ly, BOSTON OPTICAL CO., PLEASE MENTION FARMER'S ADVOCATE.

GOSSIP.

Jos. Yull & Sons, Carleton Place, Ont., write: "Enclosed please find change of advertisement. Our Ayrshire cows are milking extra well. We have a fine lot of yearling heifers, and we have four fine young bulls one year and a half old, which we are offering at a very reasonable figure, to make room for the new crop which will soon commence. Our young stock were all sired by the successful prize bull, Jock of Burnside. We have sold Jock of Burnside 1681 to Kelly & McKibbin, Montreal; Sandy of Burnside 10063 to W. W. Tremble, Munster, Ontario; five yearling Shropshire ewes to John Hill, Wellesley, Ont.; and have done a good business in Berkshires. We have a number of promising ram lambs and Berkshires of the best bacon type to dispose of yet."

A CANADIAN PROMOTED.

Less than a year ago Mr. J. J. Ferguson, B.S. A., of Smith's Falls, Ont., accepted a position on the staff of the Michigan Agricultural College, in the capacity of instructor in dairying and assistant professor of live stock husbandry. We now learn with pleasure of his promotion to the important position of instructor in live stock husbandry in that institution.

CHICAGO LIVE STOCK EXPOSITION.

A pamphlet containing preliminary classification, also general rules and regulations of the International Live Stock Exposition to be held in Chicago, Dec. 1 to 8, 1900, has been issued by the Secretary, Mortimer Levering, Lafayette, Ind. While the classification given will probably be amended, it seems to give a fairly accurate idea of the classification of live stock to be prepared for. The money offerings published are claimed by the Committee to be fairly accurate so far as they go, but it is expected some specials not yet included will be added before the final prize list is issued. The breeding classes include the various ages of bulls and cows, as well as herd and single champions of the following breeds: Hereford, Shorthorn, Aberdeen-Angus, Galloway, Red Poll, Polled Durham and Devon and Sussex. The single prizes given by the Association run about \$30, \$25, \$20, and \$10, to which is added in the cases of Shorthorns for instance, S. H. Association specials, as follows: 1st, \$45; 2nd, \$45; 3rd, 4th and 5th, \$40 each; 6th, \$25; 7th, \$15, and 8th, \$10. The herd and champion awards are dealt with equally liberally, both by the Exposition Association and by the breed Associations. The fat cattle classes for steers and spayed heifers are receiving due attention for single animals of various ages, herds of three head, as well as carloads and dressed carcasses. Carloads include 15 or 20 head, as the case may be, and the prizes run from \$100, \$50 and \$25, to \$200, \$100 and \$50, with some breed specials as high as \$300, \$200 and \$100.

The sheep department includes the following breeds: Shropshire, Southdown, Oxford, Hampshire, Dorset, Cheviot, Cotswold, Lincoln, Leicester, and Rambouillet. The prizes offered by the Exposition Association run about \$12, \$8 and \$5 for single animals, and \$20, \$10 and \$5 for flocks, which amounts have been supplemented by duplicate or larger offerings. The fat sheep division provides for similar awards for yearling wethers, wether lambs, and pens of five, as well as champions. A large number of special offerings are made, and for which good premiums are offered.

The swine division includes classification for the following breeds: Poland-China, Berkshire, Chester White, Duroc-Jersey, Tamworth, Large Yorkshire, and other distinct breeds. The breeding classes include boars and sows of various ages, the premiums for which run about \$15 and \$10, and \$20 for champions and herds. The car lots and other specials are well provided for. There will be dressed carcass competitions in both sheep and swine, as well as in cattle.

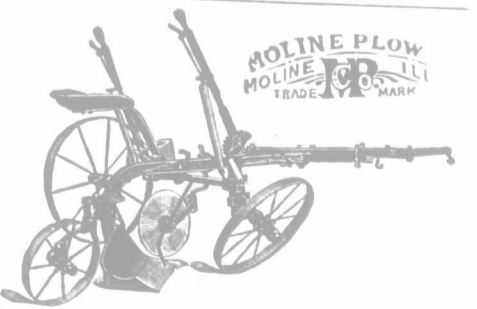
In addition to the meat stock classes, there are classes for draft horses of the various breeds, Percheron, Clydesdale, Shire, Suffolk, Belgian, and French draft. The offerings are liberal, running from \$50, \$35 and \$20 to \$75, \$60 and \$40 for single animals, up to \$150, \$125 and \$100 for six-horse teams to wagon.

The general manager, W. E. Skinner, Union Stock Yards, Chicago, will gladly supply prize lists and information to all who make application.

PLYMOUTH ROCKS HIGH-CLASS STOCK. WILLIAM LAUGHLAND, - Hartney, Man.

Norwood Bridge Poultry Yards, WINNIPEG, MAN.

Breeder of high-class S. C. B. Minorcas, Houdans, and White Wyandottes; also Bronze turkeys, Pekin Bantams, Pekin ducks. Young stock for sale of all varieties. Write or call.



The Good Enough Sulky Plow

CAN NOT BE BEAT. The Price will please you and its work will surprise you!

Write for illustrated circular. It will give you. MINNESOTA MOLINE PLOW CO., Winnipeg, Man.

PLEASE MENTION FARMER'S ADVOCATE.

HORSEMEN! THE ONLY GENUINE IS GOMBAULT'S CAUSTIC BALSAM.

Your genuine without the signature of The Lawrence-Williams Co. Sole Importers & Proprietors for the U.S. & CANADAS. CLEVELAND, O. The Safest, Best BLISTER ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses and Cattle. SUPERSEDES ALL CAUSTERY or PIRING. Impossible to produce scar or blemish. Every bottle is warranted to give satisfaction. Price \$1.50 per bottle. Sold by Druggists, or sent by Express, charges paid, with full directions for its use. Send for free descriptive circulars. THE LAWRENCE-WILLIAMS CO., Toronto, Ont.

Northern Pacific Ry.

To St. Paul, Minneapolis, Duluth and points East and South. To Butte, Helena, Spokane, Seattle, Tacoma, Portland, Colfornia, Japan, China, Alaska, Klondike.

Great Britain, Europe, Africa

Condensed Time Table from Winnipeg. MAIN LINE. Morris, Emerson, St. Paul, Chicago, Toronto, Montreal, Spokane, Tacoma, Victoria, San Francisco. Lv. Daily 1.45 p.m. Ar. Daily 1.30 p.m.

PORTAGE BRANCH. Portage la Prairie and intermediate points. Lv. Daily, ex. Sunday 4.30 p.m. Ar. Mon., Wed., Fri. 11.59 a.m. Ar. Tues., Thur., Sat. 10.35 a.m.

MORRIS-BRANDON BRANCH. Morris, Roland, Miami, Baldur, Belmont, Wawanesa, Brandon. Also Souris River Branch, Belmont to Elgin. Lv. Mon., Wed. & Fri. 10.45 a.m. Ar. Tues., Thurs. & Sat. 4.30 p.m.

Local passenger rates in Manitoba, 3 cents per mile. 1000 Mile Ticket Books at 25c. per mile. On sale by all agents.

The new Transcontinental Train, "North Coast Limited," the finest train in America, has been inaugurated, making two daily trains east and west.

J. T. MCKENNEY, City Passenger Agent, Winnipeg. H. SWINFORD, Gen. Agent, Winnipeg. CHAS. S. FEE, G. P. & T. A., St. Paul.

CANADIAN PACIFIC RY.

"Imperial Limited"

service will be inaugurated on MONDAY, JUNE 11.

Close connection will be made with Crow's Nest Branch train for all Kootenay points; also with the Steamships

Alberta, Athabasca and Manitoba, Sailing from Fort William, Tuesday, Friday and Sunday.

SIXTY hours from Winnipeg to the East by way of the Great Lakes. For full particulars apply to the nearest C. P. R. agent, or to

WM. STITT, C. E. MCPHERSON, Asst. Gen. Pass. Agt. Gen. Pass. Agt.

ROBT. NESS & SONS, HOWICK, QUE. BREEDERS AND IMPORTERS OF om Clydesdale Horses & Ayrshire Cattle

Also the best breeds of hawks for the farmers. Bonnie Burn Stock Farm

1000 ft. N. of Stouffville station, Ont., offering pure Shorthorn bull calves and yearling calves, also pure ram lambs and shearlings (both sexes) B. H. RUSSELL, Stouffville, Ont.

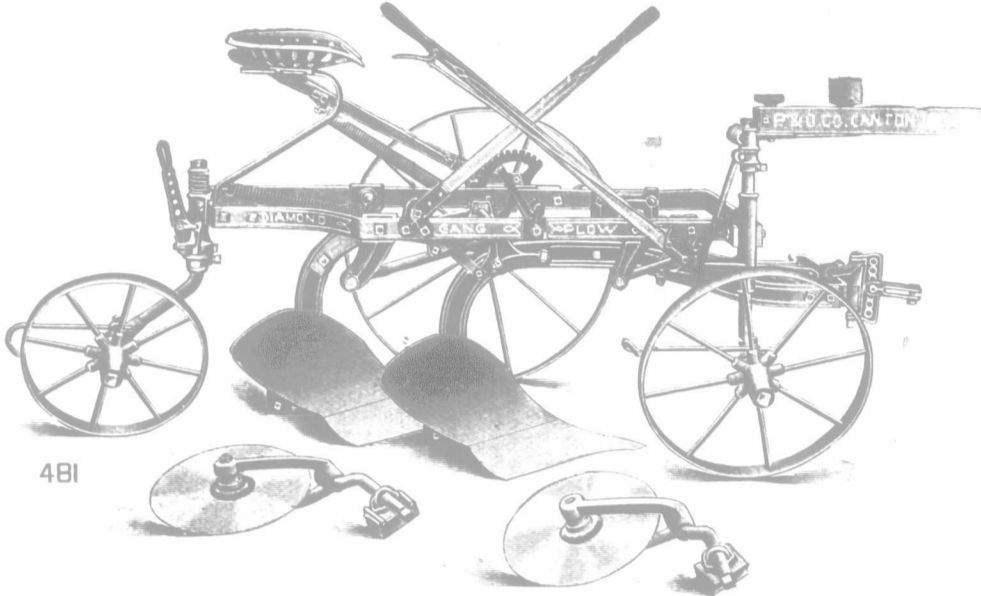
BLACK MINORCAS. Bred by J. H. GIBSON, Keewatin, Ont.

EVERY VISITOR TO THE WINNIPEG EXHIBITION

Who is interested in farm implements will be compelled to admit that the

P. & O. Canton Diamond Plow

Is far and away the leader of anything ever constructed in the plow line.



"P. & O. CANTON DIAMOND PLOW."

Our line of goods will be on exhibition, and it will be an exhibit worth seeing. The famous "P. & O. Canton Line" has long been the favorite in Manitoba and the Northwest Territories, and it still holds its place at the front.

Parlin & Orendorff Co., Johnston & Stewart, CANTON, ILL. AGENTS, WINNIPEG, MANITOBA.

Birch Hills Stock Farm. IMPORTANT AUCTION SALE.



At the above farm, near

Yorkton, Assa., on August 8th, 1900,

Mrs. E. E. Greenall will offer for sale the whole of her pure bred stock of Shorthorns, viz.: 17 cows, with calves; 12 bull calves; heifer calves; 5 three-year-old heifers, in calf; 3 two-year-old heifers, and 7 yearling heifers. The foundation stock purchased from Dr. F. C. Sibbald, "The Briars," Sutton West, Ont. Such noted sires as Royal Barnpton, Duke of Athol, Butterfly Duke, Mazurka Duke, and The Dandy have been used in the formation of this herd. Six horses, harness and buggy; McCormack mower, rake, wagons, etc. Particulars to follow. The implements are all new.

Parties coming to the sale by train on Tuesday evening will be conveyed to place of sale on Wednesday morning. Circumstances compel Mrs. E. E. Greenall to go home to England. Correspondence solicited.

TERMS—Two months' credit will be given on approved joint notes, payable at Union Bank of Canada, Yorkton.

C. J. McFARLINE, Auctioneer, STEPHEN TOYE, Manager, YORKTON, ASSA.

GOSSIP.

John A. Turner, Millerville, Alta., recently sold the Clydesdale colt, Glasgow Geordie, bred by Messrs. A. & G. Mutch, of Lumsden, Assa., to Mr. Charles Mott.

The Brandon Creamery, under the management of Mr. Race, had, up to the time of our visit, made a good run, the output per week being close on 6,000 pounds. Cream was received from points outside the locality, principally from the Pipestone Branch.

A short stop was made at J. B. Thompson's Farm, Hamiota, recently, to have a look at the Clydesdale, and we found that although Mr. Thompson carries on one of the best farms, the Clydesdales are not by any means neglected, they being in the pink of condition. Lady Almondale, by International, imported in 1897, by

Graham Bros., Clarendon, and her 3-year-old daughter, McGregor, by Auldmuir, by McGregor, both handsome dapple bays, have been winners in their classes at Winnipeg and Brandon exhibitions. Adaline, McGregor, winning first as colt in Winnipeg in 1897, and first in her class and sweepstakes as best Clyde mare at Brandon the same year. Princess Royal, the 2-year-old filly, from Lady Almondale, also sired by Auldmuir, is larger than her older sister, although much the same stamp of a mare. Lady Almondale—last year's colt was a stallion sired by Burnbrae 8278, the handsome Clyde dale stallion owned by J. A. Macmillan, Brandon, that won first place as 2-year-old at Winnipeg in 1898, and also won the sweepstakes at the same exhibition. The colt was splendidly proportioned, youngster and a good mover. Mr. Thompson intends showing at Winnipeg and Brandon.



LISTER'S

Alexandra and Melotte

CREAM SEPARATORS

Have the largest sale and give the best satisfaction. One of our Separators, by increasing the quantity and improving the quality of your butter, will add one-third to the annual profit from your cows. The man who carries on dairying without a Cream Separator is behind the times, and will go in the hole. Do not buy a Separator until you have studied our lists, etc., which are sent on application to

R. A. LISTER & CO., LIMITED.

232 KING STREET, WINNIPEG, MANITOBA.

OGILVIE'S PRIZE

WINNIPEG EXHIBITION.

BEST Three Loaves Homemade Bread made from

Ogilvie's Flour

1st PRIZE, \$25.00. 3rd PRIZE, \$7.00. 2nd " 15.00. 4th " 3.00.

IT'S A WINNER.

So is our Ideal Flax note-paper and envelopes

120 sheets of paper with 100 envelopes, mailed for 60 cts.

This is only one of the many snips we offer. We carry a full stock of office, school, municipal supplies. Write us for catalogue. Our store is "value."



The FORD STATIONERY CO., One door north of P. O. P. O. Box 1273. 407 Main St., Winnipeg.

Under New Management.

D. W. BEAUBIER, PROPRIETOR.

Newly furnished throughout. All modern conveniences. Most centrally located hotel to the business part of the city.

PALACE HOTEL.

Accommodating porter meets all trains. Open day and night. Good stabling in connection. Rates, \$1 per day. Eighth St., BRANDON, MAN., near Rosser Ave.

Very Best THE

PLACE FOR THE FARMER'S SON TO SPEND THE WINTER MONTHS IS AT THE

Winnipeg Business College.

WRITE FOR HANDSOME CATALOGUE (FREE).

G. W. DONALD, SECRETARY.

Polled Angus

One of the registered cows, 4 years old, with splendid bull calf. For quick sale, only \$300.00 takes the pair. A. R. HICKS, East Selkirk, Man.

Our New Catalogue of

Guns and Sporting Goods

Is ready for distribution.



This Catalogue is way ahead of anything of the kind yet issued, both as regards the Catalogue itself, it being beautifully illustrated, etc., and the prices, which you will find very interesting. Will be glad to mail one to any address, on application.

THE Hingston Smith Arms Co'y, WINNIPEG.

Catalogue, Printing Card, or any

BY SKILLED WORKMEN. LATEST TYPE FACES, CUTS, DESIGNS, ORNAMENTS, AND U.P.-DATE IDEAS.

Appleton & Morris,

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293 Market St., Winnipeg, Man.

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## Maw's Poultry Farm, Winnipeg.

**BREEDS BEST STRAINS OF UTILITY BREEDS.**  
Thoroughly acclimatized and best adapted to our climate. Have for sale stock and eggs of Mammoth Bronze Turkeys, Toulouse Geese, Imperial Deep-keeled Pekin Ducks, English Rouen Ducks, White Wyandottes, White Leghorns, Silver-Laced Wyandottes, Light Brahmans, Hero Strain Plymouth Rocks. Homing Pigeons from best imported Belgian stock, same as used by the army for carrying messages from beleaguered cities. Large illustrated catalogue, giving list of prizes and medals won at all leading exhibitions, with prices, description and pedigree of stock mailed free on receipt of address. I am North-west agent for the celebrated **CYPHERS INCUBATOR AND BROODER**. Mr. Cyphers is the discoverer and patentee of the diffusive principle in artificial incubation, thus saving the lives of thousands of chicks that die in the shell in ordinary incubators. It is asbestos-coated and perfectly fireproof. Supplies and regulates its own moisture, and so simple a child can operate it with success. Write for particulars.

## ALPHA CREAM SEPARATORS. NEW 20th CENTURY Styles, Capacities, Prices, &c.

JANUARY 1st, 1900.

September 1st, 1899, marked the introduction of the Improved 20th Century "Baby" or "Dairy" sizes and styles of "Alpha" De Laval Cream Separators. These improvements constitute a large advance in centrifugal cream separator construction and efficiency. Great as has been the universally conceded superiority of the De Laval machines heretofore, the standard is now raised still higher. As near practical perfection as have been the De Laval Separators the past year, the latest improvements make them still better, until it is difficult to day to perceive the possibilities of further improvement.

### New 20th Century Styles and Sizes.

The De Laval "Baby" or Dairy Cream Separators are now made in six different sizes and styles. All are of the improved "Alpha" or "Disc" construction. The "Humming-Bird" is solely a hand machine. The Dairy Turbine is solely a steam-motor machine. All of the other sizes are capable of convenient use either by hand or power.

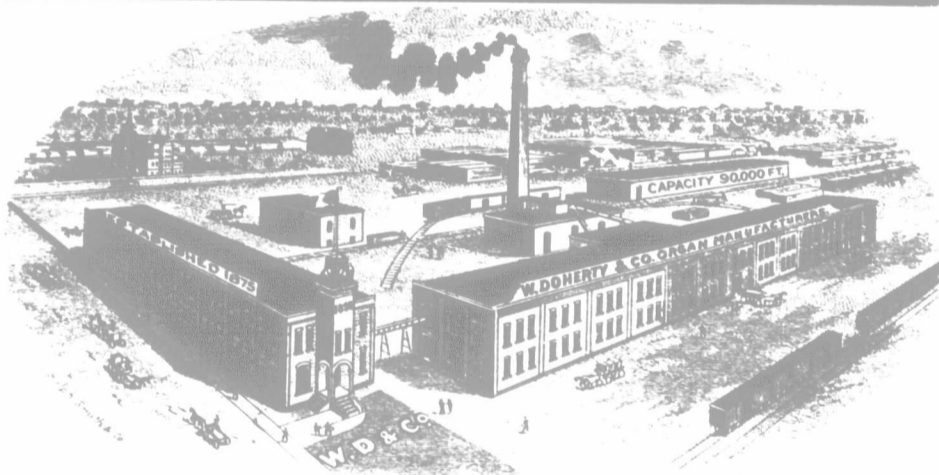
### Sizes, Capacities, and Prices.

SIZE.	Capacity, Lbs. per hour.	Equal to Lbs. of any other Separator.	PRICE.
Humming-Bird	225	300	\$ 65.00
No. 1 Iron Stool	350	450	100.00
No. 2 Iron Stool	450	550	125.00
No. 2 High Frame	450	550	125.00
No. 3 High Frame	850	1000	200.00
Dairy Turbine	850	1000	225.00

On demand we will send a fine booklet: "KEEPING COWS FOR PROFIT," and 20th Century Catalogue.

GENERAL AGENTS:

**The Canadian Dairy Supply Co.,**  
236 KING ST., WINNIPEG.



## W. A. Doherty & Co. ORGAN

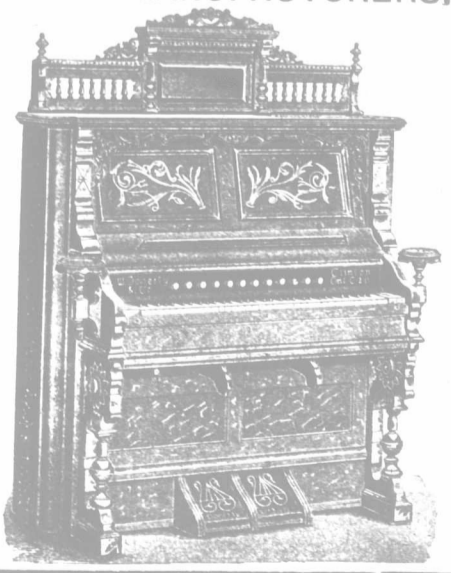
MANUFACTURERS,

Clinton, Ontario, Canada.

The Largest Reed Organ  
Factories in Canada.

Established 1875.

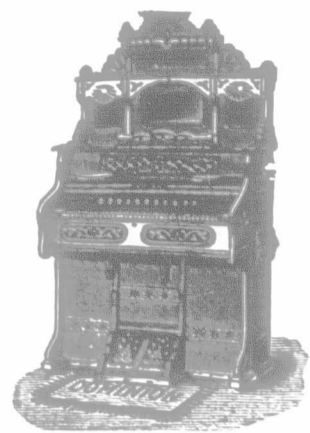
Send for Catalogue.



## "DOMINION" PIANOS & ORGANS



HAVE been before the public for thirty years, and are in use to-day in 60,000 Canadian homes. If you want a piano or organ that is above criticism, get a "DOMINION." For catalogues address—



THE "Dominion" Organ and Piano Co., Limited, Bowmanville, Ont.

## THE PROVINCIAL Mutual Hail Insurance Co.

Incorporated in 1891 by) OF MANITOBA. (Manitoba Government.

PRESIDENT—*John Renton, Farmer, Deloraine.* VICE-PRESIDENT—*C. J. Thomson, Farmer, Virden.*

## The Original Hail Insurance Co.

MANAGED BY THE FARMERS THEMSELVES.

During the nine years of its existence, this Company has paid about ONE HUNDRED AND TWENTY THOUSAND DOLLARS for losses sustained by farmers by hail storms. The assessments have ranged from 12 1/2 cents to 25 cents per acre, which is the maximum that can be charged. The average amount paid for losses has been \$5.50 per acre for total loss, and at the same rate for partial losses.

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JOHN RENTON, Farmer, Deloraine. J. MOLLAND, Farmer, Glendale.  
C. J. THOMSON, Farmer, Virden. H. B. BROWN, Farmer, Morden.

## ROBERT STRANG, Managing Director, WINNIPEG.

LOCAL AGENTS AT ALL PRINCIPAL POINTS IN THE PROVINCE.

## David Maxwell & Sons, ST. MARY'S, ONT.

### PATENTED STEEL ROLLER BEARINGS IMPROVED STEEL FRAME

And combined Foot and Lever Drive, improvements you will not find on other churns. Do you want the best? Then don't purchase until you see it. Sold by the leading wholesale houses in the Dominion.



No.	Capacity.	Churns from
0	6 gl.	1 to 3 gl. cream.
1	10	1 to 5 "
2	15	2 to 7 "
3	20	3 to 9 "
4	26	4 to 12 "
5	30	6 to 14 "
6	40	8 to 20 "

**CANADIAN DAIRY SUPPLY COMPANY,**  
236 KING ST., WINNIPEG, MAN.

Agents Manitoba and the Territories.

## COMPLETE REORGANIZATION.

The Manitoba Farmers' Mutual  
Hail Insurance Co.

A MUTUAL Hail Insurance Co. of the farmers, for the farmers.

**CROP ACREAGE ONLY INSURED.** REMUNERATION \$5.00 PER ACRE

Limit of assessment reduced to **Four per cent.** (equals 20 cents per acre). **\$2,000,000 insurance in force.** Good reliable local agents wanted. Correspondence solicited.

W. C. GRAHAM, MANAGER, BOX 672, WINNIPEG.

# "POST" FOUNTAIN PEN

SOMETHING THAT EVERY MAN, WOMAN, BOY AND GIRL NEEDS.

It is a wonderful tribute to the greatest invention in fountain-pen construction of the age.

THE PRICE OF THE POST IS \$3.00. IT CANNOT BE PURCHASED ANYWHERE FOR THIS PRICE ANYWHERE.

The patentee has a hard-and-fast agreement with the trade and agents that \$3 shall be the lowest retail price. By a special agreement we are in a position to make

**A Great Offer:** We will send one of these pens to anyone who sends us three new subscribers, accompanied by \$3.00 in cash.



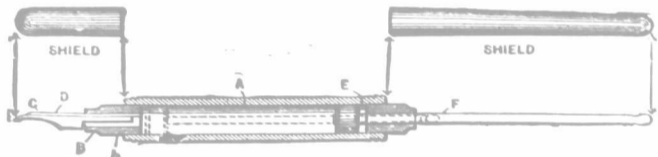
General Lew Wallace, the author of the greatest book of the age, "Ben Hur," also "Prince of India," "Commodus," etc., says in a letter in his own handwriting: "The fountain pen, Post, was received, and I have taken the liberty of trying it thoroughly. Please accept the excuse for failure to acknowledge sooner. "I have tried every pen of the kind on the market, and now unhesitatingly give the preference to the Post. It not only feeds itself with less care, but has the immeasurable advantage of re-supply without inking the fingers. I do all my work with it."

*Lew Wallace*

To show our confidence in this pen, we will send you one on trial for a week upon receipt of \$1.00, which, if not entirely satisfactory, you can return to us and we will refund you the \$1.00 paid us. If satisfactory, you must send us the names and addresses of the three new subscribers and \$2.00 additional cash.



THE only self-filling and self-cleaning pen manufactured in the world. To fill the pen, put the nib in ink and draw the piston rod up. To clean, put the nib in water and draw the piston rod backwards and forwards a few times.



A. Barrel; B. Nozzle; C. Pen; D. Feed; E. Plunger; F. Rod.



The world's greatest singing evangelist, who has thrilled thousands and tens of thousands, now raises his voice in praise of the Post Fountain Pen. Mr. Sankey sends the following characteristic letter: "I have used the Post pen for some time, and have had great satisfaction with its use. It never fails or gets cranky. One can at least have clean hands by using the Post, whatever the heart may be."

*Frank Sankey*

ADDRESS—

**The William Weld Co., Ltd., Winnipeg, MANITOBA.**

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Three pounds of impure salt will spoil one hundred pounds of butter or cheese. Buttermakers and cheesemakers, the salt for you is

## Windsor Salt.

Perfectly pure and satisfactory in every respect.

THE **Windsor Salt Co., LIMITED,** WINDSOR, ONTARIO.

## W. D. FLATT,

Hamilton, Ontario, Can., Importer and breeder of

## Shorthorn Cattle.



GOLDEN FAME (IMP.)—2906—(72610). My herd is one of the largest in America, both imported and Canadian-bred. A very choice selection of both sexes always on hand for sale. Personal inspection invited. Address all communications:

JAMES SMITH, Mgr., Millgrove, Ont. R. R. Station and Telegraph, Hamilton, on main line Grand Trunk RR.

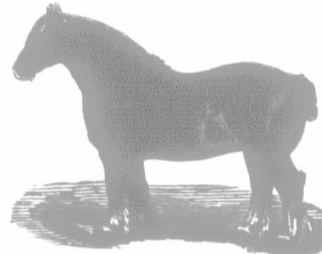
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From the best blood in Scotland and Canada. Ayrshire bulls and heifers from imported stock. Jersey heifers and bull calves, sired by the prize-winning bull, Distinction's Golden. Best milking strains, with good teats. Terms reasonable.

A visit to Thorncliffe will well repay you.

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**LUMP JAW QUICKLY CURED.**

Trade Mark.

A case of lump jaw in your herd means immediate loss; it may mean the infection of the rest of your herd; it may result in the distribution of the germs all over your pastures. All loss and danger can be positively averted by prompt use of

## Fleming's Lump Jaw Cure

The only radical cure known. Is endorsed by the most prominent ranchers and shippers of the continent. Easy to use. Is applied externally. One to three applications cure. Leaves jaw sound and smooth. Cannot harm in any way. One bottle usually cures two or three ordinary or one severe case. Price \$2.00. Sold by druggists. Can be sent anywhere by mail.

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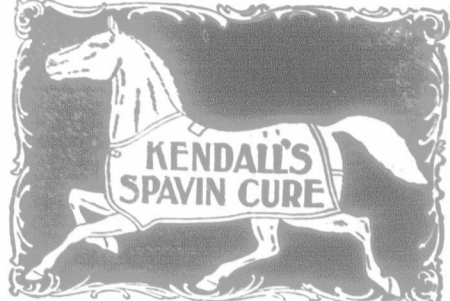
## CONTAGIOUS ABORTION

## WEST'S FLUID

In several of the finest herds of prize stock in the country; but as it would injure the reputation of the breeders, they will not give written testimonials. These statements are facts.

Write for circular on this disease, specially prepared by a V. S. Headquarters for "STANDARD" Sheep Dip. Manufacturers: The West Chemical Company, Agents Wanted, TORONTO, ONT.

## Spavins, Ringbones, Splints, Curbs, and All Forms of Lameness Yield to



Works thousands of cures annually. Endorsed by the best breeders and horsemen everywhere. Price, \$1.00 per bottle. As a liniment for family use it has no equal.

West Lorne, Ontario, Can., Dec. 14, 1898. DR. B. J. KENDALL CO. Dear Sirs:—A year ago I had a valuable horse which got lame. I took him to the Veterinary Surgeon who pronounced it throat-spavin and gave me little hope, although he applied a sharp blister. This made matters only worse and the horse became so lame that it could not stand up. After trying everything in my power I went to a neighbor and told him about the case. He gave me one of your books and I studied it carefully and being resolved to do the utmost in favor of my beast, went to the nearest drug store and got a bottle of your Spavin Cure and applied it strictly according to directions. Before the first bottle was used I noticed an improvement, and when the seventh bottle was about half used, my horse was completely cured and without leaving a blemish on him. After ceasing treatment I gave the horse good care and did some light work with him, wishing to see if it had effected a cure. I then started to work the horse hard and to my entire satisfaction he never showed any more lameness through the whole summer. I can recommend Kendall's Spavin Cure not only as an excellent, but as a sure remedy, to any one that it may concern. Yours truly, SAMUEL TRITTON.

Ask your druggist for Kendall's Spavin Cure, also "A Treatise on the Horse," the book free, or address DR. B. J. KENDALL COMPANY, ENOSBURG FALLS, VT.

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HERD ESTABLISHED IN 1872. Such sires as imported Royal George and imported Warfare have put us where we are. Imported Blue Ribbon now heads herd.

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## H. SMITH, Hay, Ont. Shorthorn Cattle.

Two good roan bulls and a fine bunch of heifers FOR SALE. Exeter Station on G. T. R., half a mile from farm, ONTARIO.

## Hillhurst Farm.

ESTABLISHED 1861.

## Scotch Shorthorns.

SIRE IN SERVICE: Scottish Hero and Joy of Morning.

BRED BY W. DUTHIE, COLLYNIE. Oldest Stud of Hackneys in America. Shropshire, Dorset Horn and Hampshire Down Sheep.

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Hillhurst Station, Compton Co., P. Q.

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Shorthorn Cattle and Lincoln Sheep. Herd prize and sweepstake at Toronto Industrial Exhibition, 1897 and 1898. Herd headed by Topman =17847=, champion at Winnipeg, Toronto, London and Ottawa, 1899. High-class Shorthorns of all ages for sale. Also prizewinning Lincolns. Apply T. E. ROBSON, Ilderton, Ont.

## SHORTHORN CATTLE AND LINCOLN SHEEP.

Imp. The Baron at head of herd. Seven young bulls for sale—good ones. Also a few females. Stud runs all imported from H. Dudding, Esq.; the same blood as the 1000 guinea ram.

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Shorthorn Cattle, Oxford Sheep, and Bronze Turkeys. Young bulls for sale.

JAS. TOLTON, WALKERTON, ONT.

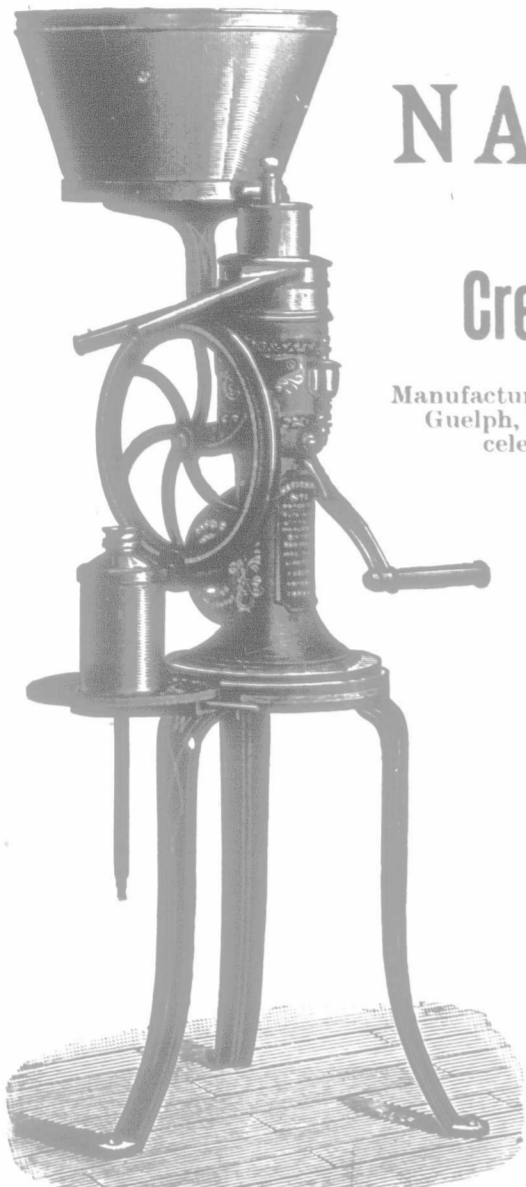
## JOHN DRYDEN.

BROOKLIN, ONTARIO.

## Scotch Shorthorns Choice Shropshire Sheep.







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Manufactured by the Raymond Mfg. Co. of Guelph, Limited, manufacturers of the celebrated Raymond Sewing Machines.

**T**he National is an up-to-date machine, leading all others in separating cream by centrifugal force. It is the farmers' choice, because it runs easy, skims fast and clean, and makes a perfect cream, containing any per cent. of butter-fat desired. It is also easier to clean than any other. The National is built of the very best material suitable for the construction of a high-speed machine, and with proper care should last a lifetime. The bearings are interchangeable and easily adjusted. Every machine is guaranteed to do good work, and a trial of the "National" is solicited before purchasing any other. The already large sale of the "National," and the growing demand for it, shows how much the Canadian farmers appreciate a Canadian-made machine that does its work so easily and well, and at the same time returns such a large profit on the small investment. Ask for the "National"; try it and buy it.

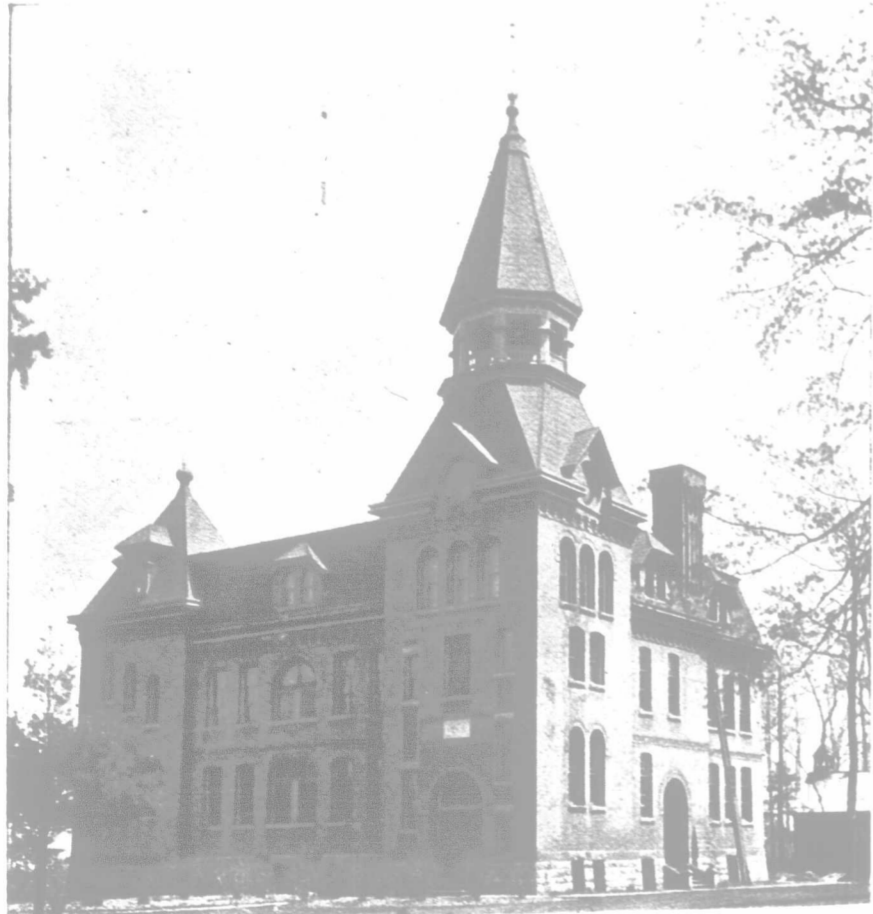
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General agents for Ontario.

**MESSRS. CAMPBELL & GLENN,**  
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Agents for the Counties of Middlesex and West.

"NATIONAL" NO. 1 HAND POWER.  
Capacity, 330 to 350 lbs. per hour.

**The Raymond Mfg. Co'y of Guelph, Ltd.**  
GUELPH, ONT.

## High School at Niagara Falls, ONT. BUILT WITH THOROLD CEMENT.



SIZE OF BUILDING, 85 x 75 FT.

**ESTATE OF JOHN BATTLE, CEMENT MANUFACTURERS, THOROLD, ONT.**  
S. L. CAMPBELL, O. L. 16, 1899.  
GENTLEMEN.—The high school building at Niagara Falls, Ont., was built by our firm during the year 1893, the size of the building being 85 feet long x 75 feet wide, three stories high, with basement. In the construction of the building and putting a concrete floor in the basement we used only your Thorold Cement, and in this building, as in the many we have put up during the past 20 years, the cement was most satisfactory.

**Estate of John Battle, Thorold, Ontario.**

## Ayrshires, Guernseys, Yorkshires and Shropshires are our leaders.

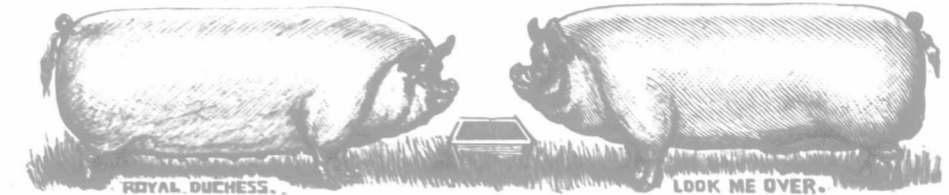


**A**LL high-class, pedigreed stock. Those desirous of purchasing thoroughbred animals should write for particulars at once. Orders booked now in rotation for present and future deliveries. Address—



**ISALEIGH GRANGE FARM, Danville, Quebec.**  
J. N. GREENSHIELDS, PROP. T. D. MCCALLUM, MGR.

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The largest herd of pedigreed Yorkshires of the large English type in Canada. Purity of breed, size, and general excellence is my motto. One hundred awards with one hundred and five exhibits at 7 shows in 1899. A choice selection of young boars and sows of all ages for sale; also boars fit for service, and pregnant sows. Fifty breeding sows, of which 25 (twenty-five) are imported; also three imported stock boars bred by such noted breeders as Sanders Spencer and Philo L. Mills. Am also using two Canadian-bred stock boars, first prize at Toronto in 1898-99. Express charges prepaid. All stock carefully shipped and guaranteed as described. Telephone, Millgrove, Ont. Telegraph 254 Bay St. S., Hamilton, Ont.

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FOR FATTER SHEEP AND MORE WOOL

**DIP YOUR SHEEP IN COOPER'S DIP**

BENEFITS THE FLOCK ERADICATES INSECTS AND DISEASE

Used and endorsed by Hon. John Dryden, Minister of Agriculture, Toronto, and leading breeders everywhere.

Superior to all liquid Dips.

25-gal. pkt., 50 cts.; 100-gal., \$2.00. If druggist cannot supply, send \$1.75 for 100-gal. pkt. to

**EVANS & SONS,**  
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Premiums on application to—  
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Write for pamphlet.

**For Sale:** Six Ayrshire bulls, ranging from 5 months to 1 year past. Also a few cows and heifers, thoroughbred fowls, and Scotch collie dogs.

**WM. STEWART & SON, MENIE, ONT.**

**SHOW AYRSHIRES FOR SALE.**  
As we are not going to show any cattle at the fairs this year, we will sell the imported prizewinning bull, Napoleon of Auchenbrain, champion and head of first prize herd at Toronto, 1898. Also first class 2-year-old bull and three choice bull calves of last fall. These are all fit for the showing, as we kept them for that purpose. For prices and particulars come and see, or write. James Boden, Mgr., St. Anne de Bellevue, Quebec, G.T.R. & C.P.R., 20 miles west of Montreal.

**Maple Cliff Dairy and Stock Farm.**  
Breeders of **FOR SALE:**  
**AYRSHIRES,** 1 yearling and 6 bull calves from 2 to 8 months old.  
**TANWORTHS,** Boars and sows, 6 to 8 months old, improved and sucking pigs.  
**BERKSHIRES.** Booking orders for young pigs.  
**R. REID & CO., Hintonburg.**  
Farm 1 mile from Ottawa. Electric cars to farm.

**Choice Ayrshires, Barred Rocks and Eggs.**

**4 FINE BULLS** fit for service. Bull calves, and heifers. Also Barred Rock cockerels. Eggs for hatching from choice matings in Barred Rocks, at \$2 per 15, and in later eggs \$4 per 100. Also 250 Barred Rock eggs, \$4 per 100.



**JAS. McCORMACK & SON,**  
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## Ayrshire Bull Calves of 1899

One bull 5 months and young calves 2 to 3 weeks, from some of our best imported cows. Will sell at reasonable prices. Address:

**ROBT. HUNTER,**  
Manager to W. W. Ogilvie. LACHINE RAPIDS, QUE.

## Ayrshire Bulls:

Write to J. YULL & SONS, Carleton Place, for special prices on Ayrshire bulls from 11 years to 6 months. Four over 13 months, fit for service, from special milking stock. Sired by prize bull, Jock of Burnside—1684—, also females of all ages. Shropshire sheep of all ages; a number of fine ram lambs. Berkshire pigs of either sex, of the best bacon type. B. P. Rocks.

## Huntlywood Southdowns & Dexter Kerry Cattle

Flock of 300 head, imported and home-bred. Selected from the flocks of H. R. H. the Prince of Wales, the Duke of Richmond and Gordon, and the late Mr. Coleman. We are now offering for sale rams, ewes and lambs; also a Dexter Kerry bull calf, by imp. Bantam 257, champion R. A. S., Manchester. Apply to **W. E. GIBSON, Manager.**  
Hon. G. A. Drummond, Beaconsfield, Point Claire P.O., P.C., Proprietor. Canada.

## Shropshire Rams and Ewes

Newly imported from the greatest English breeders. Home-bred rams and ewes of best quality. Scotch Shorthorns and Clydesdale horses for sale at moderate prices, and in large numbers, by

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## SHROPSHIRE RAMS AND RAM LAMBS

From Tanner, Minton and Bradburn foundation. Uniform and first-class in quality, size and covering.

**ESTATE JAS. COOPER,**  
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## SHROPSHIRE SHEEP AND CHESTER WHITE SWINE.

**WM. E. WRIGHT, GLANWORTH, ONT.**

## W. W. Chapman,

Secretary of the National Sheep Breeders' Association, Secretary of the Kent or Romney Marsh Sheep Breeders' Association, and late Secretary of the Southdown Sheep Society.

Pedigree Live Stock Agent, Exporter and Shipper. All kinds of registered stock personally selected and exported on commission; quotations given, and all enquiries answered.

Address: **FITZALAN HOUSE, ARUNDEL ST., STRAND, LONDON W. W.**  
Cables—Sheepcote, London.


## Snelgrove Berkshires.

When others fail to please you with a good pig, come to us. Our herd is bred from the best strains of the Large English Berkshires. We now have a very promising lot of young pigs, April farrow, sired by Colonel Grant 350 (first prize under 12 months, Toronto, 1899) and 161 (first prize). Write for prices.



**SNELL & LYONS,**  
SNELGROVE, ONT.

In every town and village may be had, the



**Mica Axle Grease**

that makes your horses glad.

Made by Imperial Oil Co.

**IMPORTATION**  
Of Shropshires for Fairview Farm in July. Our D. J. Campbell will select and import. Only choice rams and ewes will be brought out. 'Tis the good ones that please customers first and last.

We breed them and import them.  
Orders can now be booked for imported stock, and some good rams are now at Fairview.

**JOHN CAMPBELL, Woodville, Ont., Canada.**

**OAK LODGE**  
Type of Yorkshires



We have now on hand a large herd of pigs of different ages, and they are as good as we have ever offered. The winnings of this herd have been greater than all other herds combined at the largest Canadian exhibitions.

All stock shipped to order, fully guaranteed.

**Brethour & Saunders, Burford, Ont., Can.**

**Large White Yorkshires.**

An offering during this month a grand lot of boars and sows ready for breeding; pairs supplied, not akin, from show stock; also several sows in pig to imported boar. Young pigs from 2 to 3 months old, all of the most improved bacon type. Registers furnished. Express prepaid. Address:

**H. J. DAVIS, BOX 290, WOODSTOCK, ONT.**

**DUROC-JERSEY SWINE.**

We have a fine lot of all ages and either sex. Address, **TAPE BROS., Ridgetown, Ont.**

**EGGS FOR HATCHING**

From No. 1 pens of Barred Plymouth Rocks, Black Minorcas, White and Brown Leghorns, White Rocks, and White Wyandottes, at \$1 per setting. Toulouse geese eggs at \$1.50 for 11 eggs, or 20 cents each. **W. W. EVERITT, Chatham, Ont., Box 352.**

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The BEST and the CHEAPEST.

**95 Per Cent.** Hatches are often reported by those who use these incubators. One reason for this record is absolute uniformity of temperature in egg chamber, correct instructions for operating, has fireproof lamp. A great mistake it would be to purchase an incubator or brooder without first getting a copy of our 48-page catalogue. Send 3 cents for illustrated catalogue of incubator, brooder, poultry and battery supplies.

"Tux Poultry's Guide" (new edition) 15 cents by mail.

**O. ROLLAND, 373 St. Paul St., MONTREAL**  
Sole Agent for the Province of Quebec

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**GOSSIP.**

**Live Stock Show at Paris.**

The International Show of live stock, which opened at Vincennes on Saturday, June 9th, was one of the largest and most representative gatherings of the kind ever brought together. The totals of the entries of farm stock (including poultry) were as follows: Cattle, 2,241; sheep, 713; swine, 332; poultry, rabbits, etc., 2,679; grand total, 5,965.

There was a fine collection of 41 distinct breeds of cattle, classified into two divisions—one for foreign-bred animals and the other for animals born and reared in France. These were grouped into 49 different categories—15 in the first division and 34 in the second for French breeds. Many of those amongst the upwards of 30 French breeds represented were hardly of such characteristic stamp as to deserve the title of distinct breeds, and looked more like departmental differences of strain in a great many cases than real distinctions of breed. Taking the numbers shown as an index, the popularity of the leading breeds would be as follows: (1) Normandy, 273; (2) Shorthorns, 221; (3) Hollandaise or Dutch black and white, 118; and (4) Flemish cattle, 110.

To Great Britain was paid the highest compliment of any foreign nation, as provision was made for every one of our recognized breeds in eleven sections. It is to be regretted that this opportunity was not more largely availed of by British breeders, for only the Shorthorns, Herefords, Red Polls, Jersey, and Aberdeen Angus were represented by 10 British exhibits, and in the latter two breeds the competition was altogether left to foreign owners. No doubt this was caused by the stringent laws at present in force against foreign importations rather than a lack of sympathy or enterprise on the part of British exhibitors. Breeders do not relish the prospect of sending their choice animals to risk a low price at a forced sale or slaughter on return.

**Shorthorns.**—There were five bulls and one cow shown in the foreign Shorthorn section, and of these, Sir Jacob Wilson's 2nd prize two-year-old bull, Sir Riby Gilbert 73619, was the only British representative. He is a very good type of a bull, with grandly sprung ribs, excellent touch, and plenty of strength through the heart, but he has hardly depth enough—a shortcoming which made him look a trifle leggy. The French Shorthorn Syndicate got the first prizes in both classes with prime animals bred by Mr. Deane Willis. The younger animal was Bapton Warrior, a son of Bapton Victory 99910, which was a reserve winner at the Royal last year. This is a fine, stylish looking roan, with an imposing forehead. There is a slight weakness at his tail-head, but otherwise he is very level, from crop to quarter, and shoulder to thigh, and stands exceptionally well round the girths. The other and older winner was Centurion 25558, by the well-known champion sire, Count Lavender. He is a bit stronger in his points, but not so refined as the other, and he is a little patchy about the tail-head. This bull has a capital top and grandly filled roasts; and with his fine depth, and level, well-patched shoulders, he formed a typical specimen of the breed. The second winner in the yearling class was a Buenos Ayres bull of good stamp named Nicholas White Poppy.

**Herefords.**—This famous beef and grazing breed made up a very nice collection of two males and four females. With the exception of the second prize bull, owned by M. Henri Corbiere, they were all shown by Mr. W. T. Barneby, Herefordshire. The English animals made a very fine group, and their nice, level, plump appearance excited general admiration when later in the day they sustained the prestige of British skill by winning the championship for the best group of five foreign-bred "beeves." The first prize bull was a second winner at Herefordshire two years ago. He is a trifle patchy about the tail-head, and coarse over the crop, but is a bull of great depth and substance. He carries his flesh very evenly, and has an exceptionally fine round rib. The first prize two-year-old cow was shown by the same exhibitor.

Mr. J. E. Platt, Bedfordshire, with three exhibits, and Mr. R. P. Conroy, Berkhamsted, shared the honors for Red Polls.

There were no English exhibits of Aberdeen-Angus on this occasion, although M. le Comte de Germinz, the only exhibitor with six entries, got second prize in the male and female classes with a bull chiefly British-bred.

Speaking generally, the French breeds are regarded as inferior to those of Britain, particularly for beef purposes. The French Shorthorns are distinctly behind ours, and are something of the earlier type, with rather prominent points about the hooks and shoulders, and not so well developed on the rump, or so full in the thighs. The evidence of the judging would tend to a predilection for milk rather than beef. The Limousins, though known as "working" breed, possess some good beef points, short legged, of reddish fawn color, and of a pudging rather than block conformation.

The Normandy cattle are the most important milk breed, being of a rich brindle in color, with somewhat of a Shorthorn type.

There were only 57 entries in the foreign-bred section for sheep, but these were all of a very creditable stamp, especially the Southdowns and Shropshires. The Prince of Wales got a 1st prize among Southdowns only under 18 months with a very symmetrical stamp of a sheep, but he failed to get a place in the older class. The plan adopted was that of clipping bare for the show and leaving a tuft of wool on the left shoulder. The sheep stood in their bare figures with every mark, line, and prominence shown. In this way they could be distinctly judged for frame merits, while the tuft of wool remaining allowed facilities for testing the staple. The exhibits of French Southdowns were numerous, and perhaps the best of the section; leaving out the Merinos, in which the French surpassed. The breed champion was a fine, level, and females were both taken by Frenchmen—some with foreign breeds, the other by the home-bred section.

Against the Shropshires, the English competitors were more favored, and Mr. Tanner carried off the 1st prize, on the basis of championships with very large numbers of operations. The others represented the French and the requisite number of operations.

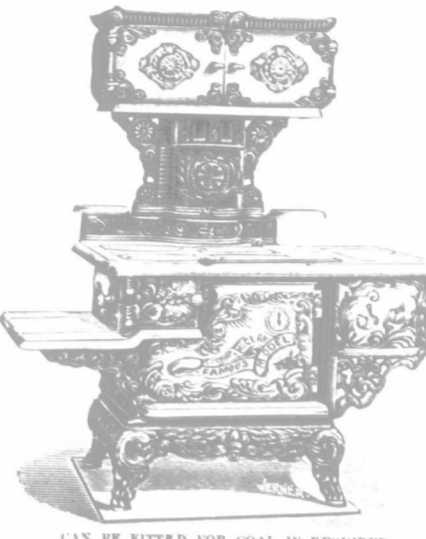
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Strong, durable, cheap. The only "Hinge" Stay. Write for circular and prices.

**AGENTS WANTED.** THE **Strathy Wire Fence Co.,** WELLAND, ONT.



**SAVE FUEL BY USING A**



**FAMOUS MODEL RANGE FOR WOOD.**

**THERMOMETER** in oven door shows exact cooking heat for pies, cakes, bread, etc.  
**VENTILATED OVEN** allows of a constant circulation of pure warm air.  
**STEEL OVEN BOTTOM** (that cannot crack or warp) heats oven quickly.  
**CEMENTED BOTTOM** causes even baking of food.  
**ASBESTOS OVEN FRONT** prevents heat escaping.  
**EXTRA HEAVY FIRE EXPOSED PARTS, SECTIONAL FIRE-BOX LININGS AND STOVE TOP THAT CANNOT WARP.**

**THE McCLARY MFG. CO.,** LONDON, TORONTO, MONTREAL, WINNIPEG, VANCOUVER.

**Government Analysis.**

LABORATORY OF INLAND REVENUE, OFFICE OF OFFICIAL ANALYST, Montreal, April 8, 1895.

"I hereby certify that I have drawn, by my own hand, ten samples of the

**St. Lawrence Sugar Refining Co.'s**

**EXTRA STANDARD GRANULATED SUGAR**, indiscriminately taken from ten lots of about 150 barrels each. I have analyzed same and find them uniformly to contain:

**99.99 to 100 per cent.** of pure Cane Sugar, with no impurities whatever."

(Signed) **JOHN BAKER EDWARDS, Ph. D., D.C.L.,** Prof. of Chemistry and Public Analyst, Montreal.

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Young people are properly trained to do such work through a short term in that most successful and reliable Business School, the

**Central Business College, TORONTO.**

Open all the year. No vacations. Enter any time. A strong school. A good school. Twelve teachers. First-class results. Write for particulars.

**W. H. SHAW, PRINCIPAL.**



**Belleville Business College.** BELLEVILLE, ONTARIO.

**Kendall's Spavin Cure.**—The *Southern Trade Record*, of Cincinnati, are claimed to have made a thorough investigation of horse liniments, after which they write editorially as follows:

It was the realization of the importance of our decision that induced us to take more than customary care in thoroughly looking up the matter, and therefore secured the services of thoroughly reliable experts in this line, who enjoy established reputations for probity and knowledge of the requirements of the article under consideration. After a careful and exhaustive investigation of all the leading horse liniments, the result of our investigation was unanimously in favor of Kendall's Spavin Cure, made by The Dr. B. J. Kendall Company, of Enosburg Falls, Vermont. This cure is undoubtedly the most successful remedy, as it is certain in its effects and does not blister. It cures Splints, Spavins, Cuts, Galls, Sprains, etc. The Dr. B. J. Kendall Company can show hundreds of testimonials from leading horse owners, stating that after trying other remedies the reliable and best was Kendall's Spavin Cure. Dr. Kendall also is the author of a book upon "Treatise on the Horse and His Diseases," which will be forwarded upon request. This remedy is for sale by all druggists, or can be had direct from the manufacturer.

**INVESTIGATION SHOWS WISDOM.**

I make the absolute claim that Rob Roy Mining Shares are one of the least risky things you can invest in!

Strong language, as mining is usually classed as a speculation, and rightly so—if a lot of good common sense isn't used!

Still, I fearlessly say that these shares are safer than nine tenths of the monetary risks you daily run—in horses or cattle, for instance!

I have seen the properties, know the men at the head of affairs (well-known London men they are too!), have my own money up, and am prepared to give you the benefit of my experience if you want it!

You have \$100, say, that you want to invest if you can find a safe and profitable place for it. Well, there's nothing going that I know of better than Rob Roy stock at 15 per share!

If this interests you, and you mean business, drop me a line, and I'll gladly tell you what I know.

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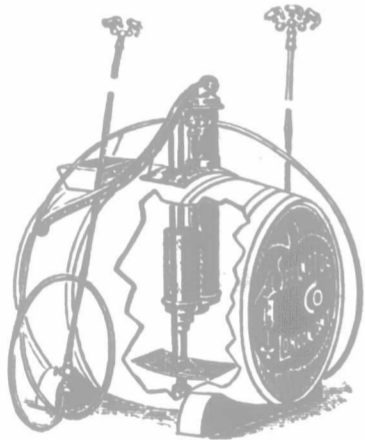
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10 CENTS

*Rapid Action  
Cleaner  
Will Not Scratch*



The new cleaner with a bright name and a characteristic mission:

To brighten homes, lighten work, to shed luster in the kitchen, radiate the dining-room and polish up the bath-room.

—To expel dirt.

—To make housework less a drudgery than it has ever been, to ease the tired arms, to make your tins, pots and kettles greet you with your own reflected smile—in short

—To clean and polish everything cleanable and polishable in the house.

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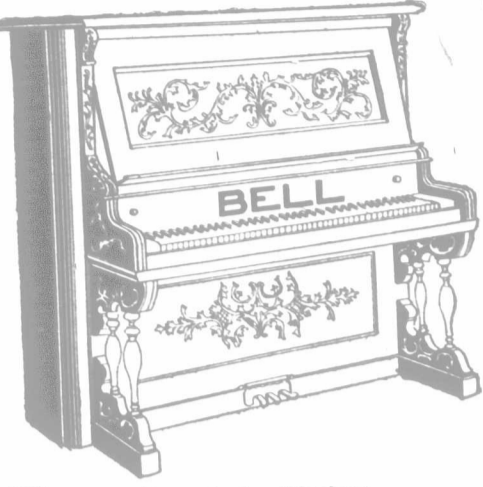
rapid action cleaner  
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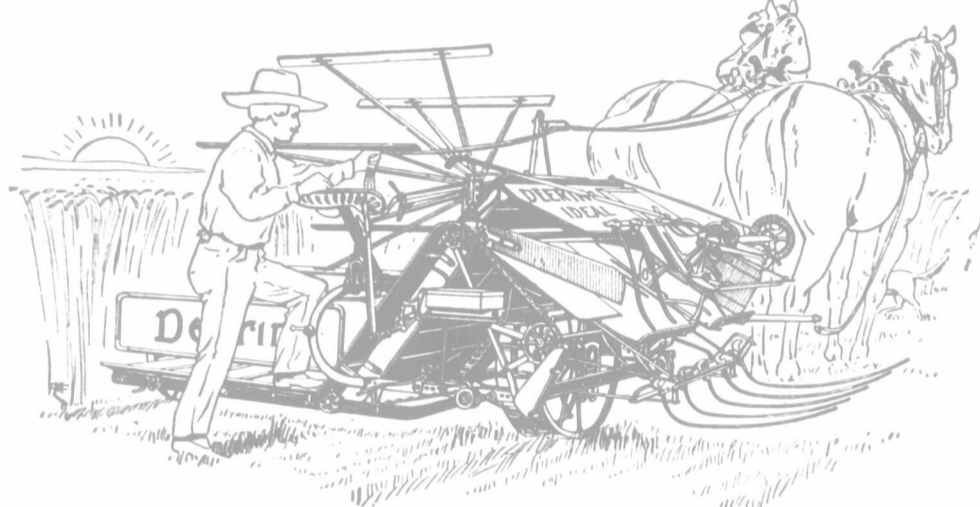
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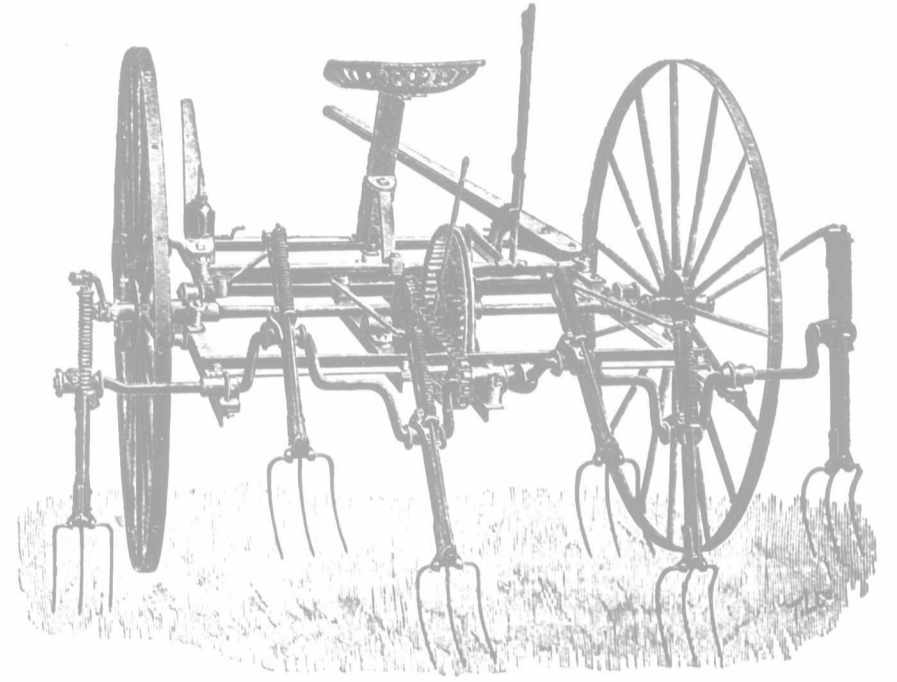
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