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MANITOBA AND WESTERN EDITION

# THE FARMER'S ADVOCATE

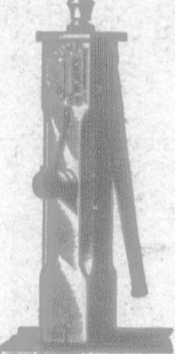
AND HOME MAGAZINE

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

Vol. XXXIV. LONDON, ONTARIO. MAY 20, 1899. WINNIPEG, MANITOBA. No. 478.

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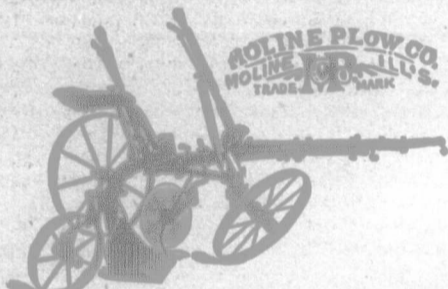
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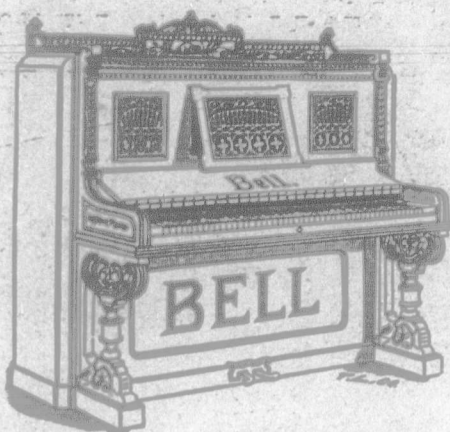
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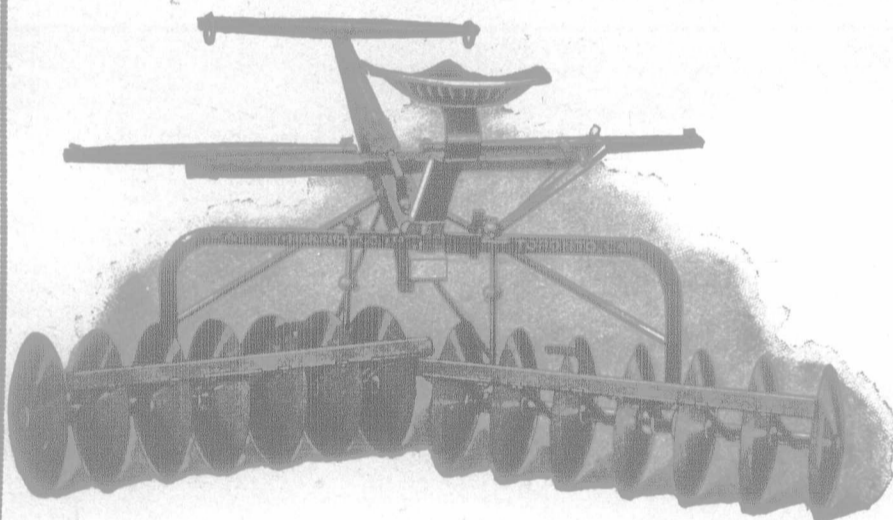
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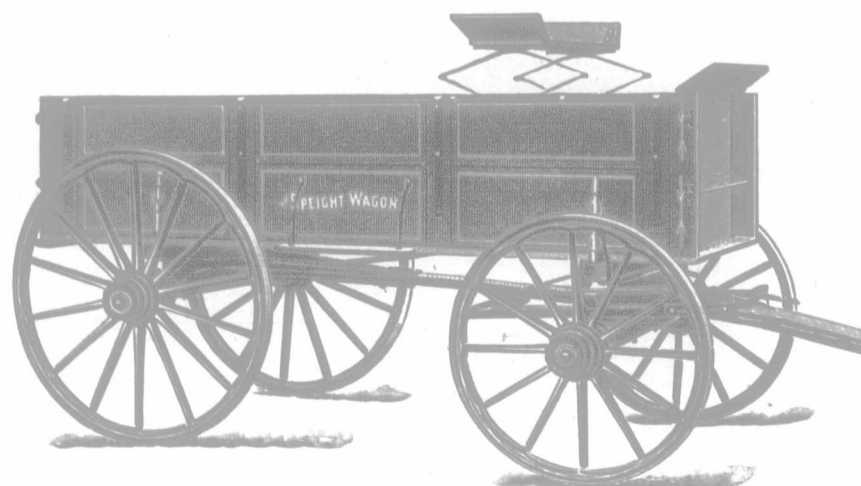
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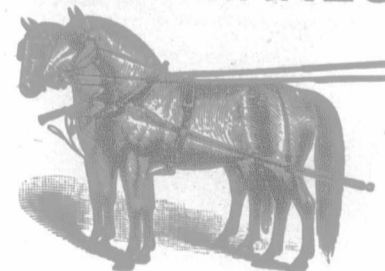
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# FARMER'S ADVOCATE

AND HOME MAGAZINE

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

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VOL. XXXIV.

LONDON, ONT., AND WINNIPEG, MAN., MAY 20, 1899.

No. 478

## Another Exceptional Season.

Following a cold, steady winter, which was protracted well towards the end of March, it was confidently predicted by those whose long residence entitled them to make forecasts on the weather, that we should have an unusually favorable seed time. The writer has resided in this country since 1879, and instead of being able to prophesy on the weather, is only able to record that during that time there have been nineteen seasons in which the weather has each spring been exceptional, with that of 1899 perhaps the most exceptional. But in spite of the excessive moisture and delay in seeding operations, there is still good reason for hope that 1899 will be a year of exceptional prosperity.

In some sections, owing to the wet, backward weather last fall, little plowing was done, and consequently it will be impossible to get as much land in wheat as was intended, necessitating a larger area of coarse grains or of summer-fallow. The excessive moisture both last fall and this spring has soaked the soil as it has not been soaked for many years. The soaking has firmed the soil so that there is little need of soil packers, and there should be no trouble with manured land lying too open, or with manure not incorporating with the soil. Where stubble-burning and seeding without plowing is practiced, as in parts of Assiniboia, there has been great trouble getting rid of the stubble, which in those districts was long and heavy last year.

With warm, moist weather for the next month or so, growth will be marvellously rapid, and even late sown crops will likely come to maturity in good time; but should the weather become dry there will be work to do to prevent, if possible, the surface becoming crusted (and baked in heavy soils), to the serious injury of growing crops. In heavy soils worked when a little wet the tendency to bake is of course much greater. Soil water either drains away through the soil or evaporates from the surface; in the latter case the moisture from below comes to the surface and passes off into the air by capillary attraction (as oil passes up the wick of a lamp as it is being consumed by the flame). After heavy rainfall or continued evaporation the surface of the soil becomes crusted, and then if it is desired to get rid of more moisture, it may be accomplished by using a disk harrow, set at a small angle so as to slice the soil and add to its evaporating surface; whereas, if it is desired to retain the moisture in the soil, a harrow or other implement should be used that will thoroughly stir the whole surface, not merely scratching it, but completely loosening it up. The newly introduced weeders should do this work to perfection, and they have the advantage over the harrow in that they can be used several times, and even after the grain is six or eight inches high without injury to the young plants.

## The Douglas Grain Bill.

The Winnipeg Board of Trade at a recent meeting passed a resolution condemning the bill introduced by Dr. Douglas, M. P., into the House, at Ottawa, re regulating of the grain trade in Manitoba and the Territories. In the Board of Trade resolution there is nothing new—it simply seeks to protect the present elevator system, which is all right enough as far as it goes. In the Douglas bill there is much that appears superfluous—that to the ordinary lay mind only tends to confuse and mix up things. All that the producer wants is liberty to ship his grain through an elevator, flat warehouse, or from his wagon, as may seem best, and not to be forced to put his grain through an elevator belonging to parties with whom he does not wish to do business. And, again, in the matter of supplying cars, it is the duty of the railroads as common carriers to supply sufficient cars to handle the trade, and not to discriminate against any one, be he farmer or dealer.

## Seeding Down.

There will, doubtless owing to the lateness of seeding, be a greatly increased area devoted to grass this season. The benefits of seeding down old land from which the humus has all been worked are well known, but many seem to feel that they can't spare the land from grain crops for seeding down, especially when native hay and pasture is fairly plentiful. But it will pay to seed down for the benefit of the land, if for no other reason. While timothy does well in some sections, native rye grass and Bromus inermis do well almost anywhere, and provided clean, pure seed can be had, it can be sown with every assurance of a good catch and satisfactory results. Home-grown seed gives best results, and where possible should be procured. There are several parties who have advertised in our columns home-grown seed of above grasses guaranteed free from noxious weeds.

## Horse Breeding.

To the Editor FARMER'S ADVOCATE:

I have read with interest the letter of Mr. A. Innes on "The Condition and Needs of the Horse Trade" in your issue of April 5th, and quite agree with all he has to say of the kinds of horses which it is desirable to raise. But for how many years have we heard all this, and to what purpose? It is surely not a new thing to hear that good heavy drafts, saddlers, carriage horses and hunters will always command good prices in the foreign markets. Our foremost breeders have from time immemorial insisted on the necessity of breeding for some definite purpose, and what is there to show (in this country, at least) for their labors in the direction of improvement? We have had in this country, in the last fourteen years, imported stallions, of almost every breed, good enough to take prizes, and which have taken prizes, in Old Country and Eastern showings. How have these stallions been patronized? Our Industrial Exhibition is a great educator for those capable of being educated, but what about the others, who apparently form the great majority? Here stands one at the side of the showing with critical eye, explaining the weak points (and over-feeding, which annoys him greatly) of the prizewinners. Should you visit his farm you will probably find that, despairing of finding a perfect stallion, he has selected the one that was cheapest in his own district, and, not content with spoiling the produce of one mare by this line of breeding, has bred all his mares, big and little, to the same stallion, thereby getting his services cheaper. After a few years he will probably tell you that horse-breeding is a lottery, but if he is an honest man he must admit that the comparison is very unfair to the lottery, there being nothing but blanks in his.

There is another kind of lottery which, however, has some prizes, and this is the breeding of a mare of unknown blood to a stallion which seems to suit her in class, and good of his kind. He must, of course, be sound and pedigreed, and the longer the pedigree the better. The number of prizes in this lottery will depend on the skill of the individual breeder in the selection of the sire and in the general management of his stock.

Lastly comes the breeding of horses "in line." Some of the fillies in the preceding example have shown a distinct advance in the direction desired, and by patiently building on these and culling out the others we advance steadily to a point at which our mares are pedigreed, for all practical purposes of the breeder. I do not wish to be understood as advising the breeder to use or keep entire his colts but he has at his command all the information that a pedigree can supply; and the only practical value of a pedigree lies in its record of so many generations of line breeding.

Unfortunately, too many breeders are impatient of results. They will admit that it took them years to evolve from their native cattle the fine herd that they now own, and that it was only accomplished by cross after cross of pure-bred bulls. But when they breed an under-bred mare to a pedigreed stallion they expect in the first generation a valuable, high-class colt. They are prone to forget that a filly which only shows a slight improvement over her dam may turn out to be a valuable brood mare when mated with a stallion of the same breed.

The chief difficulty in line breeding lies in the uncertainty as to what stallion may be in the district in any year. I think a small combination of

breeders in any district would be sufficient to attract or retain a satisfactory stallion, but if this is impossible it remains to send the mare to the stallion to be bred or to leave her barren for the year. To breed her to a stallion which the owner of the mare believes to be unsuited to her is only to throw away service fee and feed, for although the prices obtainable for good horses are on the rise, the poor ones are still almost unsalable.

I would like to suggest in passing that it would be a good thing to have payments for insured mares fall due soon after harvest. This would be, I think, a satisfactory time for farmers to make these payments, and would cause less grumbling than in February or March. It would also relieve the stallion-owner of the risks of the overloading of insured mares, and of plunging them through deep snow; and, while making the breeder more careful, would enable the owner of the stallion to give a lower insurance rate. At present the careful farmer pays for the careless one.

For the last few years the market for light delivery horses has been glutted with ranch-bred horses, and some few of these are used as saddle horses by those who are not very particular as to their mount. They range in price from \$18 to \$30, an occasional one going a little higher, while a good-sized farm-bred saddler would in any of these years bring \$125 and over; but as farmers will not raise these, a purchaser who wants anything better than a broncho has to get it from Ontario. These horses can only be bred from a Thoroughbred stallion, for although pulling the mane and cutting the tail of a trotting horse may accentuate the size of his head and the crookedness of his hind legs, it cannot diminish the roughness of his paces.

Why is it that Ontario supplies practically the whole of our demand for work horses? We should have an advantage of about \$50 over the Ontario breeder in our own market, when freight and profit are taken into consideration. Why do not farmers at any rate supply themselves from the surplus of their neighbors? This is, I think, partly because a farmer does not care to be indebted to a brother farmer in the absence of ready money, whereas he willingly gives a note to a dealer. Surely the advantage is mutual, and each party gains by this deal! It is also, I think, partly due to farmers raising very few really heavy horses, and also because the average farmer very seldom has his colts really fit to sell till fall, when the demand has ceased.

As I am afraid that I am trespassing on your valuable space, I will venture a few suggestions in conclusion. We may expect to find a market for our colts if we breed the heaviest of our heavy mares to good heavy pedigreed stallions. Your district will be favored indeed when it becomes necessary for you to decide between the rival merits of the Clyde and Shire. Middle-weight mares, if of good quality (a very large "if") may be bred with advantage to a good Hackney, or if they are lacking in quality they will be better bred to a Thoroughbred. The small mares I should be inclined to leave alone. It is unnecessary, I should think, to insist once more on soundness in both sire and dam, but we must not forget that size, substance and action are worth dollars in every line. As the time for selling approaches, put your colts in a condition fit for sale, and if you get a fair offer at home let the foreign markets look out for themselves. It should be quite possible to induce the secretary of one's district agricultural society, for a slight consideration, to keep a list of the colts that are for sale in the district. The breeder could supply the details showing whether his colts were heavy or light, and from this a dealer could find out where he could get a carload without traveling thirty or forty miles between each purchase. You cannot expect the dealer to come before the colts are there. Try to combine with your neighbors to guarantee, say, twenty mares to a suitable stallion, and a small advertisement will, I think, bring many satisfactory replies.

Lastly, remember that the Horse Breeders' Association was formed to further the interests of breeders, and that any suggestions along the line of improvement in breeding or selling facilities will be welcomed by the Association, and all assistance in their power given. We must not forget, however, that an association supported as it is without Government grant and without salaried officers is apt to lose enthusiasm in the face of half-hearted support of those for whom it works. Are you a member, or are you confiding your interests to the care of everybody else?

W. L. FUXLEY,  
Secretary Horse Breeders' Association.  
Winnipeg.

## THE FARMER'S ADVOCATE AND HOME MAGAZINE.

THE LEADING AGRICULTURAL JOURNAL IN  
THE DOMINION.

PUBLISHED BY  
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LONDON, ONTARIO, AND WINNIPEG, MANITOBA.

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13. WE INVITE FARMERS to write us on any agricultural topic. We are always pleased to receive practical articles. For such as we consider valuable we will pay ten cents per inch printed matter. Criticisms of Articles, Suggestions How to Improve the Advocate, Descriptions of New Grains, Roots or Vegetables not generally known, Particulars of Experiments Tried, or Improved Methods of Cultivation, are each and all welcome. Contributions sent us must not be furnished other papers until after they have appeared in our columns. Rejected matter will be returned on receipt of postage.
14. ALL COMMUNICATIONS in reference to any matter connected with this paper should be addressed as below, and not to any individual connected with the paper.

Address—THE FARMER'S ADVOCATE, or  
THE WILLIAM WELD CO.,  
WINNIPEG, MANITOBA.

### Cottonwood May be Imported from Dakota.

In compliance with the representations made by the Western Horticultural Society, the following order-in-council was recently passed at Ottawa: Providing that Dakota cottonwood, otherwise called "necklace poplar" (*Populus monilifera*), when grown and shipped from the State of North and South Dakota, shall be exempt from the operations of the San José Scale Act for a period of six weeks from first day of May, 1890. All importations of the said Dakota cottonwood shall be permitted to be entered at the customs port of Brandon in the Province of Manitoba only.

### Tree Planting on Roadways.

To the Editor FARMER'S ADVOCATE:

Re Amendment of Tree-planting on Highways Act—A number of farmers asked us to give consideration to this Act, so as to meet their ideas for the better encouragement of planting trees contiguous to their farms. Looking into the matter from numerous points of view, we resolved to ask that in Chap. 100, Part IX., Title III., Clause 630, that the word "eight" should be made "sixteen" as the least space to enclose.

First, that it has been abundantly shown by experience and beyond all doubt that the prairie soil must be thoroughly broken up and pulverized previous to planting, and that after planting or sowing the ground must be cultivated to keep clear of weeds and for the conservation of moisture so necessary for the health and rapid growth of the trees for many years.

Also, to amend Clause 640. That after the words "contiguous to his land" should be inserted the words, "that all such trees or saplings, planted or sown, shall be in line eight (?) or ten (?) feet from owner's boundary line."

This distance of eight feet on each side of main line to ensure easy and thorough cultivation. That the owner on his boundary line could sow or plant trees for his future fence as a hedge or for posts after the road trees would be independent of protection. The distance asked for, being about the head diameter of such trees as the maple and poplar, which varieties seem to be the most adaptable for road planting, and would eventually cover this head space.

P. MINNICOY,  
Hon. Sec'y Brandon Horticultural Society.

### Bees in Manitoba.

To the Editor FARMER'S ADVOCATE:

In such weather as we have been enduring for the last few weeks, one does not feel like writing about farm matters, and least of all about bees. What is the use of writing about summer and fall management when the elements have manifestly conspired to leave us nothing but empty hives to manage? What use, particularly, when the percentage of unparliamentary phrases that would be sure to creep in would render the MS. unavailable for such a strictly proper magazine as the ADVOCATE. But to-day (May 8th) is sunny and warm, and otherwise a good day, so we may venture something about present conditions, leaving the discussion of matters pertaining to the honey season and autumn to a later date.

After remaining in the cellar nine days later than last spring, the bees came out on April 22nd to have one good fly, and then to be shut up in their hives with rain and snow till the 30th, when they again enjoyed an afternoon in the sun. There was by this time some willows, French weed and *Shepherdia canadensis* blooming, and a little pollen was taken into most of the hives. We felt like yelling then, for it looked as if we were in for whole months of such days. But, alas! the next was cold, and the next worse, and they have stayed worse right along till yesterday, when a change came, and to-day is an ideal one. There is now plenty of bloom, and the little fellows are literally making things hum.

This spring has been an educator, and while we wish it had done its educating in some other corner of the earth, it will be well to remember its lesson and henceforth provide each colony in the fall with stores enough to carry it an extra month. Liberal provision for winter is good policy at any time. A good supply of honey in the hives in spring not only ensures against disaster when caught with such weather as we have been having lately, but enables the bees to devote more of their energies to brood-rearing at the start, instead of being forced to roam abroad for honey at a time when it is scarce, and thus tells favorably on the whole summer's work. But it sometimes happens, as it did last fall, that bad weather interferes with the business of feeding those colonies from which too much honey has been taken; and by waiting for a change this important work may be deferred till at length cool weather ensues, and some colonies, oftener than not the weaker ones, refuse to store in their combs the syrup given them. The mistake may then be made of assuming that their combs are full, and the hive marked O. K. We made this mistake last fall, but won't again if we know it, the result being seven cases of starve-out and the necessity of feeding several colonies after taking them from the cellar. Except for this shortage of stores our bees wintered well.

Unless the season is unusually favorable henceforward, this bids fair to be one of small profits. Brood-rearing must begin late, which, of course, means late swarming; and the likelihood is that the honey harvest will find the bees but poorly prepared to handle it. In view of this, it may be well to consider whether it will not be more profitable to look more to the building-up of apiaries than to the production of honey during the present season. By strengthening weak and backward colonies and swarms by giving them brood and stores from the stronger ones—even treating the best after-swarms in this way—the result next fall would be little honey, certainly less than if that is made the chief object, but a large increase in colonies of greater and more uniform strength. The steadily-growing demand for bees might well commend this plan to those who have their apiaries now about as large as they wish to keep them, while those who have not can thus make a more substantial gain than by working for honey, even if the season should yet prove a good one.

Red River Valley. J. J. GUNN.

### Summer-fallowing.

During my seventeen years of residence in Manitoba and Dakota I have given the question of summer-fallowing considerable attention, and will be glad indeed if a few of your readers can glean something practical from the results of my experience and observation.

A good many of your readers may not agree with my theories, and this article may result in a wholesome discussion of the subject in your paper.

The three main objects in summer-fallowing in a district largely devoted to grain-growing are, to my mind, to rid the land of weeds, to put the soil in good condition to retain moisture to feed the succeeding crop, and to give the land a rest and have so much prepared for the succeeding crop before the rush of fall work begins. The land should be plowed as soon as possible after the seeding is over in the spring, and well harrowed as soon as plowed, so as to firm the soil and retain the moisture that is in the land to encourage the germination of the millions of weed seeds that are turned up to the surface with the plowing. The land should be gone over with a disk or spring-tooth harrow a number of times during the season to kill all weeds that appear.

One difficulty to contend with where the land is well harrowed is the drifting of the soil with the wind. To overcome this, I would drill in, say about the end of July, three-fourths of a bushel of oats or other grain per acre. This would provide excellent pasture for stock in the fall when the prairie

grass is pretty well dried up, and the roots would hold the soil together and prevent drifting, and the stock tramping over the land would be of great benefit in firming it; besides, the droppings would be of considerable value as a fertilizer.

Every one who has farmed in Manitoba for any length of time will have noticed that the crops on soil well firm will not grow so rank as on soil left loose, and will yield more and ripen about a week earlier, which is a great consideration in districts where there is sometimes danger from frost. The writer well remembers his first experience with summer-fallowing in Manitoba after moving from Ontario. We followed the practice then in vogue of plowing three times, with repeated harrowing. The result was that our land was in a very loose condition, and a great deal of it moved over with the wind to our neighbors, also some of the seed. We had a very rank growth of straw which lodged badly, and the yield was disappointing. A great many of us, when we were newcomers to the Province, thought nothing was properly done unless we followed the methods practiced in the East. We soon learned that the conditions, soil, and climate were different and required different treatment. Most of us found we had a good many things to learn and some to unlearn. I have met a few farmers in Manitoba, also in North Dakota, who are disgusted with summer-fallowing. But an investigation into their methods will generally disclose a very shiftless system of doing the work. They do not plow the ground until the weeds are very high and partly ripe, and do not harrow at all. The result is that a great many of the weeds they turn down ripen in the ground, and the seeds they turn up to the surface with the plowing do not germinate until the next year, and they have a fine crop of weeds in that and succeeding crops of grain. I believe a four-years rotation something like the following would be a great benefit in the Prairie Province in making the land productive and restoring the fertility: First year, summer-fallow; second year, wheat, sowing along with it some kind of grass seed that does well in Manitoba; the third year take off a crop of hay, and break up again in fall, and the next year put in wheat or some other grains; or it might be extended to a five-years rotation, and take off two crops of grain before summer-fallowing again. And it would be still better, of course, if the land could have a coat of manure some time during the rotation period. I believe it will pay, even in districts where wild hay is abundant, to seed down to grass every few years to get root fiber back into the soil again.

W. J. YOUNG,  
Supt. South Side Farm, Southern Minnesota.

### Correction.

To the Editor FARMER'S ADVOCATE:

In description of South Side Farm Company's cattle barn, in your issue of April 20th, I see, I made a mistake. I said it was 9 feet from hay floor to plate, and 19 feet to peak of roof. It should have been 9 feet from floor to plate, and 26 feet from floor to peak of roof.

W. J. YOUNG.

### The Honor Roll of the Royal Show.

(Continued from page 194.)

The following is a continuation of Mr. Richard Gibson's article commenced in our issue of April 20th, giving names and exhibitors of mature Short-horns winning first prizes at the Royal Show from its inception to the present time:

MANCHESTER, 1860.

Earl of Derby (21638); bred and exhibited by Mr. Wiley, Brandsley.

Lady Fragrant, Vol. XVII., p. 568; bred and exhibited by Mr. T. C. Booth, Warlaby.

1869 is remarkable for being the last show at which Warlaby contended for honors. Lady Fragrant again won, and it has generally been conceded that she was the best cow shown for many years. She was so "ladylike" that she looked small, but she would be a monster in the present day. We never expect to see her like again. Mr. Booth's Patricia was 1st in two-year-old class, and afterwards was purchased by Messrs. Walcott & Campbell, New York Mills, but died on shipboard in New York harbor—overcome by heat. Queen of Diamonds, that beautiful heifer that Col. King showed so successfully in the West (imported by Mr. Cochrane), was 2nd, and those who remember the Queen will readily recognize how good Patricia must have been to win over her. In the yearling class Baron Oxford's Beauty won, and again the next year as a two-year-old at Oxford for Col. Towneley. She was also purchased for America (New York Mills) at a cost of \$2,500. Her breeding, Booth & Bates; her dam being of Mr. Bates' Foggethorpe family.

OXFORD, 1870.

Bolivar (25649); bred by Mr. J. Meadows; exhibited by Mr. C. W. Briarly.

Lady Larinia, Vol. XXI., p. 597; bred and exhibited by Mr. Garne.

Bolivar, the Irishman, wins his third Royal, and a Garne was winner in cow class. She was a commoner.

WOLVERHAMPTON, 1871.

Edgar (19680); bred by Mr. Saunders, Nunwick Hall; exhibited by Mr. H. Thompson, Penrith.

Warrior's Plume, Vol. XIX., p. 774; bred by W. Torr; exhibited by Mr. J. Beattie, Newbie House, Annan.

1871 produced Edgar. We may be wrong, but have always considered him the best bull, after Commander-in-Chief, we ever saw, and in many ways he was Commander's superior—bulky, thick-fleshed, evenly distributed. He walked with such strength and resolution, one would expect the earth to tremble at his approach. His breeding was mixed—sound old North Country sorts. The sires in his pedigree were prizewinners, in order as follows: Prince Patrick, McTurk, Heir-at-Law, Baron of Ravensworth. Had he not a right to be good? The "dairy cow" won for Simon Beattie's uncle. She was a Booth-topped Bates Waterloo, swinging an udder such as a Holstein breeder would covet.

CARDIFF, 1872.

*Royal Windsor* (29890); a white, bred by T. Willis, Carperby; exhibited by J. Outhwaite, Baines.

*Primrose*, Vol. XX., p. 697; bred by Mr. L. C. Crisp; exhibited by Mr. A. H. Browne, Acklington.

1872 introduced J. Outhwaite, the breeder of Bow Park's Lady Isabel. He showed a Carperby white bull, and we believe there were two other whites in the placed list of bulls.

HULL, 1873.

*Telemachus* (27003); bred and exhibited by the Marquis of Exeter.

*Vivandiere*, Vol. XX., p. 811; bred and exhibited by J. Outhwaite.



LADY FRAGRANT.

FIRST AT THE ROYAL, 1868 AND 1869.

The Marquis of Exeter here showed the first of the Telemachus dynasty. They were smooth, evenly-fleshed bulls, short of hair, but just what would suit the western breeder and judge effeminate heads and horns, pretty bulls. Vivandiere, whose portrait is reproduced from the English Herd Book, was a good cow, and well deserved her victories, as she won again next season. A thorough Booth, and the best cow we have known, after Lady Fragrant.

BEDFORD, 1874.

*Lord Irwin* (29123); bred by W. Linton, Sheriff Hutton; exhibited by R. Bruce, Newton of Struthers.

*Vivandiere*, Vol. XX., p. 811; bred and exhibited by J. Outhwaite.

Lord Irwin (a white), bred by the father of "our" Wm. Linton, was full of Booth blood, has a long list of prizes to his credit, and proved a good sire, both at Sheriff Hutton and in the herd of Mr. Robt. Bruce, of Scotland, to whom he was sold.

TAUNTON, 1875.

*Duke of Aosta* (28356); bred by T. H. Hutchinson; exhibited by Mr. A. H. Browne, Doxford.

*Lady Playful*, Vol. XXI., p. 784; bred and exhibited by T. H. Hutchinson, Catterick, Yorks.

Teasdale Hilton Hutchinson now puts in an appearance. A bull of his breeding won, and his Lady Playful was the prize cow. A Booth follower of the Killerby persuasion, he was for a few years probably more successful than any other exhibitor.

BIRMINGHAM, 1876.

*Telemachus 6th* (35725); bred and exhibited by the Marquis of Exeter.

*Queen Mary*, by Grand Duke of Oxford (28763); dam Queen Anne, by Lord Stanley 2nd (26745); bred and exhibited by Rev. R. Kennard, Marnhull Rectory.

1876 produced the phenomenal Queen Mary, a thrice Royal winner. It was our misfortune not to have seen this cow, but she has been described to us as "the" cow since Lady Fragrant—some say better. She was a Bates by breeding, and combined in an unusual degree all the quality and elegance to be found in the best specimens of Kirklevington, with the deep, thick, wide Warlaby's best dams.

LIVERPOOL, 1877.

*Sir Arthur Ingram* (32490); bred and exhibited by Mr. W. Linton, Sheriff Hutton, Yorks.

*Queen of the Georgians*; bred and exhibited by B. St. John Ackers.

Mr. Linton's Sir Arthur Ingram won easily. He had previously won 1st as a yearling at Hull, and as a two-year-old at Bedford. He was a remarkable bull (a successful progenitor of prizewinners to the third and fourth generation), and combined in his make-up the best of Booth, Bates, and Cruickshank blood. His sire was a John Booth, Killerby, and below (in his pedigree) is found some of Mr. Bates' best, while Magnus Troll introduces the Scotch element. Queen of the Georgians was another Killerby Booth.

BRISTOL, 1878.

*Attractive Lord* (32088); bred by Mr. T. Pears, Hackthorne; exhibited by Earl of Ellesmere, Worsley Hall.

*Rugia Niblett*, Vol. XXIII., p. 439; bred by George Garne; exhibited by Lord Fitzhardinge, Berkeley Castle.

The winning bull was Booth-topped, while the cow was a Towneley Butterly on a Bates-topped old Gloucestershire family.

KILBURN FOR LONDON, 1879.

*Anchor* (32947); bred by R. Chaloner, Kingsfort, Ireland; exhibited by Lord Rathdonnell, County Carlow, Ireland.

*Graceful*, Vol. XXIII., p. 500; bred and exhibited by T. H. Hutchinson.

Ireland sends the winning bull, Booth-topped; while T. H. Hutchinson wins with a beautiful Booth cow, still spoken of

by show-yard critics as one of the best, and she repeated her triumph the next season, thus following in the track laid down by Lady Fragrant and Vivandiere.

CARLISLE, 1880.

*Duke of Howl John* (33674); bred and exhibited by Messrs. Vicars, Crook, Durham.

*Grateful*, Vol. XXIII., p. 509; bred and exhibited by T. H. Hutchinson, Catterick, Yorks.

DERBY, 1881.

*Vice Admiral* (30257); bred and exhibited by T. Willis, Carperby, Yorks.

*Lady Carew*; B. St. John Ackers, Prinknash Park, Gloucester.

READING, 1882.

*Caractacus* (42579); bred by Capt. Mytton; exhibited by W. I. Palmer, Grazeley Court, Reading.

*Gainful*, Vol. XXIV., p. 514; bred and exhibited by T. H. Hutchinson.

Gainful was another good Booth cow, but about this time there was nothing above mediocrity shown—nothing worthy of note either from show-yard notriety or as matrons in the herd. White figured very plentifully as the victorious color.

YORK, 1883.

*Lord Zetland* (43506); bred by the Earl of Zetland; exhibited by J. Outhwaite, Baines.

*Snowflake*; bred and exhibited by C. W. Brierley, Tenbury.

SHREWSBURY, 1884.

*Hovingham* (white) (43363); got by Sir Arthur Ingram, dam by Lord Irwin; bred by Sir W. C. Worsley, Hovingham; exhibited by W. Handley, Milnthorpe.

*Snowflake* (white); bred and exhibited by C. W. Brierley, Tenbury.

PRESTON, 1885.

*Earl of Oxford* (51185); bred and exhibited by W. Chapman, Trewithian House, Cornwall.

*Rosebud*; bred and exhibited by Duke of Northumberland, Alnwick Castle, Northumberland.

NORWICH, 1886.

*Prince of Halnaby* (53464); bred by W. T. Talbot, Crosbie; exhibited by H. Williams, Moore Park, Harrogate.

*Lady Pamela*; bred and exhibited by T. H. Hutchinson.

NEWCASTLE-ON-TYNE, 1887.

*Royal Ingram* (50374); by Sir Arthur Ingram; bred and exhibited by W. Handley, Milnthorpe.

*Lady Pamela*; bred and exhibited by T. H. Hutchinson.

1886 and 1887. T. H. Hutchinson wins both years with Lady Pamela. She was virtually a Booth, of short-pedigreed families. Royal Ingram was a son of Sir Arthur Ingram, and his dam was by Sir Arthur Windsor, bred by Mr. Linton.

NOTTINGHAM, 1888.

*Mario* (51713); bred by W. Duthie, Collynie; exhibited by A. M. Gordon, Newton, Aberdeen.

*Molly Millicent*; bred and exhibited by R. Thompson, Inglewood.

WINDSOR (JUBILEE), 1889.

*Mario* (51713); bred by W. Duthie, Collynie; exhibited by C. W. Brierley, Tenbury.

*Molly Millicent*; bred and exhibited by R. Thompson, Inglewood, Penrith.

1888 and 1889 were two remarkable years, as Mr. Thompson in the former year won five first prizes with animals sired by one bull, Beau Benedict, bred by Mr. Linton, of Sheriff Hutton, an unparalleled achievement in the history of the Society, and the same pair won each year in the aged class, and Molly Millicent again won the third time in 1889, the only one on record as having accomplished such a remarkable feat. She was bred by Mr. Thompson, Cumberland, and is probably the best cow brought out for many years, but was beaten in 1889 in the contest for championship by her half-sister, Belle Madeline, by the same sire, and also exhibited by Mr. Thompson. Both were by Beau Benedict, a bull of Booth breeding with a Bates foundation. Molly was out of a cow by Brilliant Butterly, a Towneley combination, full of Bates and Barmpton Rose blood. Mr. Thompson also broke the record by winning every first prize in the female classes in 1889, two being by Beau Benedict and two by Royal Baron. It was at these two shows that the Aberdeen Scotch bull, Mario, won. He was a bull of good size and fine character and a worthy winner in the competition he met, but it has been said by good judges who saw his sire, Field Marshal, in pasture among Her Majesty the Queen's cows at the Shaw farm at Windsor the week that Mario won first honors at the Semi-Centennial Show of the Royal in Windsor Park, that Field Marshal in his work-a-day clothes could have won over him hands down. As the engraving we have of the son does him less than justice, we present that of the sire, which fairly represents one of the very best bulls of modern times and a typical North Country Shorthorn of the approved pattern, which in the last decade have been largely supplying the winning blood. The list of winners during the latter period is so fresh in the minds of Shorthorn breeders that it seems unnecessary to comment upon them, so we give the record as it stands, trusting that what has been written may induce young breeders to delve amongst the roots of the winning tribes, and that it may prove as interesting to them as it has to the writer.

PLYMOUTH, 1890.

*Challenge Cup* (57029); bred by Wm. Duthie; exhibited by J. D. Willis, Bapton Manor.

*Molly Millicent*; bred and exhibited by R. Thompson, Inglewood, Penrith.

DONCASTER, 1891.

*Nugget* (50534); bred and exhibited by E. Jones, Manoravon, Llandil, Wales.

*Wave of Indiana*; bred and exhibited by Lord Polwarth, Mertoun, St. Boswell.

WARWICK, 1892.

*Major* (50419); bred by H. M. the Queen; exhibited by H. Williams.

*Truth*; bred and exhibited by Lord Polwarth, who was also second with Wave of Loch Leven.

CHESTER, 1893.

*New Year's Gift* (57796); bred by Lord Lovat, Beaufort Castle; exhibited by Lord Feversham.

*Wave of Loch Leven*; bred and exhibited by Lord Polwarth.

CAMBRIDGE, 1894.

*Fairy King*; bred by the Duke of Northumberland; exhibited by Mr. Wm. Graham.

*Softlar Rose*, Vol. XL., p. 274; bred by Mr. J. Scott; exhibited by C. W. Brierley. Wave of Loch Leven being placed second.

DARLINGTON, 1895.

*Nonsuch* (65000); bred by I. Hill; exhibited by Lord Polwarth.

*Warfare*; bred by I. Campbell; exhibited by G. Harrison.

LEICESTER, 1896.

*Royal Herald* 64736; bred and exhibited by Lord Polwarth.

*Warfare*; bred by I. Campbell; exhibited by G. Harrison.

MANCHESTER, 1897.

*Master Ailesbury* 65905; bred by J. Deane Willis; exhibited by T. Atkinson.

*Jewel 2nd*, Vol. XL., p. 273; bred and exhibited by C. W. Brierley. Rosedale Cowslip, owned by Mr. Brierley, was 2nd.

BIRMINGHAM, 1898.

*Marengo* 69009; bred by W. Duthie; exhibited by P. L. Mills, Ruddington.

*Jewel 2nd*, Vol. XL., p. 273; bred and exhibited by C. W. Brierley, who was also second with Queen of Hearts, Vol. XLIII., p. 337.

Marengo was sired by Scottish Archer (69008), and his dam, Miss 1182, bred by Mr. W. S. Marr, of Upper Mill, was by William of Orange.

Prevention of Milk Fever.

To the Editor FARMER'S ADVOCATE:

SIR,—I have read with interest the account of the successful treatment for milk fever published in your issue of April 5th.

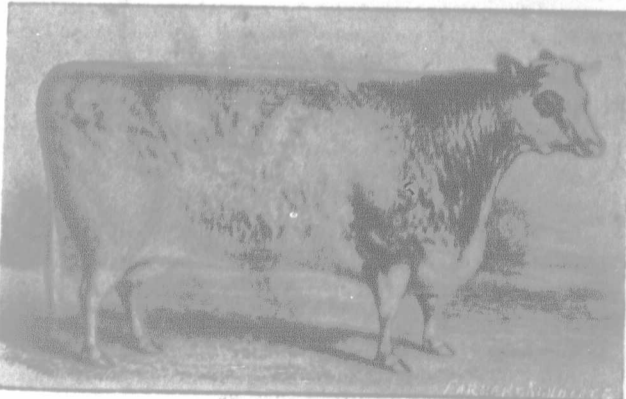
There is always more or less uneasiness in the mind of the dairy farmer when his best cows are due to calve. If he has not had any experience with milk fever himself, he has at least heard enough about it to make him fear it and take extra care.

Believing in the old adage, that "prevention is better than cure," my experience has led me to adopt the following treatment: When possible, put the cow in a box stall one month before the calf is due; stop feeding cut hay or straw in any form; instead, give long hay, roots, a little ensilage, and not more than one pound provender (chopped oats and bran) per day.

If the ensilage is good you have choice hay; the meal can be withheld altogether for the last month.

My chief aim is to keep the cow on short rations for three weeks to one month before the calf is due; never mind if she does eat a little bedding, it will do no harm. Give sufficient roots to keep the digestive organs in good condition. This treatment will prevent a flush of milk and a feverish condition at parturition. She will calve with greater ease, and should it be necessary to give a slight purgative, it will act immediately, as there will be no great quantity of food in the stomach, and what is there will be well masticated.

My objection to cut hay and straw is, that an animal fed on it for any considerable time will get into the habit of swallowing without sufficient mastication. The rough, sharp ends cause more or less



VIVANDIERE.

FIRST AT THE ROYAL, 1873 AND 1874.

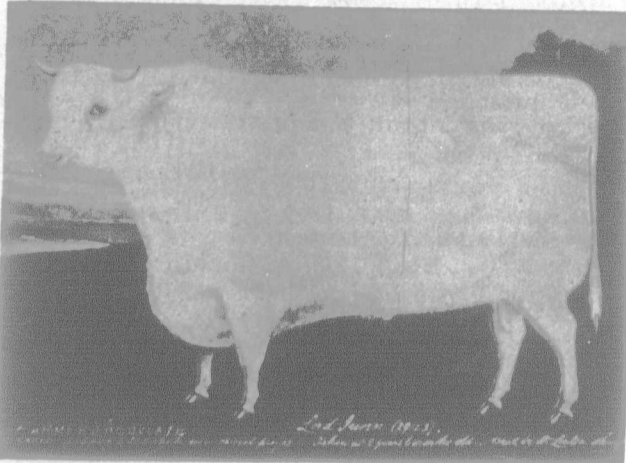
irritation of the digestive organs, followed by slight inflammation. Add to this the feverish condition of the cow at calving, then we are very apt to have impaction more or less severe. It is very rarely that a cow with an empty stomach falls a victim to milk fever.

It is better to avoid giving the last feed before calving. Afterwards, a thin bran mash or oatmeal gruel, with a little hay, will be quite sufficient. Do not feed any meal for at least one week, or until she is in about her normal condition again.

Never stint the water, but give it in the proper way—i. e., half a pail every half hour or so till the thirst is satisfied. It is better to take the chill off the water the first few times if the weather is cold. Central Exp. Farm. R. R. ELLIOTT, Herdsman.

### Barn Plans Appreciated.

W. S., Manitoba:—"I intend building a barn this summer to accommodate both horses and cattle, and should be glad of any assistance you can give me in laying it out for convenience, etc. It will be built with stone walls and stone foundation for posts to carry the superstructure. I enclose you a sketch of ground plan as I have laid it out. My object is to so arrange the building that I can take care of all stock myself—about 48 head of cattle and 7 horses. I have a 320-acre farm, with about 150 broken. It is not a very good wheat farm, but we can grow good oats, barley, and hay, and have good water. I have been experimenting with Bromo grass, and like it well. The plans that you publish in your valuable paper are very helpful,



LORD IRWIN (89123).  
BRED BY MR. LINTON. FIRST AT THE ROYAL SHOW, 1874.

particularly when one is thinking of building. In looking over the plans of J. G. Barron's and John E. Smith's barns in your issue of April 5th, I like them very much, but the cost is too much for a poor man. I like the plan of manger from A. E. Muir's barn given in same issue. I think it is cheap and convenient. I intend to floor with plank where the cattle and horses stand, and in the meantime use shale in the passages before and behind the stock. Any suggestions as to laying out the water troughs in front of the stock or arranging the gutters or in planning the frame will be very acceptable."

### Drying Wheat for Milling.

The drying of damp wheat for milling purposes and the quality of the dried product as compared with the natural product is described in the *Commercial*, by J. G. King, Port Arthur, who operates the Canadian Pacific drying and cleaning elevator at that point. He says:

"There is very little milling value in artificially dried wheat, unless dried under what I term natural conditions; that is, by the action of the wind and the sun, as when the wheat is exposed in the sheaf in the fields. I am satisfied that any artificial process that does not carry out these conditions cannot dry wheat to any real value for milling purposes; and the only really successful wheat drying for milling that I have been able to do in the past was by spreading wheat on a large dock, holding about 4,000 bushels, 2½ inches deep, and having it exposed and turned to the strong sun and heavy wind. About 200,000 bushels of wheat dried in this manner were sold for milling purposes, and the miller was astonished at the quality of the flour this wheat produced; and he had no complaint from any of his customers who purchased the flour.

"I have now adopted in our elevator a system which practically carries out this condition. The grain is held in wire screens, a thickness of 2½ inches, and through this wheat is forced air heated by steam coils. My experience with this system is that it will dry wheat more perfectly for milling purposes than the exposure to the air and the sun; for, to my surprise, the wheat after being properly cleaned is not bleached—while exposure to the sun and air bleaches the wheat. In the practical working of the plant, much to my surprise, this fact has been developed, that wheat containing 12 per cent. of moisture and wheat containing 7 per cent. are both equal after being dried. I had fully expected that the wet wheat would have bleached and be very inferior, but this has not proved to be the case. "Drying wheat for milling purposes is an operation that must be carefully handled, because if the wheat is overdried, the granulating properties are ruined; and if not sufficiently dried, the wheat will not keep; therefore, both these extremes must be avoided.

"Now, the question is asked, What is the effect the drying has upon the flour? The quality of the flour depends largely upon the gluten, and whether the gluten is damaged or not in drying depends upon circumstances. I am satisfied that if the wheat is delivered at a drying elevator perfectly cold, and has not heated nor soured, there has been no damage done to the gluten. My own opinion is that gluten will not ferment under a temperature of 60 degrees, and that this wheat dried under the conditions above stated is just as good for milling purposes as is the same grade that has never been wet. And even wheat that is slightly heated will also after drying produce good flour; for I do not think a single car of that 200,000 bushels which I dried in the open air arrived at our elevator with-

out being more or less in a heated condition. So that the conclusion of my experience is this: That wheat dried promptly and with efficient machinery is not materially damaged for milling purposes, although these results depend entirely upon the grain being scientifically dried. If this is not done, of course, that is another matter.

"I have reports from several of the Ontario millers who have milled wheat dried at Port Arthur elevator, and their reports are practically the same, so I will just quote from a letter recently received from one of the largest flouring mills in Canada:

"We have made a test of 3,000 bushels of the dried No. 2 hard wheat, and on the whole find it fairly satisfactory. The strength of the flour is good, but the color is a shade off, but not enough to signify. The yield is also good, but the percentage of low grade is a little larger. The wheat is very flinty and requires tempering before grinding, so that large mills can use it to better advantage than small mills which have not the appliance for tempering; for this reason also we do not think that it will grind well in a mixture with other wheat, but will give the best results when ground by itself.

"We estimate the difference in value at about three and a half cents below the regular grades, and we are prepared to handle it at this difference.

"We have had the flour baked here and we must say that the bread made from it is excellent, and as far as we can see not very much difference between it and the regular grades. As to the keeping qualities of the flour, time alone will tell this. We, however, think that it will keep all right for a moderate period."

"It is evident that we had trifle overdried this wheat, which would also affect the color of the flour. This, perhaps, is one of the most difficult defects of drying to overcome. Another large miller, on a test, reported that our dried No. 2 hard produced flour on four pounds more wheat to the barrel than natural No. 1 hard wheat, and the flour was all right."

The experience in handling damp wheat gained this past year will certainly prove of great value, should our crop be again caught under such unusual conditions as prevailed in 1898. But it is sincerely to be hoped that wheat driers may never again be required for saving our crop.

### Stallion Fees.

As regards the breeding of horses in Manitoba, the present system is far from satisfactory to the owners of stallions as well as the breeder, and is not conducive of good results or beneficial to either or the Province in general. A few years ago horses were cheap, stallions plentiful, and fees ridiculously high, and many farmers consequently found it more profitable not to breed. But to-day things have changed, and many who stopped are seeing their mistake and intend starting again. To those men I would advise them not to take the first horse that comes along, but to find the horse, as far as possible, that is likely to suit their mares, and never mind whether the fee be high or low, as a few dollars spent at the outset may mean quite a number in a year or two. Be sure that his breeding is of the best, and that he is, as far as possible, free from any hereditary diseases, always bearing in mind that like begets like, and that the better the breeding the less chance there is of a prepotency of bad faults produced from either side; and the purer the blood the more impressive.

Too violent crossing should be avoided, except in cases where mares having not bred for some years cannot hold to their class, then a warmer blood should be tried in Thoroughbred.

The present system of insuring mares is one that should be avoided, and is, in my mind, one of the great drawbacks to successful results in breeding in this Province. A stallion owner in the first place is not an insurance agent. Do you think it business for A to buy a mare that has not bred for, say, four or five years, and allow B to give the use of his stallion for the season, and the mare then proving barren, B should receive nothing? A farmer brings his mare to the horse once, or maybe twice; next time he is too busy. He does not bother, as he stands to lose nothing, of course. This is not always the case, but is, all the same, a too often occurrence; and if the fees were, as is the only proper way, half at the time of service and the balance when the mare proved in foal, we should find mares brought regularly, stallions would have a better chance, and both parties be more satisfied, and the breeding of horses in the Province materially increased.

In the matter of fees: In the first place, they have been too high. But the way the business is carried on at present it could not be otherwise. In England, which is undoubtedly the best market for horses, the average fee for a heavy horse is \$10, and the fees for Rosador and Royal Danegelt, the two best Hackneys in England, \$75. Now, horseflesh is twice as dear there as here, and yet it is not long since \$20 and \$25 was charged here. As Mr. Crossley remarked, "There are very few horses on the road (in Manitoba) worth more than \$1,000." And I am sure owners would be ahead if they would try horses the farmers seem inclined to breed to, put the price to, say, \$10, half at time of service, and the balance when the mare proves in foal; or say \$7.50 or \$5 cash. I know it would pay them better, and give good interest on money invested, and be making a start in the right way, and the surest one of driving the scrub stallion off the road, which I am sure any amount of legislation will not do. I

think the Government could assist in promoting horse-breeding by bonusing stallions to travel certain districts at a low fee.

I have not mentioned what I am charging this year, but if you think it advisable you can do so. For the Clyde and Hackney that stand at Kelly's, in Brandon, I am giving parties the chance of breeding for \$5 cash, or \$12 to insure, \$10 for season. The Shire that is on the road, \$12 to insure and \$10 for season. I thought it would be some inducement for farmers to bring their mares in to Brandon, and perhaps start the cash business. If it could be worked it would be far the best. For instance, say you have 100 mares at \$12, 50% in foal = \$600; 100 mares at \$5 = \$500, and one would run a greater chance of foaling mare, as they would be returned regularly. But it is a hard nut to crack. Brandon, Man.] J. A. S. MACMILLAN.

### Shrubs and Perennials for the N.-W. T.

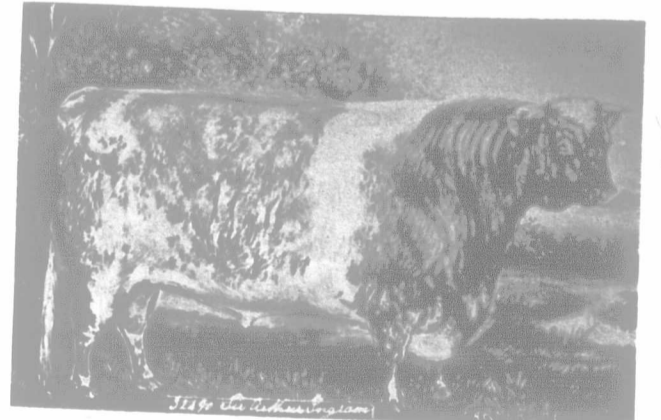
To the Editor FARMER'S ADVOCATE:

As nothing tends to beautify the exterior of the farm home more than a few well-kept shrubs and flower beds, it is with great pleasure I accede to your request and contribute a list of some of the most suitable shrubs, perennials and annual flowers for the Territories.

In flowering shrubs we have Italian honeysuckles and Lonicera Alberta, a smaller variety, a very free bloomer and very fragrant; the common lilac, the white and Persian lilac, and a later variety, Syringa Josikaca, a very strong-growing, handsome lilac, and the blossoms less liable to injury than the common variety, being later, but is not so fragrant. Guelder-leaved Spirea (Spirea operifolia), a fine, strong-growing shrub which flowers freely, followed by the seed, which remains on until winter. Caragana arborescens, or Siberian pea, is one of the very best, with fine foliage, and most years covered with its beautiful yellow pea-shaped flowers, followed by pods about one and a half inches long. Caragana Redousky is a smaller variety and a very good one. The yellow flowering currant is quite hardy, and although a rather straggling grower, makes a good shrub. Asiatic maple (Acer Grinna) is a beautiful shrub, the leaves coloring very fine with the first frosts. Cotoneaster Vulgaris is another pretty little shrub. These are all perfectly hardy and easily grown, and will make quite enough variety for a farmer's grounds. A few Norway spruce and Riga pine might be added with good effect.

The following perennials are all hardy and make a fine show: Peonies, larkspur (Delphinium grandiflorum), columbine, perennial phlox, scarlet lychnis, Platycodon grandiflorum, Iceland poppy, sweet william, yellow and flowering flax (blue). The flax, sweet william, poppy, columbine, and larkspur are best grown from seed. Seed sown any time before the middle of June will make fine flowering plants for next season. (The flax should be grown for a border.) It is best to get the roots of the others from some seedsman. Another thing that no one with a flower garden should be without is a bed of tulips; the bulbs cost very little and do extra well here, and will last for years. The bulbs should be planted as early in the fall as they can be procured, in a dry, sheltered place, about two inches deep, and well watered. Some cover the bed with coarse litter, but I have had best success when left uncovered. They should be planted about eight inches apart each way.

It is so late in the season that I will only give a few annuals that will give fair results if sown by the first of June: Sweet peas, sweet alyssum, candy-tuft, mignonette, poppy, California poppy, phlox

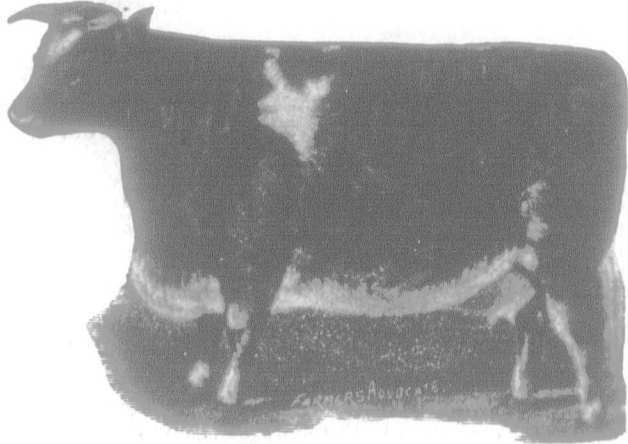


SIR ARTHUR INGRAM (32490).  
BRED BY WM. LINTON. FIRST AT THE ROYAL SHOW, 1877.

drummondii, dianthus, and pansy. "The dianthus may not flower this season, but will stand the winter much better if sown late, and a late sowing of pansies always comes through the winter well, and is in flower almost as soon as the snow is off." All these are of easy culture. Have the ground nice and mellow; sow the seed about one inch deep; firm the soil well over them and give a good watering. (Sweet peas should be sown two inches deep.) If a dry time should occur during the summer, an occasional good watering in the evening. Keep clear of weeds and stir the ground up now and then, always the day after it rains or after watering, and see if you are not well repaid for your trouble. Indian Head District, Assa. GEORGE LANG.

**Some New Features at the Winnipeg Industrial.**

One of the principal new features at the Winnipeg Industrial this year will be the special Dominion building, which is to be erected for the purpose of displaying exhibits from all the provinces. The Dominion Government will defray about \$1,000 of the expenses, while a large British Columbia lumber company will supply all the lumber, and the Canadian Pacific will do their share by giving free carriage for the material. In this building will be arranged magnificent displays from the Government Experimental Farms of Manitoba, the Northwest Territories and British Columbia, including a great fruit exhibit from the latter province. Mineral exhibits from Northwestern Ontario and from



**MOLLY MILLICENT.**  
FIRST AT THE ROYAL, 1888, 1889 AND 1890.

British Columbia will also be in evidence. It is also expected the Eastern Provinces of Canada will take advantage of the opportunity here offered to make displays of their natural products, etc. Space will also be afforded for holding meetings, and doubtless the Farmers' Institutes, live stock breeders' associations, and other kindred associations will unite in holding one or two meetings, securing the services of some of the noted agriculturists that are sure to be in attendance at the fair.

Among other improvements decided upon by the Exhibition Association is the doubling the area of the agricultural implement hall by the addition of another 32 feet in width throughout its entire length of 300 feet.

The Board has been fortunate in securing a list of entirely new and high-class attractions.

**Potato Growing.**

To the Editor FARMER'S ADVOCATE:

There are a great many ways of planting and preparing the soil for a potato crop. Every grower has his own particular way, and generally is more or less successful.

The soil with us is black sandy loam. We give it a very heavy coating of not too coarse manure, as much as can be turned under conveniently. We draw out the manure in the spring just before we commence to plant, and put in small heaps, spreading it as the ground is plowed. We do not think that it would be as good to spread the manure as it was drawn out, because it would then dry out before being plowed under. Our object in putting the manure in small heaps and spreading it just ahead of the plow is to retain all the moisture possible. If manure is spread and left so that it dries out, it takes that much more moisture from the soil.

We plow a 10-inch furrow as shallow as possible, and drop the seed every third furrow, from 12 to 14 inches apart in the row. When potatoes are planted too deep they do not get heat enough, and therefore are longer starting to grow than when planted closer to the surface. We prefer removing the seed from the cellar to a warm room two or three weeks before planting. In culling seed we do not use any rough or uneven tubers (cut to leave one eye in each piece); the cut seed should not be left too long before planting, as when cut too long it dries, and has not the same vitality to start growth. We always harrow about twice a week, or till the vines are grown four to six inches high; by doing this most of the weeds are killed, so that during the remainder of the season less cultivation is required. The harrowing should be done crosswise every alternate time, and should a few vines break or be tramped by the horses, there are generally enough left for a good crop.

After we quit harrowing we use a cultivator, set so as to run as close to the vines as is possible; then the hoe should be used between the plants for any stray weeds that have escaped the harrow; then put the hilling moulds on the cultivator, throwing a light furrow towards the potatoes. This should be done twice.

We grew eighty varieties of potatoes last season, and out of all these varieties there is none for early use any better than the Early Market, but would not recommend it as a main crop. Rose of Erin, Early Thoroughbred, Early Sunrise, Steele's Earliest of All, and dozens of others are good varieties. The best varieties for use the following summer before new potatoes are ready to use are Stray Beauty, Pride of Canada, Blue Victor, and Blue Foundrel.

Nearly every farmer around here is buying potatoes this spring, when, if they would give their potato crop the same attention they do their wheat,

there would not be so many enquiries for potatoes every spring. We believe for feeding purposes there can no crop be grown with less labor for the returns. Even at twenty cents per bushel they pay well.

The above has been our system for some time, and we have generally had success when others have failed.  
J. C. & A. W. FLEMING.  
Louise Municipality, Man.

**Breeding from Immature Sires.**

SOME OF ITS ATTENDANT EVILS.

The extent to which breeding from immature sires has been practiced is not a little remarkable when we reflect that it has been done as a matter of choice, and not as a matter of necessity. It would not be incorrect to say that more than half the entire number of our domesticated animals are the offspring of immature sires, and this will hold true in every line, unless it be in the breeding of horses.

The plan most commonly adopted in breeding cattle is to purchase a sire when a calf, or at least when under one year old. He is put to service, to some extent at least, as soon as the procreative powers are sufficiently developed to admit of his becoming a sire. He is used too freely during the whole period of immaturity, and is more generally sent to the shambles when not more than four or five years old. Ram lambs are more frequently purchased than shearlings, and rams are usually not kept beyond the age of four years; and a similar course is pursued in the use of males in the breeding of swine.

The necessity for the disposal of sires at an age when they should still be able to render the best of service, to some extent at least, grows out of the practice of purchasing and using them at so early an age. They cannot be longer retained in the herd or flock, as the case may be, to be used as sires, without mating them in many instances with their own progeny. But why good males should have to be sent so frequently to the shambles while yet in the zenith of their usefulness, and because no one will purchase them for breeding uses, is, to put it mildly, unfortunate. To so great an extent does the desire prevail to get young sires that the door of further service is closed to those veterans that have done their work in one herd or flock; hence they must be sacrificed in the midst of their usefulness.

But there is not the same necessity for the purchase and use of immature sires. It is simply a matter of choice. There may be a necessity for purchasing sires when young, as matters stand at present, in order to obtain those possessed of good individual merit, but there is no imperative necessity for using them to anything like so great an extent as they are used while they are so far from being matured. It is one of those practices which seem to rest upon convenience and ease of management rather than upon intelligent consideration.

The great fundamental law of breeding tells us that, as a general principle, "like begets like." Apply this law to breeding from immature parents in the one case, and from those in the meridian of vigor in the other, and what does it tell us? It tells in the former instance that immature parents are incapable of producing progeny possessed of the highest excellence in every particular, and it tells us in the other that parents in the meridian of their vigor are capable of producing progeny in no sense inferior to themselves. When, therefore, we use immature sires, we choose to violate a law the observance of which would enable us to preserve the maximum of development if secured, and it would also be a potent factor in enabling us to secure it.

The extent of the injury from using immature sires could not be easily defined. It is only one of a number of factors, each of which, under one system of artificial management, is antagonistic to the highest degree of development, and more particularly antagonistic to the retention of robustness of constitution and bodily vigor. It would be impossible to say how much influence each of those factors exerts in the direction of deterioration, but there is no reasonable doubt that the extent to which immature sires are used gives this unfortunate practice a long lead in not only barring the way to higher attainment, but also in lowering the standard of achievement.

Loss of stamina is one of the most common forms in which deterioration shows itself in animals under domestication, and the more artificial the conditions the more difficult is it to prevent deterioration. It should be a constant study with the breeder how this stamina can be maintained. But his efforts in this direction will not be completely successful so long as he uses immature sires, for it is impossible that immaturity should possess stamina otherwise than in the unfoldings of partial development, as compared with stamina in the matured animal. What is not possessed cannot be imparted; hence the use of immature sires is antagonistic to robustness of constitution.

The evils arising from this source would have been much greater but for the fact that in a majority of instances the immaturity in the parents has been only on the side of the male. It is a fact that dairymen are not desirous of rearing the calves of young and immature heifers for future use in the dairy. Experience has taught them that it is unwise to do so, and yet they seem quite content to rear females for the dairy, the get of immature sires.

Tuberculosis is very prevalent among domesticated animals. Artificial conditions are largely

responsible, but none of these has, it is thought, been so potent in paving the way for tuberculosis as the use of immature sires. An impaired stamina, a weakened vigor, and degeneracy in robustness, all pave the way for the grasp of this insidious destroyer.

It would be taking extreme ground to claim that immature sires should never be used. There may be a necessity for using them sometimes, and when far on the way to maturity they may doubtless be freely used, and with perfect safety; but this is altogether a different thing from using immature sires as the rule rather than the exception. It would be impossible to say how much higher the attainment would have been in the improvement of the various breeds of live stock had this question received that attention which its importance demands from the first dawn of live stock improvement in modern days.—*Rural World, England.*

**The Secretary of the Western Fair.**

Mr. Thos. A. Browne, the efficient Secretary of the Western Fair Association, at London, Ontario, having received the appointment to the office of Postmaster for the City of London, will, it is understood, retire from the former position about the 1st of July, at which time he will assume the duties of his new office. Mr. Browne has displayed good judgment, energy and fidelity in the performance of the arduous duties which have devolved upon him in the management of the Western Fair, which, during the years of his incumbency, has steadily grown and improved from year to year until it now ranks as one of the most successful institutions of the kind in the Dominion. While congratulating Mr. Browne on his preferment, we cannot but feel that it will be difficult to find a successor equally qualified for the important duties which he has so faithfully and efficiently performed in the position he vacates, but we trust that his successor and the Board of Directors will still have the benefit of his judgment and counsel, as we feel sure his interest in the success of the fair will not end with his retirement from the secretaryship.

**The Bull Conveys Abortion.**

SO SAYS PROFESSOR BANG.

During the year just closed Professor Bang has collected a considerable mass of evidence from his colleagues in Denmark all pointing to the importance of the part played by the male in the spread of abortion. This has been assimilated for the *N. B. Agriculturist* by a foreign correspondent, who gives the following samples, which must serve to illustrate the nature of the whole:

1. A farmer, who for eleven years had no case of abortion in his herd, lent the use of his bull to a neighbor in whose herd the disease was prevalent. Every cow subsequently served by that bull aborted, including several on a third farm which had been put to him. The bull was sold, the cows were disinfected with lysolum or "creolin" solutions, and the disease disappeared. Two years have since elapsed without a further case occurring.

2. In this case, fifteen cows belonging to a farmer, whom we may distinguish as A, aborted during 1897. In the spring of that year A sold his own bull, and from that time up to February, 1878, obtained the services of a neighbor's whenever the aborted cows came in season. In the meantime this neighbor, whom we call B, was also lending his bull's service to a third farmer, C. Neither B nor C had ever had a case of abortion hitherto, but in 1898 their cows began to calve prematurely. Up to July, 1898, nine of B's and twelve of C's had aborted. A few others belonging to B, which had also been served by the bull after he had become infected,



**FIELD MARSHAL (47870).**  
BRED BY AMOS CRUICKSHANK.

went their full time; but in C's case every one of the twelve served after the bull had been among A's cows aborted, and none of the others.

3. Two neighboring farmers, each with about twenty-five cows, for many years kept each his own bull. One of them, Mr. S., had never had a case of abortion; the other had been troubled with it for three or four years. One day Mr. S. sold his bull, and for thirteen of his cows hired his friend's. The following year every one of those thirteen aborted, the rest of the herd, which had been served by Mr. S.'s own bull before it was sold, calving at the proper time. Abortion took place when the "foetus was as large as a cat or a dog." This happened two years ago. On his veterinary surgeon's advice Mr. S. decided not to use his neighbor's bull any more,

and subjected his cows to Brauer's treatment. Since then only two cases of abortion have occurred in his herd. Those and many similar instances reported afford strong presumptive evidence in support of Professor Bang's views regarding the bull's part in this plague. At the same time we are warned not to forget the possibility of other modes of infection, especially that where the bacillus is conveyed by the discharge of an aborted cow coming in contact with the vulva of another. In fact, Professor Bang has already shown that abortion may be produced by contaminating the vaginal passage of a pregnant cow with matter containing the bacilli of abortion. It is, however, more likely for infection to occur when the bacillus is conveyed well into that passage by the bull at the very time when it is open for the reception of the seminal fluid.

### Two Noteworthy Reports.

Literature on the subject of bovine tuberculosis and the tuberculin test continues to abound, but if we read aright the signs of the times it has passed the "boom" or alarmist stage, and is upon the wane. Two of the latest contributions are a bulletin by Prof. H. W. Conn, Ph.D., issued by the Storrs Experiment Station, Connecticut, and a report by Prof. McFadyean, of the Royal Veterinary College of England, published in the "Journal of the Royal Agricultural Society." These documents may fairly be taken to represent the advanced professional view of the situation. Prof. McFadyean's paper is based upon experiments conducted with the test. At the outset he concedes that the test is not infallible, as might be said of most things with which man has to do. The first of the causes why tuberculin may occasionally prove unreliable even in skilled hands is in the nature of the substance itself. He says that tuberculin is not a substance of definite chemical composition and strength. Its efficacy depends upon certain substances of ill-defined chemical composition which are added to the liquid in which the bacilli are cultivated by their own vital activity. Tuberculin is weak or strong according as it is richer or poorer in those substances, and he acknowledges that by using a sufficiently large quantity of tuberculin one may cause the temperature to rise in an animal that is free from tuberculosis, and a rise in temperature may fail to follow, even in a tuberculous subject, from the use of too small a dose or from the tuberculin being weak on account of some error in its manufacture. Still he thinks the risks of miscarriage are inconsiderable if the tuberculin is got from a trustworthy source; and there is a wide margin between the quantity that will excite a reaction in a tuberculous animal and the quantity that will cause a rise of temperature in a healthy one. But the Professor is compelled to state that which to us seems a serious admission, that the temperature of the animal may rise from some cause quite unconnected with the injection of the tuberculin, and the only safeguard is to note the manner of the rise as well as the extent of ascent. A sudden rise followed by a sudden descent is not proof that the animal is tuberculous, but a steady and gradual rise, followed by an equally steady and gradual descent, does afford such proof. The former indicates that the rise is due to some local or accidental disturbance. He also points out that the test is not to be relied upon when used under exciting conditions, as in the market or slaughter house. It follows obviously that providing in the first place reliable tuberculin be secured, then only men of skill who are thoroughly experienced in the application of the test should be permitted to apply it. This fully sustains the position strongly contended for in the FARMER'S ADVOCATE, and indicates that great mischief might be done by allowing every "Tom, Dick and Harry" to apply the test or to permit local authorities, such as boards of health or medical health officers, to condemn cattle to slaughter on the amateur diagnosis of some chance veterinary surgeon. On the whole, Prof. McFadyean's report tends to unsettle faith in tuberculin as a sure test in general veterinary practice or connected with measures for the promotion of public health.

Prof. Conn's report gives the result of a year's special study by the author, of bovine tuberculosis in England, Holland, Denmark, Germany, Switzerland, and Italy. He found the disease much less prevalent in southern than in northern countries, for the reason that in the former the cattle are less confined and roam the greater part of the time in the open air. Here at once is a strong argument for better ventilation, greater cleanliness, and more sunlight in all northern stables—in short, rational methods in cow management. He reports that tuberculosis is much more general among the cattle of northern Europe than was commonly supposed, and appears to be increasing, particularly in Denmark, which is almost entirely given over to dairying and where about half the cattle are said to be tuberculous. The apparent increase is probably due to the recent use of the tuberculin test and slaughter-house examinations, and is probably not as real or serious as it seems. One would naturally suppose that the cattle of the country would present some striking evidences or results of the disorder, but, strange to say, Prof. Conn's bulletin mentions nothing of the kind. On the other hand, we know that Denmark has built up an annual \$30,000,000 butter trade in Britain, practically capturing that market against the world, besides sending in over \$13,500,000 worth of bacon, largely the produce of dairy by-products. Evidently tuberculosis has not seriously impaired the usefulness even of the Danish dairy cow.

Prof. Conn concedes that the passage of tuberculosis from man to animal or from animal to man is not a common method of dissemination; and states further, that while bovine tuberculosis has apparently increased many fold during the past fifty years, human tuberculosis has diminished nearly fifty per cent. This indicates that tuberculosis in cattle is not the menace to human health that has been commonly supposed. Of the tuberculin test Prof. Conn says:

"Nothing has been taught more conclusively as the result of the last five years' study than that there is no necessity, from the standpoint of public health, nor of the health of the herd, that every animal reacting to tuberculin should be slaughtered. Many of these animals have the disease in such an incipient stage that recovery may take place. Many of the animals which have been shown by experiment to be tuberculous are still capable of many years' active, useful service in the dairy, and the slaughtering of all animals reacting from the disease is extremely wasteful and unnecessary."

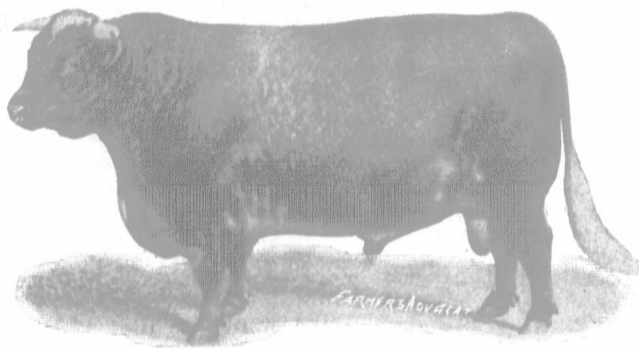
Where the disease is suspected he recommends the use of the test and the rigid isolation of any reacting animals from the rest of the herd, which would necessitate carefully separated compartments and pasture lots if in summer the animals are to graze. The calves of infected cows are to be reared on boiled milk, and the healthy herd guarded strictly from any infection from without. This all involves a rather serious undertaking for the American dairy farmer and stockman.

### Union Beekeepers' Convention.

(Continued from page 200.)

Should supers be put on the hives before or after swarming; if before, under what conditions?

In reply to this question it was generally conceded by those who expressed themselves that the supers should be put on as soon as the combs commenced to whiten out on top. This may occur in fruit bloom, but it is not likely to show on all the hives at once, so that it is necessary to examine the hives frequently and put on the supers as needed. One member puts on the supers when the bees commence to hang out around the entrance, which shows they need more room. Some favored



MARENGO (69069).

BRED BY MR. DUTHIE, FIRST AND CHAMPION AT THE ROYAL, 1888.

putting on shallow supers so as not to give too much room, but when the comb shows white on top and bees appear too crowded they should have a regular sized super. Mr. Holtermann objected to shallow supers on the ground that it is not well to have odd sizes of frames. His plan is to put on a less number of frames, contracted by a division board and a quilt on each side. They should be placed over the center of the brood chamber. Four such combs give the same capacity as eight shallow combs. If these have a quilt and a cushion put over them they can be placed anywhere and given to any kind of colony. By putting the supers on early, swarming can be largely held in check until the time for swarming arrives. Early swarms are gotten at the expense of strength, but too late swarms are of little value.

How can the flow from early blossoms giving inferior honey be utilized to draw out foundation?

Mr. Jas. Armstrong, Cheapside, Ont., said: "If the flow of blossom honey and inferior honey comes on together, I put on a super and take a few frames from below with some honey in them and place them in the super; then put on a couple of foundations alternately, about two sheets of foundation in full frames and two full frames of honey in the center, and a division board on each side. The bees will start to draw out the foundation and at the same time store a certain amount of this undesirable honey. Some of this honey may be used later to stimulate weaker colonies, and empty combs may be put in their place." Mr. Holtermann disagreed with Mr. Armstrong on some points, and reviewed his way of getting combs drawn out at this season. He takes combs containing brood from the brood chamber, placing them in the super so as to draw up the bees. He has found that if the bees have partially filled combs they will work on them rather than on foundation. If they have a comb of brood to draw them up and nothing else except foundation they will have to work on it or nothing. As soon as the bees draw out the foundation and begin to store honey he removes the new combs and puts others in their place. The bees will then readily go up and work. Mr. Holtermann always gives the bees free range in the upper story till the clover honey flow commences. If at that

time there is brood in the super it is removed to a suitable place. Mr. Alpaugh, the chairman, raised an objection to allowing the queen to go into the super on the ground that pollen is liable to be stored there which will injure the honey.

Should queen excluders be put between brood chamber and super before clover honey flow commences?

Most of the members put on the excluders at the same time as the supers go on so as to avoid egg laying above and the deposit of pollen. Mr. Miller, of London, does not use the excluders until white honey flow commences. He believes in allowing the queen plenty of room above. He gets more brood in this way, and that is what he wants. He sometimes leaves the supers right there until the bees swarm, then put on the excluders on top and allow the brood to be removed; then divide off the brood comb from the other.

How can the beekeepers best manage to prevent the mixing of dark and first-class honey, either comb or extracted?

While the berry blossom honey is a trifle darker than clover, it mixes with it very well without injury. It was claimed that there is a great deal of honey spoiled by allowing either early honey or late honey to mix with that of good quality. The best plan is to watch the new comb, and as soon as the bees stop bringing in dark honey change the combs. Sometimes when the brood chamber is badly crowded when the sections are put on the bees will carry up some of the dark honey. To prevent this have as much as possible of this honey converted into brood or take out some of the full frames and give them to colonies that need them. Sometimes parts of the comb will contain dark honey and part light. Now, when extracting one can uncap the light honey and extract it, then uncap the dark and do likewise, and thus keep them separate. When it is somewhat mixed in comb sections the best way is to sell it locally for what can be got for it.

In the production of extracted honey, what is the best method of increasing the number of drawn-out combs?

Mr. Fleming, of Michigan, considered that during the fall flow is the best time to have combs drawn out. In the spring the old combs are easier to handle and the best for extracting. It is not well to allow weak colonies to build combs. Make the strong ones build for the others from starters or foundations. It is supposed by some that combs filled with buckwheat honey will tend to color the white honey the following spring, but if the bees are allowed to clean out the dark combs thoroughly after being extracted, the light honey extracted from them the following season will be all right.

### The Old Messenger Stock.

Many of the older generation of Canadian horse breeders and farmers generally have pleasant recollections of the excellence and endurance of the good old Messenger stock of horses which were popular some fifty years ago, and will be interested in the following account of the celebrated stallion, Messenger, and his importation to the United States, given by Mr. George Blodgett in the *Rider and Driver* (New York): "Unquestionably, from a fashionable standpoint, the earlier of the superior families of driving horses in this country, and which for a long time commanded attention, was the Messenger stock. A high impression of the superiority of the head of that family grew out of a well-known and impressive incident connected with his importation. The story grew, as all good stories do, and travelled all over the country. Messenger came to this continent in a sailing vessel. It was a long and perilous voyage, lasting many weeks. Several of the horses died on the way over from the terrible strain and exposure. The few that lasted had to be helped and steadied down the gang plank on their arrival by three or four men bracing them on each side. The one exception was the horse called Messenger, a resolute gray. He was a marvel to all beholders. At sight of the shore he became furious and his attendant, with the help of the groom, could not suppress him. Another groom came to their aid, but it was no use, he carried them off their feet in spite of all their strength, nor did he stop until an eighth of a mile away from the landing. Such was the volume of forcefulness said to be at the foundation of the great Messenger family. But as his offspring became mixed and intermixed with the common stock of the country the family features were more or less lost, although an occasional characteristic would, through certain dams, crop out in unmistakable expression. One of his descendants, in a fairly direct line of excellence, was crossed with an unusually good Bel-funder mare, known as the Charles Kent mare, and from this combination came impressive results in a large degree of sturdiness and speed. Scientific breeders claim most of the credit for the dam. But there were certain tributaries which have added strength, brilliancy, and quickness, and which have contributed to the more extreme speed and staying qualities of a few of the descendants of this union, and which were unattainable without these contributions. They were exceptions from the families of Morgans, Clays and certain high and rapid running thoroughbreds. In these, the better results were confined to certain types and tendencies. For not all of the Morgans were sturdy and quick. Not all of the Clays were forceful and brilliant. Not all of the thoroughbreds are rapid and enduring."



**The Worst Insect Injuries to Farm and Garden Crops During 1898.**

BY DR. J. FLETCHER, OTTAWA.

It is always useful to look back over past experience to see what lessons can be learnt for future guidance. This is very true with regard to the insects which attack our crops to such a serious extent every year. There is hardly a year passes which is not characterized by some new or special outbreak, the effects of which are felt for two or more seasons, and the grower of farm or garden crops who is widest awake profits much by keeping himself informed as to the various enemies which have occurred or are likely to appear on his crops, and as to the latest discoveries in the way of remedies.

Every province of the Dominion has recently suffered to a considerable extent from insect injuries. Perhaps the most serious of these were by:

1. **The Pernicious or San José scale (*Aspidiotus perniciosus*, Comstock)**, which has attracted so much attention in the Province of Ontario, where strenuous efforts have been put forth by the Provincial Government to stamp out this dread enemy. The whole of Canada is to be congratulated on the wise and efficient manner in which this work has been carried out. Unfortunately, some even of those directly interested do not yet appreciate the magnitude of the calamity which will fall upon the whole of the fruit-growing districts of the country, where this scale is able to propagate, if it is not controlled. This is a matter which affects not only the comparatively few who own fruit trees in the districts where the scale is known to occur, but every business man and every citizen interested in the welfare of Canada. Frequent inquiries are made as to the best remedies for the San José scale. For several reasons, I consider the plan adopted by the Ontario Government of insisting on the destruction of all infested trees as the only one which was safe and advisable under the circumstances. The San José scale must still be acknowledged to be the worst pest which entomologists have ever had to fight against. It is so inconspicuous that it would certainly be overlooked by most people even on badly-infested trees. It is so difficult to destroy that the ordinary fruit-grower would not exercise the necessary care to destroy it thoroughly on all his trees, even if he possessed the skill and if we had a perfectly reliable practical remedy, which I maintain is not yet the case. The remedy which has given the best results is fumigation with hydrocyanic acid gas, an operation requiring skill, care, and great thoroughness to secure success, and the use of some of the most poisonous substances known. Moreover, even in the hands of the most experienced there have been sufficient failures to show that the prosperity of the whole country must not be left at the mercy of the assumption that the ordinary fruit-grower could and would use this remedy properly. Splendid work has been done by the inspectors in hunting out the scale, and if the owners of trees infested, or liable to be infested from the trees of their neighbors, could only be made to understand the gravity of the case and would all help in this matter by reporting promptly every occurrence of the scale, I feel convinced that this enemy could be stamped out.

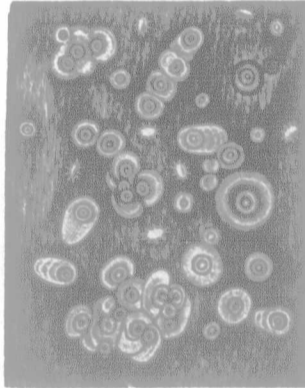
2. **The Rocky Mountain Locust (*Melanoplus spretus*, Uhler)**.—Considerable injury was done in Southern Manitoba last summer by the Rocky Mountain or Hateful locust, an enemy which will long be remembered in the West from the extent of its ravages in 1868 and the early seventies. The remedies which experience has taught are effective are: (1) The plowing down of the eggs in autumn or before the young hatch the following spring. This has been practiced most successfully in Minnesota and the Dakotas. (2) The burning of the young locusts as soon as they hatch, by spreading rows of dry straw across areas where they are numerous. The young grasshoppers gather into these shelters at night in large numbers, and myriads of them can be killed by firing the straw after night-fall. (3) The use of hopper-doers or tar-pans. These are light implements eight or ten feet in length, turned up one inch in front and one foot behind, leaving the bottom two feet wide. The sides may be made of wood, with hooks in front at both ends for the attachment of ropes. Into this a layer of coal tar or water and coal oil is placed, and the implement can be drawn over land where the insects are numerous by a boy at each end, or by a horse, and thousands of the young locusts will be destroyed. All land which was under crop in the parts of Southern Manitoba which were infested last year, which were not plowed last autumn, should this year be plowed without fail before the first of June. A full account of this outbreak of locusts in Manitoba appeared in the FARMER'S ADVOCATE for Oct. 5th, 1898.

3. **The Wheat Midge or Weevil (*Diplorhynchus tritici*, Kirby)**.—This enemy of wheat, which of late years has been heard little of, was the cause of considerable loss during the season of 1898 in the Niagara Peninsula, attacking particularly, fall wheats. Spring wheats, such as Goose or White Fyfe, were little or not at all affected. Injury by this insect was also reported from Nova Scotia and Prince Edward Island. The remedies for the wheat midge

are the careful destruction of all rubbish or screenings from the threshing machines, and the plowing down deeply of stubble where the crop has been attacked as soon as possible after the crop is carried.

4. **GREEN FRUIT-WORMS (*Xylina*)**.—In addition to the San José scale, several other pests reduced the profits of the fruit-grower. An unusual outbreak was by caterpillars of the Grey-pine Moths, known as green fruit-worms. These were abundant and troublesome in the Niagara Peninsula, injuring apples and pears by eating large, irregular holes in the sides of the young fruit. The same caterpillars, but possibly of a different species, stripped maple trees of their leaves both at Niagara and in the Ottawa district. The only remedy which can be recommended is the spraying of all fruit trees very early in the season with arsenical spray, but as the caterpillars seem especially attracted to the fruit as soon as this forms, efforts should be made to check them as early as possible. When the foliage of maple trees is attacked, it is also well to spray early, so as to destroy the caterpillars before they have done much harm. The codling moth, plum curculio, and oyster-shell bark-louse all claimed their share and were the cause of much loss in the older provinces. In British Columbia much harm was done by the woolly aphis and apple aphis, as is there frequently the case, as well as by two special enemies which for the present have not attracted attention as serious pests of fruit crops in the Eastern Provinces. These are the apple fruit-miner (*Argyresthia conjugella*, Z.), and the lesser apple-worm (*Grapholitha prunicora*, Walsh).

5. **TENT CATERPILLARS (*Clisocampa*)**.—These common pests, which were very prevalent in almost every province of the Dominion last year, and which, judging from the numbers of eggs on trees in the districts where they occurred, promise to be



SAN JOSÉ SCALE.

enormously abundant again this year, have been treated of in a late number of the FARMER'S ADVOCATE. The remedies are the collection of the egg-masses, the destruction of the young colonies soon after they hatch from the egg (this is from April 20th to May 1st in this part of Canada), and the spraying of infested trees with Paris green and other poisons.

**The Relation of Disinfection to the Health of Live Stock.**

ITS MODE OF APPLICATION AND ADVANTAGES.

The word disinfection to some means little, while to others it is of vast importance. By the term is meant the application of agents which prevent or destroy those living micro-organisms from which contagious and infectious diseases arise. Disinfectants are placed under various classes, as those which kill the germ when brought in contact, those which change the material upon which its existence depends, those which absorb or encase the disease germs, rendering their existence harmless, etc.; but by the every-day busy man these distinctions may be left to the investigator to dictate to the world which is most suited to each and every particular necessity. There are, however, in common certain conditions necessary to each and every individual who has the responsibility of avoiding or combating diseases to which animals subjected to his care are or may be exposed; and perhaps the greatest of all responsibility rests with this class, for no place can be free from germs where there is absence of good sanitary arrangement, cleanliness, pure air, sunlight, perfect drainage, etc., in the presence of which artificial agents need be called very little into use. There are, however, conditions surrounding the live stock breeder to-day for which he is not entirely responsible, as, for instance, the outbreaks of hog cholera at different points, and the generally distributed outbreaks of contagious abortion among our Canadian herds of cattle, which in certain sections are becoming alarmingly prevalent and doing inestimable damage. Either of these may be brought entirely within control by the exercise of proper disinfecting treatment. No definite rule can be laid down to meet the requirements of each case; yet in the main, cleanliness and the absence of decomposition must be first considered under all circumstances, as the heaping of disinfectants on dirt cannot bring sweetness and purity. It must therefore be remembered that disinfectants should never be allowed to be made an excuse for habits of carelessness or uncleanness, but all refuse and dirt should be removed regularly, and no accumulation of such permitted. Sweetness is health; stench is disease. This being accomplished, we have many highly useful agents within our

reach, and our object now must be to select those agents possessing the greatest antiseptic with the least objectionable properties. All disinfectants are more or less poisonous, and the more powerful in antiseptic properties the more destructive to all life. Therefore for our purpose much caution must be exercised in their selection and mode of application. Corrosive sublimate is perhaps the most powerful of all antiseptics, yet from its extremely poisonous action its application is attended with too great risk to the subjects we wish to protect. Carbolic acid ranks high, if not among the highest in this class, but its corrosive and death-dealing effects are so positive that its application demands the greatest of caution, and is therefore not safe in the hands of careless operators, and therefore should not be employed in concentrated form. It is, however, highly useful when protected in dry substances, which render their liability to be taken in overdoses impossible. Chloride of lime, although yielding germ-destroying gases, while reasonably safe, is highly undesirable on account of its unpleasant odor. The coal-tar series yield, perhaps, as safe, and desirable agents as have yet been produced, being positive in their action, attended with very little danger to human or animal life when reasonable care is exercised in their application, and give off little or no objectionable odors. These are highly destructive to the lower forms of germ life when brought in contact with it. Of this class, creolin is perhaps the basis of many of the best and most desirable products now on the market under different names and offered for disinfecting purposes. Many of the advertised sheep dips and cattle washes owe their virtues largely to this class of products, and are perhaps the most valuable yet known, as they contain many desirable and few objectionable and dangerous properties.

Having selected our germicide, the next step is to consider the mode of application and conditions necessary to obtain the best results when applied. First remove all dust and filth, sweep down all cobwebs—and right here let us add that it is deplorable to walk into an expensively constructed stable and find the ceilings hanging thick with cobwebs, when so little exertion is required to remove and destroy them. What owners neglect, herdsmen should see the necessity of doing, and the attendant who has to have his attention drawn to such details is lacking in the qualities which should bring him to the front. After all dirt is removed and due regard is placed upon cleanliness, light, drainage, ventilation, etc., the thorough application of the agent to floors, walls, ceilings and drains should follow. It should be evenly distributed if in powder, or if in liquid form the modern spray pump is a splendid and economical medium, some of which have special provision for this work. Among the more prevalent diseases to be combated by the use of disinfectants, we look upon contagious abortion as worthy of our first consideration, and to our mind this is one condition the eradication of which wholly depends upon proper, thorough and persistent effort; in fact, the disease could not gain access in the presence of proper disinfecting agents. Hog cholera, so prevalent and destructive in certain sections, can at least be held in check, if not altogether prevented or eradicated, by its thorough application. The germs of lumpy jaw, so prevalent in cattle in certain sections, are given off in abundance in the saliva in feeding-trough, there to remain to attack the first victim accepting it, and may be destroyed by proper application of disinfecting substances. Ringworm may easily be eradicated from the premises, as its presence depends upon a vegetable parasite. Lice and other vermin on horses, cattle, sheep, pigs and poultry require direct applications to the skin of the animal, yet much valuable assistance would be added by thoroughly disinfecting their places of abode. Even worms in sheep, pigs and calves would find far greater difficulty of existence during their transitory stage in disinfected quarters. Much may also be done to reduce the risk and danger of exposure to many of the deadly diseases which have worked destruction in many parts of the earth during the past, which might at least have been held in check had they not been regarded as mysterious. The advance made can scarcely be referred to better than in the following extract from the pen of an English pharmacist in a London journal:

"The useful science of bacteriology is indeed full of surprises, and every year bears witness to the astounding strides with which it grows, whilst day by day it is being more widely recognized of what stupendous importance to man is the message which it has to deliver. During the earlier childhood and adolescence of this new science, it was generally believed that this message was of a gloomy character, and one which it would be better to leave untold, for to the public it seemed as though it had nothing but death and destruction to reveal as lurking where danger was hitherto unsuspected. For many years bacteriologists had apparently nothing to announce but the discovery of new and subtle enemies to mankind, and to produce poisons possessing such a degree of malignity that beside them the venom of snakes and the most potent drugs of the apothecary appeared as comparatively harmless and even friendly. In reality, however, these deadly foes and poisons have always existed before, and have wrought their lethal work in the dark until exposed and branded by men of science, who after years of patient labor are now teaching the world how these foes may be vanquished and how these old but until recently undiscovered poisons may be counteracted and rendered innocuous by the administration of new antidotes."

### A New Poultry Manager at Guelph.

Since the poultry department was introduced in connection with the Ontario Agricultural College it has been managed by Mr. L. G. Jarvis, the noted judge of pure-bred fowls. Recently his resignation has been accepted, and Mr. W. R. Graham, B. S. A., has been appointed to succeed him. Mr. Graham is no stranger to our readers, as eminently practical matter from his pen has frequently been published in our columns. He is a graduate of 1894 class of the Ontario Agricultural College, and has since then been engaged in extensive poultry-raising, a taste for which showed itself in his early years, when he preferred engaging himself among the chickens to any other pleasure. After his graduation Mr. Graham worked a few months on his farm near Belleville and then spent a year on one of the largest and best-conducted duck farms in America, that of Mr. James Rankin, in Massachusetts, where 10,000 ducks are raised annually, besides large numbers of eggs sold for hatching. Light Brahma and Barred Plymouth Rock fowls are also kept, and used for broilers and winter eggs for the Boston market. Since Mr. Graham returned to his farm from Mr. Rankin's he has given his time largely to poultry farming, hatching some 1,500 chickens and a few hundred ducks in a season. Mr. Graham is eminently practical and full of energy, and we predict for him success in his new departure. We might add that he is a brother to Mr. R. J. Graham, Belleville, who was for years the successful secretary of the Ontario Creamery Association.

### Agriculture in the Public Schools.

At a convention of the East Middlesex Teachers' Association, held in London, Ont., on May 5th, Mr. C. C. James, M. A., Deputy Minister of Agriculture for Ontario, and author of "Agriculture," a textbook for public and high schools, delivered a stirring address, designed to arouse the interest of rural teachers in the importance of agriculture and the teaching of its first principles to the children entrusted to them. At the outset Mr. James remarked that it was not the *how* but the *why* of agriculture that should be taught in public schools. In order to do this, teachers require to qualify themselves that they may be able to start the pupils and get them interested, when the work would become one of directing.

In order to emphasize the importance of teaching agriculture, it was pointed out that a change was rapidly overtaking the calling of agriculture. While the farmer has too often been pictured as the horny-handed white slave, whose whole energy was exhausted in manual labor, and again as the personification of ignorance and hard work, he is rapidly acquiring a more desirable reputation, his avocation has become one based upon science and filled with intelligent interest. That agriculture should hold a prominent place in any country, but especially in Ontario, there is no question, since from the four chief sources of revenue of the Province, viz., fisheries, mines, forests, and agriculture, the returns last year ranked, per head of population, as follows: Fisheries, \$4; mines, \$6; forests, \$16; and agriculture, \$120. Agriculture is, therefore, the great source of wealth to the people of Ontario. While last year the entire output of gold for the world was \$280,000,000, the returns from agricultural products to the Province of Ontario alone was a similar amount. Should we not, then, prepare the rising generation to grapple with this growing and important industry? It is an old truism that good times, good crops and good prices go hand in hand. It is on these that prosperity to the whole people depends. We find that the difference between the grain crop of 1898 and that of a poor year of recent date was 12,000,000 bushels, which shows the difference between favorable and adverse conditions. When agriculture is understood and conducted in the light of scientific knowledge, many adverse conditions can be avoided, so that there is no more profitable expenditure of money and effort than that which will enlighten the tillers of the soil.

Mr. James dealt with the romance of a piece of bread and butter. Dealing with the bread, which came from flour, and flour from wheat, he showed how far short of the possible Ontario comes in producing a full yield of this cereal. A grain of good wheat, planted in suitable soil and allowed to mature without adversity, should, at a moderate calculation, produce four stalks, bearing at least sixty grains of wheat. By the same moderate estimate, a bushel sown should produce sixty bushels, or one and one half bushels sown per acre should yield ninety bushels of good wheat. This is a reasonable deduction to draw where all conditions for growth are favorable and insect and fungus enemies are prevented doing injury. Now, the actual yield of wheat on the Ontario farm is from twenty to twenty-five bushels per acre, while in many other countries it is little more than seven, eight or nine bushels per acre. The difference between the possible and actual yield of wheat is a mighty gulf, that can be bridged only by a knowledge of the various sciences which touch agriculture. We grow 1,000,000 acres of wheat, so that an increase of a bushel per acre would mean a million bushels of wheat. Referring to the reasons for the low yields of grain grown, the speaker mentioned defective soil, defective preparation, insects, and adverse weather conditions, most of which could be met, in a degree at least, by an application of a knowledge of agricultural science. A knowledge of the science of entomology alone on the part of

farmers would prevent a tremendous annual loss. It is estimated that in North America alone, \$300,000,000 worth of crops are destroyed annually by insects, and Mr. James expressed the wonder that almost all vegetation is not devoured, when the rapidity of increase that characterizes insect life is taken into consideration, but, he said, we have the birds on our side, which annually destroy myriads of insect life. The birds are great wealth-savers, and just here is suggested a field for nature study in the schools. The speaker expressed a wish for a law that would forbid the destruction of all bird life. While some birds may do damage to grain crops and also to other birds, etc., even these do good in the destruction of vermin of one sort or another. The multiplication of insects is also held in check by other insects and diseases, and it is when through study we become familiar with these natural enemies that we can turn them to good account. It was cited that injurious insects have on several occasions been introduced into countries where they threatened serious destruction to vegetation until their natural insect enemies or diseases were brought from their original countries and spread among them. It is only through study of these things and the application of knowledge that we can hope to increase the returns of our farms. A great field for interesting and profitable investigation is just opening out in these lines.

Returning again to the wheat plant, it was remarked that it may be struggling for an existence in a soil where it may not be able to acquire its proper food. The wheat plant needs nitrogen, which it can appropriate only in the form of nitrates, the formation of which requires suitable conditions for nitrification, such as proper temperature, drainage, a supply of humus, etc. The value of growing legumes was also emphasized and explained, showing the teachers the vastness, interest



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and importance of the subject they are asked to teach.

The value of new and improved varieties, selection of seed from best and earliest portions of fields, etc., were dwelt upon. These can all be taken advantage of by those who have been taught to see the importance of them. Some of the most valuable acquisitions, especially in the field of fruit-growing, have been secured by the discoveries of men whose powers of observation and discrimination have been trained. For instance, the Baldwin apple and the Concord grape were chance discoveries, and these have been of incalculable value to the world.

Turning to the subject of butter, Prof. James for a short time dwelt upon the importance of the dairy industry, showing the wisdom of turning all buttermaking into the co-operative creamery system. The separation of cream from milk was explained, and the science of bacteriology was dwelt upon sufficiently to show the importance of study in this direction. As has been announced in the FARMER'S ADVOCATE, Mr. James stated that the subject would be placed in the curriculum about September next. At the conclusion of his address, in replying to a vote of thanks, he mentioned that discouragements might be expected, even from those whom the teaching was designed to help.

In a discussion that followed, it was brought out that the Public School curriculum required some adjusting before the important subject of agriculture could receive its due attention. The conversion of some of our High Schools into elementary agricultural colleges was recommended by one teacher, Mr. J. C. Robson, who, having taught agricultural science in his school from Mills' and Shaw's text-book to a few larger boys, was encouraged in seeing two or three of them take courses at the Ontario Agricultural College at Guelph. He also mentioned having last winter used Prof. James' new book on agriculture with quite a large class, with very satisfactory results. Inspector

John Dearnness, who has for years been an enthusiastic exponent of agricultural teaching in the schools, urged upon the members of the profession to make a special effort in one or more of the lines of natural science subordinate to agriculture—agricultural science, botany, entomology or chemistry, etc., according to the qualification or opportunity of the teacher. He pointed out that if, through greater enlightenment, the average yield of wheat could be increased two bushels per acre, the returns would be sufficient to pay the salaries of all the public school teachers of the country.

### What Shall the Teaching of Agriculture Be?

The synopsis of the address by Prof. James on the teaching of agriculture in the rural public schools of the Province of Ontario, given elsewhere in this issue, recalls attention to the fact that after September next it is to be an obligatory subject on the course. Manitoba grappled in earnest with the question some time ago, Nova Scotia is doing so now, and several of the neighboring States have taken it up in some form of nature study, whereby, for example, plant and insect life are observed and studied. In the past Ontario has had a couple of unsuccessful experiences with the subject, so that it is still passing through a transition stage. While this is the case, we trust it will be so handled that valuable time and effort will not be needlessly lost in the process of reaching right methods. A mistake made at this juncture would be a most serious matter. The pre-eminence importance of agriculture to Canada from a material point of view, no one in his senses can question. Hence, our Provincial educational systems should have some bearing upon a pursuit in which so many are engaged, and upon which so many depend directly or indirectly. To too great an extent our school processes have focussed on passing examinations, and by reason of the nature of the course of studies have accelerated the tendency of the youth to gravitate away from rural life and pursuits. We sincerely desire to see this subject now presented in such a way as to promote a love and respect for nature and agriculture as a calling, and to develop the observation and other faculties of the pupils so as to make them better men and women, and more intelligent and successful in the work of life.

It strikes us at the outset that the great weakness of the Ontario public school course exists in the lack of natural science teaching. Hence it will not be sufficient simply to put "Agriculture" on the rural school list of studies with an examination goad at the end of the year. Its success or failure will largely depend on how it is handled by the teachers. We are not in the counsels of the Minister of Education, but so far as the new regulations to be issued shortly go, a start might be made, say, with the study of insects, plants, soils, and the phenomena of the weather—or, in other words, some simple form of entomology, botany, geology, and meteorology, whereby objects themselves are handled and compared, and their characteristics studied. "Agriculture" or farming, is but the practical application of these and other sciences. It will be a big mistake to attempt too much at the start.

We are convinced, as we pointed out when the matter was before the Provincial Legislature, that the qualifying of the teachers is a prime requisite to complete success, hence, as the old Scotch body puts it, we must get back to "the fundamentals." The high school or collegiate institute course, as it relates to public school teachers, requires a substitution of natural science for the French and Latin occupying so much time at present, and the science should be taught intending teachers with a view to what is to follow. The next step will be the training of the teachers in the model or normal schools, or schools of pedagogy, in order that they may teach these sciences according to the most approved educational methods.

Without professing any expert knowledge of pedagogy, it strikes us that the natural sciences can be used with the very greatest advantage to train the faculties of the youth, to develop their observation, comparison, judgment, reason, discernment and discrimination; in other words, to cultivate their mental powers, so that they will be made acquainted with nature and get on better terms with her by understanding her laws through the inductive process. This will the better enable our boys and girls as they engage in life's duties to do the right thing at the right time and in the right way. It will further enhance the appreciation of youth for natural objects and processes, and give them an intelligent love for outdoor life; and while it will qualify them especially for the avocation of the farmer, it will really prepare them better for any useful sphere or calling than any course heavily loaded with classics and modern languages to the exclusion of the natural sciences. Unless, possibly, it be a little history, we are not aware that it will involve eliminating any subjects from the present Ontario rural school course, but some of them, such as composition, may be modified or utilized indirectly to turn attention to subjects that have a direct bearing upon agriculture. The rural school teachers now in service will do well to make preparation for the coming change. It will be a great reform in educational methods, and cannot wisely be hurried, but if effectually carried out it will redound lasting credit to the administration of Hon. G. W. Ross, the Provincial Minister of Education, and invest the pursuit of agriculture with added respect, interest, hope and confidence.

**Aeration and Cooling of Milk.**

ITS IMPORTANCE IN CO-OPERATIVE WORK—METHODS OF THOROUGH DAIRYMEN DISCLOSED.

Whenever advanced dairymen meet to discuss ways and means of improving their industry, at no point in their discussion is more enthusiasm displayed than when the airing and cooling of milk is receiving attention. The apparent reason for this anxiety is that much tainted and badly-kept milk is received at the factories, and is the greatest of all sources of trouble to the cheese and butter maker. If nothing could be done to prevent such troubles as we speak of it would indeed be a serious matter, as we find that even healthy cows in good pasture occasionally get food and drink that give trouble in the milk when no means are taken to correct the faulty condition. It is to be deplored, however, that the milk received at the factories from farm dairies is not all from vigorous, well-kept cows, that feed only from the finest pastures and drink only from the purest springs. Whether it be the provender the cow eats, the water with which she quenches her thirst, or the incorporation of odors in the milk after it is drawn, it is a fact that gaseous odors do get into the can, and when not eliminated give serious trouble to the makers of cheese and butter. The treatment for milk that may have become contaminated from whatever source is undoubtedly aerating and cooling, which will not only enable the farmer to keep it sweet and fresh during the hottest summer nights, but it will largely do away with the troublesome condition of gassy curds. It has been estimated by no less an authority than Prof. J. H. Monrad, of Illinois, that if all milk brought to factories were aerated and cooled it would improve the quality of the butter one-fourth cent a pound and the cheese one-half cent a pound.

That milk should be aerated before cooling we have no hesitation in claiming, for the reason that any taints, whether dormant or evident to the nasal organ, that exist in milk when cooled are by the cooling process incorporated to give trouble after the heat is applied or the ripening stage is advanced. We therefore feel strongly convinced of the necessity of advocating, first and foremost, and would advise, that it be adopted whether the milk is cooled or not.

There are several methods of aerating milk, which consists in subjecting it as much as possible to the purifying action of fresh air. This may be done by allowing the milk to escape through an aerator in small streams in the presence of pure air, as is shown in Fig. I, or by forcing fresh air into and through the milk, as is done by the improvised aerator shown at Fig. II. Fig. I represents an ordinary tin pail thickly perforated, into which the newly-drawn milk is poured and allowed to escape as shown. Fig. II consists of an inverted milk pan, thickly perforated, and with a handle attached. This is forced down through the milk in the can several times, the forced air escaping through the milk as it descends, carrying away any gases that may be contained in it, and oxidizing the milk at the same time. Another popular method of aerating milk is to pour it from pail to pail several times, at intervals of brief periods, or to bail it with a large dipper, so as to allow the access of air as far as possible. The following letters are from thorough dairymen, who are anxious to see our exportable dairy products command and maintain the highest place in the markets of Great Britain.

Having sent milk to cheese factory for 24 years, and tried different ways to keep it, the only method I found to suit me is to use a tank 2 x 3 feet, 18 inches high. Set your can in, pump full of cold water, dip the milk for about five or ten minutes with a dipper, then let stand for about thirty minutes and stir up several times. When cooled, take can out and set in a cold place. I put mine in the cellar. In this way I can keep my milk for two or three days pure and sweet.

Oxford Co., Ont. JOHN J. WETTLAUFER.

I consider this method a good one for keeping milk during the warm weather: Aerate and cool the milk until the temperature falls down into the sixties, then exclude all the air possible.

Norfolk Co., Ont. E. AGUR.

Regarding the care of milk for cheese or butter, would prefer it cooled by stirring or aerating in some way without using water or ice. It main-

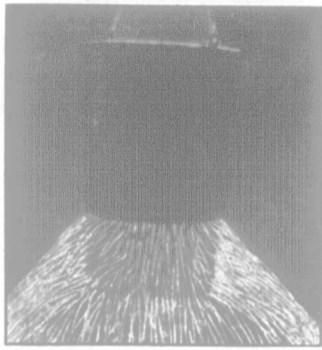


FIG. I.—AERATING MILK WITH PERFORATED PAIL.

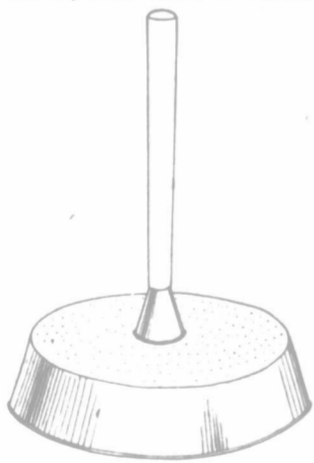


FIG. II.—AERATOR TO FORCE AIR INTO CAN OF MILK.

tains a better flavor in this way.

Perth Co., Ont. GEO. E. GOODHAND.

In order to keep milk sweet in hot weather, I would advise chilling as soon as possible after milking, and keep as low temperature as possible, and remove from all foul odors.

Perth Co., Ont. T. O. ROBSON.

Re keeping milk pure and sweet, I have had best results by cooling milk in pails before putting into large cans, as it will more easily get rid of any objectionable flavor before having too large a quantity together. First rinse pails with cold water and then strain milk back into them, setting them into cold water, dipping up the milk occasionally to prevent cream from rising, and aerating it at same time. Have no trouble keeping it from Saturday night till Monday morning.

Peel Co., Ont. R. GROAT.

Get the animal heat out of the milk as soon as possible after milking by placing can in cold water, with ice in the water if convenient; if not, change water as soon as it begins to get warm, thoroughly stirring milk from bottom of can until all animal heat and gas has escaped. The milk handled in that manner will keep pure and sweet for a number of days in the hottest weather. Dishes in which milk is handled must be kept perfectly clean—cleanliness is the great secret.

Middlesex Co., Ont. JOS. MCLEOD.

To have milk pure and sweet, all the feed and water that the cow gets should be pure and sweet. Her thighs, udder and teats should be clean on commencing to milk. The teats should be dampened—not wet—with clean water before beginning to milk. The first few streams of milk should be rejected. Every vessel that the milk is to come in contact with should be as nearly germ-free as elbow grease, scalding water and bright sunshine can make it. The milk should be strained as each cow is milked. Immediate and thorough aeration is necessary to cause the pure air of heaven to exchange places with the anything but heavenly-smelling gases generated within the cow's body. Cooling after aeration depends upon the season and the use that is to be made of the milk.

Kingston Dairy School. J. W. HART, Supt.

In order to keep milk pure and sweet during the summer season we take care to cool and aerate the milk as soon as possible after it comes from the cow. The sooner the animal heat is removed the better. We set the milk can in a tub of cold water and strain the milk through a large strainer raised above the can, which allows the milk to pass through in small jets. In a short time we change the water in the tub, and take a pail with holes in the bottom and a stiff bail and push this down in the milk and then lift up quick and hold it above the can until the milk runs through; repeating the operation a few times until the milk is cooled and thoroughly aired. It is a good plan to have long coolers to fill with cold water to insert in the can. Keep the can out of the sun and away from bad odors. The cream should be kept from rising.

Oxford Co., Ont. D. LAWRENCE.

Re keeping milk in summer, airing as soon as taken from the cow, by a dipper or some other means similar, is our plan. Airing is better than cooling. After well aired could put in water.

Middlesex Co., Ont. J. A. JAMES.

Have cows kept in thrifty condition, clean, and barn well ventilated. Cleanliness is next to godliness, hence milkers must strongly adhere to this rule. Take milk right from cow to cooler and pass immediately through same. If separated, run cream to cooling vat and cool down to 50 if possible. Care must be taken to have all utensils properly scalded or steamed—we use steam—and then placed in the sun. Dairy must be sweet and clean, and absolutely free from offensive bacteria. Have no trouble with sour milk on Mr. Tillson's farm.

JOHN D. MACLEAY, Manager.

Annandale Farm, Oxford Co., Ont.

To keep milk pure and sweet during the summer season have everything perfectly clean, and in hot weather cool evening's milk below 70 degrees. Protect the cans containing milk from the sun when on the milk stand and on the milk wagon.

O. A. C., Guelph. H. H. DEAN.

To make fine cheese or butter it is absolutely necessary to have clean, sweet milk. See that the cows, milk pails and cans are perfectly clean, also that the milker is clean. Immediately after milking the milk should be removed to some clean place away from the barn or milking yard or anything that is likely to give off a bad odor. Strain the milk carefully, and as soon as possible after milking. Air well by dipping or pouring or by the use of an aerator; this should be attended to at all times, but especially during hot weather. Running the milk through an aerator once is not sufficient, but should be repeated two or three times. Never cool milk until it has been thoroughly aerated, because aerating tends to liberate taints, which, if not removed, become incorporated in the cooling and give trouble in the cheese or butter. For cheesemaking especially, it is very essential that all milk should be aerated. It improves the flavor and quality of the cheese, and requires less milk to make a pound of cheese. Milk keeps better in small quantities, and where the herd is not too large I would recommend the following: Have a pole supported at each end about four feet from the ground,

and hang the milk pails along this on hooks, always having one empty pail; then commence pouring from one pail to another; continue this for some time, and you will have little or no difficulty in keeping the milk in fine condition. Good results are also obtained by using an aerator, through which the milk runs in very fine streams or thin sheets, allowing gases and animal odors to escape, and if milk is free from these, with ordinary care it will keep sweet and be in fine condition when delivered at the factory. In very hot weather it may be necessary to cool the milk by the use of water, but never do so until it has been thoroughly aired. When cooling with water, always leave the cover off the can and keep the milk stirred continuously. It has also been found that milk will keep sweet longer when cows have free access to salt.

Middlesex Co., Ont. T. B. MILLAR, Manager Thames Dairy Co.

The care of milk should commence before the milk is taken from the cows, by seeing that they are in a healthy condition, that they have access only to pure, wholesome food, clean, pure water, and salt at all times. See that pails and cans are properly tinned and free from rust, and have been scalded and aired before using. Udders and flanks of cows should be wiped clean with a damp cloth before milking. Milking should be done in a clean place, by a clean person, with clean, dry hands. As soon as milk is drawn it should be removed to a clean place, free from barnyard, hog pen and other bad odors, and immediately strained and thoroughly aired by dipping or pouring. I would recommend the following method of airing milk: Provide pails enough to hold one milking; erect a pole about four feet from ground, covered with an A-shaped roof, made of inch boards, to protect from rain; fasten hooks in pole to hang pails on. As soon as milk is strained in pails, hang on the pole. Have one extra pail. Commence at one end of pole and pour milk from pail. No. 1 into empty pail; No. 2 into No. 1, and so on across the row several times, back and forth, and leave in pails until morning. The morning's milk should be treated in same way.

Elgin Co., Ont. JOHN BRODIE.

I find about the best way to keep milk pure and sweet is to air it well in small quantities for keeping over night, and for long keeping, cool as well as air well. We use tin pails to keep it. In milking, as soon as enough is in pail, hang it up in a place provided for the purpose and stir it frequently. We have no trouble in keeping it in this way. Of course, everything has to be kept clean and sweet. This is a plan Mr. Bell, our cheesemaker, recommended us to follow. We used to put it right into water and cool it, but this plan seems to work better.

Oxford Co., Ont. W. M. BELL.

Taking for granted that the milk is in good condition when drawn from the cow, it then should be cooled down to about 50 or 55 degrees and well aerated while cooling. It should then be taken where the atmosphere is pure, and left without any cover during the night. Would prefer keeping it in tin pails that are sweet and clean to having it in a larger quantity together.

Wellington Co., Ont. M. MORRISON.

In summer or winter strain through cloth, not tin, immediately after milking. Air thoroughly by pouring or patent aerator. Keep as cool as possible by use of water or ice, or both. Keep the can and all utensils clean by the liberal use of a brush and hot water, and scour tinware at least weekly. Cleanliness and airing are the main points.

F. J. SLEIGHTHOLM.

The plan which we have found most satisfactory for keeping milk pure and sweet during the summer season is: First strain the milk into pails, set in the open air and bail thoroughly until it is cooled. Saturday night's and Sunday's milk we put into large cans (40 gallons), which we set in a large box of water in the cellar; then we fill the spaces between the cans with ice. In an experience of twenty-five years with the milk of 25 to 35 cows, in all kinds of weather, we have lost only one can of milk.

Perth Co., Ont. CHARLES BAIRD, SR.

The best plan to keep milk sweet is thoroughly aerate as soon as drawn from cow, then place can in water, the water to be as high around can as the milk is in the can. Change the water as often as it becomes warm. Do not disturb the cream after the milk is cold. Have the milk delivered as early as possible to the factory and not allowed to stand in sun. I think there are worse things than sour milk, namely, tainted milk, which can be got by not taking good care of milk.

Perth Co., Ont. THOS. DICKSON.

To keep milk sweet in warm weather, the first essential is perfect cleanliness. Strain milk as soon as milked. Have can standing on an airy place away from stable odor. Set milk can in a tub of cold water, and if possible put in a piece of ice. Cool down to 60°. Stir and aerate thoroughly. Take the can out of the water before going to bed. Stir well last thing. Keep down the cream and prevent sealing on top of milk.

To keep from Saturday till Monday morning, after cooling, set the milk in pans in a good, clean and airy cellar. If left in the cans, change the water or add more ice, and aerate thoroughly. One can't be too particular.

Perth Co., Ont. ROBERT CLELAND.

### Care of Milk in Summer.

Elsewhere in this issue we publish a number of pointed letters from practical dairymen dealing with the care of milk on the farm in hot weather. The subject is at once seasonable and important, and we would be glad to hear from others describing in detail plans of airing and cooling milk which they have found successful. If our dairy industry is to grow, with improvement, as it must to keep pace with the times and foreign demand, the work must begin upon the farm. It is absolutely imperative that the cheesemaker and buttermaker be furnished with milk that is pure and sweet, otherwise their most skillful efforts will be frustrated. A few careless dairymen in any locality must not be permitted to damage the whole product of the factory or creamery and inflict injury upon others through the agency of milk that has been improperly cared for. As a rule, the food of the cow in summer, being grass, is satisfactory, though occasionally taints arise from strong-flavored weeds or herbs. Drinking from slimy, green-covered pond holes is a fruitful source of trouble which the intelligent farmer will provide against. Cows must have an abundance of pure water if the milk flow is to be sustained in quantity and quality. Then the air must be kept free from foul odors such as arise from the decaying carcasses of animals that should have been buried, or burned, instead of being left exposed to the air, as is sometimes the case. Our contributors emphasize the importance of cleanliness in the stable or milking yard, and about the milk stand. As soon as possible after the milk is drawn from the cow it should be thoroughly strained. Last season a few cases were reported where slovenly dairy farmers dumped unstrained milk, including hairs, straw and particles of manure, into the cans. After being strained the milk should be thoroughly aired and then cooled—the former part of the process always coming first. The necessity for cleanliness also applies with equal force to the supply for cities and towns, where many infantile disorders in hot weather are traceable to unwholesome milk.

Last season in some sections dairy farmers were flooded with circulars telling them that a few teaspoonfuls of certain preserving preparations put into milk would keep it perfectly sweet for days in the hottest and muggiest weather. The tendency of such teaching is to encourage laziness and the neglect of the various wholesome precautions which have been outlined above. One of these "cure-alls" we turned over to the Dominion Department of Inland Revenue, and under date of Jan. 24th last we received the following communication from the Secretary:

To the FARMER'S ADVOCATE:

GENTLEMEN,—Referring to your communication of the 18th August, ulto., on the subject of the use of preservatives in milk and other dairy products, I am directed by the Honorable the Minister of Inland Revenue to inform you that a sample of "preservative" has been analyzed by Mr. F. T. Harrison, Public Analyst at London, and his report showing that it consists of a mixture of boracic acid and borax was received at the Department on or about the 14th instant.

I am to add that if the Honorable the Minister was called upon to give advice to the general public he would feel inclined to offer that which you gave in the article clipped from the FARMER'S ADVOCATE and enclosed in your letter, which is as follows:

"We again advise dairymen, as we have scores of times before, to let such substances alone and stick to thorough cleanliness in every step of the dairy process, and the use of abundance of pure water, pure air, and pure food."

I remain, sir, Your obedient servant,  
Wm. HIMSWORD,  
Secretary.

### Flowing Well to Supply House and Barn.

R. N. LEA, Manitou, Man.:—"I have read Mr. Woods' enquiries and the answer given in the FARMER'S ADVOCATE of April 20th re proposed scheme for conveying water to either house or stable. It seems to me that the enclosed rough sketch of my plan would fill the requirements, and simplify matters and save cost of taps, etc. Supply pipe to house is on a lower level than supply pipe to stable, consequently when tap is shut off at house



water must rise to level of stable outlet, and flow of waste water I would allow to flow to creek from a cistern on barrel in stable, continuously. I place tap on house end of supply pipe, for the reason that it is as likely that some one would always be there who could attend to it. There is no reason why there should ever be any sediment in the conduit pipes if the water is pure."

### How Milk Absorbs Impurities.

The statement made by Professor Russel, of the Wisconsin Experiment Station, that he had put warm milk in the vicinity of several substances having strong odors, and that at blood heat it absorbed any odors more rapidly than did cold milk, is of itself a sufficient reason for removing the milk from the stable as soon as the milking is completed for each cow, and putting it where it will be in pure air, or taking it at once to the dairy room.

But it also shows quite as strongly the need of having pure air free from bad odors in the stables while the milking is being done. The stream, as it passes from the teat, exposes much of its surface to the air, and it is ready, even in that short passage from teat to pail, to pick up all the odors, bacterial germs, and dust with which it comes in contact.

While it would be inconvenient to follow the suggestion of one writer, who would have every cow removed from the stalls where they have been kept during the night, into a clean room where they should be milked, we can approach very near that condition by cleaning the stables, and using an absorbent like gypsum or land plaster on the floor behind them, if we have pure air entering to take the place of that which is foul.

But the necessity for pure air in the stables is by no means limited to the hour of milking; if we want milk pure and free from odors, and if we followed the plan of allowing the cows to remain in a filthy stable, filled not only with the odor of their fresh excrements, but with that from a decomposing heap below them, and removing them to pure air when we were ready to milk them, we should find bad odors and disagreeable flavors in the milk.

The air they breathe goes to the lungs, there to act upon the blood, which in its turn is distributed through the system, and has its effect upon the lacteal organs, and foul air in the lungs will affect the milk as surely as would onions taken into the stomach and passed through the digestive organs. See that the stables are ventilated at night, and cleaned well before beginning milking, and the bad odors will not be very troublesome.

### Needs in the Cheese Industry --- Some Suggestions for Its Improvement.

[FROM OUR ONTARIO AND EASTERN EDITION.]

The first and the foundation need is a better educated patron. Without the patron properly in line—properly educated in the matter of caring for cows and milk, educated to cleanliness in milking and handling, cleanliness in regard to the cans it is kept and carried in, cleanliness in the matter of surroundings, so that bad flavors may be avoided—we need never expect to take the highest and most profitable place in British markets. There are many careful patrons of our factories here, but there are also very many careless ones. The chief aim of the careless patron seems to be to get as much into the factory as possible, regardless of quality. They do not stop to consider that they are robbing the patron who sends clean milk of much of the profit he is legitimately entitled to, and that they are also robbing themselves by lowering the quality of the cheese. When will all patrons be taught to know that the highest-price cheese can only be made from clean-flavored milk, from cows that are cleanly fed and kept? He will know when he wakes up to study dairying and turns his attention to reading the agricultural and dairy papers. Our patrons want to be shown that it would be greatly to their profit to do their utmost to help make cheese for which the English consumer is willing to give twenty shillings per cwt. more than he is willing to give for ours now.

Another crying need is better management of our companies. The average director is not selected on account of his knowledge of dairying, but rather because of his ability to make a hard bargain, and his first idea is that the factory must be run cheaply. In engaging a cheesemaker he gets the cheap man, and it never dawns on him that the \$40 or \$50 man will cost the company more in most every case than the \$60 or \$70 man, besides damaging the reputation of the factory. But you cannot expect the directors to be any better or more intelligent than the patrons that put them in their position. In a factory that has very frequently come under the observation of the writer, it is no uncommon thing to see the cheesemaker going about his work smoking, and some of his assistants doing the same, while visitors often indulge in a friendly smoke too. When the cheesemaker was remonstrated with by a sensible patron, his answer was that "The directors always allow it here." Outside this factory is a dilapidated whey tank that always leaks, and from which flows a trickling stream of putred whey all summer. Then, under the factory is another leak in the whey spout, where you will generally find a pig or two wallowing, and from which goes forth an abominable stench, some of which, no doubt, finds its way into the factory. This is no fanciful picture, but a description that is true of more than one of our factories, and many patrons expect that good cheese will be made from their milk in such microbe-breeding establishments as this. Ignorance in this case is not bliss. It is criminal.

Now, after what I have said, you will agree with

me that inspection is one of our greatest needs just now. Of course, the most of our factories have good makers, and are carefully and cleanly managed, and the managers of these do not see the same necessity for inspection. But it is greatly in their interests to have it too, because these badly conducted factories will give P. E. Island cheese an unenviable reputation that will be against the interests of every dairyman on the Island. The only way to get an idea into some people's head is through their pockets, and an inspector that would mercilessly grade down cheese that he finds inferior would have a greater educating effect on the careless patron and manager than columns of dairy literature that they never see or read.

An instructor is another great need in order that we might have uniformly good cheese made at all the factories. The makers would welcome his visits, and by benefiting by his instructions would be brought more in touch with one another's methods. After this we want better curing rooms: rooms that can be kept at a temperature of 60° Fahr., to give us the flavor the British people demand and which they are willing to pay for. Prof. Robertson told us that we must get English climate into our curing rooms to compete successfully with English cheesemakers.

The last need of our cheese business that I will mention now is a "Cheese Board," where buyer and seller can meet, and to which buyers will be attracted from abroad, giving us healthy competition in marketing our produce. Our output of cheese from 34 factories last year amounted to about 560 tons, and it will likely be greater this year. Such a growing business is surely worth our careful study and best possible management.

P. E. Island. W. S.

[NOTE.—P. E. Island is not the only portion of America where dairymen live. There is great need of a general awakening among patrons and factorymen in the more westerly Provinces of Canada.—Ed. F. A.]

### Spraying Wild Mustard.

The following is a brief account of an experiment conducted last year by Mr. Ovens, of Torr, on behalf of the Lancashire County Council, in a field badly infested with charlock. Professor Campbell, under whose direction the experiment was conducted, could not find a field badly enough infested in the County Palatine, but Mr. Ovens was, unfortunately, able to supply the deficiency in a very marked degree.

The field selected was under oats after lea. A portion containing 110 square yards was reserved for spraying, and another, portion of equal extent, was left unsprayed for comparison with it, and the remainder of the field was gone over with a "charlock" weeding machine. The spraying took place on 14th June, when the oats were fully twelve inches in length, and the material used was a solution of sulphate of iron, diluted to 13 per cent. A remarkable result was obtained. The "charlock" was totally destroyed, and in a few days the contrast between the two plots was striking to a degree. Where the spraying had been performed the field bore a dark green hue, while the unsprayed plot was quite yellow, with charlock in full flower. This is conclusive enough as regards the destruction of the charlock, but the important question remains, What effect had the spraying upon the oats and the clover? It is satisfactory to find that the answer here is equally conclusive. The oats were practically uninjured, and the result in the harvest was equally good, for the binder got round the sprayed plot without a hitch, while in the other it was being choked at every round on account of the luxuriant growth of the charlock.

Another experiment was carried out in an oat field sown down with clovers and rye grass, and the effect upon these plants is the question raised by our correspondent. Naturally one fears that what destroys charlock may destroy clover, but so far as the Torr experiment is concerned, this does not appear to be the case. The spraying in this second trial took place when the oats were about 14 inches in length, and two plots were selected—the one getting a 15 per cent. and the other a 20 per cent. solution of sulphate of iron. In both cases the charlock was exterminated, and the clovers at harvest were found to be as luxuriant on the sprayed as on the unsprayed plots. Another satisfactory feature of the spraying was its effect on thistles. These in every case were blasted, and, in the case of the plot subjected to the 30 per cent. solution, effectually made harmless. As the result of what he saw in these experiments Professor Campbell has every confidence in recommending farmers to adopt spraying with sulphate of iron in doses of a 10 per cent. solution for the general extermination of this most troublesome weed.—*Scottish Farmer.*

### Advantages of Early Maturity.

In an article in the *Journal* of the Board of Agriculture, summarizing the results in early maturity experiments, conducted at Iowa Experiment Station by Mr. C. F. Curtiss, the following remark occurs: "The law of diminishing returns for food consumed as animals advance in age toward maturity is conclusively established, and should be kept in mind by the meat producer, since economy of production is one of the important factors in the determination of profit, and the advantages are all with the young and growing animal as compared with one that has practically attained its growth." There is an important lesson for stock feeders and graziers in this pregnant observation.

### The Great Possibilities of Larger Crops.

NEW EXPLANATIONS OF THE TWO GREAT PRINCIPLES—AN INCREASE OF FROM 20 TO 30 PER CENT. OBTAINABLE IN A FEW YEARS— THAT MEANS \$50,000,000 TO \$80,000,000 TO CANADIAN PRODUCERS.

On two days of last week, Professor Robertson, Commissioner of Agriculture, appeared before the Dominion House of Commons Committee on Agriculture and Colonization. The subject chosen was the fundamental principles governing the successful crops of Canada.

Professor Robertson said: National prosperity primarily depends on the production of wealth out of the natural resources of the country. The value of the products of the fisheries last year was \$23,000,000; of the mines of Canada, \$57,000,000; of the forests, including firewood, was estimated at \$80,000,000. The value of farm crops was estimated at between \$270,000,000 and \$280,000,000; and the value of all agricultural products, including crops, at not less than \$600,000,000.

**The Difficulties of Farming.**—The difficulties of successful farming become greater every year, from the partial exhaustion of the soil, from the increasing prevalence of weeds and the greater injury done by insects and fungous diseases. While the Government may not have power to remove difficulties, it may and does assist the farmers to overcome them. As these difficulties increase, they should not be left to the weakness of even the strongest individual.

The Professor pointed out that the obtaining of large crops of good quality is governed chiefly by the climatic conditions of the season; and by the intelligence and ability of the farmers as applied to the growing of crops. Farmers have made much more progress in understanding the principles of cattle-breeding, cattle-feeding, dairying and fruit-growing, than in those which underlie the successful growing of field crops. What the farmers need is a clear understanding of principles, and not a dose of prescriptions to guide their practice.

**To Warm the Seed-bed.**—He pointed out that cultivation was an effective means of controlling the moisture in the soil and the temperature of the soil at a depth at which ordinary farm crop seeds are planted. Examination made of eight farms in the spring, on lands sown to grain, showed that in clear weather the temperature was three degrees higher to a depth of three inches when the land was rolled than when the land was left unrolled.

**Two Great Principles Explained.**—After explaining the uses and functions of various fertilizing elements and substances, such as nitrogen, potash, phosphoric acid, gypsum, lime and salt, he gave a statement of two great underlying principles which govern the increase of plants during their growing period. The conditions which make for the increase in the size of the roots, stems and leaves, do not make for an increase in the grains, fruits or seeds. An excess of easily available plant food promotes a great growth and enlargement of the vegetative parts of the plants, namely, the roots, stems and leaves. A bareness of available plant food when the plant is near the ripening period makes for an increase in the quantities of seeds. He instanced the growth of a bunch of oats on a dung hill. The roots, stems and leaves are enormously and unusually large, while the heads contain very few seeds and these of light weight. The seeds in that case constitute a very small proportion of the total weight of the plants. On the other hand, when a plant produces seeds under the most unfavorable of circumstances—for instance, a grass plant by the roadside—a small, short plant will carry a great number of seeds, and the seeds will constitute a very large proportion of the total weight of the plant.

**The Rotation of Crops.**—A knowledge by the farmers of the underlying principles which govern the increase in the size of these two different parts of the plant, namely, the vegetative parts and the reproductive parts, would guide them into a sensible and profitable rotation of crops. Barnyard manure should be applied to crops in which the roots, stems and leaves are the sought for and valuable portion, such as turnips, carrots, mangels, Indian corn fodder, hay, grasses. Manure should not be applied directly to land for the growth of cereals. The manure should be applied to the crop which precedes the cereal crop. It is a good plan to apply manure as a top dressing of a hay field or pasture field. That gives its immediate benefit in a larger crop and increases the quantity of roots, which are left to enrich the soil by their decay.

**The Question of Seeds.**—He then discussed the question of seeds. He said: Those seeds which germinate most quickly are the best; and it has been proved over and over again that heavy seeds give more vigorous and heavier crops than smaller seeds of the same sort and variety. All plants have a tendency towards variation. When they are changed from one place to another, they make an effort to adapt themselves to the new conditions. Those which succeed most fully in adapting themselves are the best for the locality. The degree of successful adaptation is always the measure of success. He said that variation in plants was brought about and intensified by a change of seed, by the method of tillage, by crossing varieties and the like.

**The Useful Qualities in Varieties.**—Whenever a seed is sown in a locality new to it, if it be suitable, some forms will vary in the direction of adapting themselves to the conditions there; and selection of the seeds from these forms is practically the only

means of continuing any improvement of the productivity of the seed. That is actually a grading up of the seed by continued selection from year to year on the farm where it is to be grown. There are variations within all named varieties of seeds. Some of the most distinguishing characteristics of varieties are shape and size, color, habit of growth, hardness, length of growing period and productivity. The latter, which is the valuable quality to farmers in all good seeds, varies greatly by a change of locality or a change in the method of culture.

**Comparison Without Subsequent Selection is of No Value.**—He analyzed the reports of the growing of cereals at the Dominion Experimental Farms for four years, and said that in his opinion the comparison of varieties without a continued selection of the best seeds from year to year was of no service to the farmers, and was apt to mislead them into expecting service from named varieties as such, instead of obtaining the seeds by continued selection from year to year on their own or similar farms. He instanced a case in the growing of peas where the sowing of large peas by themselves, and the large peas out of that crop again for three years, resulted in a crop of peas in which the individual peas were twice as heavy as the peas of a crop grown from small seeds of the same variety, under the same conditions, for an equal length of time. He said that variation in the productivity of all varieties appeared to be brought about by growing them under different conditions of soil and climate.

**No Inherent Superiority in the Variety Without Selection.**—Out of 47 varieties of peas compared on the five experimental farms during the season of 1898, no less than 32 of the varieties appeared on the lists of the 12 largest yielders. Out of 18 varieties of two-rowed barley compared at the five experimental farms in 1898, no less than 14 varieties appeared in the lists of 6 of the largest yielders at each of the five experimental farms. Out of 23 varieties of six-rowed barley compared at the five experimental farms in 1898, no less than 18 appeared in the lists of the 6 largest yielders at the five experimental farms. Of the 65 varieties of oats compared at the five experimental farms during 1898, no less than 41 appeared in the five lists of the 12 varieties which yielded most largely at each of the experimental farms. Of the 42 varieties of spring wheat compared at the five experimental farms in 1898, no less than 33 varieties appeared on the five lists of the 12 largest yielders at the five experimental farms. Of the 195 varieties of oats, barley, spring wheat and peas compared at the various experimental farms in 1898, 138 appeared in the selected lists of the 12 or 6 of the largest yielders at the five experimental farms. The selected lists included over 70 per cent. of the total number compared.

**Heredity and Selection.**—Professor Robertson stated that the only valuable or useful selection of farm seeds was a selection of the seeds from the individual plants which give evidence of power by succeeding and yielding largely under soil and climatic conditions where the crop is to be grown the following year. In every field of grain some plants are more vigorous, larger, earlier and more productive than the others. That is evidence that these plants have varied in the right direction for profit-making to the farmer. The difference in the same field is due to some form of inherited vigor. The only quality of inheritance in plants for farm crops which is worth naming is the power to overcome obstacles, power to take materials from the soil and the air, and power to hold these and organize them into valuable forms. That is the only quality of inheritance or heredity which is worth naming in any field, the field of the farm or the field of the nation.

**The Plan for the Farmers.**—He recommended every farmer to select enough heads from the largest, most vigorous and early plants in his field to give him two bushels of seed grain, then to select the large seeds from that by the vigorous use of the fanning mill and sieves. Such seed grain would doubtless prove better adapted to the soil and climate of his place than any outside seed he could obtain. Selection in that way from year to year would develop seeds with the greatest vigor for productivity and also with the quality of the grain improved. He instanced that such a course had resulted in an increase of crop varying from 20 per cent. to over 30 per cent. Such an increase applied to farm crops of Canada would mean an increase in the production of wealth from 20 to 30 per cent. on the \$280,000,000, the present annual value of farm crops. Dissemination of a knowledge of those fundamental principles which the farmers could readily understand and apply for themselves would bring about that desirable end. If the farmers once got a good hold of those principles, the principles would take hold of their farm practice and lift them into the most prosperous condition of agriculture.

### Caustic Balsam a Safe and Effective Blister.

The Lawrence-Williams Co. write: "We notice in your veterinary columns you advise the use of iodine and camphor for blistering. Now, while we know that it is not customary for veterinarians to recommend remedies of our kind, we do want to say to you that there is nothing that you could recommend with so much satisfaction to your readers as Caustic Balsam, wherever a counter-irritant or blister is required. It is absolutely safe for any one to use and reliable as well, and we sincerely believe you would be doing your readers a favor by recommending the use of Caustic Balsam."

### Mistakes of the Tree Planter.

We will mention only in a general way the many mistakes made by the tree-planters in choosing wrong varieties or a bad location or buying trees from irresponsible parties, or a number of other things which might properly come under the head of tree-planting, but will confine our remarks to the common errors committed by the usual tree-planter in the actual work of planting the tree.

**First.**—It is a mistake to dig a hole so small that you have to crowd the roots all up together, and set the tree the same as you would a fence post.

**Second.**—It is a mistake to dig a hole, either large or small, and throw out the top soil down to the subsoil and leave it unbroken, then set the tree with roots on a surface nearly as solid as a board, and then expect the young tender roots to penetrate and grow and the tree to thrive.

**Third.**—It is a mistake to set a tree very much deeper than it stood in the nursery row, except it be dwarf pear trees.

**Fourth.**—It is a mistake to plant a tree and not prune off all broken and bruised ends of roots with a sharp knife, cut from the under side. The roots smoothly cut off will callous more quickly than if left as they come from the spade or digger.

**Fifth.**—It is a mistake when pruning the roots not to examine and take out all borers, and cut off all roots affected by woolly aphis.

**Sixth.**—It is a mistake not to spread out all the roots in a natural position, slightly inclining them downward.

**Seventh.**—It is a mistake not to put the best soil around the roots.

**Eighth.**—It is a mistake to put any manure around the roots. If soil is thin put fertilizer on top of the ground and let the rain wash the fertilizer down to roots.

**Ninth.**—It is a mistake not to firm the soil down solid so as to exclude all the air from the roots as well as to pulverize all clods.

**Tenth.**—It is a mistake after shortening the roots, which cannot be prevented in transplanting, and thereby lessening the tree's capacity for absorbing moisture from the soil, not to cut back the top to correspond with the roots, to make less leaf surface, which exhausts the tree by evaporation.

**Eleventh.**—It is a mistake to plant a tree in sod and then replace the sod close around the tree to keep from disfiguring the lawn, as we often see done in town lots. Turn the sod over and let rot. Allow no grass closer than three feet of a tree planted on a lawn.

**Twelfth.**—It is a mistake to plant a tree in the mud or put much water around the roots. Have the soil dry enough, if possible, to crumble or else it will bake.

**Thirteenth.**—It is a mistake to lean a tree in any direction. Plant as near perpendicular as possible. All trees that are growing at an angle will be found with the new growth nearly all on the top side—nature trying to straighten the defects. Proof of this, go into the forest and observe the leaning trees.

**Fourteenth.**—It is a mistake to plant a tree with the idea that you are going to die before it bears fruit, and that you will not get any benefit personally. What if you do die, can you erect a better monument to the labor of your hands? One of my salesmen told me once that he fully believes one-half the people whom he approached on the subject of buying trees never thought of dying until they were asked to buy a tree, then they invariably replied: "Oh, no, I am too old; I will die before they bear."

**Fifteenth.**—It is a mistake to plant a tree and forget you are dealing with and handling a thing of life, and while it is inanimate, yet it has a living organism that will respond to kind and generous treatment as quickly, and surely as your live stock show the effects of good feed and grooming.

Whenever the writer plants a tree he fully expects it to grow, and is surprised only when it fails to do so. Many planters seem to be surprised when their trees live. Have faith in your work and use the same good sense and judgment in your tree-planting as you do in your other lines of work, and mistakes will be the exception, not the rule, and success will crown your efforts. Thanking you, I close.—H. W. Jenkins, in Report of Mo. Horticultural Society.

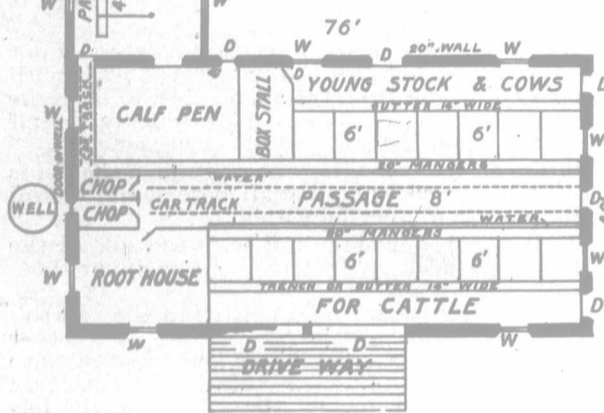
### How to Grow Large Strawberries.

Select plants of large varieties and choose large plants. Allow no other plant to grow within twelve inches of them. All within that distance destroy by hoeing up shallow, so as not to disturb the roots of the plant referred to, or these plants may be killed by putting enough mulching on them to smother to death. Water with liquid manure. This liquid can be made by putting manure (poultry manure) in a barrel or trough; then pour on water to leach through the manure; place two tin cans, one on each side of the plant, filled with this liquid, the cans having little holes punched through the bottom to allow this liquid to run slowly through. Fill the cans about every third day. Thin or cut off fruit stems, leaving two of the strongest. When berries are about one-fourth grown, pinch off all berries, leaving only three or four of the largest to mature. I assure you that you will have berries that you will be proud to place on exhibition. JACOB FAITH, Missouri.

**Description of Horse and Cattle Barn.**

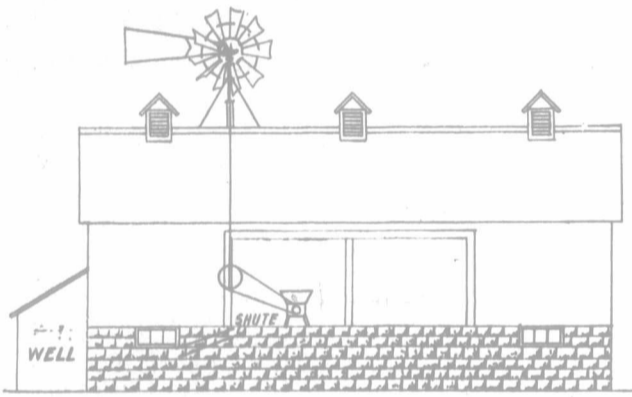
To the Editor FARMER'S ADVOCATE:

SIR,—I send you a draft of a barn; basement built of stone, 20 inches thick, walls 8 (eight) feet high, with stabling capacity for 34 aged cattle and 8 calves, besides a large root cellar, chaff house, and chop bins; size of basement being 40 x 76 feet, with car track, water troughs, and well at end of building; all machinery to be worked by a twelve-foot Aermotor windmill. Attached to the north-east end is a horse stable and henhouse, 20 x 52. A track runs from main building in front of horses for feeding purposes. A tight door between the buildings shuts off all steam from cattle stable. From experience, I contend that it is not wise to have horses and cattle in the same



GROUND PLAN OF W. E. BALDWIN'S HORSE AND CATTLE BARN.

stable without a tight wall between as a safeguard for the health of the horses. The upper structure is frame, 14-foot posts, 9 x 8, all timber being of good material. The lower part is, of course, most important. The upper part can be laid out any way to suit the fancy of the builder. It is only for hay, straw, and coarse grains. Wheat and seed grain should be in a good granary, isolated from other buildings, where there is no danger of fire. My seed granary is 20 x 36, frame, 300 yards from any other building. With regard to the piggery, I



SIDE ELEVATION VIEW OF W. E. BALDWIN'S BARN.

think that should be 300 yards in another direction, on account of the odor, and not attached to the main building, as I notice in some of the cuts, and even with some of the barns in Southern Manitoba. Now as to ventilation. There appears to be about a dozen different ways suggested in the farming papers. Every farmer has a method of his own, so can be left to suit himself. I keep a thermometer in my stable, and do not let it get too warm.

W. E. BALDWIN.  
Pembina Municipality, Man.

**QUESTIONS AND ANSWERS.**

**Veterinary.**

**WARBLES IN CATTLE AND GRUBS IN SHEEP'S HEADS.**

In the FARMER'S ADVOCATE for April last enquiries appeared under above heading asking for a cure, and as we have had difficulty from both these sources on the farms of the F. W. Stone Estate, Guelph, the writer's attention was attracted. An effective cure for warbles and for grubs in the head of sheep was found in McDougall's Sheep Dip, which is absolutely non-poisonous to cattle, sheep, or live stock of any kind, while it destroys all insects that live on animals by its action on the pores of the skin of such insects, all of which breathe through their skin.

The solution of McDougall's Dip to apply when the cattle are on pasture to prevent the attack of the warble fly is in the proportion of one part of dip to twenty parts of water, applied as a wash on the backs of the cattle and allowed to dry on. This should be repeated occasionally while flies are prevalent. If the lumps have appeared, showing that the warble grub is developing, a couple of applications of this solution will destroy them.

The same solution of dip will prevent the attack of the bot fly, which lays its eggs in the nostrils of sheep and causes the grubs described by your subscriber, and if the grubs have developed it will kill

them, and save the sheep without injuring them in any way. This year two of the sheep on the F. W. Stone Estate farms died from these grubs before the foreman discovered the cause by dissecting the heads of the dead sheep, when he found the grubs. A number of the other sheep showed the same symptoms of sickness, but were promptly cured by dipping their muzzles in the above solution of dip for twenty seconds, two or three times. The whole flock were treated in this way, and all sickness stopped at once.

F. W. STONE ESTATE,  
Wellington Co., Ont.

**SPRAINED TENDONS.**

JOS. WILLIS, York Co., Ont.:—"What is best to do with a horse that was lamed with drawing a load over a manure pile, straining the cords on the inside of hind leg above hock. The soreness has left, but there is a callous lump seemingly on the cord?"

[If you have not already had your horse fired and blistered we would certainly recommend the operation at once. Although we cannot always defend the practice, as it is cruel and very painful, still at times it is absolutely necessary. Firing or the application of the actual cautery is beneficial, and often removes pain very rapidly when blisters fail, and in all cases of chronic or severe lameness is to be recommended. Obtain the services of a veterinary surgeon, and have the firing done in lines superficially, being the least calculated to blemish.]

**INJURY TO CORNEA.**

S. COURTNEY, Muskoka District, Ont.:—"I have a horse with a bad cut near the corner of the eye. The eyeball is injured also, but he can see. Now a thick white scum is forming over. What can I do for it?"

[Wounds of the eyelids are to be treated in a very conservative manner. Nothing must be destroyed. The edges are to be secured by silk or silver wire. The film, or, as you term it, the scum, which forms over the front of the cornea consists of an exudate which continues so long as the irritation lasts, but gradually disappears by absorption. Many think that it is necessary to destroy it by caustics, as if it were an outer skin which had grown over the eye. This is a popular error. The deposit is within the structures of the cornea, and until the inflammation has subsided all irritating substances are calculated to do harm. We recommend warm fomentation, and afterwards the application of the following lotion, which is slightly caustic and stimulating: Nitrate of silver, 20 grains; distilled water, 2 ounces. Apply a few drops night and morning to the outer corner of the eye.]

**Miscellaneous.**

MIXED FARMER, Pheasant Forks, Assa.:—"Will you please answer me the following questions in the next issue of ADVOCATE: I have a registered Clyde colt (entire) two years old. Would it be wise of me to use him on a few mares this season? If so, how many? He is well grown and very full of life. Would using him a little unsettle him and prevent him making as good growth, by causing him not to feed so well, or are there other objections? I am feeding him two and a quarter gallons of oats and two gallons of bran per day. Is it about the right amount to keep him growing vigorously?"

[As your colt is well grown it would not do him any harm to allow him a few mares this season, say about fifteen. You are feeding about right. Be sure and keep up the bran portion of the ration.]

**FARM GOSSIP.**

The unusually severe and protracted winter made extra demands upon the feed bins. In many districts the cattle are reported to be thin and in poor shape for this summer's work. There are few young cattle left in the Province, many carloads being picked up this spring at comparatively high prices for shipment to the Alberta ranges, some still going south across the boundary. There is an active demand for good cattle, which is likely to continue. Those who have pastures of cultivated grasses have realized the benefits of early pasture. Bromegrass on the Brandon Experimental Farm on May 1st was nine inches high, and the cattle had been on it for a week then, while prairie sod did not furnish a decent bite for ten days later. This promises to be a good season for stallion owners (that is, for owners of good stallions), as with the increased value of horses there is a decided tendency to breed more mares. Breeders of pure-bred swine report strong demand at fairly good paying prices. The hens, though late in starting to lay, have been pouring out the eggs so fast that prices have dropped to the usual May prices. A firm in Winnipeg have started a factory with a new process of treating eggs. They are dried and reduced to a powder and put up in tins, and are said to keep any length of time. It is intended to ship this egg product to the Klondike. In spite of the late seeding there is a decidedly hopeful feeling, and with the large immigration coming into the West, farm lands are increasing in value and many sales being made to actual settlers.

**Montreal Markets.**

Trading on the local market does not seem to have made any move from the ordinary routine since the opening of navigation. The runs of cattle on the various markets do not show any marked increase over recent markets, but as the demand from exporters has been very limited, only buying to fill out their required amounts for shipment, and as the same situation held good before navigation opened from this port, it has not made any very material change in this market.

Export Cattle.—The few lots of export stock that have changed hands have been on the basis of 4c. to 5c. and 5 1/2c. per lb., the latter being for something really nice.

Butchers' Cattle.—Very little change is to be noted in the situation of this trade; the limited number of cattle turned over each week—from 750 to 800 head, all told—tells very clearly the nature of the trade here, that the demand is light

for local consumption owing to the higher cost of beef. Butchers have paid as much for good beef as exporters have done, 5c. per pound being paid by a few, while 4c. to 4 1/2c. is frequently paid for good to extra beef; common to fair stock ranging from 2 1/2c. to 4 1/2c. per lb.

Sheep and Lambs.—No change has taken place in this trade since last writing. The supply of sheep is limited and demand good, at steady prices; old sheep ranging from 4c. to 4 1/2c. per lb.; yearling lambs, from 5c. to 5 1/2c. per lb.; spring lambs, from \$2 to \$4.50 each, according to size and quality.

Calves.—Receipts have come forward quite a lot lighter on the last couple of markets, but as the quality did not show any improvement, prices were only firm, at \$1.50 to \$7.50 each, according to size and quality.

Live Hogs.—The market was a shade better on Monday; in fact, it has been stiffening appreciably of late, due either to the low price hogs were bringing or the fact that farmers have been too busy to attend to shipping. Choice sold at 4 1/2c.; fats, 4c.; and heavy fats down to 4c. per lb.

Hides and Skins.—Still no change to note—at least, in prices—for the market is firm to strong under a good demand, but dealers have not yet raised the price to butchers. Lamb clips advanced 5c. to 15c. each on the first of the month. Quotations are: Green salted hides—No. 1, 8 1/2c. per lb.; No. 2, 7c.; No. 3, 6 1/2c. Calveskins—No. 1, 10c. per lb.; No. 2, 8c. Lamb clips, 15c. each; sheepskins, 75c. to 80c. each.

**Chatty Stock Letter from Chicago.**

FROM OUR OWN CORRESPONDENT.

Following table shows current and comparative live stock prices:

Beef cattle.	Extreme prices now.	Top Prices		
		ago.	1898	1897
1500 lbs. up.....	\$4.50 to \$5.35	\$5.70	\$5.25	\$5.40
1350 to 1500 lbs.....	4.30 " 5.50	5.85	5.25	5.25
1200 to 1350 lbs.....	4.10 " 5.35	5.50	5.20	5.20
1050 to 1200 lbs.....	4.00 " 5.25	5.25	5.00	4.90
900 to 1050 lbs.....	4.00 " 5.00	5.10	4.85	4.75
<b>Hogs.</b>				
Mixed.....	3.65 " 3.97 1/2	4.02 1/2	4.17	4.05
Heavy.....	3.50 " 4.05	4.05	4.20	4.02
Light.....	3.60 " 3.95	3.85	4.10	4.05
Pigs.....	3.20 " 3.80	3.85	4.00	4.00
<b>Sheep.</b>				
Natives.....	3.50 " 5.55	5.00	4.60	5.00
Western.....	4.00 " 5.20	4.85	4.25	5.10
Yearlings.....	5.00 " 5.25	5.00	4.60	5.30
Lambs.....	4.40 " 6.20	5.90	5.50	5.50
Spring Lambs.....	6.00 " 12.00	10.00	8.00	....

Receipts at Chicago stock yards for 1899 to May 6th, with comparisons:

	Cattle.	Hogs.	Sheep.
1899 to date.....	797,621	2,855,509	1,289,834
Same period 1898.....	851,579	2,935,047	1,315,720
Same period 1897.....	810,494	2,741,357	1,168,599

Combined receipts of cattle and calves here last week, 57,759 head, the largest since last October. Receipts of calves for the week, 6,245, the largest in about four years.

The close of the unsavory army beef inquiry is hailed with delight by the stockmen, whose interests have been severely injured by the needless and sensational talk about the army beef.

The widespread advance in wages throughout the manufacturing regions of the United States has the effect of materially increasing the demand for meat.

The new Territory of Oklahoma is making rapid development in the live stock line. J. D. Parsons, of Deer Creek, Oklahoma, had in two cars of 1358@1389-lb. Oklahoma cattle, which sold at \$5.10@5.30. These cattle were within 15c. of the extreme top of the market on the day they were marketed.

The hog market is in fairly satisfactory condition. Prices are rather low, but the supplies of hogs are large. The demand for choice light and medium weight hogs is strong, but the very best heavy weights still continue to command a premium, which shows that the hogs must have been sent to market as fast as farmers could get them ready.

A Western authority says a good many new men are going into the sheep business, and are buying ranches all over the country. They figure that sheep will pay 20 per cent. annually, while cattle can not assure more than 10 per cent. at best for a period of years. Besides, the sheep industry returns quicker money, and there is not so much loss by rustling. In Wyoming, sheep-raisers are holding sheep at \$4.50 to \$5 a head. Many sheep-buyers are on the ground offering \$4.50. Sales of wool are being made at from 11c. to 12c. a pound. About fifteen wool-buyers are in the country, representing houses in Boston, Philadelphia, and Chicago, but they are not getting much fleece.

At the recent horse sale here, a road team sold at \$1,475 to R. M. Weir, of Chicago. The star of the collection, Marique, a chestnut gelding foaled in 1893, by Expedition, out of Wavelet, by Belmont, was purchased by H. Schmulbough, Wheeling, W. Va., for \$1,050. The best of the educated saddlers sold at \$200 to \$225 each. Mr. Kinzie, Baxter, Ia., reported with a choice lot of heavy Shire draft horses, which were sold at retail at satisfactory prices. One bay team, six years old, weighing 3,880 lbs., was purchased by the English dealer, Harry Richardson, for export to London, for \$475. The animals possessed heavy bone, were short-legged, with blocky conformation, and in prime condition for the trade.

The horse market is firm. Plugs and scrubs, \$15@35; farm mares and chunks, \$50@80; small mares and Southern chunks, \$35@55; plain light drivers, \$50@75; fair to choice drivers, \$115@300; Boston and export chunks, \$75@115; blemished heavy drafters, \$300@1100; drafters, good to choice, \$115@250; carriage teams, \$250@650; saddlers, \$75@400, according to individuality and performance.

**The British Markets.**

Cable advices just received from the British markets show a slight improvement this week over the heavy decline of last, prices advancing from 4c. to 4 1/2c. per lb. as compared with a week ago. Choice States steers sold in London at 12c. and Argentines 10 1/2c. per lb., and in Liverpool best Canadian cattle, 11c. to 11 1/2c. per lb. Sheep were firmer by one cent than a week ago, at 12 1/2c. for clipped and 13c. for woolled. These prices show a decline of a half to one cent per lb. since your last issue.

**SHIPMENTS.**

Shipments of stock as compared with the corresponding period of 1898 show a decline in numbers of a little over half, and of those shipped a good number are United States cattle.

Summary to All Ports.—Total from Canada and the United States to all ports:

	Cattle.	Sheep.	Beef.
Liverpool.....	5,210	3,188	22,215
London.....	1,182	....	3,277
Glasgow.....	596	....	....
Bristol.....	361	....	....
Hull.....	200	....	....
Newcastle.....	140	....	....
Cardiff.....	157	....	....
Total for week.....	7,846	3,188	25,492
Total last week.....	6,819	4,698	25,370
Total since May 1.....	14,665	7,886	50,862

Total shipment of horses from Montreal, 203 head. The totals for the week from Canada alone were 2,833 cattle and 203 horses.

**Live Stock Exports.**

The following are the live stock exports for the week ending Wednesday, May 10th, as prepared by R. Bickerdike, of the Live Stock Exchange, Montreal: Cattle, 3,136; sheep, 727.



AN AFRICAN MILLIONAIRE.

EPISODES IN THE LIFE OF THE ILLUSTRIOUS COLONEL CLAY.

BY GRANT ALLEN.

I.

THE EPISODE OF THE MEXICAN SEER.

My name is Seymour Wilbraham Wentworth. I am brother-in-law and secretary to Sir Charles Vandrift, the South African millionaire and famous financier. Many years ago, when Charlie Vandrift was a small lawyer in Cape Town, had the (qualified) good fortune to marry his sister. Much later, when the Vandrift estate and farm near Kimberley developed by degrees into the Cloetedorp Golcondas, Limited, my brother-in-law offered me the not unremunerative post of secretary; in which capacity I have ever since been his constant and attached companion.

We had run across to the Riviera for a few weeks in the season. Sir Charles has a sentimental attachment for the place. He finds it restores and freshens him, after the turmoil of London, to win a few hundreds at roulette in the course of an afternoon among the palms and cactuses and pure breezes of Monte Carlo. The country, say I, for a jaded intellect! However, we never on any account stop in the Principality itself. Sir Charles thinks Monte Carlo is not a sound address for a financier's letters. He prefers a comfortable hotel on the Promenade des Anglais at Nice, where he recovers health and renovates his nervous system by taking daily excursions along the coast to the Casino.

All Nice, just then, was ringing with talk about a curious impostor, known to his followers as the Great Mexican Seer, and supposed to be gifted with second sight, as well as with endless other supernatural powers. Now, it is a peculiarity of my able brother-in-law's that when he meets with a quack he burns to expose him; he is so keen a man of business himself that it gives him, so to speak, a disinterested pleasure to unmask and detect imposture in others. Many ladies at the hotel, some of whom had met and conversed with the Mexican Seer, were constantly telling us strange stories of his doings. He had disclosed to one the present whereabouts of a runaway husband; he had pointed out to another the numbers that would win at roulette next evening. Of course, Sir Charles didn't believe a word of it, but his curiosity was roused: he wished to see and judge for himself of the wonderful thought-reader.

"What would be his terms, do you think, for a private seance?" he asked Madame Picardet, the lady to whom the Seer had successfully predicted the winning numbers.

"He does not work for money," Madame Picardet answered, "but for the good of humanity. I'm sure he would gladly come and exhibit for nothing his miraculous faculties."

"Nonsense!" Sir Charles answered. "The man must live. I'd pay him five guineas, though, to see him alone. What hotel is he stopping at?"

"The Cosmopolitan, I think," the lady answered. "Oh no; I remember now, the Westminster."

Sir Charles turned to me quietly. "Look here, Seymour," he whispered. "Go round to this fellow's place immediately after dinner and offer him five pounds to give a private seance at once in my rooms, without mentioning who I am to him; keep the name quite quiet. Bring him back with you, too, and come straight upstairs with him, so that there may be no collusion. We'll see just how much the fellow can tell us."

I went as directed. I found the Seer a very remarkable and interesting person, with an aquiline nose, strangely piercing eyes, very large black pupils, and a finely-chiselled, close-shaven face, like the bust of Antinous in our hall in Mayfair. What gave him his most characteristic touch, however, was his odd head of hair, curly and wild as Paderewski's, standing out in a halo round his high white forehead and his delicate profile. I could see at a glance why he succeeded so well in impressing women; he had the look of a poet, a singer, a prophet.

"I have come round," I said, "to ask whether you will consent to give a seance at once in a friend's rooms; and my principal wishes me to add that he is prepared to pay five pounds as the price of the entertainment."

Senior Antonio Herrera—that was what he called himself—bowed to me with impressive Spanish politeness. His dusky olive cheeks were wrinkled with a smile of gentle content as he answered gravely:

"I do not sell my gifts; I bestow them freely. If your friend—your anonymous friend—desires to behold the cosmic wonders that are wrought through my hands, I am glad to show them to him. Yes, I go," he continued, as if addressing some unknown presence that hovered about the ceiling; "I go; come with me!" Then he put on his broad sombrero, with its crimson ribbon, wrapped a cloak round his shoulders, lighted a cigarette, and strode forth by my side towards the Hotel des Anglais.

He seemed buried in deep thought; indeed, when we reached the door and I turned in he walked a step or two farther on, as if not noticing to what place I had brought him. Then he drew himself up short and gazed around him for a moment. "Ha, the Anglais! It is here, then; it is here!" He was addressing once more the unseen presence.

We went upstairs to our rooms. Charles had gathered together a few friends to watch the performance. The Seer entered, wrapt in thought. He was in evening dress, but a red sash round his waist gave a touch of picturesqueness and a dash of color. He paused for a moment in the middle of the salon, without letting his eyes rest on anybody or anything. Then he walked straight up to Charles, and held out his dark hand.

"Good evening," he said. "You are the host. My soul's sight tells me so."

"Good shot," Sir Charles answered. "These fellows have to be quick-witted, you know, Mrs. Mackenzie, or they'd never get on at it."

The Seer gazed about him, and smiled blankly at a person or two whose faces he seemed to recognize from a previous existence. Then Charles began to ask him a few simple questions, not about himself, but about me, just to test him. He answered most of them with surprising correctness. "His name? His name begins with an S, I think: You call him Seymour."

"Where was I born?" Sir Charles interrupted, coming suddenly to his own case.

The Seer clasped his two hands to his forehead and held it between them, as if to prevent it from bursting. "Africa," he said slowly, as the facts narrowed down, so to speak. "South Africa; Cape of Good Hope; Jansenville; De Witt Street, 1840."

"By Jove, he's correct," Sir Charles muttered. "He seems really to do it. Still, he may have found me out. He may have known where he was coming."

"I never gave a hint," I answered; "till he reached the door he didn't even know to what hotel I was piloting him."

The Seer stroked his chin softly. His eye appeared to me

to have a furtive gleam in it. "Would you like me to tell you the number of a bank note inclosed in an envelope?" he asked casually.

"Go out of the room," Sir Charles said, "while I pass it round the company."

Senior Herrera disappeared. Sir Charles passed it round cautiously, holding it all the time in his own hand, but letting his guests see the number. Then he placed it in an envelope and gummied it down firmly.

The Seer returned. His keen eyes swept the company with a comprehensive glance. He shook his shaggy mane. Then he took the envelope in his hands and gazed at it fixedly. "AF, 7348," he answered, in a slow tone. "A Bank of England note for fifty pounds—exchanged at the Casino for gold won yesterday at Monte Carlo."

"I see how he did that," Sir Charles said triumphantly. "He must have changed it there himself; and then I changed it back again. In point of fact, I remember seeing a fellow with long hair loafing about. Still, it's capital conjuring."

"He can see through matter," one of the ladies interposed. It was Madame Picardet. "He can see through a box." She drew a little gold vinaigrette, such as our grandmothers used, from her dress pocket. "What is in this?" she inquired, holding it up to him.

Senior Herrera gazed through it. "Three gold coins," he replied, knitting his brows with effort of seeing into the box. "One, an American five dollars; one, a French ten-franc piece; one, twenty marks, German, of the old Emperor William."

She opened the box and passed it round. Sir Charles smiled a quiet smile.

"Confederacy!" he muttered, half to himself. "Confederacy!"

The Seer turned to him with a sullen air. "You want a better sign?" he said, in a very impressive voice. "A sign that will convince you! Very well: You have a letter in your left waistcoat pocket—a crumpled-up letter. Do you wish me to read it out? I will, if you desire it."

It may seem to those who know Sir Charles incredible, but I am bound to admit my brother-in-law colored. What that letter contained cannot say; he only answered, very testily and evasively, "No, thank you; I won't trouble you. The exhibition you have already given us of your skill in this kind more than amply suffices." And his fingers strayed nervously to his waistcoat pocket, as if he was half afraid, even then, Senior Herrera would read it.

I fancied, too, he glanced somewhat anxiously towards Madame Picardet.

The Seer bowed courteously. "Your will, senior, is law," he said; "I make it a principle, though I can see through all things, invariably to respect the secrets and sanctities. If it were not so, I might dissolve society."

"Your feeling does you honor," Sir Charles answered, with some acerbity. Then he whispered in my ear, "Confounded clever scoundrel, Sey; rather wish we hadn't brought him here."

Senior Herrera seemed intuitively to divine this wish, for he interposed, in a lighter and gayer tone:

"I will now show you a different and more interesting embodiment of occult power, for which we shall need a somewhat subdued arrangement of surrounding lights. Would you mind, senior host—for I have purposely abstained from reading your name on the brain of anyone present—would you mind my turning down the lamp just a little? . . . So! That will do. Now this one; and this one. Exactly! that's right." He poured a few grains of powder out of a packet into a saucer. "Next, a match, if you please. Thank you!" It burnt with a strange green light. He drew from his pocket a card, and produced a little ink bottle. "Have you a pen?" he asked.

Instantly brought one. He handed it to Sir Charles. "Obliged to you," he said, "by writing your name there." And he indicated a place in the center of the card, which had an embossed edge, with a small middle square of a different color.

Sir Charles has a natural disinclination to signing his name without knowing why. "What do you want with it?" he asked. (A millionaire's signature has so many uses.)

The Seer replied, "and then to burn it. After that I shall show you your own name written in letters of blood on my arm, in your own handwriting."

Sir Charles took the pen. If the signature was to be burned as soon as finished, he didn't mind giving it. He wrote his name in his usual firm clear style—the writing of a man who knows his worth and is not afraid of drawing a cheque for five thousand.

"Look at it long," the Seer said, from the other side of the room. He had not watched him write it.

Sir Charles stared at it fixedly. The Seer was really beginning to produce an impression.

"Now, put it in that envelope," the Seer exclaimed.

Sir Charles did as a lamb, placed it as directed.

"The Seer took it in his hand, walked over towards the fireplace, and solemnly burnt it. "See—it crumbles into ashes," he cried. Then he came back to the middle of the room, close to the green light, rolled up his sleeve, and held his arm before Sir Charles. There, in blood-red letters, my brother-in-law read the name, Charles Vandrift, in his own handwriting.

"I see how that's done," Sir Charles murmured, drawing back. "It's love's delusion, but still I see through it. It's like that ghost book. Your ink was deep green; your light was green; you made me look at it long; and then I saw the same thing written on the skin of your arm in complementary colors."

"You think so?" the Seer replied, with a curious curl of the lip.

"In sure of it," Sir Charles answered.

Quick as lightning the Seer again rolled up his sleeve. "That's your name," he cried, in a very clear voice, "but not your whole name. What do you say, then, to my right? Is this one also a complementary color?" There, in sea-green letters, I read the name, "Charles O'Sullivan Vandrift." It is my brother-in-law's full baptismal designation, but he has dropped the O'Sullivan for many years past, and, to say the truth, doesn't like it. He is a little bit ashamed of his mother's family.

Charles glanced at it hurriedly. "Quite right," he said, "quite right!" But his voice was hollow. I could guess he didn't care to continue the seance. He could see through the man, of course; but it was clear the fellow knew too much about us to be entirely pleasant.

"Turn up the lights," I said, and a servant turned them.

"Shall I say coffee and benedictine?" I whispered to Vandrift.

"By all means," he answered. "Anything to keep this fellow from further impertinences! And, I say, don't you think you'd better suggest at the same time that the men should smoke? Even these ladies are not above a cigarette—some of them."

There was a sigh of relief. The lights burned brightly. The Seer for the moment retired from business, so to speak.

Next morning, in the hall of the hotel, I saw Madame Picardet again, in a neat tailor-made traveling dress, evidently bound for the railway station.

"What, off, Madame Picardet?" I cried.

She smiled, and held out her prettily-gloved hand. "Yes, I'm off," she answered archly. "Florence, or Rome, or somewhere. I've drained Nice dry—like a sucked orange. Got all the fun I can out of it. Now I'm away again to my beloved Italy."

But it struck me as odd that, if Italy was her game, she went by the omnibus which takes down to the *train de luxe* for Paris. However, a man of the world accepts what a lady tells him, no matter how improbable; and I confess, for ten days or so, I thought no more about her, or the Seer either.

At the end of that time our fortnightly pass-book came in from the bank in London. It is part of my duty, as the millionaire's secretary, to make up this book once a fortnight, and to compare the cancelled cheques with Sir Charles' counterfoils. On this particular occasion I happened to observe what I can

only describe as a very grave discrepancy—in fact, a discrepancy of £5,000.

I examined the book with care. The source of the error was obvious. It lay in a cheque to Self or Bearer for £5,000, signed by Sir Charles, and evidently paid across the counter in London, as it bore on its face no stamp or indication of any other office.

I called in my brother-in-law from the salon to the study. "Look here, Charles," I said, "there's a cheque in the book which you haven't entered."

He looked at it and stared hard. Then he pursed up his mouth and gave a long low "Whew!" At last he turned it over and remarked, "I say, Sey, my boy, we've just been done jolly well brown, haven't we?"

I glanced at the cheque. "How do you mean?" I inquired.

"Why, the Seer," he replied, still staring at it ruefully. "I don't mind the five thou., but to think the fellow should have gammoned the pair of us like that—ignominious, I call it!"

"How do you know it's the Seer?" I asked.

"Look at the green ink," he answered. "Besides, I recollect the very shape of the last flourish. I flourished a bit like that in the excitement of the moment, which I don't always do with my regular signature."

"He's done us," I answered, recognizing it. "But how the dickens did he manage to transfer it to the cheque. This looks like your own handwriting, Charles, not a clever forger's."

"It is," he said. "I admit it—I can't deny it. Only fancy his bamboozling me when I was most on my guard! I wasn't to be taken in by any of his silly occult tricks and catch-words, but it never occurred to me he was going to victimize me financially in this way. I expected attempts at a loan or an extortion, but to collar my signature to a blank cheque—atrocious!"

"How did he manage it?" I asked.

"I haven't the faintest conception. I only know those are the words I wrote. I could swear to them anywhere."

"Then you can't protest the cheque?"

"Unfortunately, no: it's my own true signature."

We went that afternoon without delay to see the Chief Commissary of Police at the office. He was a gentlemanly Frenchman, much less formal and red-tapey than usual, and he spoke excellent English, with an American accent, having acted, in fact, as a detective in New York for about ten years in his early manhood.

"I guess," he said slowly, after hearing our story, "you've been victimized right here by Colonel Clay, gentlemen."

"Who is Colonel Clay?" Sir Charles asked.

"That's just what I want to know," the Commissary answered, in his curious American-French-English dialect. "He is a Colonel, because he occasionally gives himself a commission; he is called Colonel Clay because he appears to possess an india-rubber face, and he can mould it like clay in the hands of the potter. Real name, unknown. Nationality, equally French and English. Address, usually Europe. Profession, former maker of wax figures to the Musée Grévin. Age, what he chooses. Employs his knowledge to mould his own nose and cheeks, with wax additions, to the character he desires to personate. Aquiline this time, you say. *Hein!* Anything like these photographs?"

He rummaged in his desk and handed us two.

"Not in the least," Sir Charles answered. "Except, perhaps, as to the neck, everything here is quite unlike him."

With decision, rubbing his hands in glee, the Commissary answered, "Look here," and he took out a pencil and rapidly sketched the outline of one of the two faces—that of a bland-looking young man, with no expression worth mentioning. "There's the Colonel in his simple disguise. Very good. Now watch me. Figure to yourself that he adds here a tiny patch of wax to his nose—an aquiline bridge—just so; well, you have him right there; and the chin, ah, one touch; now for the complexion of the face, nothing easier. That's the profile of your rascal, isn't it?"

"Exactly," we both murmured. By two curves of the pencil, and a shock of false hair, the face was transmuted.

"He had very large eyes, with very big pupils, though," I objected, looking close; "and the man in the photograph here has them small and boiled-fishy."

"That's so," the Commissary answered. "A drop of belladonna expands and produces the Seer's five grains of opium contract, and give a dead-alive, stupidly-innocent appearance. Well, you leave this affair to me, gentlemen. I'll see the fun out. I don't say I'll catch him for you; nobody ever yet has caught Colonel Clay; but I'll explain how he did the trick; and that ought to be consolation enough to a man of your means for a trifle of five thousand!"

"You are not the commissioner of the French officeholder, M. le Commissaire," I ventured to interpose.

"You bet!" the Commissary replied, and drew himself up like a captain of infantry. "Messieurs," he continued, in French, with the utmost dignity. "I shall devote the resources of this office to tracing out the crime, and, if possible, to effecting the arrest of the culprit."

We telegraphed London, of course; and we wrote to the bank with a description of the suspected person. But I need hardly add that nothing came of it.

Three days later the Commissary called at our hotel. "Well, gentlemen," he said, "I am glad to say I have discovered everything!"

"What? Arrested the Seer?" Sir Charles cried.

The Commissary drew back, almost horrified at the suggestion.

"Arrested Colonel Clay?" he exclaimed. "*Mafai,* monsieur, we are only human! Arrested him! No, not quite. But tracked out how he did it. That is already much—to unravel Colonel Clay, gentlemen!"

"Well, what do you make of it?" Sir Charles asked, crest-fallen.

"In the first place, monsieur," he said, "disabuse your mind of the idea that when monsieur your secretary went out to fetch Senior Herrera that night, Senior Herrera didn't know to whose rooms he was coming. Quite otherwise, in point of fact. I do not doubt myself that Senior Herrera, or Colonel Clay (call him which you like), came to Nice this winter for no other purpose than just to rob you."

"But I sent for him," my brother-in-law interposed.

"Yes; he meant you to send for him. He forced a card, so to speak. If he couldn't do that I guess he would be a pretty poor conjurer. He had a lady of his own—his wife, let us say, or his sister—stopping here at this hotel; a certain Madame Picardet. Through her he induced several ladies of your circle to attend his seances. She and they spoke to you about him, and aroused your curiosity. You may bet your bottom dollar that when he came to this room he came ready primed and prepared with endless facts about both of you."

"What fools we have been, Sey," my brother-in-law exclaimed. "I see it all now. That designing woman sent round before dinner to say I wanted to meet him, and by the time you got there he was ready for bamboozling me."

"That's so," the Commissary answered. "He had your name ready painted on both his arms, and he had made other preparations of still greater importance."

"You mean the cheque. Well, how did he get it?"

The Commissary opened the door. "Come in," he said. And a young man entered whom we recognized at once as the chief clerk in the Foreign Department of the Crédit Marseillais, the principal bank all along the Riviera.

"State what you know of this cheque," the Commissary said, showing it to him, for we had handed it over to the police as a piece of evidence.

"About four weeks since—" the clerk began.

"Say ten days before your seance," the Commissary interposed.

"A gentleman, with very long hair and an aquiline nose, dark, strange, and handsome, called in at my department and asked if I could tell him the name of Sir Charles Vandrift's London banker. He said he had a sum to pay in to your credit, and asked if we would forward it for him. I told him it was irregular for us to receive the money, as you had no account with us, but that your London bankers were Darby, Drummond, and Rothenberg, Limited."

[TO BE CONTINUED.]

## MINNIE MAY'S DEPARTMENT.

## MY DEAR NIECES.—

Under the old style of things the first requisite of true propriety was "repose of manner." The lives of women in the days of our great-grandmothers were hemmed in by all sorts of restrictions. The moulding and fashioning influences of that time were all negative. It was "Don't" at every turn. "No well-bred lady would fidget in company, put her hands to her face, toss her head, or finger her buttons." In conversation her voice was soft and gentle, and though she might have the whitest of lily-white hands, she must not use them to gesticulate with. Her features, too, must be controlled. Squinting and winking the eyes and twitching the mouth were not tolerated in society. If she yearned for a liberal education, again "Don't" was hurled at her; and the warning voice said: "To be learned is unfeminine. What does a woman want with learning? Let her know how to keep house, and look after her husband's and children's physical comfort. If she never marries, let her take a back-seat and play the rôle of the maiden aunt and be thankful." These rules were all reversed later on. Instead of "Don't," the inspiring word is "Do." These stately ladies of long ago were voted prim and stiff and slow. As "naturalness" became the rage, "repose of manner" disappeared, and the deportment of young women was marked by excitement and restlessness. If the old-fashioned girl longed for active exercise, the voice again said: "Don't; violent exercise is unladylike. Your complexion will suffer from the sun and the air."

Now, this taking of a back-seat is just what the modern girl will not do. Why should she? Married or unmarried, she will come to the front. She is full of energy and activity, and feels capable of pushing out for herself and being independent. She wants to be stirring; she is a creature of the open air. She does not care so much to see her brothers play football as to have a kick at it herself. She enjoys every form of physical culture—her bicycle, golf, tennis, cricket, the gymnasium, and so on. She believes in "Do," with the result that her activity shows in her deportment. She is not the dependent, clinging woman of long ago, but one who can hold her own anywhere. As to education, she contends that she has as good a right to be educated as her brothers. If she is to be a house-keeper, she will be all the better for having a cultivated taste and judgment. She will be a better mother because she has studied the laws of health.

It used to be that the only profession open to women was teaching—anything else was a disgrace. Nowadays our girls are in every line of business, and in every profession—doctors, lawyers, gardeners, telegraphists, journalists, everything! And the girl who goes out to fight her way in her chosen work is no longer harshly criticised, but the public look on approvingly and wish her success.

But has this modern school of manners, with its activity and unrest, nothing to do with the numerous nervous diseases of the present day? The outward manner largely influences the inward state, and perhaps the old-fashioned habit of self-control was a means of establishing a control of the emotions and thoughts. Would it not be well to have the old style partially resumed? To have "repose of manner" cultivated to bring back again some of the dignity and stateliness of long ago? After all, there is more power in the reposeful manner than in the loud and self-assertive style one so often meets with. Now, as of old, in sitting, neither the knees nor the feet are to be crossed, yawning is a great offence, and the hands should be kept still and not used for gesticulation.

It is said that when sleep is impossible, lying in bed with the hands folded and the eyes shut is half as good as sleep itself. Everyone knows that restlessness and tossing about increase the loss of strength from sleeplessness, as well as the fact that sleep which is interrupted by constant turning and tossing is not nearly so strength-giving as a calm, quiet slumber. Just in the same way a reposeful manner saves the expense of much nervous movement, and of course a corresponding amount of power is saved too.

"But," someone may urge, "if a girl is to be anything at all nowadays she must be energetic and go-ahead." True, my dear nieces, equally as true to-day as at any time in the past. But, then, we do not wish to lose sight of the fact that as ladies we should conduct ourselves always in a ladylike, quiet manner. By abandoning gentleness of disposition and graciousness of word and deed we throw away a means of growth and an effective weapon. Many, many a girl who has to face the world daily to earn a living will agree with me in saying that a reposeful, dignified manner is a safeguard to her, and hinders, perhaps, many a rude remark or action which might be offered if she were of a free and easy, familiar style. By all means let us be courteous both in speech and bearing, thereby not only compelling respect, but increasing our power for good in the world.

Your loving old Auntie,  
MINNIE MAY.

## Recipe.

## SALAD DRESSING.

Three tablespoonfuls water, two tablespoonfuls vinegar, one teaspoonful made mustard, one teaspoonful sugar, one saltspoonful salt, one egg beaten well, one piece butter size pigeon egg. Heat over the fire, on top of the kettle, in a bowl, and stir often. It will keep a long time, so you can make a large quantity at once, and it is always ready for use. It ought to be like a good boiled custard when made.—Mrs. C. Cavendish Cooke's recipe.

Mr. Thomas Hardy's "Wessex Poems and Other Verses" are meeting with a very varied reception from the critics. There is no doubt about it that their tone is pessimistic, but Mr. Hardy has never given us a very cheerful interpretation of life. There is one poem in his book, however, of eight lines only, singularly dramatic in expression and so lyrically pure that it is likely to find its way into future anthologies of English poetry, though the author may be rejected as a poet. It is a forcible presentation of one of "life's little ironies":—

"They bear him to his resting-place—  
In slow procession sweeping by;  
I follow at a stranger's pace.  
His kindred they, his sweetheart I,  
Unchanged my gown of garish dye,  
Though sable-suited their attire;  
But they stand round with griefless eye  
While my regret consumes like fire."

## "Little Pepita."

What a charming picture! This dear old man must be Grandpa—and isn't he enjoying the merry dance of his grandchild! This room is delightfully quaint and foreign, and carries you far, far away



"LITTLE PEPITA."

into another country. Observe the curious Dutch tiled fireplace, with its plaited drapery—of a style now widely copied in our modern drawingrooms; the rows of crockery—doubtless of that old Dutch blue which now fetches large sums. Then the familiar Dutch clock we all know so well, and the substantial, cosy armchair! Grandpa must be a fisherman—for we see net and creel beside him. The hat lying on the top is quite fashionable-looking in shape. How often, too, do we see these thick-soled, heel-less, serviceable-looking footwear imitated as lounging slippers handsomely embroidered! Little Pepita is evidently having a real good time—as she would probably say were she of our country—and where her shoes are we know not. I have no doubt that Grandfather may play away until his fingers drop off before she will tire of her pretty capers.

One does not often see one of these old-fashioned accordians such as he is playing the more modern concertina having, long years ago, taken their place. I dare say our old man here can play some pretty good tunes. As for little Pepita, what can be more simple and sweet? The flowered frock, the plump little striped legs and feet, the close cap from under which the curling locks will escape, the pretty attitude, all go to complete a picture of simple enjoyment which is good to look upon. The very contrast of these two figures makes a perfect match.

Dance on, little maid, in happy measure  
Grandfather plays for his heart's best treasure—  
With tireless hands and smiling face  
Well holding his own in the loving race.  
Strange Memory often skips long years,  
And brings back scenes through mist of tears—  
Time spares none and these two must part  
Yet surely he'll live in that little heart!

## THE QUIET HOUR.

## "To All Their Due."

"Who is the honest man?  
He that doth still and strongly good pursue,—  
To God, his neighbor, and himself most true;  
Whom neither force nor fawning can  
Unpin, or wrench from giving to all their due . . .  
Who rides his sure and even trot,  
While the world now rides by, now lags behind . . .  
All being brought into a sum,  
What place or person calls for,—he doth pay . . ."

We cannot live in this world without incurring debts of some kind, and if we would be honest, it is necessary to obey the Apostle's command, "Render to all their due."

In dealing with others this should always be kept in sight. Let people be always prompt in paying their debts, fair and just to those who work for them, never grinding them down to the lowest possible level of wages, never trying to get the better of them—giving them their *due*, in fact.

Why is it that so many men and women are generous and kind to the poor who are not working for them, and yet never seem to dream of treating with equal kindness and consideration those who are employed by them? How few ever think of giving five cents extra to the poor woman who has been washing and cleaning all day, and has, perhaps, five or six little children to feed and clothe! Do you not rather employ the one who will work for starvation wages—because, perhaps, she has only herself to keep?

When people are forced by circumstances to accept less than their work is really worth, is that any reason why we should steal their valuable time and strength? For it is certainly dishonest to defraud them of their *due*. It is not only the laborer in *spiritual* things who is "worthy of his hire."

Then let us consider another kind of debt which is often left unpaid. How often do we see a loving, unselfish woman toiling along day after day to make everything nice for husband and children. Has she not justly earned the word of appreciation, of loving gratitude, which would, in her opinion, so amply repay her for all her self-sacrifice? Young people are often very selfish, accepting mother's sacrifices as a matter of course. They get the new clothes, she manages to make the old ones do. They go off on jolly summer outings, she stays at home in the heat and does the work. Oh, wake up! before it is too late; before the habits of selfishness become too strong to be broken; before you get too hardened and careless to care whether you are selfish or not. Render to those at home their *due*, be courteous and thoughtful in the matter of small obligations.

Begin early with the children, train them to say "Thank you" even to brothers and sisters; tolerate no rudeness in words or manner, and it will soon become second nature to them to be refined and polite.

Then think of our neglected correspondence. Do we always render to all their *due* in the matter of letters? How many which ought to be written at once are put off from day to day, until perhaps we end in not writing them at all. The letter to a friend in trouble, or the one, not less valued by the receiver, of congratulation in time of joy; the letter to the dear home friends, or to brother or sister, friend or neighbor, who has left home and is longing for a few words of cheer and kindness in his loneliness.

Surely it is very true that "none of us liveth to himself." We are linked together in hundreds of ways, and are dependent on one another perhaps far more than we know. Our lives are mostly made up of small and seemingly trivial things, but let us look to it that we do not despise and neglect the small everyday obligations.

"We need not bid, for cloistered cell,  
Our neighbor and our work farewell,  
Nor strive to wind ourselves too high  
For sinful man beneath the sky:  
The trivial round, the common task,  
Would furnish all we ought to ask;  
Room to deny ourselves; a road  
To bring us daily nearer God."

And don't forget that in rendering to *all* their *due*, your *own* claims must not be forgotten.

Unless it is absolutely necessary, do not work hard, without any holiday, from year's end to year's end. If not for your own sake, at least for the sake of your relations and friends, do not use up all your energy and become nervous and irritable, as nearly all overworked people do. Remember that our Lord took His disciples apart that they might "rest awhile." If you would do really good work for Him, then keep yourself as healthy and happy as you can. If you live in a constant rush of work and worry, how can you cultivate the three great graces of "love, joy, and peace"? Martha was very busy and complained that her sister Mary was idle, yet Mary was pleasing the Master best. No life should be too busy for a daily quiet time at His feet. D. F.

The inheritance of a distinguished and noble name is a proud inheritance to him who lives worthily of it. Colton.

Never shrink from doing anything your business calls you to do. The man who is above his business may one day find his business above him.—Drew.





**Keeping a Secret.**

It was when Molly was getting over the measles that mamma told her about Tom's birthday party. It was to be a bicycle party, and the boys were all to bring their bicycles, and Tom's father was going to give him one for a birthday present.

"O goody!" cried Molly, jumping up and down. "Won't Tom be just too happy for anything?" "Now, Molly," said mamma, "you must be very careful not to tell Tom anything about it."

"Can't I tell anybody? Not even Arabella Maria?" asked Molly. "Cause I shall surely burst if I don't."

"Yes," said mamma, laughing, "you can tell Arabella Maria, but no one else."

This was hard. That very afternoon Tom came rushing in from school and told Molly about Billy's new improved safety.

"I'd give something if I just knew I'd get a wheel for my birthday," said he.

"Bye low, bye low," sang Molly to Arabella, who, because she was made of rags, Molly loved, as she said she was so nice and "huggy." Molly kept her eyes shut, for fear Tom would see a nickel-plated bicycle in them.

"Why don't you talk and be a comfort?" demanded Tom. "I suppose if it was your birthday coming you wouldn't mind—you'd rather have an old mushy doll like that!"

Molly's eyes flashed. "It isn't so at all!" she said. "I wouldn't want another doll at all, and I do want a wheel. Every girl in the block but me has one. And Arabella Maria is not mushy, and she knows a great deal that you would like to know."

And then Molly, feeling that she was getting on dangerous ground, flew upstairs, holding Arabella close up against her mouth.

Uncle Tom and mamma were sitting on the porch, quite near the open window, and heard all this conversation. Uncle Tom was much amused, and mamma was very proud.

"I can make her tell me," said Uncle Tom. "Try," said mamma, as she went in to make hot cakes for tea.

Molly presently found herself seated on Uncle Tom's knee, and after she had told him all about the measles, and how it was a great surprise to everybody that Arabella Maria didn't take them, "But she's the best thing!" said Molly. "I told her not to, 'cause I couldn't nurse her, and she didn't."

"What's this about Tom's birthday?" said Uncle Tom. "I want to know about it."

But Molly immediately shut her mouth up tight and looked at the sky. "It's a secret," she said, finally.

"But not from me, is it? You know he's my namesake, and how do you know I won't get him the same thing?"

Molly looked troubled. "There is a danger," she said; "but if I should tell you you might let it out—not on purpose, but because it's so hard not to. I don't want to ever have the 'sponsibility of another secret, never."

"Well, well, and so you can't trust me," said Uncle Tom.

"I wouldn't mind trusting you at all if I hadn't promised I wouldn't tell," said Molly. "And me and Arabella Maria must keep our word, you see. Now if it was about my birthday I could tell you just as well as not, 'cause I wouldn't know—"

But Uncle Tom was laughing so that Molly stopped.

"Good for you, Molly," he said, "you're a trump!"

Molly didn't know at all what he meant, but she was much relieved that he was not offended.

When Tom's birthday, with the party, the safety and all, really came, it was hard to tell which was the happier, Tom or Molly.

Every time that Tom felt things boiling within him to such an extent that he couldn't possibly stand it another minute he would rush out on the lawn and look at his new wheel and say, "Hurrah! she's a daisy!" and turn somersaults until he felt better. At the same time Molly would rush after Arabella Maria, and with a rapturous squeeze would say, "Aren't we glad we didn't tell, though, 'cause he's so happy over the s'prise!"

By and by they all went out for a spin around the block, and there among the shining wheels was a dear little one which no one claimed. Tom picked up a card on the handle-bar and read:

"For Molly and Arabella Maria, two young women who know how to keep a secret from even Uncle Tom."

**"What's the Matter with Us?"**

Here is our old friend Molly—the dear little girl who knows how to keep a secret. She is visiting her Uncle Jim in the country. While Cousin Mabel is having a lovely spin on Molly's beloved wheel, the dear little city maiden is driving happily along with Baby Jimmy in his splendid dogcart. As they cross the bridge Molly shouts merrily to Tom, who is fishing in the river, "What's the matter with us?"

Arabella Maria is with them, of course. She is perched up on the other side of Jimmy, who is almost as fond of her as Molly herself.

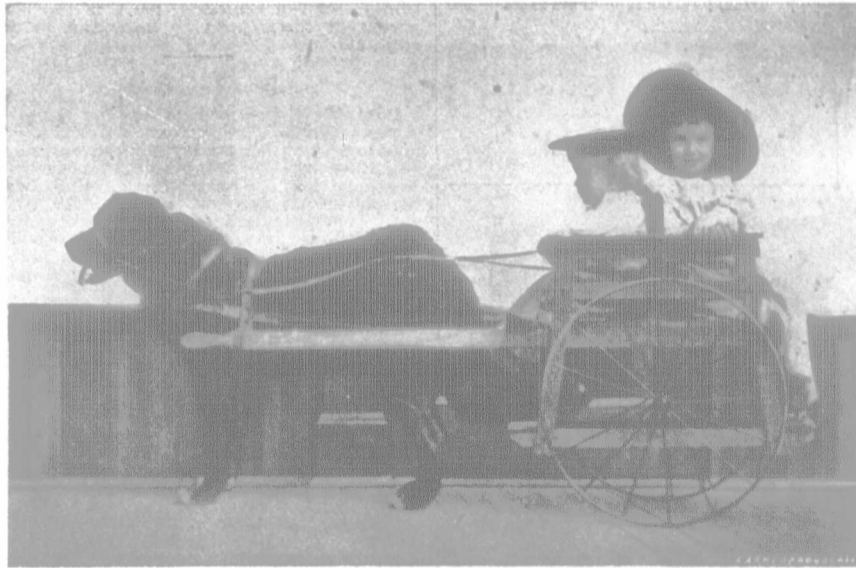
**Doing Right.**

Being approved by good men is no sure sign of being right, neither is being disapproved by good men. The right is the right, whether good men approve or disapprove. Good men are not all agreed as to particular acts or measures or opinions. He who looks for the approval of his course by the good will often be mistaken, but he who does just right will so far be right, however others may think of him.

**The Sweet Girl Graduate.**

All hail the sweet girl graduate, who's now in fullest bloom; Who knows her Greek and Latin and the use of who and whom; Who knows her physics like a book, the list of British kings, And several thousand other highly interesting things, Long may she wave and prosper in this country of the free, And may she ever get her rights wherever she may be; And may she know but happiness in all her span of life; And when perchance it comes about that she's somebody's wife, Oh, may she get the kind of man that's suited to her kind— A sort of man that's difficult, we must confess, to find— A really sweet domestic man, who at his mother's knee Hath learned to sew on buttons and to brew a cup of tea; Who's learned to go to market and to pick out the best to eat; To whom a shopping 'our is fun, an eighteen-karat treat; Who loves to tend the baby, and who doesn't want to vote; And who can spend a morning putting trimmings on his coat.

Oh, may this sweet girl graduate, whose head is stuffed with lore, Find some such mate as this to share her happy cellar door! So that there may be in her home, when she returns at night, From all the care—the business cares—that will be hers to fight, One who shall greet her at the door with smiles, to make her feel



"WHAT'S THE MATTER WITH US?"

There's one that shares within his soul her every woe and wail; There's one at least in all this world of ours who's sure to see She does not miss the perfect joys of domesticity.

—Harper's Bazaar.

For want of space in this number the "Joke Contest" will not appear till June 5th.

**Puzzles.**

[The following prizes are offered every quarter, beginning with months of April, July and October: For answers to puzzles during each quarter—1st prize, \$1.50; 2nd, \$1.00; 3rd, 75c. For original puzzles—1st, \$1.00; 2nd, 75c.; 3rd, 50c. 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; answers must accompany all original puzzles (preferably on separate paper). It is not necessary to write out puzzles to which you send answers—the number of puzzle and date of issue is sufficient. Partial answers will receive credit. Work intended for first issue of any month should reach Pakenham not later than the 15th of the month previous; that for second issue not later than the 5th of that month. Leave envelope open, mark "Printer's Copy" in one corner, and letter will come for one cent. Address all work to Miss Ada Armand, Pakenham, Ont.]

**1—CHARADE.**

My first, a little word,  
Is often heard in speech;  
It presents either side,  
But does not decision reach.

My second you say oft  
In speaking about you;  
My third the darkey used  
To his "massa" aged, 'tis true.

My whole in the sunny air  
Is now seen every day;  
Is heard in the tall elm tree,  
Whistling his sweet clear lay.

M. N.

**2—ENIGMA.**

First in pond, not in cool;  
Second in are and in art;  
Third in rake, not in tool;  
Fourth in hear and in heart;  
Fifth in none, not in some;  
Sixth in hart and in hare;  
Seventh in start, not in com;  
Eighth in mate and in mare.  
At my whole an accident slight,  
Many puzzles lost from sight.

M. N.

**3—TRIPLE ACROSTIC.**

In "paymasters" that pry,  
In "hawkers" who cry,  
In "travellers" so spry,  
In "biters" we try,  
In "haying" with faces wry  
and throats so dry.

Come now, and read this aright,  
And three women, noted and bright,  
That have charmed thousands many a night,  
Will quickly come to light. "ARRY 'AWKINS."

**4—TRANSPOSITION.**

Name of a puzzler Dick,  
Hope he is not very sick  
From the "taffy" supplied so pat  
By Cox Ada in her first chat.

Oh! wasn't "you awful fellow" rich,  
When given with just the proper pitch?  
But "my dear boy" is the second of it all,  
And the last that keeps it from spring till fall.  
"ARRY 'AWKINS."

**5—RIDDLES.**

- (1) What distance (travelling) most resembles an Angora cat?
- (2) The last letter of an Oriental salutation read backwards seems to be sad. What is the salutation?
- (3) Contract the time when holy men did live— Old-fashioned mode of travel will it give.
- (4) I am a little light, and I get smaller. Change one of my letters and I become an animal.

**6—TRANSPOSITION.**

Amy het nohtm fo gons dan otyre  
Ngnisg rbsid dan lstreaf welorsf  
Yma het honim fo strona yirog  
Hunsneis gthrbi dan neglet rweosha.  
CRIEFF FERGUSON.

**7—REBUS.**



The rebus names another animal.

ODMA

**8—SQUARE DIAMOND.**

- 1, A fetter; 2, produce; 3, thin slices of wood; 4, mournful; 5, to grant; 6, past tense of a verb meaning to flow; 7, a letter.

**9—OBLIQUE.**

- 1, A vowel; 2, a tree; 3, a tree; 4, a large bird; 5, a small bird; 6, a medicine; 7, a drink; 8, an East Indian silver coin; 9, a diocese; 10, a vowel.

**10—RIDDLE.**

Arrange four fives so as to make fifty-six.  
"PIONEER."

**11—ANAGRAM.**

"Shouts count more."  
They bought all the funny magazines,  
And read Bill Nye, Bengough, and Benzine;  
The result of all this labor we will see  
In the ADVOCATE of May the fifteen.

**12—WORD-SQUARE.**

To establish by law, nitrate of potash, a collection of maps, a small vessel, to be fretful.  
BUTTERCUP.

**13—A BEVY OF BIRDS.**

- What bird is an island near Africa?
- " " a carpenter?
- " " a hill?
- " " a piece of money
- " " a fish?
- " " a fruit?
- " " a ruler?
- " " a cheater?
- " " a swimmer?
- " " foolish?
- " " goes like a wheel?
- " " lively?
- " " cold?
- " " in a cheese factory?
- " " an island in the St. Lawrence River?
- " " lives in a rooster's throat?

"DICKENS."

**Answers to April 20th Puzzles.**

- 1—Orleans.
- 2—Rusk, Ubi, Dip, yell, Anti, Ruin, Drag—Rudyard Kipling.
- 3—Championship, ladyship, lordship, partnership, scholarship, hardship, friendship, statesmanship, citizenship, seaman ship.
- 4—Tactician.
- 5—Algor, Grotto, Ultimo, Iris, Naivette, Akner (knave), Ladle, Dell, Obit—Aguinaldo, Roosevelt.
- 6—(1) Honor before riches; (2) you are only to see me once in a week.
- 7—Kestrel
- 8—Conundrum.
- 9—Confederations.
- 10—La grippe.
- 11—Equal, wants, sins, contrition.
- 12—Salmagundi.
- 13—Simple Simon's decapitation.

**ANSWER TO NO. 9, LAST ISSUE.**

Reichstadt, Obeah, Beatrice, Epoch, Rottolo, Tael, Bey, Unbelief, Rutha, Neroli, Sudder—Robert Burns, The Holy Fair.

**SOLVERS TO APRIL 20TH PUZZLES.**

"Ena," "Red Lion," Lizzie Conner, "Arry 'Awkins," M. R. G., M. N., Jessie Hyde, Peter Hyde.

**ADDITIONAL SOLVERS TO APRIL 5TH PUZZLES.**

Jessie Hyde, Peter Hyde, "Arry 'Awkins," Lizzie Conner.

**COUSINLY CHAT.**

I've only room for a line or two, but send you May-day greetings. I have received complaints of inaccuracies in puzzles, which I feel sure arise from not being sufficiently careful in writing them, thus causing the printer to make mistakes. Puzzle No. 8 last issue is also said to have been copied, but as the sender is a new cousin it has likely been a mistake and will not occur again.

"Arry."—I received both letters, and really will write to J. when I can find time—a scarce commodity, by the way, in these housecleaning days.

"Red Lion."—Is it your name I see in the *Mail and Empire* as having sent wild flowers to the hospital? I think I recognized another cousin's name in that paper—oh, "Pioneer!"

"Simple Simon."—Send some of your other puzzles, and if not too difficult we shall use them.

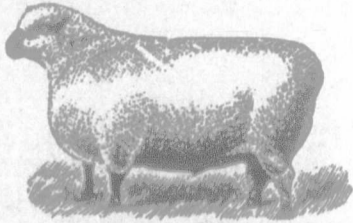
ADA A.

J. A. S. MACMILLAN

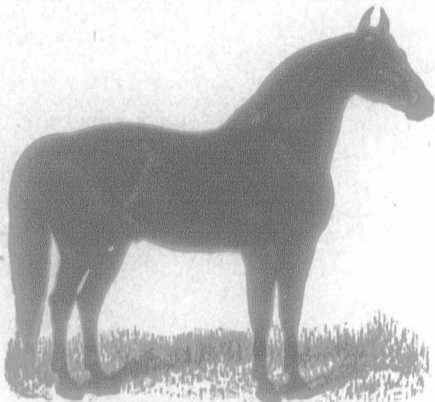
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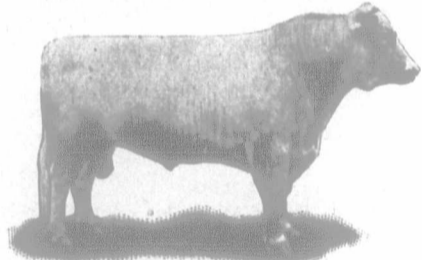
KNIGHT OF THE VALE

Yorkshire Coach, Vol. 5 (1799). Am. Cleveland Bay (999).

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"PRAIRIE HOME STOCK FARM."



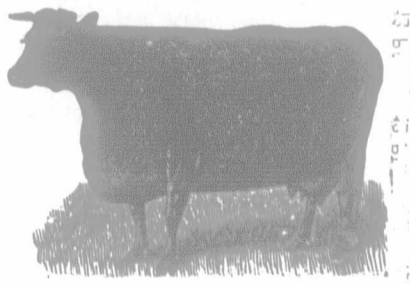
Bulls at head of herd: JUDON = 23419 = and Imp. JUBILEE = 28858 =

Shorthorn and Ayrshire cattle, Shropshire sheep, Yorkshire and Berkshire swine. A carload of Bulls suitable for Northwest Territories for sale.

ORDERS BOOKED FOR SPRING PIGS. Berkshires, by the great boar, King Cleve, and out of such sows as Harmony and Gold Drop. Yorkshires, by the sweepstakes boar, Yorkshire Bill, and out of such sows as Stamina, Jubilee Queen, and Markham Maid.

THOS. GREENWAY, PROPRIETOR. JAS. YULE, MANAGER, CRYSTAL CITY.

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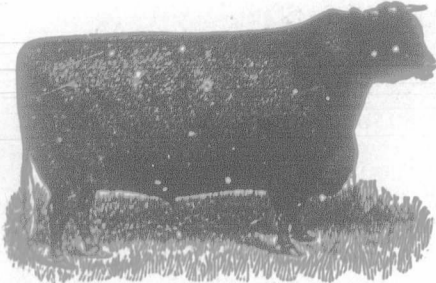
SHORTHORNS. My stock bull, Royal Duke = 21610 =; six other bulls, varying in ages; five heifer calves. Will sell at reasonable figures, to make room for winter. Write

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Shorthorn Cows and Heifers for Sale

Of good breeding. Prices right. GEORGE RANKIN, HAMOTA, MAN.

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Young bulls and heifers for sale from Topman = 17847 =, the winner of the sweepstakes and silver medal at the Winnipeg Industrial in 1897. My stock also won first for Manitoba herd. A good chance to get a splendid young bull to head a herd. Prices right. Write or call on

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SHORTHORNS, BERKSHIRES, YORKSHIRES, and B. P. ROCKS. Two young Bulls, good ones. Yorkshire Boars, ready for service. Spring pigs, both breeds, just arrived from Toronto. Three very large, well-marked Cockerels for use in our fine yard of Rocks. Eggs, \$1.50 per setting of 14.

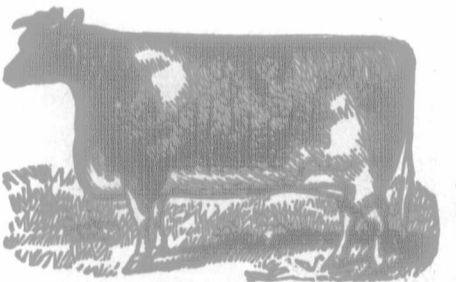
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SHORTHORNS

Superior individuals of richest breeding. Young stock of both sexes for sale.

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FOR SALE:

2 Pure Suffolk Punch Stallions, 3 years old, and 1 Yorkshire Coach Stallion, 5 years old, also Hereford Cattle.

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HEREFORDS

I keep only the best. For stock of all ages Write or call. WM. SHARMAN, Ridgewood Stock Farm, SOURIS, MAN.

GOSSIP.

In writing to advertisers, mention the "Farmer's Advocate."

The Winnipeg Elevator Co. has been incorporated under Dominion charter. The incorporators are T. W. Bready, John Love, C. R. Tison, Winnipeg, and James Caruthers and C. W. Band, Toronto.

J. H. Kinnear, of Souris, writes us under recent date that he has sold two Shorthorn bulls recently to J. R. North, of Fort Qu'Appelle. One of these, Golden Royal = 24402 =, has been at the head of Mr. Kinnear's herd for the past three years, giving him most satisfactory results. He was imported by Andrew Graham, of Pomeroy, from the herd of Capt. T. E. Robson, Ilderton, Ont. Mr. North also gets the dark red son of Golden Royal, Quaker Prince, a young bull that Mr. Kinnear thinks highly of. He would not have sold his stock bull but to avoid inbreeding, and he has recently purchased a bull in Ontario, selected at the Pearson dispersion sale.

J. A. McGill, Berkshire breeder, Neepawa, in sending his descriptive catalogue for 1899, says: "I find a good demand for pigs; no trouble to sell all I can raise. Of course, I don't try to keep more than I can look after properly and keep right; and by sending out nothing but first-class stock, and by judicious advertising, will expect my share of the trade." Below are a few extracts from Mr. McGill's patrons, referring to pigs supplied by him:

Olds, Alberta, May 2nd, 1899. Pigs arrived yesterday all right. I am more than pleased with them. They are better than I expected. I think the boar is worth his weight in gold. He is a beauty. If you have not made out the pedigree yet, name him Gold-dust. Yours truly, E. BARNE.

Balcarres, Assa., April 29th, 1899. I will write you a few lines to let you know that I am well pleased with the boar. He is doing well. I got the pedigree all right. Yours truly, HUGH NEWSTEAD.

Saltcoats, Assa., April 1st, 1899. Just a line to let you know that I received the young sow all right. I am perfectly well satisfied with her so far, as she is by far the best appearing at her age of any young pig I have had yet from any of the different breeders I have been dealing with. Yours sincerely, WM. HUME.

S. Ling, of the Fort Rouge Poultry Yards, Winnipeg, has issued a circular giving particulars of the breeding pens of the several breeds of fowls bred by him, and prices of eggs, etc.

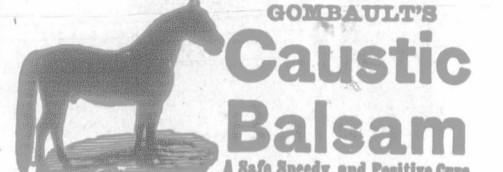
NOTICES.

Portable Gasoline Engines for Farm Purposes.—During the last four or five years large farmers, stockmen, dairymen, sheep breeders, etc., in Southern Minnesota, Wisconsin and Northern Illinois have used gasoline engines for power purposes on the farm for all such work as cutting fodder, grinding feed, operating cream separators and churns, sawing wood, and nearly all other work such as was formerly done by steam, horse or wind power, and we deem it very opportune at this time to call the attention of our readers to the advantages of portable gasoline engines on any well-regulated farm in the Northwest. This year the use of portable gasoline engines is being adopted largely for threshing purposes in the northwestern part of Minnesota and in North Dakota. Local agents have been appointed in nearly every county for the sale of portable gasoline engines manufactured by Fairbanks, Morse & Co., St. Paul, Minn. This firm reports a large number of sales in North Dakota and Minnesota, which would indicate that the farmers across the border have full confidence in this machine. It is not intended to replace the large steam rig with gasoline power, but farmers growing a considerable acreage of small grain are buying these outfits for their individual use. It has been demonstrated that with the aid of a portable gasoline engine and small separator and the same number of men and teams which it would be necessary to use to stack a certain number of acres of wheat, the farmer can thresh the grain out of the shock and in this way save not only time, but almost the entire cost of threshing, as the operating expenses of such a rig are small. Besides the saving of time, the possibility of loss by wet weather succeeding the harvest will be obviated, as the grain will be threshed and in the granary just as soon as ordinarily it would be stacked. The experience of last year would demonstrate without argument that this in itself would be a great advantage and preventive of loss to the Manitoba farmer. After the threshing is over, the engine can be put to use at any time for the purpose of sawing wood, grinding feed, cutting fodder, pumping or any other purpose for which power may be required, and when the advantages to be gained by the additional features are taken into consideration it should not take the up-to-date farmer long to make up his mind to purchase one of these exceedingly valuable machines. A large number of manufacturers are flooding the field with such engines, attracted by the large and sudden demand, and our readers should weigh carefully the merits of any engine presented to their attention. Some of these engines are manufactured in a very primitive and imperfect manner, and by concerners who are not responsible. In purchasing such an outfit, it is necessary to consider in the first place the advisability of procuring an engine that has stood the test for several seasons, and one that is well known to be reliable. And for this reason our readers should only purchase from old established firms who have a reputation of turning out nothing but first-class goods, and whose guarantee will be of actual worth from a financial and business standpoint. To those who contemplate buying, full particulars will be forwarded by the manufacturers, Fairbanks, Morse & Co., St. Paul, Minn., or by the agents for Manitoba, the Vulcan Iron Company, Winnipeg, Man.

MANITOBANS AT CHICAGO VETERINARY COLLEGE.

Two Manitobans who have been attending the McKillip College of Veterinary Science, Chicago, have passed very creditable examinations. R. D. Sewfield, of Manitou, led the freshmen year and won the faculty prize; and E. T. Lawley, V. S., Brandon (a graduate of the Toronto College, '88), took second place and several honors in the final year, and got his M. D. V.

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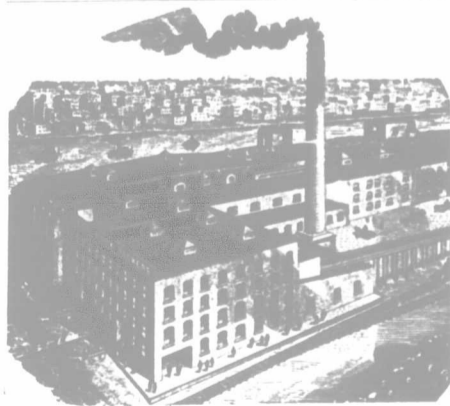
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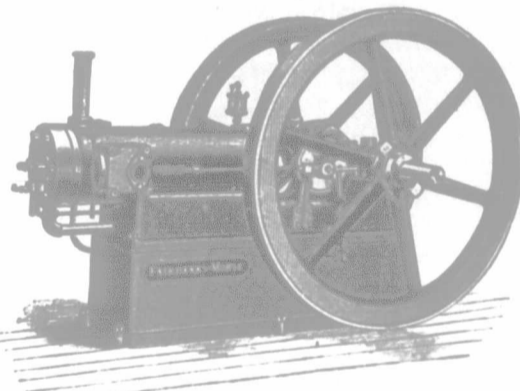
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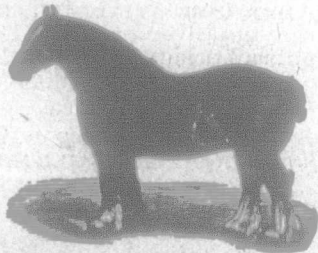
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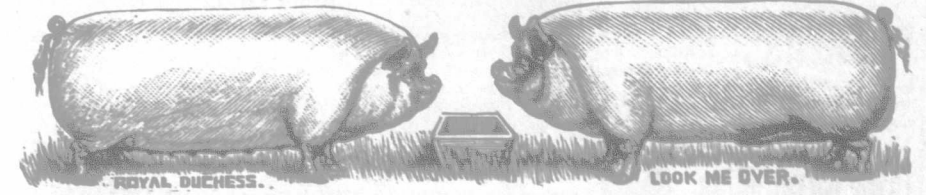
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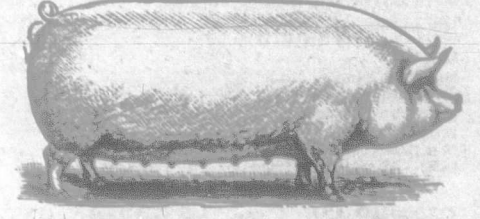
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Bull 10 mos. old; sire Neidpath Chief - 2142 -; dam Conney - 2983 -; by Castle Douglas (imp.) - 1126 -; Pigs, pure-bred, 6 mos. old, either sex. -on GEORGE HILL, DELAWARE, ONT.

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The largest herd of pure-bred Yorkshires in America. This herd has won the best prizes offered for the breed during the last ten years. STOCK BOARS.—Three imported boars, all winners at the Royal Show, including championship and gold medal. Also, two Canadian-bred boars, both first prize winners at Toronto, 1898. BREEDING SOWS.—Royal Duchess, Royal Queen and Royal Queen 2nd, all winners of highest awards at Royal Show, and 15 of the best sows to be purchased in England. Also, 50 matured Canadian-bred sows of the choicest quality. PRESERVING STOCK A SPECIALTY. -on J. E. BRETHOUR, BURFORD, ONT.

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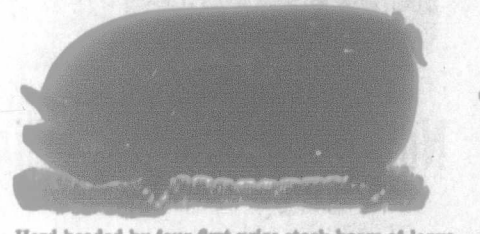
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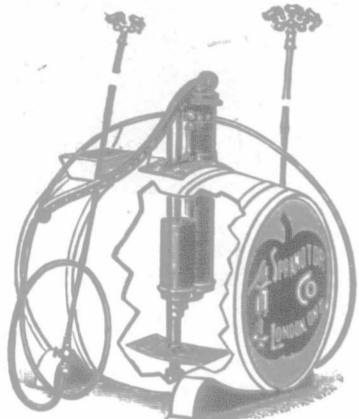
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have done their work well, and are quite satisfactory.  
I could not have believed there was so much value in  
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chine had practically none. Yours truly,  
W. E. H. MASSEY.


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This is to certify that at the Contest of Spraying Ap-  
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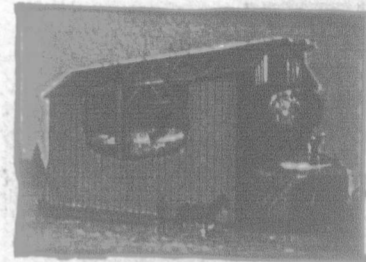


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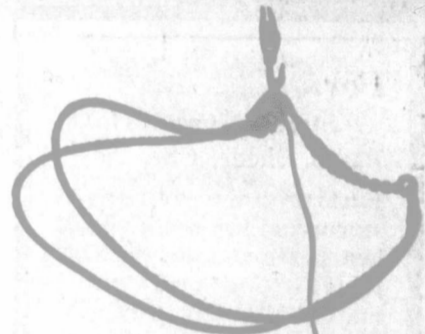
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Will work on stacks as well as in barns. Satis-  
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Works in connection with Pitching Machine, and  
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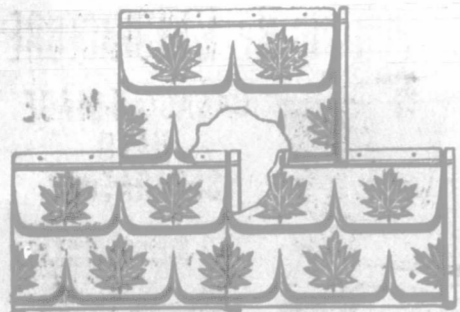


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**Locomotive and Return Tube, Portable and Traction ..**

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the advantages of using metal roofing constructed on our patent "SAFE-LOCK" principles they would not accept a substitute.

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interlock each other on all four sides, leaving no openings for snow or rain to get in. They are easily put on by anyone, are practically fire and lightning proof, and give a building a neat, finished appearance. We can tell you more. Ask for free catalogue and samples.

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**BUTTER AND CHEESE.**

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**THE WINDSOR SALT CO., LIMITED, WINDSOR, ONT.**

**TORONTO ENGRAVING CO. 92 BAY ST. CUTS BY ALL PROCESSES. LIVE STOCK A SPECIALTY.**

**GOSSIP.**

In writing to advertisers, mention the "Farmer's Advocate"

At the dispersion sale of Jersey cattle, property of Mr. T. R. Proctor, Baggs Hotel Farm, Utica, N. Y., April 25th, fifty-three cows averaged \$73 each. The highest price was \$190, and twelve others ranged from \$105 to \$185.

Mr. W. D. Platt, Hamilton, sailed for England from New York on steamer City of Paris, May 10th, with a view of importing Shorthorns to replenish his herd, and Large Yorkshire swine for his brother, Mr. D. C. Platt, Millgrove. He expects to make a large importation of choice stock. We wish him bon voyage and a successful trip.

Mr. Alfred Mansell, of Shrewsbury, Eng., writes:—"I shall be glad if you will announce in your next issue that I expect to reach Canada at an early date, and that I hope to visit Hon. John Dryden, Mr. R. Gibson, Mr. R. Miller, Mr. J. Campbell, Messrs. Edwards & Son, and several other sheep and cattle breeders."

R. Reid & Co., Hintonburg, Ont., breeders of Ayrshire cattle and Berkshire and Tamworth swine, write:—"Our stock has wintered well. Sales have been very good, as we are nearly sold out of young bulls, only having two calves left, one eleven months old and the other eight months. We have a fine lot of young pigs, nearly a hundred, which we are selling at reasonable prices."

Mr. H. Smith, Hay, Ont., has recently sold from his Springhurst herd the following Shorthorns: To Capt. T. E. Robson, Iderton, the 4-year-old cow Rosy Strathallan and her 6-mos. heifer calf by Abbotsford; to David Smith, Glanford, two yearling heifers by Abbotsford; the yearling bull, Village King, to James Glen, Lumley, and Village Prince to Wm. Forest, near Bluevale; also a few other young bulls to ranch companies in the N.-W. T. and B. C.

At the sale of Shorthorn cattle held by C. C. Bigler & Son, of Hartwick, at Victor, Iowa, April 26th, the 4-year-old cow, Cherry Volumma 2nd, by Imp Spartan Hero, sold for \$910 to R. E. Owens, Williamsburg, Iowa. Three other cows brought \$500 to \$555, and two bulls \$325 and \$380. These were principally Bates-bred cattle with crosses of Scotch-bred bulls, but the two highest-priced bulls were Bates topped Scotch females, and were said to be very fine animals. The average for 35 animals was \$241.

One of the latest published records of a tested Jersey cow is that of Oonan's Sweet Briar, owned by Geo. V. Saffarans, Palmyra, Mo. She calved March 24th and in the seven days, April 2nd to 8th, she gave 233 lbs. milk that churned 17 lbs., 12 ozs. butter, salted 1 oz. to the lb. She was sired by the St. Lambert bull, Mondale Idabier, and her dam is Signal's Oonan. Her breeding is very closely allied to that of several of Mr. Fraleigh's cows advertised to be sold by auction at Forest, Ont., on May 24th.

A small selection from Mr. H. Dudding's noted herd of Shorthorns were sent to Lincoln Spring Fair on the 27th April, and one of them, a grand, deep-fleshed young bull, Riley Ingram, born Oct. 10th, 1897, by Jack Ingram 70661, realized top price in the Fair, viz., \$300. This grand young bull was very cheaply sold, and when it is known that the draft of which he formed part are those left after the selection for the Annual Home Sale next July had been made, a very fair idea can be formed of the very first-class lot of bulls that will be offered at that annual fixture.

The following judges have been appointed for the various classes of cattle, sheep, and swine at the Western Fair at London, 1899:

- Cattle.**—Shorthorns—John Miller, Jr., Brougham; reserve, T. Russell, Exeter.
- Jerseys.**—R. Reid, Berlin; reserve, J. Davidson, Monroe, Mich.
- Ayrshires and Galloways.**—D. Drummond, Myrtle; reserve, J. C. Smith, Hintonburg.
- Holsteins.**—Wm. Suhring, Sebringville; reserve, T. W. Charlton, St. George.
- Herefords, Polled Angus, and Galloways.**—A. Rawlings, Forest; C. M. Simmons, Ivan.
- Sheep.**—Leicesters—L. Parkinson, Eramosa; reserve, W. McIntosh, Burgoyne.
- Lincolns.**—John Mitchell, Glencoe; reserve, E. Parkinson, Eramosa.
- Cotswolds.**—W. G. Laidlaw, Wilton Grove; reserve, Jos. Ward, Marsh Hill.
- Shropshires.**—W. G. Pettit, Freeman; reserve, J. P. Philp, Hespeler.
- Oxfords, Hampshires, and Suffolks.**—J. Tolton, Walkerton; reserve, H. Arkell, Teeswater.
- Dorsets.**—W. H. Beattie, Wilton Grove; reserve, H. N. Gibson, Delaware.
- Southdowns.**—H. B. Jeffs, Bond Head; reserve, W. H. Beattie.
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should turn all kinds of live stock and even traps; should expand and contract according to the weather so as always to be tight; should stand all storms—even fire and last indefinitely.

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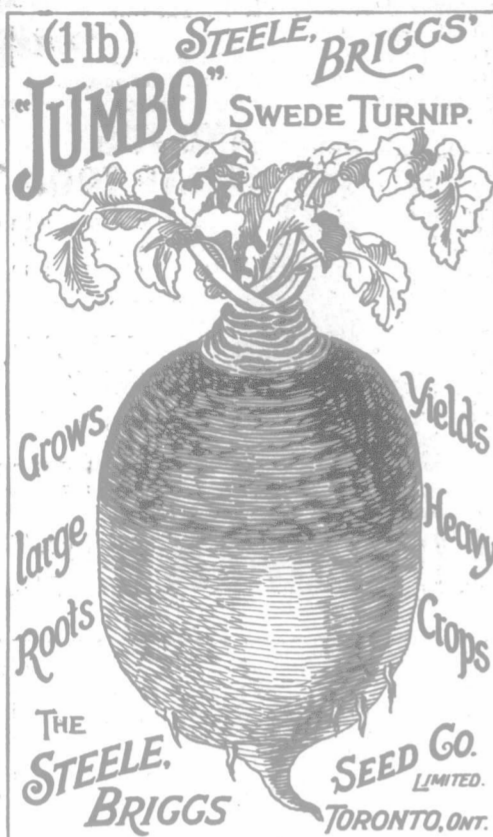
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One of the earliest dent varieties in cultivation, a strong grower, stalks and ears of good size, small cob with deep grain, productive. Price,  $\frac{1}{2}$  bush., 50c.; bush., 90c.; 2 bush. and over, 85c. a bush.; bags, 15c. each.

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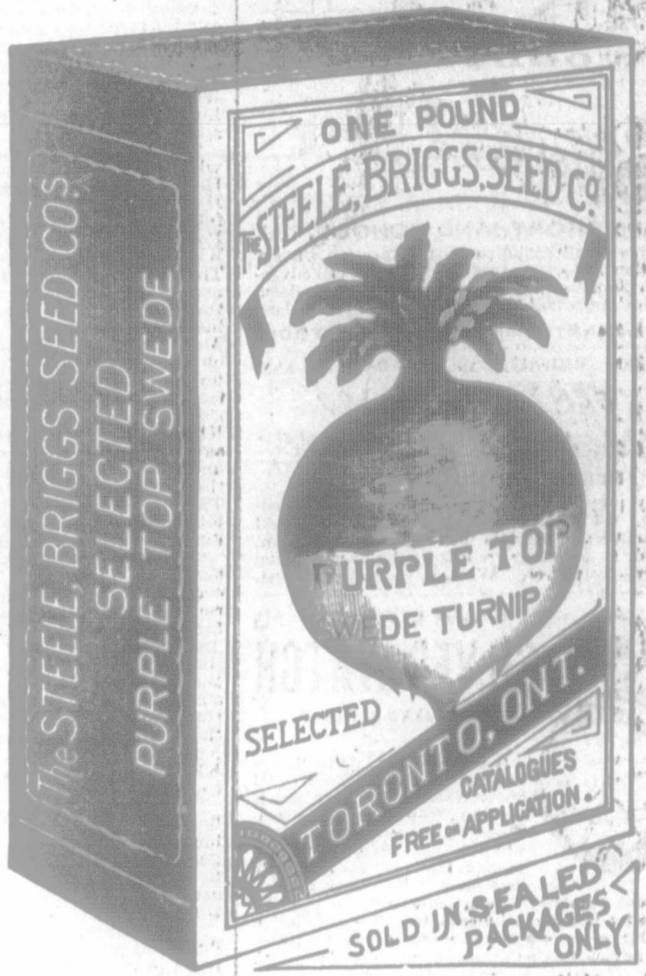
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From 27 to 60 inches.  
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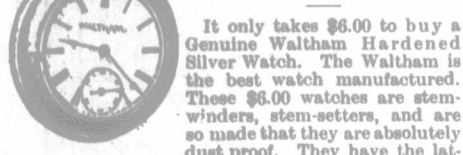
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Properly prepared young men and women for business life. 44 of our recent students have accepted good situations. Business men appreciate our work, and apply to us for our graduates. Enter now if you can. Prospectus free. **W. J. Elliott, Principal.**

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We guarantee every machine to do good work. Agents wanted. Write for particulars.

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PLEASE MENTION FARMER'S ADVOCATE.

**GOSSIP.**

At Mr. Jas. Cooper's farm, "Oak Lodge," at Kippoon, we saw a good strong even well-coupled bunch of twenty Shropshire shearing rams during a short call in the first week of May, and as Mr. Cooper has imported extensively from such flocks as those of Bradburn, Minton, Farmer, Batch, Williams, and Thomas, acknowledged to be leading English breeders, it is needless to add that a sire to suit any flock may be selected from this lot, particulars of which will appear in later issues of the FARMER'S ADVOCATE.

During a short call at Mr. J. T. McKay's, at Parkhill, a member of the FARMER'S ADVOCATE staff was shown a splendidly kept and in every way up-to-date lot of poultry, as well as a nice lot of Poland-Chinas. In the poultry pens set apart for special breeding purposes are two fine lots of Barred Plymouth Rocks—fine, strong, vigorous birds, in healthy condition and good shape, and well and evenly barred, while the Light Brahmas are simply immense. The firm has also up-to-date Bronze turkeys and Pekin ducks from the best and most noted prizewinning pens.

**A COSTLY HOG.**

The lawyers are having a harvest in the litigation which has grown out of the public sale of the Poland-China boar, Kiever's Model, in September, 1897, to a syndicate for the price of \$5,100. After the animal had been in their possession for some time, the buyers claimed to have discovered that it was not Kiever's Model they had bought, that he had died and that another hog was substituted for him. Action for damages was brought against Mr. Council, the seller, and a verdict for the plaintiff rendered. An appeal was made to a higher court, and the verdict was set aside and judgment given in favor of the seller. Now the latter has entered action for \$20,000 damages for libel and defamation of character. It is said that the litigation in the case has already cost \$10,000. A local paper tells the story in the following funny fashion:

"The story of Council, the Syndicate and the hog is a long one, but every child in Sangamon County knows it by heart. It began in 1897, at the State fair grounds in Springfield. Council decided publicly to auction off a famous hog he owned, known as Kiever's Model. The hog came of an ancient and highly-respected race, and his fame was known the country through, so when he was put on the block on Sept. 8th to be sold to the highest bidder, stockmen from all over the country were there anxious to secure the prize. The bidding rose higher and higher, and finally Kiever's Model was sold to a syndicate for \$5,100.

"All was serene until Council's hired man whispered about the country a horrible secret. He was a Swede named Arthur Thielander. He said his conscience troubled him so that he felt he must speak. He declared the big Poland-China hog that went under the name of Kiever's Model was not Kiever's Model at all. The real Kiever's Model, he said, had died nearly a year before the auction sale, of one of the pestilences peculiar to the hog race. The hired man said he had been with Kiever's Model when it lay down and died, had been chief mourner at the funeral, and had acted as undertaker for the deceased porker. He related how at the dead of the night, by the sickly glare of a barn lantern, he had laid Kiever's Model in its grave. The next day, he said, Council built a straw-stack over the grave and put the low-born hog, Columbia Wilkes, in the place formerly occupied by Kiever's Model. This degraded hog was introduced around as Kiever's Model, the hog that had died, and finally sold as the original animal.

"When the members of the syndicate heard the hired man's tale, they were greatly exercised. They sent a man to exhume the remains under the straw-stack on the Council farm. The grave was opened, but instead of finding the skeleton of one hog, they found all that remained of two. Council had not denied the existence of hog bones under the straw-stack, but said they were those of two hogs that had died of cholera, and he had buried them to prevent the disease from spreading. Neither of these hogs, he declared, was Kiever's Model, which he insisted he had sold to the syndicate.

"The syndicate men, however, were not satisfied. They took the hired man over to see the hog they had bought, and the hired man pointed his finger at it and said, like the hero in the melodrama, 'I know you now. You are not the aristocratic Kiever's Model, but the base-born Columbia Wilkes!'

"So the syndicate men posted off to Springfield, and put the hired man in the grand jury room, and the hired man told the grand jury his story, and Council was indicted. The case came up for trial, and the State's attorney was preparing to wage a vigorous prosecution against Council and the false Kiever's Model, when he received an affidavit from Thielander, stating that he had sworn falsely before the grand jury, and that the real Kiever's Model was alive and not moldering in the lonesome grave under the hay-stack.

"The State's attorney thought this settled the matter, and dismissed the case; but it was not to end here. The syndicate members claimed Thielander had been bribed, a position in which they were enthusiastically sustained by the versatile Mr. Thielander himself brought against the members of the syndicate to recover on the note. In the first trial the jury disagreed. In the second, both sides brought experts from every part of the country, to swear for the defendants that Kiever's Model was Columbia Wilkes in disguise, and for the plaintiff that Kiever's Model was the only original.

"Over eighty witnesses were examined, and the jurors were as puzzled as they had been at the first trial, when Council won his suit by checkmating a move of the defense. The defense had exhibited to the jury the hog which they had bought as Kiever's Model, but which they said was Columbia Wilkes. Council went out to his farm, and came back with a hog that he proved to the satisfaction of the jury was the original Columbia Wilkes. With Columbia accounted for, the jury decided that Kiever's Model could be none other than himself.

"So the case was decided for Council, and now he has begun suing the men who have insisted that Kiever's Model was Columbia Wilkes with another with another and his tail trimmed off. Meantime the hired man is silent and mysterious, and is expected to come forward soon with a brand-new sensation."

**THE ELLWOOD STANDARD**

**WOVEN WIRE FENCE** is only one of the 10 styles we make. We call it our standard because it is designed to meet nearly every requirement of the fence user.

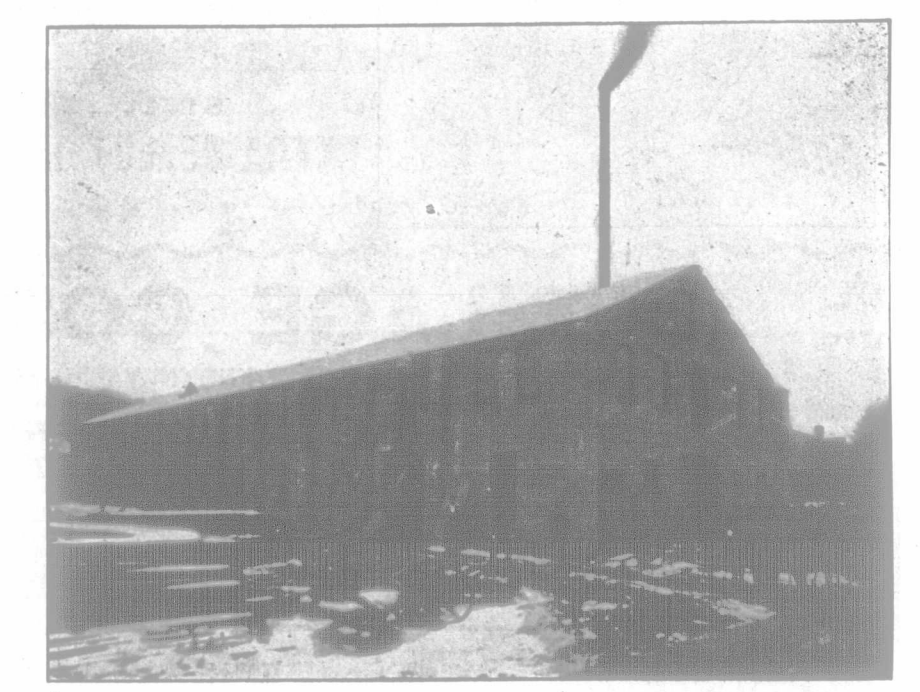
Made in six heights, as you see it in the illustration—for cattle, horses, hogs, pigs and general farm fencing, this is by all means the Standard Fence, outselling every other fence on the market.

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EVAPORATING FACTORY OF J. W. VANDYKE, GRIMSBY, ONT.

Size of walls 45 x 160 x 24 feet. Built with Thorold Cement and gravel, from the bottom of foundation to the roof. All this concrete work was done in 144 days, under the direction of our traveller, Norval B. Hagar.

Capacity of this factory, 2,400 bushels of apples per day.

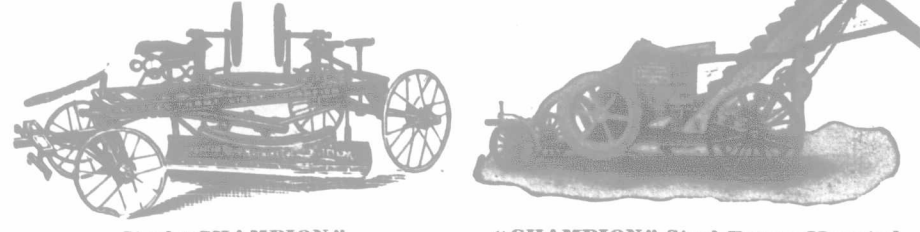
ESTATE OF JOHN BATTLE, THOROLD, ONT.: Grimsby, Ont., Dec. 12th, 1898.

Gentlemen,—It gives me great pleasure to testify to the good qualities of your Thorold Cement. During the past season I built an Evaporator under the supervision of your traveller, Norval B. Hagar, the size of which is 45 x 160 x 24 feet to plate from bottom of foundation, and gables 12 feet high, making in all 36 feet high to top of gables. The first story is 13 feet high and 12 inches thick, the second 8 feet high and 10 inches thick, gables 8 inches thick. I have a concrete floor in first story, and the second floor is held up by trusses. There is not a post in the first story to hold the second. I also built a barn under the supervision of your Robert G. Hagar, size 36 x 70 x 14 feet from bottom of foundation to plate, and I consider I have A1 buildings both in strength and workmanship, for the walls are straight and plumb as any building could be, and they are far cheaper than either stone or brick.

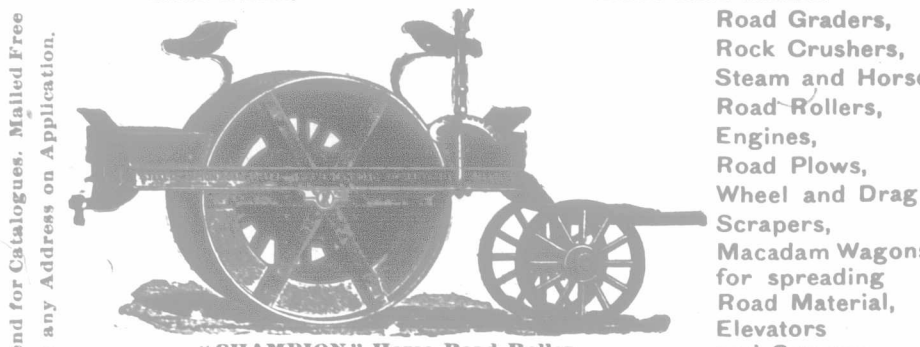
Yours, etc., **J. W. VANDYKE.**

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Steel "CHAMPION" Road Grader. "CHAMPION" Steel Frame Mounted Portable Rock Crusher.



"CHAMPION" Horse Road Roller.

Road Graders, Rock Crushers, Steam and Horse Road-Rollers, Engines, Road Plows, Wheel and Drag Scrapers, Macadam Wagons for spreading Road Material, Elevators and Screens. -om

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"O YES!" Our No. 8 Mower will start in heavy grass without backing the team, and will cut grass any other mower can cut. Will run as easy and last as long. We sell our machines on their merits, and build our reputation on the "quality," not the quantity, of goods we make.

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Farmers! Don't be taken in. There is none "just as good." These twines will not bunch at the knotter, and a Binder will run all day without stoppage, thus saving time, annoyance and a "lot o' cussin'."

We pack our twine in bags of the size of ordinary grain bags, and we are not ashamed to put our name upon it. Don't take any other.

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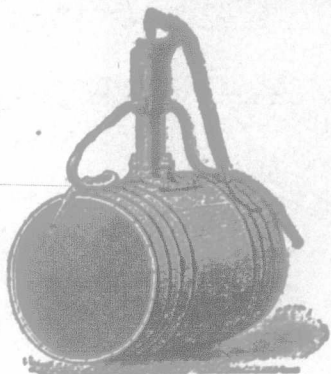
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ONTARIO WIND ENGINE AND PUMP CO.,  
LIMITED.

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### GOSSIP.

On April 27th G. W. Glick & Son, Atchison, Kan., sold 67 head of Shorthorns at Kansas City, at an average of \$110. The cattle were thin and many of the cows due to calve late, and the bulls were chiefly bought for ranching purposes. The highest price was \$225.

The prospects for the sheep-breeding industry are brighter than for many years. There has been a large demand for sheep of all breeds during the past winter, and sales have been very satisfactory. There will be more sheep imported from England this summer than for several years past. We know of nearly a dozen breeders who are contemplating a trip across the sea, and these represent the breeders of both long-wooled and middle-wooled breeds. The improved prices for sheep and lambs in the market are having an effect in stimulating the industry.

The F. W. Stone Estate, Guelph, shipped, May 3rd, fifty-six Hereford bulls to Reynolds Land and Cattle Company, Pan-handle, Texas. This ranch is 200,000 acres in extent, and is stocked with over 12,000 head of cattle, 85 per cent. of which are Herefords. The company have purchased all their bulls for the last twenty years from the late F. W. Stone, the Stone estate, and Alfred Stone, of Guelph. In addition to this shipment, the company have imported 25 bulls from England this spring. They were recently released from quarantine and will join the Guelph shipment at Chicago. W. B. Elliot, Hespeler, and Herbert Wright also shipped the same day two carloads of Shorthorns to Calgary, Alta.

The fourth annual sale of bulls under the auspices of the Lincolnshire Red Shorthorn Breeders' Association was held at Lincoln, April 27th, at which 158 bulls were sold at prices ranging from \$77.50 to \$400, and averaging \$137 each. These were offered by 49 owners who each contributed from one to ten head. This association was organized for the purpose of recording the pedigrees of this local breed of cattle, which have been bred for generations upon the Lincolnshire Wolds, and from the success attained so far they bid fair to take a prominent place in the estimation of farmers generally for feeding purposes as well as for dairy cattle, many of the cows being excellent milkers. They are practically Shorthorns in everything but pedigree, and in this nearly all of them trace in some way to animals recorded in Coates' Herd Book. The Secretary of the Association is Mr. S. Upton, St. Benedict's Square, Lincoln, of whom, or of Mr. W. W. Chapman, Fitzalan House, Arundel St., London, information concerning these cattle may be obtained.

### GOSSIP.

At a recent auction sale of harness horses held in New York 45 animals were disposed of for \$43,150, an average of \$958. The three highest prices were \$3,200, \$3,000 and \$2,500.

Mr. F. S. Peer, Mt. Morris, N. Y., who is now on the islands of Jersey and Guernsey making selections to fill orders from various breeders in the United States and Canada, writes: "Of Jerseys I expect to bring out seven aged cows, ten heifers in calf (due in July, August and September), five yearlings and three heifer calves; one two-year-old bull, one yearling bull and one bull calf. This lot is not selected for show purposes, but they would give a good account of themselves in any company at home and the cows can show at the fair as well. I shall have to buy over fifty head of Guernseys, forty for the States and two small orders for English breeders. I am bringing some Lincoln and Hampshire Down sheep, and Welsh ponies."

Mr. Wm. R. Stewart, of Fort McLeod, N. W. T., who had been in Ontario for over a month, left Guelph April 3rd with 450 head of stockers purchased at Ridgetown for his ranch, and 20 head of Shorthorn bulls selected by Herbert Wright, Guelph Township; a Shorthorn from J. Aiken, Puslinch; a heifer from James Cowan, Paisley Block, and two from Mr. Birrell, Mosboro, together with Concord Boy, a two-year-old Hereford bull from the F. W. Stone estate. He also purchased and shipped the following valuable horses: Britton, heavy draft, from Freeman Thomas, Nassagaweya; the fine bay trotting stallion "Stanton King" from O. Heffernan; Wellington Hull's (Erin) fine bay carriage horse; two-year-old Clyde stallion from N. Dymond, Barrie; four Standard-bred stallions from Dietrich & Dietrich, Galt; carriage team from W. S. Wiener, Brantford; fast pacer from John Scott, Galt; chestnut driver from Alf. Hales, Guelph; Jas. Johnson's fancy trotting mare, "Nancy J." and "Bob Kirk," which took so many prizes. The whole shipment will amount to some \$15,000. Mr. Stewart is a shrewd buyer, a good judge of stock, and enterprising. We wish him success with his shipment.

### NEW BULLS FOR THE COLLYNIE HERD.

Canadian breeders of Shorthorns will be interested in the following particulars concerning four remarkable yearling bulls recently bought to be used in the famous Collynie herd of Mr. Wm. Duthie, of Aberdeenshire, Scotland:

Silver Plate, white, calved December, 1887; bred by James Bruce, Inverquhomery, Aberdeenshire; sire Waverley (68072), dam Rosewood 67th, by Wellington (68076).

Bapton Conqueror, roan, calved January, 1888; bred by J. Deane Willis, Bapton Manor, Wiltshire; sire Red Robin (71536), dam Cyclamen, by Adolphus (68094); second dam Cow-slip, by the champion bull Baron Bridekirk 3rd (60302); third dam Citron, by Gondolier (62756), both bred at Sittytton.

Lovat Champion, red, calved March, 1888; bred by Lord Lovat, Beauford, Beaulieu, N. B.; sire Royal Star (71502), dam Victoria, by Proud Duke (66713), running back to Broadhocks 10th, by Champion of England. Lovat Champion is the best yearling bull shown at any of the spring shows last year. He took first in a large class at Inverness, the Shorthorn Society's prize, and the championship of the show. He was bought by Mr. Duthie for Collynie at 200 gu. by public sale in February last.

Scottish Champion, dark roan, calved March, 1888; bred by Mr. Marr, Uppermill; sire Wanderer (60136), dam Mary, by Lord Byron (54580), tracing to Faithful, by Champion of England. Scottish Champion was bought in October last by public sale for 200 gu.

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