

**PAGES
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THE FARMER'S ADVOCATE

AND HOME MAGAZINE

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

Vol. XXXII.

LONDON, ONT., AND WINNIPEG, MAN., APRIL 1, 1897.

No. 427.

EDITORIAL.

Canadian Cold Storage.

ARRANGEMENTS COMPLETED BY THE MINISTER OF AGRICULTURE—REGULAR SERVICE BY TRAIN AND BOAT—SUPERVISION AT PORTS—WAREHOUSES—SPLENDID PROSPECTS.

We are pleased to be able to announce that arrangements for cold storage service from Canada to Great Britain have been practically completed by Hon. Mr. Fisher, Minister of Agriculture. The lines of steamers with whom arrangements are made are: The Elder-Dempster Co., Montreal to Avonmouth; the Allan and Thompson lines, weekly, Montreal to London; the Allan and Dominion lines, weekly, Montreal to Liverpool; with possibly the Allan and Thompson lines weekly to Glasgow; also the Furness line, from St. John, N. B., and Halifax, N. S., to either Liverpool or London fortnightly.

The main lines of railroads in the country will run refrigerator cars to Montreal, St. John, and Halifax, by which perishable food products will be carried from all over the country to the ports of shipment. It is proposed to have in Montreal this summer an officer who will supervise the transference of these products from rail to the ship—a very judicious provision. There are cold storage warehouses in Montreal, and there will be one in Halifax, and probably in St. John, at which these products can be held until a ship is ready to receive them. We understand the Minister has offered to make an arrangement with people in Toronto to have a warehouse there, and one in Charlottetown, P. E. I. In this way it is believed the temperature in which our perishable products will be held can be controlled from the point of shipment to the English harbors. Butter, eggs, dead meat, and fruit are the chief articles expected to make use of these arrangements; cheese will, during the hot weather, probably also be sent in cold storage.

The enquiries that have been made as to this accommodation indicate that even greater demand will be made upon the space than was anticipated, and we trust with confidence that at the end of the first season there will be a cry for more accommodation.

The Value of Succulent Food.

In the FARMER'S ADVOCATE for March 1st, Mr. Richard Gibson, in his article on "Practice, with Science," raised an important question as to the questionableness of a rigid mechanical adherence in feeding to the "balanced ration" idea without regard to other considerations. Among other things he said: "In working out these prepared tables one is apt to doubt their value when turnips are tabulated in such a ridiculously low place by the chemist, and yet the practical feeder well knows their value is much higher than that assigned. Is it not possible that the water in roots is something more than ordinary water?" In the important contributions from a number of the foremost investigators of America, elsewhere in this issue, on "The Feeding Value of Corn Ensilage," this question is raised in another form, and Prof. Plumb gives support to Mr. Gibson's position in these words: "There is a something in this succulent food that gives it a value that cannot be measured by a chemical analysis." Nature does seem able in her great laboratory to so combine a large proportion of water with the nutrients in a way that when it reaches the animal seems to set at naught inferences that seemingly might be drawn from the scientific table. But there is no conflict between real science and good practice; for the two must harmonize. If there seems to be, then the former has not solved or correctly stated the mysteries of animal nutrition, as its results, for example, are manifested in the use of roots and ensilage.

Free Seed Scandal.

Attention was drawn in the last issue of the ADVOCATE to the free seed business as developed in the United States. The old and well-known firm, Peter Henderson & Co., of New York, who are this year celebrating their fiftieth year in business, under date of March 20th write us, referring to the article in question, as follows: "We have already woke up to the seriousness and alarming nature of the Government free seed distribution as proposed for the present year, and we are glad that you are sounding the note of warning in the Dominion, for we notice they are getting 'the thin end of the wedge' placed there, and if it is not carefully watched, in the hands of the professional politician it will become as great a menace to the public good as ours has grown into here."

The last Congress failed to pass the Agricultural Appropriation Bill in time for the President's signature, but the new House has passed the same bill, which may yet be stripped of the obnoxious free seed provision in the Senate. Leading journals, irrespective of politics, all over the Republic are denouncing this costly humbug.

The New York Tribune, one of the oldest and by all odds one of the most trustworthy and influential of U. S. journals, in its issue for March 24th, just to hand, devotes its leading editorial to this subject, and though strongly Republican, it commends the late Secretary of Agriculture Morton (Dem.) for his opposition to "this whole wasteful, dishonest, and scandalous business." Originally it was intended to distribute for experiment foreign and other rare seeds which agriculturists could not readily obtain, but the free distribution of ordinary seeds at national expense the Tribune denounces as "the enemy of intelligent and self-respecting farmers, as well as of sound principles of government and the rights of the taxpayers of the nation. It should be abolished utterly and at once."

The Dingley Bill.

The new U. S. tariff measure has been submitted to the House at Washington (where it is now under discussion) by Chairman Dingley of the Ways and Means Committee, from whom it takes its name—the Dingley Bill. We give below the main features of the agricultural schedule of interest to Canadians, setting forth at the same time the rates under the old McKinley Bill and the Wilson Bill, adopted during the late Cleveland regime. Substantially it is a resurrection of the first named highly protective measure, but designed also to provide funds to cover the enormously increasing cost of managing the Republic. It will doubtless have the effect of preventing any material letting down of corresponding bars on the Canadian side of the international lines; though reductions may be made where in the judgment of Parliament it would be in the general interests of this country. Since the advent of McKinleyism Canadian trade with Britain has steadily and largely increased. Barred in one direction, it sought new channels, and even the relaxation of the Wilson Bill failed to divert trade into the old groove. Dingleyism will effectually complete the work. The Canadian cheese industry furnishes an example of how an immense and profitable trade can be developed. We have been enabled to displace U. S. cheese in the British market, and can crowd out their products on the score of quality in most of the great agricultural staples—wheat, animals and their products, fruit, etc. Moreover, the Canadian is proverbial for his "staying" characteristics. Our friends over the way seem to be terribly exercised over a few second-grade Canadian feeding cattle, which, however, they are exceedingly anxious to get to consume their surplus cheap corn, and Mr. Dingley may shift this little Buffalo skirmish to the great battle-

ground—Liverpool, but the inexorable laws of trade will lead to the same inevitable result.

Canadian trade will continue with greater rapidity to develop Britainward. Mr. Fisher, the Canadian Minister of Agriculture, has completed his transportation and cold-storage plans. He and the Government will be heartily sustained by the sentiment and business judgment of the Dominion in facilitating trade with Britain in order that Canadian products may be laid down there at reasonable rates and in the best possible condition. If there be any preferences going in the Old Land, Canada will assuredly get them, but we do well to rely solely on merit. A substantial shading off of the tariff on British goods should help to promote this trade, strengthen national ties and to some extent lighten the farmer's burdens. Canadian national and trade tendencies are clearly discernible in the light of the Dingley Bill. Here is the list, which speaks for itself:

ARTICLE.	M'KINLEY BILL.	WILSON BILL.	DINGLEY BILL (1897).
Horses under \$150.....	\$30	20 per cent.	.....
" \$150 and over.....	30 per cent.	20 "	.....
" \$100 or less.....	.....	.....	\$20
" over \$100.....	.....	.....	25 per cent.
Cattle, 1 year or less.....	\$2 head.	20 per cent.	.....
" over 1 year.....	\$10 head.	20 "	.....
" less than one year.....	.....	.....	\$2
" 1 year or over, not more than \$20.....	.....	.....	\$6 head.
" more than \$20.....	.....	.....	30 per cent.
Sheep under 1 year.....	75 cents.	20 per cent.	75 cents.
" 1 year or more.....	\$1.25	20 "	\$1.50
Hogs.....	\$1.50	20 "	\$1.50
All other animals.....	.....	.....	20 per cent.
Wool, per pound.....	12 cents.	Free.	12 cents.
Bacon and hams.....	5 cents lb.	20 per cent.	5 cents lb.
Fresh beef.....	2 "	20 "	2 "
" mutton.....	2 "	20 "	2 "
" pork.....	2 "	20 "	2 "
Lard.....	2 "	1 cent lb.	2 "
Poultry, live.....	5 "	2 cents lb.	3 "
" dressed.....	5 "	3 "	5 "
Barley.....	30 cents bu.	30 per cent.	30 cts. per bu.
Buckwheat.....	15 "	20 "	15 "
Corn.....	15 "	20 "	15 "
Cornmeal.....	20 "	20 "	20 "
Oats.....	15 "	20 "	15 "
Oatmeal.....	1 cent lb.	15 "	1 cent lb.
Wheat.....	25 cents bu.	20 "	25 cts. per bu.
Wheat flour.....	25 per cent.	20 "	25 per cent.
Butter.....	6 cents lb.	4 cents lb.	6 cents lb.
Cheese.....	6 "	4 "	6 cents lb.
Milk.....	5c. per gal.	Free.	2 cts. gal.
Beans.....	40 cents bu.	20 per cent.	50 cts. per bu.
Eggs.....	5 cts. doz.	3 cts. doz.	5 cents doz.
Hay.....	\$4 per ton.	\$2 per ton.	\$4 per ton.
Honey.....	20 cts. gal.	10 cts. gal.	20 cents gal.
Onions.....	40 cents bu.	20 cents bu.	40 cts. per bu.
Potatoes.....	25 "	15 "	25 "
Castor beans.....	50 "	25 "	25 "
Apples.....	25 "	20 per cent.	25 "
Dried Apples.....	2 cents lb.	20 "	2 cents lb.
Flaxseed.....	30 cents bu.	20 cents bu.	30 cts. per bu.
Grapes.....	60 cents bri.	20 per cent.	1 ct. per lb.
Dressed Flax.....	.....	Free.	1 ct. per lb.

The schedule for lumber, shingles, lath, posts, etc., follows the same general lines as on the above products.

As heretofore, pure-bred registered stock for breeding purposes is admitted free.

Corn and Root Crops.

The able and practical letters furnished by our correspondents as to their methods of cultivation and management of corn and root crops will no doubt be read with interest and we trust may be helpful, especially to those of our readers who have not had as good success in these lines as they could desire.

The partial, and in many sections almost total, failure of the hay crop, owing to late spring frosts and protracted summer drouths in recent years, has led farmers to look about them for a substitute as a fodder crop, and corn, the great American forage plant, has been found to fill the bill admirably. As a result of this need, and for the silo, a considerably increased acreage of corn was grown last year throughout the country to provide for the feeding of stock during the winter and to supplement the depleted pastures in the late summer and fall months. This liberal supply of succulent fodder proved a great boon to a large num-

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2. It is impartial and independent of all cliques or parties, handsomely illustrated with original engravings, and furnishes the most profitable, practical, and reliable information for farmers, dairymen, gardeners, and stockmen, of any publication in Canada.
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ber of farmers the past winter, enabling them to bring their cattle through in good condition at less cost than could have been done by any other means.

The advantages of the silo as a means of preserving corn fodder in a compact and convenient form for feeding are now generally admitted, and the cost of constructing a silo in some of the simpler forms has been reduced to a point where the average farmer need not hesitate to adopt the system. It is very difficult to preserve corn fodder late in the season and towards spring; also, the root supply runs low at a time when a succulent ration is particularly needed. At this point good ensilage supplies a want not easily filled in any other way, and not a few dairymen find it advantageous for supplementing short pastures.

But whether the reader adopts the silo or not, the man who is liable to be short of winter feed for his stock, and who would be in a safe position, will do well to plant a few acres of corn, which, if cut and cured in proper time, may be stored in such a way as to prove a valuable supply of fodder for cutting and mixing with other foods. One point we might emphasize. Choose a variety of corn adapted to the locality, and cultivate so that leafy stalks of good size, well eared and well matured when required for feeding or for the silo, will be produced. Presuming that a largely increased area of corn will be planted the coming season, and that an expression of the experience of successful corn growers would be appreciated, we would be pleased to receive letters from any of our readers who have additional points of value to contribute on the mode of soil preparation and cultivation, varieties found most suitable to their section of country, time of sowing, harvesting and storing.

While the question of corn growing is receiving increased attention and discussion, the root crop, the tried and trusted stand-by of successful stock feeders, should by no means be neglected, but should be even more carefully attended to than in the past, for even the most successful corn growers who are feeders of stock will not, as a rule, affirm that corn in any of its forms will supply the place which roots fill in developing young stock to their best possibilities, in fattening cattle or in producing a generous flow of milk in dairy cows, mangels being preferred for the latter. There is a virtue in our succulent root crops which has shown its excellence in the superior quality of Canadian stock in no uncertain results whenever they have come into competition with the corn-fed animals across the lines in the land where "corn is king." And our people will do well to think twice

before relaxing their efforts to hold the place of supremacy they have attained and which they owe in no small degree to our magnificent root crops, which have formed an important part of the winter ration of our stock. There are very few sections of our country and very few classes of soils in which corn and roots cannot both be successfully raised if the land is properly prepared and cultivated, and we commend to the careful consideration of our readers the methods pursued by successful men as outlined in the correspondence on these subjects.

A Notable Feeding Test.

The extensive test carried on at the farm of Hon. Mr. Mulock, reported elsewhere in this issue of the FARMER'S ADVOCATE, comparing the merits of feeding steers loose (dehorned) and tied, gave such a decided result in favor of the former that it will attract widespread attention. Our representative made enquiries of other parties familiar with the experiment, and all bore testimony to the fidelity and care with which it was carried on. It throws a strong light on the non-exercise theory advanced, unwisely we have always contended, by some, particularly for dairy cows, and by others for fattening steers. A difference in gain of 100 pounds per head from November to May on the same feed is too great to allow this subject to be dropped. If other tests verify this result, the experiment will prove one of the most advantageous ever carried on in this country. We would like to hear from other feeders who, from actual experience, can give any testimony upon the points raised.

"How to Meet Low Prices."

The above subject was the title of an excellent paper given by Col. O'Brien before the East Simcoe (Ontario) Farmers' Institute recently, and published in the Orillia Packet. He entertained very little hope of a rise in prices for farm products, but advised his hearers, by increased knowledge and better methods, to increase the quality and quantity of their productions; in short, to grow two bushels of grain where only one grew before; to churn two pounds of butter where only one was obtained before; to make two pounds of beef or pork at the same cost that was required for one; to cut two tons of hay from the meadow from which only one was cut before; to take one thousand bushels of roots from an acre of land instead of five hundred. In conclusion Col. O'Brien said:

"Let me briefly sum up a few of the ways in which money may be wasted, and, on the contrary, saved; the pressure of low prices increased, and, on the contrary, relieved. In the breeding of stock it is waste to save money in the service of the male animal. It is economy and a source of profit to obtain the best suitable to our conditions. It is waste to save money by letting our stock live through the winter on the outside of a straw stack. It is economy and a source of profit to house them well and feed them well. It is waste to leave our stock to the care of the chore boy, or the man that we engage for the winter for his board. It is economy for the farmer to look after it himself, and see that the food is carefully and economically given, the stables kept properly clean, and the condition of the animals closely watched. It is waste to feed cattle upon straw and sell all one's hay and grain. It is economy and a source of profit to convert these articles into meat to sell and manure to make our fields more fertile. It is waste to buy expensive machinery and leave it exposed to the weather. It is economy to keep it under cover and in good order. It is, in short, economical and profitable to keep expenses within one's means, and avoid speculation—to convert the raw material of the crop into the finished article of beef, pork, mutton, and butter and cheese for the market, and manure for the production of still better crops, and thus to attain the desired end of meeting the pressure of low prices by economy of method and increase of production."

Restoring Fertility.

Mr. F. Marshall, of Frontenac Co., Ont., writes as follows:

"The plan of cultivation of the land as practiced by Mr. Rennie, Supt. of the O. A. C. Farm at Guelph, is entirely different from any system used here. An opinion regarding it from successful Western agriculturists would be interesting, I think, to many."

One of the most vital questions affecting a large proportion of the farmers of the older Provinces at the present time is that indicated by the heading of this article. The systems of overcropping and of selling the fertility of the farm in the shape of grain and other products, while feeding the little stock and thus making the little manure go back upon the land, is largely responsible for the condition of the average farm. This condition has been seriously aggravated in the last few years

by protracted drouths, extending over considerable areas and resulting in a total failure of the clover crop, which was and must be the principal means by which the farms can be restored to and kept in a state of fertility. The failure to secure a catch of clover has led to plowing and cropping land which should have been resting and recruiting, but has instead been losing heart and becoming more impoverished from year to year.

The question how best to manage such lands in order to restore their lost fertility, or, in other words, to furnish them with the necessary humus or vegetable matter in available condition for assimilation by the clover plant and cereals, is the question uppermost in many minds at the present time.

Mr. Rennie, Farm Superintendent at the Ontario Agricultural College, in his addresses at a number of Farmers' Institutes during the present winter has discussed this question in a very interesting way, and has related to the farmers his own experience and his methods in regard to this matter in such a manner as to arouse great interest in the minds of his hearers and those who have read of his system, which is the practice of a four years' rotation of crops, plowing only once in four years and practicing shallow cultivation as the preparation for the intervening crops. The rotation consists of two years in clover or a mixture of clover and timothy, one year in roots, corn and peas, one year in wheat or spring grain which is seeded to clover again. The clover sod is plowed down in the late summer and treated to shallow cultivation during the autumn in order to rot the sod and start weed seeds. Manure is applied and worked into the surface, and the whole land is ridged up with a double-moldboard plow into narrow drills, water furrows being run in the low places. This leaves the land in good shape for drying early in the spring, when the land is leveled and prepared for the seed by the use of the harrow and cultivator, and is planted with roots, corn and peas. The land upon which peas are grown is treated to shallow cultivation after the peas are harvested, and is sown to wheat, which is also seeded to clover. The corn and root ground is also given shallow cultivation after harvesting these crops, and is ridged up in the same narrow drills in readiness for being seeded to grain and clover in the following spring.

By this system about one half the farm is kept in grass, and when a sufficient area of the land is in good enough heart the rotation may be shortened by plowing after the first crop of clover and preparing by autumn shallow cultivation for grain in the following spring, to be reseeded with clover.

Mr. Rennie's theory and practice comes like a revelation to the great majority of farmers who have been taught to "plow deep while sluggards sleep," who have practiced summer-fallowing with its three or four plowings in one season, and have supposed that in order to succeed a little more of the subsoil must be brought up every year, but it is only in keeping with the changes which are constantly taking place in most lines of activity all around us. We are living in a new era. New ideas and methods are being generated, new theories are being advanced and put into practice, great changes are taking place in the agricultural world as well as in other walks of life. Many of the theories which were advanced by medical men a quarter of a century ago are now abandoned and held to be erroneous in the light of new discoveries. The same thing may be said of many other professions, and should not new theories and methods prevail in regard to farming?

Mr. Rennie's system, in the main, commends itself to reason and common sense. The great need of the farm is humus—nature's great restorer—which she invariably applies as a top-dressing in the form of leaves and grass, which makes a mulch, conserving moisture, and which, decaying, furnishes food for plants in the very best form possible. Sufficient barnyard manure cannot be produced on the ordinary farm to keep up its fertility, and clover is the cheapest substitute for stable manure, producing at once a valuable fertilizer in its roots and a rich food for stock in its vines, and storing up nitrogen drawn largely from the atmosphere, which is made available for the succeeding crop if it be not buried out of reach by deep plowing, which brings cold clay to the surface having little available food for the young plants when they most need it.

It would seem scarcely necessary to say to our intelligent readers that Mr. Rennie's system, excellent and commendable as a rule, may not be suitable or practicable under all circumstances, on all soils, and in all sections of the country, and that judgment must be used in regard to its adoption wholly or in part.

For instance, on clay soils which are not under-drained, and where the practice is to plow the land in ridges of 12 to 14 feet in width to facilitate surface drainage and prevent heaving out of wheat and clover by frost, a modification of Mr. Rennie's system in regard to ridging may be adopted while conserving its main features as to rotation and cultivation. Again it may not be possible in all cases to adopt in its entirety this exact system of rotation. The clover sod may not be available to commence with, and the previous management may not fit in with the new system to begin with. In such cases the best that can be done is to adopt the general principles as early as the circumstances will admit, and let one's own judgment as to whether the Rennie system is the best system to adopt in all cases.

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London Hackney Show.

The thirteenth annual show of Hackneys under the auspices of the English Hackney Horse Society was held at Islington, March 2 to 5, inclusive. The entries numbered 485, against 442 in 1896. In every section good animals were in evidence. In each of the young classes the blood of such sires as Danegelt, Garton Duke of Connaught, Ganymede, Cadet, His Majesty, and Danebury flowed in the veins of a number of the winners. The junior championship was unhesitatingly placed to the credit of Sir Walter Gilbey's three-year-old Royal Danegelt; Matchless II., by Lord Derby II., out of a Danegelt mare, winning the reserve award. The senior champion was picked from a grand collection, viz., Rosador, Rosencrantz, Gentleman John, Saxon, Winald Fireaway, and Polonius. Rosador, by Danegelt (afterwards supreme champion), was finally placed first, followed by Gentleman John, by Lord Derby II. The championship mares were little if any easier to judge than those of the sterner sex. The junior cup fell to Lady Crompton, by Grand Fashion II., out of a Danegelt mare; the reserve going to the yearling Clairvoyante, by Ganymede. The senior championship mare was found in Orange Blossom, by Connaught, and reserve in Bonwick Belle, by the same sire. The challenge cup and gold medal (for the second time) was also taken by Orange Blossom; reserve, Bonwick Belle.

Early Shearing of Sheep.

It is, we believe, the practice of many of the most successful flockmasters in the Dominion to shear their yearling sheep, especially, and if in good condition, their breeding ewes as well, early in April, claiming that the sheep thrive much better through the warm spring months free from the weight of their coats. There are several advantages in this practice, among which is the one above indicated; another is getting the work over before spring seeding commences. Sheep with heavy fleeces on are liable in the warm spring days to get cast upon their backs and may die before being discovered. If they are infested with ticks they suffer severely from this cause and cannot thrive as they should. Shearing and dipping early prevents this loss. The sheep will have longer wool on in the fall when they are more generally offered for sale, and will on this account present a more favorable appearance and bring a better price. There is very little risk of the sheep taking cold if the shearing is done in mild weather and they are kept out of drafts for a few days. They do not seem to mind it at all and are vastly more comfortable without their wool. The only objection that can be urged against early shearing is that dealers are apt to make too great difference in the prices of unwashed wool as compared with washed. It is generally considered fair by breeders to deduct one-third the weight for unwashed wool. Dealers generally want to make the price less favorable, but there is not so much prejudice against unwashed wool now as there was a few years ago, and we think that one-third off is as much as the farmer should submit to; but even if he has to take a cent or two less than this, the other advantages in early shearing more than compensate for any loss in this respect. Let the ewes be sheared as soon as the weather and their condition will justify, then let the lambs be dipped for destruction of ticks in a few days after shearing the sheep, and you give the whole flock a fair start to make the best use of the early bite of green grass and the best returns for the care bestowed.

Since writing the above we have received answers, in reply to an inquiry, from wool dealers in Toronto, in which they claim that the reduction for unwashed wool should be from 40 to 50 per cent., according to condition of wool. A London, Ont., dealer would put the shrinkage at from 25 to 50 per cent., depending upon the condition of the wool and how the sheep have been fed and cared for. He found less shrinkage on the short wools. If proper care has been observed to keep the wool free from dirt, we are of the opinion that a fair reduction would not be above 33 per cent.

Hog Raising.

BY T. H. MASON, ELGIN CO., ONT.

The importance of this branch of agricultural industry to the Ontario farmer can better be appreciated by the study of some statistics. Our exports of ham and bacon to Great Britain in 1891 were a little over half a million; in 1896, \$4,382,000. At the same time, our imports from the United States have fallen from about \$1,500,000 annually to a merely nominal amount. This shows conclusively that it is the British market that the Ontario farmer has to cater to. This market demands a long, well-fed hog, well streaked with lean, and weighing from 150 to 225 lbs., live weight, preferably 180 to 200 lbs., and our packers to-day are paying from \$1.00 to \$1.25 per cwt. more than they will pay for the fat, heavy hogs that formerly were in so much demand. Now, if the British markets demand this class of hogs, and are willing to pay for them, it is to our interest to produce them, because we can produce these weights cheaper than we can the heavy weights. This point, increased cost of production with increased weight, has been proven time and again by experiments at Ottawa, Guelph, and the leading experimental stations of the United States. No one breed has a monopoly of

the good points essential to this trade. Yorkshire, Berkshire, Tamworth, Chester White and Poland-China are all suitable if judiciously selected and properly fed. Probably a first cross of the longer breeds with the shorter classes will give the greatest satisfaction to feeder and packer alike.

Breeding sows in summer should have clover or grass pasture with plenty of water, and a shelter. If pasture should fail, some other food must be fed so as to keep sows in good, strong, healthy condition. Sows should never be allowed to get thin and weak, as it is quite possible to starve a litter of pigs before they are born. Sows in winter should have run of yard, a moderate amount of roots (sugar beets preferred), and a small feed of grain daily. Ensilage may be substituted for roots.

About two or three weeks before farrowing, sows should be separated from other sows, fed on warm, sloppy food—bran, shorts, ground oats are all good—so as to make sure that the sows have plenty of milk; feed lightly after farrowing, then increase feed as the needs of the growing pigs demand. Castrate while still on the sow, at three or four weeks of age. Have a part of pen separated off and feed little pigs scalded wheat, shorts and sweet skim milk. Sows should have two litters annually. Spring litters should come, if possible, last of March or first half of April; fall litters, as early in the fall as possible. Avoid winter litters, if possible; no matter how comfortable the quarters, or how well they may be handled, they rarely prove as profitable feeders as pigs coming in April. Spring litters should be weaned at say five weeks of age, if you have plenty of sweet skim milk for them; if not, let them go to seven weeks. By weaning at five weeks you have your fall litters that much earlier, which is important. Wean fall litters at say eight weeks old, so as to keep spring litters back until April. Spring litters are on the whole most profitable. As soon as clover is large enough turn sow and pigs upon it. When pigs are weaned, if fences are right, let them run on clover. Feed all they will eat up clean three times daily: at first scalded wheat, shorts or middlings, and milk, then later gradually work in with the shorts whatever surplus grains you may have on the farm. Peas, corn, barley, rye, oats, all are good. Pigs fed in this way give better returns from the grain fed, their digestive organs are stronger, and there is considerable food value in the clover. Fall litters will not stand as heavy feeding as spring litters. Especial care should be taken to keep the beds dry, to give a supply of wood ashes and charcoal, some sods or earth, and to feed a few roots daily. Spring litters should be ready for market at from four and one-half to six months old; fall litters at six to seven months. At present prices of shorts and grain at Western Ontario points, spring litters should not cost over 2½ cents per lb., live weight, and fall litters not over 3 cents per lb., live weight. To sum up:

- (1) Especial attention to constitution and feeding quality in parents.
- (2) Clover pasture in summer—some roots in winter.
- (3) Liberal feeding from start to finish.
- (4) Market at as early an age as possible.

Our Scottish Letter.

SUCCESSFUL BULL SALES—THE SHIRE HORSE SHOW. Canadians do not like—at least, at the outset they strenuously opposed—the policy of compulsory slaughter at the port of landing in this country. Their view then was that this system would have a bad effect on Canadian stock-breeding, and, as a rule, farmers here were not disposed to dispute that contention. Whether Canadians are still of that opinion it is not for us to say. Having no immediate means of knowing, it would ill become us to dogmatize. The recent series of bull sales have made it abundantly manifest that the effects of the policy on the breeding of home cattle has been altogether beneficial. Seldom indeed have prices equal to those recorded during the past few weeks been received here, and this applies to all the breeds. At Perth the average price of 210 Aberdeen-Angus bulls was £30 7s. 6d.; another gross average for 279 animals of that breed of all ages and both sexes was £28 9s. 5., a figure never before reached in the history of these great sales, except in 1884, when 45 head made £29 13s. 7d. The black bulls are in extraordinary demand, their impressiveness for crossing with horned breeds being the great point in their favor. The produce in nine cases out of ten is invariably black, and polled, and calves of this type can be sold for 50s. apiece almost as soon as dropped. The highest priced bull at Perth was Mr. William Whyte's Jipsey Baron—a grand specimen for which the Marquis of Huntly paid £252, a fair figure for a yearling bull. At Aberdeen 215 pedigree bulls of the same breed made £22 8s. 1d. of an average—a capital price considering that there were no fancy figures and that all were sold, as we say, for crossing purposes. These figures fairly gave the black polled race the start and none of the other breeds have come within measurable distance of it, taking numbers into consideration. Apart from numbers, the highest average so far this season has been made by the Highlanders. At their great sale held in Oban on 25th February, 46 bulls made an average of £32 14s. 2d. each, and the highest price was £120, paid by Mr. Thom, the proprietor of the island of Canna, in the inner Hebrides, for the Ensay yellow bull, An Caraid 1173. It is very remarkable indeed to find such prices being paid for the old, slow-maturing race, but it is a most healthful token

when this is so, because the character of very much of the soil and climate of Scotland renders any other kind of farming impossible except that in which the Highlander plays a very important part. Mr. Stewart, of Ensay, has one of the best folds in the country and he is difficult to beat, whether in the sale-ring or the show-ring. The price realized for An Caraid is all the more noteworthy seeing he was an unfed bull and he was not placed in the show-ring. It was blood which sold him, and that is the thing wanted along with merit. The highest priced A.-A. bull, Jipsey Baron, is from a herd in which genuine merit has never been sacrificed to fancy breeding. Mr. Whyte's cattle are large framed, somewhat strong in the bone, and always come to the front with commercial men. The breeding men are realizing that that is the sort by which money can be made, and there is less disposition than formerly to run for fancy points only.

The first of the Shorthorn sales was held at Penrith on the 18th of February, when Mr. Thornton disposed of a fine lot of sound, big, well-fleshed bulls, chiefly of the Booth and Bates class as distinguished from the Aberdeen type. Eighty-three bulls were catalogued and £126 was paid for the champion—a fine bull, named Magician, owned by Mr. Barnes, Baurgh, Wigton. The others sold well and an excellent demand was experienced. About a fortnight earlier Mr. Thornton dispersed one of the best herds in Cumberland, that built up with great care by the late Mr. John Strong, Crosby, Maryport. The history of this herd is very interesting. It originated with cattle of the Shorthorn type selected by Mr. Strong in the dales and on the fells of Cumberland and Westmoreland. These he graded up by the use of carefully selected pedigree bulls until he had a fully registered herd and one which was known far and near as composed of sound, healthy cattle, most of them having quite a unique reputation as milkers. The averages at this sale are worth noting: Sixty cows and heifers made £29 18s. 1d. and 13 bulls made £24 16s., the gross average for 73 head of both sexes and all ages, including calves, being £29 apiece. To return to the bull sales. We are still in Cumberland. The biggest event of the season in this line is the sale conducted by Messrs. Harrison & Son at Carlisle. The cattle are characterized by greater size than the Scottish sort, and some idea of the work to be got through by the auctioneer in one day may be inferred from the presence of 333 in the catalogue. There is a special class of white bulls much in favor on the borders for crossing on to Galloway cattle, the result being the famous blue-grays of which much has been heard. This year somehow these bulls did not sell quite so well, probably because there were rather many of them. For the others the demand was very steady and trade was good. At the Perth Shorthorn bull sale 203 bulls made an average of £26 5s. 6d., the corresponding figure for last year being £26 15s. 6d. The numbers were, however, much greater this year, so that the result was quite as satisfactory. It is an indication of the good effect of the cattle policy of the present government that the average price of bulls is £5 higher in 1897 than it was in 1895. At the Aberdeen sale the average price of 26 Shorthorn bulls was £28 17s. 2d., and at Inverness, where perhaps the best young Shorthorns of the season were seen, the Dunglass herd had an average of £32 12s. 6d. for seven and Rosehaugh had an average of £31 15s. 3d. for four. Gordon Castle had £33 1s. 6d. for two, Balnakyle had £31 13s. for seven, and Findon had £32 11s. for four. Perhaps the best bulls at this sale were not sold. Two splendid specimens were exhibited from Rosehaugh which will be further heard of. They were put in at a reserve of £150 each. So much for cattle.

Horses are now in the front. Last week the Shire Horse Show was held in London and another grand display of the breed was seen. As has been the case for several years past, the leading honors have been secured by the produce of Harold 3703, the Calwich stud horse, and himself one of the most popular horses seen in London since the show began. The champion horse was Mr. Henderson's Markeaton Royal Harold and the champion mare Mr. Grendage's Queen of the Shires. The former we care little about. He is a big, loose kind of horse, with little quality, but the mare is of quite the type which Scotchmen like if her feet were only larger. She has a fine head and neck and a grand back. A Clydesdale man prefers more quality of bone and a better kind of hair, but we have not seen many Shire mares of the kind which please in the North. One such is a gray mare named Bluetail, owned by Lord Llangattock, a Welsh peer who loves a good horse and is spending much on Shires. Bluetail is a lovely mare, but the English judges are not fond of her. She shows too much quality for them, so they put her back. The judges this year showed a strong determination to revert to the old-fashioned type of Shire; that is, the class with the round bone and coarse joints. Whether this is a wise policy we do not say, but from personal observation in the hall we should say it was decidedly popular. Having followed the Shire horse shows now continuously for about ten years, it does not appear to us to admit of doubt that the Clydesdale can always beat the Shire if breeders and judges will give careful heed to size and weight. The Clydesdale has the quality, and what is wanted is to keep the lorry in view. There is a big market for the right kind of lorry horses, and the judges should try to help breeders to produce such. "SCOTLAND YET."

The Dominion Postmaster-General's Farm-- An Important Steer Feeding Test.

The farm of the Hon. Wm. Mulock, M.P., which is situated three miles north of Aurora, Ont., was visited by a representative of the FARMER'S ADVOCATE last week, who found it a very complete establishment in every respect. The farm of 200 fertile acres presents a fine appearance and is well equipped with substantial buildings, built with the special view of feeding a large number of beef cattle every year. Some interesting and important experiments have been conducted that merit very careful study. There are a very small percentage of feeders who have undertaken such extensive experimental work, in one particular direction at least, as has Mr. Mulock. The results are certainly noteworthy. His system of feeding has been as follows: The animals (steers) are purchased at two and three years old under the personal supervision of Mr. Wm. Linton, the well-known breeder of Shorthorn cattle, of Aurora, Ont., who, we may add, is Mr. Mulock's manager, and who pays frequent visits to the farm, being only some three miles distant. Only such animals as show good beefing qualities, with as much Shorthorn breeding as is possible to obtain, are bought, and we may say that the country might be gone over and a smoother, more likely lot would be hard to obtain than the present stock--some eighty head which Mr. Linton purchased at the Toronto market last fall.

The animals are bought the latter part of October and first of November. They are run on or fed the turnip tops as long as they last, during which period they are dehorned and allowed sufficient time to heal before being housed. They are placed in a large, loose stable or pen, 116 x 36 feet, having good sanitary arrangements, well lighted on all sides by windows twelve feet apart, ventilated by three large spouts running to the roof of the barn, and having a cement floor. The ceiling is over twelve feet high and the feeding troughs are located around the outside, and when completed will be so arranged as to be raised to the barn floor above, the feed placed in and lowered at the proper time, thus not taking up any room whatever only during feeding time. The feed consists of ensilage, pulped roots, cut oat straw, bran, ground corn, and oil meal, all mixed. A trough at the end of the stable is supplied with running spring water, as is also every stall about the place.

Last year a number, some 38 head, were purchased, 20 of which were dehorned and turned loose as above described, the balance being tied up in stalls. All were fed exactly the same mixture and same weight per animal, and from November 5th until May 5th, 1896, when they were sold, the animals that were tied up made an average gain per head of 235 to 240 lbs., while those in the loose stall gained a little over 400 lbs. It has been noticed that those animals which bled freely at dehorning made the greatest gain, and further experiments are anticipated along this line later. They were weighed individually when put in, every month after and at the close, and were a very even lot to start with.

The grain is all ground on the farm by wind power, which also pulps the turnips, cuts the straw, as well as the marsh hay which is used for bedding. The manure is removed from the stalls three times during the winter and piled up in the field and in pits to rot.

The ventilators are used also to throw down the bedding, having a door level with the barn floor--an idea of Mr. Linton's.

The farm implements are all stored in a building for the purpose as soon as the season's work is over, carried to the third floor by an elevator, insuring dryness. Provision is to be made for feeding an additional 100 head next season.

Mr. Mulock takes an active interest in all subjects pertaining to advancement in agriculture, and improving and beautifying the homes. He has planted on his own farm several groves of walnuts, in various stages of development, from young sprouts to bearing trees, and has encouraged others in similar commendable work; also in fruit growing he feels interested, as he donates annually prizes amounting to \$200, to be divided among the most successful producer of young orchards in North York, of not less than one acre and 50 trees, of any hardy winter variety. The judges are chosen by and from the Farmers' Institute members. Last year we were informed that he (Mr. Mulock) also compensated the judges for their work apart from the \$200 in prizes; this he has been doing for six years.

We were greatly interested in the operations carried on so carefully and successfully at this farm, and incidentally it should be of no little advantage to the live stock and agricultural interests of Canada to have Mr. Mulock in the Dominion Cabinet to ably second the efforts of Mr. Fisher, the farmer Minister of Agriculture.

Sheep Raising on P. E. Island.

I believe in the old saying, "Where there's a will there's a way." If the farmers of P. E. Island would pay more attention to their sheep they would find a great increase in their returns. Generally speaking, the sheep receive the best attention of any of our farm stock; some farmers think that they can live anywhere, with any kind of usage. How often do we see the poor animals huddled together by the shelter side of a barn or stack, or chasing an armful of hay blown around by the wind? I believe sheep are admirably suited for our cold climate, as they can stand almost any amount of cold if kept dry, sometimes preferring to lie out

all night in the frost. Farmers should always aim to secure the breed which is best suited to their farms, and by always keeping a pure-bred sire among their ewes, and also by securing a few pure-bred ewes from some successful sheep breeder, they will in time have a flock of sheep worth looking at and caring for. The number of farmers who breed pure-bred sheep on the Island are very few, but of late years the sheep industry has taken great strides. I have always found it necessary to winter lambs separate from the ewes, as they are apt to be crowded out and will not get their share, and another reason is that they will have purer air, which is very necessary. I always let the shearlings run with the ewes. Before going into winter quarters the flock should be dressed with some reliable dip; this is necessary, especially with lambs, as ticks and lice will eat the life out of them faster than it can be kept in. I do not believe in feeding too much grain, especially to lambs, as it injures their digestion, and consequently they will not make as healthy sheep; especially this is to be guarded against in feeding rams intended for breeders. I think one pint of oats for each lamb and one-half pint for store sheep every day, with three pounds of roots and all the clover hay they will eat up clean, with a daily feed of coarse fodder, such as wheat or pea straw, all the salt they want to eat, which should be put in narrow troughs nailed around the sides of the house, about one foot from the floor, also free access to pure water every day, should bring them through the winter in good condition. Indoor feeding in racks, with trough underneath and a gangway in front, so that the feeder may walk without being crowded by the sheep, is preferable to feeding under foot, which wastes a part of the feed. If plenty of bedding is given it is not necessary to clean the house till spring, say about the 1st of April, when the manure may be drawn to the field, composted with swamp muck or spread on the land. As the lambs begin to come, the ewes having lambs should be put in a pen separate from the flock, and fed a greater ration; the lambs may be given a little crushed oats as soon as they will eat. Above all, sheep require careful handling, and if not worried or frightened the shepherd may walk among them any time without disturbing them. In conclusion, I am very much pleased with the improvements made in the FARMER'S ADVOCATE in the new year, and believe it the best farm journal I ever read, and the farmer who invests \$1.00 in the FARMER'S ADVOCATE will receive a greater interest than by any other investment.

Prince Co., P. E. I. JAMES STAVERT, JR.

FARM.

A Visit to Mr. Macpherson's Farm.

A member of the FARMER'S ADVOCATE staff recently had the pleasure of visiting the farm of Mr. D. M. Macpherson, M. P. P., which is beautifully situated some six miles east of Lancaster, in the fertile county of Glengarry. The farm comprises some one hundred and twenty-five acres of excellent soil, of a somewhat level nature, fronting the St. Lawrence River, which widens out here into a lake of nearly four miles in width. We might mention here that this part of Glengarry naturally has a very fine, productive soil, which, when properly cultivated and kept in a good state of fertility, is probably as well adapted to grazing and the raising of feeding cereals as any part of Ontario. We also find that this part does not suffer so much from seasons of drouth which many other parts have experienced the last few years. Therefore the clover and other grass catches are generally pretty sure, thereby insuring usually a heavy yield of grass and hay.

Mr. Macpherson's farm is, therefore, happily situated for the purposes to which he is devoting it and giving his especial attention.

On being conducted through the stables, butter factory, and other parts of the farm buildings, we found things presenting a businesslike and well-ordered appearance. The stables contained about one hundred and forty-five head of cattle in all at the time of our visit, seventy-two of which are milch cows, twenty-five giving milk, the remainder being now dry and coming in this spring. We found the cows in fine form, and a large per cent. of them presented the appearance of being heavy milkers. The feeding cattle numbered some sixty-six head, now being fed for export to the English market. These comprised some ten county bulls, the remainder being mostly two-year-old steers. These stockers had been purchased in Toronto and Montreal markets, and had been domiciled in their present quarters about six weeks when we saw them. They are an even, smooth lot, and are in fine, healthy form, and apparently gaining well on the rations allowed them. Each animal is furnished water in the stalls, and is not let loose again after being put in the stables. The system of feeding practised is ensilage and meal morning and night, with six pounds of hay to each animal at noon. The following is the rations and allowances:

For Beef Cattle.--Steers--(6) lbs. ensilage per head per day in two feeds, 6 lbs. hay per head at noon; 5 lbs. meal per head daily in two feeds (morning and night), the meal fed being a mixture of starch feed, shorts and bran--proportions: 3 parts starch feed, 2 parts shorts, and one part bran. The meal feed is changed somewhat every month or two, starting in the early stages of fattening with more bran and less heavy feed and ending with no

bran and mainly heavy feeds, particularly shorts and germ meal, the increase being mainly in the meal.

Bulls--60 lbs. ensilage per head per day in two feeds, 6 lbs. hay per head at noon, with 7 lbs. meal per head per day in two feeds (morning and night), same mixture and proportions as above.

Dry Cows--40 lbs. ensilage per head per day in two feeds, 6 lbs. hay at noon; 2 lbs. meal per head per day in two feeds (morning and night).

Milch Cows--40 lbs. ensilage per head per day in two feeds, 6 lbs. hay per head at noon; 7 lbs. meal per head per day in two feeds.

A compartment is partitioned off in one corner of the main barn and fitted out for the manufacture of cheese and butter, milk being supplied by patrons in the vicinity as well as from their own stables, power being supplied by an 8-horse power engine, which is also utilized for grinding grain and cutting feed when necessary. Butter is manufactured in winter and disposed of in Montreal at top prices, while the summer milk is manufactured into cheese; the separated sweet milk being fed to the swine in winter, and the whey in summer.

The veal calves, of which there are some sixty or seventy during the year, are disposed of in Montreal market at \$2.50 to \$4.00. These are fed new milk for two or three weeks before being sold, and are half-bred Shorthorn. The cows are selected grade native stock.

The Manure from the cattle is shoved through an opening at the drop behind the cattle into a car or dump beneath. We might mention here that the stables are on the main floor of the barn, while the basement is utilized for manure and the hog pens. The stalls of the cattle, and also the dumps beneath, are arranged so as to drain the unabsorbed liquids into a trough which leads to a large cistern in the center of the basement, this liquid being utilized by drawing out to the fields and spraying it on the corn hills after the corn is up. The manure, as stated above, is shoved through an opening between the floor of the stalls and the floor of the stables onto the car beneath, and this in turn is dumped on the wagons and drawn direct to the fields every week or two, and spread from the wagon or sleigh, providing the snow is not too deep, in which case it is put in small piles and spread in the spring. The ground on which the manure is used is principally the pasture and that intended for corn.

Swine.--About one hundred head are now in the pens (comprising seventeen brood sows), twenty-five now being finished for the market, and sixty fall pigs which will be finished in June. As stated above, the swine are kept in the basement of the barn on either side, and the milk and whey is conveyed from the factory by pipes to a large vat. Starch feed and shorts are then mixed in it previous to feeding. This mixture is fed three times per day, the ration being:

To small, growing pigs, 2 to 4 lbs. meal each per day, equal parts starch feed and shorts mixed with milk. Larger hogs, 4 to 6 lbs. meal each per day, parts 3 starch feed and 1 shorts. The breeding sows are a cross of Yorkshire and Berkshire, and these are invariably mated with a Berkshire boar.

Farm Accounts.--An inventory is taken once each year of everything in connection with the farm, and all farm expenses, purchased stock, feed, labor, etc., are charged up to the farm, and everything sold from the farm is credited to the farm, and after an inventory is taken the sheets are balanced up, thereby showing a dividend or a deficit as the case may be. The summer management and other details not mentioned here may be found in Mr. Macpherson's letters in the February 1st and March 1st issues of the ADVOCATE.

Successful Lamb Adoption.

To the Editor FARMER'S ADVOCATE:

SIR,--As the season is on hand when the lambs arrive, I thought I would describe, for the benefit of your numerous subscribers, the way I have managed with ewes that would not take up with their lambs, and if any of your readers have a better plan it would please me very much to hear from them through your valuable paper, as I always try to avoid having pet lambs around the place. Since I have been farming on my own account we have had ewes four different times refuse to take lambs, the first of which I gave away rather than have to raise it as a pet. The next year another ewe--a good milker--had one lamb, and the next day another ewe had two. She was not such a good milker, and would only take one lamb and refused to take the other. After bothering with her she got worse. I then took ewe with the one lamb and tied her up to the manger, with only room to move her head about four inches, so that she could not bunt, and I got the lamb which the other ewe would not take and put it to her. I used her kindly, and while holding her for the lamb to suck always gave her a handful of oats. After two days I did not have to hold her, and the third day I cut off both lambs' tails and let the one which was her favorite bleed all over the back of the other, and let her loose, which ended all trouble, as she took to each equally well. I have tried the same plan twice since with the same result, and I believe it can be done with any sheep all right, as it is less bother than raising them by hand. The reason for tying the ewe up so short is to prevent her from discouraging the lamb by bunting, and she will submit much sooner. Never abuse them, but treat them kindly.

Huron Co., Ont. JAMES HAYDEN.

To the Editor

SIR,--The cow stable inch tile under the floor wall. This can be regulated by the floor. As the floor is raised the mangers tile to the way a current air ascends this way I without drafts over plan of vent my cow st fowl that wholesome devised by it is somewhat construction, Ontario

SIR,--O L." asks for are putting satisfied the barn I show the center outside wa pipe), costi per foot, c with the cattle. Th perforated the stable. remove th 10-inch bo I am not might be r to finish. in the ce point, an stances de be warmed tile and pi ground fo you have fresh air stock. It the foul ai I have ou than about course, y and a rail have indic Ontario

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Stable Ventilation Plan.

To the Editor FARMER'S ADVOCATE:
 SIR,—The construction of the ventilation in my cow stable (size of basement 36 x 60) consists of 7-inch tile extending through the wall and along under the feed alley and out through the opposite wall. This channel is always full of fresh air, and can be regulated with registers on outside of walls. As the floors are built of Queenston cement, I elevated the feed alley in order to form the back of the manger. I have 1-inch pipe leading from the tile to the parting block of the mangers. In this way a current of fresh air flows in as the heated air ascends through ventilators in the mows. In this way I can ventilate my cow stables thoroughly without opening windows or doors, avoiding cold drafts over my cows' backs. Previous to this plan of ventilation being put in, when I would open my cow stable in the morning the air would be so foul that it was unbearable, and now the air is wholesome always. This system of ventilation was devised by Mr. Isaac Usher, of Thorold, and while it is somewhat simple and very cheap in its construction, it is perfectly satisfactory.
 Ontario Co., Ont. W. J. DEVITT.

SIR,—On page 111, March 1st ADVOCATE, "J. A. L." asks for system of ventilation for stables. We are putting in Usher's system and are thoroughly satisfied that it is right. If I were building a new barn I should have 8-inch tile run through beneath the center of feed alley, opening through both the outside walls, with pipes of inch gas pipe (waste pipe), costing not more than two and a half cents per foot, connecting the tile tunnel with the stables between each two cattle. The ends of these pipes are perforated where the air escapes into the stable. The openings above to remove the foul air may be made of 10-inch boards carried through roof. I am not certain how many of such might be needed, as this part I have to finish. Having the tile and pipe in the cement, we have a starting point, and can vary as circumstances demand. If air should not be warmed enough coming through tile and pipe, then extend tile underground for a distance. Be sure that you have a way of bringing in the fresh air and distributing it to the stock. It is a simple matter to get the foul air away. Such a scheme as I have outlined need not cost more than about 40c. per animal. Of course, you must use a cement floor and a raised feed alley to do as I have indicated.
 ELMER LICK.
 Ontario Co., Ont.

Breaking the Road Colt to Harness.

In breaking a colt to harness, we always prefer to give him his first few lessons double, along with a free, sensible, fast-walking horse. A light front bobsleigh answers well for several lessons. As soon as the colt has become used to harness, the bit, etc., and has ceased to be afraid of the driver or vehicle, and has learned to go along with his mate like a horse should, we feel no hesitation in hitching him singly to a cart. It is safe for the first few times to use a kicking strap, being careful that it is properly adjusted about half way between the roots of the tail and coupling, and fastened in the proper position to prevent slipping either way, then buckled loosely to the shafts.

It is not well to take long drives at first; in fact, the colt should be returned to the stable feeling fresh rather than weary. Two short drives in a day are much to be preferred to a long, wearisome trip. It is always bad policy to drive away a distance and then turn around and return by the same road. It is much better to go around a block, a different one at each time, however, so far as practicable, so that he will not acquire notions of his own as to where he should go or turn.

Look well to the colt's feet. Never under any circumstances allow him to become footsore, because if he does it will seriously affect his gait by causing him to step short and "tied up." As soon as the toes begin to break up put on light shoes or tips weighing from 5 to 8 ounces each. Heavy shoes are apt to cause the colt to become leg weary and hit himself—a habit bad to overcome when once acquired. A tip is a thin plate which passes around the hoof about two-thirds of the way to the heel; their advantage is lightness, while they protect the toes, which is all that is required in colts. Should the heels show soreness, light plates of the ordinary sort should be at once put on. A mistake often made is to shoe the colt much heavier in front than behind, with the idea of improving his action. It is much safer to copy nature by endeavoring to keep him balanced than to force a condition which an over-anxious, inexperienced driver may seek to obtain.

Mr. David Birrel's New Stock Barn, Ontario Co., Ont.

The fine barn and stables, the property of Mr. David Birrel, the well-known breeder, drafted on this page, need very little explanation beyond that contained in the plans. There are two iron rods running the full length of the barn for hay fork and slings—one in the center and one half way between the north purline post, which is 33 feet high, and the north main post, which is 18 feet 6 inches high. The bottoms of all mows are filled with hay, except the small mow in center, which is filled to the top, so that it can be got at when the others are covered with grain. The passage from one threshing floor to the other is floored over, same height as the granary, and the cut feed house in center of barn. Stone wall is 9 1/2 feet above the level (or above ground), the windows are very large—about 3 feet by 4 feet. There are three large cupolas: one large glass one in center of barn, which lets in a lot of light; the end ones are connected with the stables by ventilators. The silo is not yet built, but place is left in stone wall for it. The cistern behind the silo is for threshing-water.

The Feeding Value of Ensilage.

An interesting question has arisen among some of our prominent feeders, through the Macpherson correspondence, as to the valuation per ton of corn ensilage, some putting it at \$3, others considering that too high. Reference is not made to the cost of ensilage in the silo, which is usually put at from \$1.00 to \$1.50 per ton. Its feed value must vary greatly when ensilage from well-matured, well-

consider corn silage made from well-eared, ripe corn to be worth from one-fourth to one-third as much as meadow hay, ton for ton.

"Comparing the dry matter in 100 lbs. of either food stuffs, we find, on the average, about 26 lbs. in corn silage and about 84 lbs. in meadow hay; the ratio here is as 1:3.2. If we consider the digestible components of the two food stuffs, we have, on the average, 16.0 lbs. digestible matter in corn silage and about 47.3 lbs. in meadow hay, or a ratio of 1:2.9. If the price of a ton of meadow hay, therefore, is \$10 a ton, the silage will be worth a little more than \$3.

"The results of careful experiments and the teachings of practical feeding experience seem to bear out the correctness of this statement; but, of course, there is good and poor silage, and good and poor hay, and the ratio will vary according to the quality of the feed. If a farmer figures on three tons of silage as equal to one ton of meadow hay, I do not, however, believe he is much out of the way when a good quality of either feed is considered."

C. S. Plumb, B. S., Director Purdue University Experiment Station of Indiana: "It is almost impossible to place a definite feeding value on silage, in a financial way. There is a something in this succulent food that gives it a value that cannot be measured by a chemical analysis, neither can it be expressed in money. This value, furthermore, is more pronounced in the hands of some feeders than others, and with some kinds of animals than others. Silage is better suited to dairy cattle, undoubtedly, than to other kinds of farm stock, though fed to steers or sheep in a limited way it also is of great value.

"For years I have heard it said that three tons of silage had about an equivalent feeding value with one ton of timothy hay, and as based on the food nutrients contained in each, this may be so. For dairy cattle, we feed both clover hay and silage at this institution; the two best coarse winter foods that I know of for such stock. If we measure the value of these two by the digestible matter contained in them, taking well-eared dent corn in the glaze for the silage, we find that a ton of clover contains about five times as much digestible protein as a ton of silage, and about twice as much of carbohydrates and fat. If the ton of clover hay is worth \$8—a very common price in this vicinity—then on this basis the silage is worth from \$1.50 to \$2. This value, however, I consider fallacious. It is worth some more than this; how much depends on the feeder, the stock to be fed, etc."

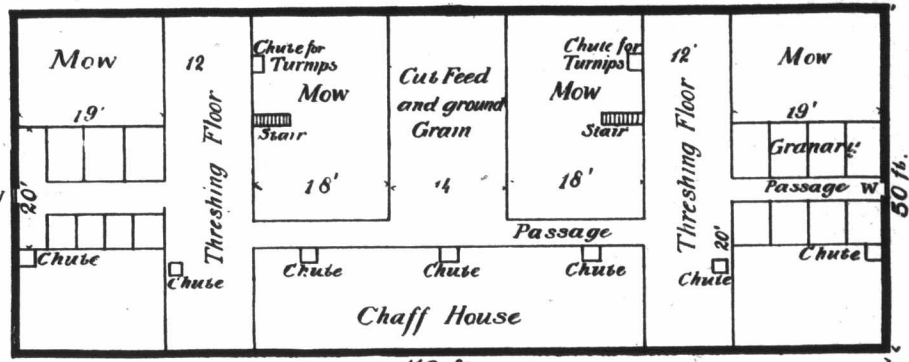


FIG. I.—BARN FLOOR PLAN.

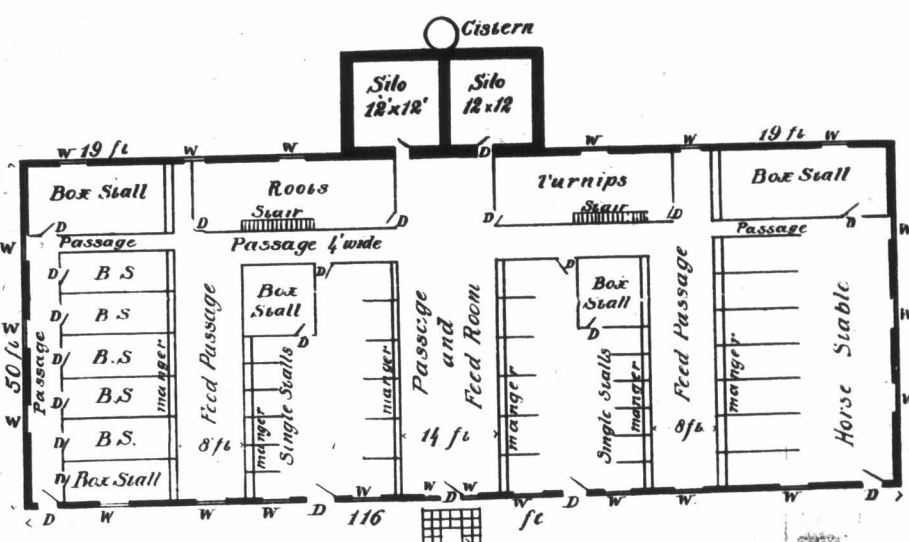


FIG. II.—BASEMENT PLAN.

eared flint corn, for example, is compared with large, immature sorts bearing few good ears. We have submitted the question to a number of prominent scientific investigators, and append their replies as follows:

Prof. G. E. Day, Agriculturist, Ontario Agricultural College: "Re value of corn silage, I would place it at about one-quarter that of red clover hay. Some silage may be worth more than this, and some certainly less, but I believe this value is a fair average. I may further add that I regard six tons of clover hay equal in feeding value to seven tons of timothy hay. Of course, these are approximate figures."

Prof. I. P. Roberts, Director Experimental Station, Cornell University, N. Y.: "From the tables at hand the value of silage would be \$2.60 per ton, as compared with timothy hay at \$10 per ton. In my opinion, at these prices, the hay would be worth more than the silage for feeding mature horses when at work, and the silage would be worth relatively more if one were trying to produce milk in the winter. My observation leads me to the conclusion that much of the silage is not worth more than \$2 per ton, while in other cases, where a large amount of corn has been ensilaged with the stalks, it might be worth \$3 per ton, or even more, as compared with the hay."

Prof. F. W. Woll, Assistant Chemist, Wisconsin Experiment Station: "In reply to your question as to the money value of a ton of corn silage, compared with other feeding stuffs, will say that I

Growing Roots and Supplementary Crops.

- 1.—How, when, and in what quantities do you apply manure to land for (a) turnips, (b) mangels and carrots?
- 2.—How much mangel and carrot seed do you sow per acre, how wide apart do you make your drills, and how far apart do you leave the plants?
- 3.—How do you manage to secure uniform germination of mangel and carrot seed, and what time do you prefer to sow?
- 4.—What do you think of sowing cabbage seed with carrots to fill the blanks, and thus secure cabbages for stock, market and other purposes?
- 5.—How do you prepare the ground for turnips, and at what time do you consider it best to sow?
- 6.—Have you ever grown pumpkins alone or with any other crops for fall feed for stock? If so, how do you grow them, and how much value do you place upon them for hogs and milch cows?
- 7.—Have you grown rape alone or with a grain or other crop to be pastured in the fall?

If so, what do you think of it in either or both cases?
 8.—What variety each of turnips, mangels, and carrots is giving most general satisfaction?

Turnips, Mangels, and Carrots.

1.—For turnips and mangels, and particularly for carrots, I prefer to spread broadcast, in November or December, manure that has been collected during the summer and turned once, say in September, for the reason that manure which possibly would answer for turnips or mangels might be too coarse and lumpy to give smooth, well-formed carrots. If this is not convenient, then I should mix, during the winter, manure from the horse and cow stables, with sufficient quantity of the former to maintain a moderate heat. Turn the pile in March or April, breaking all lumps and placing the top and sides on the inside of the pile as turned. This will cost say 10 cents a ton, but will be well worth the outlay and will save much valuable time in spreading. Thirty-five tons of this manure spread broadcast to the acre on fairly rich ground should be enough. I estimate three Scotch cartloads to a ton, and for 35 tons to the acre dump a cartload at equal distances of seven yards apart each way, giving about 100 cartloads to the acre. Spring-toothed, disk, and Acme harrows now save cross plowing. If the manure has been spread in the autumn, in the spring harrow it in well. If it is to be spread in the spring, harrow the ground deeply before the carts go on it; plow the manure under, harrow deeply again, and then drill the land up in ridges, 27 inches apart, rolling them nearly flat before sowing the seed. This will bring most

of the manure under or near enough to where the young plants are to start.

2.—If the seed is good and fresh (and none other should be risked), 2½ lbs. of turnip, 5 lbs. of mangel, and 4 lbs. of carrot seed to the acre is enough; if doubtful, add accordingly, but here let me say, provide your seeds in advance from the best seedsmen you know of, send samples of these seeds by mail to the Central Experimental Farm at Ottawa, asking for a test and report of the percentage of vitality of each, and be guided by their reply, which can reasonably be expected within two weeks. Rows 27 inches apart, plants 12 inches apart in the rows, I find convenient distances for turnips and mangels. For white carrots I make two rows, 9 inches apart on top of each flat drill, the drills being 30 inches apart, cultivating in between, and close outside where the horse cultivator does not reach, with the hand Planet Jr. cultivator; plants left from 4 to 5 inches apart.

3.—In securing uniform germination of mangel and carrot seed, I have always found that if the land is well rolled, and if the seed drill has a small roller to follow the seed, there is no trouble, but the seed should be fresh. As to time of sowing, the earlier the better, as soon as the ground can be worked. Mangels first, carrots next, and turnips to follow, and now that the fly gives less trouble than in former years, turnips not later than June 10th.

4.—Cabbage seed sown with carrots would cause more blanks than they would fill. The large bottom leaves, which in the end drop off, would shade the carrots and so cause blanks. Turnip ground would be more suitable, and late cabbages could be transplanted to fill blanks, if any, but only as an expedient, not as a practice, and other vegetables can be more profitably grown for cattle than cabbages. By the double-row system in field carrots, blanks, if any, can be corrected by leaving more plants where the rows are single. This double-row method I have found by measure will give one-third more of a crop than single rows 27 in. apart.

5.—In preparing ground for turnips (and the same holds good for mangels, cabbages, carrots, etc., save that carrots will not succeed on stiff or clayey ground, preferring a deep, sandy loam), I am aware that in most systems of rotation root crops follow grain after grass, in some cases even two years of grain; but, for many reasons, I prefer a clover sod plowed under in August or early September, using a skim coultter if the second crop is not high, or a chain drag from the evener if it is. If any green shows between the furrows, harrow lightly to smother it. This gives a clean, mellow soil, just suited to roots or cabbages, free from weeds, easy to work, and not so liable to have couch grass or thistles as land that has been lately in grain, and barley would follow with far better success than if it came after oats. Of course, if no such provision has been made by turning down a clover or grass sod early enough in the autumn to insure its being rotted, it would be better to resort to stubble rather than try to work up sod that is at all lumpy. Sow the seed early, press it in well and be prepared to sow land plaster on the young plants if the fly makes its appearance.

6.—Pumpkins, I believe, have their place as of old as a stolen crop in the corn fields, helping out in a way but not of sufficient importance to make their cultivation profitable by themselves. Their milk-producing qualities are inferior to much else that can be more cheaply grown. Boiled with meal for pigs they answer admirably in assisting the fattening process.

7.—Rape sown with grass seed on new land makes capital fall feed, ensures the sprouts of bushes being eaten by the cattle, and the grass seed takes better for the tramping by sheep and even cattle. I have never tried it with grain and should think it would hardly make growth enough, unless after early barley, to be of much use. By itself it makes the best of fall feed for fattening cattle or lambs that have to be pushed, and leaves the land in good order for plowing for any root crop save turnips, cabbages or any of the Brassica family.

8.—Soils and situations differ so widely that only a local choice can be made in most localities. Turnips—i. e., Swede turnips—practically are a failure on the Island of Montreal, while the Mammoth Long Red mangel grows there to perfection; the reverse is the case in and near Quebec. In Scotland the Swede turnip gives far better returns than the mangel, while in many parts of England the reverse is the case. In a general way, the Champion Purple-top and Laing's Improved are the favorites, the latter particularly so for market purposes. In mangels, the Yellow Globe does best on most soils, particularly sandy loam; is easy to harvest, keeps well, and is ready for feed earlier than the reds. In field carrots, the Improved White is taking the place of the White Belgian. In red carrots, for general purposes the Danvers is the favorite, and even for a farm crop either to feed out or to sell I usually prefer the Danvers, sown on the level, rows 14 inches apart, plants 3 to 4 inches apart in the row, and all the cultivating done with a hand Planet Jr. cultivator. These carrots I could often sell readily for \$10 a ton, delivered from the field, while there was little or no sale for white carrots, though the latter, when fed to milk cows, impart to the butter just as much of a "June" color as the red carrots do.

Sherbrooke Co., Que.

W. A. HALE.

Believes in Surface Manuring.

For roots we like to apply the manure in the spring just as soon as the ground is fit to be driven upon with the team—the ground having been plowed late the previous fall. Spread about twenty loads to the acre (more or less, as the condition of the field may demand), and work it in with the cultivator. We use the disk harrow chiefly. In this way we get the manure well mixed with the soil on the surface. I am strongly opposed to plowing manure under for any crop if it can possibly be avoided. The manure, at least the best part of it, will soon find its way down far enough into the "bowels of the earth" without us trying to hasten its downward course with the plow. We should aim to put and keep our plant food just as near where it is going to be used by the crop it is intended to benefit as possible. We often seem to forget that every shower of rain that falls will help to work the manure down into the soil. How do we usually find orchards and fruit trees manured? Why, very often by simply spreading the manure or fertilizers on the top of the ground, and on top of an old sod at that. We all know that that it not where it is going to benefit the fruit crop, but it must find its way down to the little rootlets of the trees. Does it not seem reasonable that we should endeavor to keep the manure just as near the surface as possible for all our field crops, and then as it works its way down it will be absorbed by the roots of the growing crop?

For turnips the manure need not be applied as early as above stated, any time before May 15th will be soon enough.

Do not grow mangels. Carrots.—We sow about two pounds of seed per acre in drills about twenty-four inches apart, and try to have them sown as near May 1st as possible, and thin to six inches in the row. By sowing good, fresh seed, and having the ground thoroughly prepared, we have had little difficulty in securing a "catch." If we "missed it" would work the ground over and sow with turnips.

Our turnip ground is plowed in the fall, the manure is applied in the spring. The disk harrows are kept working on it till from the 12th to 25th of June, when they are sown—a few at a time, so that they will not all be ready for thinning at once. By sowing some wheat late we find we are less troubled with the fly.

We always grow the "Improved Short White" carrot, and believe it is the best all-round field carrot. Of turnips there are many good varieties—Hall's Westbury, Carter's Imperial, Sutton's Champion, and East Lothian are good varieties.

Waterloo Co., Ont.

JOHN TAYLOR, JR.

Salt for Mangels, and Soaking the Seed—Shallow Cultivation for Turnips.

1.—We find that short manures spread on the land during the winter when snow is not too deep, and well cultivated into the land in the spring, gives us the best results. About fifteen loads per acre is all we usually apply. For mangels we also sow about 300 pounds of salt per acre just previous to sowing seed.

2.—Mangels, 4 pounds per acre; carrots, 2 pounds. Mangels, drills 30 inches apart; carrots, 20 to 25 inches. Mangels, 10 to 14 inches, depending on the varieties; carrots, 4 to 6 inches in drill. We tried sowing alternate rows—carrots and mangels—this year, and it was very satisfactory. We made the drills 27 inches apart.

3.—We usually soak the mangel seed in warm water until there are a few sprouts starting, and then dry with ashes or lime, but have never tried anything for carrots. We like to sow as early in spring as the soil will admit.

4.—Have never tried it.

5.—Plow in the fall, manure during the winter, and cultivate frequently during May. If soil is loamy or sandy plow previous to drilling, but if it is clayey drill up the cultivated soil only. We usually sow from 10th to 15th of June, and sometimes earlier.

6.—No.

7.—No.

8.—There are one or two varieties that are very popular in each: Turnips—Jumbo, Selected Purple-top, Hartley's Bronze-top, Mangels—Mammoth Long Red, Yellow Intermediate, and Golden-Fleshed Tankard. Carrots—Steel's Improved Short White and Large White Belgian.

Bruce Co., Ont.

JAS. B. MUIR.

Nova Scotia Methods of Root Culture.

1.—I apply the manure in the spring in drills, at the rate of one cartload to about fourteen rods length of drill.

5.—The ground is plowed in the fall, well harrowed in the spring, then gang-plowed crossways and thoroughly harrowed. The drills are opened up with a double-moldboard plow, and are 25 inches apart. Seed is sown every evening upon what has been prepared during the day, at the rate of about 2½ lbs. of seed per acre. The plants are thinned to at least 9 inches apart. From the 15th to 20th of June I consider the best time to sow.

8.—D. M. Ferry & Co.'s Improved Purple-top yellow ruta-baga has given the best returns with me, being a heavy yielder of very uniform and flatly-shaped roots. Of white-fleshed varieties the Yellow Aberdeen has proved the best.

Antigonish Co., N. S.

JOHN GARDNER.

Corn and Potato Growing.

1.—How, when, and in what quantities do you apply manure to land for (a) corn, (b) potatoes?

2.—How do you select and prepare seed potatoes; how do you prepare the ground; what time do you plant for a field crop, and for very early potatoes? How wide apart do you put sets, and how many in a hill?

3.—In the light of your experience and observation, kindly compare hill and level cultivation for potatoes.

4.—After what crops do you prefer to grow ear and fodder corn; how do you prepare the ground; and at what time and how do you plant the seed, and how much seed per acre do you consider best?

5.—Have you ever grown pumpkins alone or with other crops for fall feed? If so, how do you grow them, and how much value do you place upon them for hogs and milch cows?

6.—Have you observed or grown rape alone or with grain or other crops to be pastured in the fall? If so, what do you think of it in either or both cases?

7.—What varieties of corn are giving most general satisfaction in your district for ear, fodder, and the silo?

Prefers Hill Cultivation for Potatoes.

1.—(a) As to applying and the season to apply manure for a potato crop, I have tried several ways, but the way that has given me best results is to plow land the fall previous and apply the manure (which should be well rotted) at the rate of about 2½ loads to the acre and have it well worked under. (b) For corn the manure does not necessarily need to be rotted, but would be better so, and the land should not be fall plowed.

2.—In selecting and preparing seed potatoes, I usually select the largest if possible, and cut them into sets a few days previous to planting. The soil should be of as loamy a nature as possible, and fall plowed heavily, manured in spring and well worked under. Plant about the 15th to 20th of May for general crop, and for early potatoes about the 1st of May, as near as possible. Plant three sets in a hill, and have the hills 18 inches one way by 36 inches the other.

3.—My experience teaches me that hill cultivation is by far the best for this locality. The reasons I assign for it are: (a) If the potatoes are hilled immediately after a light rain the moisture is retained to a certain extent in the hill and the result is larger and better potatoes. (b) Where flat cultivation is carried on, when the vines of the potato die away in the early fall a large amount of the crop is left exposed to the sun, thereby damaging them for sale or to keep.

4.—For hill or fodder corn I prefer either clover sod or pea stubble. Manure heavily in spring and plow as early as convenient, and by frequent cultivation I start all noxious weeds and grasses before planting, and cause the land to be packed also. Plant about 15th or 20th of May, and insure a crop that should be matured before it is frosted. For hill one peck of shelled corn is sufficient for an acre, and from three pecks to a bushel for fodder. [NOTE.—Two pecks at the outside is, in our experience, ample, and some would not use more than one peck. Mr. Rennie, Farm Supt. at the O. A. C., says the latter is sufficient.—EDITOR.] I mark my ground with a one-horse marker, 3 feet 8 inches each way for hills, and the same applies to fodder.

5.—When planting corn I usually plant pumpkin seeds in the hill, as the plants do not interfere with cultivation till corn cultivation is out of question. In this way I receive two crops off same ground in the one season. I find them very good feed for milch cows when pasture is short. For hogs, I have never tried them only in their raw state, and they are not of much value fed in that way. However, I know them to be good feed if boiled and mixed with chop or grain, they being both cheap and of good fattening quality.

6.—I have tried rape sown alone after fall wheat has been harvested, and must say I am more than pleased with the result, as there is nothing I know of can equal it for fall and early winter feeding for sheep and lambs.

7.—The varieties of corn I have sown for ear with the best satisfaction are: 12-rowed Yellow, Red Glaze and Yellow Dent. For fodder I find a mixture of Mammoth Southern Sweet and any of the above mentioned varieties very good. And for silo the Red Cob Ensilage and 12-rowed Yellow are generally sown.

Elgin Co., Ont.

CHARLES C. FORD.

Thorough Cultivation Important—Sugar Corn.

1.—From 15 to 20 team loads to an acre, applied on sod, last of March, when danger of winter washing is over, to be plowed down in spring.

2.—I select best specimens of each kind, discard very large and small ones, split in two—in three if very large—and drop sets 15 inches apart in marks made by marker 30 inches apart. This and the carrots are the first crops I put in the ground, say May 1st to 7th. No limit to our cultivation; but shallow when bulbs begin to form and always harvest when tops turn yellow, showing ripeness, generally Aug. 12th to 25th. It is a mistake to leave potatoes in the ground one day after they are ripe.

3.—I am a firm believer in level cultivation, but finish up by raising a slight mound around all hoed crops.

4.—On our sandy day loam—always prefer a pasture sod plowed with manure, as already stated, and plowed under in spring, just before planting. May 1st to 7th. Cultivate thoroughly with a disk harrow, and a harrow fine, then mark with two-horse marker both ways. Plant five seeds in each hill in the marks made by marker when we have time or get them to buy. Like to drop a pint of ashes around each hill to be worked

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in by cultivator; find it pays well and for more than one crop.

5.—Have not tried pumpkins or squash alone to any extent; think it would pay; but we never fail to plant pumpkins in our field of ear corn. Find squash with their immense leaves liable to stunt corn, but pumpkins won't. Consider them one of the very best of feeds for milch cows, also boil them and make a mush with provender for pigs. Find them a profitable fall feed. We always put them through root slicer for all purposes.

6.—Have had no experience with rape yet; shall try it this year.

7.—After two years' trial, I think a great deal of Perry's Hybrid sugar corn as an ear corn, and it gives a large crop of fodder also, but needs a good long season to thoroughly ripen; always two ears and often three on each stalk. Compton's Early and Longfield have done well here, but are nowhere with above sugar corn either in quantity of ears or fodder. For a large bulk of corn fodder we don't seem to get any corn better than Mammoth Southern and Red Cob Ensilage. Corn is king, and should be every farmer's standby, but I find by experience it must not be fed without other foods, either as stover or ensilage, for certainly the quality of "gilt edge" butter will be affected thereby.

NOTE.—Allow me to say re cultivation of hood crops, start the cultivators as soon as you can see where to drive, and keep them going as long as the crop is not injured thereby. No other work will give a better return than this.

Glengarry Co., Ont. JAMES H. ESDON.

Level Cultivation for Potatoes.

1.—Plow in the fall. Draw out the manure in winter and spring, putting in piles. Scatter and plow in spring.

2.—Select the medium sized, cut the best eyes, planting three sets in a hill, hills three feet apart. For early crop, plant the last of April or first of May. For field crop, about the 24th of May. To prepare the ground, plow in the fall; a good coat of manure. Plow and harrow in the spring, then furrow out.

3.—Level cultivation.

4.—After wheat and oats plow in the fall; manure and plow in the spring again. About the 1st of June sow with a twelve-hoe seed drill, stopping all but three, about a bushel to the acre. Use the ordinary cultivator.

5.—Grown with corn and potatoes. Consider them good feed for milch cows and pigs.

6.—I have never grown rape, but I am going to try it this spring with oats.

7.—Mammoth Sweet and Red Cob. Northumberland Co., Ont. WM. STILLMAN.

Potatoes and Corn Under Quebec Conditions.

1.—(a) We spread manure for corn on grass land that is to be broken up, late in the fall, and plow immediately, setting the plow as deep as it will turn, say eight inches or more, so that in spring we have a fine seed-bed after thorough harrowing. We put on about 25 or 30 loads to the acre; this manure is what has been made about the barns and pigpens during the summer and early fall stabling; most of it is quite green, and contains quite an amount of litter, but it will be ready for the crop by the time the corn reaches it. We use about 300 pounds of fertilizer to the acre in the hill.

(b) For potatoes, 20 loads of mixed horse and cow manure. Spread along in the row, and drop the seed on it and cover the whole together; for the last twelve years our yield has been from 300 bushels to 450 bushels per acre, except two years, when it lacked a few bushels of 300 bushels.

2.—We usually select medium-sized potatoes for seed from the bin, but of late have selected some varieties at digging time and consider it the better plan; ground plowed in the fall; generally breaking up, plowed deep, or else out stubble fall plowed, well harrowed early in spring, then furrowed out and manured as stated above. For very early potatoes, start in hotbed or warm corner some seed potatoes, and when well rooted, plant, avoiding breaking off roots, as early as the ground is dry enough to work. For field crop we plant as soon as the spring wheat is all sown, and we can attend to it usually by the 10th of May. We plant medium-sized potatoes whole. If large and full of eyes, split in halves; one set in a hill, 20 inches apart, and rows 2 feet 9 inches apart, for most varieties; heavy-growing top varieties 3 feet apart.

3.—Cultivate as near level as possible till the last hoeing, then hill up small hills just enough so the tubers will not sunburn. Do not believe in digging down and cutting off the roots for the sake of getting a lot of earth to make a big hill.

4.—After grass for both ear and fodder corn. Ground prepared as stated in No. 1. Plant from 20th to 25th of May, according to season. It is difficult to state the quantity of seed, as different varieties have different sized seed. In both cases we plant rows about three and a half feet apart; for ear corn five to six kernels in a hill, two feet four inches apart, and for fodder three kernels to the foot.

5.—Pumpkins we usually grow with ear corn; plant in every fourth row and thin to one plant to every fourth hill, and no injury will result to the corn. If planted alone in rows ten feet apart and hills seven or eight feet apart, thin to two plants in a hill. If left too thick the roots will bind in the ground more than the vines will on top, and small pumpkins will be the result. Of little value to

hogs, but good for cows, giving milk a nice flavor; of more value if seeds are removed, as the seeds act to much on the kidneys.

6.—Rape has not been tried here to my knowledge.

7.—For ear corn our native eight and twelve rowed varieties do best; for fodder, Perry's Hybrid (sweet), and among the dents are Ex. Early Yellow, Huron, and White Cap Yellow Dent. The larger growing dent varieties are too late maturing for this Province.

NOTE.—Questions 1 and 4 are nearly duplicates with us, as we always plant corn on the sod, followed by grain and seeded down. It is with much interest that I wait for the published answers from other parts of the Dominion. P. P. FOWLER. Shefford Co., Que.

Success in Corn Culture.

In none of our cereal crops are farmers taking more interest at present than in corn. The failure of the clover plant, and the rapid extension of dairying, has led to the adoption of corn as a forage plant, both for summer and winter feeding, and certainly we have no other plant that will furnish as much food on a given area.

Up till recent years very little corn was grown in Ontario outside the Lake Erie counties, but by the selection of early-maturing varieties it can now be grown successfully over the whole Province. The writer has seen corn grown in Cornwall which the grower claimed yielded 125 bushels of ears per acre. The ears were certainly well matured and were a fine sample of corn.

The value of a corn crop depends (1st) on the quantity of ears and (2nd) the maturity at which it arrives before being harvested; hence, all efforts at corn growing should be with a view of growing well-matured, well-eared stalks. [NOTE.—We should also aim to combine a stalk of good size and leaf with the foregoing.—EDITOR.]

For successful corn growing we must have a free soil, either naturally or artificially drained, as corn will not thrive on cold, spongy soils, nor yet on very hard, unyielding clay that bakes hard after every rainfall. Careful preparation of the soil is required; a clover sod plowed down and well-worked makes an excellent seed-bed for corn. If the land is heavy it should be carefully plowed in the fall, so that the action of the frost will cause thorough pulverization. On light sandy or deep alluvial soils as much success can be achieved by spring plowing or even plowing a few days before planting. If the soil is not naturally rich it should be manured liberally. On heavy soils which have been fall plowed the manure may be drawn out in the winter season and spread so that it may be worked into the soil as early as possible in spring. Heavy soils should be thoroughly worked before planting, so as to get as fine a seed-bed as possible. Cultivate about the first of May and then leave alone for ten or fourteen days, so that all weed seeds may germinate and be destroyed before planting; then cultivate and harrow thoroughly just before planting.

As to varieties, each locality seems to have a preference. North of latitude 43 the varieties that give best results are Compton's Early, Longfellow, and Thoroughbred White Flint, with the first named at the head of the list.

Seed corn should be selected with great care. Large, well-matured ears should be chosen, and the tips and butts of ears should be broken off and thrown aside. Before you plant, be sure that 99 per cent. of the seed will germinate, as the success of your crop depends on the first planting making a vigorous growth. Plant a few dozen kernels in a warm place ten or twelve days before planting, and thus test the vitality of your seed. More feed of better quality can be obtained by planting in hills rather than by growing in drills. Corn is essentially a sun plant, and the freer the circulation of air and the more we allow the rays of the sun to have direct contact with the plant, the better the quality of corn. Mark from 42 to 48 inches each way and plant the corn with a planter, about five kernels to the hill. Press each hill firmly with the foot when planted, or, failing this, the ground should be rolled with a heavy roller, as this will do much to secure an even, rapid germination, especially in a dry season. Just as you see the first blade peeping through, harrow the cornfield thoroughly. Use a light sectional harrow; if the teeth slant backward a little, all the better. This harrowing will destroy many weeds and keep the soil in good condition till the corn gets large enough to use a scuffler. [NOTE.—Many successful corn growers now harrow two and three times.—ED.] Cultivate each way and stir the soil as closely to the plant as possible. Do not cultivate too deep. The corn crop should be hand-hoed at least once, stirring the soil closely around the plant. A man can hoe about 1½ acres per day, and this hoeing certainly works wonders. The scuffling or cultivating should be continued until the corn is tasseled out. If weather is dry it will pay well to cultivate each way every week. Always cultivate after a heavy rain, in order to break the crust and allow free circulation of air.

Corn should be well matured before cutting. When ears are well glazed and the kernels are quite firm is time to cut. When it arrives at this stage cut as quickly as possible; for if corn gets overripe the value of the stalk as fodder is very much lessened. The best tool for cutting hill corn is a wide-bladed, sharp hoe, made by a blacksmith out of a saw plate, with a handle about 18 inches long. Put

up in shocks with 36 or 48 hills in a shock, binding securely at the top.

There are three ways of disposing of the corn crop: 1st, by cutting and storing in a silo; 2nd, by husking in the field, the ears being stored in a crib and the stalks drawn into the barn as fodder; 3rd, by drawing from the field and feeding as required, ears and stalks being fed together.

In regard to expense, the cost of hauling and putting in silo and of husking and drawing in the ears and fodder will be nearly equal, not considering the cost of constructing a silo. The latter method is very much the cheapest, and certainly gives good results.

The cost of husking a bushel of corn in the corn belt is four cents. It takes two bushels of ears to make a bushel of shelled corn, which costs three cents to grind it into meal, making a cost of eleven cents for 56 lbs. of meal outside the cost of growing the corn.

There certainly would not be that much loss in feeding the corn on the stalks if the cattle were followed by hogs. I believe that the latter method is going to be practiced more in the future than it has in the past.

If the cornfield has been kept cultivated as it should, and is perfectly clean, better results will be obtained by cultivating the corn stubble the succeeding spring without plowing, and drilling in a crop of spring grain; and if the field is to be seeded down a far better catch of seed will be obtained. Elgin Co., Ont. MUNGO MCNAB.

GARDEN AND ORCHARD.

A Farm with Ornamental Hedges.

"Why is it," said a visitor from the Old Country to me lately, "that so many of your farm houses and outbuildings present such a bleak and dreary appearance, standing out, as they do, without a tree or ornamental fence to relieve their bareness? It cannot be from lack of trees to plant or because the trees when planted will not grow. It must be simply because this feature, which would add so much to the attractiveness of farm steadings all over the country, is not sufficiently appreciated by the farmer. And yet what an improvement a few trees or a well-kept ornamental hedge would be to most of your farms."

Similar thoughts to these had often passed through my mind while travelling through the country. It is an indisputable fact that the majority of our farm houses and buildings do look terribly bleak and dreary. Many of these are fine and well-built, but their lack of surroundings greatly detracts from their appearance in the eyes of visitors. It is a great relief to the eye to come across a farm where well-kept fences and shade trees planted in suitable spots show that the proprietor has a touch of the artistic in his nature and has had the good sense to carry out his ideas, to the great improvement in the appearance of his surroundings, and with this further advantage, that should he at any time wish to dispose of his farm he will be able to do so more readily than the man who has neglected to give his farm the few finishing touches of improvement that count for so much when a bargain is being made.

Of all the various kinds of trees or bushes out of which hedges can be formed there is probably none that for general utility surpasses the cedar. In this country at least, the Canadian thorn, while it offers more resistance to live stock, soon grows thin at the bottom when trimmed up in hedge form, while the much-lauded osage orange, locust, and other hedge plants do not seem to be the ideal articles that they are represented to be.

One frequently comes across a short stretch of cedar hedge near a farm house, serving both as an ornamentation and a windbreak, but it is rare indeed to find any great length of it. I lately, however, had the pleasure of inspecting a farm on which there are fully three miles of cedar hedges. The farm in question is "The Briars," Sutton West, owned by Dr. F. C. Sibbald, who has a large and flourishing herd of Shorthorns and a number of trotting-bred horses. The beautiful condition of the hedges and their imperviousness by live stock led me to interrogate the Doctor as follows, so that others might reap the benefit of knowing how to plant and train up a cedar fence.

"How old are these hedges, Doctor?"

"Most of them are fifteen years old."

"What size were the plants when you set them out?"

"I selected such as were one and a half to two feet high. They were planted four feet apart, which is close enough for good thrifty stock."

"When do you first trim them?"

"The tops when they are about five feet high, the sides when they have grown about two feet thick."

"Your soil is specially suitable for cedars?"

"Yes, they do best on sandy loam. You will notice that they have not done so well in some places. That is because the soil is of clay there."

"Do you find that they will turn stock, or will the animals damage them?"

"You will see that I have them protected by a light post and rail fence. That was put there when they were first planted and has never been renewed. In other parts I have a board fence at the back. I do not think that stock will damage them much. They should, if well grown, turn stock at ten years from the time when they were planted."

The hedges certainly seemed quite sufficient to turn stock without any other protection. Most of them were fully three feet wide and about seven feet high, and they formed a firm, solid wall. They are trimmed in June. The trimming is a most important matter, neglect of which would soon spoil the hedge.

Some two miles from Dr. Sibbald's, around the church at Sibbald's Point, I saw a combination of stone and cedar hedge which made an impenetrable fence. The stone was laid on the outside, along the road, to a height of about three feet, while the cedars grew inside and were allowed to spread over the wall till they were flush with the outside surface, when they were trimmed in a line with the wall. Where much stone is present it would seem an excellent way of getting rid of them to good advantage, while the overgrowing cedar relieves the stiffness of the stone and forms a pleasing feature in the landscape.

I had almost forgotten to mention one desirable point about cedar hedges, viz., the relief to the eye that they present in the winter time with their perennial greenness standing out amid the dreary whiteness of the snow. Some may make light of this point, but, nevertheless, it is not one to be despised. When nature seems dead the cedars and evergreen trees remind us of the coming spring and cheer us up with their presence. It is, after all, the little things in life that help to make it pleasant. G. W. G.

The Cultivation of the Cherry.

There is probably no class of fruit of which less notice is taken either in our Farmers' Institute meetings or agricultural papers than the cherry, and yet, while the production of other fruits and grains is largely increasing, nothing like the quantity of cherries are grown by ordinary farmers now as was done a dozen or more years ago. If this change were caused by newer and better kinds of fruit taking the place of the cherry I would have nothing to say. But this is not the case. There are many who will agree with me when I say that there is no fruit more pleasant to the taste or more healthful than the cherry. It makes one's mouth water even to think of the clusters of plump, rosy fellows which hang so invitingly within our reach in the hot July days, tempting us to taste of their richness, and in the winter it is a special occasion that calls for a jar of cherries.

When apples, plums and berries are a "glut" in the market and can hardly be disposed of at any price, cherries are always in demand and realize good prices. If the cherry is such a valuable fruit why is it that its cultivation has fallen off so largely among farmers of late years.

Like the virgin soil which for some years had only to be "tickled" to yield abundant crops, so the cherry had only to be planted to thrive and bring forth a rich harvest. But it, as well as other things, became a prey to disease. The black knot fell upon it like a scourge; the curculio was suddenly smitten with a fondness for cherry; the rot made its way into many cherry orchards, and after a few spasmodic efforts to subdue the enemies the sentence went forth: the cherry must go, and go it did from the majority of our farms.

I think the fight was given up much too easily. If a tithe of the energy that is being devoted to the apple scab and other diseases had been devoted to the black knot it might have been banished from our orchards long ago and thousands of trees saved. Out of forty young trees, all of which were badly infested with the black knot for several years, I succeeded in saving thirty, and for two or three years have had very little trouble in keeping them free of disease.

I think the worst stage of these diseases is past. With the better knowledge we have of how to fight them, together with the enemies they have in nature, there should be no difficulty in keeping them in check, therefore I would advise those who have cut down their cherry trees to plant again.

A few hints with regard to planting, varieties, etc., may be of use to some of your readers. Cherries will grow and thrive on almost any soil if well drained. Do not try to grow them on wet, heavy clay, but on a dry, clay soil they will do well. A very good place to plant is along fences enclosing orchards or gardens, or, in fact, any fence where they can be protected from stock and kept clean. If possible have the ground prepared the summer before by following a narrow ridge close to the fence or by digging holes considerably larger and deeper than required for the roots.

Set the trees fifteen to twenty feet apart and mulch the first year to keep the moisture in. Very little attention is needed from time of planting till the trees come into bearing, but what little there is must not be neglected if we would look for success. Be sure and protect young trees from girdling by mice in winter or from being broken down by stock. Watch closely for black knot and upon first appearance cut off and burn; otherwise very little pruning is needed.

Varieties.—Fruit-tree agents and nursery catalogues will furnish you with a host of varieties—some good, others indifferent. I have very little faith in agents who come around selling new, high-priced varieties "absolutely curculio and black knot proof." Even the insects and the fungi seem to know a good thing when they find it, and if you get something that they will not touch you will probably not think much of it yourself.

There are two distinct classes of cherries. (1) The Heart and Bigarrean cherries are rapid

growers, forming shapely pyramidal heads and bearing good crops of heart-shaped cherries, generally sweet in taste. This class, like the pear, should not be grown on very rich land or be heavily manured, as they grow so rapidly that they are liable to crack open or blight. Of this class the Black Tartarian (ripening in June), Elkhorn or Black Heart (July), Coe's Transparent (June), and Napoleon Bigarrean (July) are among the best. The first two mentioned are black and the last two light red in color. The other class consists of the Duke and Morello cherries and is more common. The fruit is more or less acid, round in shape, and generally red. The common red cherry belongs to this class. Not being such rapid growers, this class will do on richer soil, although they will bear abundantly for years without manure. The Early Richmond for an early variety, ripening in June; the common red or American pie cherry, two weeks later; and the English Morello, very late, are to be recommended. For general use in one's own family I know of no better variety than the common red.

The necessity of keeping the black knot cleaned off trees every year cannot be too forcibly impressed upon cherry growers. To neglect this for one year may mean ten times the work the next year or perhaps the loss of some valuable trees. Most authorities say to cut the knots off in the fall. Do it then if you can, but if it is not done then do it early in the spring. I have gone over the trees about beginning of March for several years and went over thirty trees this spring in twice as many minutes.

When the trees begin to bear it is absolutely necessary to spray if a full crop is wanted. Spray with Paris green immediately after the blossoms fall and a week or ten days after. If there is any danger of rot use Bordeaux mixture with Paris green. Cherry trees have given me better results from spraying than any other fruit I have tried. In picking for market let the fruit ripen well on the tree and pull leaving the stems on the cherries. In this way they will ship and keep for some time. Be very careful not to put in any bitten fruit, as one wormy cherry, like a bad egg, may lose you a good customer.

Whether it would be profitable to plant out large orchards of cherry trees or not I am not prepared to say, but one thing I am sure of, and that is that every farmer might grow enough to supply his own family, and that with very little outlay either in time or money. J. G. COWIE.
Haldimand Co., Ont.

ENTOMOLOGY.

Injurious Insects -- II

BY DR. JAMES FLETCHER, DOMINION ENTOMOLOGIST.
THE SAN JOSÉ SCALE.

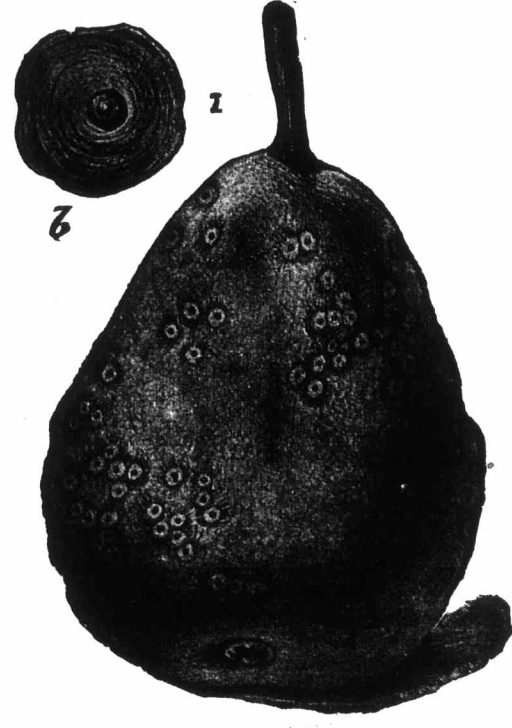


FIG. 1.—San Jose scale: a, pear moderately infested; b, female scale enlarged.

Few insects have attracted more attention during the last three years than the San José scale. Newspaper articles have appeared, addresses have been delivered at meetings, and numberless letters have been written in the endeavor to arouse nurserymen who were likely to have and distribute infested stock, as well as fruit growers who might purchase trees bearing this very inconspicuous but terribly injurious pest. The San José scale has for many years been recognized as one of the enemies most to be dreaded among the fruit orchards of the Pacific Coast, and, since its introduction into the East, only a few years ago, it has established itself in many of the Eastern United States, where it has already caused a great amount of damage.

The history of the introduction into the East, and the early recognition of its dangerous character by Prof. Comstock, who named it the Pernicious Scale (*Aspidiotus perniciosus*, Comstock), were treated of at some length in the FARMER'S ADVOCATE for December 15th, 1894. Attention was

drawn to it at that time on account of specimens having been found in the interior of British Columbia upon some neglected apple trees. These trees were cut down and burnt. A close watch has been kept for any further appearance in Canada of this scale insect, but until quite recently no trace of it or its work was detected. Two instances have lately come to my knowledge—one on Vancouver Island, the other at Chatham, Kent Co., Ont.

The original home of the San José scale is still a matter of doubt. Its appearance in injurious numbers was first recorded at San José, in California, twenty years ago. "In twelve years the insect spread through all the fruit-growing regions of California, through Oregon and into the State of Washington. It is known as the worst insect pest of deciduous fruit trees on the Pacific Coast, and has caused great pecuniary loss. Many crops of fruit have been ruined and thousands of trees have been killed."—(L. O. Howard, Circular No. 3, 1893.) Writing of its distribution in 1895, in "Some Scale Insects of the Orchard," Dr. Howard says: "It has extended by natural spread to Idaho on the north, and Nevada, Arizona, and New Mexico on the south. It is established at many points in the East, and particularly in the States of New Jersey, New York, Pennsylvania, Delaware, Maryland, Ohio, Indiana, Virginia, Georgia, Alabama, Louisiana, and Florida." The limits of distribution of this insect, like those of all other insects, are undoubtedly controlled to a large extent by climate. It has been found from long-continued observation that both animals and plants are restricted in their distribution to what have been called "life zones," which are determined, according to Dr. C. H. Merriam, the eminent zoologist, who has studied this subject more than anyone else, "by the total quantity of heat during the season of growth and reproduction." The San José scale occurs to a greater or lesser degree in all the States lying to the south of the great lakes, and although the data upon which life zones could be laid down accurately in Canada are too meagre to be of use in consideration of the question whether this insect would be likely to spread and become a serious enemy of the fruit grower in Canada, there is no doubt that it must be regarded as a very possible danger, at any rate in those parts of Ontario which lie along the north shore of Lake Erie, extending perhaps from the County of Essex to the County of Wentworth. It was supposed at one time that the San José scale would not thrive east of the Rocky Mountains, but we now know that this supposition was erroneous, and the present article is written with the idea of urging all fruit growers, particularly in that part of Ontario mentioned above, to be keenly on the alert to watch for and report promptly any occurrence of this or any other scale insect which resembles it, either in their orchards or upon young nursery stock imported from the United States. In cases of doubt specimens should be forwarded for examination, and perhaps it may not be amiss to mention again that all such specimens and correspondence concerning injurious insects can be sent by mail free of postage to the writer at the Central Experimental Farm, Ottawa, and will be reported upon in the next number of the FARMER'S ADVOCATE after receipt.

One of the chief difficulties with regard to the San José scale is that it is very inconspicuous, being only about one sixteenth of an inch in diameter and very flat. When occurring in large numbers upon the bark of trees the minute scales lie close together, frequently overlapping, and can only be distinguished by means of a magnifying glass. The general appearance which they present is of a grayish, very slightly roughened, scurfy deposit, but their occurrence on a suspected branch can be readily detected if the branch be scraped with the finger nail, when a yellowish, oily liquid will appear, resulting from the crushing of the bodies of the small insects. During the summer an easily recognized indication of the presence of the San José scale upon fruit or tender twigs is a reddening of the tissues immediately around the scales.

This scale belongs to the same division of its class as the oyster-shell bark-louse, but differs widely from that species in that it gives birth to several broods of living young during the summer, instead of laying eggs which hatch only at one restricted season of the year. It passes the winter as a half-grown or nearly full-grown female. At Washington, where the full life-history of this insect was first worked out, it was found that about the middle of May the female begins giving birth to living young and continues to do so for six weeks. As soon as these appear they wander about a short distance and soon attach themselves by their beaks to the young bark, from which they suck their nourishment. They then begin to form their scales of a white secretion, which in about two days hide the insect. In about twenty-four days the winged males appear, and the females become full-grown a few days later. At about forty days these females begin to give birth to a new brood. There were apparently in the latitude of Washington five generations annually.

The careful working out of this life-history by Dr. Howard and his assistants at Washington has been of the greatest importance in arriving at useful conclusions with regard to remedies.

Remedy.—A very complete series of experiments was conducted not only at Washington, but also in many other parts of the Eastern United States, in which every material known as an insecticide for scale insects was tried, and Dr. Howard's final conclusions, of great value to us. He says:

"With the work can this spec developm months, s will kill young lar once and scale whi to the ord the foliage

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SIR,—extermi treatme less to liquid v vapors a and as caution The ca quantiti ties from that on cient fo to the b

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"With the San José scale the most satisfactory work can be done only with a winter wash; for this species may be found in various stages of development at any time through the summer months, and an emulsion spray at any given time will kill only a small proportion. Moreover, the young larva of the San José scale settles almost at once and immediately begins secreting a dense scale which after 48 hours is practically impervious to the ordinary emulsion diluted so as not to injure the foliage."

As stated above, the only satisfactory treatment for this insect is a winter wash, and the question naturally arises, Which is the best? Dr. Howard answers this for us: "But one absolutely satisfactory winter wash has been found. This is whale-oil soap, a pound and a half or two pounds to a gallon of water. This mixture killed every insect upon the trees to which it was applied, as was proved by a very thorough examination. Good whale-oil soap can hardly be bought for less than four cents a pound by the barrel, and this makes a thorough winter treatment an expensive matter. The best recommendation that can be made from the present outlook, however, is to use this mixture soon after the leaves fall in the autumn, and then, if examination reveals any survivors, to repeat it shortly before the buds open in spring." A good whale-oil soap may be made at home, if preferred, as follows: Potash lye, 1 lb.; fish oil, 3 pints; soft water, 2 gallons; dissolve the lye in water and add the oil on bringing the mixture to a boil; boil for about two hours and then add sufficient water to make up for the evaporation. This will make about 20 lbs. of soft soap, equivalent to about 5 lbs. of the hard."

THE ARMY WORM.

The question has been asked by the editor of the FARMER'S ADVOCATE whether the army worm is likely to reappear in injurious numbers again next season, and if any steps should be taken to ward off the attacks of this insect? In reply, I would say that the experience of the past justifies us in the confident opinion that the army worm will not reappear in the same localities where it was so abundant last season; for the immense hosts of the army worm are always attended, as was the case last summer, by their parasitic foes, which so effectually destroy them that it seems almost impossible for two army worm years to follow one another in the same locality. One of the most useful of these parasites is the yellow-tailed Tachina fly, which is well shown at figure 2. This fly not only reduces the numbers of the army worm, but is also very useful in preying upon the locusts which were likewise particularly abundant last year.



FIG. 2.—Tachina fly.

Should any one who suffered last year from the attacks of the army worm feel any anxiety about their reappearance, he might adopt the following preventive remedy (which is much relied on in the districts where the army worm is destructive oftener than in Ontario), viz., the burning of all stubble and old grass next spring in localities where the moths were observed. It may sometimes be necessary for this purpose to spread some straw over the stubble so that it may burn more easily. The young caterpillars passing the winter beneath refuse in the field, many will thus be destroyed, together with many other injurious insects. The moths of the early brood also lay their eggs by preference upon the old, dead stems, and if these are removed they will seek some other place where to lay. Systematic draining of low lands is very beneficial, the natural habitat of the species being thus rendered unsuitable for the young caterpillars.

Exterminating Pea Weevil.

To the Editor FARMER'S ADVOCATE:

SIR,—We use carbon bisulphide as the means of exterminating the weevil in peas, and find the treatment to be simple, cheap, effective, and harmless to the grain. Carbon bisulphide is a clear liquid which volatilizes very rapidly, producing vapors about two and a half times heavier than air; and as these vapors are very inflammable, great caution should be used to keep them away from fire. The carbon bisulphide can be purchased in small quantities from most druggists, or in large quantities from the manufacturers. It has been estimated that one and a half pounds of the liquid is sufficient for each ton of the grain to be treated, if used to the best advantage possible.

The peas containing the weevils should be placed in a comparatively air-tight box, barrel, bin or room, either in bulk or in cloth bags. Flat dishes should then be placed on top of the grain, and after the carbon bisulphide is poured into them the compartment containing the peas should be closed and allowed to remain undisturbed for forty-eight hours in order that the vapors may penetrate every portion of the receptacle and do effective work. The weevils can be destroyed at any stage of their growth, but the treatment should not be attempted when the thermometer stands lower than ten degrees above zero, as the liquid would not vaporize sufficiently rapid to work satisfactorily. I

would strongly recommend treating the peas immediately after they are harvested and threshed in the autumn, and thus destroy the weevils when they are still small and entirely enclosed in the peas. The vapors of carbon bisulphide will penetrate the skins of the peas and will thus destroy the weevils before they have completed their work of destruction and have made their escape. Peas which are not treated in the autumn can be treated in the warm days of the winter or in the spring and thus check the spread of this troublesome insect. All the peas grown in the experimental department in 1896 were treated last autumn, and the results are entirely satisfactory.

If peas are badly infested with pea weevil in the spring of the year, it is usually advisable to get them ground and purchase sound peas for seed. We have conducted an experiment for three years in succession, in which we have used sound peas and peas which had been injured by the pea weevil, for seed. The results show that only about two-thirds of the injured peas will germinate, and that the plants produced by them are usually much weaker and smaller than those produced by the sound seed. C. A. ZAVITZ, Experimentalist. Ontario Agricultural College.

DAIRY.

Losses in Farm Buttermaking.

To the Editor FARMER'S ADVOCATE:

SIR,—Allow me to bring before your readers a few facts about the care of milk as we find it in the farm dairy.

During the last year we went to a number of farmers and arranged with them to save us samples of their skim milk. We supplied the bottles and went for the samples the next day. We got about 100 samples from 36 farmers, and tested the milk with the Babcock test to ascertain the loss of butter-fat in the skim milk as found on the average farm. We found an average loss of .85% of butter-fat in the shallow-pan skim milk, and .95% of butter-fat in the deep-setting skim milk. No ice was used with the latter system. This means a loss of one pound of butter in each hundred pounds of milk, or one cow in every four that gives no return in butter for her feed and care.

In our experiments during 1894 and 1895 the average loss was .32% butter-fat in the shallow-pan system, and .28% butter-fat in the deep-setting system. About 5,000 pounds of milk was set in each way to test the merits of the two methods. The shallow pans were set in a clean, cool cellar, and no wind was allowed to blow through the room. The milk was skimmed in 36 hours after it was set. Ice was used in the deep-setting system to always cool the milk to 45° and lower, and the milk skimmed in 24 hours.

With the very best treatment we know of that milk can receive when set in the ordinary way there is still a loss of butter equal to about 12 pounds per cow per annum in the skim milk. If the butter is worth 13 cents per pound, the loss on each cow would be \$1.56, and \$9.36 on a herd of six cows. Now, when we look into the loss of butter as we find it in the average dairy on the farm, the loss amounts to 35 pounds of butter, or \$4.55, per cow per annum, and \$27.30 per herd of six cows by the shallow pans. With the deep-setting system, without the use of ice, the loss amounted to 38 pounds of butter per cow per annum, or \$4.94 per cow, and \$29.64 in a herd of six cows. This loss is worthy of consideration, and with cool, suitable rooms, plenty of ice, and careful methods of skimming, the loss in the farm dairy could be reduced about \$18.00 or \$20.00 per herd per annum. Judging from experience during the last eleven years, while connected with the dairy business, we feel that there is little hope for much reform in the private dairy in the future, and believe the only way is to advocate co-operation. The loss to the people of this Province caused by the haphazard way in which milk is cared for amounts to an enormous sum annually. There are about 920,000 cows in the Province; we estimate that 620,000 supply milk and cream to the cheese and butter factories, cities and towns, and 300,000 supply milk for buttermaking on the farm. If we divide these cows on 50,000 farms, or have six cows in a herd, the loss as shown already is about \$28.00 on each farm, and \$1,400,000 on the 50,000 farms. We have estimated that each cow will give about 4,000 pounds of milk per annum, and the milk to yield 15% of cream. This would be 600 pounds cream and 3,400 pounds of skim milk to each cow. Our milk yielded 19% of cream. The scale, churn and Babcock milk tester reveal some facts worthy of prompt consideration by the farmers.

Not over five per cent. of our farmers know how many pounds of milk their cows give in a year, nor the pounds of milk required to make a pound of butter, nor the number of pounds of butter each cow will produce per annum.

A farmer who is running a dairy for profit will not keep a cow that will not give more than 4,000 pounds of milk, yielding 200 pounds of butter per annum, nor neglect to provide a suitable room to set the milk in, nor be careless in his method of skimming.

Good dairy butter was this season advertised in the grocery stores in Guelph at 12½ cents, and choice at 15 cents; at the same time our dairy school and creamery butter is selling at 21 cents in Toronto, netting about 19½ to 20 cents per pound.

In the separator creameries milk has been yield-

ing a pound of butter from about 20 to 25 pounds of milk. If the milk from the 300,000 cows were turned into the creameries and skimmed with the cream separator, what labor and worry many a farmer's wife and family would be saved on the farm? More butter would be made out of the milk, the quality more uniform, and the butter be made a cash article at all seasons of the year. If a hundred farmers would combine, the greater part of the \$28.00 lost by them would be recovered. It would be a great advantage, and I believe it would work well, if all the farmers in reach of a creamery would send all of their milk to it and get their supply of butter from it every two weeks for home use, thus doing away with buttermaking on the farm. All that is needed is good management and confidence in the enterprise. T. C. ROGERS. Ontario Agricultural College Dairy School.

Pure Culture Starters in Cream Ripening.

BY F. C. HARRISON, BACTERIOLOGIST, O. A. C.

M. Sartori, a writer in the *Milch Zeitung*, of Bremen, Germany, recommends the development of about .62% of lactic acid in the cream previous to churning. This degree of acidity may be ascertained by the use of the Farrington alkaline tablets which are used considerably by factorymen in Wisconsin; an alkaline solution of recognized strength might also be employed.

For export butter, or butter that is to be kept a considerable time, it is better to have more acidity, about .67 to .7; whilst a lesser percentage of acidity, which leaves more aroma in the butter, is better for butter which is to be consumed at once. When the cream attains the required acidity it ought to be churned at once; if not, it is better to cool down. Butter thus prepared is distinguished by better taste and aroma, but the greatest advantages of this practice consist in the uniformity of the quality and its better keeping qualities. Butter from cream which has been separated, pasteurized, and then ripened by a proper starter, preferably a pure lactic ferment, keeps perfectly for 45 days.

Uniformity of quality and good keeping qualities are the prime requisites for an export butter. Sartori agrees with Storch, the Danish authority who first introduced pure culture starters, that the introduction of pure ferments corrects certain faults of milk which are due to the presence of harmful bacteria.

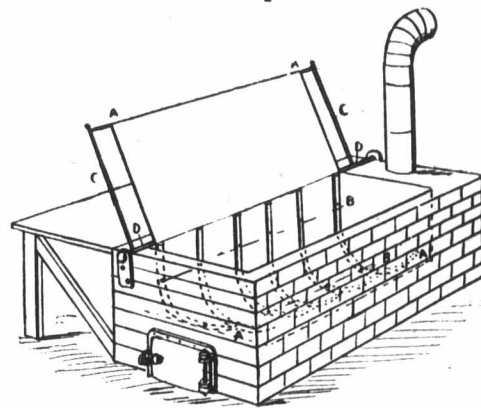
A Successful Creamery.

The Crystal City (Man.) Dairy Association reports a successful year during 1896, and anticipates a greatly increased supply of cream the coming season. The Pilot Mound *Sentinel* reports that in order to encourage patrons "the Association, through the liberality of one of last year's patrons, intends this year to give three prizes to patrons. To the patron supplying the largest amount of cream—in butter value—will be given a De Laval separator valued at \$100. The patron furnishing the second largest will receive \$40 in cash, and the third largest \$20 cash."

THE HELPING HAND.

Scalding Trough.

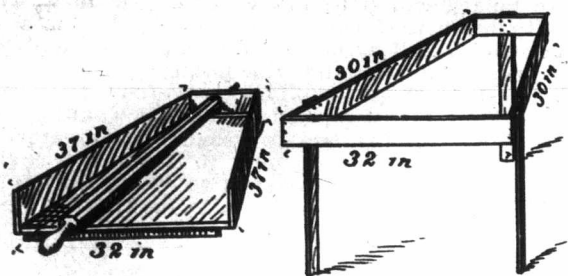
SUBSCRIBER writes:—"An improvement upon the scalding trough illustrated in your issue of March 1st, page 111, can easily be made by building a brick or stone fireplace under the trough.



The trough can be made with heavy sheet iron bottom and plank sides. If this is placed in feed-room of hog pen, or convenient outbuilding, it can be used at any time for cooking roots, feed, etc. A chain or rope, as shown in your illustration, answers very well, but a very handy rig can be cheaply made, as in the accompanying sketch. In this case the tank must be same width as depth, 6 feet long, 2 feet 3 inches wide, and same depth. A very small amount of fuel will keep the water hot, and if desired cold water may be added to lower temperature. An arrangement of this sort is in use on the hog ranch of R. H. W. Holt, of Moose Jaw, N.-W. T. D—Iron bar upon which the apparatus works, held in place on sides of tank by staples at each end, allowing it to turn. AA—Made in one piece, passing through or bolted to iron bars BBB. From C to C should be 5 feet, to allow 6 inches clear at each end of tank. The dotted lines represent steel hooks made from rake teeth. These are turned up out of the water by turning down the handles A. The hog is lowered from the platform at the back, rolled and turned in the water until scalded and raised again by this apparatus."

Homemade Butter-maker.

J. STONHOUSE, Wellington Co., Ont.:—"I enclose herewith a sketch of a butter-worker suitable for a herd of ten or twelve cows. Most workers are made with the legs fastened to the worker, but



a better plan is to make a frame of 1x4 inch strips of pine and fasten the legs firmly to that and brace them well with some light stuff, such as lath. The frame should be the same size as the worker, except that it should be six inches shorter so as to allow the worker to extend over far enough to run the water through a hole into a pail. The worker can be made of basswood or hardwood and should have a cleat across each end on the under side and so placed that they will just fit into the frame and hold the worker from moving sidewise or endwise on the frame. The sides should be six inches deep. The roller should be 45 inches long, made from a piece of maple 2 1/2 inches square and taper to two inches at the small end, with the corners dressed off so as to make it eight-sided. It should have a gudgeon in the small end, of half-inch iron and extend six inches from the end of the roller. This gudgeon should pass through a piece of hardwood which goes across the narrow end of the worker. The end piece of hardwood is raised half an inch or so to allow the water to flow off. Where the frame and worker are made separate they are much easier to handle and the frame can be hung up in any convenient place and the worker put in the cellar or some place where it will not shrink. I would suggest the dimensions of the worker to be 32 inches wide and 37 inches long, with a frame to correspond; the length of legs 28 inches behind and 23 inches in front."

The Diamond System of Setting an Orchard.

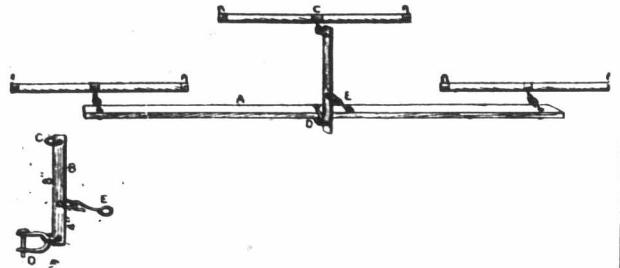
ELLIS F. AUGUSTINE, Lambton Co., Ont.:—"When planting apple trees considerable space can be saved by setting them on the diamond-shaped plan. This is most quickly and accurately done by



the following method. Drive a row of stakes on one side of the field, placing one where each tree is to stand. These should be 40 ft. apart. Now take two heavy cords 40 ft. long, stretch one from the first stake in the row and the other from the second, and at the point where the two meet will be the exact position where the first tree in the second row should stand. Now remove the first cord to the third stake and bring the two together as before to find the place for the second tree. Proceed in this way, as shown in the accompanying cut, until a stake is driven where each tree is to stand. This is a very simple, though accurate device, yet there are few people aware of its practicability. It is well to sight the trees both ways as they are being put in."

Three-Horse Whiffletree.

JAMES HAYDEN, Huron Co., Ont.:—"As I have derived so much benefit from your valuable paper, I thought I would contribute something towards helping my brother farmers, and I enclose a sketch



of the three-horse doubletree we use, as I consider it much lighter and more convenient than any other I have seen. The upright piece (B) is made of iron about as heavy as sleigh shoeing, and any blacksmith can make it. This is 12 inches long, with three large rings, as shown in sketch. The center horse should have longer traces than the other two, so as to let the iron stand upright which the center whiffletree is attached to. The doubletree should be 5 feet long, so as to give the center horse room."

[NOTE.—We have received a similar plan from another reader.—EDITOR.]

Shade for the Dwelling.

Shade trees are essential, only don't let them shade the house. Farmers, to enjoy life, must have their surroundings pleasant, commodious, convenient, and healthy. These conditions can only be obtained by attention to details, by having a place for everything and everything in its place. Once get started along these lines, and improved methods follow, and if we persevere we shall have our reward.

APIARY.

No. 3.—Hives and the Principles of Management.

BY A. E. HOSHAL, LINCOLN CO., ONT.

If the principles of bee-keeping mentioned by me in my March 1st article, and others indicated and implied therein, are to be applied in our apiaries it will have to be done largely through the medium of our hives. This, I think, needs no demonstration. Now, while it is true that in proportion as we succeed in correctly applying these principles do we succeed in obtaining the greatest amount of honey from our colonies, it is still further true that in order to be successful honey producers, in competition with others and a declining market, we must apply them with the least expenditure of time and labor. These factors show to some extent the important relation our hives bear to our success. Some, I know, strongly claim that hives and appliances have nothing or little to do with our success; such, however, has not been my experience and observation. The person who uses hives and appliances necessitating slow, tedious (exasperating to the bees and disturbing to the colony) manipulations and methods of applying principles which do not render these principles the most effective, if not left behind entirely in the race of keen competition, will always be seriously handicapped. This may not be of much interest to those who have already started in bee-keeping and have already adopted their hives and other appliances, good or bad, and are tied to these and have to make the best of them; but I do consider it of very great importance to those who are thinking of taking up bee-keeping, because in this very often serious and even fatal mistakes are made.

At present we have three distinct systems of bee-keeping: the old box hive, the movable frame, and the case system. If we wish to make of bee-keeping a real success but two of these are practical, namely, the movable frame and the case system, sometimes called the Langstroth and Heddon systems respectively. The great majority of advanced bee-keepers use the Langstroth or movable frame system, but my own preference is decidedly in favor of the case system as invented and perfected by Heddon. While there are others, there are mainly two reasons of prime importance which cause me to favor the case system. (1) It requires a much less expenditure of time and labor to perform the various necessary manipulations of our apiaries, and (2) with it we can keep our colonies in a condition more nearly in accord with those fundamental principles and conditions which I mentioned and indicated in my article in March 1st ADVOCATE. To make this all apparent to the reader it would be necessary to describe the various necessary manipulations of an apiary as performed by each system and the conditions obtained thereby, but space forbids that now.

To lessen the expense of time and labor in the manipulation of our apiaries we must handle hives and cases more and frames less or perhaps none at all; and the farther our hives and other appliances are removed through their construction from the accomplishment of our purposes in this way the more seriously are they at fault. This is looked upon by many as only a kind of fad of the Heddon case system, and a peculiarity of its hive; but I wish to strongly emphasize the fact that it is equally as true of the Langstroth system and appliances, only it cannot be so perfectly and easily carried out, they never having been intended for this purpose, only so far as modified up to it; whereas the Heddon is and always was intended to be manipulated in this way.

To apply effectively and with little labor the principles of honey production, I have found the following points concerning hives and their construction true; and they are equally as applicable to those of either of the two systems we are considering:

1. All double-walled hives are mistakes. I know of scarcely one redeeming feature in their favor. They tend toward the handling of frames instead of the handling of hives. They are cumbersome, heavy, and awkward, and nearly all necessary manipulations are performed with them at an enormous expenditure of time and labor. If wintering outside, use single-walled hives protected with an outer case and packing, which can be painted dark to absorb heat from the sun, and removed during the summer.
2. Single story hives are bad mistakes.
3. To adopt what is known as a deep-frame hive is a serious if not fatal mistake.
4. Slides, glass, scrollwork, etc., about a hive are worse than useless.
5. Use but one kind of hive, and that a readily movable one, not only as light as consistent with strength, but so constructed that its frames will not get out of place when being handled, whether it has bees in it or not.
6. A hive the combs of which cannot be readily removed when containing bees should not be tolerated.
7. The brood chamber of a hive should be not more than eight combs wide, and of about eight or ten Langstroth frame capacity in comb, the combs being 1 1/2 inches from center to center, and adjusted so as to occupy the least cubic space practical.
8. When a brood chamber is being either expanded or contracted, its top surface should be neither enlarged nor lessened thereby. This is not

possible, so far as I know, with any Langstroth form of hive.

9. Surplus cases should not be more than five or six inches deep. If the top and bottom bars of shallow extracting cases are more than 1/8 inch wide they will interfere with quick and accurate inspection when being filled, and also the uncapping of the combs. Cases for comb honey should be fitted with separators and to take a standard size of section.

10. Every hive, especially for extracted honey, should be fitted with a break-joint queen-excluding honey board (a name better expressing its use would be queen and brace comb excluder). Where this can be dispensed with, and it can, it is a sign that the hive or system is more or less at fault in other more important respects.

11. A bee space of about 1/4 to 3/8 of an inch should be preserved between the different parts of a hive. The tendency of the bees is to fill a smaller space than this with propolis and a larger one with comb.

12. The bearings of a hive should be square, and not more than 1/8 of an inch across. They are less liable to crush bees, and tend to rapidity in handling.

13. A good bee-escape is a necessary adjunct to every hive.

14. I prefer a plain flat cover for a hive, with neither cloth nor gable.

15. Hives should be kept painted, and no other color used than white. This color will reflect the heat of the sun, and consequently add much to the comfort of the colony during the heat of the summer. Painting, besides preserving, helps much to keep a hive accurate. Wintering cases should be dark.

16. Tolerate nothing but absolute accuracy in hive construction. A frame or other part that fits one hive should fit every other hive in the apiary.

Enthusiastic beginners, after one or two years' experience, and sometimes less, frequently make a foolish mistake in trying to improve some hive or invent one in accordance with their own ideas. This perhaps is pardonable when we consider that older bee-keepers often show their ignorance and much folly in this respect. The points which I have enumerated are not intended to help young inventive genius, but rather to aid the beginner to make a wise choice among the various hives, good and bad, which we already have. Having done this, our other methods and appliances should then be those which are specially adapted to the system and hive of our choice. Don't try to hybridize matters with respect to Langstroth and Heddon by attempting to adopt the best in each; though they have much in common, yet, like oil and water, they won't mix. In adopting either do so in their entirety.

POULTRY.

How to Make Hens Pay.

- 1.—How many hens do you consider it wise to keep on the average 100 acre farm, and to what age?
- 2.—With a view to eggs, table birds or both, what breeds or crosses would you recommend as likely to give most general satisfaction?
- 3.—What plans would you suggest for improving an ordinary farm flock of mixed fowls, such as selection or "weeding out," new breeding birds, setting of eggs, etc.?
- 4.—What period of the year is it advisable to retain male birds with the flock? How about numbers together?
- 5.—By what means do you secure the best eggs for hatching?
- 6.—What treatment would you suggest for a pen of breeding hens (from which the eggs are to be set) during the latter part of winter and spring?
- 7.—What sort of a house do you recommend with regard to (a) size, (b) location, (c) warmth, (d) sunlight, (e) ventilation, (f) dust bath, and (g) watering, and to what extent should fowls run out in winter?
- 8.—How do you manage to keep hens free from lice and disease?
- 9.—What foods or mixtures do you recommend for (a) egg production, (b) fattening, (c) how often would you feed per day, and (d) what value do you place on green bones, and vegetables, and sunflower seed?
- 10.—How many eggs per year should a good farm bird lay to be profitable, and at what age should broilers be sold?
- 11.—Should turkeys, ducks or geese be allowed to run in the same house with hens; if not, why?
- 12.—What is your idea of keeping turkeys, ducks or geese on the average farm, and how do they compare with hens as to profit, etc.?

Exercise and Green Feed Essential.

1.—Hens on a farm are usually kept in one house, and during most of the winter they have to stay there. Now, it is evident that the size of the farm has but little to do with the number of fowls one may keep. The question simply resolves itself into, How many fowls can be kept in one flock? Well, I would not keep over fifty, and twenty-five would be better. Fowls should not be kept over three years of age without they possess extra qualities.

2.—For eggs alone, I consider the Minorcas and Leghorns the best; for table birds, the Indian Game, Wyandotte, or Indian Game-Light Brahma cross; and for a combination of the both, I prefer Plymouth Rocks or Wyandottes. I think the last two breeds are the most suitable on a farm.

3.—To improve a common flock, I should secure a male—unsuitable for exhibition as to fancy points, but a thrifty individual—from some reliable breeder, mate him to the best hens, and next year secure a fresh one and continue on the same plan. A trio of good pure-bred birds might also be secured and in a little while the whole flock would be first-class. Buying eggs is often very unsatisfactory, discouraging both buyer and seller.

4.—The males should be kept in the flock during

the breeding season, which is from about March 15th to June 15th. When at liberty more than one male may be kept in the flock, but if the birds are confined the case is different, for then the males are always quarrelling.

5.—To get good eggs for hatching, the fowls must have plenty of exercise. During the breeding season I keep ten hens with one cock in each pen, with a large yard attached, and give them all the exercise I can.

6.—At no time do breeding hens require pampering, but good care is necessary. (1st) Give them all the liberty possible and make them scratch for their grain food for exercise. (2nd) Give plenty of vegetables and green food. (3rd) Do not overcrowd the fowls nor overfeed to get them too fat. (4th) Keep them clean and healthy.

7.—(a) For fifty fowls I should have a house 12 x 30 feet, 4 feet high at rear and 8 feet high in front; shed roof. (b) The house should face the south, so as to get as much sunlight as possible. It should also be located where the birds can get out into the barnyard in winter without going through much snow. (c) After getting the frame work of the house up I should tack heavy building paper on the studding, then put on the rough outside boards and battens. The inside should then have paper tacked on and then covered with tongued and grooved lumber. The windows should be double glazed. (d) Face the house south and have about half the south side of the house glass, but no glass in the roof. (e) A poultry house will generally get ventilated without any special contrivance. More fowls are killed by drafts than foul air in their house. (f) For a dust bath have a large, shallow box in one corner of the house, filled four or five inches deep with a mixture of sand and fine coal ashes. (g) The water vessel should be placed on a stand off the floor so the birds cannot foul it. A water fountain is the best, as it keeps their drink a great deal cleaner and purer. (h) The nests should be placed in the darkest part of the house. The interior arrangements of a poultry house are often quite hard to describe, for sometimes one way is as good as another, and these little matters do not affect the productiveness of the fowls or the ease of taking care of them. Fowls should always be given their liberty unless the weather is very cold or stormy.

8.—Lime wash the henhouse in spring and fall and thoroughly dust the fowls with Persian insect powder about once a month. Disease seldom comes where good care and food are given. If a fowl shows signs of sickness it is best to kill her and bury her away down deep. It seldom pays to doctor a hen—prevention is better than cure.

9.—For laying hens, as a morning food take equal parts, by weight, of cut clover hay, ground oats and bran, and half the quantity of linseed meal. Steam the clover hay, then mix in the others until it is all dry and crumbly. In the afternoon throw on the floor their feed of wheat, oats, barley or corn. Give wheat three times a week, oats and barley once each, and corn twice. (b) In fattening give all the corn they will eat, both whole and ground. (c) I only feed grain twice a day. (d) Green bones in limited quantities are very valuable for laying hens. Give one ounce per hen three times a week in their morning food. Vegetables cannot be fed too liberally; in fact, green food should always be within their reach. Have never fed sunflower seed in quantities.

10.—A good hen should lay ten dozen eggs a year, but the majority do not come up to that number. Broilers should be sold when about ten to twelve weeks of age, or when they weigh one and one half to two pounds.

11.—No, turkeys, ducks and geese should not be kept in the henhouse. All of them are very annoying and quarrelsome with hens, and are apt to hurt them. Ducks and geese sit on the floor and so foul the litter that the hens do not care to scratch in it. A henhouse is usually too warm for turkeys.

12.—Turkeys are usually very profitable. They require good care while young, but when older they are hardy, and do not harm farm crops, but their roaming disposition is sometimes very troublesome. Ducks do not usually prove very profitable on a farm, neither have I much faith in geese. But as I have had but little personal experience with these last two, I do not wish to make any positive remarks. My idea is that not more than two species of fowl should be kept on the same farm. I consider the hens the most profitable. By attention to details there is no reason why fowls should not be a very profitable branch of farming; and with the encouragement that the Government and agricultural press are now giving to the poultry industry, it is time farmers woke up to their own interests. JNO. J. LENTON.

Ontario Co., Ont.

Dearth of Milkmaids.

The old-fashioned inquiry of "Where are you going my pretty maid" is no longer answered in the North of England by "I am going a-milking, sir, she said." One of the features of the time is the dearth of maids who can milk cows. Female servants no longer vie with each other in filling the pail, but appear to be better adapted to strum the piano than milk a cow. This fact was elicited in a recent case of wrongful dismissal in Yorkshire, in which the master pleaded he hired the girl to milk cows and churn, and not to play on the piano.—*British Dairy World.*

QUESTIONS AND ANSWERS.

[In order to make this department as useful as possible, parties enclosing stamped envelopes will receive answers by mail, in cases where early replies appear to us advisable; all enquiries, when of general interest, will be published in next succeeding issue, if received at this office in sufficient time. Enquirers must in all cases attach their name and address in full, though not necessarily for publication.]

Legal.

WATER COURSE.

"A, B and C are the owners of three successive farm lots—A the easterly and C the westerly. There is a stream of water which runs across the farms from east to west in the natural water course. The water does not get freely away over the farm of C, and backs up and renders a considerable part of the farms of A and B less valuable. By cutting a ditch through a swamp on C's farm the water would pass over, and it would greatly benefit C, as well as A and B. Can the making of the ditch be forced, and at whose cost and how?"

[Yes, the ditch can be forced through. The fence viewers, under the statute, would be required to determine the proportion of the cost to be borne by the parties benefited.]

CLEARING AND BURNING OFF.

"What precautions is a person legally bound to take, who is burning off brush, stumps, etc., on his farm, to avoid liability for damage to surrounding property?"

[He must take great care and exercise every reasonable precaution to prevent damage by spread of the fire, and if he starts a fire at a place or time when it is reasonably likely to spread and damage another's property, and damage results, he is liable.]

STREAM, FLOATING LOGS, ETC.

"1. A is the owner of a cleared farm bordering on a lake. Through the farm runs a large creek, which extends from A's farm across a public highway and into a farm nearly all bush belonging to B. The stream is navigable through A's farm and part way over B's farm all the year round for purposes of shipping timber, etc. Can A legally prevent B from passing through his farm over the stream in the use of it for the purpose of shipping timber, etc.?"

"2. At the point at which the stream crosses the public road between A and B can a boathouse be built upon the roadway without the consent of the Council?"

"3. Can a boathouse be built anywhere along the margin of the stream upon private property; and if so, are there any restrictions?"

[1. The Rivers and Streams Act provides the right to float sawlogs and all timber down rivers and streams, and for this purpose to remove any obstructions, doing no unnecessary damage, and A in this case cannot prevent B from using the stream for all the usual purposes for shipping the timber, etc.]

2. No.

3. Yes; the only restrictions would be that such structure must not obstruct the right of any one to his lawful use of the stream for floating timber, navigation, etc.]

CHATTEL PROPERTY OWNED BY HUSBAND OR WIFE.

"At marriage the wife's father gave her certain farm animals, and during the following two years the wife continued to own these animals, or others in their place, and bought a calf from her son which she also claims as her own. In case of dispute now between husband and wife as to who owns these animals, which is legally entitled?"

[As the husband consented to the wife owning the animals as her own up to the time of the dispute, the wife is the owner as between themselves, but in an action between a creditor of the husband and the wife, the animals, it would probably be held, are liable at law to be taken to satisfy the debt.]

WILL AND CODICIL.

"P made his will in Ontario, and about a year ago removed to the State of Michigan. In Michigan he added a codicil to his will, which he signed, witnessed by only one witness. Where can the will be proved? Is the codicil regularly made and valid?"

[The will would have to be proved both in Michigan and Ontario in order to deal with property in both places, and being executed in the presence of at least two witnesses, is eligible for probate in either Ontario or Michigan. The codicil to be effective in either Michigan or Ontario should have been witnessed by at least two witnesses, and therefore is void.]

Veterinary.

INJURY TO JOINT.

ALEXANDER FRASER, Stormont Co., Ont.:—"I have a cow that has a lump on the left shoulder. I first noticed it about 8 or 9 months ago; when first seen I thought it would result in an abscess and that I could lance it. It is now about 18 inches in circumference, very hard, of a bony or gristly substance; she has become very poor, and lame on that leg. Can it be cut out; what would you recommend me to do for it?"

[From the symptoms described, we are of the opinion that you have a very severe injury to the joint itself and the cow is not likely to do any good. The animal being lame is evidence that the joint must be involved and the extensive character of the deposit also points to the fact that the ani-

mal is not likely to make a good recovery. We would recommend that you try a strong blister to the parts, composed: powdered cantharides, one ounce; potass. tartrate of antimony, one dram; lard, four ounces. This should be applied every week until improvement manifests itself by the formation of an abscess. We would not recommend you to try and cut it out, only a professional man who has good knowledge of the anatomy of the parts should do that.

DR. WM. MOLE, M. R. C. V. S., Toronto.]

PROBABLY COLIC.

A SUBSCRIBER, Wentworth Co., Ont.:—"I had a colt die rather suddenly last week, which was well, to all appearances, the night before and ate its feed as usual. It was in fair condition, its feed being oat straw, hay, sometimes a turnip, sometimes boiled potatoes with cut straw and meal, and a little salt, which it had the night before. I was at a loss to understand the cause, and upon post-mortem examination found the stomach burst and inside found what I would call bots in large numbers in different places. They had eaten little holes from within and that had evidently been the cause of the bursting. This was no doubt the cause of the colt's death. I would like to know how they got there and how to get rid of them, as I am afraid some of the rest of my horses may have them?"

[Veterinary authorities are generally agreed that there is no evidence that in their normal condition bots are to any considerable extent injurious to the health of the horse. Dr. Stewart, in his work, "The American Farmer's Horse Book," goes so far as to say: "The bot is hereditary with the horse and is born into the world with him, the colt at the moment of foaling having the little parasite in his stomach in as perfect a state as the horse of six years. He is found attached to the cuticular or insensible coating of the stomach, not by his head, as is popularly supposed, but by his tail. For a month he has a little orifice, no larger than the point of a needle, with which he feeds upon the food in the stomach after it has been softened down into chyme. The bot does not attack the stomach for the purpose of preying upon it or of injuring the animal, but simply (after the death of the horse) to seek to escape from certain death himself." We are strongly inclined to the opinion that the cause of death in the case of this colt was simply spasmodic colic, which began and ended in a night by the accumulation of gas, causing a rupture of the stomach, or "bursting," as our correspondent terms it. This is by no means an uncommon occurrence, and would fully account for all the findings of the post-mortem.]

Miscellaneous.

REARING SPECKLED TROUT.

A. B. STECKLEY, Ontario Co., Ont.:—"Could you give the necessary information for rearing speckled trout?"

[A word or two in regard to ponds should first be given. An ideal arrangement is to have a succession of three or more ponds, supplied by springs all along the ravine in which they are built. The lowest pond should be the largest; the others gradually smaller. Some rather elaborate ponds are connected by plank flumes, built zigzag to secure greater length; these having plank partitions every 6 to 10 feet, 2 feet high, to give that depth of channel. A notch is cut in the middle of the upper edge of each plank, of a V shape, to direct the water through at one point, and to allow the trout to pass more easily up and down the flume. By such a succession of little dams we convert a small stream of water into one of quite respectable magnitude.]

The whole floor of the flume is to be covered with fine and coarse gravel, and when completed the water will be about six inches in depth, making as nice a place for them to deposit their eggs as the most fastidious trout could desire. The advantage of a succession of ponds for trout is that it prevents, to a considerable degree, the devouring of the young fish by the older ones. After the young trout attain to the size of an inch, or a little over, they should be transferred from the hatching house to the upper pond to remain a year, then allowed to pass into the lower pond. When springs have not sufficient length for a succession of ponds, the young trout may be kept for a year in a tank or pool, the water being supplied by a spring, and then transferred to the pond, where they must run their chances of being devoured. The spill or outlet of the ponds must be protected by wire screens, to prevent the escape of fish.

Artificial Breeding.—The spawning season commences about the 1st of October, and continues nearly two months. They invariably seek very shoal, gravelly rapids for depositing their eggs. In order to procure eggs, the parent fish must always be taken on the spawning beds and after they have commenced depositing their eggs. If the eggs are mature they will flow from the female trout with very slight pressure. The fish should be caught by means of a net or sieve 3 or 4 feet long by 2½ feet wide, the lower or lead line loaded with sinkers. The eggs when deposited from the female are not fertilized, but a male trout always occupies a bed with the female, and while she is laying, he is secreting milt among the eggs, thus fertilizing them. So that when eggs are artificially pressed from the female, they must be mixed with milt expressed from the male in a basin of water, and placed in the pool or hatching box with sandy, gravelly bottom.

The term of incubation will depend somewhat upon the temperature of the water in which they are placed. Eight weeks is the usual time in water at 42 degrees Fah. After the young fry leave their eggs they may be suffered to remain for a few days in the pool or hatching boxes or they may be removed at once into small tanks or boxes having fresh water running through them and guarded by fine wire screen. A box 3 x 2 x 1 foot deep will do for 1,000 or 2,000. When two months old they may be placed in a pool of water fed by a good spring. This should have a nice clean gravelly bottom, with some large stones thrown in. The pool is better shaded from the rays of the sun.

The young fish need no feeding for about one month after they leave the egg. After that time lean flesh of animals or liver should be fed to them, hashed up very fine. When a year old they are ready for the pond or stream, where occasional feeding once a week or so is advisable. Newly constructed ponds provide very little food, and, hence, more must be supplied, but old ponds usually contain snails, leeches, crawfish, etc., in considerable quantities. The old trout should be kept in the lower ponds as far as practicable to prevent them devouring their younger brothers.

We believe it is the custom of most men who rear trout to purchase the fry about April 1st, of last year's hatching, which is about the right time to give them the liberty of the pond or stream. It is essential that all ponds for trout have connection with a stream having considerable current, as trout will not live in a stagnant body of water. Another point to be remembered is that seldom more than fifty per cent. of the fry live to become marketable fish.]

SANFOIN CLOVER.

REV. DR. J. P., Middlesex Co., Ont.:—"Since the practice of summer soiling has become so advantageous, I would like to learn through the columns of the FARMER'S ADVOCATE something of sanfoin clover as a food for dairy cows."

[While sanfoin clover has been grown successfully and extensively for many years in various parts of Europe, it has, as yet, received very little attention in this country. It is a perennial usually sown in the spring, alone or along with a cereal crop. It is peculiarly suited to chalky or sandy soils, and has in some of the poorer portions of England improved the character of the soil from being a poor waste to a fertile section. It is said to be readily cured, and equals any other clover in flesh and milk producing qualities. It roots deeply and produces two abundant crops in a season. While no harm and possibly much benefit may be derived from testing a patch of sanfoin this coming season, we would have no hesitation in recommending the sowing of a field of lucerne, as it has been proved a great success in Middlesex and other Ontario counties, as a soiling crop. Sanfoin seed is large and weighs 26 pounds per bushel. It should be sown from 3 to 4 bushels per acre, a little deeper than other clovers. Lucerne should be sown 12 to 15 pounds per acre, and should be sown alone on very clean land or along with a cereal crop, as red clover is sown.]

WHEN TO REMOVE WINTER PACKING.

A. B. GINER:—"I have nine colonies of bees on the summer stands, packed as follows: In the fall, on the approach of cold weather, I removed the super, put a 1/2-inch board over the brood-chamber, the size of the outside of the hive, then put a box over all, four inches higher and two inches larger on all sides than the hive, filling the sides and cover the brood with sawdust, and putting a rain-proof cover over all. When should I remove the packing and put on the quilt? Also, should I have put on the quilt last fall? Do you think the quilt is sufficient protection over the brood-chamber in this climate?"

[Better leave the packing on too long rather than remove too early. If you know the bees have plenty of stores, and they appear to fly strong in numbers, there may be no need to remove the packing till about the time you want to put on supers. At any rate, leave it till fruit-bloom, unless there be some special reason to the contrary. Opinions differ as to leaving on the quilt in winter, perhaps the majority removing it. A quilt is usually well covered with propolis, and gives little chance for absorption or upper ventilation. But with strong colonies and abundant opening below, there may be no need of upward ventilation. With everything glued up tight overhead, if the entrance is very small the bees will not get enough air, but the tendency nowadays seems rather toward larger entrance below without so much regard to what is above.—Am. Bee Journal.]

WASTING DISEASE IN HENS.

B. C. SUBSCRIBER:—"For some time I have been regularly, about once a month, losing a hen from some disease that I cannot get to the bottom of, and I am writing to know if you can help me. They show no sign of any disease that I can find in any book on poultry. They begin by looking dull and listless and seem daily to get weaker and weaker and lose all flesh until they are mere bags of bones, and then generally in about a fortnight or three weeks I find them dead. Some scour, but as many do not. Their appetite remains good to the last. They have unlimited run. I feed a warm mash of pea and oat chop mixed with bran and shorts in the morning and whole wheat in the evening. They have a good warm house, are kept clean, and have fresh water every morning. Still

one at a time they keep dying off all the year round—sometimes a hen, sometimes a pullet. I have given Sheridan's condition powder and Starveant's egg food without any good results. If you can tell me how to stop the mortality I shall be very much obliged."

[Your fowls have been dying with consumption or lung disease. If you have one so affected at present kill it and you will find, if dissected, a wasting away of the lungs. A great many fowls die every year with this disease. In most of the fatal diseases there is a poisonous fungous growth in the blood. Fowls never perspire and the heart beats one hundred and fifty times per minute, so that diseases that are easily thrown off by perspiration, with them have to be exhaled by respiration, and as a result we find the seat of nearly all the fatal diseases to be in the head, throat, and lungs.

Causes.—In-and-inbreeding, a poorly ventilated house, unwholesome food, or from the effects of roup or distemper.

Treatment.—Our advice to subscribers would be to kill all fowls so affected and breed only from the healthiest specimens and those known to have a strong constitution. L. G. JARVIS, Ontario Agricultural College. Poultry Supt.

BARN BUILDING ESTIMATES.

W. C. H., Prince Edward Co.:—"Through your valuable paper please give an estimate for building a barn 30 x 60 feet and 18 ft. posts? Not the material, except paint. The masonry 30 x 60 x 8 feet, and only 18 inches on the south side? The carpenter work, framing, building and finishing off, etc.? Now the painting, cost of two coats and putting the same on? What kind, mixed in what proportions? Would you use any cement in paint? Would it not be better to mix the paint some time previous to using? The shingles are cedar and siding matched."

[Mr. Finlay Fraser, an experienced framer, makes the following reply to the above: "In reply to W. C. H., would say his question is not definite enough to give a close estimate. If his barn is a common barn, four bents and stable below, the framing work would cost about \$130, provided inquirer saws girts and rafters. The masonry would be worth 50c. a perch (16) cubic feet, counting corners twice, mason to get half the openings—doors and windows. Am not posted about painting. For convenience, would recommend him to paint gable before it goes up, giving it time to dry before framer uses it. Above estimate does not include board."

Isaac Usher & Sons, Queenston, Ont., write: "Re cost of building as per enclosed slip:— The walls would require say 36 barrels cement, at \$1.25. \$45 00 Labor, 13 days, at \$1.00. 13 00 (40 yards gravel.) \$75 00

Good concrete floor, whole building (floor to be 4 inches thick), 32 barrels cement, at \$1.25. \$40 00 Labor, 13 days, at \$1.00. 13 00 (22 yards gravel.) \$53 00

"This estimate is taken from figures kept by farmers who have put up their own buildings, and is as nearly correct as possible, and includes labor and cement, as cost of gravel and stone depends on the locality."

With regard to painting, we recently looked over two large, fine barns painted with two coats Venetian red and oil, and learned that the contracts had amounted to about three cents per square yard, doors and windows in basement included. The jobs cost \$80 and \$90 each, respectively.

The Canada Paint Co. write: "Measurements are not very clearly expressed, but we understand the surface to be painted, 30 x 60, being 180 feet around by 18 feet high, making some allowance for gables, this being of planed wood requires for two coats fifteen gallons of prepared paint. The roof represents about the same area, but being of sawn shingles would take a much larger quantity, probably twenty-five gallons for two coats. It is just possible your correspondent might wish to stain the roof instead of painting. This gives a more handsome appearance and is done in moss green or in variegated colors, but stain covers less surface owing to absorption, and it would probably take forty gallons to thoroughly coat the roof. In reference to cost, the paint might be reckoned upon to cost \$1 to \$1.20 per gallon, according to quality. The stain would cost 60c. per gallon, so that the cost of the work would be about the same whether painted or stained. Both coatings would be ready for use and would not contain cement, which we consider objectionable. The cost of applying would depend upon the locality and had better be ascertained on the spot. Any paint dealer in your correspondent's district would furnish him with all information."

ORIGIN OF DUROC-JERSEY HOGS.

A SUBSCRIBER, Wentworth Co., Ont.:—"I wish you or some of your readers inform me where the Duroc-Jersey hog originated? Has it any claims over other breeds for early maturity or rapid growth? (2) Why is it that when a hog gets in demand those with a short back, thick necks, heavy shoulders and short legs are the ones that are the same price per 100 pounds as those with a long, narrow-backed ones will on the same scale? If one eighth of a cent difference in price per pound, fair live hogs to a packer, you can see how much you will receive until they are weighed, and how much and re-weighed to determine if they are not too

fat, or too heavy, which we think at times depends on the kind of pickle the packer has been in or the quality of the smoke he has had just previous to the arrival of the farmer with his load of hogs. But all the same it may make a difference of fifty cents a hundred to the farmer."

[(1) The origin of the Duroc-Jersey breed of hogs is not positively known. They can be traced back over half a century as having been bred in New Jersey during that period of time. Some claim them to be descendants of the Jersey Red and Red Berkshire. Others believe they are from the Jersey Reds and Durocs. The Jersey Reds had large bodies and were coarse in bone, hair, and flesh. The Durocs were finer in the bone and carcass. The name Duroc was given them by Mr. Isaac Frink, a Saratoga Co. (N. Y.) farmer in 1823. An enthusiastic Duroc-Jersey breeder once claimed that they were "the best general-purpose hog in the United States, being the only hog that would make their own bed, grind their own food, and when fat carry their own carcass to market." They are of medium to large size and capable of making a heavy growth, 500 and 600 pounds being not uncommon, and are considered hardy and of good constitution. We judge they have strong claims to early maturity, and if bred with a view to meeting the demands of the market are a very useful breed, standing on strong legs and capable of making good weights at an early age. They are evidently gaining favor in sections of the United States and Canada where they are well-known.

(2) Buyers do not always make a fair discrimination in prices for the class of hogs the packers call for, and sellers are too much at the mercy of the unscrupulous dealers; but, as a rule, when prices are ruling strong and the seller has the most desirable quality and weights to offer, he should not submit to terms which do not recognize the merits of the product he places on the market.]

PLASTER FOR CLOVER.

JOHN BRIGGS, Bruce Co., Ont.:—"Is land plaster good to produce a growth of clover on stiff clay soil having the vegetable mold burned off?"

[The above inquiry does not indicate whether the clover is of last year's sowing, and a greater luxuriance of growth is desired, or a catch is wanted from this year's sowing. If the former is the case, plaster sown right away will in all probability do good, as it will liberate potash, an element much needed by clover, which is frequently in an insoluble condition. If the seed is being sown this spring, the plaster would not be likely to assist greatly in getting a catch. A much better plaster would be to manure the land in some way this summer, either by plowing down a green crop, such as buckwheat, rape, etc., or by applying farm-yard manure, and seeding down next year. It will pay to start right.]

MARKETS.

Toronto Markets.

During the past month cattle have advanced a little, paying a small profit for raising and fattening. The market is fairly brisk and prices unchanged, though firm; buying for Buffalo was fairly active; about five carloads taken to Montreal.

Report Cattle.—The market here to-day was fairly active and prices about 1c. higher, but a sharp advance on a small run nearly always leads to a big decline on a large supply. The general demand was good; the off grades sold slowly at poor prices, but poor quality kept down the price; 3c. to 4c. per lb.; two choice loads fetched 4c. per lb. Cable advices from Liverpool to-day reporting actual sales of Canadian cattle were encouraging to shippers, as they showed a small profit; this steadied the market, and all stock sold early.

Butchers' Cattle.—In spite of repeated warnings quite a few inferior cattle on offer, some very hard to sell, but everything choice sold early from 3c. to 3c. per lb., while common sold down to \$2.50. Buyers from Montreal say that there is likely to be a scarcity down East all this summer, as they know of very few cattle in course of feeding and will have to look to this market for their supplies; a few are willing to pay 3c. per lb. for the right class of cattle. A few outside buyers were on the market.

Stocks.—This market was fairly active, and all sold at fairly good prices. Buffalo buyers are willing to pay 3c. per lb. for fancy steers. The demand is likely to continue until July, which may see the Dingley Tariff Bill enforced.

Feders.—There was quite a brisk demand from two or three of the stock farms near Galt and Woodstock. The distillery byres also wanted a few to fill vacancies. Prices ruled at 3c. for the general run, averaging from 1,000 to 1,100 lbs., up to 3c. per lb. for choice; half fat steers wanted.

Bulls.—There were not many offered; a good demand. Choice bulls for export, 3c. to 3c. per lb.; one sold at 4c. per lb. Stock bulls were quiet at 2c. to 3c. per lb.

Sheep.—Moderate demand; rams selling at 2c. to 2c. per lb.; ewes at 3c. to 3c. per lb. This is a shade better than last week.

Lambs.—There is a good demand for the right kind of lambs, weighing from 90 to 110 lbs., grain fed; if heavier, will not fetch the highest price. Prices ruled from 4c. to 5c. per lb.; all on offer sold early; choice lambs wanted; prices are strong, at a slight advance; 5c. offered at the close of the day for any kind.

Cattle.—About everything sold before noon, but dealers complain of poor quality; some sold down to as low as \$2.50. The ruling prices for choice veals were \$4 to \$6 each.

Milk Cows and Springers.—Anything choice in newly-calved cows or well-fed springers sold readily at \$30 to \$35 each. Poor stock hard to sell; some went as low as \$18 each.

Hogs.—The run was fairly heavy and the market firmer; prices advancing to 5c. per lb. for choice selections of heavy hogs, all kinds wanted except stores. Thick fat and light hogs averaged at 4c. per lb.; sows at 3c. to 4c. There is every probability of a shortage this summer, so many farmers have gone out of the hog business; light supplies must run to the market at 3c. for the best. Other grades are strong, but as yet unchanged; prospects are good for an advance.

Pigs.—Hogs were offered in moderate supply; demand for choice hams weights in farmers' loads sold at \$6.25 to \$7.00, and the balance at about \$1 less for heavy. There has been a fair advance in the provision trade all round. Long, lean hams are in demand again, sales of car lots being made at 10c. to 11c. per lb.; also higher; heavy hams at 10c.;

Wheat, sold at 62c. a waiting 5 74c. for wh Barley, Oats, Peas, Hay, Straw, Baled quoted from delivered a Eggs, off a little, dozen, lin Butte steady, an um, 8c. to 15c. per lb. cumulation well; best Cheese, lb., 10c. to 11c. owing to lately. Pul combings, 20c. to 21c. ported th 1 green, 70 5c. cured, each

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"Oh, thank you," said I; and tremblingly, with fear lest the dreaded Alice should get hold of it, I put my letter into her hands, and soon afterward left the house.

The fog was already so much thicker that I lost myself among the garden-paths, and walked into a flower-bed; and when I heard voices on my left, I made my way recklessly in their direction across grass, flower-beds, and everything. I was just going to speak, when a few words in the man's voice stopped me.

"I have had enough of you Norfolk girls; you are too stand-off for me."

It was Tom Parkes.

It seemed to me, with my suspicions concerning Tom already strong, that in the talk which followed he managed with very little difficulty to find out a good deal about the ways of the household. Presently I heard the sound of a kiss; and he promised to come and see her again on Wednesday; and then they went away; while I, seized by a sudden inspiration, found my way not to the park, but back to the house, which was less difficult.

I asked for Miss Maud Reade again; and this time she rushed out of the drawing-room and met me in the hall as soon as I was announced, and whispered—

"They are all in there. Come into the library."

"May I have my letter back, just to put in something I have forgotten?" said I.

"Oh, yes; here it is!"—and she drew it from her pocket. "Write it here. I will give you a pen. Why, how white you look! Has anything happened?"

"Oh, no, no, nothing, thank you!"

I wrote on a half-sheet of paper, which I carefully folded inside my letter, these words—

"A man who was at Denham Court, and about whom I have strong suspicions is hanging about the Hall now. He is coming here again on Wednesday night."

I put my letter into a fresh envelope, and put the torn one into my pocket that it might not be seen about; then I begged, Miss Reade earnestly to send the letter off at once, as there was something in it of the utmost importance; and she whispered again, "Remember Mr. Reynolds in the winter!" and, having this time got Williamson to show me as far as the beginning of the drive across the park, I made my way in safety back to the Alder.

Haldee left my room next day for the first time, and spent the afternoon by the dining-room fire. Soon after dinner Mr. Rayner came in with his riding-boots on, and asked with a smile if I had not a letter to send to the post. He was going to ride to Beaconsburgh, and, if I gave it to him, it would go a post earlier than if I put it into the bag for the postman to fetch.

"No, I have no letter, thank you, Mr. Rayner," said I, with a blush.

"Not a line for—Nipe, to tell—some one you are coming!" said he archly.

"No," answered I, shaking my head.

"You posted that one yesterday yourself, didn't you, Miss Christie?" whispered little Haldee, putting her arms round my neck.

Mr. Rayner heard the whisper.

"Yesterday?" asked he quickly.

"I—I gave a—a note to Miss Reade to put with hers," said I.

A curious change passed over Mr. Rayner. The smile remained on his face, which had, however, in one second turned ashy white. He said, "All right, my dear," in his usual voice, except that I fancied there was a sort of hard ring in it, and left the room.

That evening, at tea-time, Mr. Rayner announced that he had found a letter waiting for him at the Beaconsburgh post-office which obliged him to go to Monaco a day sooner.

So Haldee and I must be prepared to start on Thursday morning.

CHAPTER XXVI.

On Tuesday afternoon, while I was helping Haldee to dress her doll in the dining-room, there was a ring at the front-door bell, and shortly afterward Jane came in, looking rather frightened, saying a gentleman was in the hall asking for Sarah.

I got up, and, following her into the hall, found a respectably-dressed man, who very civilly apologized for disturbing me.

"Could I speak to you in private for a few minutes, miss?"

"Oh, yes, certainly! Will you come in here?"—and I opened the door of the schoolroom.

He followed me in and shut it carefully.

"I am the brother of Sarah Gooch, miss, who is a servant here."

I nodded assent.

"I've been abroad and worked myself into a good position, and now I want my sister to leave service."

"How could I break the fact of her illness to the poor man?"

"Oh, please be prepared for bad news! I'm so sorry!" said I gently. "She is ill—very ill."

"She was quite well last Friday afternoon."

"Yes—an accident happened to her on Friday night. She fell down a flight of stairs and injured herself severely. If you will only wait until Mr. Rayner comes, he will speak to you. Sarah is a very old servant in the family, and much respected, and she has every possible care I assure you."

But he still seemed more curious than anxious about her, I thought.

"Do you know, miss—if it's not troubling you too much, and you won't take it as liberty—she's got a sweetheart!"

I hesitated. The man's cold curiosity seemed so unlike the warm interest of a brother that I began to wonder whether I was right in giving him the information he wanted. My doubts were so vague and his questions so very harmless, however, that, when he said—

"I beg your pardon, miss—of course it is not for a lady like you to interest yourself in the likes of us—"

I broke out—

"Oh, pray don't think that! Sarah has an admirer, I know—"

He was very much interested at last, and was waiting impatiently for my next words, when Mr. Rayner quietly entered the room. He looked inquiringly at the man, whom I was going to introduce as Sarah's brother, when the latter anticipated me by saying quietly—

"From Scotland Yard, sir."

"Scotland Yard!" echoed Mr. Rayner, inquiringly. But the name did not seem new to him, as it did to me.

"Yes, sir; I've been sent after a woman named Sarah Gooch, from information received that she was in your service. Mr. Gervas Rayner, I believe, sir?"

"Yes, that is my name. But what on earth do you want with my servant, Sarah Gooch?"

"Suspected of complicity in the Denham Court robbery, sir—some of the property traced to her."

"But what proof have you?" asked Mr. Rayner earnestly.

"Last Friday afternoon, between half-past four and twenty minutes to five, your servant, Sarah Gooch, was seen to give the contents of a black bag to a man in Beaconsburgh. The man took the next train to London, traveling second-class. But south of Colchester he was seized with a fit; he was taken out at the next station, the bag he had with him examined for his address, jewels found in it, and the police at Scotland Yard communicated with. The man escaped; but, on inquiries being made, witnesses were found to prove conclusively that the biscuit-tin which contained the jewels had been handed to him in a street in Beaconsburgh, on Friday afternoon, between half-past four and twenty minutes to five, by a woman who was identified as Sarah Gooch. The main point now is, having traced the jewels to the woman Sarah Gooch, to find out how they came into her possession. I must ask you to let me see the woman and question her. Taken by surprise, she may confess everything."

[TO BE CONTINUED.]

THE CHILDREN'S CORNER.



Within the cosy nursery,
Two little kitties play,
As good as gold, though full
of fun,
The live-long summer day;
In fact, they were too good
to live,
The mother cat would say.

And day by day, as sweet they grew
As any one could wish,
Until within the nursery
Was placed a bowl of fish;
And they, it seemed the kitties thought,
Would make a dainty dish.

But, wishful ever to maintain
Their character so dear,
They watched the little glittering fins
With longing, yet with fear;
Then all at once devised a plan
To keep their conscience clear.

"Dear brother Tom," said sister Floss,
"I wish we could be told
How is it that these pretty fish
Are all aglow with gold?
Now, shall we find out for ourselves?
We will not make too bold."

"We will not hurt the pretty things,
Nor give one tiny pat
To frighten them—you know we are
Too well brought up for that;
We only wish to peep and see!"
"Quite right," purred mother cat.

Alas! alas! for good resolves:
One little moment more,
And then a crash, an awful smash
Upon the nursery floor,
And kitties sweet beat swift retreat
From out the open door.

A moral I would have you note,
'Tis very quickly told—
To turn from all forbidden sweets,
To be not over-bold,
And learn that all things (even fish)
That glitter are not gold.

—Marian Isabel Hurrell.

Slyboots.

Slyboots was his name, and Slyboots was his nature, but there is this to be said in excuse for his underhand tricks, that he had a wife and family at home who expected a great deal of him, and looked very black indeed when he returned empty-pawed.

"I wish papa would bring us something really nice for once," said the youngest cub, one morning at daybreak; "it's very disappointing when he comes home with nothing to eat."

"There's some truth in what the little chap says," said the son and heir. "I'm sure if I had a fine young family it would be my greatest pride and pleasure to work for them. My father should exert himself a little and provide us with more comforts."

"You shouldn't speak so of your pa," said Mrs. Slyboots; "but I must say I do feel a terrible sinking at this moment. Do poke your nose out of the burrow and see if he is coming."

The three little noses of the three cubs were already stretched out as far as possible.

"Here he comes!" cried one, "and hurrah! he's got something in his mouth!" But, when the father arrived, the prey which dropped from between his teeth proved to be nothing but a very thin weasel. "Here, give it to me," cried the eldest son, "it's no use making two bites at a cherry." He seized the weasel by the neck, but cubby the youngest was too quick for him and possessed himself of the tail. Cub No. 2 contrived to get a leg, and there ensued a savage, snarling breakfast.

"Settle it among yourselves," said the father fox wearily, "you're a set of ungrateful little cubs, and never think of all the trouble I have seeking for prey. I only got that weasel by telling him the ghosts of three rabbits were making straight for his hole. Out he rushed in frantic haste, trembling all over, and I nabbed him at once."

"It's no use mincing matters, father," said the son and heir, licking his lips, "a weasel or so is all very well in its way, but we want some really good solid meals for a change."

"Well," said old Slyboots meekly, "the moon will be up to-night and I will do my best for you. There's no chance of getting into the hen-house, it's locked up so tight, but I've heard that that conceited old cock Chanticleer and one or two hens have taken to roosting in the wood-shed. If their perch is too high I can surely get one of them down by flattery."

It was quite true that, the hen-house being crowded, Chanticleer and his old wife Partlet, also a pretty young pullet called Rosytoes, were sleeping each night in the wood-shed.

"Now, mind what I say, you ungrateful kind," remarked Chanticleer, as the three cubs told themselves that night on their perch, "I'll bet a sly old fox in the neighborhood. He's bound likely to push his way in and make up his mind to pay the least attention to what he says."

"Can't I give him a bit of my mind?" asked Dame Partlet. "I should think not, indeed," answered her lord. "You hens are so easily humbugged. If anything has to be said I shall say it."

Sure enough that night the cunning old fox stole in. But the long tail-feathers of the cock were just three inches out of reach. Force would not do, he must try stratagem.

"Good evening, ladies," he began, "pray don't trouble yourselves to turn round."

"I told you so," whispered Chanticleer. "Now mind what I've said, sit tight and hold your tongues."

"I ought to apologize for intruding at this time of night," went on Slyboots, "but I am so much engaged with my family during the day that I can hardly find time to pay visits. Mrs. Slyboots hopes to have the pleasure of calling soon."

"Mrs. S. need not trouble herself," put in Chanticleer, without turning round.

"You are very considerate," said the old fox. "It is true she is very busy with domestic duties. An exemplary mother like you, Mrs. Partlet, will understand."

"He seems a very civil sort of gentleman, really," whispered Partlet. "It is true I did sit an enormous time on that last hatch of eggs without a word of complaint."

"Stuff!" returned Chanticleer. "What fools hens are! My ladies are both asleep, Mr. Slyboots, or ought to be. Pray don't exert yourself to make conversation for them. Good night."

Poor Slyboots felt that he must retire, but as he left the shed he exclaimed admiringly, "What an exquisitely beautiful young creature!" After which he disappeared rapidly.

Now, the remark could only apply to Rosytoes, so her susceptible little heart went pit-a-pat in an instant. "I wonder will he come again," she said softly.

"I should think not, indeed!" said Chanticleer "Impertinent rascal! I've settled him."

Rosytoes sighed gently, and closed her eyes to dream of a handsome red-coated gentleman. Chanticleer's last waking words were, "What fools hens are, to be sure!"

Poor Slyboots received a very cold reception at home, but cheered the family considerably by promising them a fine fat pullet for to-morrow. "I have already made a great impression on her by a well-turned compliment," he explained.

That night Rosytoes could not sleep, her ears were strained to catch the faintest sound. She hoped for another visit from the red-coated gentleman. At last he came. His step and voice were gentle. He was "so delighted to find her quite alone," for the old folks were very sound asleep. He explained that she had quite won his heart, but he dared not venture near the farmyard by day, as he had enemies about who told false and cruel stories about him.

"But to change to a pleasanter subject," went on the sly old fox, "the moon shines gloriously tonight. What do you say to a little stroll with me? How I long for an exchange of ideas with a sweet congenial spirit."

"Why can't we talk in here?" asked Rosytoes.

"Impossible," answered Slyboots, "that bigoted old guardian of yours might wake any moment and so prevent a free interchange of souls."

"You shouldn't speak so of Chanticleer," said Rosytoes. "No work could go on at all but for him—the laborers would never do a thing. He wakes them all up. There is reason to believe that the sun itself rises so early in order to hear him crow—he hinted as much to me himself."

Slyboots with difficulty stifled his laughter and then again begged Rosytoes to descend for a moonlight stroll. But how the whole farm would talk if a pullet went out walking at night, and how angry Chanticleer would be.

"No, Mr. Slyboots," she said at last, politely but firmly, "I cannot leave the wood-shed alone with a stranger."

But at last he extorted a promise from Rosytoes that if he would come again to-morrow she would think it over, and—"perhaps"—

With this the old fox had to be contented, and home he went with his tail between his legs; for Slyboots in the bosom of his family was a very different person from Slyboots abroad.

[TO BE CONTINUED.]

Cemented Friendship.

Friendship is a good deal like china; it is very beautiful and durable as long as it is quite whole; break it, and all the cement in the world will never quite repair the damage. You may stick the pieces together so that at a distance it looks nearly as well as ever, but it will not hold hot water. It is always ready to deceive you if you trust it, and it is, on the whole, a worthless thing, fit only to be put empty on the shelf and forgotten there. The finer and more delicate it is the more utter the ruin. A mere acquaintance, which needs only a little ill-humor to help it up, may be coarsely puttied like that old yellow basin in the closet, but tenderness and trust and sweet exchange of confidence can no more be yours when a quarrel words and thoughts have broken them than delicate porcelain teacups which were splintered to pieces can be restored to their original excellence.

THE QUIET HOUR.

Stand Firm.

"Build on resolve, and not upon regret, The structure of thy future. Do not grope Among the shadow of old sins, but let Thine own soul's light shine on the path of hope, And dissipate the darkness. Waste no tears Upon the blotted record of lost years, But turn the leaf and smile, oh smile to see The fair white pages that remain to thee."

Fight Wisely.

"So fight I, not as one that beateth the air." To fight wisely is not to fight at a venture, "as one that beateth the air." The image is drawn from the boxing-match in the Isthmian games, and in it the Apostle declares that in the spiritual combat he does not wear out his strength by vain flourishes of his hands in the air, but plants each blow certainly and with a telling aim. We read, indeed, that King Ahab was shot by an arrow sent at a venture; that is, without deliberate aim: but this only teaches us that God can direct the aimless shaft whithersoever it pleases Him, but does not lead us to conclude that aimless shafts are likely to be successful. Yet what is the warfare of many earnest Christians but the sending of shafts at a venture? They have a certain notion that they must resist the evil within and without them, but they know not where to begin. Often their whole time and labor is thrown away in repressing symptoms, where they should be applying their whole energy to the seat of the disorder. The first work of the spiritual warrior should be to discover his besetting sin, or sins, and then he must concentrate his forces before this fortress. This bosom sin is eminently deceitful. Sometimes it puts on the mask of a virtue or a grace, not infrequently that of some other sin; but masked somehow or other it loves to be, and the longer satan can keep it masked the better it suits his purpose. Let us give some examples of a bosom sin thus masking itself. With many people the besetting sin is vanity. Who knows not how this detestable sin frequently apes humility so as really to impress its possessor with the notion that he is humble? Intensely self-satisfied in his heart of hearts, he depreciates himself, his talents, his successes. What follows? A natural reaction of public sentiment in his favor. He has been fishing for compliments, and compliments have risen to the hook. Would he not have bitterly resented it in the inner man had any of the company taken him at his word and coolly agreed with him in his self-depreciation. Here is the adder of vanity coiled up in the violet-tuft of humility. To take another case. Some men cannot bear to be second. Whatever they do must be done brilliantly, so as to throw into the shade all other competitors. Accordingly, they are disposed to decline or abandon all pursuits in which they feel they can never excel. Now what is this feeling, when we examine it. The world dignifies it with the name of honorable emulation, and accepts it as a token of a fine character. And there is usually good stuff in the characters whose leading principle is such as described. This emulation is somehow intertwined with that energy and resolve which are the raw material from which earthly greatness is manufactured. But how does this sentiment sound? "Because I cannot outshine all rivals, therefore I will be nothing." When we apply to this feeling the Ithureil spear of God's Word and Christ's example, we find it to be the bosom-adder of vanity again, lurking under the marigold of honorable emulation. Again: a bosom sin, that it may the more easily escape detection, will wear often the mask of another sin. Indolence, for example, is a sin which carries in its train many omissions of duty. Prayer or Scripture reading is neglected or hurried because we have not risen early enough to give room for it. Things go wrong during the day in consequence. We trace it all up to the omission of prayer of which we accuse ourselves. But the fault lies deeper. It was not really an indisposition to prayer which caused us to neglect it. Indolence really caused the mischief. It often happens that a man, when touched upon his weak point, answers that whatever other faults he may have, this fault at least is no part of his character. This circumstance, then, may furnish one clue to the discovery; of whatever fault you feel that, if accused of it, you would be stung and nettled by the apparent injustice of the charge, suspect yourself of that fault,—in that quarter very likely lies the black spot of the bosom sin. If the skin is in any part sensitive to pressure, there is probably mischief below the surface. When, after prayerful self-examination, the same failures are constantly showing themselves, the conclusion is almost inevitable that there is something serious beneath. What is it? In what one direction do all the failures point? To selfishness? or to indolence? or to vanity? or to worldliness? Remember always, that in the symptom it may look like none of these sins and yet be really one of them. Another plan may be helpful in the discovery of our bosom sin. Let us have our eye upon the occurrences which specially give us pain or pleasure; they will often be the merest trifles—a sneer, a mere passing breath of human praise or blame, but yet, be it what it may, if it touches us to the quick, the probabilities are that by tracing it to its source we shall get to the quick of our character,

to that sensitive quarter of it where the bosom-adder lies coiled up. When the discovery is made, the path of the spiritual combatant becomes clear. Your fighting is to be no longer a flourishing of the arms in the air; it is to be a definite combat with the bosom sin. We shall find also that in supplanting the besetting sin we shall be weakening the vitality of subordinate faults, which cluster together round that nucleus.

In conclusion, he who prays (as we should all do) "Show me myself, Lord," should take care to add, lest self knowledge plunge him into despair, "Show me also Thyself." The heart which showed so fair without, is but a whitened sepulchre, an Augean stable, full of corruptions and disorders, which Hercules could not cleanse, but the love and grace of Christ are stronger than ten thousand depravities and corruptions, though riveted down to the soul by the chain of evil habit.

E. M. GOULBURN, D. D.

UNCLE TOM'S DEPARTMENT.

MY DEAR NEPHEWS AND NIECES,—

I was recently asked by a young friend if "such a thing as true friendship really exists," and on thinking over the question, I resolved to make it the subject of my next chat with you. My young friend is a boy with high ideals, noble aspirations, and an impulsive, generous nature, scorning everything mean and ignoble. He told me that he had been looking and longing for a friend whom he could love, admire, trust, who would ever sympathize with him, and in whom he could confide. He said he was of so peculiar a disposition that even a few weak qualities would prevent his liking a person, and accordingly, because he cannot find an impossibly good boy whom he can call "friend," he is sad-hearted and unhappy.

Now, my first advice to all my boys and girls is, be friendly with all, but do not be over-hasty in choosing confidants. You are warm-hearted and impulsive, and meeting a young person of amiable manners or other attractions, you straightway offer your precious gift of friendship at his shrine without waiting to discover whether the recipient be worthy of it or not. After a time, perhaps, his true character is revealed and you discover that you have been dazzled by surface goodness only, and you withdraw your gift, bruised and marred by the unkind treatment received. This happens more than once perhaps, and you bitterly exclaim, "Ah! there is no such thing as true friendship, no one truly worthy to be called 'friend.'"

My dear young pessimists, take off your blue spectacles and I will replace them with rose-colored ones, that you may see things in a more cheerful light. True, this world is not the proper place in which to look for perfection, but there are many earthly friendships aiming at and arriving very near to that standard. Again I advise you to "make haste slowly" when choosing a friend, or in other words, "Let friendship creep gently to a height; if it rush to it, it may soon run itself out of breath." When you have found a companion (as my young questioner has done) who is "beautiful in character, noble, refined and good," and who evidently prefers you to any other comrade, do not permit any foolish sentiment to cause you to part with him too cheaply, but, as Shakespeare bids us—

"The friends thou hast, and their adoption tried, Grapple them to thy soul with hooks of steel."

The same author says, "A friend should bear his friend's infirmities"; and, with him, I believe that it is necessary to be generous in order to retain our friends. As none of us are perfect in every particular, we should not expect to receive more than we can give in return. It is wiser, then, to close our eyes to trivial faults, not demanding too great a sacrifice, lest, as Goldsmith says, "by drawing the bands of friendship too closely, we at length break them."

I know you will never choose a friend who has not some beautiful traits of character; then instead of carping at his defects, consider rather his virtues; not looking at the turbid water that rises to the top, but reaching for the gold that lies hidden beneath. Above all, be such yourself that your friend must respect as well as love you, so that by contact with your nobility he may rise to your level. In a reverse case, when one who is better than yourself offers you the priceless gift of friendship, value it justly and make yourself worthy of it. Let your own faithfulness be the measure of your confidence, and trust your friend as you would be trusted; make him a sharer in pleasure as in sorrow, for as the latter decreases so does the former increase by being imparted to a congenial soul.

In conclusion, do not, I pray, embitter your young lives with the morbid reflection that the Damon-Pythias story is a myth, and a real friend an impossible possession; for he who makes such an assertion admits his own inability to prove true. Josh Billings echoed my sentiments when he said, "I'd rather git fooled nineteen times out ov twenty than lose all faith in human nature."

For the months of April, May and June I will offer the following prizes for puzzles: 1st, \$1.00; 2nd, 75 cents; 3rd, 50 cents; and similar ones for answers during the same period.

Your loving—UNCLE TOM.

Boys flying kites haul in their white-winged birds: You can't do that way when you're flying words. —Will Carleton.

Puzzles.

All matter for this department should be addressed to Ada Armand, Pakenham, Ont.

1—BEHEADING.

Complete I mean to harass; Behead me and I am a weapon; Behead twice again and I am a riot. ETHEL MCCREA.

2—CHARADE.

"I'm so fond of music," Mr. Trombone reckoned, "That I'd give a TOTAL JUST FIRST & SECOND."

3—NUMERICAL ENIGMA.

My 1, 3, 4 is a railway carriage. My 5, 6, 7 is a small piece of ground. My 2, 3, 8 is something worn on the head. My 10, 9, 13 is twice five. My 11, 12, 13 is to possess. My total is a city in Canada. ETHEL MCCREA.

4—CHARADE.

Now that the snows have passed away And Spring is here once more, We hear the Total all the day And lessons cease to pore.

The First frisks about in the meadow To second ne'er giving a thought; But we can just look thro' the window And wait till the weather grows hot. CLARA ROBINSON.

5—ENIGMA.

I'm in a dreary winter snow That falls down fr m the sky; I'm with the weary-looking owl That floats about on high.

I'm in a weeping widow's weeds, And much I grieve to say, Though I'm a very little mite, I'm always in the way.

I help all willing workers true, And kindly keep in mind, That in the city Ottawa There surely me you'll find.

I form a part of every wish, And though I never cry, I'm in the sweetness of a laugh. Adieu my friends, Good-bye. WM. S. BANKS.

6—RIDDLE.

I'm like to a book, and in the same way, I'm like to a soldier who oft goes away. In one thing I resemble an elephant great, And also a common traveller's freight. In a way I resemble a newly-made log; And in two I am like a fox or a dog. But a hard case am I, so people say, Though my head may be decked with flowers so gay. And my life is one of terrible pain, For I'm out at all times, whether sunshine or rain. WM. S. BANKS.

7—CHANGED HEADING.

Courage brother! do not stumble, Though thy path be dark as night; This is what MacLeod doth say, And I believe that he is right.

Mr. Banks, please heed this saying, And do not be afraid, Though perhaps you win no prizes, For all puzzlers are not paid.

And our "puzzlistic cousin" Has joined our merry primal; Miss Hattie and Miss Ethel Will lend a willing final.

Have I scared Miss Annie Hampton, Will she please have it told; If I have, will she please 'scuse me, For I was rather bold. J. S. CRRERAR.

Answers to March 1st Puzzles.

1—Tomato. 2—Diphtheria. 3—I again seek the dear society of my cousins. I have become lonely during my long absence from this Eden of Puzzledom, and I now wish to join Uncle Tom's happy family again.

I see that Miss Lily Day and C. S. Edwards still work with fortune and eclipse all others. Their friendly faces inspire me with a ray of hope.

Let us therefore help the ADVOCATE with a true Canadian loyalty, remembering that there are many strange ways of puzzling, and that our puzzles, whether great or little, will help to grace our corner.

- 4—Spare, pares, pears, reaps. 5—Chinese Empire. 6—Canada.

7— Codle—cole D Tract—tact R Zone—zoe N Spray—spry A Rank—rat N Cusp—cup S Lead—lad E Punt—put N } Dr. Nansen.

SOLVERS TO MARCH 1ST PUZZLES.

Addison M. Snider, J. S. Crrerar, Clara Robinson, Ethel McCrea.

The Woman Who Laughs.

For a good everyday household angel give us the woman who laughs. Her biscuit may not always be just right, and she may occasionally burn her bread, and forget to replace dislocated buttons, but for solid comfort all day and every day she is a paragon. Home is not a battle-field, nor life one long, unending row. The trick of always seeing the bright side, or if the matter has no bright side, of polishing up the dark one, is a very important faculty, one of the things no woman should be without. We are not all born with the sunshine in our hearts, as the Irish prettily phrase it, but we can cultivate a cheeful sense of humor if we only try.

We are always glad to see a copy of that excellent journal of fashion, L'Art de la Mode; its numerous original illustrations impart a host of ideas to the proficient dressmaker, and are of very great assistance in the home to those who do their own sewing.

Good Premiums Easily Got.

"I would not do without the Farmer's Advocate if it cost me \$5.00 per year."—J. B. HOBBS, Lambton Co., Ont.

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Containing the Old and New Testaments, according to the authorized version, together with new and revised helps to Bible study—a new concordance and an indexed Bible atlas, with sixteen full-page illustrations, printed in gold and color.

BINDING—Strong, durable, flexible American Seal (best material), improved circuit cover, round corners, red-under-gold edge.

PAPER, TYPE, ETC.—Of superior quality, clear and distinct, easy to read.

MAPS (WITH INDEX)—Revised and brought down to January, 1896.

HELPS—Covering nearly 2,000 subjects—contain all features so popular in the past, and an endless amount of fresh matter, including concordance on new and improved plan, dictionary of proper names and places, with pronunciation and meanings. Size, 9 1/2 x 4 1/2 inches (closed). Ordinarily would retail at from \$4 to \$5. We will send (carefully packed, post prepaid) this Bible to any one sending us the names of three new subscribers to the FARMER'S ADVOCATE at \$1.00 each.

"Pressed Flowers from the Holy Land."

This volume contains a collection of beautiful flowers, gathered and pressed in Palestine, by Rev. Harvey B. Greene, together with description of each and Scripture references. Mr. Greene has frequently visited Palestine, and gathered and assorted with his own hands these specimens. The flowers are beautifully preserved with all their natural tints, and are attached to extra finished heavy chrome paper, specially made for the purpose, with description on the page opposite to each specimen. It is neatly bound in antique finish cover; title, "Pressed Flowers from the Holy Land," embossed in gold on front page. We will send a copy to any one sending us the name of one new yearly paid-up subscriber.

"Vegetable Gardening."

A manual on growing vegetables for home use and marketing; by Samuel B. Green, Professor of Horticulture in the University of Minnesota. 224 pages, 115 illustrations. Most practical, comprehensive and up-to-date work yet published. A copy for three new paid-up subscribers.

"The Silo and Ensilage."

Prof. Wolf's new book—How to build, fill, and feed from a Silo. Most complete work yet issued. Any subscriber sending us one new subscription and \$1.00 will receive a copy, paper bound; or, for two new subscriptions and \$2.00, a copy well bound in cloth. Price: paper, 50 cents; cloth, \$1.00.

Sheep—Breeds and Management.

By John Wrightson, M. R. A. C. F. C. S. Most complete and up-to-date work on Sheep-rearing. Twenty-three full-page illustrations. For three new subscribers.

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To any subscriber sending us the names of ten new yearly paid-up subscribers we offer a young Collie, six weeks old or over, eligible to registration, and bred by Mr. R. McEwen, Byron, Ont.

"Good Watches."

Duke (plain), Duohess (engraved).—A thoroughly reliable 18 size watch with a Genuine American lever movement. Runs over 30 hours. Total weight only 4 1/2 ozs. They are perfect time-keepers. These watches have taken well and given good satisfaction for years. This watch, with chain and charm, will be given to any subscriber sending us the names of three new yearly paid-up subscribers.

"Beautiful Rings."

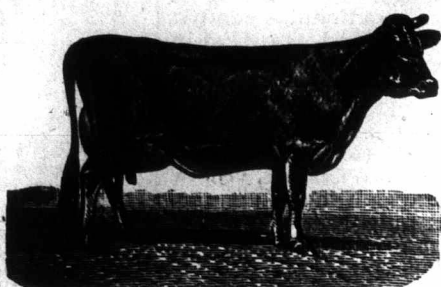
Children's or Misses' Real Stone Setting: No. 1—price, \$1.25; one pearl, two garnets—two new subscribers. No. 2—price, \$1.25; one garnet—two new subscribers. No. 3—price, \$1.50; three pearls—three new subscribers. No. 4—price, \$2; one pearl, two garnets or coral—three new subscribers. Ladies' Real Stone Setting: No. 5—price, \$3.50; two pearls, three garnets—five new subscribers. No. 6—price, \$3.50; two garnets, five pearls—five new subscribers. No. 7—price, \$3.50; one garnet, two pearls; five new subscribers. No. 8—price, \$2.00—three new subscribers. See description in previous issues.

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THE WILLIAM WELD COY (Ltd.), London, Ontario.

Attractive Public Sale of Jersey Cattle



AT SNELGROVE, ONTARIO. Tuesday, April 13th, 1897.

I will sell my entire herd of high-class Jerseys at my farm, four miles from Brampton, G. T. R. and C. P. R. Thirty-five head of young cows, heifers in calf, heifer calves and a few young bulls. Also a few good young high-grade cows and heifer calves. A grand lot of richly-bred dairy cattle in fine condition. Catalogues ready April 1st. Send for one.

JOHN SMITH, M. P. P., Auctioneer, BRAMPTON, ONTARIO.

J. C. SNELL, SNELGROVE, ONTARIO.

DISPERSION SALE OF THE ENTIRE HERD OF

Scotch-Bred Shorthorn Cattle!

The property of R. R. SANGSTER, Lancaster, Ontario, to be sold by Public Auction, without reserve.

Wednesday, April 14th, 1897, at Springburn Farm, Lancaster, Ont.

Terms of sale, nine months' credit on approved joint notes, or a discount of seven per cent. per annum will be allowed for cash.

JOHN SMITH, Auctioneer, Brampton, Ont.

Ayrshire Bull and Heifer Calves, and **JERSEY Bull Calf** (2 mos. old). ALL ARE ELIGIBLE FOR REGISTRATION.



Holstein Bull and Heifer Calves. Will sell at hard-times prices. Banded P. Rock Cocks, \$1 each. Eggs from imported stock, \$1 per 15.

Springfield, M.C.R. Aylmer Sta., Putnam Sta., C.P.R. G.T.R. ALEXANDER WOOLLEY, Springfield, Ont.

THIRD ANNUAL... Canadian Horse Show

under the joint auspices of The Country and Hunt Club of Toronto and The Canadian Horse Breeders' Ass'n.

TO BE HELD IN THE ARMORIES, TORONTO, CANADA,

on Thursday, Friday and Saturday, April 29th, 30th and May 1st, 1897.

ENTRIES CLOSE on Wednesday, April 14th, 1897, and should be addressed to HENRY WADE, Parliament Buildings, on TORONTO.

Assignee's Sale...

of herd of registered and grade JERSEY CATTLE and WELL-BRED PIGS. The Assignee of the estate of Henry Yung (farmer) will offer for sale by Public Auction on

Lot No. 33, Con. 14, East Zorra, CO. OF OXFORD, NEAR TAVISTOCK, ON

Wednesday, April 7th, 1897, AT ONE O'CLOCK, P. M., his well-selected herd of registered and grade Jersey cattle, 31 in number; also a number of well-bred pigs. Mr. Yung has been carrying on a dairy farm, and this sale will afford an opportunity to purchasers of selecting from a first-class herd of Jerseys some excellent Jersey cows at fair prices, as the cattle must all be sold. Terms: 9 months' credit on approved notes.

Dated at Stratford, March 26th, 1897. McPHERSON & DAVIDSON, Assignee's Solicitors.

The Undersigned will sell

in the town of ST. MARY'S, ON WEDNESDAY, APRIL 7TH, 1897, a number of Durham and Ayrshire Cattle.

Principally Bulls and Bull Calves, from nine months to two years. Sale to commence at two o'clock.

Robt. & Hugh Thomson, CHAS. BAILEY, Michael Ballantyne, Auctioneers, Proprietors.

SEED POTATOES FOR SALE.

Empire State.—This variety headed the list in the tests of the Experimental Union last year.

Monroe Seedling.—A good new variety, which yields a big crop of large potatoes of superior quality.

I am offering the above varieties, which are true to name, at only five cents in advance of market price, f. o. b. here. Sacks at cost. This is a good chance to get in a stock of pure seed potatoes.

J. E. RICHARDSON, on Creekside Seed Farm, PRINCETON, ONT.

ADVERTISE IN ADVOCATE

The Montreal Market.

Cattle.—Markets have fluctuated slightly, but are a little firmer. On both markets last week the number of cattle offered was within the demand, so sellers had to a certain degree the upper hand. All good stock suitable for export find ready buyers at a fair figure, but as they are mostly the better class of what is called "butcher beef," and not really prime exporters, nothing in the way of high prices have been paid. The outside prices, however, show a gain of 10. per lb. since last writing, and for something good a little more.

Export Cattle have been bought at 40c. very good a shade better; good butchers' stock for export, 30c. to 40c. per lb.; good beef, 30c. to 35c. and 30c.; fair to medium, 25c. to 30c. per lb. The quality of the cattle brought in is improving.

Sheep and Lambs.—Very few on the market, and what has been offered has been freely and quickly taken at good prices; 4c. to 4 1/2c. for mixed lots of mutton and yearling lambs; 5c. to 5 1/2c. for lambs; spring lambs up and down according to number in, but ranging all the way from \$3 to \$7 each, according to size.

Calves.—Calves are coming forward more freely, but not quite so heavily as in former seasons, nor of such good quality; best higher than usual; \$1 each for culms to \$11 for tops. Very good calves go from \$3.50 to \$7 each.

Hides and Skins.—This has been a harvest for butchers, the reason being a war to the knife between the Hide Association, on the one hand, and the butchers, tanners, and abattoir people on the other hand. It has been decidedly in favor of the butcher, as hides have within the last two weeks made two successive advances of one cent per lb., standing now to the butcher at 9, 8, 7 cents per lb. for the green salted hide for Nos. 1, 2, 3. This cannot be reckoned as a market value, however. Calf skins have also advanced, but in this case it is of a more healthy nature. They now bring for No. 1, 9c. per lb.; No. 2, 7c.

Hogs.—There are very few live hogs offering, never going much over 200 on any one market; the receipts to-day, 85, making \$5.10 per cwt. for the best.

Dressed Meats.—This market is practically finished for this season, most of the stock being pretty well cleaned up, at writing there only being two cars of frozen lambs and about three cars of hogs all told to dispose of. They are held at \$6.25 to \$6.50 per cwt. in a jobbing way for both lambs and hogs.

Montreal Horse Market. The past two weeks has seen a slight let-up in the local market, although the shipments have gone forward in undiminished numbers, but they have been Western lots to a considerable extent. On spot the range of prices for chunks is \$70 to \$90; drivers all the way from \$50 to \$150, in the latter case it being very hard to give a quotation that is of much use to any. I saw one beautiful chestnut bring \$170. Heavy drafts go from \$80 to \$100 and \$110. Sales from the other side range from \$22 (\$110) to \$30 (\$150) each.

NOTICES.

J. E. Richardson, Princeton, advertises seed potatoes of good varieties in this issue.

Mr. R. G. Scott again places within reach of the farmers of Canada the Larimer Ditching Plow. Mr. Scott's articles on underdraining that appeared in this paper last year have been copied extensively by other papers in Canada and the United States. He knows whereof he speaks, both as to underdraining and the best implements for the work. Tens of thousands of dollars are lost to farmers because they have not attended to underdraining as the foundation work on their farms. The writer of a letter which is now before us recommends farmers to get information about this plow, and to get the plow, so much was he pleased with it.

IMPORTANT TO PIG BREEDERS AND FARMERS!

Laird's Patent "Feeding Trough" (Pat. Feb. 25th, '97) absolutely prevents the animals putting their feet into the trough, gives each one an equal chance at feeding. His only to be seen to be endorsed.

Highly recommended by the undermentioned farmers and others who have had it in use in this village and other places: Messrs. John Cooke, Fred. Terhune, Thomas Shellard, Mr. Armour, Thomas Mordue, D. McDiarmid, and a number of other persons. Both cheap and efficient.

For further particulars apply to LIEUT.-COLONEL GOOLD, or to the Patentee: MR. GEO. T. LAIRD, Mount Pleasant, Mohawk P.O., Brant, Ont. County Patent Rights for sale. A money-maker to investors. Brantford Township, 29th March, 1897.

Diamond Jubilee Sale

Nursery Stock.

SIXTY YEARS in the business has given us a knowledge of what the people of Canada OUGHT TO PLANT for profit and pleasure. We have full lines of EVERYTHING IN TREES, VINES, ROSES, &c., that is valuable and desirable. Prices very low. Get our new price list (de-duced) free. Orders by letter have our personal attention and SATISFACTION GUARANTEED. We pack our produce to insure safely any distance.

Address: The Leslie Nurseries, 10 Lombard Street, Toronto, Ont.

THE "AMERICAN"

Cream Separator. Perfect Skimmer. Easily Cleaned. No Loose Parts Whatever.

No. 2, Capacity 350 lbs. per hour. No. 3, Capacity 600 lbs. per hour.

Sole agents for Canada, also manufacturers of all kinds Dairying Utensils. Our Patented Gang Press Curd Mills, Engines, etc., Churns, Butter Workers, Butter Printers, and everything pertaining to manufacture of Cheese and Butter. Send for catalogue.

Full particulars and Terms to Agents upon application to RICHARDSON & WEBSTER, ST. MARY'S, ONT.

The Larimer Ditching Plough

Much farming has no pleasure nor profit, because land is not drained. Standing with wet feet is why seed, roots, and plants, as well as persons, have been sickly and unhappy.

This plough has brought more satisfaction to thousands of farmers than any tool of modern times. It works in gravel or clay. It is simple and strong. Any one can have it for less than \$20. Two men and a team have finished more than 700 feet of drain, 3 feet deep, in a day with it.

All information, if there is no agent in your locality, by addressing R. G. SCOTT, Mount Joy Farm, MARTINTOWN, ONT. or PERTH, ONT.

FREE GIFT TO SHEEPMEN. Valuable book containing the most complete list of Sheep Diseases and their treatment. Free to all who send for it.

LIVE... (text partially obscured)

NOTICES.

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

It is important, according to the judgment of every good farmer, that clean seed of good vitality be sown or planted. When this, in the best known varieties, can be secured at the prices quoted in our advertising columns by E. H. Howe, Orillia, Ont., no farmer can afford to risk getting a medium or dirty crop by planting seed of a low or uncertain order. Remember this and pick the seed. See advertisement, and secure the discount by giving a large order.

Every one should eat fruit in order to enjoy life and keep healthy. It is better when one has land to grow his own and have some to sell than to have to buy. The Helderberg fruit farms and nurseries of E. D. Smith, Winona, Ont., whose advertisement appears in this issue, are situated in the most suitable soil and location to produce vigorous and healthy fruit trees, vines and bushes. Set out a stock this spring and reap a harvest in due time.

We learn that the Ontario Wind Engine and Pump Company, Toronto, Ont., has recently received an order for and have shipped four Canadian Airmotors with steel towers and pumps complete to the principal forest officer of Cyprus, His Excellency the High Commissioner, Sir Walter J. Sendall, K. C. M. G. Cyprus is an island in the Mediterranean Sea, which was ceded to England in 1878. The government of this island is evidently alive to the advantages of irrigation, a purpose to which outfits of this sort are very profitable to gardeners, fruit growers, etc. This order speaks in high terms of the appreciation in which Canadian windmills are held in foreign lands.

The firm of David Maxwell & Sons, St. Mary's, who have long held the reputation of turning out first-class, up-to-date cultivating and harvesting machinery and implements, are this season making a speciality of the "Maxwell Weeder," an illustration of which is shown in their advertisement in this issue. It is held to be the greatest surface cultivator and weed-killer known, especially for corn and potatoes. It is a type of implement which in the great American "corn belt" has been a marvellous success. It can be worked in corn and potatoes until they are over a foot high. Readers interested should make careful inquiry regarding Maxwell & Sons' new implement.

The Pedlar Metal Roofing Works, situated in the town of Oshawa, Ont., was made the object of our visit while East, and we were pleased to be shown through such a busy establishment. Mr. Pedlar informed us that they were now concentrating in their factory over eight tons of metal per day, and employing some thirty hands. The machinery is operated by a thirty-five horse power engine, and the plant is being increased in its capacity annually. The Company's capacity is not at all limited to roofing, for we were shown some beautiful designs for interior work, ceilings, etc., as well as outside fronts, etc., the designing being all done on the premises by competent artists. The painting and finishing room is very complete, the paint used being all ground at the factory. Three very beautiful catalogues were shown us, especially the decoration edition, being supplied with over 100 designs of ceilings and walls; also one for fronts.

In the manufacture of any product, profit comes from turning out a first-class article at little expense. In no other business is there greater need of care in this regard than in dairying. The value of a cream separator is not half appreciated. A pound of butter from 100 pounds of milk is a low estimate of the difference between the ordinary gravity and the separator plan of creaming. A proper churn and butter-walker have much to do with the quality of the butter, and without exhaustive churning and quality there is no profit. A good equipment in cheesemaking is as essential as in buttermaking. A safe and reliable engine is essential, especially in a combined cheese and butter factory; and then there are the cheese vats, presses, hoops, etc., which must all be right if uniformly high-grade cheese is to be made. Now is the proper time to secure these things. It pays to commence the season right. There is a firm of manufacturers in the town of St. Mary's, Ont., that have carefully and cautiously studied and developed the necessity of manufacturing all these necessities until they have won the enviable and undoubted reputation of being up among the very foremost in their own line. At the St. Mary's creamery convention, the Hon. Thos. Ballantyne, in an address, referred to this firm as being second to none in turning out first-class dairy machinery and equipment. We have visited the premises of Messrs. Richardson & Webster and believe there was a good deal in the Hon. gentleman's statement. Their announcement elsewhere should be taken advantage of.

A BIG BINDER TWINE DEAL.

As announced in the FARMER'S ADVOCATE for March 15th, the product of the Dominion Government prison-made twine is now on the market, the Hobbs Hardware Co., of London, Ont., of which Mr. T. S. Hobbs, M. P. P., is a member, having purchased the make of 1896 and 1897—1,000 tons, besides 500 tons additional—1,500 tons or 3,000,000 pounds in all, enough to the probably 1,500,000 acres of grain. The question will arise as to why the product of 1896 was not sold last year. We find on looking up the Hansard (official report of the proceedings of Parliament) that during the second session of 1896 the Solicitor-General, in reply to a question by Mr. Rogers, M. P., stated that 500 tons of twine, worth \$50,000 or \$60,000, was made, but only ten tons were sold to a Mr. Patrick Kelly, who was not a man of substantial means and failed to furnish security. The twine had been duly advertised in the newspapers for tender. The ten tons were not paid for. This immense purchase by the Hobbs Co. has been put on the market and is now being rapidly ordered for the approaching harvest. There should be not only an ample supply for all requirements, but a healthy competition that will keep prices upon a fair basis for all concerned. Elsewhere the Hobbs Co. make an important announcement regarding this twine, concerning which our grain-growing readers should write them promptly.

Norway Spruce...

ORNAMENTAL EVERGREENS, DECIDUOUS LAWN and SHADE TREES. A choice selection of Norway Spruce, Austrian Pine, American Arbor Vitae, ... HARDY CATALPA, Horse-chestnuts, Butternuts, Black Walnuts, European and American Larch, Etc.

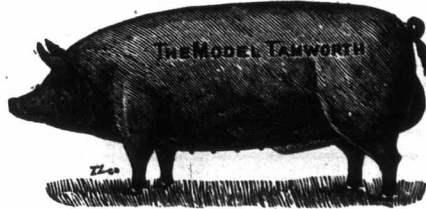
ALL... TRANSPLANTED... STOCK. Send for printed Circular (free) and Prices. Main Gollyer, LONDON, ONT.

DEALERS IN NURSERY STOCK AND FARMERS

wishing to secure extraordinary bargains in FRUIT TREES, Bushes, Vines, etc., should send at once for my surplus list. I have a surplus in several of the leading lines of choice CANADIAN GROWN stock, which I am offering at extremely low figures. Any one desirous of planting or selling nothing but choicest stock at prices down to ROCK BOTTOM should write at once to E. D. SMITH, Prop. Helderberg Farms and Nurseries, Winona, Ont.

Norway Spruce.

All sizes; twice transplanted; good roots; stout, bushy tops; fine healthy color. WHITE SPRUCE, ditto. Other Evergreen Trees. Prices very low. Get our new descriptive price list FREE. THE LESLIE NURSERIES, 4 Lombard Street, TORONTO, ONT.



Tanworths for Sale. I have on hand some choice boars ready for service; also some well-bred young sows, ready to go at any time. Also Clydesdale mare, Lady Eardly, eight years, by Granite City, dam by Baron Lenox. JOHN BELL, Amber P. O., Ont.

P. R. Hoover & Sons, GREEN RIVER, ONT.

BREEDERS OF CHOICE TAMWORTHS. Young boars and sows ready for breeding purposes at prices which should sell them. St. Louis Hill, C. P. R., Markham, G. T. E. Correspondence solicited. 2-1-y-om

Clydesdale Stallions

FOR SALE! Three first-class imported registered Clydesdale stallions, 7 and 8 years old; large, low-set; clean, flat bone; good action; good sires. Prices reasonable. Write, or come and see. NEIL SMITH, BRAMPTON, ONT.

5 YOUNG SHORTHORN BULLS

Good enough to head breeders' herds, got by the show bull, Earl of Moray, and from a herd of cows the equal of any in the Province for flesh and substance. Write, or come and see. E. Gaunt & Sons, ST. HELEN'S, Lucknow Station, G. T. R., 3 miles from farm. 13-1-y-om

Willow Bank Stock Farm

1855 to 1896. One of the oldest established herds in the Province, heavy milking qualities being a special feature of the herd. A number of choice young bulls and heifers for sale at reasonable prices. Address. JAS. DOUGLAS, Caledonia, Ont. 21-1-f-om

SIMMONS & QUIRIE.

Shorthorn Cattle, Berkshire Swine—Money-making Sorts. The imported bull, BLUE RIBBON—17095—(63736), by ROYAL JAMES (54972); dam ROSE-LINTY, by GRAVESEND (46461), heads the herd. Female representatives of the celebrated Mina, Strathallan, Golden Drop and Mysie families. The Berkshires are choice prize-winning stock. Easy to feed, quick to sell. Stock for Sale. C. M. SIMMONS, Ivan P.O., Ont. 1-1-y-om JAMES QUIRIE, Delaware, Ont.

MAPLE LODGE STOCK FARM.

Fifteen splendid young Shorthorn Bulls for sale, and a few Leicesters. JAMES S. SMITH, Maple Lodge P.O., Ontario. 9-1-y-om

ADVERTISE IN ADVOCATE

CUTS FOR BREEDERS FREE. On orders placed with us for printed Letter Heads, Envelopes, Bill-heads, Cards, Catalogues, etc., we supply cuts for the work free of charge. A large number of Engravings, covering nearly all breeds, to select from.

THE LONDON LITHO. CO. (LTD.) LITHOGRAPHERS AND PRINTERS, LONDON, ONT.

1833—WILLIAM LINTON—1897. Aurora P. O., Telegraph and Telephone Offices.



Has for sale four exceptionally good Short-horn Bulls, fit for service, at the very lowest living prices.

W. G. PETTIT, BREEMAN, ONTARIO.

BREEDER Short-horns, Shropshires, and Berkshires. Offers for sale eight young Shorthorn bulls from 12 to 18 months old (4 reds and 4 roans), of very choice quality and breeding. Price, \$50 to \$75 each. Four heifers and two young cows in calf, twenty ewe lambs, and a choice lot of young Berkshire sows and boars.

CARGILL HERD OF SHORTHORNS.

We still have 3 extra good young bulls for sale, and a beautiful lot of 13 heifers, all last season's crop. We will be glad to answer any inquiries regarding them, or to show them to any one who wishes to purchase anything of their kind, and can guarantee them good enough to suit. 11-y-om H. CARGILL & SON, Station on the farm, Cargill Sta. & P. O., Ont.

SHORTHORNS FOR SALE

18 Young bulls (12 red and 6 roan), also 20 red heifers, bred from the best Booth, Campbell, and Cruickshank cattle. Awarded first for best herd of Shorthorns at Toronto, Ottawa, and Montreal, 1896. In Chicago, 1893, three first herds out of five; also sweepstakes for bull, heifer, and herd, under two years old, all best breeds competing; winning more money and first prizes than any herd shown in Chicago. Price from \$50 to \$125 each. An electric car on the Yonge Street Road, from Toronto, passes the farm three times a day. J. & W. RUSSELL, RICHMOND HILL, ONT.

THE GRAND VALLEY STOCK FARM

G. & W. GIER, Props. Grand Valley, Ont., Breeders of Short-horns and Imp. Yorkshires. We offer for sale young bulls, cows and heifers of choice breeding and good quality at very low prices; also choice young Yorkshires of both sex. 13-y-0

Shorthorns!

TWO bulls, 20 months; two bulls, 15 months; one bull, 12 months; one bull, 10 months; six in all; colors, red and roan; good animals, in good working shape, and reasonable price. D. Alexander, BRIDGEN, ONT.

FOR SALE!

One yearling SHORTHORN BULL, two BERKSHIRE BOARS fit for service, and a fine lot of fall PIGS. All at very moderate prices. JOHN RAGEY, Jr., Lennoxville, Que. 17-1-y-0

HAUTHORN HERD OF DEEP MILKING SHORTHORNS.

FOR SALE—Four young Bulls, three reds and one roan; also Heifers, all got by Golden Nugget—17548—, and from All dairy cows. WILLIAM GRAINGER & SON, 13-y-om London, Ont.

FOR SALE The Scotch Shorthorn Bull, British Statesman (Imp.) (63729), is a first-class show bull and a grand stock getter. Also one two-year-old Scotch bull, bred from imported sire and dam. Come and see us, or write for particulars. S. J. PEARSON & SON, Meadowvale Ont.

GLEN ROUGE JERSEYS.

WILLIAM ROLPH, Markham, Ont., offers twelve Jersey Bulls and Heifers (pure St. Lamberts), out of tested cows. Grand individuals. Prices right. 22-y-om

Buffalo Market—General Review

Cattle.—Receipts of Canadian stockers and feeders have shown a marked decrease this month (March), and demand from Western feeders far exceeds the supply. Values, in consequence, have advanced 10c. to 20c., especially on the lighter grades, which feeders are preferring. Good feeders, of fair flesh, selling at \$3.85 to \$4.; fair to good, \$3.60 to \$3.75; stockers, \$3.35 to \$3.50. Prime, well-finished fat cattle are scarce, and prices generally have ruled 25c. higher; best grades selling around \$5.35 to \$5.50.

Veal Calves.—We look for more liberal offerings and lower values. Best veals, 125 to 200 lbs., selling from \$5 to \$5.50; light, thin, half-fat grades, \$4 to \$4.50.

Hogs.—Offerings in all the markets of the country have fallen short of expectations and values have shown a 15c. to 25c. advance. Good ripe, finished hogs, 200 lbs. and up, selling around \$4.25 to \$4.40, and will continue to sell strong. Packers have been free buyers at the advance, and report generally a good demand for provisions both here and in Europe.

Sheep and Lambs.—Lambs selling 50c. higher, and sheep 25c. to 35c. higher; light receipts, due to a great extent to the tariff agitation. Feeders in Ohio, Michigan and Indiana are busy at clipping, and wool lambs will be scarce until warm weather sets in and the clipped stock commences to be moved. Country wool buyers are purchasing and contracting ahead, and Eastern speculators have been free buyers on the London and foreign markets, all of which has a tendency to make feeders bullish and hold their lambs.

Best wool lambs, 80 lbs. and up, selling around 6c.; a few extra bunches up to \$6.25. Nativesheep are scarce, selling firm at \$5 to \$5.25; the latter price for prime wethers and yearlings. Western fed wethers have been in good request, and made feeders generally a handsome profit, selling here in the market from \$4.50 to \$4.85.

The general outlook is favorable to the feeding interest in all branches of live stock trade. Kintok Bros.

The Coming Horse Show.

From the present outlook the Canadian Horse Show in Toronto on April 29th and 30th and May 1st will be a successful one. A great many enquiries have been made for prime lists, and entries have already been sent in, commencing with thoroughbred stallions. It is expected that Mr. Fred C. Stevens, of Attica, N. Y., will show some of his famous Hackneys, and possibly Mr. Howland will bring over a few more jumpers.

The show of heavy horses, both Shire and Clydesdale, will be very good this year. In heavy draft teams there are two classes, one for pure-bred Clydesdales and one for heavy draft horses of any breeding, and we expect these to be well filled. The price of admittance this year will be very much less than formerly, as the directors are determined to make this exhibition a popular one. The sale of boxes will take place in a short time for those in the city who wish to have them. The prospects for a successful exhibition are very encouraging.

GOSSIP.

Among the new advertisements in this issue is that of L. E. E. Dillman, Wilberforce, Ont., who offers various breeds of swine, poultry, ducks, geese, guineas. Also honey and carp spawn. Look up the ad. of Sidhill View Stock Farm.

In getting together a dairy herd, it is well to commence right. Buy a few good young things whenever they can be had cheaply. Ayrshires, Holsteins and Jerseys, young and of either sex, are seldom as favorably offered as Mr. Alex. Woolley's (Springfield, Ont.) advertisement indicates in this issue. Also see his poultry offering.

Mr. Joseph Cairns, Camanche, Ont., in writing us instructions to change his advertisement, says: "Drop the mention of Mammoth Bronze turkeys, as I will soon have all my orders eaten up in postage. I am about sold out of Chester White pig, but am booking orders for April litters. I am importing another grand brood sow, in farrow, from Whiskey, of Ohio."

Poor cows are practically a bill of expense, whereas good, well-bred animals, that have been developed along a special line, are the only sort a farmer should keep. There are many men trying to conduct a dairy business who would be money in pocket to beef off a large proportion of their cows and put good ones in their place. The assignee's sale of Jerseys in this issue offers an opportunity to such men that should not be ignored nor neglected.

The Shorthorn sale of Messrs. H. & W. Smith, Hay, and Jas. S. Smith, of Maple Lodge, Ont., held on March 25th, was a pronounced success. The attendance was very good, and although the bidding was not particularly spirited, the averages were well up—an evidence of the success of Capt. T. E. Robson's first attempt in the capacity of a pure-bred live stock auctioneer. The ten females, most of which were heifers, made an average of some \$75. The bulls, eight in number, reached an average of about \$80, the highest price being \$97. Details in next issue.

P. J. Cogswell, proprietor Brighton Place Jersey Herd, Rochester, N. Y., writes us under date of March 28th:—"Exile of St. Lambert 13657 has still another high test to his credit, and another proof that his 'get' possess his great power of reproducing great milk and butter producers; so that notwithstanding the fact that 'Old Exile' is no more, his influence is apparent, and his soul, like John Brown's, is still 'marching on.' Jocal 95182 gave, in seven consecutive days, commencing Feb. 17th last, 268 lbs. 8 oz. of milk, which raised 43 lb. cream and churned 20 lbs. 14 oz. of choice hard butter, well washed, and salted 1 oz. to the pound. Her highest day's milking during the test was 47 lbs.; lowest, 37 lbs. Jocal is a handsome light fawn, 3 years 11 months old, sired by Exile of St. Lambert 23rd 20712 (3 in list), dam Judy Fagan 3rd 37653. She dropped her last calf Dec. 27th, 1896, and was dry six weeks previous. She averaged for 53 days, commencing Jan. 10th last, 38 1/2 lbs. milk per day, and has come through her test unimpaired, and probably capable of equalling or exceeding it."

Stock Breeders' Committee Meetings.

The meetings of representatives of stock breeders' associations, announced to be held in Toronto, March 23rd to 26th, were well attended.

DOMINION CATTLE BREEDERS' ASSOCIATION met in the Palmer House, Toronto, on Tuesday, March 23rd.

Verbal reports were given by Mr. Hobson and Mr. Johnston on behalf of the Tariff and Transportation Committee.

The Secretary suggested that an effort should be made to secure reduced rates for carloads of pure-bred stock to Quebec and the Maritime Provinces.

Mr. G. S. McDonald, Montreal, addressed the meeting at considerable length, explaining the results of his investigations on the subject of railway tariffs.

Messrs. John I. Hobson and J. C. Snell were appointed to represent the Cattle Breeders' Association on the joint board of directors of the winter show.

Mr. McCrae and the Secretary were appointed a committee to urge upon the Government, in case a Dominion agriculturist or live stock commissioner be appointed.

The rules governing the winter show and the prize list for cattle were revised.

The following gentlemen were appointed as judges of cattle at the Winter Show: T. Crawford, M.P.P., Toronto; R. Miller, Brougham; James Smith, Brantford, referee.

The reports of the Treasurer and Secretary were received, and a committee was appointed to consider the suggestions for new work and to report at a future meeting.

The Secretary's report referred to was a joint one for the three associations, and contained a comprehensive account of the objects of the organizations and what they had accomplished for the live stock interests in the matter of exhibitions, transportation rates, etc.

Messrs. H. J. Hill, Toronto, and Wm. Linton, Aurora, addressed the meeting on the desirability of asking the Government to invite delegates from the Argentine Republic to visit our autumn shows to see our stock.

DOMINION SHEEP BREEDERS' ASSOCIATION. The directors of the Dominion Sheep Breeders' Association met on Wednesday, March 21, at the Palmer House.

A resolution of the Prince of Wales prize was adopted, urging upon the Ontario Minister of Agriculture the desirability of granting this prize to only live stock associations of a Provincial character.

The following gentlemen were appointed delegates to represent the Sheep Breeders' Association on the Board of the Winter Show: Messrs. John Jackson, D. G. Hamner, and R. H. Harding.

The Ettrick Herd of Jerseys.

MESSRS. HUMPIDGE & LAIDLAW, PROPRIETORS, LONDON, ONT. Herd Comprises 35 head of High-class Stock.

The Don Herd of Jerseys

Comprise the choicest strains obtainable, including St. Lambert, Tennessee and combination blood.

BRAMPTON JERSEY HERD A. J. C. C.

FOR SALE—19 registered and high-grade heifers, sired by or bred to Sir Ollie; also heifer calves; 4 registered young bulls.

A. J. C. C. JERSEYS FOR SALE.

Young cows and heifers in calf, heifer calves, bull calves, from rich and deep milking ancestry.

W. C. SHEARER, BRIGHT, ONTARIO.

I have four choice seven-eighths bred JERSEY HEIFER CALVES, descended from tested ancestors.

LEE FARM REGISTERED JERSEYS.

Bulls fit for service, \$50 each; Heifers in calf, 50; Young cows in calf, 75; Heifer calves, 30.

MASSENA'S SON

and two choice young Jersey Bulls for sale; also eggs from choice pens of Blk. Minorcas.

Exile of St. Lambert 13657

Founder of the great EXILE family of large milk and butter producers. Fifty-three tested daughters—more than any other bull, living or dead.

P. J. COGSWELL, ROCHESTER, N. Y.

W. F. BACON, - Orillia, Ontario.

CHOICE REGISTERED JERSEYS. Young bulls and heifers of the best blood for sale.

"Gem Holstein Herd." STOCK FOR SALE!

We only keep and breed registered Holstein-Friesians. We have now some choice young bulls and heifers, also some older animals.

HILLIS BROTHERS, BEDFORD PARK P.O., ONT.

MAPLE Holstein-Friesians. For rich breed. HILL production and uniformity of type.

HOLSTEINS

None but the best are kept at BROCKHOLME FARM, ANCASTER, ONT.

Write me for prices if you want first-class stock at moderate figures. Holsteins in the advanced registry. Yorkshires all recorded.

HOLSTEINS!

WE now offer young stock that have won prizes, and calves from our show herd, from one month to one year old.

HOLSTEIN BULLS FOR SALE.

Two 2 year-olds and a yearling; also some young females; all bred in the purple, as their pedigrees will show.

Ingleside Herefords.

UP-TO-DATE HERD OF CANADA! Bull Calves OF THE RIGHT SORT For Sale.

FRED NORTON (HERDSMAN), Compton, Que.

AYRSHIRE CATTLE

The bull TOM BROWN and the heifer WHITE FLOSS, winners of sweepstakes at World's Fair, were bred from this herd.

PRIZE-WINNING STOCK FOR SALE

AYRSHIRE BULLS fit for service; one out of Ada No. 882, winner of first and two special prizes at Provincial Dairy Test, Guelph, Ont., 1895.

OAK POINT STOCK FARM

Ayrshires FOR SALE. I have now for sale a choice lot of young bulls of fine quality.

J. B. CARRUTHERS, Kingston, Ont.

Choice Ayrshires of deepest milking strains. Largest and oldest herd in Ontario.

AYRSHIRE CATTLE AND RED TAMWORTH SWINE

A grand lot of each on hand, including a nice lot of in-calf heifers, and EIGHT BULLS six to eighteen months old.

W.M. WYLIE, 228 BEURY ST., MONTREAL, or Howick, P.Q.

Breeder of high-class AYRSHIRES. Young stock always for sale; bred from the choicest strains procurable.

KAINS BROS., BAYLN, ONTARIO, LONDON STATION.

Several registered AYRSHIRE CATTLE. Several registered AYRSHIRE CATTLE. Several registered AYRSHIRE CATTLE.

W.M. WYLIE & SONS, 228 BEURY ST., MONTREAL, or Howick, P.Q.

Breeder of high-class AYRSHIRES. Young stock always for sale; bred from the choicest strains procurable.

STEAM-ENGINEERING (Stationary, Marine, and Locomotive.) Mechanical Drawing Electrically Architectural Drawing Plumbing & Heating Civil Engineering Surveying & Mapping English Branches Book Keeping

TO WORKINGMEN YOUNG MEN

and others who cannot afford to lose time from work. Send for Free Circular and determine what to Study, to

SWINE BREEDERS.

The directors of the Swine Breeders' Association met at the Palmer House on Thursday, March 25th.

In response to letters from Mr. G. H. H. Greig, Secretary of the Manitoba Sheep and Swine Breeders' Association, it was agreed that members of that Association be allowed to register stock on payment of the same fees as members of the Dominion Swine Breeders' Association.

The committee appointed at the annual meeting to devise a scheme whereby fair boards may be asked to charge for space in

Ontario Fat Stock Show. The directors of the Provincial Winter Fair met at the Palmer House, Friday, March 26th.

The selection of the place for holding the Fat Stock and Dairy Show was decided by ballot.

The following special prizes have been donated to the Provincial Fat Stock and Dairy Show:

By the Shorthorn Breeders' Association—\$120 to duplicate the prizes in the class for Shorthorns; \$20 for championship prize for best and oldest sired by a registered Shorthorn bull.

The Eastern Dairymen's Association donate \$20 for the best prize in the beef classes if won by a registered Hereford or Hereford grade.

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GOSSIP.

In writing to advertisers, mention the "Farmers' Advocate."

MR. J. C. SNELL'S SALE OF JERSEYS.

The public sale of Mr. Snell's fine herd of Jersey cattle, at Snelgrove, four miles from Brampton Station, G. T. R. and C. P. R., on Tuesday, April 13th, as advertised in this issue, will afford dairymen and others desirous of securing one or more of this popular breed of rich milk and butter cows the opportunity of gratifying their ambition. The herd has been bred and selected with a view to good constitutions and useful qualities as workers in the dairy, and a recent inspection of the cattle has left an exceedingly satisfactory impression on the mind of the writer. Uniformity is a good point in a herd when it is a case of uniform goodness, and that is evidently the prevailing idea that has been aimed at and secured, for there is not a coarse animal in the herd, and what is especially noticeable, not an ill-shaped or defective udder in the whole lot. Well-balanced unders and good-sized teats, well placed, has been Mr. Snell's speciality, and he has succeeded in a high degree in maintaining these very desirable and useful points. No odd or worn-out cows are included in the catalogue, but a very useful and promising lot of young cows, having had their first, second or third calves, and some coming in fresh this spring, besides a lot of promising heifers in calf, heifer calves, and young bulls. A glance at the pedigrees shows a rich combination of the blood of a top Jersey world, including those of the St. Lambert and St. Helier strains, besides a good admixture of Tormentor and Combination blood, and strong outcrosses of the blood of many of the best importations from the Island of Jersey, including many notable prize winners at the leading exhibitions in Canada. Prominent among the cows included is May Verbena, a handsome six-year-old cow of fine dairy form, with a home record of 20 lbs. of butter in seven days on dry feed. She is a daughter of Mighty Dollar, champion at Toronto three times, by One Hundred Per Cent, pure St. Lambert, full brother in blood to Mary Anne of St. Lambert, 36 lbs. 12 ozs. The above-named cow, is a handsome and useful cow, by Jetsam's Dollar, a son of Mighty Dollar, and imported Jetsam, from the Island of Jersey, and sold for \$400 at 4 years old, and one of the 1st-prize herd at Toronto Exhibition. One of the most attractive numbers in the catalogue will be the young cow, Carlo's Alta, having produced her first calf in October last, and milking very satisfactorily. She is handsome and of fine dairy form and puts up a first-class show of udder, with good-sized teats well set. She was an easy winner at the Peel Co. show last fall, beating the first prize heifer at the Toronto Industrial in the same class. She is richly bred, being a daughter of the grand show bull, Carlo, Glen Duart, champion over all Canada three times, and considered by good judges the best Jersey bull ever seen in Canada. Her dam, Aiklan's Alta, by Rioter's Pride, by Stoke Pogis and bred by Mrs. E. M. Jones, is one of the best cows in Canada, and is also the dam of the first prize yearling heifer at Toronto, Ottawa, and the Provincial Dairy Show in 1895; she is of the Rioter's strain, one of the best testing families known in Jersey history, and promises to make an invincible show cow. Arabella Pogis, a beautiful three-year-old daughter of Nabob of St. Lambert, by Neil's John Bull, sweepstakes winner at Toronto, son of Neil of St. Lambert (record 45 lbs. milk per day at two years) is nearly perfect in dairy form and is richly bred and of fine character. Madam Bubble 2nd is a business cow of five years, sired by Elmhurst Stoke Pogis by Canada's John Bull, son of Nymph of St. Lambert, 24 lbs. 14 ozs., dam Brenda of Elmhurst, 20 lbs. 3 ozs. Cans of Snelgrove is a charming three-year-old daughter of Kaiser of St. Lambert and of Cans Pogis by Canada's John Bull, out of Anna of Glencairn, a splendid combination of the St. Lambert and Bertha Morgan families. Carlo's Marguerite, a massive, deep-ribbed two-year-old heifer of fine promise for usefulness, and handsome withal, is a daughter of Carlo of Glen Duart, out of the pure St. Lambert cow, Marguerite of St. Anne's by Jolie's Hugo of St. Anne's out of Jolie of St. Lambert 3rd, one of the best cows ever shown in Canada. Lemon Squeezer is a model four-year-old cow that has beaten the first prize cow at Toronto Exhibition, and has a typical dairy conformation and milk vessel. She is a daughter of Jetsam's Dollar by Mighty Dollar, first prize and sweepstakes at Toronto three times, and of imported Jetsam from the Island of Jersey, sold for \$400, and was in first prize herd at Toronto Exhibition; she is deep in the blood of Imp. St. Helier, sire of 27 in the list of producers of 14 to 25 lbs. in seven days. Gronovia and Lillian of Oxford are two charming sisters, one and two years old respectively, daughters of Sumachson, out of Mayday of St. Lambert, 19 1/2 lbs., and descended from Lorne, Lord Lisgar, and Victor Hugo. There are three other daughters of the famous old Carlo of Glen Duart, one a full sister of Carlo's Alta. And another beautiful heifer is Rizpah of Snelgrove, by Massena's Duke, son of Princess Clothilde, 17 1/2 lbs., and grandson of Mrs. Jones' fine old Massena, that made over 900 lbs. of butter in a year; dam Elma of Snelgrove, second prize at Toronto, 1896, by Elmhurst Stoke Pogis, son of Brenda of Elmhurst, 20 lbs. 3 ozs. A charming lot of yearling heifers and heifer calves makes up the list of females. Among the bulls catalogued are the seven-year-old Albert Easter, by Albert's John Bull, by Canada's John Bull, and out of Easter Star, a daughter of imported Faith of Oaklands, perhaps the most perfect model of a dairy cow that has ever figured in Canada, having a record of 17 lbs. 4 ozs., winning first prize at Toronto several times and being in the first prize herd. Albert Easter is a typical dairy bull with neat head and horns, fine withers, long quarters, deep ribs and fine skin. Judge of St. Aubin, winner of second prize at the Western Fair last fall as a bull calf, is a handsome yearling of fine quality and rich breeding, sired by Judge of St. Lambert, a son of Carlo of St. Lambert, 20 lbs. 5 ozs., and a grandson of St. Helier's Chromies, and great-grandson of Pogis Tormentor, by Ida's Stoke Pogis, out of Ida of St. Lambert, 30 lbs. 2 1/2 ozs. He is a grand combination of three of the kindest producing families known. Pedro of Snelgrove, another handsome yearling bull of fine quality, winner of first prize at the Peel

Shire Horses! We have a number of FILLIES, MARES IN FOAL, ALSO STALLIONS, FOR SALE. Imported and home-bred, all choice registered animals. Address— Morris, Stone & Wellington, WELLAND, ONTARIO.

FOR SALE. 25 CLYDESDALE STALLIONS AND MARES 25

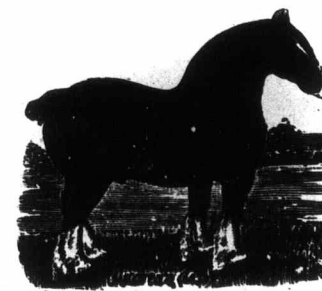


QUEEN.

Nearly all prize-winners at Toronto, Montreal, Ottawa, and Chicago World's Fair. Most of our young stock are sired by the Columbian champion, PRINCE PATRICK, and GRANDEUR (sweepstakes four times at Toronto). Two of our fillies are daughters of Lillie Macgregor, the champion World's Fair mare. Among the mares for sale are several of our best imported dams now in foal to Grandeur, also a number of fillies sired by Grandeur and out of the above dams. Also a number of HARVEYS, also YRSHIRE BULL and HEIFER CALVES, and SHROPSHIRE SHEEP.

D. & O. SORBY, Guelph, 67-om Ontario.

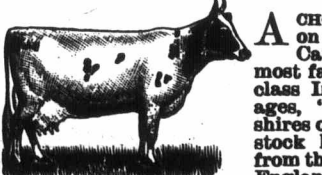
Champion Hackney Royal Standard Stallion . . .



We have a number of first-class mares and fillies of this breed in foal to the above stallion. We also have for sale a number of other choice Clydesdale stallions, Standard-bred and Thoroughbreds.

GRAHAM BROS., Claremont, Ontario. 25 miles east of Toronto, on C. P. R. 4-if-om

ISALEIGH GRANGE STOCK FARM, DANVILLE, QUEBEC.



A CHOICE assortment of the following pure-bred stock always on hand: Ayrshire and Guernsey Cattle of the choicest breeding and most fashionable type and color. High-class Improved Large Yorkshires of all ages, "Sanders Spencer stock." Shropshires of the finest quality. Our breeding stock has been selected, at great cost, from the choicest herds and flocks of both England and Canada, and have been very successful winners in all leading show rings. Young stock supplied, either individually or in car lots, at the lowest prices. Prompt attention given to all correspondence.

J. N. GREENSHIELDS, Proprietor. 87-om T. D. McCALLUM, Manager, Danville, Que.

Blood Will Tell . . .

When an animal is all run down, has a rough coat and a tight hide any one knows his blood is out of order. To keep an animal economically he must be in good heart.



Dick's Blood Purifier

Is a necessity where the best results from feeding would be obtained. It tones up the system, rids the stomach of bots, worms and other parasites that suck the life blood away. Nothing like Dick's for Milch Cows.

For sale by druggists, at general stores or sent on receipt of 50 cents. DICK & CO., P. O. BOX 482, MONTREAL.

Ayrshires of Choice Breeding For Sale 4 FINE YOUNG BULLS AT A BARGAIN, ALSO CHOICE HEIFERS. FOR PARTICULARS ADDRESS DAVID LEITCH, Grant's Corners. Stations—Cornwall, G.T.R.; Apple Hill, C.P.R. AYRSHIRE BULL CALVES for sale cheap, if taken immediately. Three dropped in August, sired by Imp. Glencairn; dams by Silver King. D. DRUMMOND, BURNSIDE FARM, PETITE COTE, MONTREAL.

THE GLEN STOCK FARM Our stock comprises Clydesdales, Ayrshires, and Shropshires. High-class Ayrshires a specialty. We are making a special offering of ten very promising young bulls, and a number of very choice cows and heifers of the heaviest and richest milking strains, any of which will be sold at very moderate prices. We also have Rough-coated Scotch Collies for sale, eligible for registry. 7-y-om WHITEBIDE BROS., INNERKIP, ONT. Ayrshire Calves from deep-milking strains for sale at \$10 each; if taken soon pedigree furnished. H. GEORGE & SONS, om Crampton, Ont.

Co. Fair, is a son of Terry's Pedro, and grandson of Gipsy of Sprucegrove, sold by Mr. Snell to Mrs. Jones, of Brockville, and winner of the sweepstakes as best Jersey cow at the Provincial Dairy Show. His pedigree is a fine combination of St. Lambert and Rioter blood, and he fairly claims individual merit by inheritance. Mr. Snell parts with his favorites with reluctance, but, having made important changes in his business, which will necessitate his being away from home most of the time, finds he cannot give the necessary attention to his cattle and the dairy business. The sale comes at a favorable time for buyers, and we look for a good attendance and predict a good demand and fair prices. See the advertisement and send for a catalogue.

Farmers' Institutes in New York State have been a remarkable success this winter, so far as attendance goes, from 400 to 1,000 people being present at a single session since the plan of holding Institutes in the smaller towns was inaugurated. Director Dawley asserts that the attendance has been at least thirty per cent. greater than last year.

Mr. Neil Smith, Brampton, Ont., advertises in this issue three registered imported Clydesdale stallions for sale. These should attract attention at the present time, in view of the improved demand and prices for that class of stock. Mr. Smith sold a team of his own breeding, in January, for \$350. That is the kind to raise.

G. W. Clemons, "Maple Hill" herd of Holstein-Friesians, St. George, Ontario, writes: "Quite a number of inquiries for stock have referred to the cuts in the ADVOCATE, so that I think they attracted considerable notice. Sales, particularly of bulls, have been excellent; have sold all the bulls I have for sale at present, and am in a fair way to make some good sales of females. Ten bulls since January 1st is not a bad record for a herd no larger than mine."

Mr. R. G. Robinson, of the Elbow Park Ranch, Calgary, N. W. T., who recently returned home from a stock-purchasing tour in Ontario, writes: "The more I saw of the horse-breeding industry in Canada, the more convinced I am of the bright prospects ahead. Alberta breeders need have no fear of Eastern competition. In fact, with the prospects of mining development in British Columbia and railway extension into that region, I consider a good ranch just as good property as a gold mine."

Referring to the subject of size and weight in Shire horses so strongly insisted upon, the Farming World (Scotland) says:—"Are the Englishmen wholly wrong? We grow not. They have a great argument in the prices secured by Lord Wantage for ten geldings at his great sale. The average price of ten was within a few shillings of £100 apiece—and two of them made £120 and £121 respectively. Keep the lorry and dray in view is sound advice, whether north or south."

Mr. Arthur Johnston, of Greenwood, in writing this office, says:—"We have no boom in Shorthorns, nor do we want one, but we have in sight better times for the breed than we have seen for many years. Enquiries for good young Shorthorns have never been as numerous in the history of the breed in Canada, and although we are still forced to take very moderate prices, I believe more animals have been sold in January, February and March of the present year than have been sold during any six months of the past six years. This is good, and in my opinion it is only a presage of the better times that are in store for the breeders of good Shorthorns. Our own herd is in capital form, especially the young things. We have still a number of fine young bulls for sale, fit for immediate service. We are also offering the whole of our yearling and two-year-old heifers, and they are as good as any we have ever bred or imported. Our show yearlings are coming on in the most satisfactory manner. It pays to advertise in the ADVOCATE if a breeder wants to do business; nothing he can do pays better."

Beef-raising farmers and Shorthorn breeders in the eastern portion of Ontario and the Province of Quebec will have a grand opportunity to add new and valuable blood to their present herds by attending the dispersion sale of Scotch-bred Shorthorns, the property of Mr. R. H. Sangster, Lancaster, Ont. (Glengarry Co.), on Wednesday, April 14th. This herd has been carefully built up from good foundation stock by the constant use of superior bulls. Among the females are two Fanny B's, descended from imported Fanny B. 26th, a prize-winner at leading shows in Scotland; one is by Gravesend's Heir (Imp.)—8372—, and the other by King of Wales—14637— by Winner—8608— out of Princess of Wales 8th. Seven Mildreds are also included in the catalogue, got by such bulls as Gravesend's Heir (Imp.), Bramble Boy—14372—, bred by Hon. John Dryden; Rockland Stamp—15580—, bred by W. C. Edwards & Co.; and Royal Gloucester—15098—, the present stock bull, bred by Mr. Arthur Johnston, Greenwood, and sired by Indian Chief (Imp.) (57485), and out of 34th Duchess of Gloucester (Imp.). The remaining females are of much the same good breeding. The seven bulls are Royal Gloucester and his six sons out of present matrons of the herd. Mr. Sangster's reason for disposing of the entire herd is that he, being situated in the midst of a country peculiarly suited to dairying, and having decided to enter that pursuit, finds his present stock, while many of them are good milkers, too valuable for dairy purposes. This herd is made up of good individuals, and are, we understand, in nice breeding condition—just the most desirable form to do purchasers good. The bulls are low-set, thick, vigorous, in good colors. Mr. Sangster writes us on March 20th: "The cows are calving now, fine strong offspring, and all red. There will be nine or ten calved before the sale." The opportunity this sale affords to secure some capital stock should be appreciated. See advertisement and send for catalogue.

PLYMOUTH ROCK EGGS. Mr. W. J. Campbell, Snelgrove, Ont., advertises in this issue settings of eggs from his Barred Plymouth Rocks, which we are assured are up-to-date in breeding and quality, and parties entrusting him with their orders may rely upon fair treatment and good value.

100 BEST EVERGREEN SEEDLINGS

delivered free by mail, only \$1. 100 best evergreens 2 to 5 ft. delivered east of Rocky Mts., only \$10. Write for free catalogue and price list a 50 big bargains, selections from complete nursery stock. Cash paid for getting up clubs or to salesmen with or without experience. Address

D. HILL
EVERGREEN SPECIALIST, DUNDEE, ILL.

First Prize Ayrshire Herd

at Toronto, 1896, headed by the imported bull Beauty's Style of Auchenbrain (2758) -1129-, sire of 1st and 2nd prize 2-year-old heifer (the first of his get), and a number of other winners. Having recently imported a bull, we now offer for sale this grand bull, 4 years old, perfectly quiet, sure, and all right in every respect; also 5 bulls from 2 to 17 months, 6 of them out of imported cows.

THOS. BALLANTYNE & SON,
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GUERNSEYS

This is the Dairy breed for ordinary farmers. Large, vigorous and hardy, giving plenty of rich milk. Several fine young bulls for sale at very reasonable prices. A few heifers can be spared.

Address: SYDNEY FISHER,
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LITTLE'S PATENT FLUID
(NON-POISONOUS)
SHEEP DIP
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Non-Poisonous Fluid Dip.

Still the favorite dip, as proved by the testimony of our Minister of Agriculture and other large stockmen.

FOR SHEEP:
Kills ticks, maggots; cures scab, heals old sores, wounds, etc.; and greatly increases and improves growth of wool.

CATTLE, HORSES, PIGS, ETC.:
Cleanses the skin from all insects, and makes the coat beautifully soft and glossy. PREVENTS the attack of warble fly.

HEALS saddle galls, sore shoulders, ulcers, etc. Keeps animals free from infection.

NO DANGER; SAFE, CHEAP, and EFFECTIVE.

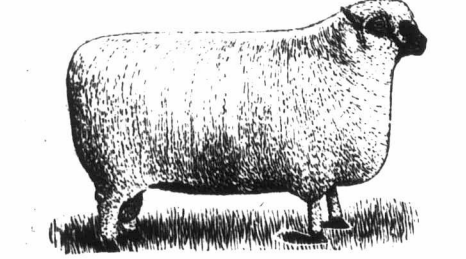
BEWARE OF IMITATIONS.

Sold in large 75c. Sufficient in each to make tins at wash, according to strength required. Special terms to breeders, ranchmen, and others requiring large quantities.

Sold by all druggists. Send for pamphlet.

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MILLER'S Tick Destroyer



Effectually Destroys Ticks, Scab, and Vermin

Makes the skin clean and healthy, and imparts a silky softness and luster to the wool.

HUGH MILLER & CO., TORONTO, CANADA.

O. & E. WOOD,
FREEMAN, ONT., BURLINGTON ST.,
BREEDERS OF

HIGH-CLASS Leicesters.
Choice ewes and ewe lambs for sale at very low prices, considering quality. Write for prices and particulars. 18-y-o

FARNHAM OXFORD DOWNS.
I HAVE a few choice young ewes in lamb to imported ram, also some ewe lambs for sale. Kitting show sheep a specialty.

HENRY ARKELL, Arkell, Ont.

GOSSIP.

Whether it be Shorthorns or Ayrshires that a farmer needs, he will stand a good chance of being supplied at his own price at St. Mary's, Ont., on April 7th, at 2 p.m. and later. Messrs. Thompson & Ballantyne advertise a desirable offering, especially in bulls, in this issue.

A. & G. Rice, Currie's Crossing, Ont., report the sale of several Holsteins, and the demand on their large herd is very great, containing as it does eight different cows and heifers that have won in public tests, and others just as good. Young stock from such cows and sired by such bulls as Siep's 3rd; Mink Mercedes Baron, a prize-winner at World's Fair, and Sir Paul De Koi Clothide, the milk and butter prince, whose nineteen nearest female relatives average 22 pounds of butter per week, including his own three-year-old record. The two-year-old heifer, Bright Promise, that won second in recent milk test at Guelph, is s. to Mr. J. Yant, Esq.'s Mills P. O., Ont. Mr. H. Lee, Connaught P. O., bought the yearling bull, Jewel Mercedes' King. Both of these have for dam Jewel Mercedes' Antia Queen, who won first last year at Toronto and London as a three-year-old; gave, last August, 534 pounds milk in one day; now giving 30 pounds daily, seven months after calving; has given in last seven months over 3,000 pounds milk. She has produced three calves before four years old, and is a great producer and dividend payer. Such stock is sure to come from good cows, as she is a granddaughter of Daisy Texal, who has given 11,000 pounds milk in ten months, and she won second to Eunice Clay in milk test at Toronto in 1894. Late produces like all her heifers are good to the third and fourth generation. We have, of course, cows doing even greater work. Calamity Jane, for instance, who has won two years in succession sweepstakes in Guelph test, has produced within the last five months a heifer calf, followed in the five months by 3,000 pounds milk; has won \$100 in prizes. What is she worth as a gold mine? Another daughter of Jewel Mercedes' Queen (a calf) we sold to Mr. Daniel O'Maony, Kenton P. O. He also got Catharine 5th's Baron, a yearling bull whose dam is Catharine 5th (record, 51 pounds at three years old). Mr. J. Fred. Davidson, Peterboro, gets the richly bred young cow, Tirania Belle. She won fourth as a calf at World's Fair, and gave 45 pounds as a two-year-old. He also gets the two-year-old heifer, Lady Pietertje Mink, whose dam, Lady Pietertje, won in public test as a three-year-old, a descendant of Pietertje 2nd. She has the largest yearly milk record ever made. Both are with calf to Sir Paul De Koi Clothide, and should be a good investment. Mr. Geo. Peacock, Mt. Salem, gets the yearling bull, Lady Pietertje's Sir Jewel, a son of Lady Pietertje, by son of Daisy Texal, tracing twice to her. Mr. D. Nill, Clover Valley Stock Farm, Fenella P. O., gets the handsome yearling bull, Brookbank Baron, whose dam is one of our great producers (record, 54 pounds at four years old); sired by a World's Fair prize winner.

JERSEYS FOR THORNCLEFFE.

Mr. George T. Davies, son of Mr. Robt. Davies, has imported from the island of Jersey for Thorncliffe Stock Farm, Toronto, a number of high-class prize-winning Jerseys, viz.:

First of all, the bull, Distinction's Golden, sired by Golden Lad 2nd, whose dam has a record of nineteen pounds four ounces in seven days. The dam of Distinction's Golden is the champion Distinction's Pearl. She has won twenty-six prizes, including three silver cups, and has a butter record of twenty-one pounds eight ounces in one week. Distinction's Golden won as a yearling, in 1896, the parish prize, and was third in the aged class, consisting of twenty-eight bulls of all ages. Backed by such breeding, fashioned in a rare mold and finished in a very high degree, Distinction's Golden is easily to be ranked among the greatest young bulls of the breed. He possesses a rugged constitution, a strong frame, a very fine satiny coat (of silver-gray fawn), a nice mellow, delicate skin, and milk veins of unusual length and development. His head and neck are the right kind, and, with good luck, he will prove himself to be a first-class show and dairy sire.

Nita's Belle is two years old, sired by Golden Hero, champion of Jersey for three years and now champion of England. Golden Hero has distinguished himself as a sire. The dam of Nita's Belle is the dairy prize-winning cow Parisienne, record twenty pounds one ounce per week. Nita's Belle is full of quality, with refined breeding, and has a nice square, well-carried udder with good-sized teats.

Nicotine's Pet is half-sister to Nita's Belle, being by champion Golden Hero and out of Nicotine 2nd, eighteen pounds of butter in seven days. Nicotine's Pet was one of the best yearlings in Jersey last year. She has a very robust constitution, is extra well sprung in the ribs, is level-backed, with her tail carried right. She has a capacious, well-carried udder, and is all through a very dairy-looking heifer.

Crocus 6216, H.C.J.H.B., age three years, sire Skinner, the sire of Sir James Blyth's Bay King, that won second prize in a strong class of heifers in milk at the Royal English Show, 1896. Dam, Les Niemes Crocus. Crocus is the real dairy type and will make a grand dairy cow. Her dam has never been tested, but has given five gallons one quart of milk in one day.

The last, but by no means the least, is the richly-bred heifer, Glenfield, sired by Guenon, whose dam won first prize over Jersey in 1896; the silver medal at Grouville Show, 1896, also the bronze and silver medals for two butter tests. She has a milk record of forty-six pounds eight ounces in twenty-four hours, and a butter record of two pounds five ounces in twenty-four hours in October, 1896. Dam, Welcome Lass, butter record seventeen pounds five ounces in seven days. Backed by such fashionable blood, Glenfield will no doubt be heard of later. She is of the same breeding as the champion cow Comassie, that was sold to an American for \$1,000.

LAST CALL FOR MR. HOBSON'S SALE.

Parties interested in Shorthorn cattle or heavy draft mares, or those contemplating the improvement of their stock, should not overlook the extensive sale of 50 head of registered Shorthorns and a number of exceptionally good young Clydesdale mares at Mosboro Station, G.T.R., five miles west of Guelph, on Tuesday, April 6th. It is a closing-out sale of a fine lot of up-to-date cattle, and should bring together a large number of farmers and breeders.

A Little Paint

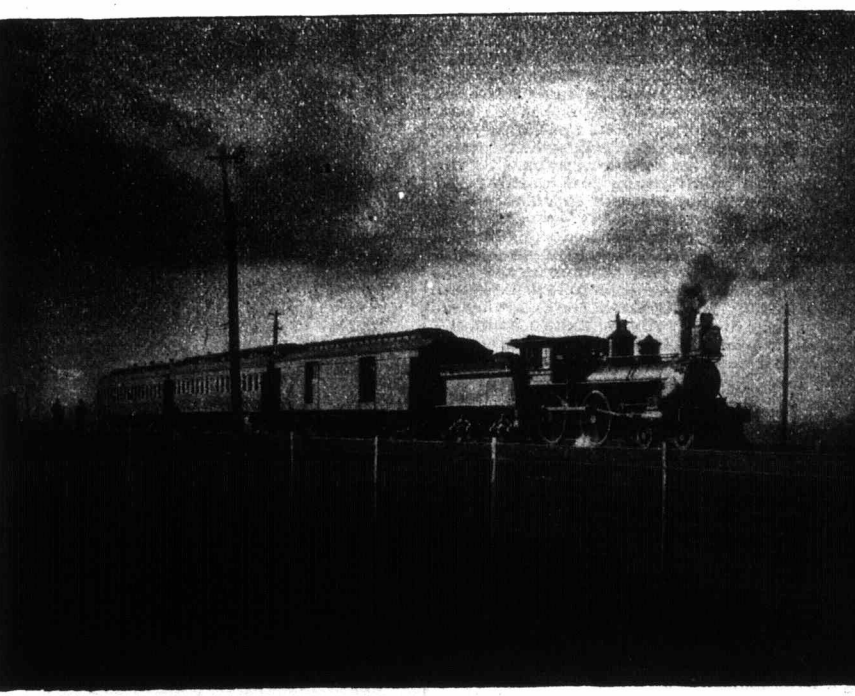
in the right place, and of the right kind, will make a great change in the looks of the room or a home. The window casing, baseboard, picture mouldings, chairs and tables—all these can be brightened and made clean with paint.

THE SHERWIN-WILLIAMS ENAMEL PAINT

is just the thing for furniture, and decorative work. It gives a fine, glossy, enamel-like surface. The tints are delicate for indoor use. "Enamel Paint" is prepared ready for the brush. Any one can use it. We make paints for every purpose—all these are a special kind suited to a special use.

Our booklet "Paint Points," tells all the little kinks about paint—the good and the bad. It tells the best special paint for buggies, boats, farm tools, barns, fences, roofs, houses and all other painted things. Send to-day for a free copy. For booklet address, 20 St. Antoine Street, Montreal.

THE SHERWIN-WILLIAMS CO.
CLEVELAND
CHICAGO
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MONTREAL



The fact that all of the leading railroads in Canada are using Page Woven Wire Fencing is strong evidence that it is a desirable fence. Send to the Page Fence Co., Walkerville, Ont., and they will send you some of their handsomely illustrated printed matter, which will explain why their fence is so popular.

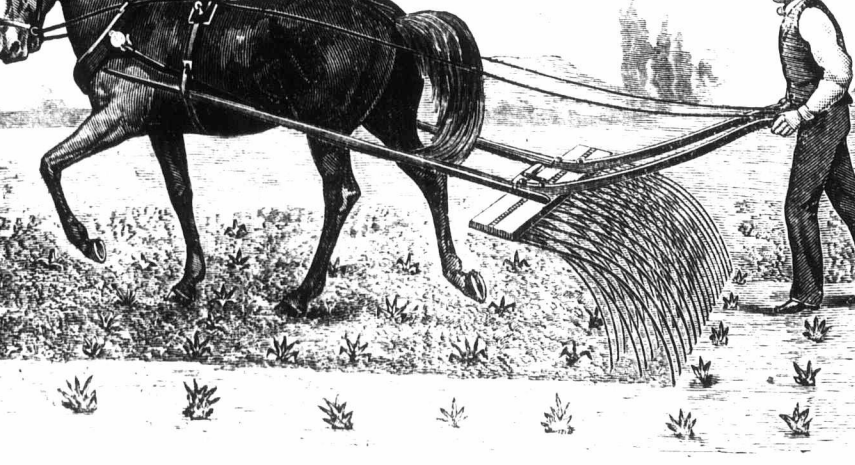
OUR SPECIAL FOR SINGLE BUGGY DRIVING \$15 Livery Harness

Equals any \$20.00 custom-made harness sold in Canada. Strong enough to haul a waggon load of bricks. Handsome enough to draw the finest carriage.

JUST AS VALUABLE TO THE FARMER AS TO THE LIVERYMAN. Our regular line of strictly handmade harness at \$9, \$12, \$15, \$18 are unequalled. If your saddler cannot furnish send to us.

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WHOLESALE MANUFACTURERS. 24-y-om

MAXWELL WEEDER!



A new implement, thoroughly tested and endorsed by prominent agriculturists. The most labor-saving tool on a farm. Send for catalogue.

David Maxwell & Sons, St. Mary's, Ontario.

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VOL. XX

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