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While Agriculture is the First & Noblest of the Sciences
Stock Raising is the Right Arm of Agriculture

CANADIAN

NOVEMBER

1890.



Special Attention
given to the Various Systems of
Feeding
Stock

Every department relating
to the Welfare of Live Stock
Receives most
Careful Attention

LIVE STOCK

& FARM JOURNAL



Devoted Mainly to the Interests
of the **Stock Raisers** of the **Dominion**,
But Overlooking no Department
Of the **Farm**.



PUBLISHED BY THE J. E. BRYANT COMPANY (LIMITED), TORONTO, CANADA.

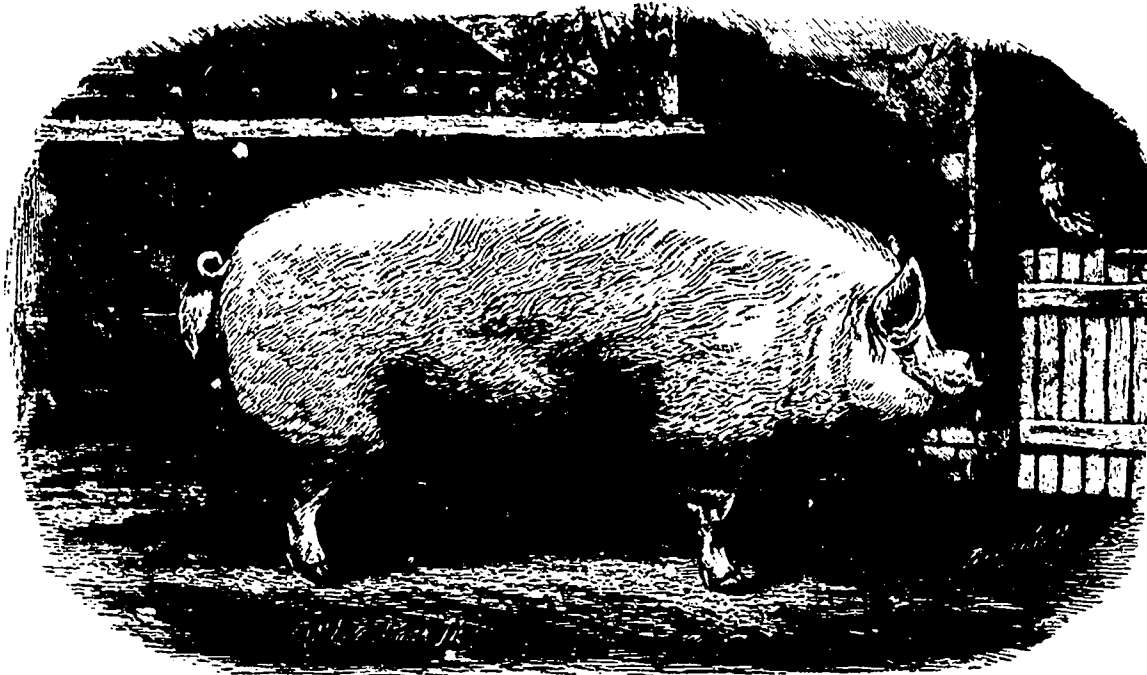
THE CANADIAN LIVE STOCK AND FARM JOURNAL

Devoted to the Interests of the Stock-Raisers and Farmers of Canada.

VOL. VII. No. 11.]

TORONTO, NOVEMBER, 1890.

[WHOLE No. 85



Improved Yorkshire Boar "Holywell Physician."

Recently sold by E. M. Jarvis, Clarksons, Ont., to the Ontario Agricultural College.

Our Frontispiece.

This month the subject of our first page engraving comes from the Improved Yorkshire herd of Mr. E. M. Jarvis, of Ontario Lodge Stock Farm, Clarksons, Ont. This pig was farrowed in December, 1888, and was imported in August, 1889, from the well-known herd of Mr. Sanders Spencer, of England. His sire was Holywell Doctor (975), dam Holywell Beauty 9th (Vol. 6 E.), by Holywell King (59), all animals of note in Mr. Spencer's distinguished herd.

As a getter of good stock this boar has been of great value in the herd at Ontario Lodge, where he has been used as the stock boar since his importation. The striking qualities of this pig are his noticeable length and depth of form, which may be observed in the above life-like sketch. The strong bone and robust appearance of this boar, and his profuse coating of hair are the external evidences of a strong constitution, which has shown itself further in the large and strong litters of vigorous pigs that have been sired by him.

The Ontario Agricultural College has recently purchased this pig, to be used as their stock boar. Even were it not for the fact that Ontario Lodge has now several others coming forward which will in time fully fill the vacancy. It is certainly a high honor to the herd at Ontario Lodge, to have a boar selected

from it in preference to others, to be placed in such a representative position as that which he goes to fill.

Our Barley Competition.

THE RESULTS OBTAINED AND PRIZES AWARDED.

This competition, which was keenly entered upon by over two hundred competitors in all parts of Canada, has been closed, the reports and samples judged, and the prizes awarded. As we have before stated in THE JOURNAL, the competition was started under way by us, with a view of securing data as to the suitability of the conditions of our various provinces for the growing of two-rowed barley for the British market, and also to induce the young men on our farms to undertake experimental work, in the hope that it might lead to further original and valuable research.

To our new readers we would say that last spring we sent out to over two hundred competitors three pounds of Beardless barley, which they were to grow and report the results fully in trustworthy form. They have done this, and so from all parts of Canada we have received reliable data, which will be presented in acceptable and instructive form next month, on the possibilities of developing a profitable trade in barley with Great Britain.

In awarding the prizes, as we have frequently intimated before, the leading considerations have been

the weight per bushel, the yield per acre, and the merits of the sample forwarded to us. All the reports and samples were judged according to a scale based on the foregoing considerations. The prizes have been awarded as follows:

- | | |
|---|----------------|
| 1ST PRIZE, - - - - - | VALUE \$20.00. |
| <i>E. Lewis, Burford, Ont.</i> | |
| 2ND PRIZE, - - - - - | VALUE \$15.00. |
| <i>S. Smith, Belmont, Ont.</i> | |
| 3RD PRIZE, - - - - - | VALUE \$12.50. |
| <i>B. Lawrie, Mongolia, Ont.</i> | |
| 4TH PRIZE, - - - - - | VALUE \$4.50. |
| <i>Louis A. La Pierre, Paris Plains, Ont.</i> | |

The first prize winner sent in an unusually fine sample of barley that weighed, according to the testified statement, 55 lbs. to the bushel, and yielded 46 bushels to the acre. The second prize sample was also good in quality. It weighed 56 lbs. to the bushel, and yielded at the rate of 44 bushels per acre. The third prize winner obtained the highest weight per bushel, namely 57 lbs., and secured a yield of 40 bushels per acre, but the quality of the sample forwarded was not as high as the others. The fourth prize sample weighed 51 lbs. to the bushel, and yielded at the rate of 46 bushels per acre.

In our next issue a general report, giving prominence to the most important conclusions that may be drawn from the data received, will be presented to our readers.

THE
Canadian Live Stock and Farm Journal

PUBLISHED MONTHLY BY

The J. E. Bryant Company (Limited),

58 BAY STREET, - - TORONTO, CANADA.

Terms, \$1.00 per annum in advance.

To Subscribers.—The subscription price of THE CANADIAN LIVE STOCK AND FARM JOURNAL is \$1.00 a year, in advance. Single copies, 10 cents each; sample copies, free. The date to which each subscriber is paid is printed on the address label of his JOURNAL. Subscribers continuing to take the JOURNAL from the post office after their time of subscription is expired, will be considered as desiring to renew their subscription. Notice to discontinue the JOURNAL should be promptly sent to the publishers by returning the first number received after the subscription has expired. The publishers reserve to themselves the right to continue sending the JOURNAL to responsible persons until all arrears are paid.

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All communications should be addressed THE J. E. BRYANT COMPANY (LIMITED), 58 Bay Street, Toronto, Canada.

TORONTO, NOVEMBER, 1890.

Original Plans, Devices, and Ideas.

If you have an original plan, device, or idea, that you think would be of benefit to your fellow farmers or stockmen, turn to our March number and see how we will pay you for it if you send it to us for publication. Space forbids us printing the whole scheme in full, as usual. We would refer those desiring to know more of this to our January, February, and March numbers, where the premiums are given in full with complete particulars.

Plans Submitted.

To those who have forwarded us plans and devices which have not been published yet, we desire to say that it shall be our endeavor to utilize them as early as possible. It being our aim to give a variety of plans each month, we are often forced to withhold some of the best ones to secure that end. It pleases us to note that our readers have readily given us their assistance in this matter, as foretold by the fact that we have published and now have many excellent plans of dwelling-houses, barns, and outbuildings. These will materially aid us in brightening and making more useful our pages during the coming season. We are under great obligations to our readers in this matter, and we trust that none of our friends will not hesitate to send a sketch of any plan or device that may lessen the toil and make more prosperous his brother farmers.

Canadian Cattle are Healthy.

During the late part of September, alarmists at Dundee raised the hue and cry that the Canadian cattle landed by the steamer *Norse King* were infected with pleuro-pneumonia. The veterinary inspector in a few chilled cattle apparently detected suspicious symptoms of this scourge. Instantly some of the cattle were slaughtered and shortly afterwards their lungs were on their way to the Royal College at London. By inspection of the slaughtered cattle the veterinary inspector found that they were perfectly free from pleuro, and that the animals had only been suffering slightly from cold. Once more the healthiness of Canadian cattle and the wholesomeness of the beef that leaves our Dominion is proven in a clear and practical way. Our authorities and exporters have observed commendable vigilance in guarding the interests of this large and profitable trade. The ferreting out of a single case in the present instance, though it might have been excusable under the circumstances, would have been exceedingly disastrous in its effects.

Built From the Ground Upwards.

The increased attention that has been given of late to the feet and pasterns of heavy horses has been effec-

tive in bringing about a satisfactory change in that direction. Instead of the whimsical flat foot and stilted pastern, the horse that is built on modern ideas is firm-hoofed with elastic pastern movement. The draught horse of to-day must be built from the ground upwards if he is to catch the attention of the judge and buyer, for they invariably judge from the ground upwards his several structures. It is important that our breeders recognize clearly that the feet of a horse has more to do with his utility and practical worth than any other structure of the body. To stand the wear and tear of continued toil the hoof must be healthy and firm, and to overcome the rude buffets of stone roads without producing disease the pastern must be moderately oblique. The lengthy weak pastern is to be shunned as much as the short stilted one, for while the latter may prove a fertile source of disease through concussion, the former is almost equally as effective in giving rise to trouble through over straining of the ligaments that strengthen the pasterns. Sound firm hoofs, strong elastic pasterns, and broad clean joints, are the superlative qualities of the marketable draught horse of to-day.

Age to Breed Heifers.

The most of breeders prefer to have their heifers drop their calves before they are two and a half years old, and then allow them the following year, through extra attention and care, to attain their full growth and development. It is interesting to note that the New York Experimental Station, in collecting the opinions of the various breeders on this matter, found that their views and practices were very similar. A test of the dairy breeds is being made by that station, and, to guide them in their management, they asked advice from those from whom they purchased as to the age at which the heifers should be bred. There were four Holsteins, and the ages recommended for service were 21, 15, 18, and 16 months, an average of 17½ months. The ages recommended for the four Ayrshires were 18, 21, 17, and 20 months, an average of 19 months. For the two Guernseys, 15 and 17 months were the ages advised, an average of 16 months. For the Shorthorns, 21 and 19 months were recommended, an average of 20 months. From this, it will be seen that the practices of different breeders are very much alike, and that the opinion is generally held that heifers intended for the dairy should drop their first calves between two and two and a half years of age.

The Provincial Fat Stock Show.

Under the united auspices of the Ontario Agricultural and Arts Association and the Guelph Fat Stock Club, the Provincial Fat Stock Show is to be held at Guelph in December. With such favorable associations, the show will, beyond a doubt, far surpass any that have been held there in past years. The inducements should not fail to attract excellent exhibits. We indulge in the hope, feeling that its realization is a matter of time, that something grander in attractiveness, and wider in scope, may be attempted in this direction, with Toronto as its centre, and the spring stallion show the nucleus. There is a possibility of organizing a live stock show of horses, cattle, sheep, and swine, here in Ontario that would, on its merits, compare favorably with any other on the continent. With fat stock shows, the main difficulty to be surmounted consists in giving them a prestige that is more than local, so that the friends of the different breeds are made to recognize that, to maintain their ground, they must exhibit. To give it more than a local influence, it must be on such a scale as to not only attract exhibitors from a distance, but also to be of such general interest as to bring out a large attend-

ance from afar. To secure these, a combination show of stallions, cattle, sheep, and swine, held in the spring, it appears to us would best unite the interests of all stockmen.

Clover Hay for Pigs.

There is nothing that so cheaply produces good pork as clover pasture, and from that it would be but reasonable to assume that clover hay cut and softened by steeping, or clover ensilage, should prove an equally profitable food with which to feed breeding pigs. Such is really the case, for clover prepared in this way has a high value for such pig feeding purposes. It has a beneficial effect on the health of the pigs, keeping their digestive organs in the best of order, which of itself, not to say anything of the nourishment given, is a very important matter in considering the returns from breeding pigs. Messrs. Snell, of Berkshire fame, have practised this for a number of years, and are enthusiastic in recommending it. They feed it along with roots, cutting both up and boiling them until softened. The quantity that should be fed is indefinite, as there is no danger of the pigs eating too much of it. The pig in the past has had his wants ignored, his desires slighted, and his value questioned, but now that the latter is firmly established in Canadian farm economy, too much attention cannot be given to the former.

A Renounced Breeding Principle.

The theory of in and in breeding has been sifted through penetrating minds from the earliest days, but the practical application of it has been somewhat slighted. A new breeder desires to know to what degree he may profitably practice it in his work. With animals free from constitutional taint it may be adopted so far as to cross half-brother and half-sister, but evil even then may result if judgment does not guide the practice. In early days of breeding, before improved breeds had been evolved, it was in vogue as a breeding principle, to secure uniformity of type, and a toning down of coarseness, but now there are so many different strains and families of the same breed, that to secure a fixity of type a breeder is not compelled to rely solely on animals of his own breeding. It is to be remembered that it is an adamant principle of breeding, that faults are more apt to be transmitted than good qualities, hence, the fixing of type through in and in breeding means the fixing of faults to a greater degree. The constitution of any animal is the most valuable feature of it for utility in any direction, and owing to the detrimental influence of in and in breeding on it the practice should be sedulously shunned by most breeders. The breeders of an era now far in the past, with Bates as a master, made extensive use of in and in breeding, but those of later days, are readier to bring in fusions with outcrosses if such bring merit with them.

Improving Breeds.

There is a strong force, termed atavism, which is constantly at work endeavoring to pull all domestic animals from the high status of utility, in which the efforts of breeders have put them, to the low levels they would be in a state of nature. To overcome these tendencies to reversion, and still further add to the qualities of the breed from the standpoint of utility, breeders must employ every means within their reach, using the power of selection and the influences of feeding and breeding to aid them. They can do this individually, but the patrons of some breeds recognizing the importance of this, have taken hold of the matter with effect. The Holstein-Friesian Association of America has the following in their by-

laws. The sum of five dollars shall be paid by the Association for each American bred male eligible for registration, born after March 20th, 1889, that is killed or castrated while in good health after it is five days old, and before it is fifty days old, on application and affidavit of the owner of dam, on forms furnished by the secretary, stating the date of birth, date of service of dam, name of sire and dam, date of slaughter or castration, and by whom performed. The American Aberdeen-Angus Association seeks the accomplishment of the same object through the action of the following by-law. Of every ten calves eligible to entry that are calved, the property of any breeder in America, one must be castrated or two will be excluded from record. Each of these methods have their good features, but the most striking difference to our mind is that the by-law of the Holstein breeders is an inducement, while that of the Aberdeen Angus members is a requirement, and hence the latter is the more likely to be carried out, while on the other hand it appears to us that the Holstein by-law will prove equally effective in the desired direction when acted upon. The absence of direct cost to the Association is a strong point in favor of the by-law of the Aberdeen-Angus Association. However, they have both, we believe, proven to be good measures, and it would be well for other like associations to consider fully to what degree similar by-laws might prove beneficial to them.

The Care of Live Stock Between Summer and Winter.

During no period of the year are the live stock of the farm so liable to take harm from vicissitudes of weather as on the approach of winter. It is usually a busy period with the farmer, and because of this he is more prone to neglect them than he would otherwise be. This neglect also arises in part from the fact that the winter quarters, in which the stock are to be kept, are not ready to receive them. But, whatever may be its cause, the consequences are the same—a loss of flesh that cannot be made up again during the winter, but at a great sacrifice of food. The prevention of this loss should be the earnest study of the farmer. But it will not be wholly avoided unless much energy and vigilance are brought to bear upon his work.

It is not an absolute necessity to house all the cattle at the same period. The milch cows should be the first objects of care, and they should not be left out at night in any case longer than the arrival of the first cool nights in the month of September. Young animals which are not intended for fattening may remain out until the nights are much cooler, provided they have a shelter in the form of a broken woodland to which they may have access. They will in such a case make choice of a protected place in which to spend the time. But, along with this protection, they must have access to pastures which are luxuriant. Where such is not the case it may require less labor to draw food to them once a day by way of a supplement than to house them.

Sheep will rough it well on the approach of cold weather, provided they are not exposed to cold storms of rain and sleet. Those are very dangerous to them and flock masters should in no case allow them to be thus exposed. If protected during these first storms they will do very well indeed outside until the ground becomes permanently covered, providing the picking is not too bare.

Calves should be the objects of a special care during this critical period. Their less matured frames

are but ill fitted to withstand the cold, rough weather of late autumn, and they should not be required to do this. There is but little excuse for leaving calves out in cold storms, as they do not require to be kept in single stalls, but fare very well together in limited numbers.

Young colts are equally injured by undue exposure. If they are allowed to get weak or to go backward at this period they do not recover lost ground before the springtime. All improvement in condition during the winter with animals which have been allowed to run down, is made at a great sacrifice of feed.

Young pigs are no exception to the general principle that is being laid down in the above. The fool not only requires to be abundant, but their quarters should be warm and dry. They are better to be allowed out a good portion of the time, but should have access to comfortable quarters at will.

Another feature requires to be considered apart from the economy of the question. It is that of humanity. Who that has the feeling of a man can rest in a comfortable bed at night, knowing that his dumb dependants are shivering from cold? We read that a righteous man regardeth the life of his beast. There need be no difficulty then in pronouncing upon him who knowingly does not so regard it. Whatever he is he cannot be a righteous man.

Disqualified Stallions.

The separating of distinctly hereditary diseases from those which are not so, has always been a subject for quibbles amongst horsemen. The matter being so hazy, it is gratifying for those desiring to arrive at true conclusions to observe the attention that has been given the question by the best English authorities, comprising the Royal Commission on Horse Breeding. Through the collecting of experiences and opinions from the best available sources, the conclusion is firmly established that stallions are unfit for stud purposes which are affected with roaring, whistling, cataract, ringbone, unsound feet, navicular disease, and spavin. These diseases are laid down by the Commission as being transmissible from sire to progeny or equally so from dam to offspring. This list may not be large enough to suit the views of some, but it must be remembered that the object was to classify diseases which are decidedly hereditary from those which are only rarely so, and those which are not transmissible under any circumstances.

These disorders being frequently met with, they should receive the breeder's best attention. Roaring is perhaps the most uncommon of those named amongst our horses. Being a trouble that is self-accusative as it were, the only caution necessary is to know it so well that no other simple disease may be substituted for it by a deceiving groom. This disease has its origin through injury to the breathing passages, and most generally arises from injury to the larynx, which is attached to the upper end of the windpipe. If through paralysis, for instance, the horse loses power over the muscles that control the vocal chords, the passage of air over these in breathing will produce the sounds of roaring. The trouble known as whistling is stated to be a modified form of roaring, being due to similar causes which are traceable to injuries occurring in the region of the trachea or windpipe.

A more difficult trouble to ferret out is that of cataract. It is an affection that attacks the eye, and unless carefully looked for, especially in its incipient stages, it is apt to escape the notice. But a little distance back of the pupil of the eye there is a lens, called

the crystalline lens for the receiving of impressions, and it is that which is attacked in this disease. As a result of this disease the vision is impaired, and through that fact its detection is easy.

That bone diseases are transmissible from parent to progeny has long been conceded, but it is a glaring fact that but few of our horsemen act in strict accordance with their belief in this matter. Unsound feet, meaning thereby, brittle, flat, and contracted hoofs, is one of the greatest weaknesses that may overcome an otherwise good draught horse. It is imperative for those using a stallion to examine well not only with the eye, but with the hand, every structure of the leg from the shoe upwards. Such diseases as ringbone, bone spavin, and splint, and other abnormal growths of bone, are often due to injury to the part on which they grow, and hence may be sometimes far from hereditary. When accompanied by short pasterns, soft bone, or weak joints, then they may be looked upon as decidedly hereditary.

Perhaps the most common disease of the feet in heavy horses is that of side bones. When healthy on each side of the horse's foot two flexible bodies may be felt, but in a state of disease they become hard and seriously interfere with the elasticity of the foot. In the case of light horses, navicular disease is by far the most prevalent. The small bone just back of the bone enclosed by the hoof, often through injury becomes inflamed, and as a result a union takes place between it and the cartilage, which ultimately results in the bone becoming firmly attached to the tendon. Bone spavin is so well known to be hereditary, that comment in respect to it is unnecessary. It is the part of policy for the breeder to be cautious in deciding to use any stallion that does not stand square and move level, no matter how plausible an excuse may be put forward by those interested.

Through the Winter with the Flock.

The most injurious practice that is frequently followed in wintering sheep, consists in crowding them into warm, badly ventilated quarters during the greater part of the winter season. There is nothing that will more surely affect sheep injuriously than to huddle them in close pens, for they must have room in the sheds and judicious liberty in the yards to keep in sound vigorous health. They should be sheltered from sleety winds and rough storms, but further than that they require nothing in the form of protection. Except during inclement weather the doors should be open, allowing them to run in and out as the humor comes upon them. The fold, for say one hundred sheep should be about fifty feet long and ten feet wide, with yards attached at least three or four times that size. It is the better practice in carrying such a number of sheep over winter to divide the flock into groups of twenty or twenty-five. It is a very important matter to see that the floor of the pens is dry, and of such material that it will stay so if the pens are bedded with straw. Neglect of this matter will lead to scald, and eventually to foot-rot. A layer of hard wood ashes makes a covering for the floor that will serve the purpose well. The attentive and intelligent shepherd will be always on the alert to see that his sheep are never exposed to dampness in any form, either above or under foot. Dry, large, cool, and well ventilated pens influence success most in sheep raising.

After surrounding the flock with the most healthy conditions, their management becomes much easier and their feeding less elaborate. Some few still hold to the opinion that during winter sheep do not require water. This is a mistake that will be strikingly

apparent if the practice is once tried of supplying them with clean, fresh water, even if they have an abundance of roots. The better results that follow the latter observance will be easily seen in the more satisfactory progress of the flock. Clover hay is by far the best fodder to feed, and next to it comes meadow hay of mixed grasses, cut early in the season. Roots, meaning thereby turnips and mangels, also make excellent food. During the first of the season twenty-five pounds per head each day may be fed with advantage, but as the ewes approach lambing time that quantity should be lessened, for cold, watery roots are not to be recommended for feeding ewes in pregnancy. For feeding early in the season swedes are perhaps the best, but later on towards spring mangels should be substituted for them. When first stored mangels are too watery and acid in taste to feed, but as the season advances they acquire a sweet flavour which adds much to their palatability and feeding value. Turnips, on the other hand, decrease in nutritive value as their age increases. The best grain to feed is a mixture of peas and oats. The feeding of cake is not, as a rule, advisable, for besides being expensive if fed in any quantities, it has a tendency to heat the animals to which it is fed. This, however, does not apply to linseed, which is perhaps especially valuable, owing to its laxative qualities, and the effect of feeding a half pound or less each day becomes apparent in the softness, lustre, and strength of the wool. The quantity of grain to feed will vary from one to two pounds as the judgment of the shepherd may dictate. The aim should be to bring the ewes through the season in healthy, vigorous condition, so that when they lamb they will supply a good mess of rich milk. It is very desirable that uniform conditions should prevail, both in feeding and management, throughout the season, for if the least check is given, it at once injuriously affects the growth and strength of the wool fibre. It should be always in mind that no other domesticated animal responds more readily to good attentive treatment than sheep, and inversely that no other animal of the farm will more quickly show the effects of negligence.

The Hope of the Farmer in Canada.

The American tariff recently imposed by the passage of the McKinley Bill will undoubtedly seriously affect the interests of the farmers in Canada. Practically, barley growing will be brought to an end on the old lines, that is, for purposes of export to the United States. The export of horses, cattle, and sheep, to the same country is also most seriously affected.

Our farmers, however, should not sit down and fold their hands in despair. While it is to be regretted exceedingly that we cannot have access to this southern market, our position is not without hope. We still have a market left us, and it is a good one so far as cattle, sheep, and swine, are concerned, but it is not so good for horses. We refer to the market of Great Britain. We do not lament so much as many are doing over the loss of the American market for our barley. True, it will affect a large section of our farmers seriously for a time, but it will be only for a time, as the soil which grows barley well will also grow such other grains successfully as are required in the production of meat. The altered tariff will have the further effect of checking that removal of the sources of fertility from our soils which has depleted them to such an extent.

The hope of the Canadian farmer at the present time, and more especially of the Ontario farmer, lies in the production of meat and milk. To state the

case more fully, it lies in the production of beef, mutton, pork, cheese, and butter. The market for these at the present time is without limit if we only produce them of the right quality, and to do this is easily within our power. In the experiments carried on last winter at the Ontario Agricultural College, Guelph, the direct cash profits in producing beef were 9¾ per cent. in 119 days; those arising from making pork, 27 per cent. in 77 days, and for feeding lambs the profits were even larger. Those are large profits, and we have no reason to doubt the accuracy of the figures published in the bulletins relating to these tests.

The market for beef of the right class is always open, and is always fully equal to the supplies. The trade in store cattle to Great Britain is rapidly increasing, but this fact affords us no comfort, as we are satisfied that we should have no trade in store cattle with any country. It is altogether to our interest to finish them here. If the British farmer can afford to buy our store cattle and also the grain used in fattening them, we can better afford to fatten our cattle on grain which we raise on our farms, and sell the cattle in the finished state. If we can make 9¾ per cent. on our investment in 119 days, or even one-half that amount, we can well afford to do this.

The field that is open for the export of sheep and lambs is without any limit. The new tariff has not to as great a degree as formerly, affected the trade in lambs, at least it has not affected it adversely where the lambs are good. If Ontario had owned five times as many lambs last year, we have good reason to believe there would have been a ready market for them in the United States. Then the field in Britain is wide open to us; it is calling for sheep of the right class. We might and should send to that market 500,000 a year instead of the few thousands which we now send over.

The profit on making pork in the test referred to, was a most handsome one. Twenty-seven per cent. in seventy-seven days should satisfy any one. The average farmer could not make so much, as he would not have the same feeding facilities, but if he made one-fourth of this amount he would still be abundantly repaid for his labor. Now the market for our pork is like that for beef and mutton, it is without any limit. Great Britain will not only take all our pork and more than we can raise, but she will give us a better price than the Americans can get for theirs.

The demand for Canadian cheese is as brisk as ever in Britain, and if as much again could be sent over it would find ready sale. The same market for butter is open to us when we produce butter of a right quality. So that development in this direction is in no way circumscribed.

The future, then, is still full of hope to the Canadian farmer. In the very lines of agricultural productions for which our country is best adapted the markets are still open, and they are likely to remain so. From the date of the issue of the very first number of the JOURNAL, viz., August, 1882, we have urged upon our farmers the necessity of giving every attention to the production of meat and milk in best form. Those of them who have heeded our advice are not seriously injured by the new tariff, while those of them who adhered to old-time grain-growing and grain-selling methods now find themselves most seriously crippled.

FROM Wm. Grogan, Man.:—"I have taken your JOURNAL for five years, and I would not be without it if it should cost \$5.00 per year."

JOHN ARNOLD, Easton's Corners, writes:—"I am well pleased with THE JOURNAL. If every farmer would take it it would improve their calling greatly. I get a vast amount of benefit from it."

Provincial Fat Stock Show.

The seventh annual Ontario Provincial Fat Stock Show is to be held in the city of Guelph on Dec. 10th and 11th, under the auspices of the Agricultural and Arts Association of Ontario and the Guelph Fat Stock Club. The combined management is officered as follows: President, J. C. Snell, Edmonton; 1st vice-president, Walter West, Guelph; treasurer, J. W. Easton, Guelph; secretary, Henry Wade, Toronto; general superintendent, H. Wright, Guelph. The premium list has been issued. All entries must be in on or before first of December. The fees to be charged for entry are as follows: For each head of cattle, two dollars; for each sheep or hog, one dollar; for each live or dead fowl or chicken, twenty-five cents. There are some good prizes offered, including a silver cup for best steer any age or breed, and a special for the best fat animal, known as the McAteer Cup, which has to be won twice by one breeder with a different animal. Mr. Thomas Ballantyne, it will be remembered, won it last year. There are ten classes in all, of which the largest prizes go to the class of pure bred cattle of any age, and the grades or crosses of any breeds. Good prizes are also offered for sheep, pigs, and poultry. A card addressed to the secretary, Henry Wade, of Toronto, will secure for any one a premium list.

Facts About Pig Feeding.

The Vermont Experimental Station conducted a series of experiments in pig feeding, having in view the evolving of conclusions in regard to the profitable utilization of skim-milk, economy in feeding and differences in the breeds of pigs. Two pigs of each of the three breeds, Berkshires, Chester White, and Yorkshires, five weeks old, were experimented with. The time was divided into four periods. For the first they received 2¼ to 6 quarts of skim-milk; for the second, 6 quarts skim-milk, cornmeal 4 to 16 ounces, and wheat bran 4 to 22 ounces; for the third, 6 quarts skim-milk, 4 to 26 ounces corn meal, and wheat bran 20 to 26 ounces; for the fourth 6 quarts skim-milk, 40 to 54 ounces corn meal, and 20 to 28 ounces of wheat bran. The Chester Whites gained in live weight about one-fifth faster, and required one-seventh less food to produce a pound increase in live weight than the others. The Chester Whites produced their growth at a cost in food consumed of 3c. per pound, while the other breeds ate 3½c. worth of feed for each pound of growth.

The six pigs together gained 1088.5 pounds in live weight, or an average per pig of 1.07 pounds per day. They consumed 5582 quarts of skim-milk, 1223.8 pounds of corn meal, and 884.4 pounds wheat bran, or an average of 2.79 lbs. of dry matter to each pound of grain in live weight. The corn meal used was bought at \$18 per ton, and the bran for \$16 per ton. The skim-milk was considered worth 15c. per 100 pounds or 1½c. per gallon. The pigs sold for 5½c. per pound dressed weight (a lower price than the average), and shrank 18% in dressing, making the selling price equal to 4.32 cents per pound, live weight. The whole selling price was \$47.07, and the value of the feed consumed \$36.25, leaving a profit of \$10.85. The total fertilizing value of the manure was estimated as worth \$22.66. The value of the food consumed for each pound of increase in dressed weight was 4.06 cents, and the fertilizing value of this food 2.54 cents, leaving the net cost of a pound of dressed pork 1.52. Since the pork sold for 5.25c. a pound, there was on this basis a net gain of 3.72 cents per pound. At an average live weight of 155 pounds, the pigs were still yielding a profit above the cost of their feed. This profit ceased when they weighed 208 pounds. The average amount realized from 100 pounds of skim-milk was 24 cents. Amongst other conclusions the following are chosen for definiteness and value: pig feeding is profitable even at the low price of 5½ cents per pound dressed weight, provided the pig is sold at an early age, i.e., by the time it reaches a live weight of 180 pounds or soon after; grain can be fed to young pigs with profit; in feeding it to pigs weighing over 200 pounds there is a loss; the old saying, "grow the pig and then fat him,"

should be changed to "grow the pig and then sell him." The fertilizing value of the manure from the food consumed by the pigs is, in Vermont, equal to nearly one-half the value of the pork, and constitutes the largest gain from the feeding; in these trials the three breeds, Berkshire, Chester White, and Yorkshire, showed but little difference, whatever difference there was being in favor of the Chester White.

The Profits of Swine Feeding.

ENSILAGE, ROOTS, AND MEAL COMPARED BY EXPERIMENT.

The results of an interesting experiment to determine principally the value of corn, ensilage, and roots, as food factors in swine feeding has been issued by Professor Shaw, in bulletin fifty-four of the Ontario Agricultural College. The animals chosen were grade Berkshires that were in good store condition. They were divided in three groups, and each group contained three animals, two barrows and one sow. The experiment was carried over a period of seventy-seven days. The pigs in group 1 were fed on a meal ration consisting of ground oats, ground barley, ground peas, and wheat middlings, in the proportions by weight of 1, 1, 2, and 1, respectively. The average amount fed per day was 16½ lbs. given in three feeds. Group 2 were fed all the sliced turnips they would eat up clean, which was 60 lbs. per day on an average. To this was added a meal ration, similar in kind to that given to the pigs in the first group, but only one-third of the amount, being an average of 5½ lbs. Group 3 was fed an average of 35 lbs. of ensilage daily, and the meal was similar in kind and quantity to that fed to the pigs in group 2. The total profit on the pigs in group 1 for 77 days was \$8.00, that of those in group 2 in 118 days was \$4.19, and that on the pigs in group 3 for 118 days was \$6.28. In the first the whole percentage of profit was 27.11 per cent., in the second 15.63 per cent., and in the third 23.63 per cent.

The conclusions that may be fairly drawn from this experiment are given as follows by Professor Shaw:

1. That it pays the farmer handsomely to fatten store pigs in winter on a meal ration such as that used in this experiment, when the prices of food and pork bear the same relation to each other.
2. That it does not pay the farmer sufficiently well for the trouble to feed store pigs on a ration of roots in winter when the meal ration used is a small percentage of the whole ration.
3. That when store pigs are fed in winter on corn ensilage and a meal ration which is but a small percentage of the whole ration, they are fed at a loss.
4. That it will pay better to use a meal ration in winter that will ripen store pigs for market in 77 days, than to first use a ration which tends mainly to develop bone and muscle during that period, followed by a meal ration that will ripen them for market in 41 days.
5. That in fattening pigs it is a serious mistake to attempt to hasten the process by giving any more food than will be eaten clean when it is given.

Bone Meal and Hardwood Ashes for Hogs.

The Wisconsin Agricultural Experiment Station gives in Bulletin No. 25 the details of experiments in feeding hardwood ashes and bone meal to hogs living on corn. The plan of the experiment was to feed corn to several lots of growing pigs in addition to water and salt. The first lot received nothing additional; the second was fed a little ground bone daily; while the third lot was allowed free access to a trough of hardwood ashes. The experiment was repeated twice, so that three trials are reported. As the average of the three trials, it was found that where neither ashes nor bone meal was fed, 629 pounds of corn meal were required to produce 100 pounds of gain with the pigs. Where ashes were fed, 491 pounds only were required. Where bone meal was fed, 487 pounds of bone meal were required to produce 100 pounds of

gain. This shows that the ashes aided digestion, and made a given amount of feed go further. The most interesting part of the experiment, perhaps, relates to the bones of the pigs. It was found that where no ashes or bone meal were fed the bones of the pigs were quite weak. The thigh bones cut out from the hams were broken in two by an average pressure of 301 pounds where no ashes or bone meal were fed. Where ashes were fed, 581 pounds of pressure were required, while the bones from the bone meal fed pigs required 680 pounds pressure to break each bone. The thigh bones of the pigs were then burned, and it was found that those receiving no bone meal or ashes contained 107 grams of mineral matter, and those from the hogs getting ashes gave 150 grams, while those getting bone meal gave 165 grams. Prof. Henry gives the following conclusions as drawn from the work:

1st. That the effect of the bone meal and ashes was to save about 130 pounds of corn, or 28 per cent. of the total amount fed in producing 100 pounds of gain, live weight.

2nd. That by feeding the bone meal we double the strength of the thigh bones; ashes nearly doubled the strength of the bones.

3rd. There was about 50 per cent. more ash in the bones of the hogs receiving bone meal and hardwood ashes than in the others.

No difference was found in the proportion of fat to lean meat in the body. The benefits of the ashes, therefore, seem limited to strengthening the bones and aiding digestion. These, however, are very important, and warrant our farmers in using some mineral agent of this character regularly and freely in hog feeding, especially where much corn is fed. Bone meal seems to build up somewhat stronger bones than ashes, but ashes do the work very well indeed, and usually cost the farmer nothing. The figures show most plainly that Indian corn cannot of itself build up strong bones, and must be supplemented by ash material from other sources. They point most plainly to one cause, at least, of hogs becoming too fine and lacking bone, a common complaint in the corn-growing sections. Pregnant sows and growing pigs should not have their diet restricted to corn alone, although that grain is exceedingly valuable as a part of the ration. A variety of food should be provided, such as clover, blue grass, shorts, peas, oats, and skim milk. Even where these are liberally used, ashes should be accessible at all times.

Ontario Lodge Stock Farm.

THE PROPERTY OF EDMUND M. JARVIS, CLARKSONS, ONT.

Running back from the picturesque western shore of Lake Ontario, this farm embraces in a block two hundred acres of fertile soil, situated in the midst of a beautiful rural district. The view from the stately residence is bound to the south by the meeting of sky and water, while to the north it enables one to scan the most distant corners of the farm. Athwart the homestead with its large orchard runs the lake shore road, leading to Toronto on the one hand, and on the other by handsome homesteads until the village of Oakville is reached.

Though giving some attention to the breeding of heavy draught horses, as a couple of Canadian-bred Clydes and Shire mares are kept, yet Mr. Jarvis gives almost all his time and attention to breeding pigs and sheep, and of the former he has an exceptionally strong herd. The place at the head of the herd, owing to the sale of Holywell Physician to the Ontario Agricultural College, is now held by Jumbo. This boar was imported in his dam now in this herd, and was farrowed September, 1889. He was bred by Sanders Spencer, and was sired by Holywell Nick (1003), dam Holywell Royalty by Holywell Judge (993). Being of great length and an exceedingly strong pig, he has given every satisfaction as a sire, and on that account he is used freely in this herd. His get have proven to be very vigorous and rapid growers. Another boar used considerably is Boliver, from Holywell Physician, and out of Holywell Pearl. This boar is one of Mr. Jarvis' own breeding. At Toronto Industrial he was placed first in the class of six months. He is a very lengthy and deep boar, close to the ground and of good

quality. The best of the herd of breeding sows include at present Holywell Pearl (imp.) [3], Holywell Midge 6th [64], Holywell Royalty [58], Silver Queen and Waterwitch [7]. These sows all show a marked uniformity in their conformation, being strong-joined, deep-ribbed, and of surprising range. Holywell Pearl is especially so. She was farrowed in November, and was imported in August, 1887, from Mr. Spencer's herd. She was sired by Holywell Slit Ear (515), dam Holywell Gem 2nd (Vol. 4 E.), by St. Anthony [357]. She is an excellent brood sow, being of strong frame and deep milking qualities. Her litters have been large and good, without exception. She has been served by Holywell Physician. Holywell Midge 6th [64], is a more recent importation, having been imported from Mr. Spencer's herd last August. She was sired by Holywell Tyke (709), dam Holywell Mite (716), by St. Ives (117). She is of a good strain, backed by individual merit that would be hard to equal in a brood sow. This sow took 2nd at the Industrial Exhibition in a good class over one and under two years. She has been mated with Jumbo. Holywell Royalty [58], was also imported in August, 1889, from the same herd as the rest. Her sire was Holywell Judge (993), dam Holywell Queen 21st (Vol. 6 E.), by Britannia Wonder (301). She has been mated with Holywell Physician, and she is expected to drop a litter soon, which will, no doubt, be in strong demand. In common with the rest of the sows her length is surprising, while she is perhaps smoother and of more quality than any of the others. Silver Queen was imported in Holywell Royalty, and was sired by Holywell Nick, one of Sanders Spencer's best boars. She is a sow of excellent parts, and has become of great value for breeding purposes. Waterwitch [7], is also one of the good ones. She is Canadian-bred, and was sired by Holywell Victor imp. [1], (517), dam Holywell Pearl [3]. She is a lusty sow and a sure and prolific breeder. From the above it will be seen that in the foundation stock Mr. Jarvis has used, and in the late importations, pigs of the best merit, from one of the best sources, have been selected. A number of young pigs are now on hand awaiting disposal. This herd has been kept within bounds in respect to numbers, as it is Mr. Jarvis' intention to breed a limited number each year, and those of the highest type and best breeding.

The flock of sheep are Dorsets, of which four ewes and a ram are kept. A new selection of six more ewes is shortly to arrive. We were not able to see the ewes at the time of our visit, but the stock ram, Horned Lad, was carefully examined. While we were prepared to see such good form in a ram of this breed, we must admit that we were agreeably surprised to note the fine and lustrous fleece of wool which he carried. As our readers are aware, the ewes of this breed will lamb twice a year, with twins as a rule at each lambing, if they are bred and cared for with the object in view of raising early lambs for the Christmas and spring markets.

The International Exhibition at St. John.

(From Our Own Correspondent.)

This exhibition was on the whole successful. In some of its features, however, it differed materially from our western exhibitions. The show of live stock was limited, when compared with what we are accustomed to see in the west, but in some of the classes it was creditable.

Horses.—The exhibit of light horses was very good indeed. Evidently the New Brunswick has a liking for a good light horse, and no little attention is given to the breeding of this class of horses in the maritime provinces. We shall hope that our young men of the farms of the east are not becoming too much enamoured with the somewhat hazardous work of handling light horses. This of course applies more directly to the younger men, who may be prone to look upon a fast horse as the greatest requisite of life. Of course the light horse is a valuable acquisition, and diligent attention should at all times be given to breeding them right. The exhibit of heavy horses consisted largely of Clydes. There were, however, some Shires and Percherons. By far the best exhibit of Clydes was owned by J. B. McKay, of Stellarton, Nova Scotia. The McKay Bros. are making a grand success of this work, and are, as a consequence, work-

ing great good to the farmers of these provinces Jamie the Laird, purchased from Arthur Johnston, Greenwood, Ont., has proven a fine stock horse, and some of his colts on exhibition were very creditable.

Cattle.—Shorthorns were almost entirely unrepresented. Herefords were present in limited numbers, and the same was true of Galloways and Aberdeen-Polls. The Devons were an inferior lot. The exhibit of Red-Polls was very fair. The show of Jerseys was both large and good; a good many fair animals were on exhibition, indeed some of them were excellent. The show of Ayrshires was also good, the competition in the cow and heifer classes being close, and difficult to decide. In Holsteins, J. R. Page & Bros., Amhers., N.S., were the foremost exhibitors, although several first-class animals belonging to other exhibitors were on hand, particularly in the line of bulls. The stock bull of the Page Bros., imported from Smiths & Powell, is a grand animal. Grade cattle were in plentiful supply. They consisted of all manner of crosses, no one breed having become very generally entrenched as yet.

Sheep.—The best sheep from the maritime provinces consisted of Leicesters and Shropshires. Other breeds were almost entirely lacking, except such as were brought from Ontario by W. P. & C. H. McNish, of Lyn. These consisted of Shropshires, Lincolns, and Southdowns, and they carried off nearly all the prizes for these breeds.

Swine.—The three breeds of swine on exhibition were the Berkshires, Yorkshires, and Chester Whites. There is not as much attention given to the breeding of swine and sheep in these countries as there should be, if conclusions may be drawn from the numbers of the animals on exhibition.

Grain.—The exhibit of cereal grains was very small indeed. This was accounted for by the unusual amount of wet weather, which not only delayed the harvesting of the crop, but also discolored it to an unusual degree. Buckwheat is a striking feature of the maritime provinces grain exhibit. It is wonderful how it yields. Mr. Hall, of Gagetown, N.B., obtained in one instance 25 bushels from sowing a single peck. The large yield is probably explained by the humid nature of the climate.

Field Roots.—The exhibit of field roots was fairly good, especially potatoes. The soil will undoubtedly grow roots in abundance, and this branch of Agriculture is receiving a good deal of attention at the hands of the farmers.

Fruit.—The exhibit of fruit was very fair, but, it is said, not nearly equal to that of former years. The Nova Scotia apples were on the whole considerably ahead of those from New Brunswick. The fruit generally was smooth and free from blight spots. In many instances the varieties are a good deal different from those in Ontario. Some varieties which flourish in Ontario, as the Spy, Balwin, and Rhode Island Greening, are rather inferior to what we find them in Ontario. The Duchess of Oldenburg evidently flourishes well, particularly in New Brunswick.

The Provincial Exhibition of Prince Edward Island.

(From Our Own Correspondent.)

This exhibition was held from September 30th to October 4th. It was the first one held on the Island of a provincial character, and has been located at Charlottetown. In all fairness it must be pronounced a decided success. The board of managers spared no pains in fitting up the grounds and in the erection of handsome and commodious buildings. The taste shown, not only in the design of the various buildings, but also in the finish in all details, is of a high order. The sheds for the live stock are so erected that in judging the animals are simply led out between the sheds, where the open space is quite sufficient for the purposes of judging. Such an arrangement is very convenient. The arrangement of the exhibits inside of the agricultural hall was also very perfect. Indeed it would be difficult to suggest improvement in this respect. This is in itself a great matter, for it not only enables the visitor to see the various products to advantage, but it also enables the judges to complete their work with expedition and haste.

Horses.—The exhibit of horses at this show was excellent, both in the light and heavy classes. It seem-

ing the government imported some stallions years ago, and allowed the farmers to use them for service, and at a fee that was simply a nominal one. The attention of farmers was thus directed to the improvement of light horses, which are now produced in large numbers and are of good quality. It was found necessary, however, after a time, to withdraw this form of rendering assistance, as it interfered with private enterprise. It was not withdrawn, however, until it had served the purpose of arousing public attention to the advantages of better breeding. The heavy horses are growing in numbers and are also good in quality. They consist of Clydes, Shires, and Percherons. It is beginning to be realized in Prince Edward Island, as elsewhere, that there is more money and less uncertainty in the results in breeding heavy horses than light ones.

Cattle.—The beefing breeds of cattle were not very numerous. The Shorthorns were in the ascendant. The only herd of Herefords exhibited was owned by Mr. Palmer, of Charlottetown, and the only herd of Galloways by the Hon. Donald Ferguson. The former came from the Ontario Agricultural College farm, and from Mr. Fleming's herd, and the latter were purchased from the importation of Mr. Thomas McCrae, Guelph. They belonged to the importation shipwrecked on the eastern seaboard some years ago. Evidently a good deal of attention is given to the breeding of dairy cattle. The herds of both Ayrshires and Jerseys were good, and the classes for grade cattle of the Ayrshire, Jersey, and Guernsey types were filled to overflowing. There were many good animals among them, but the farmers as yet do not recognize the importance of adherence to up-grading in one line only, that is by continuing to use bulls of the same breed as those used when the grading was commenced.

Sheep.—The Leicester sheep were both numerous and good in quality. They evidently outnumber all the other breeds combined in the Island. The Shropshires came next in point of numbers. Some were good but others of them were rather ancient in their markings. Oxford-Downs are just being introduced, and there were a few Merinos. Grade sheep were out in very large numbers. The principal of them were on a Leicester, or even a more common foundation. It seemed strange to your correspondent to notice flocks of grade sheep on exhibition with a grade ram at their head. The good sense of the farmers will surely prevent them in future from repeating this egregious blunder. So long as motley sires are used, just so long will motley animals be raised, and the best class of buyers will be led to purchase elsewhere.

Pigs.—These were not numerous but were very fair specimens. The Berkshire and Yorkshire breeds seem to hold the fort, particularly the former.

Poultry.—This Island is noted for poultry. Many beautiful specimens were on hand. Poultry has hitherto been the great agricultural export of the Island.

Field Roots.—These were first-class in almost every department, quite equal in most respects to those in Ontario. Mangolds and turnips are both quite at home in the red sandstone soil of this island. Potatoes were ahead of anything that I have seen in any of our exhibitions of the present year. This applies both to size and smoothness of outline.

The Hamilton Grand Central Fair.

(By Our Own Correspondent.)

To say that the Grand Central Fair, which was held at Hamilton from the 22nd to the 27th of Sept., was an unqualified success, would certainly not be adhering strictly to the truth, for while the weather was all that could be desired, and the attendance was fairly large, there is no doubt that the fair of 1890 was not by any means equal to the fairs that have been held in Hamilton in the past. What this is due to, is not so easy to say, but there is no doubt but that the fact that the prize list had been considerably cut down was one factor. Take for example the classes for draught and agricultural horses,—in place of having two classes for draught horses, one for imported and one for Canadian bred, both these classes were shown together; while in agricultural horses there was no section for yearling stallions, thus driving those yearlings that should have shown in this class into the draught class.

Such an arrangement as this, it is needless to say, created a good deal of dissatisfaction among exhibitors, and the opinion was freely expressed that before Hamilton fair could expect to regain its former prestige, it would be necessary to have the prize list carefully gone over and very materially altered.

Among the principal exhibitors of draught and agricultural horses we noticed Messrs. Hendrie & Co., of Hamilton; A. K. Tegart, of Tottenham; Ormsby & Chapman, of Springfield-on-the-Credit; Patrick O'Hare, of Binbrook; John Fothergill & Son, of Burlington; Thos. Macklin, of Hamilton; Snider & Edmondson, of Brantford; and Robert Smith, of Glanford. In aged stallions the red went to A. K. Tegart, who showed a bay horse, Lord Wilton, got by Lord Erskine, while the blue was taken by Robt. Smith, of Glanford, the third place going to Ormsby & Chapman's Shire stallion. In three-year-olds, first went to a colt owned in Caledonia, whose owner's name we did not ascertain, second and third going to Ormsby & Chapman; while in two-year-olds the judges placed a very plain, rough-legged horse first, the second going to a nice, smooth, sweet colt, shown by P. O'Hare. Among the mares shown in the draught class we would especially mention a very thick, blocky mare, shown in the aged class, and bred by Mr. Booth, of Caledonia, and a yearling filly shown by Mr. Jas. Hall, of Streetsville. This filly promises to grow into a very fine pattern of a brood mare; she is a thick, blocky mare, with plenty of quality, and Mr. Hall is to be congratulated on the acquisition of such an animal.

The leading exhibitors of light horses were Messrs. Hendrie & Co., of Hamilton, and Mr. John Dymont, of Orkney, who swept the thoroughbred classes, as usual, while in carriage horses the first for aged stallions went to Orr & Harrison's well-known horse Ryshawk, who also was awarded the diploma. Other exhibitors were Messrs. Snider & Edmondson, who showed their imported Cleveland horse Prince George, and several of his get, and Mr. Alex. Allan, of Ancaster, who showed a very nice, smooth horse, Glengarry, a breezy looking fellow, with fair action and got by Old Cleveland.

In cattle, the classes were in some cases fairly well filled. Of Shorthorns, the principal herds represented being those of Messrs. J. & W. B. Watt, of Salem; C. Terrybery, Glanford; John Currie, Everton; W. Barker, Paris; Wm. Chisholm, Brisbane; and Eastwood Bros., Mimico; the diploma for the best bull of any age going to the last named firm, while the herd prize went to J. & W. B. Watt, with W. D. Barker 2nd, and John Currie 3rd. There was only one herd of Herefords, that of Daniel Reed, Glanford, who showed some four or five head. The dairy classes for cattle were perhaps as well filled as any on the ground, there being four herds of Ayrshires, and four of Holsteins, the herd prize for Ayrshires going to James McCormick, of Rockton, other prize winners being Messrs. Smith, of Fairfield; Gerrard, of Hamilton, and Anderson, of Hamilton; while in Holsteins the prizes were pretty evenly divided between Messrs. Felan & Breckon, of Oakville; Kennedy, of Ayr; Stevenson, of Ancaster; and McNiven & Son, of Grimsby, and Mr. F. Rankie, of Ancaster, the latter taking first on his yearling bull. In Jerseys, the well-known herd of Mr. George Smith, of Grimsby, swept everything, except in the class for aged bulls, where first went to Mr. J. S. Job, of Waterdown. In grade and fat cattle the prizes were divided between Messrs. Webber, of Glanford; Atkinson, of Utoka; Barker, of Paris; and Watt, of Salem. The sheep classes were only fairly well filled, the principal exhibitors being, in long wools, Messrs. John Kelly, Wm. Pelch, H. Crawford & Son, and John Wood & Son, and in Downs, Messrs. Hanmer & Son, Wm. Pettit, J. T. Harcourt & Son, S. Evans, John Jackson, and A. Simonton.

The pigs, in the opinion of many spectators, made the best exhibit on the ground, all the classes being well filled and the competition strong. Large breeds were represented by Ormsby & Chapman, R. Dorsey, Jos. Featherstone, and D. DeCourcy, who divided the prizes among them; while in Poland Chinas, Messrs. Dorsey and W. M. & J. C. Smith, divided the honors. In Suffolks, all the firsts went to R. Dorsey, except in boars under six months, where it was awarded to Jos. Featherstone, who also took a number of seconds. In Berkshires, the grand herd shown by Mr. George Green, of Fairview, made almost a clean sweep.

Poultry was a very creditable exhibit, the competition in some of the classes being very keen.

There was a fine exhibit of fruit, due, no doubt, to the fact that round the city of Hamilton lies some of the best fruit growing country in the Dominion.

Ottawa Central Fair.

(By Our Own Correspondent.)

The greater efforts put forth by the authorities of the Ottawa Central have met with their reward, for a success in every sense was their exultation of this year. Through the inducements offered, which were stronger than those of past years, exhibitors from the west and surrounding country were attracted in greater numbers than at any time heretofore.

The Ottawa valley being more of a horse raising centre than a breeding ground for any other class of live stock, it is but natural to infer that the horses were there in greatest profusion, and more particularly the light classes. A few thoroughbreds were shown by Mr. R. Thompson, A. Blyth and others, but the carriage horses surpassed the other classes in numbers. In the carriage stallion class first went to J. J. Anderson, second to Holmes Bros., of Winchester, third to P. Campbell. Mr. Anderson's horse also won the diploma for the best stallion any age. The principal exhibitors of standard-bred horses were J. Erratt, R. Stewart, McGuire Bros., and A. C. Burgess. The first mentioned, with Gothard Jun., a get of St. Gothard, won first in four-year-old class, and diploma for best stallion of any age. In the heavy draught classes several well known stables were represented, including that of R. Ness, of Howick, Que., and Thomas Good, Richmond. The latter, with Joek Elliott and three of his get, succeeded in winning the most important prize offered in the class. J. Clark had also some prime stock, which secured several leading prizes. In the aged stallion class first went to J. Clark, second to A. T. White, and third to R. Ness. The latter forged ahead in the three and two-year-old classes, by winning first in both cases, with J. G. Stewart second in each also. Thomas Carlisle, captured the first in yearling stallions. The gold medal and diploma for the best pure-bred Clydesdale stallion, two years old and over, was won by J. Clark. For brood mare and foal, first went to G. Carlisle, second to R. Robertson, and third to R. Ness. Mr. A. T. White secured first on best mare, and also a like honor with heavy draught team. There were a number of Percherons shown, the leading prize winners being P. Mackintosh, Campbell & Dobbin, and W. & R. Bell. Of Suffolk Punches, J. Melvin captured the best prizes, while others, including J. Fletcher and A. Hagar, came in for a small share.

The majority of the cattle classes were well filled with good representatives, which made the competition strong in most instances. From the west the only Shorthorn herd was that of Messrs. J. & W. Russell, of Richmond. As this herd stood high at Toronto Industrial, it was but natural to see them capture the leading prizes here. Every inch of ground was strongly contested by the herd of Messrs. W. C. Edwards & Co., of Rockland, which came out in good bloom. Between these the principal prizes were divided, others going to Messrs. D. P. McPhail, Thomas Graham, Forth & Sons, A. T. White, and J. S. Clarke. The only herd of Herefords on exhibition, was that of Mr. E. W. Judah, of Crompton. The Polled Angus were represented well by a selection of black beauties from the herd of Dr. Craik, of Montreal. In Galloways, Thomas McCrae, of Guelph was the only exhibitor. In the class for Devons, W. G. Rudd, of Eden Mill, made an almost clean sweep, his only competitor being C. Mohr, who won the first on a young bull in the class for two-year-olds and upwards. Of beef grades, the leading exhibitors were T. Graham, J. G. Clark, W. H. Reid, and J. Armstrong. Grades of the dairy breeds were exhibited by Messrs. Clark, Kennedy, Fowler, and Storr. The Ayrshires made an excellent exhibit, the best of any in the cattle classes. The most successful exhibitors were J. Drummond, Petite Cote, W. C. Edwards & Co., Rockland, Joseph Youill, Carleton Place, and T. Brown, Petite Cote. Mr. Drummond won the most of the first prizes, including first on his stock bull and first for the best herd. Amongst the others the prizes were well divided. The Holsteins were represented by several new breeders, principal amongst whom may

be mentioned Joseph Fletcher, Thomas Davidson, and a former exhibitor, F. H. McCrae. Mr. Fletcher made a very creditable display, and led in nearly all the contests, and included amongst his prizes that of the diploma for the best bull of any age, and the head prize. Mr. Davidson won first and second on bull calves, and Mr. McCrae first on aged cow. In Jerseys, W. A. Reburn, of St. Annes, took the lead in all sections without much competition. Other exhibitors were Messrs. Eddy, Fowler and Storr, and Caldwell. The Hon. J. J. C. Abbott made a clean sweep in the Guernsey classes, his herd being the only one entered.

The sheep made a good display, not only in quality but also in respect to numbers. In Cotswolds, C. Neville and J. Nesbitt were the only exhibitors. The prizes were almost evenly divided, the balance being slightly in favor of the former. The Leicester breeders turned out in good numbers. Messrs. E. Sommers and R. Shaw, fresh from the Industrial, were here met by Forth & Sons. Mr. Sommers led in every instance, and in many cases made a clean sweep in the class. Lincolns were represented by W. Oliver, (who won the leading prizes in nearly every contest), R. Shaw, and C. W. Neville. In Shropshires the leading winner of awards was Messrs. W. C. Edwards & Co., while Messrs. Hagar and Hutton captured a few. Peter Arkell led in the Oxfords, with his noted flock, in competition with some good sheep shown by Messrs. Kemp, Gilmore, and Neilson. Of Merinos, the strongest exhibitors were R. Bailey, who was the most successful, R. Shaw, and L. D. Loyd. In the Southdown class, R. Shaw made a strong record by capturing all the prizes with but two exceptions, namely, in the ram of two shears, of which second went to C. W. Neville, and second on shearling lamb, which was won by G. Whelan. In the class for fat sheep, P. Arkell won the silver medal for the best flock bred and owned by exhibitor, and J. Kemp had the high honor of winning the special prize of a Shropshire ram, generally awarded by John Dyke, the government agent at Liverpool, for the best pen of ten sheep suitable for export.

In the pig class, though the number of breeds represented was not large, yet the individuals were good. The Berkshires were strongest, the exhibitors being Messrs. A. Stewart, W. C. Edwards & Co., E. B. Eddy, Sheriff Hagar, and J. C. Bellow. Of white pigs, Messrs. C. W. Nevill, Andrew Gilmore, J. G. Clark, W. Allan, and A. Bufton, were the leading exhibitors and prize winners.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Mature Sires.

By D. McCRAE.

The use of very young animals as sires by breeders is an evil that prevails largely in Canada. It has been so much in favor that in some lines of breeding and amongst some classes of stock it has come to be an almost universal practice. The result is an impaired vitality and a much greater predisposition to disease. "Animals bred from parents that are very young, with a system imperfectly developed, will inherit a condition of the system that predisposes to attacks of disease from slight exciting causes," says Miles in "Principles of Stock Breeding," p. 136. Such a system is carried on for any length of time, produces the most unfavorable results. It is admitted that this applies with more force to the produce of very young females than to males, but the same result is reached by the use of young males. While the evidences are not so quickly seen, the results are none the less sure.

Among cattle breeders in Ontario, few have sires in use three years old. A very large number use yearlings and two-year-olds, and feed off these at three years. Very few if any of these animals are fully matured till they are three years old. Were the heifers bred at the same ages the fatal effects would very soon be noticed, as it is some will not admit that it is an evil at all, and continue the habit without counting the cost.

There are several reasons why young sires of the better breeds are preferred to mature ones. They are easier handled when young. Some bulls become cross as they mature, and require more careful handling. Others become heavy and sluggish. These are drawbacks, but they must be met and overcome

if our stock of heaves is to be kept up to a high standard of excellence. A large experience with one of the beef breeds convinces the writer that a very small percentage of bulls become untidy if carefully and kindly handled. Those predisposed to this have always shown it before maturity, and since such qualities are inherited, such animals should not be kept as stock sires. Now that extra weight is a drawback rather than an advantage, very large sires are not as desirable as they were in the years gone by, when the larger and heavier the animal the better the price obtained. Quality more than quantity is now called for, and very large animals are not needed. When you have a good sire keep him, and rather exchange for an equally good old bull than try an immature untried youngster. Many pedigreed sires have got their best produce from five to ten years of age.

So much for the herds, what about the flocks? There are still some flock masters who will use ram lambs. It is a mistake. The older rams are better. The breeders of the hardy black-faced breed have had quite a fight over this question in past years. Mr. Howatson, of Glenbuck, a very celebrated breeder, championed the use of ram lambs. He has been forced to acknowledge that he was wrong in this, and that his flock have deteriorated in consequence of the practice. The system has now been abandoned by all the leading flock masters of Scotland, and the reason given is that "ram lambs are far from being mature, and it is useless to expect that they will leave such good stock as will (other things being equal), be got by a sire which has got full opportunity of developing his powers before being used." The black-faced breed were well adapted for a thorough test of this matter. They are kept on high, rough, and exposed ground, the very place where a lack of vitality would most quickly show itself. The result fully demonstrated the fact that ram lambs as sires were a failure. Let us profit by the experience of others, and see that our sires are not only good in breeding and quality, but that they are fully matured.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Aberdeen-Angus Cattle.

By THOS. MCFARLANE, Secretary American Aberdeen-Angus Breeders Association.

There is absolutely little known regarding the origin of this hornless breed of cattle. They are indigenous to Scotland and to the north-eastern districts in which they are found. How, or at what period in their history, the hornless feature was established is all a matter of conjecture. The Aberdeen-Angus cattle have been reared in the high, dry, and cold climate of the north-east of Scotland, on the highly cultivated farms and in the hands of the most skillful breeders who have had in view the production of a beef animal that would meet the demands of the feeder and the requirements of the butcher—that would be an easy and even feeder at an early age and supply the very best quality of beef and the most of it in the valuable parts, and with the least offal. These objects secured, it matters little as to the origin of the breed. Having been skillfully and judiciously bred and handled so long, they have an acknowledged fixity of type excelled by no other breed. That they have been a fixed breed for centuries is demonstrated by the fact that when crossed with pure horned breeds the progeny are in nine cases out of ten hornless, and black in color. As a breed they possess great individuality. They are of strong constitution; hardy, docile, fine-boned, uniform in color, with a long round symmetrical body on very short fine limbs.

They are easy keepers and mature early. Vigor of constitution gives them especial value as a pure breed for breeding purposes. The females often continue regular breeders to twenty years of age; Pride of Aberdeen 7th, 901 (1711), now in her twentieth year suckling her calf, illustrates this quality. The breed is excelled by none for crossing purposes, and in this respect fully meets the universal desire to remove horns without resorting to the saw and chisel, transmitting in addition their superior beef and other individual characteristics. A breed that can stand the blasts of the east coasts of Scotland must be hardy and vigorous and well fitted to withstand our winters. The well-sustained popularity of the Aberdeen-Angus breed of cattle in England, Canada, Australia, New

Zealand, and the United States, rests upon a solid foundation of substantial merit. Those who by practical experience have become convinced of the great value of the Aberdeen-Angus breed of cattle, hold to them with a pertinacity born of positive knowledge, and defection from the ranks of Angus breeders is extremely rare. The National Association of America has just issued its third volume of the Herd Book in a very complete and attractive form. The quality and size of this book is a very emphatic indication of the prosperity of the breed in this its adopted home.

For THE CANADIAN LIVE STOCK AND FARM JOURNAL
Southdown Sheep.

For its mutton qualities the Southdown excels all other sheep. It has long been held in the highest esteem, and by its standard as a mutton sheep are weighed the merits in this direction of every new aspirant to public favor. A near approach to the Southdown in the quality of mutton is considered high praise in any other breed of sheep. Some writers have suggested that this unsurpassed excellence of the Southdown for mutton has been reached at the sacrifice of the wool producing capacity. However, we find the well-bred Southdown of to-day not infrequently producing fleeces from 10 to 15 pounds; and good-sized fleeces are known to average fleeces of eight to nine pounds each. The wool, besides being abundant, is of medium fineness, and finds a ready sale. The fibre of the Southdown wool is the strongest wool-fibre known, and in certain other desirable qualities the Southdowns have no superiors; as, for example, their hardiness, their docility, their early maturity, and in the fact of the ewes being prolific and careful mothers.

Not the least among the causes of their great popularity is the commanding beauty of their form: no other breed of sheep can approach them in this regard. I do not claim that the Southdown is suited to every locality within the bounds of civilization; but they will adapt themselves to a wider range and greater diversity of soil and climate than any other breed of sheep.

There is a growing demand for good mutton in this country. The leading American breeders use Southdown blood on their flocks to a greater extent than ever before, and doubtless the taste for good mutton will greatly increase as our markets become better supplied with mutton of the highest quality. In parts of the country where an open range can no longer be had for sheep, the Southdowns are rapidly growing in favor, and with proper care and skill, a well-selected flock of Southdowns can be made to pay 100 per cent. of their cost. Every year they will clear your fields of weeds and rubbish, and will enrich your soil.

But they will not thrive upon this alone. To relish this rough herbage, the sheep must be fed liberally upon supplementary food, such as bran-meal, or a pint a day per head of oil-cake, meal, and bran, or other grain food. With this alloy, the sheep's foot will take on a golden tinge, and will edge with gold: the farmer's pocket, by making his door lands rich, giving him at the same time a lamb or two and a fleece of wool every year. With sheep, if we do not feed them with materials needed to make fat for themselves, and rich manure for us, they will be unprofitable, and this is the truth about it.

JAMES ELLARS.

For THE CANADIAN LIVE STOCK AND FARM JOURNAL
Sheep in Canada.

By D. McCRAE.

Sheep breeding with us has not received the attention it deserves. We have one of the healthiest climates in the world for the breeding and feeding of sheep, and an immunity from disease that has only to be mentioned to excite the envy of the British shepherd. We have, however, during the winter months, to provide house-room and fodder for the flock, and this undoubtedly is the great reason why our flocks are so small. Few farmers keep more than a score of breeding ewes, many have less than ten, though that is a common number, and a great many farmers have

none at all. There are no large flocks and no shepherds. It is not likely that the system at present pursued will be much changed, but we wish to point out to those not keeping sheep that they are a desirable addition to the live stock of the farm, and to those keeping but a few, that there is room for a much larger number, and if well kept, that they will be found to be fairly profitable. In the summer a few sheep will pick up a lot of odd pasture about lanes and fence corners that would otherwise be wasted. They need little care or attention except to see that they have a change of run now and then, that they have access to water, and that the burs are carefully cut in all the fields where they go. They will stay out longer than cattle in the fall, and when brought into winter quarters can be put up in much less expensive buildings than other live stock. They should have a yard where they can run by themselves, and to which neither cattle, horses, nor pigs should have access. The ewes will require close and careful attention at lambing time, and extra food till the grass comes, unless the owner has them late enough to lamb on the grass. Early lambs are considered more desirable and bring better prices. Then comes the washing and shearing. The price of wool has for many years been very low as compared with the very high prices obtained during the American war. For the past few years the price for ordinary long wool has been from 18c. to 20c. to the grower for washed, and from 11c. to 12½c. for unwashed wool. This year, in some cases, a shade more has been paid, and thanks to the McKinley Bill, the buyers have sold quicker and made more money than for years past. This was caused by the rush to get it into the States before the additional 2c. duty. How will this operate next year? Probably slightly against the wool-grower. The bulk of the Ontario clip is still long combing wool, and while more of this is used by the home trade than was consumed ten years ago (by the new use, to which long combing wool is being put), yet the great bulk of it has to be exported and can not be used profitably by the Canadian manufacturer. Of late years many Down crosses have been tried and a greater quantity of short wool grown. This is all used in the country, but the difference in price paid to the grower has seldom been enough to make up the lighter weights of the fleeces. Pure Southdown has freely sold at 25c. the past year, and the coarser Down grades at from 22c. to 23c. This will likely be maintained, as English wools can not be laid down for less money. The price of wool is kept down by the enormous quantities now brought from Australia, New Zealand, the Cape, and South America. Large quantities from Australia and New Zealand being quite as long in the staple and much finer than Canada fleeces. While the amount may not be large, the money coming from the clip is always welcome to the farmer. Next come the lambs. Early bred lambs find good prices in our cities. The price of lambs has been going up gradually and steadily. Early good ones bring from \$3.50 to \$4.50 during the season, from local butchers. The bulk of our surplus lambs have, for many years, gone to the States, mostly by way of Buffalo. The returns for last year, as given to the customs, averaged \$3 per head. This seems to be rather under the mark. Farmers who buy up lambs during the early fall and winter, and keep them till Christmas, make much more than this price. The McKinley Bill does not bear heavily on this trade. Some shippers claim it is more favorable than formerly. Under it sheep are \$1.50 per head, and lambs 75c., instead of 20c. on the value as formerly charged. There will therefore be an increased demand next year for good shipping lambs to the States. The British market has also been tried with lambs and with success. Our export sheep to Britain last year were valued at \$6.50 per head. With such prospects for mutton, farmers should therefore keep more and better sheep. For the British market, quality is needed to bring the best price. The same is true in regard to the lamb market in the States. Keep sheep. Keep good sheep. They pay better than wheat or barley.

H. & W. F. BOLLERT, Camel, Ont. "We are highly pleased with THE JOURNAL as an advertising medium. We trace most of our sales to our advertisement in THE JOURNAL."

WM. ELLIOT, Ethel P. O., Ont., writes:—"I could not get along without THE LIVE STOCK JOURNAL. It is the best paper I ever had, and I would like to see more of them come to our Post Office."

For THE CANADIAN LIVE STOCK AND FARM JOURNAL

English Shorthorns on Native Pastures.

A Visit to the Farm of HUGH AYLMER, Esq., West Dereham Abbey, Stokeferry, Norfolk, England.

It takes a little over three hours on the Great Eastern railway to reach the splendid farm of 1,500 acres owned by this gentleman in the county of Norfolk. This part of Norfolk is known as the "Fen" country, as it is very flat, and at one time must have been very wet. It is now well drained by large ditches, from which the water is pumped to a higher level by old-fashioned windmills, resembling very much the one charged on by "Don Quixote." I thought at first they were for grinding grain, but found out on enquiry they were for draining purposes. They add not a little to the picturesqueness of this very rich country. Mr. Aylmer's residence is close by the ruins of an Abbey, of which a part of the walls, some of the moat and an old road to reach the grounds of the Abbey are plainly to be seen. The old monks certainly had an eye for good land, as it is one of the richest and best cultivated farms I ever saw, — not park land, but rich arable soil fit for any crop, with the grass in each pasture field affording a view never to be forgotten. The estate is divided up into several farms, each under the care of a foreman, but is all farmed by the active and energetic Mr. Hugh Aylmer, so well known to live stock circles in England and Scotland. I was met at the station and driven to the residence of Mr. Aylmer, a fine old English house, with beautiful grounds, well kept hedges, a greenhouse with geraniums and suchias twelve or fourteen feet high, trained up against the walls, and the general appearance of wealth, comfort, and good cheer, only to be seen in its completeness in old England. To a Canadian the want of large barns, such as we have in this country to hold the grain, seems strange, and the buildings for holding the cattle are all so low, still they are substantial, and in a great many instances they have been built for hundreds of years. The old ones are covered with red tiles, the later ones with slate, and now corrugated iron, and the steddings paved with cobble and other stones.

After lunch Mr. Aylmer and his secretary took me out to see the cattle. He owns about 160 head of Shorthorns, 800 head of Cotswold sheep, and several Berkshire pigs. These are divided up on the several farms, so it necessitated being driven from one farm to the other. The Shorthorn females are all out on the pastures, about twenty in a field, and I say without hesitation, that in all my life I never saw such a fine group of grand, lengthy, blocky, and exceedingly uniform animals — no small or stunted looking ones, but all built on a generous pattern, the roan color predominating, some reds, and a few white ones, this being of no detriment in England. They had just as fine points and lines as the best Aberdeen Shorthorns, and were on a much larger pattern and rank highly as milkers, nursing as they do their own calves and living on their own pastures, both in summer and winter. Mr. Aylmer's Shorthorns are of a thoroughly Booth character, the best bulls procurable from Warlaby having been selected for the last twenty-five years from that herd. These, together with the herd bulls bred on the farm, have been used. Also Mr. Aylmer has from time to time purchased the finest Booth cows when first-class herds have been sold. The herd consists of eight tribes. The Bliss and Fames from Warlaby, the Chalks from Killeby, the Ribys from Mr. Booth's Anna, the Flowers and Goldens from Aylesby, the Maids from Yorkshire, and the Angus Strawberries from Storrs in Northumberland. As far as possible Mr. Aylmer keeps the different tribes of cows in pastures by themselves, and it is a treat to see them, such frames and such beefing and milking qualities, with not a bad one in the lot, and how he manages to keep them out is his own secret, which no one can unravel.

After seeing the cows I was shown the bulls and heifers. I then found out the reason why so few are brought to Canada, it is the high prices that Mr. Aylmer gets for them. Can you imagine a Canadian farmer paying 200 guineas, or over \$1,000 for a roan two-year-old, the sum paid for Knight of Dereham (57545), out of Killeby Queen 7th, one of the Chalk family? Mr. Aylmer had ten 1889 yearling bulls by Royal Fame left out of a lot of twenty or thirty raised. They

sell from 100 up to 400 guineas, or from £400 to £1,600. He sometimes sells a younger calf for 00 guineas, or \$300. Heifers sell also for large prices. To give a few examples of prices obtained from the different families, three bulls and two heifers out of Bijou, by Sir Wilfrid (37484), a Bliss cow, were sold for \$1,150. From Castanet 6th, by Sir Wilfrid (37484), a Fame cow, three young bulls were sold for £400, and a yearling heifer for £105. Castanet IV., by High Sheriff (26392), another Fame cow, is the dam of four bulls that sold for £914 10s., and also is the dam of Royal Fame (52035), a celebrated sire, let to Her Majesty for the Prince Consort's Shaw Farm, has also been used at Warlaby, and by Mr. Aylmer; twelve bulls used by him have been sold at an average of £175 each. The Castanet cows make a fine show. The Chalk tribe have a diversity of names, such as Cleonatis, Clementina, Cyclamen, Crocus, Clove, Chrysanthemum, Canarienses, and other spicy and flowery names, nearly all commencing with a C., a very good plan where the family names are followed up. Four bulls from Christina sold for 525 guineas. Three bulls from Cheerful for £472 10s. Five bulls from Cinderella for £682 10s. The Killerbys also spring from the Chalk family, the bulls from the Killerbys also selling for £105 a piece. Mr. Aylmer has several Ribys from the Booth Anna tribe from Studley. Of the Flower tribe, Foreign Beauty by Knight of the Shire (26552), first bull calf at seven years of age was sold for 350 guineas after earning £559. Besides, the Golden tribe from Aylesby have also made their market. The Maid tribe, from Maid of Orleans, by Knight of Windove (16349), also have established a record, two bulls from Marchioness of Lorne by Sir Wilfrid having sold for £577 10s. The Strawberry Bloom tribe are also fine animals; in fact, as I said before, I never saw such an even and good lot of Short-horns in my life.

Mr. Aylmer also has a flock of about 800 Cotswold sheep of large frame, heavy fleeces, and grand appearance. Mr. Aylmer does not exhibit now at any of the shows, but when showing some years ago he was always a large prize taker. He has a sale and letting of rams on his farm each year, which is largely attended. This year, July 24th, he sold eighty shearling rams and eighty ram lambs, the shearlings averaging \$54.50 each and the lambs \$43.35. Mr. Aylmer also keeps a very fine lot of Berkshire swine, also kept in good order.

The afternoon passed away much too quickly in viewing the stock. After a fine six o'clock tea, with lovely English strawberries as plump as the cattle, I had to say good-bye to my courteous host and hostess, and take train for London, only wishing I could have accepted the invitation and staid until next day, but as I had to leave next morning for Plymouth, this could not be done.

HENRY WADE.

For THE CANADIAN LIVE STOCK AND FARM JOURNAL
Combined Hog and Poultry House.

Sometime ago I built a hog house, and it has given me such satisfaction that I send you a plan of it. The size of it is 18 x 40 feet, 7 feet high, with a walk from the front door along the side four feet wide, and another one from the front door to the back door, two feet wide. My troughs are set right under the partition between the pens and the walk. The partitions are boarded down to within twelve inches of the trough, then the last board is hung on hinges so that it may swing. This arrangement prevents the pigs from getting into the troughs. The yards are fenced in with a tight board fence and the bottom of the yard is well stoned and covered with leached ashes. If one desires to do so, the small corner pen may be used for storing feed. I have bins built on the top of the

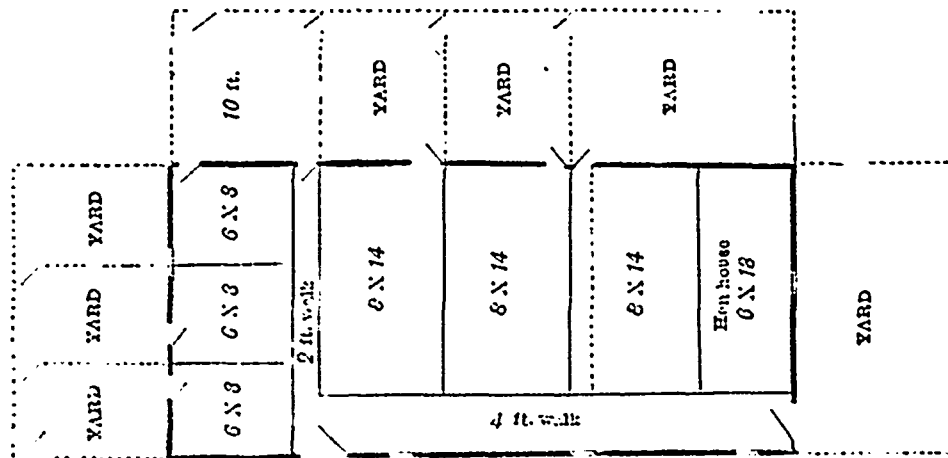
ceiling, one on each side of the narrow walk, to store feed in, and I let it down in shutters. A step-ladder, with one end hung on hinges so that it may be raised up out of the way, leads to the upper story. The hen house is separated from the hog house by a plank partition running up 3½ feet, then by a scantling from plate to plate (see dotted line). The partition is continued, being double boarded. In this way no room is taken from the pigs, and it affords the hens a splendid place to roost. I have built the roosts one foot high from the boards. If the droppings do not readily roll down they may be easily pulled down with a scraper. This house has cost me in cash only sixty dollars, as I had the logs to make the lumber, and only had to pay for the sawing. I did all the work myself. The roof is tar-papered under the shingles. The outside is all double boarded, papered and latched, and as a result no frost gets into it. If one had to buy everything it would cost about \$100, divided as follows:

Lumber, 900 feet	\$54 00
Shingles	20 00
Nails	7 00
Hinges	3 00
Sills	3 05
Windows	3 80
Paper	6 25

The striking features of a building on this plan will be found in its cheapness, handiness, and suitability for the purpose.

Greenway.

C. H. WILSON.



PLAN OF COMBINED HOG AND POULTRY HOUSE.

For THE CANADIAN LIVE STOCK AND FARM JOURNAL
Weight-Carrying Hunters.

Farmers have frequently been advised to turn their attention to breeding hunters, and most men have some theory on the subject, but while the successful breeding of light weight hunters is allowed by the best authorities to be difficult, yet it is comparatively a simple matter when compared with the breeding of weight-carriers, the most valuable animal of the twain, and even in England, where, as old John Jorrocks says, "hunting is the sport of kings, the image of wars without its guilt and only five and twenty per cent. of its danger," little is known about the principles of the breeding of horses of this stamp. Mr. Muntz, in describing the weight-carrying hunter, says: "He should be long, low, deep and wide; long from his withers to his ears; short from his chest to his chin; short from his withers to his loins; long from his loins to his tail; long from his elbows to his stifles; long from his elbows to his knees; long from his hips to his hocks; very short from his knees and hocks to his fetlocks, an easy hand span; wide hips and stifles; muscular quarters; strong loins; forelegs not less than nine inches of bone; hind legs ten and a half if you can find them—big hind legs means good hocks and great jumping power—big bony hocks and knees and moderately oblique pasterns; deep through the heart, strong through the shoulders and neck. The wind-

pipe should be well clear of the neck, forming what is called a beautiful throat; height, sixteen hands one inch and upwards. Action in all their paces should also be smooth and without effort." Coming to the question as to how the weight-carrier should be bred, it is far easier to say what sort of mares should not be bred from than to describe those which are best adapted to the purpose. There are stud books for almost every breed of animal, and it appears strange at first sight that while our work horses, our trotters, and our carriage horses are often entered in established stud books, the hunter which is often of far greater value is not entered in any stud book whatever, for the simple reason that there is no such thing as a breed of hunters, the hunter being a cross-bred horse usually sired by a thoroughbred sire from mares of other breeds, or oftener still from cross-bred mares, being frequently rather the result of good luck than of good judgment. In the first place there is no definite type of hunter, while there are all sorts and conditions of men with a taste for hunting, which necessarily entails a very large variety of steeds up to different weights, and this reason alone is sufficient to render the formation of a stud book for hunters almost impossible. Another difficulty in the way of the successful breeding of hunters, is the lack of information existing as to the dams of known hunters; thus at auction sales in England the names of the sires are frequently given, but as a rule their dams are completely ignored as being a point in which no one is interested. Many theories have been advanced as to the best method of breeding weight-carrying hunters. All authorities concur in the opinion that they should be as nearly thoroughbred as possible, but at the same time must have a proportion of other blood to give the requisite substance which the thoroughbred will not confer. Some advocate for this purpose a cross of the thoroughbred on the lighter type of Clyde or Shire mares, but the chances of a satisfactory result are small (although there are instances to the contrary), for the coarse points of the dam are often reproduced in the progeny, and even when the appearance is all that can be desired, there is frequently a lack of courage and wind which is annoyingly conspicuous after a prolonged quick hunt. Again, if lighter

mares are used the produce will not probably be up to more than thirteen or fourteen stone, a weight which many might think heavy enough, yet it must be remembered that all other things being equal, a horse up to sixteen or eighteen stone is far more valuable in proportion. As to the use of Cleveland Bay mares, opinions differ. Thus in the *Royal Agricultural Society's Journal*, thirty years ago, it is said, "For hunters, the worst cross is that with the soft and specious Cleveland Bay. Even Ireland is debased and ruined by the flat catching strain." While a writer in the same journal last year says, "It is a fact, sometimes unknown to the owners, that a certain number of the best hunters have Clevelands for their dams." A glance at the prize lists of agricultural shows does not help one to any great extent, the mares exhibited for breeding hunters are usually at least three-quarter bred, and their produce from a thoroughbred sire would therefore be seven-eighth bred, and in all probability too light to be a weight carrier. There are, however, two points that may safely be laid down: (1) that the mares when selected should be perfectly sound in every respect; and (2) that they should be more strongly made than the stock they are wished to produce, and in short they should not be the exact models of the desired produce. Another suggestion which appears reasonable is, that by careful selection and crossing, a breed of weight-carrying hunters might be originated, which, when bred together, would produce their kind without any introduction of outside blood. The method proposed is to start on a cross with a Clyde or Shire mare, followed by continued thoroughbred crosses until the desired type is attained. This would

doubtless result in the formation of a distinct breed, combining the requisite substance and courage, and containing very little of heavy blood, and which, bred on various lines, might be interbred without any further infusion of thoroughbred blood. "It was doubtless," says Mr. Muntz, "on something like these lines that a supply of grand weight-carrying hunters were produced in years gone by, especially in Shropshire, Yorkshire, and Lincolnshire." Hunter breeding at the present time may well be termed a lottery. Some of the best are from sires which were too slow for the turf and from dams that have spent their working days in a carriage or cart, yet the men who are successful in breeding horses of this stamp have undoubtedly a good market, and to these the advice given by Mr. Farmer, a large and experienced tenant farmer, are well worthy of consideration: "I should never think of trying to breed light hunters, as a horse that is not up to more than twelve stone seldom commands a high price, and my experience has been that in trying to breed horses with quality up to as much weight as possible, you get far too many light weight hunters."

AGRICOLA.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Hogs for the Market.

A SUCCESSFUL FEEDER DESCRIBES HIS PRACTICE.

First decide what market you wish to supply. If you are satisfied with the fall or early winter market, adhere to the old plan, let the pigs run on the stubble and finish up in the pen. If you wish to meet the spring or early fall market your pigs must be pushed all the time to attain to pork packers' weights of 170 to 200 lbs. at five and six months old. I believe the cheapest pork can be raised in connection with the dairy, where the milk is kept on the farm.

Brood sows should glean the stubble instead of the pigs intended for the market. They will do well on any green food, as horse-tooth-corn, clover pasture, with bran slops, which are bone forming foods. It is necessary both before and after farrowing, to keep the sow in good thriving condition, not carrying much flesh. In winter she should have exercise each day instead of being confined in a pen. When the pigs are farrowed give no feed until the sow looks for it; then she should receive a little bran in water, warmed to take the chill off it. Bran and shorts should be fed in increasing quantities with the slops from the house. Always keep the pigs as fat as they may be made without interfering with free breathing. The sow in the meantime may lose flesh.

After the pigs have commenced to feed freely with the mother, take them from her when they are about 5 or 6 weeks old. They should now be fed all the sour milk they will take, with plenty of bran, shorts, and barley meal. Always feed bran with the meal until the pigs become three months old, then the meal alone may answer. I prefer the feed sour. You can use an old barrel for this purpose. Do not sour it far ahead in warm weather or it will get stinky, and when in this state the pigs cannot eat their usual allowance. Every few days give them a feed of dry meal for a change, and some dry earth and ashes if the pigs cannot get to the soil in the yard; nature demands this. Keep the young pigs dry and warm, particularly in cold weather. Two months previous to marketing, feed them peas to harden the flesh and get weight. Soak the peas until they may be readily squeezed between the thumb and finger, and in this way you will save the expense of toil and trouble of teaming to the mill. Now is the time to push the hogs. When they begin to sit down while taking their food you may be sure they are nearly finished off.

I would impress upon the mind of the reader the necessity of feeding three times in twenty-four hours, at regular intervals. Give them no more than they will eat up clean each time. Keep the pens clean and comfortable, giving the pigs plenty fresh air. They should have pure cold water in summer. In winter the house should be warm enough to keep the food from freezing. By following the above advice a judicious feeder will waste but little.

It is only a few years since a hog seemed worthy of my attention, and now I actually love to feed and care

for them. This no doubt arises from the fact that I have had good success. For example—on September 3rd, last, I sold five hogs 6 months old, and five 5 months old. Their total weight was 1835 lbs., or an average of 183½ lbs., which I sold at 5½c. per lb. live weight, making the total amount received, one hundred dollars and ninety-two cents (\$100.92).

S. C. BROWN.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Silos and Sheep.

AN INTERESTING LETTER FROM THE FAR WEST.

The introduction of silo among ordinary farmers is not likely to wait long for actual fulfilment. Mr. W. R. Tanner, at Moorhead, Minnesota, has been grappling with the difficulty for some years past, and has in a very simple way got at its practical solution. Every writer on the subject has been trying to show how, by a combination of tar paper and boarding, with air spaces between, a silo could be built to resist the effect of our severe winters. It takes a deal of scheming to show how in a temperature 30° below zero a silo can be opened when necessary and siage enough taken out to feed 100 head of cattle, without something freezing. In fact, it cannot be done. Mr. Tanner has managed it very easily by planting his silo in a warmer climate. He owns one of these huge Minnesota barns 60x80 feet, with a wagon way up the centre and hay loft above. He built his silo inside the barn with no elaborate arrangement for keeping out cold, for the presence of the stock ensured a regular temperature all the time very little below freezing point. He grew a mixed crop of oats and peas, sowing pretty thick, on well manured land, and cut when half ripe, filling a few feet each day, only taking care to keep the sides and corners well filled and tramped down. In this way, as heat developed, a large quantity of this kind of feed was stored in July. In September he started his steam engine to chop his crop of Indian corn down to inch lengths and hoist it into the silo at the same time, packing and tramping as before. Without any special loading this got settled down into capital siage, was fed all winter to milk cows, colts, and young Holstein calves. I saw it in early March when the first put in peas and oats were being fed. No better siage could have been wished for. As all the stock were under the same roof with the silage, no exposure to outside cold was needed, and the keenest winds outside had no effect with the double doors and some feet of air space between the outside weather and the nearest point of the silo. The walls of such a silo can be built of one and a half or two inch boards, backed by six-by-two inch studding, for the gradual settling of the silage as it heats causes no bursting pressure as described by the early architects of the silo. Any farmer can build such a silo in the middle of his barn, and fill it twenty-five feet deep if he chooses, with millet, wild or tame hay, clover, or in fact, any green stuff, and so provide a variety of feed to mix with his straw and chop, on which experience shows plainly that all stock feed greedily and thrive well.

Sheep are a kind of stock we don't talk much about. Some of the old timers have kept all along about a score of pets from Leicester and Cotswold ancestors, that they call Portage sheep, from the district where Lynch and others first handled them. But though these do capitally in small lots, they need too much attention, for on a cold day a Leicester ewe will go off and leave her lamb, unless both are carefully attended to. But with sheep grades there is much less loss at lambing time and much less work also, and the returns are capital, a four months' lamb being worth often as much as its dam. Most people buy hardy western ewes graded from Merino ewes with Shrop. bucks, but the Riddlells, of Tobacco Creek, old skilled Scotch sheep men, have graded down from the Leicesters with equal satisfaction, and sell early lambs right along, as their nursing ewes only go out of doors on the finest days.

MR. D. P. McPHAIL, Vernon, Ont., writes:—"I am two years in arrears; you will find \$5.00 enclosed with thanks, wishing you every success and hoping that the STOCK JOURNAL may have a widespread influence. It should benefit the farming community very much."

The Dairy Breeds of Cattle.

PROF. SHELDON IN "AGRICULTURAL GAZETTE."

As we have already said, it is the smaller breeds—the Jerseys, the Guernseys, the Keries, the Ayrshires—which are the milking breeds, *par excellence*, of the British Islands. Size of animals taken into consideration, they are far ahead of the large breeds as milkers. As breeds, the Jerseys and Guernseys are, we believe, unequalled for quantity and quality of milk combined—unequalled as butter producers, in respect of quantity, quality, and colour of the butter they yield, unless, indeed, some of the Keries come up to them. These three breeds, in fact, may be said to "take the cake" of the world for butter making, and our American friends would say that the Jerseys take the biggest slice of it. Well known for a long period, and celebrated beyond measure, the Jerseys and Guernseys have been in their own island homes and in England; and now the hardy little Keries are taking rank with them in many places. For cheese-making purposes and for butter-making too, the Ayrshires have long possessed a high character, not in Scotland only, but also in various parts of England. Some of them yield extraordinary quantities of milk; and while some tribes are celebrated for their excellent cheese they yield, others are equally famous for butter. These four breeds, then, are each and all excellent dairy cattle; and while the Jerseys and Guernseys are adapted to genial climates, good land, and kindly treatment in all respects, the Keries and Ayrshires are not so fastidious, but will do well in almost any reasonable climate, and on land of almost every quality. But the Jerseys are surely hardier than they are popularly supposed to be, for we have seen them flourishing in the Province of New Brunswick, and the rigorous climate of Canada is a test beyond which we have no need to go. The Welsh breed, known as the *Anglesey*, is also one of our smallest breeds, hardy and useful in its way, suitable for a mountainous country and inferior land, but it is not the fortunate owner of a reputation for milk like that of the four famous breeds of which we have spoken in this paragraph. It is a prolific breed, however, and is much more commonly seen in England than it formerly was.

The grand breeds of England, the massive, stately, handsome ones, are, first—as all the world knows—the Shorthorns, followed by the Herefords, the Sussex, the Red Polled cattle of Norfolk and Suffolk, the fugitive Longhorns, the South Devons, and the "South-hammers," which are an offshoot of the Devons. The North Devons are the "cobs" of our bovine breeds—plump, lively, enduring, active, and decidedly pretty. Then we have the larger Welsh breeds, the Polled breeds of Scotland, and the handsome, shaggy, rugged West Highlanders, so suggestive of mountains and forests, and heather-clad moors. To our fancy, however, the Herefords, as ornaments to the landscape, are the most strikingly pleasing of all the British breeds, the snowy-white faces forming so bright a contrast with the deep-red of the adjoining skin. Of these many excellent breeds, the Shorthorns, Longhorns, Devons, and Red Polls, are at all events good milkers as a general thing; and, if the others are not so, it is their misfortune rather than their fault, for they are certainly susceptible of becoming so under management designed to develop the lacteal potentialities of cattle. Even the Herefords, which are understood to be inferior as a breed for milk, are known to be good milkers where used as other breeds are to hand-milking, and not expected merely to raise their own offspring. The milking function, indeed, may be developed by training, or dwarfed by neglect; and although it is, in the Jerseys for example, a natural function artificially developed to a high degree, we are free to admit a superior natural tendency and aptitude in the breeds which to-day possess it more lavishly than others. It may be said that no breed of cattle has won, as the Shorthorn has, its right to the term "cosmopolitan"; and though some Americans term it a beef breed, denying its claim to be regarded a dairy breed, we in England know better—we know, in fact, that many Shorthorns are capital milkers, and we feel that, if American Shorthorns are poor milkers, it is because the Shorthorn bulls imported from England have been selected from families in which milk-yielding has become a lost art.

The chief merit of the Shorthorns is that they are, on the whole, better all round cattle than any other breed, and the secret of their abounding popularity lies in the fact that they mature early, milk fairly well on the average, and fatten off for the butcher as well as, if not better than, any other breed, when they are no longer wanted for milk. The Herefords have the reputation of being better beef, when fat, than any other English breed, and this may be said to balance their inferior character for milk. Like the Shorthorns, they flourish in every country to which they have been exported beyond the seas, and we have seen excellent specimens of them in many distant lands. The sires of these two breeds have an established fame for extraordinary prepotency when crossed with the native cattle of the United States of America and of Mexico, not to mention those of countries nearer home. The Devons and Red Polls have been less extensively exported to America, but they are both popular there, as also are the two breeds of Polled Scotch cattle. The Red Polls, indeed, have risen greatly in favor of late in England, and, as good milkers and graziers, are inferior only to the Shorthorns, and their popularity will increase as the years roll on. The Polled breeds generally, the two Scotch and one English, have a future full of promise, we may well assume, for their very hornlessness is a valuable feature in this age of wonderful migration to and fro across the ocean. The old Longhorns are the only breed of the British Islands which the world will at all willingly let die, and if their extinction takes place, the awkward, ungainly horns with which the breed is unfortunately misadorned will be the chief cause of it. We may hope, however, that it will not occur, for it would be a distinct loss to be deprived of this quaint, obsolete, old-world breed of cattle; and the lively interest which men take, at this period, at the different races of domesticated animals is too active to let such a once important breed of cattle slip out of their ken.

For The CANADIAN LIVE STOCK AND FARM JOURNAL.

The Oldenburgh Coach Horse.

By EDWARD LUBBEN, Surwuden, near R denkirchen, Grand-dukedom of Oldenburgh, Germany.

It is proved that the Oldenburgh horse is very well known since the 16th century as being a first rate and useful coacher. Especially under the reign of Count Anton Gunther 1603-1667 the breeding of horses in this country was flourishing in a very high degree and stood first in Germany. It is a fact for instance, that when Leopold, the Emperor of Austria, made his entry into Vienna in 1658, his own riding-horse, as well as the six coach-horses of the Empress, were Oldenburgh horses. The Duke of Newcastle, a renowned judge of horses, in his work on "Horse Breeding," in 1660, also mentioned the Oldenburgh horse very favorably. That this breed was very celebrated is also proved by the circumstance that these horses were at that time very often given as princely presents. The Queen of Sweden, Christine, presented for instance, in 1654, to the King of Spain, eight splendid Oldenburgh horses. The Count of Oldenburgh gave two first-rate horses to the Duke of Newcastle, and also six horses to the Lord-Protector of England, Oliver Cromwell.

It is true that in later years the breed suffered under the influence of wars and inundations, but when these calamities were overcome the breed improved rapidly under the intelligent leading, the assistance of the Government, and the use of good high bred animals. Now the Oldenburgh horse stands so high, and there is so much demand for it, that it can be compared favorably with any other breed. The great number of horses which are sold every year to France, Italy, Switzerland, Belgium, England, Russia, Austria, and South America, is the best proof of what is said above. The great extension of this breed, and the favorable opinion held by horse breeders of their offspring in South America and other countries, gives a right to hope that the horse breeders of North America will hasten to make also use of this highly esteemed breed.

The Oldenburgh horse is a coacher (at the same time fit for agricultural purposes too) and has been bred for many years only for this purpose, and therefore guarantees with certainty to transmit his qualities to his progeny.

Riding-horses are not bred in the principal breeding districts. Although Clydesdales, Shires, Suffolks, Percherons and other draught horses have never been made use of for breeding purposes in the country, the Oldenburgh horse is a good deal heavier and bigger than the French Coacher and Cleveland Bay. The visitors of the Chicago horse show last November will be convinced of this. The Oldenburgh horse is 160-175 centimeter, or 15 hands 3 inches to 16 hands 3 inches high. The colour is bay, brown, or black. Chestnut or grey horses are very scarce. Some few have a white spot on the forehead or white feet. They trot very regularly with very fine action. They are very stylish and handsome, have a short back and good quarters. Their weight is from 1350 to 1600 lbs. Their early maturity is well known, they are fit for work at two years and for breeding purposes when three years. Their fertility and great hardiness is not to be surpassed. As to their strength in drawing loads, it may be mentioned that a couple of strong horses of this breed are able to convey 5,000 kilo (10,000 lbs.) on paved roads.

The Oldenburgh breed having so many great advantages over other breeds, we may be fully convinced that it will be only a question of time until they become of the same importance and secure the same favor in North America that they now enjoy in Europe.

Parasites on Pigs.

EDITOR CANADIAN LIVE STOCK AND FARM JOURNAL:

DEAR SIR,—In the October number of your JOURNAL, I notice a letter from one of your correspondents, headed "Destroying Lice on Pigs," and a reply given to same by yourself, in which you recommend turpentine and machine oil as being very efficacious. Now I have had "Little's Sheep and Cattle Wash" before the public for the past few years, and one of the principal uses we guarantee and claim for it is the destruction of ticks on sheep, lice, mange, and all insects upon horses, cattle, pigs, dogs, etc., not only destroying the ticks, lice, but the nits or eggs; it removes scurf, roughness and irritation of the skin, also preventing the attack of flies and insects in hot weather, and protects the hides of cattle from bots, warbles, and gad-flies, removing at the same time the unpleasant smell from pigs and other animals, being the most thorough disinfectant and germicide in the market. It is before all other washes in the simplicity of its preparation, mixing at once with cold water; and a single trial will prove that on coming into contact with the water the whole is changed into a milky-white liquid which will not stain or discolor the wool or hair, but makes the coat after using soft, glossy, and healthy. It is also non-poisonous, so that no danger can occur from the animals licking themselves. Its cheapness is another great consideration, as it only costs about 2 cents a gallon when mixed ready for use. Now if you have any doubts that I claim too much for the preparation, I can only refer you to such stockmen as the Hon. John Dryden, Minister of Agriculture, Robert Marsh, Richmond Hill, William Whitelaw, Guelph, and Andrew Teller, Paris, and numbers of others, who assert that it is the surest destroyer of lice on animals that they have ever used, and would not be without it.

ROBERT WIGHTMAN.

Owen Sound, Ont.

(In justice to a valuable preparation we are glad to publish the above letter. This wash has been extensively used by many of our stockmen who have found it to be thoroughly effective and satisfactory for the purposes enumerated by our correspondent.—ED.)

Hog Production.

EDITOR CANADIAN LIVE STOCK AND FARM JOURNAL.

DEAR SIR,—You will be glad to know that our efforts aided by you, the Bureau of Agriculture, and other auxiliaries, have very considerably increased the supply of hogs. Farmers appear to be realizing that it is a remunerative branch of stock-raising, but they have yet to learn that it is to their interest to have them ready early in the season.

In May last, we were paying as high as \$5.70. In June \$5.60. At the same time we were buying in the Western States for nearly 2 cents less. In July we paid for Canadians \$5.25, in August \$5.30, in September as high as \$5.65, and we were compelled to supplement our supply very largely from Chicago, St. Louis, and Kansas City. At this writing we are getting quite as many as we can handle of Canadians. Thus you will see that the farmers, by not having them ready early in the season, are losers to a very considerable amount. It is well known that hogs fatten more rapidly through the warm weather.

There is one other point to which we wish to call the attention of farmers. There are too many heavy hogs being produced,

and if they want the highest price they must first produce a long, lean, well-fed hog, weighing from 140 to 200 lbs. alive, and have them for sale in June, July, August, and September. A man who has his hogs for sale when every one else has, gets left.

WILLIAM DAVIES.

Veterinary.

For The CANADIAN LIVE STOCK AND FARM JOURNAL.

Contracted Feet.

By DR. GREENSIDE.

The great prevalence of the abnormal condition of horses' feet, significantly termed *contraction*, calls for some comment. Even in cases unassociated with lameness, contracted feet are a practical defect, for they are in many cases taken exception to by would-be purchasers, and in addition render an animal liable to develop conditions that bring about lameness. The causes of contracted feet that are not the result of lameness, can be summed up in a few words, viz., undue dryness of the hoof, and unequal distribution of pressure.

The predisposition to contracted feet is hereditary. Sires and dams with upright, deep heels and very concave soles, especially if the feet are inclined to be small, are predisposed to this trouble, and are very apt to transmit it to their progeny. A horse's hooves outwardly do not require much moisture. Under ordinary circumstances they come in contact with sufficient from the soil, litter, etc. The necessary humidity of the horn is largely maintained from the blood vessels that circulate so freely in the interior of hoof. In order that a good tough horn may be formed, the circulation should be sufficiently active, otherwise there will not be sufficient blood sent to the part to supply the necessary moisture. Activity of the circulation is largely dependent upon the amount of exercise given, so that standing in the stable too much favors the drying and contraction of the feet. This is particularly injurious to growing colts, being apt to permanently deform the hooves. Hooves that are subjected to alternate dryness and moisture become hard and dry, and inclined to contract. Moisture, such as heavy dew, dissolves the glazing material, naturally present on the outer surface of the hoof, and when it becomes exposed to dry surroundings evaporation freely takes place. This glazing material is nature's agent for conserving the moisture. Its removal with the rasp, while dressing the hoof after shoeing, is consequently injurious. Although a proper degree of moisture is necessary to preserve a healthy foot, the most important factor in keeping the hoof of proper size and form, is attention to preserving natural pressure upon the parts intended to bear it.

Colts particularly are the subjects of great neglect in this respect during the winter months. When they are running around on snow and straw, no wear of any consequence takes place, and the wall grows out to such an extent, that all pressure is removed from the sole and frog, and the heels begin to curl in, thus deformity begins. In order that a colt's feet may grow of proper size and form, the walls should be rasped down at intervals, so that the sole and frog can come in contact with the ground; otherwise they will shrink and draw the wall in with them.

Outside of the question of contracted feet, overgrown hooves are apt to act injuriously upon the limbs by altering the direction of the line of weight, thus bearing unduly upon some parts, and favoring the occurrence of strains, with their serious sequels. In other instances colts are raised to maturity, with a normal condition of the feet, but from careless shoeing get their feet contracted. Owners are frequently to blame for this condition, by allowing the shoes to remain on too long, without being reset, when the same condition results that was explained as occurring in colts, with a greater tendency to curling in at the heels and the development of corns. Shoes crookedly applied, so that the pressure is not even upon all parts of the wall, lead to contraction. Shoeing with high calkins that prevent sole and, more particularly frog, pressure, is also a cause. If the frog is not allowed to come in contact with the ground it hardens and shrinks, and causes the foot to fall in at the heels. There are cases, however, where lameness is present, when the

contraction is thought to be the cause of the lameness, when in reality it is the result of it. Disease in the lower part of the limb, particularly the foot, causing lameness that persists for a length of time, results in the hoof shrinking, due to the comparative inaction of the lame limb and the resulting diminished blood supply. Navicular disease and ring-bone are always followed by contraction of the hoof, of the affected limb.

Contracted hooves, although often the result of lameness, are doubtless sometimes the immediate cause of more or less tenderness and stilted gait. The compression on the quick of the foot, although the soft structures show a great tendency to accommodate themselves to the cramped condition, interferes with the circulation and causes more or less nervous irritation and soreness, particularly when an animal so affected is first moved out.

Contraction of the feet that is not the result of lameness, if not of too long standing, can frequently be cured by subjecting the hooves to favorable conditions. A run in the straw yard during the winter with the shoes removed, and the wall kept rasped down to its proper length, so as to give frog pressure, will often accomplish much. A run at grass, with light tips that pass about two-thirds of the way back from the toe to the heel, is beneficial. Shoeing at intervals of four weeks, with flat shoes that admit of frog pressure, often brings about a gradual restoration to the normal size and form of the foot. We have found the daily application upon the clear wall of the hoof of a thin coating of raw linseed oil, tend to conserve the natural moisture of the hoof, and keep it tough.

Questions and Answers.

This feature of our Veterinary Department is for the free use of our subscribers. Answers to all questions sent us coming within the scope of this department, will be given by Dr. Grenside, of Guelph, Ont., a veterinary surgeon with a large practice and professor of Veterinary Science at the Ontario Agricultural College. Address all queries on paper separate from all matters of business, and write only on one side of the sheet. Give symptoms as fully and clearly as possible.

Veterinary Work.—J. O. Munson, N.S.: Will you kindly recommend to me a good standard work on the care and treatment of horses and other live stock in sickness? [Law's Veterinary Adviser.]

Thrush.—Subscriber, Homer, Ont.: I would like to know through your veterinary department what I had better do for a two-year-old colt that has thrush in his hind feet? [The colt's stall should be kept clean, so that he doesn't stand on any filth. Clean the frog well once a day, and dust in powdered calomel until there is improvement.]

Chronic Catarrh in Sheep.—W. R., Cannington, Ont.: Twenty of my nicest Cotswold ewes are troubled with running at the nose, and have been so ever since I got them. Through last winter I treated them with tar and salt, thinking that the summer would see them alright again. But they are now worse, and my lambs are getting the same complaint. They have all been well cared for, and are a very prime lot, in good condition, some of the lambs weighing over 100 lbs. When I turn them out in the mornings into the yard, it is distressing to see them. They can hardly breathe, as their nostrils are stuffed up with mucus. Kindly let me know of a remedy. [Chronic Catarrh is an obstinate disease to treat. Get a puffer, such as is used for puffing powder of various kinds on animals. They can be got at a druggist's. With this instrument puff a small quantity of iodoform into the nostrils of each sheep every couple of days for two weeks. After that, once every five days, until there are signs of amendment.]

Mare Gnawing Wood.—A. W. P., Sault Ste. Marie, Ont.: My "Clear Grit" mare, five years old, has recently taken to gnawing any wood that may happen to be within reach. She is apparently in good health, but will, in course of a day, gnaw and chew through a 2 x 4 pole or scantling which is suspended between her and her next neighbor. Please give cause of trouble, and if caused by any physical derangement, what steps should be taken to remedy. Local Vet. says teeth are the cause, but he has not been able to suggest any means of cure. [Many horses get into the habit of gnawing freely at available pieces of wood, particularly if they are kept in the stable. It results from nervous irritability, the result of insufficient work, in many cases. In some instances indigestion is the cause. Rational feeding, in addition to sufficient work, and the removal, as much as possible, of all gnawable objects from the animal's reach, allowing the mare to run in a loose box will make her less inclined to gnaw, than being kept in a constrained position, as when tied. It soon becomes a confirmed habit like waring or wind-sucking, if not controlled.]

The Farm.

Agricultural Representation in the Cabinet.

The appointment of Mr. John Dryden, M.P.P., to the portfolio of agriculture, has given universal satisfaction in all quarters. A more representative person could not have been selected, as he is a foremost stockman, a leading farmer, and a man of broad and practical mind. Through this appointment, and that also of Mr. Thomas Ballantyne, M.P.P., to the Speakership, our agriculture has been justly honored. With such active and earnest friends at headquarters, we have every assurance that our agricultural interests shall be looked after attentively, and guarded well.

Destroying the Wheat Midge.

In various parts of the country the wheat midge has been very destructive during the past season. In one instance within our observation, owing to the attacks of this insect the yield of a good field of wheat was brought down to the unusually low average of ten bushels per acre. In this case the saying that prevention is better than cure has a force beyond its customary application, for there are known and effective means of preventing the ravages of this insect, but the remedies are lacking woefully in numbers and utility. It is well to remember that besides attacking the kernels, many of these insects instead of going into the ground to tide over the winter season find a refuge in the chaff and screenings from the wheat crop. After the threshing of an affected crop the best object lesson that can be taught may be given by turning over the chaff and dust that is left. Any number of the grubs may be found. This being so, it is of the first importance to burn such, for if left in heaps, the next June the developed flies come out in clouds, after pairing, the female seeks the flowering wheat on which to deposit her eggs. The chaff may be used for bedding, as the grubs are sure to be killed, or it may be deposited in the bottom of the manure pile. It is imperative that the chaff from threshing be treated in some such manner, and not left undisturbed to prove a prolific breeding ground for one of the worst insect enemies that the farmer has to cope with.

The Sequence of Rotation.

The wisdom of some sort of rotation is recognized by tillers of the soil in all lands where agriculture has received much attention at the hands of the people. Science has taught us many things that relate to the rotation of crops, and much has been gleaned from the experiments of individuals, but there is yet very much to learn in reference to this highly important subject.

The most perplexing thing in rotation is, perhaps, the frequency with which any crop should be repeated in order to get the very best possible results from its growth, owing to the many conditions which bear upon it.

These are such as the nature of the soil, the state of its fertility, the nature of the subsoil upon which it rests, the habits of growth of the crops feeding upon it, the state of the fertilizer when applied and the mode of applying it, and many others which we do not now want to mention.

The materials of some soils exist naturally in forms much less available than those in others. They unlock more slowly and therefore demand less frequency in the growth of the crops which feed upon them. Such are certain kinds of clay impervious in their

nature. The style of the cultivation adopted has a particular influence on these soils, particularly that portion of it which is done in autumn.

The present condition of fertility has much to do with the sequence of rotation. Some soils, owing to their accumulated stores, can sustain successive crops of one kind for a term of years more or less limited, while others cannot produce two good crops of the same variety in close succession.

The nature of the subsoil has a most important bearing on the question of rotation. Where a subsoil is open, thus affording good drainage to the soil, the land above it is kept in a porous condition. This aids the ready percolation of water and air through the interstices of the soil, and these conduce to the transformation of plant food from unavailable into available forms. It follows, then, in a soil of this character, suitable rotations may be more frequent than in those which are less porous. But it should not be forgotten at the same time that the drain upon them is more rapid, and final exhaustion arrives sooner where they are not liberally fed.

The habits of growth of the crop or crops grown, have much to do with the sequence of rotation. Some draw more heavily on the soil than others, as wheat and turnips. Some get their supplies largely from the air, as the various legumes, and some draw heavily from the subsoil, as various kinds of trees. The difficulty of manuring the subsoil is very great compared with that of manuring the surface soil, hence long years should generally transpire after one crop of old orchard fruit trees is removed before another crop of the same is planted.

The nature of the fertilizer has much to do with the sequence of rotation, since some fertilizers are quick in their action and others are the reverse. When barnyard manures are applied, some are in condensed forms, and therefore tend more directly to feed the plant, others are more bulky and therefore exercise a greater effect on the mechanical condition of the land. The way in which humus is conveyed to the land has an important influence on the question in hand, as it so much affects the mechanical condition of the soil, not to speak of its chemical influences. Because of this it is doubtful if some rotations can be successfully maintained without applying humus frequently in the form of inverted soil surfaces.

From the above it is apparent that no cast iron rules can be laid down which will govern rotation. The frequency with which any crop may be grown must be determined by reference to the conditions named. It may be possible in some instances to grow one crop every second year for a long term of years; in others the same crop should not be again repeated in an ordinary lifetime.

The affirmation, however, that there are some crops which should never be grown twice upon the same soil, is not well founded, for such are the restorative powers of nature that she can in time restore to soils the fertility of which they have been robbed by an imprudent cultivation. Nature may take a very long time to accomplish this, but she will succeed in the end.

The farmer, then, must draw largely from his own experience and that of his neighbours in regard to the form of rotation which he will adopt. He must not, however, ignore the conclusions already established by abundance of concurrent testimony. To grow an apple orchard on the same piece of ground in immediate sequence from which an old orchard had been removed would be at once a costly and a foolish experiment. This is but one of the facts regarding rotation which is established and of general applica-

tion. Another is the fact that a hoed crop being a cleaning crop, should be followed where possible by a grass crop. And yet another—oats being a grass feeding crop may fitly come last in the rotation before the renovation period.

The question of sequence of rotation is worthy of the most careful study. Where agriculture is advanced the farmers will have learned much regarding it which they have embodied in their practice, but they do well to remember that in this, as in other things relating to their most wonderful calling, there are depths to fathom and heights to scale in advance of present practices. The sequence of rotation practised is one of the most important tests of the status of agriculture in any community.

Flax Culture.

If there is any one thing more remarkable than another about the soil of Ontario, it is its wonderful adaptability. The variety of crops which we can grow is very remarkable. Although we may not have the best climate for flax in the world, we can grow it without difficulty, and in some sections of the Province it is now engaging the attention of quite a number of the farmers. Where much attention is given to its culture it is absolutely necessary that flax mills should be at hand to take care of the straw. One of the difficulties of growing flax is the very large amount of labor required in harvesting, as the straw is not nearly so valuable when not pulled by hand, since it requires to be kept straight and unbroken. The binder does not get low enough to secure all the value that may be obtained from the straw when pulled by hand.

Flax requires a good rich soil, and should not come oftener than once in five years in the rotation, as its growth tends quickly to the exhaustion of land. Where the soil is not naturally rich it must be highly manured to obtain good results. Where barn-yard manure is lacking, some quick acting fertilizer will answer the purpose very well. Where a good crop of flax can be grown, and in a section of country near to a fibre factory which will buy the straw, the farming of flax is quite profitable, as there is a double return, one from the straw and a second from the seed.

The best kind of flax to grow in this country is yet an unsettled point, but some of the American experiment stations have taken up this point and will no doubt soon give us light on this important subject. There are many varieties, the flowers of which are blue, white, or yellow. In many sections of this Province, flax will grow in fine form. At present its growth is mostly confined to German settlements, where the patient industry of the people is equal to the task of harvesting and curing properly. The flax industry is a very important one in its relation to stock keeping. Oil-cake is so useful a feeding adjunct that the stockman cannot well do without it, and the more plentifully and cheaply that he can purchase it the better he is likely to succeed in his calling. The stockman may, however, adopt another mode of getting what is the equivalent of oil-cake in a very cheap form. He may sow a pint or more per acre along with oats or barley which are to be fed at home. The flax thus grown is nicely mixed with the grain, for it ripens about the same time, and there is enough of it to fulfil all the conditions and secure all the results obtained from oil-cake. The quantity in the oats or barley is not sufficient to interfere with the grinding, even where this may be done at home. Where the straw is only used for bedding there can be no objection to this method. The equivalent of

oil-cake is thus obtained without apparently any cost, as there will be none the less barley or oats because of the growing of the flax. Where it is cut and used for feed, however, the stalks of the flax are objectionable, owing to their woody nature. When fed without being cut they do not impair the quality of the straw for fodder, as the animals simply leave the flax portion uneaten.

We are pleased to notice that this industry is making progress. An agricultural country is always more prosperous when its interests are varied, for then it does not suffer so much from adverse seasons and vicissitudes of marketing. Every farmer should use more or less of flax or oil-cake, as owing to its gently laxative properties and to the oil which it contains, it is greatly beneficial to the digestive organs, and it gives tone to the system, which shows good results externally in a fine coat.

Woodlands and Pastures.

It is as yet an undetermined point as to where the border-line runs between a woodland and a park-like pasture. It has been repeatedly asserted by those who ought to know that a woodland should not be pastured, and yet the term woodland may be construed to mean anything from a dense forest to a piece of land thinly covered with trees, or clumps of trees, beneath which and between which grass may be growing.

Now, while it is good policy to keep live stock fenced out of timber-land sufficiently dense to prevent the growth of grass, we fail to see the wisdom of not allowing them to feed in shady pastures such as those referred to above. It will be objected that where stock are allowed to graze they will prevent the reforesting of the bare portions by continually cropping the young seedling trees as they appear. But it should be remembered that such trees do not readily grow where a sod has once been formed. The time would come, probably, when such lands would reforest themselves, but the process would be slow. Here and there a tree would appear at first, and these, by their shade, would in time encourage the growth of other trees. Good soils are, however, far too valuable to be devoted to such uses. By such a process of reforesting one would have to wait long years for any return, and when the end had been accomplished the returns might be disappointing, owing to the kinds of timber which would grow. In some instances the timbers that would appear would largely consist of iron-wood, and in others of some of the poplars. A forest consisting mainly of poplar or iron-wood, and indeed of some other woods that may be named, is a possession which need not be much coveted.

Where reforesting is to be done, it can best be done by the aid of man. The kinds may then be grown which are valuable, and with a regularity which could not be obtained in the other case. By cultivation, where this is admissible, early growth would be hastened and a sufficient number of trees could be grown to admit of thinning them, when ready, to be utilized in various ways.

Where grass has already covered the principal portions of the woodland, it would not be wise, as we see it, to exclude the presence of cattle. While it is true that grasses grown in the shade are less nutritious than those grown in the open, it is also true that this lack of nutritive properties is counterbalanced in part at least, by the advantages afforded by shade. It would be better, then, rather to reduce the amount of the shade and thus improve the pastures, than to try and establish a forest by excluding the cattle. There are

always many trees in such places which are unhealthy and unsightly, and yet others of varieties of but little value. By removing these, the grass would be improved and also the appearance of the plot. Indeed such places may be made objects of utility as well as beauty. By giving some attention to the removal of unsightly trees, and such as are of but little use, a park-like appearance may be given to the place which would render it more or less beautiful according to the nature of the surface and the kinds of trees growing upon it. Care should be taken to leave the most beautiful and the most vigorous of the trees, especially those that are young, and yet sufficiently large to protect themselves from the depredations of live stock. The thinning process may be done at seasons of the year when other work is not pressing.

Every farm should have such a park-like pasture. There are seasons of the year when such a protection to live stock is of much value, and this is one of the cheapest and most rational modes of securing it. Other fields might be so related to this one, that access could be had to it at any time. A little attention to this matter would beautify the country more than can be said, and would also benefit the farmer.

Cleaning Land by Means of the Bare Fallow.

One of the most common modes of cleaning land is by the use of the bare fallow. Its prevalence is almost universal, and so deeply rooted has this practice become in the minds of most farmers that they look upon it as the one mode to be adopted in cleaning land, where the work is to be effectively done.

That this system of cleaning lands must change in most localities, is a foregone conclusion. Other modes are being introduced which are quite as effective as the bare fallow, and not nearly so expensive, all things considered.

The labor of the bare fallow is not usually taken into account by the farmer, as it is done without any extra hiring. For this reason its expensiveness is not so apparent. If the labor had all to be hired for the express purpose, it would be found that thorough summer-fallowing could not be done at a less average cost than \$10 per acre. Add to this the loss of an average crop, less the expense of graining it, and we have the total cost of bare fallow. Our contention is, that in sections where corn, field roots, and rape, will grow well, the bare fallow is unnecessary, as the cleaning of the land can be done quite as effectively by growing these crops properly, as by the use of the bare fallow. That, generally speaking, as now grown, these crops do not clean the land thoroughly is true, but this arises rather from imperfect work than from any inherent defect in the system. The crops we have named are usually cultivated well until harvest time, when all further attention ceases. Weeds that have escaped the hoe are then allowed to ripen, and thistles which again make their appearance are left uncut. Thus it is for the lack of attention in the latter stages of growth, that thoroughness of cleaning, which would otherwise result, fails to be secured. There is one class of soils, however, on which these cleaning crops will not grow. It may be necessary, therefore, in cleaning these to adopt the bare fallow in one of its forms. But even in this it is not necessary to lose a crop by the operation.

Good lands may be pastured until the middle of June. They may then be ploughed deeply and carefully. A skimmer should be used on the plow. They are then kept clean by cultivating on the surface sufficiently often to destroy all weeds that may appear.

The object of cleaning is thus effectively secured, and the land is also brought into the best possible condition for sowing winter wheat upon it. The labor of caring for a bare fallow after this fashion is much less than when the land is ploughed three or four times, as is usually the case.

It is argued by some that better crops are secured after the bare fallow, and this compensates for the extra labor. That better crops are sometimes realized is certainly true, but this arises from the fact that usually a liberal application of manure is put upon the bare fallow. Summer-fallowing in itself adds little or nothing to the land. It does not add anything unless it can be proved that it facilitates the fixation of free nitrogen. On the other hand it takes something away in some seasons. In time of heavy rain there is surface washing, or where this does not occur through the porosity of the subsoil, there is washing of nitrates through excessive filtration owing to the absence of outlets to feed upon these, and thus resist their escape. There can be no doubt, however, but that the bare fallow through weathering does tend to unlock inert matters in the soil and render them available, but this is equally true, or nearly so, in growing corn, roots, and rape. This unlocking of inert food, however, adds nothing, of course, to the fertility of the soil. On the other hand the crops above named, although they draw upon the fertility of the soil, they also give back much to its surface fertility by the stores deposited in the decay of rootlets. In the case of rape which is fed upon the soil, more is given back to it than is fed upon it, and where any of these crops is fed upon the farm, the surface fertility of the farm is increased by the amount of plant food drawn from the air and the subsoil, less the waste that may arise in the handling of the material product resulting from these.

Our conclusions therefore are :

1. That the bare fallow as generally conducted, that is with those on four ploughings, as many rollings, and twice as many harrowings, with the loss of one year's crop, is an unnecessarily expensive process.
2. That it adds nothing to the fertility of the land but, on the other hand, detracts from it.
3. That clearing the land can be done effectively without resorting to it.
4. That it should therefore not be practised unless in cases of emergency, or when other modes of cleaning the land cannot be adopted.

The Hydraulic Ram.

Nature is very lavish in the provision she has made for those who till the soil in several of the provinces of the Dominion. Were our farmers all alive to the wisdom of taking advantage of natural assistants, our country would be even more prosperous and happy than it is. Ours is a land of springs and brooks and streams,—conditions of immense value in a land extensively devoted to stock-growing.

We usually build our dwellings with the out-buildings adjacent on elevated spots, and we do so usually for sanitary considerations, the reasons for which are certainly commendable. But this necessitates the obtaining of water supplies by means of wells or cisterns sunk in such elevations, and which must be laboriously pumped up by hand, or by means of wind-power. The brook may be running in the valley not one hundred yards away with its unfailing supplies; but as things usually are, our flocks and herds are required to go down into the valley and obtain their own supplies. This is no great hardship in summer, but in winter it is different.

Now, the supply of water for all the stock, and also for house use may be brought just where it is wanted, if a fall of a few feet can be obtained in the bed of the stream or below the outlet of a spring, by means of what is termed a hydraulic ram. Several of these are now in use but many more might be in operation if their worth were known.

For every foot of fall that is secured in the stream water may be sent to almost any reasonable distance, and to an elevation ten feet higher than the position of the ram. Where there is a fall of ten feet in the bed of the stream, water can therefore be elevated to the height of one-hundred feet, and it may be sent across one or more farms where this is desired. When the water is thus elevated, the outflow or discharge will be uniform and continuous as long as the ram itself lasts, which may be for nearly a generation.

Where the discharge takes place, which is usually in a tank or trough about the out-buildings, the overflow of the water may be conducted by means of pipes, or otherwise, to fields on any lower level, as may be desired.

The first cost of the ram need not be very much. It will of course be in proportion to its size and to the distance to which the water is to be conveyed. The latter item of expenditure will depend on the size of the pipes used and the difficulty of laying them. Some use pipes as small as $\frac{3}{8}$ of an inch in diameter inside, or perhaps even a less size than this. The cost of the ram itself will vary from, say, \$10 to \$100. If those manufacturing them in Canada would let themselves be heard from, we might inform our readers where these rams can be obtained; but until they do this, their very useful productions will to a large extent be allowed to remain in the workshop.

The principle upon which the hydraulic ram works is that of the force produced by the movement of running water, which it is not our purpose to dwell upon here. Let it suffice to say that, when once in operation, it does its work incessantly throughout the entire year. It thus furnishes an unfailing supply of water regardless of the wind or weather, and without any other outlay than that of the first cost.

First Principles of Agriculture.

THE NEW AGRICULTURAL TEXT-BOOK.

This concise, practical, and comprehensive work, will, we venture to say, mark an important era in the history of agricultural education in Canada. The authors, President Mills and Professor Shaw of the Ontario Agricultural College, in clear language and in pleasing style, cover the whole vast subject of agriculture and live stock husbandry in such a way that all may harken to and profit by the many messages they have for their readers. The book from cover to cover is full of earnest and impressive teaching, and the reader in assimilating the thoughts of the writers cannot but feel that the authors were determined to do the wide subject they had before them full and complete justice, and at the same time treat of it as concisely, practically, and clearly as the scope of the work would permit.

In harmony with the self-evident views of the authors as to the nature and scope of the work, the publishers, The J. E. Bryant Co. (Limited), have issued the book in serviceable form, beautifully illustrated and printed, and at a price that is well within the purchasing power of anyone. The work, from every point of view, is one of great credit to both authors and publishers, and we feel sure that it supplies a want that has long existed in rural communities.

In our next number we shall thoroughly review the contents of the work. For the present, with the kind permission of the publishers, we extract from the book a chapter on Dairying which our readers will find to be of special merit.

A Pleasant Visit.

During the second week of October, the Ontario Agricultural College was visited and inspected by a party of prominent American gentlemen from Wisconsin, including Prof. W. A. Henry, Director of Wisconsin Agricultural Experiment Station, Mr. Charles R. Beach, a leading dairyman of that state and a member of the Board of Regents of Wisconsin University, and Mr. John M. True, also a member of the University Board of Regents, and an extensive breeder and importer of Percheron horses. The visitors, after a thorough inspection of the College, farm, and live stock, expressed themselves as being impressed with the excellent equipment of the College and the high and clean state of cultivation of the farm. They were particularly pleased to observe that the institution as a whole was enthusiastically devoted to agriculture and stock husbandry; these being honored above all others and not, as in many American colleges, made minor departments. The herds and flocks were complimented freely. It certainly adds greatly to the credit of the authorities of the college to receive such eulogiums from gentlemen closely connected with the agriculture of such a progressive state as that of Wisconsin. The party, further added to by President Mills, Prof. Shaw, and the Editor, visited a few of the stock farms in the immediate vicinity. Mr. Henry Arkell's well-known flock of Oxfords were much admired for their uniformity and scale. The drafted ewes in particular reflected their shepherd's skill, as they were a surprisingly even collection of typical Oxfords, with the weight, form, and quality which that implies. The stock ram at present being used by Mr. Arkell is remarkably smooth and snug in form, with a fleece of first-class quality. A hurried inspection was also given to the Woodland stud, of which Messrs. D. and O. Sorby are the proprietors. Bold Boy, Craigievar, and other crack members of this stud, not omitting the time and premium honored Boydston Boy, were passed in review and were all subjects of flattering comment. The Shropshire flock of Mr. Phin, of Hespeler, completed the series of inspections. This flock is a strong one, not only in breeding ewes, but especially so in lambs and shearlings. Owing to the fact that Mr. Phin is forced on account of illhealth to restrict his farming operations, a sale is to be held this coming winter, to lessen the numbers of this excellent flock.

Comments on Canadian Methods.

To see ourselves as others see us is always interesting, and usually acts as an incentive to future improvement. Professor W. R. Lazenby, of Ohio University, in his sojourn in Canada, as Secretary of the American Association for the Advancement of Science, made good use of his note book, and has lately given the results of his observations to the *Country Gentleman* in an interesting article on "A Trip across Canada." We take from the article, treating principally of the country between Hamilton and Toronto, the following comments which are strikingly accurate for such a cursory examination of our husbandry:

Mixed husbandry seems to be practiced by nearly all the Canadian farmers, and the tendency to specialize is by no means so common as it is in the United States. Wheat and oats appear to be staple grain products. Some corn is cultivated, but as far as I have seen, the crop is a poor one. On many farms no corn is grown. Oats, mangold wurtzels and rutabaga turnips appear to take its place. Barley is quite generally grown, although the acreage is much less than that devoted to oats. The land from Niagara Falls westward to Hamilton is quite level, and appears to be generally well drained and fertile. In fact, the general farm management does not materially differ from that of Western New York. Most of the farm buildings have an old look. The houses are, for the most part, substantial brick structures and have a decidedly home-like appearance. They are usually embowered or belted with stately trees, and this, together with the adjacent fruit garden or orchard, gives an air of comfort and thrift—too often wanting on the farms of our Western States.

There is one universal practice in farming here that to an Ohio farmer seems entirely uncalled for. I refer to plowing in narrow lands. This is everywhere practiced, even where the land is high and well-drained. To see dry, rolling, well-drained ground plowed in lands of eight, ten or twelve feet in width, looks like a mistake. It is not a natural method of preparing a seed-bed. Although the furrows are not deep, very little grows therein, and the inconvenience of cultivation and harvesting the crop is considerably increased. The custom seems to be a remnant of the old English practice, which a wet soil and moist climate rendered necessary. One can hardly account for its persistent practice where these conditions are not found. It is self-evident that a soil so plowed will not stand drouth as well as one where the surface is more nearly level, and if the land is even slightly rolling the liability of the soil to wash is greatly increased. Old ways and old methods, simply because they are old, are not always the best ways and methods in farming.

For The CANADIAN LIVE STOCK AND FARM JOURNAL:

Manitoba Matters.

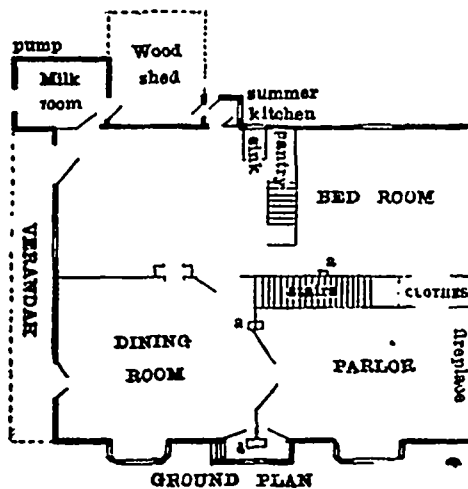
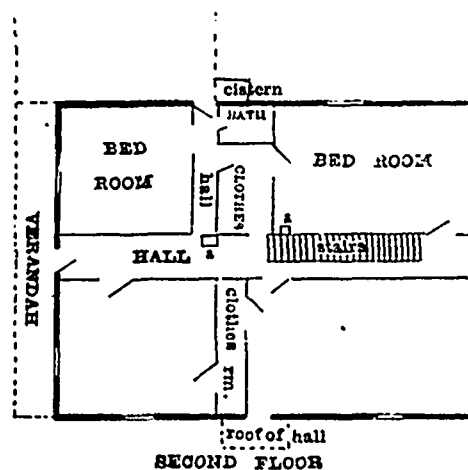
THE SEASON AND ITS SHOWS.
(From Our Own Correspondent.)

This season has taken a new departure. In some parts, with a subsoil that has not been once soaked for four or five years, it began to rain about the middle of June, and in a month six inches of rain had fallen. This was the case at Indian Head, for example, and many parts of Manitou. But right up the centre from Manitoba to Lake Manitoba it scarcely rained till the second week in July, and in consequence much of the crop was light. In the middle of August we had streaks of frost all over, and on the 8th of September a storm of thunder, wind, and rain rarely equalled. Then more nice weather broken by rain, followed by such fine weather for a spell that everyone with help enough got all their grain stacked, and some threshed. Then in the middle of October a heavy fall of wet snow, enough to fill all the sloughs and replenish the springs and soak the earth as has not been the case since 1884. But we have a huge task before us still, and threshing enough to last until long past the new year, with ordinary good weather. If broken weather continues as it is at the date of this writing (October 15th), then threshing must to a considerable extent be deferred until spring. The scarcity of harvest labor has made wages high, and I hear, ordinary hands on the threshing gangs speak of \$35 a month with board as an ordinary figure. But when the land and part of the stacks are thoroughly soaked as they are just now, the workmen get discouraged and leave as the cold weather gets more confirmed. There is a strong likelihood of much grain having to stand over till March for threshing. We had a few car loads of harvest hands from Ontario, but what are they alongside the great areas of wheat and oats, that a man and a boy can sow, and, by working extra horses, cut with a binder?

The yield was cut down in many places by hot winds that devoured one-third of the promised yield on the Dakota side, and shrunk it a good deal here. Nearly all of it is blacked, and we may sum up by saying that we have the largest area, the largest number of bushels, and the lowest average grade yet seen here. There is money in it to a great many, a living to more, and to others, where hail struck, sad discouragement. I saw one man who was offered 85 cents for his whole wheat crop. He is all right. Oats are a good crop, sometimes over 80 bushels an acre. For pasture, garden and field green crops, the reports everywhere are the same, and the choice exhibits at every show, big and little, confirm the report. Let me mention some of our crack exhibits, a good many of which I have handled. I give the weights dressed for competition. Cauliflowers 10 to 15 lbs. Think of a cauliflower 40 inches round, and 23 inches over the crown, in good form; such a one was shown at Portage la Prairie the other day. Winingstadt cabbage, tender and perfect, 17 lbs.; turnips up to 27 lbs.; potatoes by the bushel up to 2 lbs., and we propose to put down at an eastern banquet to the Institute men, potatoes, not one weighing less than 2½ lbs. Onions 22 oz., and citrons up to 17 lbs.

By the way, a fruit merchant shipped from the east the other day in a car of apples for Portage la Prairie, 2 casks of citrons, as a pleasant surprise. They were not worth the cost of hauling up.

Everybody was so busy in good weather that not half the men could get to the shows, and some of the best, such as Portage and Neepawa, have been drowned out with rain and slush and have been dead failures. Virden had a good day, and they had more than half a dozen Shorthorn exhibitors, with two of the best aged bulls in Manitoba, all Scotch Shorthorns of course. There were over 30 mares with their foals inside the ring for the general purpose class, and the same feature comes up more or less at every show. We hope in a few years to raise all the horse-flesh we need, and the quality of the young things shows the benefit of a first-class sire. In fact good horses are too much run upon to give them a fair chance of permanent usefulness, and of turning out of the best class of colts.



A COMFORTABLE COUNTRY HOME.
See article "Comfort in Country Homes."

Besides our own fairs, I have made a run through the State fairs of Iowa and Minnesota. The French sorts of horses are in great favor apparently down there, judging from the efforts of the dealers in that direction, and they certainly do bring in some French sires of very choice quality. But the Clydes, though not numerous, are the only draughts they favor with a separate classification, and the best they show come in through Canada, such as McClaskie, the first prize at last year's Toronto show. The Scotch Shorthorns are equal favorites with Scotch horses. Cupbearer at the top of the list all along, though he has since had to lower his colors at Peoria to a younger and even better Cruikshank bull. Iowa is a great beef-growing state, and three out of four prizes for herds went to Shorthorns. All these prizes went out of the state to professional showmen, who make the circuit of the fairs there with specially prepared herds. Is this the best way to encourage good breeding and feeding in a state or province? Minnesota, with some wide open competitions, also offers prizes for the best herds owned within the state, which to me, seems more

beneficial than the Iowa plan. Let me say here that every one of these fairs would become bankrupt but for the attractions offered by the race track. The dealers and the fast horses are the mainstay of every American fair. Fruit men are in the North-Western states the most progressive and enthusiastic. Next, perhaps, the dairy men, the actual farmers at the tail of the procession. Fancy, five bushels of wheat set down to compete for all the prize money offered by Minnesota, the greatest wheat-growing state of the Union. Looking to the whole case, I think we Manitobians have good reason to pride ourselves both for the attractions we have out of our fairs, and the exhibits we can make, though the hall may be only a log school-house or a tent hired for the day. I am sometimes, perhaps, too candid when telling what I believe to be the truth about the unpleasant side of life here, and therefore you may believe me when I say that the best farmers as a rule to be found in these states are, many of them, Canadians, and that the Canadian North-West, with its mixture of half a dozen nationalities, will not be lost for want of good men.

For The CANADIAN LIVE STOCK AND FARM JOURNAL:

Comfort in Country Homes.

By MISS MARY E. MILLAR.

Before building a house, there are many things to be considered besides the where-with-all; and while the men have all their thoughts employed in the collecting of materials, the women have time to think out plans regarding the style of house and the furnishing of it. Therefore, "steep your plans one year with an equal amount of sisterly advice, and then strain all through a pencil and paper sieve, called 'calculation,' to regulate size and quality."

I know one well-to-do farmer who built a beautiful house in a miserable, low, dull place, when just across the road on the same farm was as fine a building site as any person could wish. Of course when the house went there the barns must follow—all in a mud-hole—just for want of thought. He never saw his mistake until his wife pointed it out to him 30 years later; she saw it all the while, but had no voice or vote in the matter.

In selecting a building site, choose the best spot on your best road, not too much isolated from neighbors; if possible, facing the south on a rise of ground, say about 10 yards from the road, to allow for a nice lawn in front. This latter will add 10 per cent. to the value of the homestead, and besides, appearances add more to our comfort than we often give them credit for. As an instance, why does Farmer Thrifty whistle a tune as he drives his team up the neat, shady lane, past the well-kept garden and yards, to the barn, after a hard day's work, while his neighbor, Peter Tumbledown, comes sweltering home through the heat with a frown on his face, and instead of a song, a vain wish that he had as fine a place as his neighbor?

See that the soil is such as to allow having a good garden and orchard near the house; that the possible water supply is excellent; that the barns can be placed near by, and yet be convenient for the storing of crops from all over the farm, and then build them on that side of the house where they will be most easily protected from fire, and be least offensive.

The plan of a house requires as much thought as the site and is often inconvenient for the same reason—want of knowledge of a better way. Most people favor the idea of having a small house with a wing, but a plain old-fashioned house can be made pretty and not too barn-like in appearance, by the addition of modern-shaped projecting windows, porch, and a double verandah.

An eight-roomed house would satisfy most house-keepers, but whatever else, be sure it is conveniently arranged, about the kitchen especially. Never, never build a farm house without putting in a good-sized cistern upstairs. It will prove your greatest comfort. In times past we have considered ourselves fortunate in having a good cellar cistern with a pump which half the time requires priming; but a cistern upstairs, with hot and cold water on two flats, and a bathroom! This reminds us of the millenium. These, with the proper arrangement of good and well-laid drain pipes, will give us almost all the advantages of city water works.

The excellence of this plan lies in its convenience in every detail. There are three things in a house I long for—a garret, a cistern upstairs, and a furnace in the cellar, besides the one hundred and one little contrivances that add so much to the saving of labor. Do not begrudge the time and thought necessary to make a comfortable home, for it will add more to real happiness than twice its actual value otherwise invested or uninvested could possibly do.

Questions and Answers.

If there is any subject bearing upon this or any other department of our JOURNAL upon which you desire information, write us, and we shall be pleased to intrust your query to competent persons and publish the answer thereto in our earliest issue, and if an immediate answer is required, such will be gladly given if a postage stamp is enclosed. Write the queries on paper detached from all matters of business, sign your full name and address as a guarantee of good faith, and write only on one side of the sheet. We request the assistance of our readers in making this a useful and interesting feature, and we shall always be pleased to hear from any, either desiring information or obliging enough to give it for others, upon any topic within our field.

Roup in Turkeys.—F. A. F., Wardsville: What remedy would you recommend for roup in turkeys? [The principal causes of roup are dampness and bad ventilation in the house. It is advisable to wash the nostrils with carbolic soap, and after that to inject two or three drops of kerosene or of turpentine into each daily. Keep the infected fowl dry and warm. It has also been found a good remedy to give five grains of bromide in milk, and also in bad cases one drop of Fowler's Solution. The throat and mouth also should be washed with kerosene. In all cases, as the disease is contagious, separate the unaffected fowl from the rest of the flock, feed them finely cut fresh meat mixed with bread moistened with sweet milk, and seasoned with pepper. Use lime and ashes freely in the house. It will be found beneficial also to give them twice a week charcoal and sulphur in their soft feed, and a few drops of copperas in their drinking water.]

Corn for Ensilage. J. D. S., Charlottetown, P. E. I.: Kindly inform me (1) what preparation of the soil would be necessary this fall for a crop of corn for ensilage next year? What is the best crop to have the corn follow? (2) How may it best be put into the silo? (3) What quantity should be put in at once? How long between the fillings? (4) What is the best length to cut the corn when putting it into the silo? [The above questions were answered in effect by letter as follows: The best results will be obtained by sowing the corn on a clover sod, well manured this fall with barnyard manure and ploughed under next spring. Almost equally good is the plan of sowing in the fall a piece of rye which can be cut as green fodder in early spring, let grow and then ploughed under shortly before the time arrives for sowing the corn. (2) Use any ordinary carrier that may be obtained with the cutting box. (3) It is not necessary to delay in filling, but go right ahead in the work, suiting your own convenience. (4) Two inches is the best length to cut the corn. It may be said that heavy applications of farm yard manure is one of the most effective means of securing a heavy crop of corn.]

Keeping Seed Corn.—J. E. Richards, Creek-Side Farm, Ont.—Can you kindly inform me through your paper the best way to keep corn through the winter? If it dries hard will that hurt it for feeding purposes? [Corn may be preserved in various ways for seed. The simplest method is to throw aside the most suitable ears for seed when husking in the field. These may then be gathered by themselves and stored away in a separate portion of the corn-crib. If the husking is done before bad weather, and if the ears chosen have no mould upon them and are well ripened, and hard and dry, the seed will thus keep with perfect safety, and will suffer no other harm than that which comes from birds or wild animals. If extra choice seed is wanted, the ears should be broken from the stalks and only a portion of the husk removed. With the portion thus left adhering, the ears may be plaited together and hung up, festoon fashion, along a dry wall or suspended in clusters from a ceiling, where there is no danger of injury from rats and mice or other depredators. The former method is the simpler, and it will answer the purpose perfectly well. There is no danger of corn taking any injury from getting overdry through heat from any purely natural source.]

JOHN McLAREN, of Clearville, Ont., writes: "I have been taking your JOURNAL since it first started and think it a valuable paper for the farmer."

"THE LIVE STOCK JOURNAL is the best paper I have seen on live stock. I only wish more of the people round here took it, as they are a long way behind in everything concerning farming."—WM. THURLWALL, Kentville, N. S.

Around the Counsel Table.

Where no counsel is the people fall; but in the multitude of counsellors there is safety.

Spontaneous Combustion.

1. To what extent do you consider that spontaneous combustion would account for the many cases of fire occurring in farm buildings that are commonly credited to unknown causes.

2. What are the essential conditions for the occurrence of spontaneous combustion?

3. Kindly state fully the precautions you would advise farmers to take to prevent its occurrence?

Damp Hay or Grain in Sheaves Often the Cause.

1. Very small, not over 3 per cent.
2. In farm barns it must be due to damp hay or more likely straw or grain in the bundle.

3. My experience as Secretary and Adjuster for twelve years of the Ohio Grangers Insurance Co., leads me to believe that the overvaluation of under-
valued farm buildings by insurance agents is the main cause of fire from unknown causes. No sympathy for insurance companies is due to them, for all of them charge rates sufficient to cover their purchases of farm property in this manner. Honest men suffer, however, because of this necessary increase of cost of insurance. I reported a case of loss on August 22nd, 1890, of Mr. S. B. Perry's barn, in Jefferson, O., a note of which appeared in your Journal. It was the result of putting damp wheat in the mow two days after cutting. I also knew of another case exactly the same in Portage Co., Ohio, some forty years ago.

HENRY TALCOTT.

Ohio, U.S.A.

Quicklime not an Infrequent Cause—Use Salt on Moist Hay—Mix the Manures.

Combustion, as it is ordinarily known and recognized, is the chemical combination of combustible matter with the oxygen of the air, the union of the two being accompanied by the giving out of heat and light. When the union takes place rapidly, the heat evolved is intense, but when slowly, the heat produced may be almost imperceptible though the sum total of the heat produced may be the same in both cases. Combustion may therefore occur without the phenomenon of flame—as flame is really burning gas, which for its generation from ordinary combustible material and ignition requires a somewhat intense heat. The heat of our bodies is maintained by a process of slow combustion, i.e., evolution of heat unaccompanied by flame, by the union of the organic matter of our food with the oxygen of the air we breathe.

Spontaneous combustion (or ignition of inflammable material without contact with flame) occurs when the union of the oxygen (oxidation) is sufficiently rapid to raise the temperature to the ignition or burning point of the inflammable substance. The first great requisite of combustion is air or rather the oxygen of the air. Woollen and cotton rags saturated with oil are capable of absorbing oxygen rapidly, and in consequence of which have their temperature raised to the ignition point—a comparatively low temperature for such material. Very many well-known and authenticated instances are on record of this character as causing fire in the holds of vessels and in manufactories. Dust, formed by the deposition of organic matter in an exceedingly fine state of division, often causes in like manner fires in woollen and grist mills.

The spontaneous fires which break out in hay-stacks, barns, manure piles, etc., are all due to this same process of oxidation, and are caused by the inflammable material being damp moisture greatly assisting slow combustion. Fermentation may be considered as one of the many forms of combustion. It is a process in which the decomposition of the material is brought about by bacteria—microscopic plants always present in the air—whose development requires moisture and warmth. By their growth more heat is generated, until that point is reached at

which the material upon which they feed takes fire. Fermentation is the principal agent in causing spontaneous ignition in barns, outhouses, etc.

There are other causes besides those given above for spontaneous combustion. A not infrequent one is the slaking of lime. Two instances have come under my notice in which barrels of quicklime, left uncovered in a leaky building, have become slaked by the rain, the heat generated by the operation of slaking—really a chemical combination of the lime with the water—being sufficient to ignite the surrounding woodwork. The prevention in such cases as these it is not necessary to enlarge upon. As to those instances in barns, etc., in which the fire is caused by damp hay or clover, I would say, if possible, do not store it damp, and see that the roof is water-tight or the stack well thatched. If, however, circumstances necessitate the putting away of the hay moist, salt is well. Salt is a preventative of fermentation, and consequently of heat. If, in spite of these precautionary measures, heat begins to generate in the mow, ventilation should be resorted to, so that the heat as it is developed may be carried off and not allowed to accumulate or become so intense as to raise the hay to its burning temperature. In the case of manure piles, it is a wise practice to mix together in the heap the horse and cow dung. Horse manure ferments and heats more readily and rapidly than cow dung. The mixing of the two prevents the former from becoming fire-fanged, which means, to a large extent, depreciation in value, and at the same time a fermentation is set up in the colder cow dung which renders its fertilizing constituents more available for plants.

With regard to your question respecting the frequent fires "commonly credited to unknown causes," it is quite possible that many of these are true cases of spontaneous combustion; yet undoubtedly some are occasioned by the smouldering embers from the pipe of the farmer, his hired man, or the tramp, or are due to the carelessness in the use of unprotected lights, or caused by the viciousness of incendiaries. Without data, it is impossible to state what percentage of fires are due to these respective causes.

FRANK T. SHUTT, M.A., F.I.C., F.C.S.
Chemist Dom. Experimental Farms.

Storing Green Clover in Large Quantities Often the Cause—Cure Hay Thoroughly Before Storing—Use Tight Bays.

1. I believe that a large proportion of the fires attributed to spontaneous combustion are started in some other way. Many of them are undoubtedly due to incendiaries, to smoking around barns, and to the careless use of matches. Matches are often carried loose in the pocket, and are liable to be scattered in the hay mow or on stable floors, where they may be ignited by being stepped upon or perhaps by mice. Fires started in this way may smoulder for a long time before breaking out. In such cases there is no apparent cause for the fire, and the natural explanation is that it is due to spontaneous combustion.

2. The essential conditions for the occurrence of spontaneous combustion are the presence of a substance having a strong affinity for oxygen, and access of air. These conditions are supplied when cotton waste or rags that are saturated with a drying oil, like linseed oil, are exposed in considerable quantity to the air. Under such conditions, the oil rapidly absorbs oxygen from the atmosphere and develops considerable heat, which, on account of the slow radiation from the mass of rags, soon reaches a point where combustion takes place. It is possible that under some conditions the fermentation of hay in bays and stacks may be favorable to a slow oxidation of the same nature as that which occurs with oily rags, and that the heat may be sufficient to ignite the hay. Nearly all of the fires attributed to spontaneous combustion, to which my attention has been called, occurred in bays or stacks in which large quantities of green clover had been stored. I have seen samples of clover taken from such bays that appeared to be perfectly charred. It would have required a much greater heat to have produced this effect than could have been generated by simple fermentation, as the organisms which cause fermentation would have been destroyed long before sufficient heat had been developed to char the clover. It is probable that the heat of fermentation greatly favors direct oxidation, and that radiation being slow

in a mass of hay, the heat may increase until it is sufficient to char it. When this point is reached a more rapid supply of air to the heated mass through uneven settling of the hay, or by removing a part of it, would undoubtedly have ignited the hay. We hear of no cases of spontaneous combustion in hay that was dry when stored in the barn, nor does it occur when green clover or other green forage is placed in the silo. In the first case there is not sufficient heat developed by fermentation to cause rapid oxidation, and in the second case access of air is prevented by the tight walls of the silo, so that oxidation cannot take place.

3. This suggests two ways of prevention, viz., to cure hay better before putting it into the barn, or to store it in tight bays, where the air cannot have free access to the sides of the hay. The latter method, I think, is to be preferred, as it will undoubtedly furnish a better quality of fodder than the first.

S. M. BARCOCK.

Chemist, Wisconsin Agricultural Experimental Station.

The Dairy.

Soapy Flavor of Butter.

This peculiar and disagreeable flavor of some butter has more or less frequently forced itself upon the attention of all makers and dealers. Various suppositions have been advanced to account for it, but the latest comes from a New York trade journal, that has noticed that of recent years it is becoming more common. They state that investigating closely into the subject, it is found that the acids properly developed in the milk or cream act as a preserving influence upon the atoms of butter, and are assisted greatly by the chemical action of pure salt to the great advantage of flavor, and the keeping quality of the butter. On the other hand it is found that some of the most beautiful salt is made beautiful by the introduction of chemicals which are the active agents in producing soap and grease. When this taste is noted the trouble may be located in most cases to the salt that is being used.

Butter Manufactured from Cocoanuts.

It is stated on reliable authority, no less than the *London Times*, that manufacturers have succeeded in making good butter from cocoanuts. Factories, we are told, are about to be started at Paris and Amsterdam, and it will sell at 12½ cents per pound. Chemical analysis shows it to contain sixty to seventy per cent. fat, and twenty-three to twenty-five per cent. organic matter, of which ten per cent. is albumen. It is largely used, we understand, in government institutions, for cooking mostly, though it has to a certain extent encroached on the field now covered by the better quality of butter. It is affirmed that it is healthier and preferable for other reasons to bad butter, and that it is taking the place of oleomargarine. There is no reason to believe that it will abate one jot or tittle the demand for good butter. It was thought when oleo entered the market that the old reliable product of the churn would go hunting for a market, but such has not proven to be the case, nor is it at all probable that the coconut butter will supplant in the least that which comes from the cow.

A Poisonous Gas from the Silo.

A short time ago *Hoard's Dairyman* announced the death of Mr. E. M. Bernard through asphyxia, caused by the carbonic acid gas which had accumulated in the unfilled apartment of a silo. Prof. Henry, in a later issue, draws further attention to this danger by citing an incident that occurred at their station. Some years ago, he states, they had occasion to divide a silo into two parts, filling only one. When the work was almost completed they observed that some chickens

had got into the unfilled portion and were dead. A man sent down by ladder to get them became dizzy, and had barely sufficient strength to reach the ladder and get to where he could breathe again. They then learned that the chickens had been killed by the carbonic acid gas which had come through the cracks of the partition and settled into the unoccupied portion. It is well for our readers to remember these incidents. The simplest and best test for the presence of carbonic acid gas in sufficient quantities to produce fatal results, is to lower an uncovered light into the pit which is supposed to contain this poisonous gas. The light will at once go out as soon as it reaches the stratum of air containing enough of this gas to cause death.

Peculiar Qualities of Cotton Seed.

The peculiar qualities of cotton seed and cotton seed meal have been brought out in an elaborate experiment by George W. Curtis, Director of the Texas Agricultural Experiment Station. It was found that when fed in amounts varying from 5 to 15 lbs., according to the appetites of the cows, with hay or ensilage, that it had a noticeable effect in increasing the firmness of the butter, and also in bringing down the amount of milk required to produce a pound of butter as low as 17.25 lbs. The flavor of the butter seemed to suffer a little, but the most prominent effect was in respect to the color, of which the director says: As before stated, cotton seed and cotton seed meal affect the color of butter, rendering the product very much lighter if cotton seed or meal is used. The addition of cotton seed meal or seed to summer ration, with cows on grass or soiling crops, lightens color from one to three or four shades, according to quantity added. In the winter, with cows on dry feed and allowed cotton seed heavily, the butter becomes very much lighter—sometimes almost white. This effect was very strongly shown in the case of a fresh Jersey cow which we placed in the test for exclusive feeding of cotton seed last winter. As is well known, cows fresh in milk yield butter of much higher color than later, although the food remains exactly the same. This cow's calf was about one month old at the time of the test, and the mother had been making butter nicely, even highly, colored for the season, on food with no trace of cotton seed or meal, and dry with exception of ensilage. After two weeks' feeding exclusively on cotton seed, the butter from this cow became almost as white as tallow, and when afterwards taken off cotton seed and fed as above, her product again resumed its normal good color, subject, of course, to natural change due to period of lactation. Whenever we feed heavily with cotton seed or cotton seed meal, we use coloring in greatly increased quantities—more or less, according as the cows are allowed mainly dry food or grass and soiling crops. It has been our experience that the best markets demand a uniform color regardless of season, and this can only be accomplished by the use of artificial coloring matter, a practice so generally and favorably known among commercial dairymen as to need no comment.

Cheese Factories or Creameries.

The degree of profit that may be derived from the establishment of either of these in a district depends mainly on the nature of the husbandry followed, and the character of the land. If the majority of farmers follow mixed husbandry there is no doubt but that the creamery would do best with them, for in the creamery system of management the skim milk is left on the farm to feed the poultry, pigs, and calves. Under the system followed in the management of cheese factories, only a few of the patrons, those that

are close to the factory, can obtain the whey, which to some extent may prove a substitute for the whole milk. In districts where the aspect of the land is rolling, the creamery will be found to give the best satisfaction, owing to the fact that it is much easier to draw the cream to the creamery than it would be to take the whole milk to the factory under such conditions. In districts that are low in fertility, that need feeding to make cultivation profitable, the creamery offers the best means of salvation, for in dairy farming under such conditions fertility is brought to the farm instead of being taken from it. On the other hand, the mainstay of the cheese industry is the greater profit, always certain, that is made by the patrons where the surrounding circumstances are at all suitable. This larger profit, which is always to be relied upon, owing to the steadiness of our cheese markets, sweeps away all other arguments that may be advanced in favor of the creamery compared with the cheese factory.

Cream Raising by Dilution.

To determine whether it is possible or not to cream milk simply by adding either hot or cold water to the fresh milk in deep cans, the Cornell Agricultural Experiment Station carried out a number of experiments. A large number of trials were made in which portions of milk diluted with an equal weight of cold water were compared with portions from the same milkings set in ice water in the Cooley creamer. Trials were also made in which a smaller amount of both warm and cold water was added to the milk. The tables given in the bulletin covering these experiments show that when the milk was diluted with water there was contained in the skim milk nearly nine times as much fat as when the milk was set in the Cooley creamer with ice water, or, in other words, while 95.18 per cent. of the fat in the whole milk was recovered in the cream under the cold deep setting process, but 69.19 per cent. of the fat in the whole milk was recovered in the cream when set in the diluted process. That is, in 100 pounds of milk containing 4.12 lbs. of butter fat under the Cooley process there would be a loss of but .20 lb. of fat, and under the diluting process a loss of 1.27 lbs. They also found that diluting the milk with hot water gave but little better results than diluting with an equal amount of cold water. Moreover, in some cases in which hot water was added, the milk soured, and at the end of twenty-four hours the cream was injured for butter-making. The addition of twenty to fifty per cent. of water gave almost exactly the same results as the addition of 100 per cent. of water. The reader is reminded that this experiment does not at all bear upon the question of adding a small quantity of water to milk to hasten creaming when set in ice at a temperature made low with ice. The same bulletin gives an investigation into the statement that milk peddlers in cities taking the milk from their cans by dippers or faucets give the first customers better milk than they deserve, and the last much poorer. The conclusions in this bulletin are: It would seem, therefore, that where milk is peddled by dipping from the can with an ordinary dipper, and where no stirring is done except by the motion of the waggon and raising the dipper, substantial justice is done all the patrons so far as the amount of fat apportioned to each is concerned. This conclusion seems the more justified as each trial was made on a different milk route, and represents the usual custom of three different milkmen, since each man was cautioned at the beginning, to in no wise depart from his ordinary practice.

Selection of Dairy Cows.

To those engaged in dairying the selection of the cows is one of the most important items of the business. Even where the animals are reared by the dairyman it is important that he should know the earlier indications which point in the direction of superior lacteal development, as where these are largely wanting the young animal may be disposed of for some other use.

The tokens indicating a good dairy cow are not always infallible, but they are sufficiently clear to serve as general guides in their selection. When we meet with a cow of beefy build and sluggish disposition we may take it for granted that she at least will not fill the bill as a dairy cow. A good dairy cow must possess a feminine look which is at once the opposite of masculinity. Her head and horns should not be strong, her neck should not be thick, her shoulders should not be broad nor her brisket beefy, nor should her limbs be coarse and heavy. If these masculine characteristics are present in combination she should certainly be rejected for the dairy, and if any one of them is present she is so far less desirable as a dairy cow. She must possess a good strong healthy constitution, without which good wholesome milk will not be produced at a profit. The indications of this are a full bright eye, and movement which is the opposite of sluggishness.

We usually find associated with these indications a good chest, indicating large breathing capacity, a vigorous circulation of the blood and active digestion of the food consumed, all of which favor the production of a large return in the milk or butter product. The development of the udder should be large. It should neither hug the body, nor be over pendulous. The teats should be squarely placed or nearly so, and be neither too large or too small for comfort in milking. The udder should be elastic and yielding to the touch, and the skin and hair which cover it should be fine and pliable. There should be large development of the hind-quarters of the cow as compared with the fore-quarters. They should be broad at the hooks and tail-head. The hips, however, should be somewhat thin and the twist should be open. The skin of the cow generally should be mellow and movable, especially on the ribs, and should not be thick, although the opposite extreme of what is termed papery is to be avoided. The hair covering it should be plentiful, and soft and silky. The barrel should be large, relatively large, which gives plenty of room for the storage of large quantities of food. The tucked up pinched body is especially to be avoided, although an undue lowering of the underline is not desirable. A shoulder fine on the top and a neck fine and tapering from the shoulder forward are good points, as are also a long face, a broad forehead, and a wide muzzle.

It is very important that the dairy cow should possess a nervous temperament, otherwise she will convert her food into beef rather than into milk. She cannot then be a sleepy-head, but is active and sprightly in her observations and movements.

The size of the milk veins and the nature of the escutcheon are looked upon as of some value by most dairymen, but others do not lay much stress upon these points. The larger and more tortuous the vein the more desirable it is considered, and the more space occupied by the escutcheon and the more curly the hair the better is the indication considered. Where a preponderance of these indications are found in one cow she is certain to render good service in the dairy.

A Simple Method of Testing Milk.

Of all the methods of testing milk that are at present on the market, but one has yet efficiently met the demands of the ordinary dairy for extensive practical work, the main objections to most systems being their complication and inaccuracy. "Rusticus" has written for the *Montreal Witness* a description of a method used by him, which is worthy of being known if only for its ingenuity. It is practically the same as the oil test churn, but being home-made and consequently much cheaper, we reproduce the description of the above writer:—"I have experimented with nearly all the various instruments used in testing milk without a chemical analysis, and have found none to be so satisfactory as the oil test, by churning a small quantity of milk in a bottle, and then heating it until all the fat rises to the surface in the form of oil. In carrying out the oil test I use a glass tube, such as is used for a water gauge on steam boilers. This glass tube is eighteen inches long and seven-sixteenths of an inch in internal diameter. There is a common cork used as a stopper on one end, and from this cork there is a space measured twelve and a half inches from the cork and a mark put on the tube. I fill the measured space in the tube, twelve and a half inches, with milk, twice, emptying it into a small, wide-mouthed bottle, about five inches deep and two inches wide, internal measurement. I have now twenty-five inches, tube measure, of milk in the bottle, which fills the bottle about one third of its height. I put this bottle of milk away in a warm place for about twenty-four hours. When the contents have become thickened, it is then churned by shaking it well for about ten minutes. The bottle with its contents is then left for a few minutes in hot water, between 140 and 150 degrees Fahrenheit. Upon examination the contents of the bottle will show a thin layer of oil on top of a bunch of curd, and below that is the whey. In order to secure a better separation, the bottle should be placed in cold water and cooled to about 65° and churned again for a few minutes and replaced in the hot water for a while when it will be found that the oil is still at the top, but the curds and whey have changed places, the whey now separating the oil from the curd. Sometimes it is best to repeat the cooling, churning and heating process in order to the more complete separation of the oil from the curd. Now pour out the oil into the glass tube, and should the tube be filled before all the oil has floated out of the bottle, let the tube stand a few seconds until all the oil has come to the top, then withdraw the cork at the bottom of the tube so as to allow most of its contents to run off, but be sure and replace the cork before any of the oil gets out. Now pour the balance of the oil remaining in the bottle into the tube, and when the oil has all risen to the top of the tube again run off most of the curds and whey from below it and refill the tube with warm water.

"The pouring of the warm water on the oil will remove most of the particles of curd that may have remained in the oil, and a little stirring of the oil with a knitting-needle will remove the rest. If the milk was rich in butter fat it will now be found that there is one inch of pure oil in the tube, and as there were twenty-five inches, tube-measure, of milk operated on, it will show that the milk contains four per cent. of butter fat. If there is only three-quarters of an inch of oil in the tube it will show three per cent. of butter fat, etc. A very little practice will make any one quite expert in testing the quality of milk in this way, but if the milk has been watered it will require a lactodensimeter, which costs about \$1.25, to show how much of the fluid has been used.

A Rival of the Extractor.

It was thought that, coincident with the introduction of the extractor, the separator would rapidly pass out of use, but it now appears that Dr. De Laval has added an invention to his separators which, according to a reliable English contemporary, the *Agricultural Gazette*, is likely to prove a strong competitor. This periodical makes the following comment upon this late addition to dairy inventions, in describing the exhibits at a late dairy show:

The chief novelty was the instantaneous butter-maker, invented by Dr. De Laval, and introduced into this country by the Dairy Supply Company. It is an "attachment" to a separator, rather than an essential part of it, and it may therefore be obtained by those who already possess separators at a comparatively small extra expense. This is in itself a considerable advantage. The attachment is really very simple, and consists of a small refrigerator of a new design, and a small cylindrical metal "churn," about a foot or a foot and a half in length, and some three or four inches in diameter. As the cream comes from the churn, it flows over the refrigerator, and is thereby cooled down to the proper temperature for churning. It passes thence into one end of the cylinder, and the thin stream comes into contact with a beater, which revolves at from 2,500 to 3,000 revolutions per minute. By the time it reaches the exit end of the cylinder the cream has been churned into butter, and it has only then to be worked up in the ordinary way to expel the buttermilk, and it is ready for market. It will be seen that the principle of the machine is that the cream instead of being churned in bulk is churned in detail, so to speak. The simplicity of the idea is the best testimony to its ingenuity, and also the best guarantee of its permanent success. It is only necessary to add that, having tasted the butter thus made, we can testify to its excellence.

Side by side with this machine is its rival, which was brought out at Windsor last year, the butter extractor introduced by the Aylesbury Dairy Company. The result attained by the two machines is, of course, similar, but the essential difference in their methods is that whereas the buttermaker separates the cream at one temperature and then churns it at another, the extractor separates and churns by one operation in the drum of the separator. We are not quite sure whether there is any difference in the time occupied by the two machines in performing the operation, but we were informed that the buttermaker took 90 seconds to turn milk into butter, which, if not literally "instantaneous," is sufficiently near it for all practical purposes.

Butter Conferences in Wales.

We have been alert in watching the course of the butter conferences in the United States, and have often urged the necessity of similar meetings being conducted here. We have lately noticed that this matter has been creating general interest amongst British dairymen, and that they also have now organized butter conferences similar in scope and work to those of our American friends. With the testimony of those who have on their responsibility undertaken work in Ontario in this direction, and the unqualified approval of both British and American authorities, is it not time that the subject should be developed until it attains to its highest utility by our dairy authorities? Our butter trade is narrowed in its limits through the indifferent quality as a whole which is available for export. We would request those that are not aware of the value of these conferences to read the following lines from Mr. J. Marshall Dugdale, of Wales, which bear testimony to the influence of these conferences:

I personally attended most of the demonstrations, and the conclusions I have arrived at are these: If you want to improve the quality of butter in Montgomeryshire, you must bring the instruction close to the people's doors. The majority of women can not get away from home for more than two or three days at the most, as they have their own work to attend to. Most of the women who attended the demonstrations are looked upon as being good buttermakers.

The better the buttermaker, the more interest I found she took in watching the details of the work. They were much struck by the non-handling of the butter, by the method of washing it, and by the excellent work done with the butterworker. Already I know of one churn, one butterworker, several thermometers and some grease-proof paper being ordered, as a result of what people saw. I forgot to mention that women were much struck with the quantity of water used in washing the butter, and several of them made the remark that there was a great scarcity of water at their houses. I have already found a very marked difference in the butter which is now made at my two farms. It seems to me that the plan I have tried with such favorable results is one that can be adopted by any landlord, as, if he has not a farm in hand, I am sure any practical farmer will be glad to have his butter made for a week by Miss Walsh. To alter the quality of butter made in this country will take time. It can only be done (1) by showing how good butter can be made, and (2) by the people finding out themselves that their good butter will fetch a better price than that of inferior quality.

Temperature in Churning.

In an interesting communication to our southern namesake, Mr. J. W. Hart, of Opelka, Ala., a graduate of the Ontario Agricultural College, brings forward a number of new ideas in respect to the churning of cream. Mr. Hart had charge of the Ontario Agricultural College creamery for a season, during which excellent butter was manufactured in quantities ranging from 9000 to 10,000 pounds per month. Referring to the churning, Mr. Hart says: "After the churn has been scalded and rinsed, the ripened cream, having previously been heated to churning temperature, is put in and churned. When the butter is in small pellets about the size of grains of wheat, or smaller, a gallon of cold water is poured over it. The whole is rapidly churned a few seconds, when the churn is stopped and the surface of the butter sprinkled with another gallon of cold water. The butter-milk is now drawn, and about as much cold water as there was of butter-milk is added. A dozen rapid turns of the crank and the water is drawn from under the butter. The butter is usually washed the second time in the same manner. A little strong brine is now poured over the butter. The butter is gently stirred so that the brine reaches every granule. Then the brine is drawn off and about a quart of an ounce of fine salt to the pound of butter is added and stirred in. The butter is now ready to be taken up and on the next day reworked and packed. In my experience, brine salting corrects the tendency to streak or mottle, so that it does away with re-working butter for the purpose of securing uniformity of color. I frequently put butter in pound prints directly from the churn. The pressure used in printing expels the surplus moisture from the butter.

(1) In feeding cotton seed or cotton seed meal, I find that a higher churning temperature is necessary than when these feeds are withheld. (2) Dry feed produces cream that must be churned at a higher temperature than where succulent feed is given. (3) The churning temperature must be increased as the time after parturition increases. (4) To churn a larger quantity of cream than usual, the temperature should be higher. (5) Milk and thin cream require a higher churning temperature than rich cream. (6) In winter the churning temperature has to be increased. (7) The temperature for churning deep-setting cream is higher than for centrifugal cream. (8) Breed and individuality render changes in temperature in churning necessary."

The editor of the *Southern Live Stock Journal*, in which this contribution first appeared, adds the following footnote, which pays a true and fitting tribute to Mr. Hart's skill as a dairyman: "Mr. Hart's conclusions are worthy of the most careful consideration. The editor last summer visited the Ontario Agricultural College and from the lips of Professor James Robertson, perhaps the first authority on practical dairying in America, heard the praises of the Professor's former pupil in dairying, Mr. Hart. In Canada, where skill in the dairy is abundant, Mr. Hart ranked high as a butter-worker and as a student of agricultural literature."

Breeding Dairy Cows.

There are few men who have given the dairy cow in all her whims and variations of form, more earnest and original inspection than Governor Hoard, and by far still fewer are the persons who can impart what they have gleaned in as effective language and with as pleasing a manner. At an institute held in Wisconsin, Governor Hoard delivered an address on "The Principles of Breeding," which appears in the but recently issued bulletin (No. 4) of the Wisconsin Farmers' Institutes. He spoke in the following clear and striking language of the best manner of breeding dairy cows:

Suppose we want to produce a dairy cow. Let us start in by taking native cattle and putting a thoroughbred sire at the head, take an Ayrshire or a Holstein. The Shorthorns to-day in the west are not valuable for the dairy. We have some very fine milch cows among them, but let me ask you where you will go in the west for a Shorthorn bull that will throw strongly and prepotently on the side of the dairy? In England you can find them and in the east you can find them. On the Wadsworth estate in the Genesee Valley is a herd of Shorthorns, started over fifty years ago, and they have been bred for milk until to-day the males are potent in that line; they are not as profitable as beef animals, as those bred specially for beef. As the beef potency increases the milk potency decreases.

You want to raise the best kind of a dairy herd. This is what I would do. I would go among the farmers and select the best native cows I could get. I would want them to be of the dairy form, every one of them. If two cows of equal merit were brought to me, and one should give even more milk than the other, and yet was of a beefy form, I would not breed to her, because a cow breeds very largely from her blood and not from her udder. Many a beefy cow has been a famous cow, but she wouldn't breed that way. Mr. Goodrich had a celebrated Shorthorn grade cow, and she had three heifer calves, but none of them were worth anything for the dairy. A good many farmers have the idea that a good cow individually will surely breed that way. She will not always. Many a beef cow gives plenty of milk but hasn't a dairy tendency in her. Take a cow with a breeding tendency towards dairy work. Then I would couple her with a thoroughbred bull. Then I would take her heifer, if it was a good one and of strong constitution, and breed that heifer to her own father. I would determine the constitution a good deal by make-up and by the development of the navel, which I think is the finest test in the world of constitution; the strong muscular condition of the navel. By breeding that heifer to her own father I would get a three-quarter in-bred, say Jersey, or Guernsey, or Ayrshire, or Holstein. That is as far as I would go with in-breeding. Then I would have so enhanced the potency of the sire's breed in that heifer by that one in-cross as to make her almost as potent for the reproduction of that breed, as though she were a thoroughbred. These are some of the principles that I would use. By this process I have seen herds where the grandmother was a 125 pound cow brought up so that the daughters and grand-daughters made 375 pounds of butter. The difference in feed wasn't so much, but the difference in breed was very great.

Cleanliness in Milking.

A comparison of the principles that form the basis of successful dairying in all countries shows a striking similarity, but the manner in which those principles are followed in practice is invariably different. Cleanliness in milking is known to all as an imperative matter to attend to if a product of the highest quality is desired, but there are not two milkers even in this simple matter that have similar ideas as to how it may be best observed. In this light it is interesting to read the following extract that has been translated from a Swedish dairy paper. After referring to the necessity of cleanliness in the stable management, the writer advances the following in respect to milking:

If one has performed all these conditions for the production of pure milk, then at milking must the following points be observed:

1. All milk vessels, which are best made of tinned iron, must be constantly kept carefully clean.

2. The milking should be performed in a neat dress and with clean hands, for which latter object a pail with warm water and a towel ought to be kept convenient.

3. Before commencing to milk, remove carefully all dirt from the udder and neighboring parts. If there is left any dirt in the teats it is incorporated so thoroughly in the milk during milking that neither strainer or strainer-cloth can remove it from the milk. No matter to what extent the milk in this manner may be dirtied, the dirt is removed at the separating and remains in the grease in the separator. The grease remaining in the separator being more or less black shows whether the milking as been performed in a more or less cleanly manner. Immediately after milking strain the milk through a fine cloth-strainer. Pay attention that frequently during the progress of milking the strainer becomes thoroughly washed. Should this not be done the constant pouring of milk on the accumulated dirt reduces it to such a degree of fineness that no additional straining can remove it.

At milking it should be observed if the milk from the separate cows, and also from their different teats, appears fresh and normal. Milk that is not perfect or is diseased should not be poured with the rest, and should not be handled in the dairy. The milk's appearance, taste and odor from each particular cow and also from their different teats should be frequently tried; at the straining observe the condition of the milk; a clean silk strainer shows often a bad abnormal milk; a perfect milk runs comparatively easy through a strainer-cloth and leaves nothing on the strainer. The remaining cheesy particles are produced by a clotty milk; a mucous milk, running slowly, deserves prompt and close examination. By testing each cow the source of the defective milk can be readily discovered. Albuminous milk is shown by taking a small portion for trial in a suitable bottle. A perfect milk is distinguished after strong shaking by the small butter globules, while the albuminous milk only forms a froth; and in other respects faulty milk, only in a slight degree or not at all, forms butter globules—a good milk colors red litmus paper a weak blue, and blue a weak red—milk having a neutral reaction. A strong red coloring of litmus paper shows a sour milk, and should not be mixed with the normal milk. Milk produced near the end of the milking period injures the good milk and leaves a bad product, and should not be used in the dairy. It is unnecessary to add that milk from sick animals should never be used. Milk should, as fast as possible after milking, be carried from the stable and its air, which in spite of all prudence is too often loaded with foul odors, and which milk too freely assimilates, and transfers to its product—butter and cheese—to their injury.

Water and Water Power for the Dairy.

Extract from an address delivered by C. H. LUGRIN before the Farmers' Association of Nova Scotia.

The prime requisite for successful dairying is water in one form or another. Mr. Darling uses it in three forms, ice, water, and steam, but it is not necessary to use it in the latter form, and by the way, I ought to add, that in speaking of duplicating the dairy for four hundred dollars, the price of the steam engine was not included. The engine was put in before the use of water motor was adopted, and it is still used in the winter time, but it is not really necessary and Mr. Darling thinks of taking it out.

You all know that for the success of the deep setting system, water of a certain temperature is needed. How to get this is the problem that vexes many people. Ice-cold brooks do not flow on every farm, and not always when they do are they just where they are wanted. It was not convenient to put the dairy where the brook was, so the brook has been brought to where the dairy is. The brook is really the outlet of a spring and not a very cold spring at that. The water is brought to the dairy in a three-inch iron pipe and into a trough made of stone and cement, inside the dairy, and in this the cans of milk are set. The trough is of course just deep enough to fit the can, and is about ten feet long to three wide. It would hold very many more cans than are needed for the yield of

forty cows. The water, which when in the pipe is by no means cold, is reduced to the proper temperature for milk setting, by being passed through a coil of pipe like an ordinary steam coil, which forms the bottom of the ice-house. This latter is one of the strong points of this dairy. It is a stone structure about eight feet square and ten feet high. At the bottom is a coil of two-inch iron pipe fed by a half-inch pipe, that is a number of pipes lying horizontally and united so as to form a continuous pipe. They are put as closely together as the joints will allow. The ice is put directly upon this, the ice-house is filled to the top, closed up and left alone. Proper drainage is provided of course. The warm brook-water after passing through this coil is just the right temperature to produce the best results in making the cream rise. By a little careful experience it is easy to ascertain what length of coil is sufficient to cool the water. It depends upon the temperature when it enters the coil, the rapidity of its flowage, the size of its pipes. But the cost of a few feet of pipe is not much, it is well to put in plenty. The great advantage of using the coil to cool water, is that the ice never has to be touched from the time it is put in in the spring. Whether the ice-house is built of wood, stone or brick, the side next to the milk-house ought to be of either of the latter materials, because thereby the expense of a special arrangement for a refrigerator can be avoided. Mr. Darling's refrigerator consists of a pantry with shelves built against the side of the ice-house, and in it the butter keeps hard and firm during the hottest weather, and the refrigerator besides being a cheap one is always in running order, and never has to be charged with ice. Thus, as there is nothing very elaborate or expensive, except the water-pipe, which is considerable in this particular case, because the water has to be brought quite a long distance, but in most cases this would be a small item, even in cases where it was intended to do the churning by water power.

It is manifest that the latter expense will depend altogether upon circumstances. In a place like Woodstock or Fredericton it would be sufficient to attach the water motor to the ordinary service pipe, but in country districts it would of course be necessary to have a head of water. What head would be necessary depends altogether upon the volume of water. Mr. Darling uses one Little Giant water motor, manufactured by the Belknap Water Motor Company of Pulland, Maine. The price of the machine is \$100, but there is a discount for cash from this price. He has a pressure developed by a forty foot head of water, but it is not very important to know what the pressure is in any case, as in ordering a motor, it is only necessary to tell the company what is the head and volume of water at your command and the amount of power you wish to develop, and they will supply the motor required. The motors range in price from \$25 to \$200, and if the conditions are such that they can be used, they are undoubtedly the most economical machine for developing power that can be employed. They are always ready for the work. All that is necessary being to turn on a stop-cock and the machine goes to work, and when you are done shut the water off and the machine stops. There is no firing up, as with a steam engine, and consequently no expense for fuel. No attention is necessary, for the thing runs itself. It is ever so much less trouble than a gin worked by a horse would be, and probably not very much more expensive to put in, except of course the expense of the water-pipe, which varies in each case. You will understand, of course, that the greater the volume of water, the less head is necessary. I make this self-evident statement because it does not occur to some people, who think that because a certain establishment is run by a forty foot head and they can only get a ten foot head, they cannot use water as a motor. Last week a gentleman called at my office to discuss the erection of a butter factory. For power they were going to use a horse. I suggested the water motor, and read him a letter from Mr. Darling. "Oh," he said, "that is no use to us, we can't get forty feet of head." Then I read him another letter, where it was stated that five horse power was developed with nine foot head. He said at once, "We will look into that, and if we cannot get the power where we propose to build our factory, we will choose another site further down the brook." He was a gentleman who intended to put his own money into the business, and he was satisfied after our conversation that in the coiled pipe under the ice-house and the use of the water motor was to be found a solution of the two questions which were troubling them most, viz.: cold water and motive power.

Butter-Making.

The following rules for butter-making are by Miss Amy Barton, teacher in the Dairy School of the Bath and West of England Agricultural Society:

The best temperature at which to churn in summer is from 54 degrees to 58 degrees, and in winter from 58 degrees to 68 degrees. Always use a thermometer. In summer have your churn as cool as you can get it; in winter have it the same temperature as your cream. Always heat and cool cream gradually, stirring frequently. The best way to heat cream is either to place the vessel containing it in a bucket of warm water, 100 degrees, or a temperature-can (which is a long tin filled with warm water, at not more than 130 degrees, and stirred in the cream) may be used. Thin cream may be churned at a higher temperature than thick cream, and sweet cream at a slightly higher one than sour cream.

CHURNING.—With a Victoria churn, sixty revolutions per minute will be the proper speed at which to turn. Begin, however, very slowly, ventilating frequently for the first ten minutes, then increase your speed to seventy revolutions gradually. As soon as you perceive the butter is coming, which will be when it first begins to clear the glass, turn as slowly and gently as possible. When the particles of butter have reached the size of pin-heads, take off the lid of the churn and put in a little very cold water (about one quart of water to every gallon of cream churned); put on the lid again, and continue churning until the butter reaches this size. The cooling of the contents of the churn, before churning is quite finished, is very important, as it helps to keep the butter in a granular form, and so facilitates the washing away of the buttermilk.

As soon as the butter has reached the size of shot, draw off the buttermilk through a fine hair sieve, and let it drain away thoroughly. Wash with pure, cold, spring water (in very cold weather the water may be warmed by the addition of a little hot water to a temperature of about fifty degrees), moving the churn gently about, and draw the water off. Repeat the washing until the water runs away quite clear, which is generally about the third washing. A little salt added to the water helps to draw away the buttermilk. By keeping the butter in small grains the buttermilk is much more thoroughly washed out of it than it could possibly be if it were churned into a lump. In that case the buttermilk is imprisoned, and no amount of subsequent washing or working will ever get it out.

SALTING.—The best method of salting butter is by brining. The brine is made as follows: Two to four pounds of salt to one gallon of water. About two and a half gallons of brine would be sufficient for about twenty-five pounds of butter. The brine is added when the butter is washed in the churn. In winter about five minutes is long enough for the butter to remain in it. In summer it will be found advantageous to leave the butter in an hour; it will then be very firm. If dry-salted butter is preferred, the following is a good way: Weigh the butter when it is taken from the churn, or if that is not practicable, when it is slightly worked, weigh the salt (half an ounce to the pound is ample), dredge it on evenly with a flour dredger, slightly work the butter, and lay the roll on one side for two hours. This gives the salt time to dissolve; then finish working. Of course, this laying-by process is impossible in winter. (The brining is not necessary if the butter is dry-salted as I direct, but I prefer the former method; a handful of salt in the washing water may be used in either case.)

WORKING.—The butter is taken from the churn by the wooden scoop in the sieve, and then placed in the worker. When brined, no further salting is needed, and it may at once be pressed by the roller. The advantage of continually mopping the worker with a cloth is very great, and assists materially in drying the butter. The worker must not be used roughly or the grain of the butter will be injured. The butter should be rolled up each time the roller passes over it, and any rubbing or "drawing" should be avoided. Dry the butter until not a particle of moisture can be seen in it when pressed with the Scotch hand; but be careful not to overwork it, or you will make it greasy. Freedom from moisture is one of the greatest secrets of keeping butter.

MAKING-UP.—Make up the butter with the Scotch hands into any desired shape; do not work it about more than is absolutely necessary, but be careful to press into a compact mass, so that when cut no holes will be found in it. Grease-proof paper may be bought very cheaply, and is much better to pack the butter in than cloths.

The desideratum in butter is a clear, nutty flavor, a nice color (not too high), a firm, waxy texture, free from moisture, and a grain which, when broken, shows like cast steel.

The advantage of churning on the granular plan is that the mere pressure of the grain into a solid mass on the worker is sufficient to extract the moisture, and so it is possible to dry the butter without making it greasy. This was quite impossible under the old system of churning into lumps.

Quick churning is not to be recommended. Half an hour to forty-five minutes is a reasonable time; under half an hour is too quick. If your butter is an hour in coming it will probably be all the better for it, and you will get more of it. Be careful to never fill the churn more than half full, or the butter will be long in coming.

Dairying.

A Chapter taken from the new text-book, "The First Principles of Agriculture," with the permission of the publishers.

Importance of Dairying.—Dairying has become one of the most important branches of farming in this country. The time for profitable wheat-growing in Ontario, and in all the older provinces of the Dominion, is past. We are no longer in a position to compete with Manitoba, and other new provinces, in producing grain for market. We can, however, raise first-class animals—cattle, sheep, hogs, and horses; and by liberal manuring and proper cultivation of the soil, we can grow good crops of grass, hay, oats, peas, barley, turnips, mangels, Indian corn, rape, etc., to feed these animals. Hence we may profitably devote our attention, not only to the raising of sheep, hogs, horses, and beef cattle, but also to the keeping of cows for the production of milk, cheese, and butter. Ontario farmers have already proved that dairying is a profitable branch of farming in this Province; and much more can be done in the future than has been ever thought of in the past.

Conditions Favorable to Dairying.—These are (1) plenty of good, pure water at all seasons of the year; (2) soil that will produce abundance of food suitable for cattle; that is, pasture, hay, coarse grain, and roots or Indian corn; (3) shelter, such as scattered trees or an open grove, to protect cows in hot weather; and (4) buildings, to keep them warm and comfortable in fall, winter, and early spring.

Butter or Cheese.—In the neighborhood of cities and large towns, a profitable trade is done in selling milk fresh from the cow; but in most places both dairymen and farmers use the greater part of their milk in making butter or cheese; and which of the two (butter-making or cheese-making) is the more profitable in any particular locality, depends very much upon circumstances. Where dairying is made a specialty, so that the milk of a large number of cows can be got within a short distance from the factory, more money can, as a rule, be made out of cheese than out of butter in this Province; but in localities where mixed farming (grain-growing, stock-raising, and dairying) is carried on, and the skimmed milk is needed for calves and pigs, butter-making is, generally speaking, more satisfactory and profitable than cheese-making.

Cows for the Dairy.—Profitable dairy cows use their food so as to make milk rather than flesh; and it is a great mistake to keep, for dairy purposes, any cow which is not a good milker. Some kind of record of the milk given by cows should be kept; and those which fall below the standard in quantity of milk, quality of milk, or the length of the milking period, should be disposed of as soon as possible, and others put in their place. A good dairy cow, with proper food and care, should give milk for at least ten months of the year, and during that time should produce not less than 6,000 lbs. of good milk, 9½ to 10

lbs. of which would make 1 lb. of cheese, and 25 to 28 lbs. of which, when properly set and looked after, would yield cream enough to make a pound of butter.

Of course great richness of milk, as in the case of that from some Jerseys, makes up for a deficiency in quantity, especially when the cow is kept for making butter; and an unusually large quantity, such as is given by some Holsteins, makes up for a slight deficiency in butter-fat, especially when the milk is used for making cheese.

Some kinds and breeds of cows, as Ayrshires, Holsteins, Jerseys, Guerneys, Canadians, and Shorthorn grades of certain families, seem specially adapted to the production of milk; but two or three things should be borne in mind: (1) that there are poor milkers among cattle of every breed; (2) that, for the dairy, it matters little what the breed or pedigree of a cow may be, so long as she gives a large quantity of good milk, in proportion to the food she consumes; and (3) that, whatever breed is chosen, a herd of good dairy cows can be got and kept only by careful selection, liberal feeding, and good management.

Feeding and Care of Cows.—Cows should be well fed at all times; comfortably housed in the cold weather of fall, winter, and spring; and invariably treated with the greatest kindness. Scanty or irregular feeding never pays. A certain amount of food is always necessary to support the animal system, and profit can come only from what is fed over and above that amount. Hence, during the milking period at least, cows should have abundance of wholesome, nourishing food—all that they will eat up clean. Shelter of some kind from the direct rays of the sun in hot weather, and comfortable (not necessarily expensive) stabling in cold weather, are also of much importance, especially the latter; because the exposure of a cow to cold rains in the fall, and to cold winds or frost in winter, or any other season of the year, invariably results in injury to the animal and loss to the owner. Kind and gentle treatment is likewise an important item in the management of cows; for experience has clearly proved that when a cow is made to run, is hunted by a dog, or is kicked, beaten, or otherwise excited by those in charge of her, the invariable result is that she gives less milk, and what she does give is of inferior quality.

Further, in feeding dairy cows for profit, three things are necessary: (1) that they have abundance of succulent food during the milking season, and, if possible, a small allowance of bran, or chopped peas and oats, or ground oats, peas, and barley, or some other mixture of different kinds of meal; (2) that a supply of green-fodder be provided, for use in case pasture become scarce in July, August, or September—say, an acre of oats and vetches, or peas and oats (sown at different times), and an acre and a half of Indian corn, for 15 cows; (3) that during winter, the cows be fed and cared for in such a way as to keep them in good health and gaining a little in flesh; because cows that are well fed in winter give milk for a longer period and in larger quantity during the following summer than cows which, from lack of proper and sufficient food, or other causes, have been allowed to run down in flesh and lose the vigor which they had on entering their winter quarters.

Water for Cows.—No dairyman can be successful unless he has an abundant supply of water for his cows at all seasons of the year—water which is pure, easily accessible to the cows in summer, and of moderate temperature (not ice-cold) in winter. Cows should have all the water they will drink; and it ought to be pure; because impure water is bad for the cow, lessens the value of her milk and its products, and is injurious to the health of those who use the milk, the cheese, or the butter.

Salt for Cows.—It is not enough to salt milch cows occasionally, even once or twice a week; nor is it sufficient to give them rock salt to lick. They should have access to ordinary granular salt every day, be allowed to take all they want, and have a little mixed with their cut-feed, meal, etc., which they get in the stable. It has been proved by experiment that cows, when salted only once a week, will generally give from 14 to 17 per cent. less milk than when they have free access to salt every day; and the milk from irregular salted cows is not so good as that from cows which have a constant supply of salt. It sours sooner, and is otherwise inferior in quality. Hence the importance of placing salt in stables, and under cover in fields, in such a position that milch cows can have access to it at all times, is very evident.

Milking.—Each cow should, as far as possible, be milked by the same person, and at the same hour, night and morning. Much milk is lost by frequent changing of milkers, and by irregularity as to time. Before milking, the cow's udder should be well brushed, and then rubbed with a damp cloth. Afterwards, the milker should wash his hands and do the milking as quickly and thoroughly as possible. Some insist that milking should be done with dry hands, and that every milker should keep a little water by him, and be required to wash his hands regularly after the milking of every two or three cows.

Milk absorbs offensive odors very quickly, and is much injured in quality when kept in bad air for even a short time. Hence milking should not be done in foul-smelling yards or stables, but only where the air is pure.

Further, it is important that milk be strained immediately after it is drawn from the cow, in order that all solid impurities may be at once removed before they dissolve and become incorporated with the milk.

Milk Vessels.—All milk and cream vessels should be thoroughly cleansed before they are used—well washed, scalded with boiling water, and exposed to fresh air for several hours. The milking-pails used should be made of tin.

Setting Milk.—Milk is very often set in shallow pans, and allowed to stand for some time in a milk-house. It is, however, generally much better to put it in deep cans, say, 8½ inches in diameter by 20 inches deep, and to set these cans in water, as cold as can be got, with the addition of some ice, if possible. Generally speaking, about 18 per cent. more cream can be obtained from milk in deep cans, set in ice-cold water, than from the same milk in shallow pans, set in the ordinary way, without either ice or water; also, by the former method the skimmed milk is kept perfectly sweet, and is thus in a much better condition for the use of calves and pigs.

The water-tank for the milk-cans should be close to a well or spring, protected from the heat of the sun, and away from all smells which might taint the milk. When it is possible, a very good (perhaps the best) way is to construct a sort of open box in the water, near the source of a spring; or in a running stream. If well-water, without ice, is used, it should be changed twice, if possible, for each setting, in order to keep the temperature low enough to separate the cream from the milk—to make it all, or nearly all, rise to the top. A very good plan is to let the fresh cold water from the well enter at the bottom of the tank, and force the partially warm water out over the top. The nearer the water is kept to 40° or 45° Fahrenheit, the better.

It is important that the milk be set properly, while it is at or above 90° Fahrenheit. If it is allowed to cool below that temperature, some warm water (150° to 180° Fahrenheit) should be added to the milk, to raise it above 90°, before the cans are set in the cold water. Otherwise, there will not be a complete separation of the cream; and a good deal of it will remain in the skimmed milk.

Care of Cream.—Cream should always be removed from the milk before the milk becomes sour. All the cream for each churning should be put into one vessel and kept cool, so that it may remain sweet till the time when it is to be soured for churning; and it should be stirred two or three times a day, especially when fresh cream is added. In the hot weather of summer, it should not, as a rule, stand more than three days before churning; and no fresh cream should be put into the vessel within from twenty to twenty-four hours of churning. In order to prepare it for churning, a little ripe cream (that is, cream which has been soured by being kept in a warmer place) should be added to the sweet cream. The cream should then be kept at a temperature of from 60 to 70 degrees (the higher temperature in cold weather), and stirred several times during twenty to twenty-four hours, or till it has reached the right degree of sourness for churning. If no sour cream is added, it will take a longer time, and perhaps a little more warmth, to get it ready for the churn.

A good deal of butter is frequently lost by churning together cream from different vessels, and of different degrees of sourness. This loss arises from the fact that, at the ordinary churning temperature, sour cream gives up its butter in less time, and much more completely, than sweet cream.

Churning.—The temperature at which cream should be churned, varies from 57 to 60 degrees in

summer, and from 62 to 65 in winter. When the particles of butter in the churn are nearly as large as clover seed, some cold water (about one-tenth as much as the milk in the churn, and at a temperature of 50 to 55 degrees may be added, after which the churning should be continued till the particles of butter are about half the size of grains of wheat. Then the butter-milk should be drawn off, pure water, at a temperature of 50 to 55 degrees, put in its place, and the churning continued for a short time. This may be repeated once or twice, till the water drawn from the churn is free, or nearly free, from milk. Then the butter in the granular state should be left in the churn for half an hour or twenty minutes to drain, after which it may be taken out and salted.

The temperature for churning sweet cream is 51 to 55 degrees Fahrenheit. When churned by itself within this range of temperature, it gives up nearly all its butter-fat; but the butter from sweet cream is generally considered deficient in flavor.

It is a mistake to continue churning until the butter is gathered into lumps, because in that way a good deal of butter-milk is taken up in the butter, which, if left in the butter, destroys its keeping quality; and the working necessary to remove this butter-milk greatly injures the texture of the butter, very often making it waxy or greasy.

Salting and Working Butter.—Pure salt, of medium and uniform fineness, with a velvety touch, should be used—from three-quarters of an ounce to one ounce in every pound of butter. The butter-milk having been washed out in the churn, the butter should not be worked any more than is necessary to mix the salt fairly well with it. It should be kept cool during the working, and set in a cool place for ten or twelve hours to let the salt dissolve, after which it may be worked lightly a second time, and packed away for use.

Some maintain that the best way to salt butter is to put strong brine into the churn and continue the churning for a short time after the butter-milk has been drawn off, and the butter washed by the addition of water, as above. The chief objection to this method is the large amount of brine required in proportion to the quantity of butter salted.

Packing of Butter.—When butter is not made into rolls or prints and sold at once, it should be packed in clean, sweet, and clean-looking tin-lined packages, if possible or convenient; if not, then in crocks, or some other thoroughly clean and neat-looking packages. When put into the package, the butter should be carefully covered with a piece of thin white cotton, which has been washed in warm water and soaked in brine, to remove starch, etc. The outer edges of the cloth should be pressed down, with a table-knife or piece of flat stick, all around between the butter and the sides of the package, after which the butter should be covered to the depth of one-half to three-quarters of an inch with a wet paste of salt, leaving a little brine on the top, to exclude the air. Some fresh brine should be added to the paste from time to time, to fill holes and keep out the air.

Milk and Butter Rooms.—Cellars and rooms in which milk or butter is kept should always be cool, as near forty-five degrees as possible, well ventilated, and free from foul air, such as might come from decaying vegetables, or other causes.

Need of a Thermometer.—A good dairy thermometer can be bought for twenty-five cents, and no handler of milk, or maker of butter or cheese, should ever be without one. Such an instrument is constantly needed to test the temperature of milk at the time of setting, of the water in which the milk-cans are placed, of the cream before churning, the cream in the churn, the water added to wash the butter, etc.

Cleanliness.—We cannot emphasize too strongly the importance of cleanliness in everything connected with dairying. The stables in which the cows are fed should be clean; the food and drink of the cows should be pure; the place of milking should be free from foul odors; the milk-pails, the cream-cans, and the hands, nails, and persons of the milkers and butter-makers, should all be scrupulously clean.

Cheese-making.—Cheese-making is a very important branch of dairying, and one which should receive careful attention from every student of dairy husbandry; but as cheese, in this Province, is generally made in factories, and the details of its manufacture are numerous and somewhat complicated, we shall not attempt to describe the process in the brief space allotted to dairying in an elementary text-book on general agriculture.

Poultry.

Substitute Pullets for Old Hens.

It is questionable if it pays to keep hens for laying purposes after they reach the age of two years. It is an unprofitable practice to keep old hens in the flock. They should be culled out as soon as it is noticed that they begin to lay less frequently, and their place should be given to the best of the young pullets. This is the most effective consideration in making money and progress, in poultry keeping. The old hens do not only prove a source of loss directly, but indirectly they cause loss through the easier introduction of disease of some kinds. As a general rule it will be found that during the second year after a hen has started laying, she will only lay about one-half the number she laid during the first.

Our Trade in Eggs.

There is no doubt but that the profitable trade in eggs which has heretofore been carried on between Canada and the United States has been effectually stopped by the duty of three cents per dozen which is imposed by the McKinley Bill. Mettle in nations we admire as much as in individuals, for nations are but made up of such units; hence we have no sympathy for those who whimper over this matter, and lose all hope of diverting our trade in eggs to other markets. We have comfort for the latter personages in a letter from Mr. Curry, published in this issue. Great Britain has proved to be the best market we have for some of our products, and we have every assurance that our mutton and eggs will soon be in as strong demand as our cheese and beef are now. Mr. Curry's letter, which was written on our solicitation, will be read with pleasure and interest, coming, as it does, from one thoroughly acquainted with this trade.

The Moulting Season.

At no other time in the year is there such a heavy drain put upon the system of fowl, and especially old ones, as during the moulting period. Hence they require warm quarters and more nourishing food than at any other time. The time of moulting will be found to vary. With fowl in low condition, owing to lack of care and attention, the time of moulting is later than with those in good health. The fowl during this season should be made to roost in warm, well-ventilated houses, and they should not be let out early in the morning. A warm mess of soft food seasoned with pepper each morning before they are allowed to go out, will be found to be excellent in carrying them through this change in their dress. It is a good practice to add an ounce or two of sulphate of iron to their drinking water. This also is to be recommended for sickly young chickens, or young birds that have grown too rapidly. It is thought by some that hens when undergoing moulting are not good to eat, but such is not the case. They are then perfectly healthy. At this time they are but paying to nature the price of a new suit.

Clover for Poultry.

From time to time new qualities of the clover plant are brought to light, widening its utility and making it by far the most profitable crop that the stockman may grow for feeding purposes. For milch cows and young calves, for sheep and lambs, and for pigs it has long been highly praised, but it is only recently that the poultry fancier has had his attention attracted to it. Its value is now generally known, but various practices are followed in regard to its preservation for winter feeding. It makes an excellent food to take well cured, early cut clover hay, and steam it or steep it so as to soften it, and feed it warm. The second

growth may be kept in first-rate condition by pressing it in a miniature silo, which may be improvised by taking a good air-tight flour barrel and lining it with paper, so as to thoroughly exclude the air. It will render feeding much easier and more satisfactory, and also enable one to pack the clover closer, if it is cut, before being put into the barrel into pieces a couple of inches long. Fill the barrel as full as possible and cover with a layer of hay and a board end, upon which it is best to put some heavy stones or other weights, to press the mass thoroughly. It can be fed any time. It will be found to furnish an abundant supply of excellent food for winter feeding.

Inbreeding Poultry.

Within a narrow limit the practice of inbreeding poultry has some utility. In the breeding of fancy fowl if it were not resorted to somewhat freely but little progress would be made. As most breeders are aware, it is a hard matter to fix the outward characteristics of the fowl intended for exhibition without following this practice to a limited degree. The use of unrelated cocks cannot be depended on to result in fowl that will be fit for exhibition purposes. The most careful of breeders seldom practice this system further than the crossing of half brother and sister. A writer who has given this question considerable attention, makes the following statements in regard to this practice: "If we take, say, a dozen Wyandotte pullets, which are as hardy and good winter layers as could be desired, and mate them with their half-brother, they will produce large broods, and the majority of the chicks will be hardy if the parents were free from disease of every kind, but there will be a few that will show signs of weakness, and finally pine away. The pullets will be later coming into laying condition, and their eggs will neither be so numerous nor so large as those from which they were hatched. But all the pullets reared will closely resemble their mothers both in color and size; their sitting instincts will be stronger, and their eggs will be less fertile, even though mated with an unrelated bird. Inbreeding will not only decrease the number and size of the eggs, but it will lower their fertility. From such pullets there will be a large number of clear eggs, and a considerable number with dead chicks." For practical purposes in-and-in-breeding should be shunned. The progeny resulting from the employment of this practice are weak in reproductive powers, and they are also more liable to be attacked with diseases, especially troubles of the lungs, heart, and liver. The infusions of new blood that should be made each year should come from unrelated sources. Fowls kept for breeding, laying, and table purposes, should never be inbred if the best results in utility are desired.

Rearing Geese.

In view of the fact that there are many farms possessed of a pond of water and a run for geese, it is queer that so few are kept on most farms. The ideal goose pasture has a small brook running through it or a small pond within its limits. The most profits are to be derived from geese through either rearing pure-bred Embden or Toulouse varieties for breeding purposes, or disposing of the flesh and feathers at ordinary markets in the fall. It is one of the most important facts in respect to geese to know that the goslings should be kept away from bathing in water in any quantity or form until their breasts are well feathered. This is necessary if you desire to rear a large percentage of them and forward their growth as much as possible. Give them cups to drink from or other vessels into which they cannot get their bod-

ies. As goslings, geese require considerable attention, both in regard to shelter and feeding. It is necessary to feed them well, but carefulness should be observed to not give them too much food, especially of a fattening nature, for evil results are sure to follow in the shape of weak legs, indigestion, and other like troubles. Grass for the goslings, with but a very small quantity of grain, will keep them growing well until they are feathered enough to go with the older geese.

Cross-breeding Poultry.

The actual value of cross-breeding under common conditions is open to question, but however much the real utility of the practice may be ignored, experiments in that direction always have a peculiar interest. At a recent poultry show held in England, Mr. Arkwright, who has been experimenting for decades in cross-breeding fowl, showed nine varieties of cross-bred chickens for table use, seven pens being the first cross of pure parents, and two of the second cross from hens of the first cross with pure cocks of a third breed. Mr. Arkwright has found as the result of his experiments that the best cross of pure breeds for table purposes is the silver grey Dorking Brahma, and Brahma silver grey Dorking, and the *London Live Stock Journal* states that his exhibit clearly demonstrated that. The chickens of this cross it is claimed, come to maturity early, are plump and meaty on the breast, and the colour of the flesh all that can be desired. Mr. Arkwright's were taken from the run of 100 chickens without any preparation or cramming, and all the pens were fed alike. A table is given, from which we take the following, which will be found instructive. Each pen numbered below contained a pair of pullets.

FIRST CROSS.

Pen.	Age.	Hen.	Cock.	Live Weight.	Dressed.
1.....	8 mos.	D. Brahma.	Sil. Dorking.	6 lbs. 4 oz.	3 lbs. 14 oz.
2.....	16 wks.	do.	do.	4 lbs. 8 oz.	2 lbs. 14 oz.
3.....	do.	do.	Langshan.	4 lbs. 8 oz.	2 lbs. 12 oz.
4.....	do.	D. Dorking.	D. Brahma.	4 lbs. 0 oz.	2 lbs. 9 oz.
5.....	do.	Lt. Brahma.	Ind. Game.	4 lbs. 8 oz.	3 lbs. 4 oz.

SECOND CROSS.

Pen.	Age.	Hen.	Cock.	Live Weight.	Dressed.
7.....	16 wks.	D. Dorking.	Partridge.	4 lbs. 0 oz.	2 lbs. 12 oz.
8.....	do.	Brahma.	Cochin.	4 lbs. 8 oz.	2 lbs. 12 oz.

The small quantity of offal in the case of the Brahma Dorking cross is noticeable, and further strengthens Mr. Arkwright's claims for that cross.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Eggs for the British Market.

Referring to your recent letter, concerning the egg trade here in London, and your desire for information as to same, I enclose some of the details as to amount of trade doing in 1889, and also various particulars. The following extract from the *Daily Sun* will give your readers some idea of British trade: "Twenty-one millions of pounds sterling were paid by England last year to Continental countries for dairy produce alone. The butter and margarine imported weighed over three million hundredweights, and the cheese nearly two million. The eggs amounted to eleven hundred millions. These immense quantities will probably continue to be imported until inland freight charges become reduced. At present it is cheaper to send packages to London from Belgium than from many parts of Yorkshire."

In the first place, I have been connected as partner with firm of Cauvry, Curry & Benard, of L'Aigle, France, and Boro', High Street, England, for twenty years, and after that time, for last five years, have conducted the business in the old style of name, but as principal, my two partners having retired. During

this period I have been in the habit of handling goods (eggs principally), and butters also, from France, Italy, Hungary, Germany, and lately from Russia.

The enormous quantity of foreign produce which reaches this country may be imagined from the details enclosed. It is also evident, that notwithstanding the vast fields of production which have been opened up during last fifteen years, notably in Hungary and Italy, during last five years from Russia, that an unlimited scope exists for any fresh consignments from any other source, and I can promise your Canadian producers an unlimited sale at top prices, providing their commerce reaches us in good condition and quite fresh when packed on your side. At present Russian produce takes much longer to collect and transmit to England than your goods would do, as the inland facilities for transport from the interior of Russia to her seaports is of the crudest and most elementary kind, and cannot for one moment be compared with the admirable railway systems which you have in Canada. Notwithstanding the time occupied in collecting and transmitting to England of Russian eggs, they find a ready sale, and if this is so in this case, in position your goods would take a front rank in the estimation of the buyers, providing, as I said before, they were properly packed in dry oat (not barley) straw, and carefully handled in transit, and were fresh when leaving you.

We receive our goods invariably packed in cases containing six and twelve long hundreds, or 720 and 1440 eggs, making in the smaller cases a gross contents of 720 eggs, and in the larger ones 1440 eggs. There is a trade allowance of sixty eggs per case of 1440 for breakage.

Should your shippers find from trial consignments that their commodities pay to send to us, I am certain there is a very great future before this trade. The difference in return to your shippers appears to me to be about twenty-five shillings per large case more than they would get in the United States, that is, providing our markets were at the same time equal in price to the American markets. It might possibly happen that they might frequently be very much better.

At the moment of writing, Oct. 8th, our prices vary from 10 shillings and 3d. per 120 eggs of the very finest selected Normandy, down to 9s. 6d. and 8s. 6s. per 120 Italians, and 7s. 6d. to 7s. 3d. per 120 for Russian eggs, our present lowest quotation. However, my advice to intending shippers is to send on fair sized trial shipments, and from what I know of prices made by myself of the shipment of the 185 cases referred to in your paper, that in every case the buyers who had part of the consignment were thoroughly satisfied, and wanted fresh parcels when to hand, and I believe the prices realized gave satisfaction to the shippers.

In the course of a few weeks when Canadian goods come to be thoroughly known, they will take their position, in my estimation (if equal to quality of those I have already disposed of), in very front rank of this kind of produce.

G. CURRY.

London, England.

Characteristics of Different Breeds.

It is a hard matter to distinctly separate the breeds of fowl from each on their characteristics, but this, we think, Mr. A. T. Gilbert, manager of the poultry department of the Central Farm, has successfully performed in his latest report, from which we extract the following, given as the leading features of the best known breeds:

Plymouth Rocks.—A hardy, vigorous breed, growing rapidly to large size. Small bones, great and rapid flesh-formers. Male birds go up to 10 and 12 lbs.; cockerels reach 8 lbs. in early fall. Females good layers, good sitters, good mothers. A breed well suited to climate. Chickens hardy. The best all-round fowl for farmers. Pullets lay from 4½ to 6 months of age.

Wyandottes.—A comparative new breed, of great merit. Cross of dark Brahma and Silver Spangled Hamburg. Matures rapidly, having small bones and putting on flesh easily. Males go up to 7, 8 and 9

lbs. Females are good layers, good sitters, good mothers; apt to become broody, but easily broken up and lay soon after. Chickens hardy. A good fowl for farmers. Pullets lay when 5 months old.

Brahmas.—A well-known and old-established breed, with many friends and admirers. Grow to large size and heavy weight, but take time to do so. Have large frames, and a good deal of feed is required to put flesh on them. Are very hardy, both as chickens and fowls. Are quiet, and bear confinement well. Females are fair layers of eggs of good size, but rather heavy for early sitters (when egg-shells are likely to be thin), and apt to be clumsy as mothers: After 7 or 8 months of age males make good table fowls. Pullets lay at 7 months of age.

Buff Cochins.—Another of the Asiatic family that has many friends. Like the Brahma, they grow to large size, but take time to do so. Are very quiet, and stand limited quarters well. The females are good sitters and careful mothers, fair layers of a large egg (when hens) of rich color. Pullets lay when 7 months old; males grow to heavy weight; chickens and fowls hardy.

Houdans.—A breed of French fowls of some merit as layers, but do not grow to the same weight in this as they do in the country of their origin. Are non-sitters, and lay a white egg of rather more than average size. Chickens are hardy, mature rapidly, and are great foragers. Are not so suitable to farmers as either Plymouth Rocks or White Leghorns. Owing to heavy crest on top of head are apt to fall easy prey to hawks and other enemies of the poultry yard. Crest will freeze and become solid with ice where water is not kept from freezing or fountain with narrow lip is not used. A good table fowl.

White Leghorns.—One of the best layers at all seasons, hen properly handled and eared for, as all fowls should be. Are non-sitters, hardy, and mature rapidly. Will lay well in winter, in a moderately comfortable house. Chickens thrive well and feather quickly. Hens lay a white egg of large size. Pullets lay at 5 or 6 months, sooner if hatched early. The Brown and Black Leghorns are also great layers. They are good fowls for farmers when kept with a breed of sitters. Great flyers, like all the Spanish family.

Black Minorcas.—An old English breed, comparatively new to this country, and fast taking the place of the Black Spanish. They are as good layers as the Black Spanish, and grow to much heavier weight, the males making fair table fowls. They are given weight allowance in the new standard of excellence (American). They lay well in winter, properly housed. Both fowl and chickens are hardy; the latter grow rapidly. The males have large and high combs, which must be kept from freezing. Pullets lay at 5 or 6 months of age.

Andalusians.—Another comparatively new-comer—to this side of the water—of the Spanish type, and as a breed of layers rivalling the Leghorns. They are likely to occupy a high position among poultry fanciers on their superior laying merits. They lay well in winter, when looked after, and are hardy, quick-growing chickens. They do not breed true to color or markings in every case; but that is a matter of secondary importance to those who wish to keep them for their laying properties. Like the Black Spanish, they are not heavy-weights, and in consequence are not so good for table use as the heavier breeds. Pullets lay when 6 months old. Hens lay large white eggs.

Black Hamburgs.—Small tightly-feathered fowls. They lay small eggs, but a great many of them. Chickens grow fairly well, but all the family seem liable to cold and roup in the fall. There are other breeds of greater merit for farmers to choose from.

Silver-Pencilled Hamburgs.—Beautifully marked small fowls. Lay a large number of small eggs. Require great care, as they are subject to roup in rainy, cold weather.

Dorkings.—A breed very much prized in England for its table qualities. In this country they are sensitive, when chickens, to the fall weather, and are harder to rear than Plymouth Rocks or White Leghorns. The colored are the best suited to this part of the Dominion. While a breed of great merit, they are not hardy enough for the farmers to take hold of. Crossed with the Plymouth Rock, an excellent result is attained.

Black Javas.—Grow to large size when in second year. They are not remarkable as layers, but are good table fowls. The eggs are large and of a rich

color. If better known would perhaps be better appreciated. They are fairly hardy as chickens and fowls.

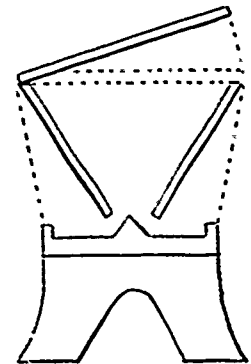
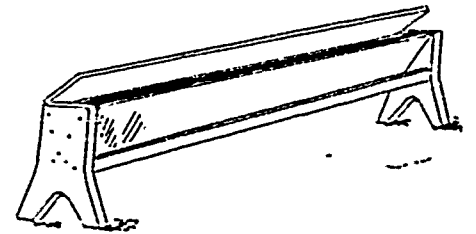
Black Russians.—Have not been found to possess the hardiness nor winter-laying qualities claimed for them. They are predisposed to colds and roup in the cold wet weather of the fall months. The females make good, kind mothers. They do not possess the merits that other breeds do to make them suitable to farmers.

Games.—Are of many varieties. Some are more suited to the cold winter of this country than others. Black-breasted Red Games have been found rather hard to get over the first year, but are hardy and vigorous afterwards. As table fowls their reputation is world wide. Hens are fair layers. They are tight-feathered and weigh much more than they look.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Feed Box for Poultry.

The accompanying sketch of a feed box will fully explain the method of making a very useful device for the poultry house. It has many features of utility, among which it may be mentioned that it prevents any wasting of the grain; it is always clean; it requires little attention, as it is automatic and holds a couple of days' food. It may be made any length to suit the number of fowls that are kept. I find that one six feet long will give plenty of room for twenty



fowls. In making it use inch boards. The space left between the bottom of the box and the wall should be about half an inch. Small strips are nailed along the outer edge of the bottom to form a rim to prevent the grain from being scattered over the floor. In the centre of the bottom board, which is six inches wide, a triangular strip is nailed to divide the grain as it comes down. This idea may be utilized in another way, namely, by making but half of this feed trough and fastening it against the wall.

C. R.

Testimonials.

"THE CANADIAN LIVE STOCK AND FARM JOURNAL meets my idea exactly of what a farm paper should be."—G. H. CHATAWAY, Port Williams, N.S.

"I would not be without the CANADIAN LIVE STOCK AND FARM JOURNAL for twice the money. Your exhibition number is alone worth the price of subscription."—J. D. SKAMAN, Charlottetown, P.E.I.

"SINCE remitting you money for advertisement we have sold most of the stock held for sale. The purchasers have been invariably secured to us through the excellence of your JOURNAL as an advertising medium. Two of our lambs have been recently shipped to the Windsor Agricultural Society, N.S., which is conclusive proof that its circulation is not at all circumscribed."—J. W. McDONALD, Porter's Hill.

Horticultural.

The War Waged Against the English Sparrow.

The sparrow has been condemned in several of the states of the American union. Seven of these have enacted laws for its suppression, and Michigan, one of the seven, offers a bounty of three cents per head for every sparrow head delivered at the town clerk's office.

It is still a somewhat open question with some as to whether the sparrow does more harm than good, but public sentiment is decidedly against the bold little bird. The sparrow is charged with committing depredations in the grain fields, with marring the fruit of the vineyards, and with many such annoyances in the different departments of husbandry. It is a bird which defouls buildings very rapidly, and also their contents, such as the grain in the mows of barns. We understand the sparrow is giving a good deal of trouble to the experimental stations of Ontario both in the east and west, inasmuch that it is thought steps will have to be taken there for their suppression. They seem to take a peculiar delight in preying upon the grain in the small experimental plots, especially those of them which ripen first. This, of course, interferes with the comparative returns of these plots. It is not improbable therefore, that before very long we will be adopting some form of legislation for the suppression of the sparrow. The bounty system of suppression would seem a fair one, but it has its dangers. In Michigan, where it is adopted, it has been found that the heads of such birds as the Purple Finch, the Song sparrow, and the Yellow bird, have been brought to the clerks and palmed off as those of the English sparrow. The clerks in all such cases should be experts in judging sparrow-heads, or there is much danger that useful birds may be slaughtered for sake of the bounty.

It does seem strange that opinion should be so much divided on the subject. It is surely a matter which the doubting ones may easily determine. If sparrows were to be shot every few days and their crops examined, why should it not be determined exactly the nature of the food upon which they live? This would only require to be done during the portion of the year when garden and farm products are maturing. Prosecuted as they are now in a half-hearted way, has but little effect.

Fruit Culture that Pays.

Fruit culture may be taken up either as a pastime or as a means of making a livelihood. The conditions, which govern the pursuit in the two cases will vary widely in some instances.

Where the object of the pursuit is to make money, the requisites essential to success will include suitable soil and climate, to say nothing of the natural or acquired fitness of the individual. Where the climate is too cold or too warm, too dry or too moist, to suit a particular kind of fruit, the attempt should not be made to grow it on a large scale. Likewise when the soil is too heavy or too light, too wet or too dry, some other branch of agriculture will be more in order for that locality. The distance from market is also an important consideration, for, although a locality may be ever so favorable for the growth of a certain kind of fruit, if the cost of marketing bears a large proportion to the cost of growth, it will not be well to make fruit-growing the principal business under these conditions.

These remarks will apply to whole provinces in Canada, as well as to localities. Fruit in some of these, of the more useful kinds, can never probably be grown at a profit. This should not, however, prevent experimental stations and specialists from doing their utmost to introduce new and hardy varieties, for an inferior variety that will stand the rigours of climate well, and is at the same time productive, is more profitable to grow than a superior variety which only exists apparently to prove from year to year a delusive hope.

The amateur and the specialist may, however, accomplish wonderful things in the line of fruit production where the work is engaged in simply for the love of it. A late number of *Popular Gardening* contains a sketch of a method which has been adopted of growing peaches and plums in cold latitudes. It is in brief as follows:—

In planting divide the roots into two equal parts and place the tree astride a mound of earth, in the excavation prepared for it. Its roots must be so placed as not to interfere with the laying down of the tree in autumn, that is, if the tree is to be laid down toward the south the roots must be allowed to extend only east and west. When the period of growth has ceased for the season, some earth is removed from one side where there are no roots, and the tree is then pulled down until some of its branches rest upon the ground. It is thus held in position until after the period of blossoming. After this period the tree is restored to an upright position, and kept from swaying by being tied to a strong stake. The alternate laying down and restoring of the tree to an upright position has the effect of so checking its growth that the fruit is more abundant than it would otherwise be. After a time, however, the tree becomes unmanageable, and requires to be kept permanently in the recumbent position, or discarded for one younger and more pliable.

These and kindred devices may answer well for those who have plenty of time at their disposal, but for the busy farmer engaged in growing grain or meat it will prove more beneficial to sell off these, and buy a few baskets of plums each year. The railways are now bringing fruit, as other things, within reach of almost everyone engaged in tilling the soil.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL.

Desirable House Plants.

As I have been somewhat enthusiastic in window gardening for some time past, I send you a few notes in respect to the plants I have this season, which I consider as fine a collection as could be seen outside a greenhouse. A white Christmas rose is now a mass of flowers, and is nearly four feet in height. A leopard plant looks very pretty, with twenty-five leaves at present, some of which measure nine inches across, and there were two flowers coming on it but I broke them off, as they injure the plant so much. As every one knows what the flower of the dandelion is like, I may say that the flower of this plant very much resembles it. I have also a sweet-scented geranium three feet in height; six varieties of cactus—pincushion, pheasant, Christmas, pink, red, and sinused—the highest stock of the latter is twenty-two inches, and I hope to see it as high as one I saw, the height of myself, in a greenhouse. A nimanimus, which is a feast to my eyes, is as great a delight as the leopard plant, though not as fine in appearance. A lemon geranium, which has a thick leaf like a mullin, and as soft, is the favorite with all my friends, although I do not hold it in as high estimation as some of the others. A white and a pink begonia are masses of bloom. The latter has been so all summer, and is as fine a specimen of the species as I have yet seen. Others in the collection include a seal wax plant, love and

tangle, Wandering Jew, snow heliotrope, coleus, a number of geraniums, and an ivy. Perhaps the excellent appearance of these plants may be due in a large measure to the fact that I feed them with rich forest soil, which I heat in the oven to kill any insects that may be in it. I give them plenty of water. The care taken to keep them in trim is well repaid by their beautiful appearance, which is only equalled by the rich autumn foliage now to be seen around us.

MISS AIKEN.

Wilton West.

FOR CANADIAN LIVE STOCK AND FARM JOURNAL.

After the Harvest.

FACTS ABOUT THE VARIETIES OF GRAPES.

By ANNIE L. JACK.

Everything is garnered, even the late turnips are safely in the cellar, and the garden is deserted. The Holland bulbs are planted and covered, roses and tender shrubs laid down, or wrapped up. Strawberries have a protection of swamp hay, and grape vines are pruned and covered with earth. The fruit of the vine was never so plentiful as this season, hardly worth the growing, selling as it did in Montreal from 2 to 4 cents per pound. If we could only get a long-keeping variety, that would produce a paying quantity. Some years ago we thought we had found it in the Duchess, a white grape that keeps until January, and was to compete with the Malaga, and ou. do it, being a native. But last year it failed to produce a crop, and this year it is no better, being subject to rot. The Concord drops from the bunch, and will not keep after November, and the famed Niagara does not ripen well here, and turns black at the first frost. Delawares are shy of bearing. Agawam is a red grape that keeps well into February, when they are there to keep, but often fail to produce a crop at all. So we are still looking for a grape that will produce and keep.

In looking back over a season it is well to note wherein we have failed, and among other things I think that we might have saved some delicate varieties of grapes by the liberal use of sulphur in blossoming time. So we make a memorandum of that for another year. There is nothing like being hopeful, and the horticulturist has to do a great deal of planning and looking forward. If the ground is being plowed let the chickens follow, they will destroy a lot of vermin and thrive on the food, and fall plowing turns up a great many grubs, and the larvæ of insects, that the chickens and crows will find a palatable dainty.

Until hard frost comes one can plant out raspberries, they do best at this season of the year; and then when the last possible root is planted, and everything is shut up, let the implements be over-hauled and put away in good order. Nothing saves them like a little paint, and nothing saves time in spring better than having everything ready. It you have to run to the blacksmith's when the tools are needed it is the loss of two days to one in the spring of the year, when every moment is precious, and the mistakes of the past season can be noted and used for future improvement. There is always a chance to do better in horticulture, as well as in life, and he who sees and profits by past mistakes has won half the battle.

The Apiary.

The Cure of Foul Brood.

This fell disease amongst bees has, during recent years, made sad havoc with the apiaries of Ontario. It has ruined many hives, and indeed whole colonies, from which high hopes had been previously entertained. It was therefore very much in the interests of bee-keeping when an inspector was appointed to journey through the Province when required, to instruct the owners of apiaries in the cure of the disease and to destroy the colonies where cure could not be effected.

The inspector, Mr. W. McEvoy, of Woodburn, Ont., has had a busy summer of it. He has travel-

led over most of the counties of the Province, and operated on almost 500 diseased hives. During his first visit he gave the most careful and exact instructions as to the mode of effecting a cure. Some, however, did not carry out these instructions, and others were so occupied otherwise that inattention to details failed to effect a cure. Mr. McEvoy has, however, persevered in his work with characteristic assiduity. Where he ascertained that his instructions were neglected, or in any way misapprehended, he wrote letters again and again. So successful has he been in his work that probably not more than fifteen hives have been burned during the season.

The apiaries of Great Britain are being overrun with this disease, and it is making sad havoc among those of the United States. Writers on the subject in both countries contend that burning or destroying the infected hives is the only sure method of destroying the disease. If that theory were true, then the 500 hives saved through the efforts of Mr. McEvoy this summer, should have been destroyed.

We may congratulate ourselves that here again Canada is leading the way. While other countries are powerless apparently to stay the ravages of the disease except through the destruction of much property, our people are being delivered from its ravages at but a small expenditure in proportion to the benefits conferred. We hope this good work may be continued until the Province will be quite freed from its ravages. Owing to the nature of its origin, however, it is liable to re-appear at any time, hence the wisdom of having all our bee-keepers thoroughly posted as to the best means of preventing it.

FOR THE CANADIAN LIVE STOCK AND FARM JOURNAL. Fairs and Exhibitions.

By R. F. HOLTERMANN, A.O.A.C., Romney, Ont.

Anything brought to the notice of our eyes, and what is made attractive to the eye, has done much to become popular. This is the case not only in dress, but it is so with what we eat. How important then that we should make a nice display of comb and extracted honey at our local shows as well as leading exhibitions. Take Toronto for instance—10-day there is hardly a grocery store of any importance without honey for sale, and the beginning of it all was through apiarists making an exhibition of honey at Toronto. For some years, too, very large quantities of honey were sold at the exhibition, but of late years the quantity it has been possible to retail has been much lessened, the reason being that it can be secured in the city stores, and citizens do not require to carry it a long distance. Whilst the exhibitor would prefer to retail his crop, upon the whole the new system is an advantage, as the city can retail far more than the exhibition; and right here let me say, that although the exhibitor in urging a sale might be tempted to say, "Buy your honey direct from the bee-keepers, then you run less risk of having it impure," yet I believe he has never allowed himself to put the least suspicion upon the honey retailed in the city. He has no right to do this, and in the long run, if bee-keepers can wholesale more honey, it will stiffen the price and assist them otherwise. The adulteration of honey is, in Canada at least, talked of more by the ignorant than by those understanding and having reason to know how little it is practiced. We should, when selling honey, inform our customer about honey granulating, and next tell them to keep it in a warm, dry place. If put in a cool, damp place, such as a cellar, honey will deteriorate in value, and the demand for it be cut off in the channels which might otherwise have been kept open.

MR. EWEN PICKEL, Wellburn, Ont., writes:—"I thought I would write to you telling you that I am very much pleased with the LIVE STOCK JOURNAL, and that I would like you to send it for the year 1890 as it is a very useful book for stock breeders to read and shows one where to go to get pure bred stock."

Jottings.

Frost Time.

When the frost is on the pumpkin and the fodder's in the shock,
And you hear the kyouck and gobble of the strutin' turkey-cock,
And the clacking of the guineys, and the cluckin' of the hens,
And the rooster's hallylooyer as he tiptoes on the fence;
Oh, it's then the times a feller is a-feelin' at his best,
With the risin' sun to greet him from a night of peaceful rest,
As he leaves the house bareheaded and goes out to feed the stock.

When the frost is on the punkin and the fodder's in the shock,
They's something kind o' hearty-like about the atmosphere
When the best of summer's over and the coolin' fall is here—
Of course, we miss the flowers, and the blossoms on the trees,
And the mumble of the hummin'-birds, and buzzin' of the bees;
But the air's so appetizin', and the landscape through the haze
Of a crisp and sunny morning of the airly autumn days
Is a pictur' that no painter has the colorin' to mock—
When the frost is on the punkin and the fodder's in the shock.

The husky, rusty rustle of the tassels of the corn,
And the raspin' of the tangled leaves, as golden as the morn;
The stubble in the furries—kind o' lonesome like, but still
A preachin' sermons to us of the barn; they growed to fill;
The strawstack in the medder and the reaper in the shed.
The husses in their stall below—the clover overhead—
Oh, it sets my heart a-lickin' like the tickin' of a clock,
When the frost is on the punkin and the fodder's in the shock.
—James Whitcomb Riley.

Literary Note.—Miss Julia Magruder, a daughter of the late General John B. Magruder, of the Confederate army, who held the "Peninsula" against McClellan in the spring of 1862, began in the New York *Ledger* of October 18 a serial entitled "Jephthah's Daughter." The story is an exquisite and artistic adaptation of the Biblical tale.

A Correction.—Editor CANADIAN LIVE STOCK AND FARM JOURNAL. In the Industrial prize list, Shropshire class, published in October JOURNAL, it is stated that Messrs. Miller & Sons won 1st and 2nd for shearing ewes, which is not correct. It should read J. Campbell 1st and 3rd; J. Miller & Sons 2nd. Please correct in next issue and oblige. JOHN CAMPBELL, JR., Woodville, Ont.

Banner Oats.—As we sent out large quantities of these oats to all parts of Canada as premiums last spring, reports from those who have received them would prove interesting and valuable to us. We would request all those who have given them a trial to communicate with us stating the results that have been obtained. We have reports from several parties, including James I. Davidson, of Balsam, Ont.; J. and W. Watt, of Salem, Ont.; Wm. Keough, of Owen Sound, Ont.; and John Fothergill, of Burlington, Ont., and they are all well pleased with them.

A Fair Number.—The publishers of the Woodstock *Sentinel Review* are modest in styling their issue during the exhibition season as a "fair number," for the issue is certainly worthy of a more complimentary designation. It is a pleasure for us to note indications such as this of enterprise on the part of our local friends in the direction of agriculture. If less rabid political screeds and more sensible and helpful matter found space in our local papers they would be doing a better work in the sphere in which they labor. This exhibition number of the *Review* is beautifully illustrated and contains a number of excellent contributions from the best sources on various agricultural topics. We hope others in this field will profit by the enterprising and sensible example the *Review* has set.

Shropshires from England.—Mr. E. Goodwin Preece, live stock agent and exporter, Shrewsbury, England, shipped per S.S. "Toronto," from Liverpool, on October 3rd, a choice lot of 120 fine Shropshire ewes and 12 Welsh ponies for Mr. Robt. Miller, Jr., of Brougham, Ont., all of which were personally selected, purchased, and shipped by him, making the seventh shipment he has sent out this year, which brings the total of Shropshires alone, to 875 rams, ewes, and lambs, sent by Mr. Goodwin Preece to breeders and importers on this side of the Atlantic. Mr. Robt. Miller himself brought out some 200 head in July last, which he had bought with Mr. Preece, all being since sold. Everything points to a grand future for the hardy, prolific, profitable, mutton-and-wool Shropshire.

American Aberdeen-Angus Herd Book.—We have been favoured with Vol. III. of the above work by the secretary, Mr. Thos. McFarlane, of Iowa City, Iowa. The volume is gotten up in very neat and handsome style, and contains as a frontispiece a beautiful engraving of Keillor Knight, 7215, in his two-year-old form. He was bred by T. Harvey, of Burlington, and is owned by Mr. T. Brown, of Davenport, Iowa. The pedigrees of 2296 bulls and 7504 cows are registered in the volume. About 2222 of these entries have been received under the new rules of registration adopted at the last November meeting of the Association, which have reference to the exclusion of red coloured and white marked males, and to the manner of reporting twins for record. In this volume the pedigrees are given fuller than those previously issued, together with the color and white markings of all American bred and imported animals. The total number of registrations in all the volumes yet issued, is 4,920 bulls, and 7,580 cows, or a grand total of 12,500 registrations. The work is in every way a credit to the Association, and reflects to no small degree good taste and extreme care on the part of the secretary.

A Valuable Award.—The J. B. Armstrong Manufacturing Co., Ltd., of Guelph, Canada, and Flint, Michigan, U.S., have received the handsome silver medal awarded to them for their exhibition of carriage goods at the Melbourne Australia exhibition. The obverse is the likeness of Her Majesty, taken from the Jubilee medal (by Sir Joseph Edgar Boehm, R.A.), with the exception that the crown on that work is replaced by one taken from the New Zealand War Medal. On the reverse

is a wreath composed, on the right side, of the British oak, and on the left, of the Australian wattle, the two sides of the wreath being bound together at the stems by a true lover's knot; the wreath thus symbolizing the idea of unity and affection between the mother country and the Colony. In the centre of the wreath is the motto, "Artibus dignis honor insignis," and the five stars of the Southern Cross. The award is one well worth keeping, especially as it has been won by their goods on their merits. We understand duplicates of the Australian exhibit of this firm are shown this year at all the leading fairs, including Toronto Industrial, Ottawa Central, London Western, and St. John, N.B., International; covering all their improved specialties and an inspection of the same will be made instructive and profitable to all interested in their line.

A Valuable Gift and Prize.—Mr. John Dyke, the Government agent at Liverpool, Eng., presented the authorities of the Ottawa Central Exhibition Association, with a valuable Shropshire ram to be competed for at their recent show, as a prize for the best pen of sheep fit for export to Great Britain, to be bred by exhibitor, in Ottawa Valley. This shearing ram was specially selected from the noted flock of Mr. Thomas Fenn, Downton Castle, Ludlow, Shropshire. The pedigree reads as follows: Sire, Hatton's Gem, 3536, bred by Mr. J. Beach, sire Lord Neptune, 2687, dam by the 100 guinea Royal Chief, 1022; Royal Magnus, 2792, by Royal Chief, dam by 100 guinea Minton's Pride, 858; Black Prince, 3745, and Duke of Norton, 4245. Mr. Thomas Fenn's old-established flock is of high-class repute, both for size and quality. The list of prizes won by this flock, exhibited in the best British show-yards since 1870, when the Shropshire Challenge Cup was won with a shearing ram at Shrewsbury, is a very long one. Mr. Fenn's flock has also taken prizes in the leading show-yards of the European Continent, and North and South America. This liberal gift of Mr. Dyke's, and the strong interest he has shown in the development of our sheep trade with Great Britain, will be warmly appreciated by Canadians. Mr. J. Kemp was the fortunate winner of this valuable prize.

The Milk supply of Great Britain.—The *Journal of Commerce* for October says: According to recently published statistics, there are in round numbers about 2,500,000 cows and heifers in the United Kingdom. Some little time ago it was calculated by Professor Sheldon that the consumption of milk amounted to 555 million gallons annually, worth some 32 million sterling. The supply, however, is seriously menaced by outbreaks of pleuro-pneumonia, and a great amount of difficulty has been experienced by dairymen in large towns in obtaining the number of cows they require without importing them from infected areas. Formerly the greater number of the cows used by dairymen in London and other centres were imported from Holland, Belgium, and France, but at present the only country from which they can draw a supply of dairy cattle without fear of introducing disease is the Dominion of Canada. For upwards of ten years the Canadian Government agent at Liverpool has, he informed us, been endeavouring to initiate and develop this important trade, but it was not until the present season that it has assumed important dimensions. The cows which have arrived here have been of fair quality, but with a view of showing dairymen and others interested in milk—one of the most important articles of food supply—the superior quality of cows which may be obtained in the Dominion, Mr. Rufus Pope, M.P., of Cookshire, Quebec, Canada, has selected a large number of first class animals for shipment to this country, and the first of these are to arrive in Liverpool in a few days.

Manual of Injurious Insects.—Farmers, as well as specialists in the science of entomology, will welcome with heartiness and appreciation the latest addition to the literature on the subject of injurious insects, from the pen of Miss Eleanor A. Ormerod, well known as the leading entomologist in Great Britain through her investigations and writings as consulting entomologist of the Royal Agricultural Society of England. The book, which is a second edition of a former work, is well gotten up in every way, being in such a style as to be of easy use for reference. It is tastefully bound, and illustrated with excellent original drawings of the various insects that are described. The work is not only complete in its scope, but full in description. In clear, readily intelligible language the life history of the various insects that affect crops of the field, orchard, garden and forest, are given with the best known preventative and remedies for each. There are chapters on such subjects as "Food Crops and Insects that Injure them," "Forest Trees and Insects that Injure them," and "Fruit Crops and Insects that Injure them." To those who have been accustomed to look upon the science of entomology as one of mystery, and have become possessed with a desire to enquire into its secrets, will find the chapter, "Introduction to Entomology," one of great interest, as it gives the new beginner an insight into the system upon which the science is built. The book is thoroughly practical in its teachings, and is beyond a doubt, the most complete treatise on this subject yet before the public. The publishers are Messrs. Simpkin, Marshall, Hamilton, Kent & Co., of London, England.

A Wonderful Prize Winner.—The Scotch Shorthorn bull, Young Abbotsburn, 6236, has been attracting great attention in the United States owing to his unparalleled success at their leading exhibitions. He was purchased by his present owner, Col. Moberly, of Kentucky, from the Watt Bros., of Salem, this summer. The Messrs. Watt bred this bull from their imported Abbotsburn, 2210, out of Village Blossom, 2277, and they intended to sweep the leading Canadian exhibitions if he had not been captured by Col. Moberly. Young Abbotsburn is strong in the best of Scotch blood. After leading all comers at several of the leading American state fairs, including those of Michigan, Indiana, and Ohio, Young Abbotsburn closed with his only strong rival at Peoria. The reporter of the *Breeders' Gazette* describes the bull in the following racy style: "Our correspondent at the Detroit show, with western brevity and directness of expression, described this bull as a 'corker.' We take it that few, if any, of our readers failed to catch the drift of his remarks. While possibly we should not have chosen precisely that term in presenting to our readers a pen picture of this Aberdeenshire bull we most cheerfully concede its accuracy and appropriateness. Leastwise, in a somewhat extended observation in the show yards and herds of the country we have never before seen in combination such form, smoothness, substance and quality as are found in this North-Country-bred roan. His head is a distinct improvement on that of the aver-

age Scot; his front is massive, his crest grand, his shoulders laid and covered with remarkable smoothness for a bull of his age and flesh, while his tremendous width of back is carried with absolute evenness from shoulder to hip. He has rare depth of carcass, and in point of front flank is nothing less than wonderful. His quarter is long, level, and deep for a Scotch bull, and he is as full in twist as the most exacting could desire. This is the bull piece meal. Put these parts together and you have a bull with two great ends and a commensurate middle. Such a bull is Young Abbotshurn. His form is grand and his touch admirable. He is something more than mere bulk; his 2,800 lbs. certainly give him enough of that. He is a bull of character, quality, and admirable balanced parts. His meeting with the here, are matchless Cupbearer will be watched with interest. He falls in the wonderful finish of the latter, in substance he gives him points and beats him. With the character of the breeding of the Forest Grove herd in mind, the writer asked Col. Moberly what he proposed doing with this thick-fleshed Scotchman. Use him one and show him right smart, was the prompt reply of the Kentuckian. Many would be tempted to say they would show him some and use him right smart. The results of such service as he may be allowed at Forest Grove will be awaited with interest.

The *Farmers Review* thus comments on the meeting of these two at the Illinois state fair. There was a tremendous display of reds, whites, and roans, and keen competition in every class. The great event, however, was of course the duel between Householder & Baughman's celebrated bull Cupbearer and T. S. Moberly's Young Abbotshurn. Both are Scotch bred bulls, and both roan in color. Each is a magnificent animal, but after all is said we cannot see that Cupbearer made a very strong fight against him. The judge correctly gave the award to Young Abbotshurn, with Cupbearer in second place. This decision quite coincided with the opinion of every disinterested person present who was qualified to express an opinion. The winner beats Cupbearer in wealth and depth of flesh, evenly distributed and smoothly carried, has a more masculine head, and yet might have a better one, although rolling a trifle on shoulder is better there than his rival, as is also true of his flanks. He is the most massive and thickly-fleshed Shorthorn bull we have ever seen in an American show-yard, and certainly the sensation of the day in Shorthorn circles. Cupbearer still preserves his wonderfully silky, mellow hide and good quality, and cannot be surpassed in the region of his remarkably perfect loin.

Stock Notes.

JOSEPH POLLARD, JR., Washington Iowa makes a change in his advertisement in this issue, to which we desire to direct attention. Mr. Pollard writes as follows in a postscript: "We have a fair crop of corn in S.E. Iowa worth 40 cents just now. Potatoes are selling at 90 cents in the stores, but a month ago many farmers refused \$1 per bushel for all they had."

Horses.

A Hackney stallion, *Hue and Cry Times* by Old Times, brought \$300 at the stud sale of W. F. Jerry (Emg.), which was the highest price realized.

Clydesdales, imported and Canadian-bred, are offered for sale by Mr. Thomas Taylor, of Harwich P.O., Ont., in this number. Do not fail to see his advertisement.

A correspondent from the neighbourhood of Peterborough writes that there is an excellent field for a good thoroughbred stallion, weighing 1,200 and upwards, in the county of Peterborough.

At the Birmingham Shire Horse Show and sale, held the fore part of October, the best prices were as follows: First prize colt foal, by Hitchin Duke 938, \$205, the second prize filly foal, Wicknor Rose, by King Charming, \$205, the third prize yearling, entire colt, \$240, the first prize yearling filly, \$475, the first prize mare, Ringlet, \$350, the second prize mare, Hitchin Bluebell 2nd, \$575.

MR. JAMES CHERKI, of Thornhill, Ont., draws attention in this number to an auction sale that he intends holding on Wednesday, November 14th. He has some good animals to offer, including a choice collection of Clyde mares and fillies of good breeding, and in foal to such horses as McNeillage, first winner at the Toronto Spring Stallion Show, and at Toronto Industrial, and Lord Fitz Eskine, Mr. Bell's crack Lord Eskine stallion. A number of registered Berkshires, and imported Southdowns, are also to be sold. Notice advertisement.

At the late Brandon exhibition, Mr. T. J. Kelly, late of West McGillivray, Ont., and now of Brandon Hills, won 1st for Standard-bred stallion on Western Sprague, and also 1st for roaster foal of \$350. The *North-West Farmer* comments as follows on these animals: This foal, the only one in this province sired by T. J. Kelly's horse Western Sprague 2259, was only eighteen days old when shown. Mr. Kelly brought Western Sprague, a Kentucky-bred animal, to Manitoba in April, 1890. He is a horse that will make his mark here.

Shire horses are selling well in England. A Shire filly foal, sired by Wrangler 120, that won the first prize as the best foal at the Leicestershire Agricultural Society's Show, was sold to Mr. Muntz for \$600. Wrangler was fourth at the Shire show last spring. Rokeby Rhoda, a yearling Shire filly, was recently sold to Mr. Walter Gibbey for the large sum of \$1,500. F. W. Bette, King's Lynn, England, sold his brown Shire foal, Marquis of Batingley, by Salisbury 5324, to Mr. P. A. Muntz for \$750. He won the champion prize given by H.R.H. the Prince of Wales, for the best Shire exhibited at the Norfolk Show. Mr. Thoday, of Middle Fenn Farm, Wingham, on Oct. 1st, sold thirty-two head of Shires at an average of about \$475 per head. Apollo, by The Boy, realized \$625, the highest price paid.

In the death of the famous Shire stallion, Laughing Stock, Mr. Freeman Mitford has sustained a heavy loss. The *North-*

Advertisements.

To Advertisers.—Advertisements of an appropriate nature will be inserted in the JOURNAL at the following rates: For a single insertion, 18c. per line, nonpareil (12 lines make one inch); for three months, 15c. per line each insertion, for six months, 11c. per line each insertion, for one year, 10c. per line each insertion. Cards in Breeders' Directory, not exceeding five lines—\$1.50 per line per annum. Copy of advertisements should reach us not later than the 25th of each month (earlier, if possible). If later, it may be in time for insertion, but often too late for proper classification. Transient advertisements payable in advance. No advertisement inserted for less than 75c. Contracts broken by insolvency or otherwise will revert to the usual rate of 18c. per line each insertion. Advertisers desiring to obtain extra copies of the JOURNAL may do so at the following rates. Per dozen, \$1.00, per 100, \$7.50 (in lots of not less than 25). A reasonable number of copies will be sent at these rates to any address supplied by an advertiser, with the advertiser's own advertisement marked, and a notice on the wrapper calling attention to it. In this way the advertiser will be saved the trouble and expense of addressing and mailing.

A PRACTICAL FARMERS' JOURNAL

THE NORTH BRITISH AGRICULTURIST.

THIS is the leading farmer's paper published in Scotland, and is read by most of the Scotch farmers. It contains the best articles on scientific agriculture published on either side of the Atlantic. Special attention is given to pedigree Shorthorns, Aberdeen-Angus, Ayrshires, Clydesdales, etc., etc., and is the paper for all first-hand information of pedigree stock sent to Canada and the United States. Post free to Canada or the United States for \$4. by international money order. Orders payable to C. & R. ANDERSON, Edinburgh, 377 High Street, Edinburgh, Scotland, and 11 Ludgate Hill, London, E.C., England.

BOYS FOR FARM HELP!

The Managers of DR. BARNARD'S HOMES desire to obtain good situations with farmers throughout the country for the boys they are sending out from time to time from their London Homes. There are at present over 3,000 children in these Homes, receiving an industrial training and education, to fit them for positions of usefulness in life, and those who are sent to Canada, will be selected with the utmost care with a view to their moral and physical suitability for Canadian farm life. Farmers requiring such help are invited to apply to

MR. ALFRED B. OWEN,
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To those importing stock from Scotland. For Forage and other supplies address

JAMES CLARK,

Hay, Grain and Straw Merchant (Forage Contractor),
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One hundred yards from Buchanan and Queen Street Stations.
First grade of best quality supplied to shippers of stock on short notice. References by permission to Mr. JOSEPH VANCK, New Hamburg, Ont., and other Canadian Importers.

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NOTICE TO IMPORTERS!

CHARLES CHABOUDEZ,

Hotel de France, et de Suisse, 1 Rue de
Strasbourg, Paris, France.

Agent for the National Line. Information of all the horse districts given at the office. Charges strictly moderate. Correspondence solicited.

CHARLES CHABOUDEZ,
Proprietor.

QUEEN BEES!

ITALIANS

	EACH	PER THREE	PER 1/2 DOZ
Virgin Queen,.....	\$ 40	\$1 00	\$1 75
Untested.....	1 00	2 75	5 00
Tested.....	1 50	3 75	7 00
Select Tested.....	2 00	6 00	10 00

R. F. HOLTERMANN,

Romney, Kent Co., Ont.

Stock Notes.—Continued.

British Agriculturist says: He will be remembered as the champion of the young classes at Islington in 1883; and in the following year he won in his class, and was reserve for the championship, his victor on that occasion being the champion Prince William. Laughing Stock also distinguished himself at the Shire Horse Show of last year, being second in a strong class of aged animals to the champion of the show, viz., Lord Ellesmere's Vulcan. As a breeder he occupied a very high position, and he has been mated with several of the best mares in England.

Mr. TORRANCE, of Markham, Ont., has imported recently four well bred Clydesdale stallions. The *North British Agriculturist* says of the shipment: "Two of these were three-year-olds, the closely-coupled, thick, active, prize horse The Governor, by the prize horse Macaroni, and Bruce, bred by Mr. Muirhead, Townhill, out of one of his fine mares, and got by the well-bred horse Young King David; and two were two-year-olds, got respectively by the well-known prize horses The Uncoloured, winner of third prize at the great Centenary Show in 1884, and Mr. Drummond's own good horse Prince of the Glen, half-brother to the celebrated Corsewall. These horses are calculated to command a ready sale in Canada, where their type and quality are in great demand."

In our report of the horses shown at the late Toronto Industrial, a mention of the Percheron exhibit was omitted through oversight. This class was an improvement on former years, though never a strong exhibit, yet the Percherons have always been well represented in quality. The Haras National came out this year with a good string of stallions that would be hard to beat. Their crack stallion, Joly (15168), was in excellent trim, and succeeded in winning the principal prizes. W. E. Baker was also a large exhibitor of a number of excellent horses. The awards were as follows: Stallion three years old and upwards, 1st and 3rd, Joly (15168) and Bontemps (20828); Haras National Co.; 2nd, Brilliant 8390, W. E. Baker. Stallion two years old, 1st Cesar, W. E. Baker. Yearling colt, 1st M. W. Dunham, W. E. Baker. Stallion any age, 1st Joly, Haras National Co. Mare three years old and upwards, 1st, Roas, W. E. Baker. Mare of any age, 1st, Roas, W. E. Baker.

A correspondent favors us with the following notes in respect to the live stock at the Peterborough Exhibition, held at Norwood on the 14th and 15th of October: It was a complete success. The entries numbered 1,975, and which is about 500 in excess of last year. Every class, with the exception of blood horses, was well filled. The Shorthorn cattle were of good stamp, also the Ayrshire and Jersey. The principal exhibitors in cattle were D. Douglis, Warkworth; F. Birdsell, Birdsell; A. Scott and John Kree, Norwood. In sheep and pigs the exhibit was large and the quality good, especially in Oxford and Shropshire sheep and Improved Yorkshire pigs. A pair of Shropshire sheep, bred by the Hon. Mr. Dryden, and exhibited by Wm. Millar, was much admired, also a ram lamb bred by Henry Arkell, Guelph, and exhibited by F. Birdsell. Mr. Breckenridge showed a Yorkshire boar bred by Mr. Featherston, which has carried off a number of red tickets. Joseph Rightmeyer, A. R. Ridd, and F. Bonnycastle, exhibited fair specimens of the Improved Berkshires. In the inside department the exhibit was large and quality good. The competition was strong, especially in roots and grains. In the two-rowed barley there was a very keen competition, showing that the farmers are not going to let the McKinley Bill frighten them, but will make every endeavor to secure the British market for their two-rowed barley.

THOS. GOOD, Richmond P.O., Ont., writes: I have much pleasure in writing you that my stock and their produce have held their usual high position at the agricultural exhibitions this autumn. It would be wise for the breeders in general to pay more attention to the breeding and quality of the sires they use, as breeding will tell, which was fully proven in this instance as in the past. Little Jock Elliot had an easy first, with three of his get, at the Ottawa exhibition, two of which were greatly admired, and were both placed first in the draught and agricultural classes respectively, and also held first place as above with their dams, both mares being gets of the famous old Sir Wm. Wallace (806). Sir Walter, by Little Jock, was awarded third place in the imported class, and would no doubt hold a higher place if in the high condition of the imported animals. Queen Vic, by The Montgomery, held first place as usual, and is a model filly three years old, and weighs 1600 lbs. in very moderate flesh. Sir Wm. Wallace 2nd, by Sir Wm. Wallace (806), out of Corran Bell, imp., was placed second in the Canada bred class. He, too, was too thin in flesh to do himself justice, as he is a picture in horse flesh; and to be brief, every one of the above named animals was placed first in their classes at the Carleton exhibition, the filly foal above mentioned taking sweepstakes, with the horse colt second. At Ottawa, a two-year-old filly by Little Jock was first in her class, as was also a three-year-old stallion by The Montgomery.

W. D. GRAND, at his annual sale, held at Grand's Repository on Sept. 23rd, 24th, 25th, and 26th, offered a lot of good animals. The best prices obtained for the hunters, carriage, and saddle horses disposed of, were as follows: Parisian, bay gelding, four, by Caligua; T. E. Burk, New York City, \$220. Pembroke, bay gelding, six, by Stockwood; W. Ramway, Hamilton, \$300. Marquis, Chestnut gelding, by Stockwood; J. S. Rogers, \$180. Charlemagne, bay gelding, four, by Woodstock; D. T. Lowe, Brampton, \$275. Lottery, bay gelding, four, by St. James; M. Darcy, New York City, \$200. Welcome, bay mare, four, by Woodstock; W. S. Tennant, Toronto, \$250. Mark and Royal, matched pair; W. Thompson, Plainville, N.J., \$600. Alarm and Hero, matched, four and five; Mr. Roe, Toronto, \$550. Congress, bay gelding, five; M. Thompson, Plainville, N.J., \$275. Aurora and Starlight, matched; M. Thompson, Plainville, N.J., \$400. Arthur and Brant, five and six, by Clarion; Mr. Barnes, Boston, Mass., \$435. Belle, five, by Vandorn; J. S. Rogers, Detroit, \$180. Blanche, bay mare, four, by St. James, and Hermit, five, by St. James; T. C. Pattison, Toronto, \$520. Minnie, bay mare, five; Mr. Barnes, Boston, Mass., \$160. Major and Recruit, chestnut geldings, by Veteran; W. Thompson, New Jersey, \$350. Recruit; Mr. Miller, Albany, N.Y., \$120. Tallyho, chestnut gelding, by Valentine; R. C. Clute, Belleville, \$200. Bell Boy, six, by Clarion Chief; M. Thompson, Plainville, N.J., \$190.

Stock Notes.—Continued.
Cattle.

H. B. HALL, of Gagetown, New Brunswick, offers for sale in this issue a number of Red Polled calves at reasonable prices. Those desiring foundation stock of this popular breed should not fail to correspond with Mr. Hall. This gentleman also offers a year old filly from the noted Harry Wilkes, out of a mare by Lord Nelson. The Wilkes blood is in strong demand now, so that Mr. Hall is offering an animal that is marketable in every sense.

Wm. STUART & SON, of Willow Grove Stock Farm, Lucas, Ont., whose herd we noted in last issue in these notes, writes: We arrived home with our herd all right, from the Western fair, and at once went to the township show held at Bridgen. We got three first prizes on our bulls; two firsts and seconds on cows, two firsts on heifers; and two prizes on calves. Next week we attended the West Lambton county show and got nine first prizes, and first for our herd, and three special prizes. Our stock are doing well.

Parties desiring to secure young Holstein bulls and heifers will be interested in the announcement which Messrs. Hallman & Co. make in this issue. Owing to the want of room they have decided to dispose of some of their young stock at reduced prices. A mistake, we understand, was made in the prize list furnished us of the Holstein-Friesians, as Messrs. Felan & Breckon were credited with first prize for yearling heifers, which was awarded to the Messrs. Hallman. This same heifer afterwards won the silver medal for best female of any age.

ROBERT BLAIR, Rose Hill Farm, Almonte, Ont., writes: "I enclose you a list of sales of registered Shorthorn cattle: 1 year old bull, to A. Cochrane, Almonte, P.O.; 1 bull calf to A. D. Cameron, Buckingham; heifer calf to A. D. Cameron, Buckingham; 1 heifer calf to Adam Armstrong, Aylmer, Que.; 1 heifer calf and 1 yearling heifer to D. McLaren, Dunmore, Ont. My cattle are doing well and have had many enquiries for young bulls. I have added to my herd of Shorthorns a choice heifer calf, out of Crimson Flower, bred by D. McLaren, Dunmore, Ont.

A. C. HALLMAN & Co., Spring Brook Farm, New Dundee, Ont., writes: We have returned safe home from exhibitions at London and Toronto, and our stock seem none the worse. We have again been very successful at the fairs, again holding our own and probably a little more. Competition was strong and prizes were pretty well divided. We again met lots of inquirers after Hulsteins, and if the sales will follow anything like the demand we expect to dispose of our surplus stock early. Those that have met us, we feel satisfied were pleased with the quality of stock we handle. We are a little crowded for room and those that want stock at a bargain will please look at our advertisement and take early advantage. We have a choice lot of young bulls and cows at bargains.

E. E. MARTIN, Nithside Farm, Canning, Ont., writes. Our stock is all doing well and will go into winter quarters in fine condition. We have made the rounds of the local shows with our Berkshires and have been very successful in prizes and sales. I think we never had a better show lot. We have made the following sales since writing you: One Southdown ram, to A. N. Carr, Lyonsa, Crawford Co., Pa., U.S.A.; four shearing ewes, to H. Phippen & Son, Parkhill, Ont.; one Shropshire ewe and two ewe lambs, to John Conworth, Paris. One boar to Andrew Stocton Ayr, P.O.; one boar to Andrew Chisholm, Galt P.O. I have bought a pair of Reg Shropshire ewes from J. Conworth, Paris, also one Silver-Grey Dorking cock, imported by Mr. J. Main, of Boyne, bred by Abbot Bros., Eng and.

CHAS. J. STUCKEY, of Pleasant View Farm, of Atlanta, Ills., writes: "My Shorthorns and hogs are doing fine, and my sales have been very satisfactory, especially of my Duroc-Jersey hogs. I have lately made sales to parties of pigs to Iowa, Nebraska, Mo., Indiana, and Kentucky, and as far as heard from they are very well pleased. Some of them are gentlemen who have traded with me for four years in succession. I have now on hand and for sale over one hundred Red hogs of different ages, and will breed some forty or fifty head of young sows for the trade this fall and winter. It has been very dry here and our pastures are quite short. Still I find after travelling over a good deal of country this fall, that we are better off for grain crops than most places in the Western States."

The sales of Aberdeen Angus cattle in Scotland are reported as being good. Mr. Wilken, of Waterside, sold at his sale twenty-one animals that brought an average of over \$245 per head. Waterside Fleas, the champion at Birmingham and London, sold to the Marquis of Huntley at \$275, which was the highest price of the sale. The Ballinleck herd, belonging to Sir George Macpherson Grant, for a draft of thirty-eight head, averaged \$315 per head. The highest figure, \$750, was realized for the four-year-old cow Equality. Two yearling heifers, Black Jade and the Marquis of Huntly Eldora, were purchased by Dr. Craik, of Montreal, at \$500 each. The Haughton herd, belonging to the representative of the late R. O. Farquhason, made an average of \$105. The whole herd of thirty-seven head were all descended from one cow. The draft sale of fifty-six animals from the herd of Mr. Wilson, of Coynachie, resulted in an average of about \$100 per head. Fair Lucy at \$230 was the highest price realized.

The valuable herd of Bates Shorthorns that has been under the management of Messrs. Gibson & Burch, are to be sold sometime in December. This is an important sale, at which superior representatives of the best strains of the Bates family, so noted for their wide utility, will be disposed of, as the above parties have by mutual consent, decided to dissolve their partnership. The offerings include members of rare individual type of the Waterloo, Constance, Darlington, and various other equally famous strains. Our readers will do well to keep this sale in mind, for it will afford an opportunity such as is seldom given to secure richly-bred and meritorious Shorthorns at reasonable prices. The sale is by auction, and all members of herd, not omitting the noted Duches bull Imp., 8th Duke of Leicester, are to be sold without reserve. A preliminary announcement appears in this issue, which should be read by our readers.

FOR SALE
Red Polled Calves

(ENGLISH AND AMERICAN REGISTER.)

I offer these animals at very low prices as I have not room to winter them. They are in fine thrifty order and very large.

I have also for sale a one-year-old WILKES FILLY, sire, the standard bred stallion HARRY WILKES; dam, by LORD NELSON and out of a blood mare.

For particulars apply to
H. B. HALL,
Gagetown, New Brunswick.
Breeder of Red Polled Cattle.

IMPORTANT NOTICE

SALE OF BATES' SHORTHORNS

Sometime in December (of which due notice will be given) the entire Herd of Bates Cattle, that have been bred under the name of Gibson & Burch, will be sold by Auction without Reserve.

The offering will consist of splendid specimens of Waterloo, Constance, Darlington, and other noted families, and is headed by that valuable sire, Imp. 8th Duke of Leicester.

As the partnership is dissolved by mutual consent everything must be sold to enable a settlement.

Catalogues ready in a few days, which will be sent on application.

GIBSON & BURCH,
Delaware and Lambeth P. O.

WILL SELL CHEAP

(CONSIDERING STOCK.)

3 Shropshire Ram Lambs, 1 Shearling Ram, 2 Registered Clyde Brood Mares, 7 and 10 years old, weight 3500; 2 Registered Clyde Fillies, 3 years old; 2 Spring Fillies, all from Imported Stock, Suffolk Breeding Sows and Young Pigs. Having more Stock than time would admit of selling at my Public Sale I have the above left and will sell cheap.

F. J. RAMSEY,
Dunville, Ont.

IMPORTANT SALE

WEDNESDAY, 19th NOVEMBER.

CLYDESDALES:

- 1 Registered Mare, bred to Lord Fitz Erskine.
- 1 Filly, " Macensilage.
- 1 " Stallion, 2 years old, by Campsie Lad.
- 1 " Stallion, 1 year old, by Lord Fitz Erskine.
- 1 " Stallion, 1 year old, by Self Esteem.
- 1 " Spring Colt, by Lord Fitz Erskine.

BERKSHIRE SWINE:

- 3 Brood Sows, Registered.
- 6 Sows, 4 months old, eligible for registration.

SOUTHDOWN SHEEP:

- 2 Imported Ewes.
- 7 Ewes, bred from Imported Stock.
- 6 Ewe Lambs, from Imported Stock.
- 3 Rams, from Imported Stock.

A Sale will be held on Lot No. 3, Con. 3, Markham Township, York County, situated within four miles of Unionville Station, Midland Division G.T.R.

SALEM ECKARDT, JAMES CHERRY,
AUCTIONEER. PROPRIETOR, Thornhill.

FOR SALE.

A number of Berkshire Pigs from 6 weeks up to 6 months old, 2 Boars and Sows. Two Sows to farrow in a month. All from imported stock, Registered Pedigrees. Prices reasonable. Address, C. R. DECKER, Chesterfield, Ont.

FOR SALE.

One Cotswold Shearling Ram bred from an imported ram, Price \$20.00.
One Berkshire Sow, six months old, Price \$15.00.
A few Yorkshire Pigs, 2 months old, Price \$5.00 each.
One pair Brown China Geese, Price \$5.00.
3 Black Minorca Cockerels, \$7.00 each.
Address, J. H. HOUSER, Canboro, Ont.

REGISTERED BERKSHIRES.

For Sale. Twelve choice young sows and three boars from 5 to 10 months old. Can be bred, if desired, before shipping. Also a few pairs of Silver Grey Dorking Chicks bred from imported stock. Address,

E. E. Martin,
Nithside Farm, Canning P.O., Ont.

Stock Notes.—Continued.

Catalogues may be had through application to R. Gibson, Delaware, Ont., or Mr. Burch, of Lambeth P.O.

F. W. STONE, Moreton Lodge Farm, Guelph, Ont., writes us that his sale of pure-bred Shorthorn and Hereford cattle, Cotswold and Southdown sheep, and Berkshire pigs came off as advertised in our September number, October 8th and 9th. 141 head of cattle were catalogued, of which 127 were sold, and will be the means of starting a number of new herds and adding to others; they brought fair prices considering the state of the market, the large number offered and the condition of the animals (they being only in grass). Ten head of Herefords were purchased for shipment to England for breeding. Forty-two Cotswold ewes, 22 Cotswold rams, 64 Southdown ewes, and 44 Southdown rams, 157 in all, were all sold, as were 17 Berkshire pigs—the entire number catalogued. The 4 cattle not sold were passed (not bought in), and the sale was pronounced by the press and buyers, to have been of an unusually genuine character. Notwithstanding the large number of animals disposed of, Mr. Stone is not yet out of the field, having at present over 200 Herefords and Shorthorns, as also large flocks of both Cotswold and Southdown sheep.

The eighth semi-annual sale of the Wyton Stock Breeders' Association, handlers of Holstein-Friesian cattle, occurred at Wyton, Middlesex Co., on Oct. 3rd, as advertised in the LIVE STOCK JOURNAL. There was a very fair attendance and stock brought good prices, Mr. James Brady being the auctioneer. Sixteen head, nine bulls and seven heifers, of spring stock, were sold, making over forty animals disposed of by the Association this year. That they have good foundation dairy stock appears from the fact that their cows have milked as high as nearly 12,000 lbs. in nine months. In the last season, from nine cows in Mr. Wm. B. Scatterd's section of the herd, 43,000 lbs. of milk were sent to the neighbouring cheese factory in five months, and the inspector pronounced it the best in quality that was coming in. This did not include Saturday nights and Sunday mornings' milk, which was used for butter-making. During the past few weeks Mr. Scatterd resumed making butter for the late fall and winter season, and the eleven cows he was milking have been averaging him nearly eight pounds of first-class butter per week each, for which he gets the top market price. He sets the milk in what are called shot-gun cans, placed in a tank of cold water, and removes the cream after standing twelve hours.—Con.

It affords us pleasure to call the attention of our readers to the new breeders' card appearing in our directory, from Messrs. J. & G. Hardy, Ash Grove Stock Farm, Halton, Ont. This firm have been breeding Durhams for the last twenty years, and they have now a herd of sixteen, consisting mostly of Booths, with one or two with a Bates top cross. The stock bull at the head of the herd at present is Jim Trooper, sired by Prince James. Mr. Hardy has faith in the milking qualities of the Durham, and as ground for this asserts that one of his cows, Lady Baron, this year, from the time she dropped her calf in early spring, up until the 1st of July, averaged 14 lbs. of butter per week. A large flock of Shropshires is also kept, numbering in all about twenty-five pure breeds. These sheep are all from imported stock, the foundation animals being obtained from Mr. Whitelaw, of Guelph. For a number of years the Messrs. Hardy bred Leicesters extensively, but they gave them up to take hold of the Shrops, and the latter have given them every satisfaction for their conditions and purposes. A special feature of their work is sending early lambs to the Toronto market, which has been found more profitable of late than that of the Americans. With their sheep and cattle these gentlemen have been very successful at the local shows. See their card.

Thornton's Circular, containing a record of Shorthorn transactions from April 1st to June 30th, 1890, has reached us. Taking the list of sales conducted by the firm, we find that 463 Shorthorns, comprising bulls and calves, cows and heifers, made an average of \$180 per head. In the comments on the noted bulls that have died, the following brief reference to Field Marshall appears: "This excellent and well known sire met with an accident last spring and was killed in his eighth year. He was bred by Mr. A. Cruikshank at Sittytown, by Roan Gauntlet from Azalea by Caesar Augustus (a son of champion of England), and Azalea was from a Forth daughter of Mr. Dudding's cow Avalanche, by Mr. Booth's Sir Samuel. Mr. Duthrie purchased him when a calf, used him at Collynie, and successfully exhibited him at the Highland Society and Northern Shows. He was, however, perhaps more meritorious as a sire than as a show bull, for at the Highland Centenary meeting in 1884, in a large class of sixteen two-year-olds, he was placed third to Mr. J. Bruce's Goldfinder 47967, bred by Mr. Handley (first), and Mr. R. Thompson's Royal Baron 50354, who was placed second. He was used three seasons at the Prince Consort's Shaw Farm, Windsor, where he left a number of fine heifers and bulls, several of which have since been prize winners. One of his most celebrated sons was Mr. Gordon's Mario 51713, first at the Royal at Nottingham. He was a beautiful dark roan in color, with a remarkably fine masculine head, grand ribs and loins, a deep carcass on short legs; his shoulders were not very evenly covered, and his hindquarters somewhat drooped, yet he was a very grand bull, and one of the best sires of the present day. After service at Windsor he returned to Collynie, where he died shortly afterwards."

The twelfth annual sale of the pedigreed live stock of Ontario Agricultural College Farm, was held on the 7th ult., and was conducted by Joseph D. Heffernan, Guelph, to the satisfaction of all who were present.

The sale was considered a decided success. The prices paid were not, to say high, but they were not low, and the bidding was brisk, the entire sale being completed in about 3 hours.

A very pleasing feature to the farmers attending the sale was the fact that nearly everything sold was bred on the farm. It should also be remembered that the stock disposed of was quite young, especially in the case of pigs. The following is a list of the sales made:—

CATTLE.

Shorthorns.—Bull calf, Prince Joyful=134300, William Bristow, McIntyre, \$53; heifer, Matchless of Elmhurst 9th =17260, J. & W. Watt, Salem, \$70; heifer calf, Matchless of Elmhurst 10th, J. & W. Watt, Salem, \$31.
Herculeans.—Bull calf, Corporal 2nd (A.H.B.), \$64; heifer calf, Geranium, (A.H.B.), \$53.

Stock Notes.—Continued.

Aberdeen-Angus Polls.—Bull calf, Hillhurst Chief (A.A.H. B.), James McFarlane, Clinton, \$50; bull calf, King Kyma (A. A.H.B.), James Sharpe, Rockside, \$40.
Galloways.—Heifer calf, Gem 3rd of Drumlanrig (A.G.H.B.), A. & R. Shaw, Brantford, \$77.
Dorsets.—Aged bull, Rose's Duke (222) Imp., Samuel Harper, Colbourn, \$67; heifer calf, Beauty 2nd, W. J. Rudd, Eden Mills, \$55.
Yorkshires.—Aged bull, Campbell of Drumlanrig (462) Imp., William Spencer, Guelph, \$55; bull calf, Mayduke (D.A.H.B.), George Fulton, Clifford, \$41.
Hollands.—Aged bull, African Prince, (H.F.H.B.), (1270), William Monteith, Exeter, \$70; bull calf, Amsterdam (H.F.H.B.), J. A. Line, Sherwood, \$70; aged cow, Texasina (1045) (H.F.H.B.), F. W. Charlton, St. George, \$84.
Average for 16 head, including foal given below, \$65.75.

HORSES.

Foal, Royal Farmer (1435), William Bristow, McIntyre \$70.
SILVER.

Oxford Downes.—Shearling ram, College Duke, William McGarry, Perth, \$20; shearling ewe, College Lady, H. Arkell, Arkell, \$25; shearling ewe, College Lady 2nd, H. Arkell, Arkell, \$20; shearling ewe, College Lady 3rd, R. E. Birdsell, Birdsell, \$26; shearling ewe, College Lady 4th, H. Arkell, Arkell, \$21.
Shropshire Downes.—Shearling ewe, 13362, W. Cowan, Galt, \$28; shearling ewe, 13364, W. Cowan, Galt, \$20; shearling ewe, 13367, J. Wigginton, Clinton, \$31; ram lamb, A. Elliott, Galt, \$14.
Southdowns.—Shearling ewe, Lady Coleman, Andrew Telfer, Paris, \$15; ram lamb, George Morrill, West Montrose, \$10.
Dorsets.—Ram lamb, D. W. Smith, Arthur, \$11.
Leicesters.—Shearling ram, Snowdon, J. R. Martin, Cayuga, \$31; shearling ram, Snowball, \$9; shearling ram, James Lindsay, Fergus, \$8.
Average for 15 head, \$20.53.

PIGS.

Berkshire.—Aged boar, Royal Saxon (883), John Lamont, Caledon, \$18; two year sow, Countess Queen 3rd (1422), John Byres, Fenelon Falls, \$15; young pigs from dam Countess Queen 3rd (1422); boar, Daniel Allen, Chesley, \$4; do. Thomas Fisher, Creekbank, \$4.25; sow, W. J. Rudd, Eden Mills, \$7.00; young pigs from the dam Dalila (1670); Sow, H. Arkell, Arkell, \$8; do. John Hord, Parkhill, \$5.75; young pigs from the dam Lass of Riverside (1200); Boar, R. Hepburn, Port Stanley, \$17.50; do. John Crosby, Marden, \$14; do. J. O. Evans, Gountherpe, Man., \$13.50; do. James Cowan, Guelph, \$13; sow, J. O. Evans, Manitoulin, \$10.50; do. Hugh Sorby, Moffatt, \$15; do. Wm. Lutterell, Guelph, \$18; do. Hugh Sorby, Moffatt, \$15; young pigs from dam Lass of Riverside 2nd (1669); Boar, R. Hepburn, Port Stanley, \$13; sow, W. Lutterell, Guelph, \$14; do. J. K. McMichael, Waterford, \$11.75; do. J. Gray, Rockwood, \$15; young pigs from dam Vashit (1443); Boar, F. W. Stone, Guelph, \$8; do. F. W. Stone, \$9; sow, William McGarry, McGarry, \$8.50; do. John Malcolm, Galt, \$8.25; one year sow, V. R. Adams, Drayton, \$25; average for 24 pigs, \$12.15.
Yorkshires.—One year boar, Mammoth 5th (29), R. Atkins & Son, Knatchbull, \$38; young pigs from dam Charnock's Damsel Imp., Boar, Robert Maddaugh, Puslinch, \$8; sow, John Hord, Parkhill, \$6; do. John Skeoch, Fergus, \$7; do. A. & R. Shaw, Brantford, \$10; young pig from dam Donfield Lady (162) Imp.; Boar, John Hord, Parkhill, \$12; do. D. Magill, Hillsburg, \$10; sow, T. W. Charlton, St. George, \$13; do. Tarzwell & Hector, Port Credit, \$17; do. James McCormick, Rockton, \$15.50; do. W. Farmer, Rockton, \$16.50; young pigs from dam Donfield Maid (164) Imp.; Boar, Walter White, Ayr, \$6; sow, G. B. Hood, Guelph, \$14; do. Chas. Curry, Morrison, \$6; young pigs from dam Charnock's Maiden, Imp.; Boar, A. Cowan, Orono, \$7.50; do. W. Palmer, P. E. Island, \$11; do. C. Currey, Morrison, \$10.25; sow, W. Palmer, P. E. Island, \$11; do. J. McCormick, Rockton, \$10; young pigs from the sow Mistress 2nd (49); Boar, J. McCormick, Rockton, \$8.50; do. John Malcolm, Galt, \$18.25; do. J. K. McMichael, Waterford, \$10.25; sow, W. Cowan, Galt, \$6; A. Cowan, Orono, \$13.50; do. Tarzwell & Hector, Port Credit, \$13; average for 25 pigs, \$11.97.

The stock sold netted \$1,950.75, and this does not represent much more than half the amount received for stock sold during the year; that is to say, the gains on stock fattened on the farm during the year and proceeds from sales of stock bred upon the farm will probably run up to nearly \$4,000. Professor Shaw is now quite sanguine that the farm proper will this year pay its way. In addition to the stock thus sold Mr. Zavitz disposed of a large quantity of seed grain during the day, consisting of new varieties of wheat, barley, oats, peas, and potatoes, which went to all parts of the Province.

Sheep.

Mr. S. H. Howser, of Canboro, Ont., offers for sale in this issue, an imported Cotswold shearling ram from an imported sire, a Berkshire sow, a number of Yorkshire pigs, and a pair of brown China geese, and a number of Minorca chickens, all at reasonable prices, which are given in his advertisement.

From the valuable flock of Shropshire sheep owned by Mr. Wallace, Daniface, Fife, a lot of twenty well-bred animals have been shipped to Mr. John Dunkin, Brucefield, Ontario, Canada. The whole of the consignment were bred at Daniface, and they are good specimens of this popular breed.—Farmer and Stock Breeder.

Mr. T. J. Ramsey, of Dunville, Ont., places an advertisement with us this month, offering for sale a number of Shropshire ram lambs, a shearling ram and also several Clyde mares and fillies, from an imported stallion. Owing to the fact that darkness came on before they completed their sale these animals are now offered. There are several good chances here. See advertisement.

SMITH EVANS, of Gourock, writes: "I have made the following sales of Oxford since I last wrote. To Mr. B. J. Marsh,

BERKSHIRE AND YORKSHIRE Boars fit for service.

Also a few first-class shearing Southdown Ewes. Also on reasonable terms. Write to W. H. McNish, Lynn, Ont.

POLAND CHINAS.

POLAND CHINA PIGS for sale—of April and October breeding—from imported (registered) stock of noted strains. Prices most reasonable. Address: W. M. & F. ROW, Avon, Ontario.

Jersey Bull for Sale

12 months old, from pure-bred Stock, can be bought cheap as I have no use for him.

S. DUBBER, St. Thomas P.O. Ont.

PURE BRED LEICESTERS FOR SALE.

16 Ram and Ewe Lambs at \$10 each. 1 Stock Ram 3 years old \$20. Lambs bred from a prize Ram at Hamilton Show last year. J. M. Vankeeran, Byng, Ont.

CHOICE SHROPSHIRE EWES,

BRED TO—The well-known prize-winning Rams: Royal Patron, 14496, and Royalist, 14497.

FOR SALE.



Orders now taken for Imported One and Two Year Old Ewes; also a few Canadian-bred Shearlings J. CAMPBELL, JR., Woodville, Ontario, Can.

Eastwood Herd and Flock.

Some excellent Shorthorn heifers, Bow Park Stock, Imported Shropshire Sheep. Registered Rams and Bulls cheap. Address, T. C. PATTESON, Postmaster, Toronto. N. B.—Eastwood is next station east of Woodstock on G.W.R.

Shorthorn Bulls.

1 Bull, aged 5 years; 1 Bull, aged 19 months; 1 Bull, aged 14 months; 1 Bull, aged 12 months. All of Dom. S. H. H. B. registry, except the bull aged 19 months, which is eligible to N. S. H. B.

A. C. BELL, TROUT BROOK FARM, New Glasgow, N.S.

CLYDESDALES

FOUR REGISTERED CLYDESDALES FOR SALE. Imported and Canadian bred: Craigie, (imp.) ten years old, Laird of Moray, (imp.), five years old, Bonnie Lad of Craigielee, two years old, Jamie Crawford, one year old. For Pedigrees and other information, address, THOMAS TAYLOR, Hurvich P.O. Ont.

FOR SALE

The Imported Yorkshire Coaching Stallion, "PREMIER" (1138). He is a rich bay with black points; 7 years old; sixteen and a quarter hands high, and weighs 1300 lbs. He was shown six times in England and gained five firsts and one second prize. He is perfectly sound and a sure foal getter. Also well bred Shire stallions. For particulars and price apply to, GEO. TWEEDY, Charlottetown, P.E. Island.

Stock Notes.—Continued.

of Thornbury, a pair of ewe lambs; to John Kay, of Sutton, one ram lamb; to Thomas Free, of Campbellford, one ram lamb; to S. S. De Arman, of Frankland, Pa., one aged ram; to Grant J. Campbell, of Pittsfield, Ohio, pair of ewe lambs and one ram lamb. Letters are coming thick enquiring for Oxford Downes; have sold all I have for sale this fall.

BROWN BROS., of Springville P.O., Ont., write us: We are well pleased with the results from our advertisement. Our stock have done very well this year, the regular rains keeping the grass fresh and green. We only took our stock to one fair this year, viz., the Peterboro Central. The Shrops were out in good numbers, and were almost without exception good representatives of the breed. The diploma was awarded to our flock for the third time. We have sold rams to the following: Ram lamb to J. Carruthers, Bonanton; oneshearling to Wm. Wilson; one ram lamb to J. Miller, Keene. Our Berks are also in good demand. We have recently made the following sales: Sow to W. E. Sanderson, boar and sow to D. Poucher, Plainfield; boar to Paul Scott, Norwood, boar to W. Telfer; boar to F. Austin, Hallowburton, boar to E. Hurston, Dunsford. We have yet a few young animals on hand which look good enough to breed from.

Swine.

Messrs. Row, of Avon, Ont., in this issue advertise for sale Poland China pigs from imported stock. See their advertisement.

C. R. DECKER, of Chesterfield, Ont., places with us in this issue an advertisement offering a number of Berkshire pigs of various ages. See advertisement.

MR. C. T. GARBUETT, of Claremont, Ont., writes: Sister A 7th (imp.), had a promising litter of fourteen on July 2nd, of which all have been sold at living prices. I have sold most of my young Berkshire sows, but have a lot of young boars, from six weeks to five months old, ready for the fall trade.

RICHARD DELBRIDGE, of Winchelsea, Ont., has been very successful at the exhibition this season with his Berkshires, having won twenty-seven first and twenty-four second prizes. In four years he made 160 entries, and has won eighty-three first and fifty second prizes. He reports the following recent sales: On sow to J. Kerslake, Exeter; 1 sow to J. Esberry, Exeter; 1 sow to S. Hicks, Exeter; 1 sow to A. Fuller, Woodham; 1 boar to D. R. McLennan, Lancaster; 1 boar and 1 sow to W. McAlister, Varnia; 1 boar to Mr. Sparling, Anderson.

C. R. DECKER, of Chesterfield, Ont., writes: My Berkshires have done well at the fall shows. I sold J. Clark, Blandford, 1 boar; George Vance, Ratho, 1 boar; C. Main, Washington, 1 boar; Jas. Main, Washington, 1 sow; Jas. Wamock, Galt, 1 sow; Robert Miller, Chesterfield, 2 sows; C. T. Garbutt, Claremont, 1 boar and 1 sow; E. W. Sjorell, Carholm, 1 boar and 1 sow; Wm. Currie, Ayr, 1 sow; E. Decker, Clyde, 1 sow; S. Decker, Clyde, 1 sow; W. Murray, Wilmot, 1 sow; McDonald Bros., Woodstock, 1 boar; A. Hastings, Chesterfield, 1 sow; John Hall, Plattsville, 1 sow; John Gilbert, Kirkwall, 1 boar.

H. GEORGE & SONS, of Crampton, Ont., write us that they have been very successful at the fall fairs with their herd of Ohio Improved Chester White swine. Their imported boar Royal No. 1251, has taken seven first prizes this fall, including first at Toronto and first at London, where he had to show against Improved Yorkshires. "We also won at Toronto the herd prize for the best boar and two sows, on Royal and two sows of his own get. One of these sows took first prize at Toronto as sow under one year in a large class. She also won first at London in her class and sweepstake for the best fat pig of any of the large breeds. We have made the following sales in the last few weeks: To Duncan Campbell, Norwood, 1 boar; to Geo. W. Buchanan, Hillier, 1 boar; to Theo. Madill, Armadale, 1 boar; to Gideon Snyder, Jarvis, 1 boar; to C. D. Moore, Peterborough, 1 boar; to John W. Hutchinson, Aurora, 1 boar; to W. H. Monkman, Castlegrey, 1 boar; to A. B. Howard, Bondhead, 1 boar; to Richard Prouse, Cannington, 1 boar and 1 sow; to Thos. Presti, Tottenham, 1 boar; to J. W. Bussell, Brampton, 1 sow; to W. H. Reed, Lockton, 1 sow; to P. G. Walker, Westwood, 2 sows."

C. T. GARBUETT, Maple Lane Farm, Claremont, Ont., writes: My young stock are doing exceedingly well. I did not exhibit any stock this fall but have sold a goodly number for that purpose. I feel justly proud over the high honors they have been awarded. Messrs. J. & J. Blackie from Manitoulin Island, Providence Bay, paid us a flying visit the other day, in search of some breeding stock, which they purchased from me, after scouring two townships. They purchased one Cotswold ram; one boar and breeding sow; and also leaving their order for a young bull, sired by that noted bull Vice-Consul, champion of the Dominion. I have also just sold one entire colt out of Fannie of Claremont, sired by McClaskie, that noted horse and winner of highest honors at the leading exhibitions, this being the fifth entire colt out of Fannie of Claremont which Crawford & Bros. have purchased. I have also sold one ram to Mr. Gibbs, Woodville, Ont.; one boar and two sows to T. L. Salter, Greenbank, Ont.; one pair of ewe lambs to B. H. Frink, Napanee, Ont.; one boar and two sows to C. R. Decker, Chesterfield, Ont.; one ram to J. Lotten, Dunbarton, Ont.; one ram to Squire Dobson, Epsom, Ont.; one boar and sow to A. C. Courtney, Dunbarton, Ont.; one ram to Mr. Camplin, Epsom, Ont.; one stock and show ram to Alex. Skein, Uxbridge, Ont.; one boar and two sows to E. H. Graham, Miller's Corners, Ont.; one ram to T. L. Salter, Greenbank, Ont.; one boar and two sows to Samuel Snowden, Howmanville, Ont.; one sow to A. S. Collins, Claremont, Ont.; one boar to Benj. Powell, Enfield, Ont.; four sows and one boar to Gordon, Johnson & Bros., Sanford, Ont.; one ram to Jos. Collins, Cherrywood, Ont.

FOR SALE.

A few Pure Bred Black Minorca Cockerels. At reasonable prices. Write for wants. EDWIN HARRIS, Rockwood, Ont.

Arthur Johnston
GREENWOOD, ONT., CAN.



Announces to his customers, and the public, that he is still doing business at the old stand, and has for sale the finest lot of young animals, of both sexes, ever offered by him. The yearlings of both sexes are exceedingly good—all by imported bulls, and mostly out of imported dams.

Intending exhibitors can be supplied with first-class show animals of either sex and of various ages. New catalogues will be ready by January 20th, 1890. Send for one.

Claremont Sta'n, C.P.R., or Pickering Sta'n, G.T.R. Write or wire me, when and at which station to meet you. No business, no harm.

CLAREVILLE STOCK FARM



Lying between Canada Southern Railway, and Grand Trunk Air Line. Cayuga Stations.

I breed and have FOR SALE

A-I SHORTHORNS

Marquis of Linwood and Lord Chesterfield 5th. Leicester and Cotswold Sheep, Berkshire Pigs. Thorough-bred and Heavy Horses of all kinds.

Young Bulls a specialty. Supply always on hand. Come and see.

J. R. MARTIN, CAYUGA, ONT.

"THE BRIARS,"
Sutton West Ont.

Over 50 Head of Registered Shorthorns.

Including 12 bulls of various ages, incorporating the best blood of the Sittytton, Kinellar, and Killerby Herds. Also Horses and Pigs.

INSPECTION INVITED.

F. O. SIBBARD.

ENGLISH PEDIGREE LIVE STOCK.

Shires, Shorthorns, Herefords, Jerseys, Ayrshires, Kerries, Shropshires, Oxfords, Hampshires, Dorsets, Lincolns, Cotswolds, Berkshires, and Yorkshires.

Choice registered stock of best strains and highest merit for sale at moderate prices. Foreign buyers assisted in purchase and shipment at 2 per cent.

Stock supplied and shipped under care of experienced herdsmen at 2 1/2 per cent. Special low freights. Highest reference from Canadian Breeders. All Importers should apply to:

E. GOODWIN PREECE,

Exporter and Live Stock Agent. Shrewsbury, Eug.

SHORTHORNS

I have for sale

Six female Shorthorns from 8 to 20 months old, also Three Bulls.

These animals have been all bred by me from imported stock.

D. ALEXANDER, Brigden, Ont.

J. & W. B. WATT, BREEDERS OF SHORTHORNS CLYDESDALES AND OXFORD DOWN SHEEP and BERKSHIRE PIGS

SALEM, ONT.

MANUFACTURERS' LIFE INSURANCE COMPANY.
TORONTO.

SIR JOHN A. MACDONALD, P.C., G.C.B., PRESIDENT.

JOHN F. ELLIS, MANAGING DIRECTOR.

Insures lives on all approved plans. Rates lower than any other Company. Policies the most liberal. Claims settled immediately on proof of death.

Live Agents Wanted in every Village and Town in the Dominion.

Shire Horses

We have sixteen heat of Imported Stallions and Mares on hand, all registered in the Eng. Stud Book. We want to clear them out, and will sell at very low figures. They are the right kind, low set and blocky.

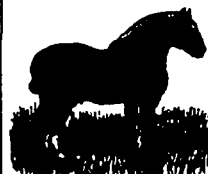
SHROPSHIRE, BRED FROM PURE IMPORTED STOCK. Address—ORMSBY & CHAPMAN, THE GRANGE FARM, "Springfield-on-the-Credit" Station and Telegrams: STREETSVILLE.

Improved Yorkshire Pigs

We have the Pioneer Herd of Pedigreed Yorkshire Pigs in America. All bred from the BEST ENGLISH STRAINS. Every pedigree guaranteed. Prices low. We are now booking orders for fall pigs. Also

Address—ORMSBY & CHAPMAN, THE GRANGE FARM, "Springfield-on-the-Credit" Station and Telegrams: STREETSVILLE.

ONTARIO LODGE STOCK FARM
SHIRE AND CLYDE HORSES



IMPROVED LARGE YORKSHIRE PIGS.

Herd headed by Imported Boars, Holywell Physician, (38) and Jumbo (62).



Orders promptly attended to. Send your orders for Spring Pigs. Stock all pedigreed.

E. M. JARVIS, Proprietor, OAKVILLE, or CLARKSON'S P. O. on G. T. R., Ont.

THE GLEN STOCK FARM

Innerkip, Oxford Co., Ont.

SCOTCH SHORTHORNS
SHIRE HORSES



Improved Large (White) Yorkshire Pigs.



A few young heifers and bulls for sale at reasonable prices. Our herd of Improved Large (White) Yorkshire pigs are imported from the Prize-winning Herds of Sanders Spencer, Ashforth, Charnock, and F. Walker-Jones, who won upwards of \$10,000 in Prizes in three years. Orders booked for young pigs. P.O. and Telegraph Office at Innerkip. Farm is one mile from Innerkip station on the C. P. R. (Ont. div.), and a short distance from Woodstock station on the Canadian Pacific and Grand Trunk R. R.

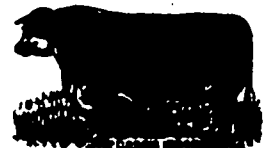
GREEN BROS., THE GLEN, INNERKIP

HILLHURST HERDS.

HEREFORD,

Aberdeen-Angus and Jersey

Heifers, Cows and Young Bulls for Sale



At reasonable prices. Send for new Catalogue.

M. H. COCHRANE, Hillhurst, Que., Can.

BELVOIR HERD

Pure-Bred Shorthorns.



The Bates portion of herd is headed by imported 8th Duke of Leicester=9279= and consists of the following families:

Waterloo Constances
Princess Charmers
Darlington Filigrees
Garlands Seraphinas
Etc.

There are some imported Booth Cattle, and Scotch strains are also included.

Purchasers can depend upon fair treatment and liberal usage.

KOMOKA STATION 3 MILES

Richard Gibson - Delaware P. O.

The "CONCISE IMPERIAL DICTIONARY" is superior to all other dictionaries published. Write to the publishers of this paper for prospectus.

Belvedere Stock Farm!

3 1/2 Miles from Ailsa Craig on G.T.R. Line.



We Breed:—PURE BATES SHORTHORNS, AND LEICESTER SHEEP.

Our herd of Shorthorns is headed by Rosy Prince 6th, and it consists of the following families:—Corisandes, Tily, Chesterfields, Berthas, Rosettes, and Darlington. We have for sale a choice lot of young bulls. Also a number of young heifers bred to imported Duke of Salisbury, and they, like the bull, are descendants of good milking strains. Any person looking for stock is always welcome and will be met at depot if notice is given when they are coming. Prices and Terms Easy.

GRAHAM BROS., Ailsa Craig P.O.

IMPORTANT AUCTION SALE OF IMPORTED PURE-BRED DURHAM CATTLE.

Owing to my advanced years and wishing to retire from stock-raising and farming generally, I have decided to sell by Public Auction on my Stock Farm, "Elm Grove," Ontario, four miles from Peterborough, on Thursday, November 20th, my entire Herd of imported pure-bred Shorthorns and their offspring, including animals bred by such breeders as S. Campbell, J. Bruce, and A. Cruikshank, Aberdeen, Scotland; such strains as Imp. Minnie, Imp. Wimples, Imp. Columbine, Imp. Princesses, Imp. Panses, and Imp. Maybirds and their daughters. Also imported and home-bred bulls and heifers. A grand lot from Silver Medal Bull, owned by me; and also some from Imp. Goldfinder, bred by J. Bruce. The bull I have been lately using is a well-bred Cruikshank. Also one five-year-old Clyde mare, and a fall colt rising two years old, from the first prize Provincial Exhibition show mare that took three first prizes at Toronto Industrial Exhibition; and other first-class Clyde mares and young horses.

TERMS OF SALE.—Twelve months credit on approved notes. A rebate of one-half the freight will be allowed on sales of live stock to be shipped within 250 miles.

Farmers and stock breeders of the Dominion should not miss the sale, as no better bred or finer lot of imported cattle and offspring were ever offered for sale in this province.

At the same time and place I will offer my 600 acres of first-class land and outbuildings, situated from one to four miles of the town of Peterborough. The land will be so divided as to meet the wishes of intending purchasers.

Catalogues and other information supplied on application to JOSEPH REDMOND, Peterborough. Carriages will meet parties wishing to attend sale at the station on day of sale.

BATES' SHORTHORNS

-AT-

HAZELRIDGE FARM SANDWICH, ONT.



THE undersigned desires to call the attention of Shorthorn Breeders to his very choice herd of finely-bred Bates Cattle, comprising the following well-known families, viz.: Duchess, Oxford, Thorndale Rose, Harrington, Kirklevington, Wild Eyes and Red Rose; headed by that grand imported bull, Grand Duke of Cornwall, (56303).

Several very choice young bulls of the above families, fit for service for sale on reasonable terms. For particulars write to or call on

WM. WRIGHT, -or- WM. WRIGHT, Fort St. West, Detroit, Pettit Cote, Sandwich, Ont.

MAPLE LODGE STOCK FARM.

SHORTHORN CATTLE, LEICESTER SHEEP, AND BERKSHIRE PIGS.



We have for sale now, a splendid lot of Cows, Heifers, and Bull Calves, a number from our best Milking Strains. Also, a few Leicester Ram Lambs.

Stables one mile west of Lucan Crossing Station, on Grand Trunk Ry.

Come and see our Stock.

JAS. S. SMITH, Maple Lodge P. O. Ontario.

BOW PARK HERD OF



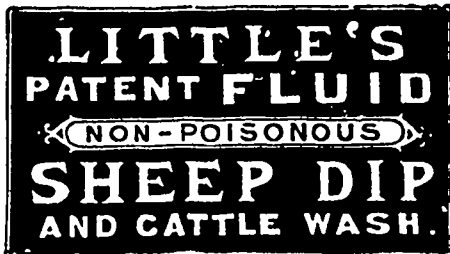
PURE-BRED SHORTHORNS

We have on hand eighteen young bulls fit for service, good animals and well bred, which we offer at reasonable prices and on liberal terms. Address

JOHN HOPE, Manager, Bow Park, Brantford, Ont.

21/607

TO STOCKMEN AND BREEDERS.



For the destruction of Ticks, Lice, Mange, and all Insects upon Sheep, Horses, Cattle, Pigs, Dogs, etc.

Superior to Carbolic Acid for Ulcers, Wounds, Sores, etc. Removes Scurf, Roughness and Irritation of the Skin, making the coat soft, glossy, and healthy.

The following letters from the Hon. John Dryden, Minister of Agriculture, and other prominent Stockmen, should be read and carefully noted by all persons interested in Live Stock:

"MAPLE SHADE" HERDS AND FLOCKS, BROOKLYN, ONT., SEPT. 4th, 1890.

DEAR SIR,—I cannot afford to be without your "Little's Sheep Dip and Cattle Wash." It is not merely useful for Sheep, but it is invaluable as a wash for Cattle, etc. It has proved the surest destroyer of lice, with which so many of our stables are infested, I have ever tried; it is also an effectual remedy for foul in the feet of Cattle. I can heartily recommend it to all farmers and breeders. JOHN DRYDEN.

"LORRIDGE FARM" RICHMOND HILL.

DEAR SIR,—Having used your "Little's Sheep and Cattle Wash," for the destruction of ticks on my sheep for some years, I have great pleasure in testifying to its good qualities, as it is the best Sheep Dip I ever used. It is also sure death to Lice on Cattle and Colts, and I have also found it a first-class wash for wounds and sores on Horses, Cattle, and Sheep—I can therefore strongly recommend it to all stockmen. ROBT. MARSH.

17 Gold, Silver, and other Prize Medals have been awarded to "Little's Patent Fluid Dip" in all parts of the world. Sold in Large Tins at \$1.00.

Special terms to Breeders, Ranchmen, and others, requiring large quantities.

Ask your nearest Druggist to obtain it for you; or write for it, with pamphlets, etc., to

ROBERT WATSON, Druggist, Owen Sound, Ont. Sole Agent for the Dominion.

CITY HOTEL

State St. Cor. 16th St. CHICAGO, Ill. Special Rate to Stockmen, \$1.50 per day

Within ten minutes ride by State St. or Wabash Ave. Cable Lines from Business Centre.

F. F. ORCUTT, Prop. FRED. MUELLER, Clerk.

JERSEYS FOR SALE.

Several fine Jersey Heifers, choicest strains. Prices low. Write; G. M. BEEMAN, NAPANEE, ONT.

W. J. RUDD,

EDEN MILLS P. O. Ont

Breeder of Choice Devon Cattle. During the last five years, at the leading exhibitions in Canada, my herd has won first whenever shown, winning five Diplomas, one Gold, thirteen Silver and one Bronze Medal. Stock for Sale including Berkshire Pigs, Cotswold Sheep, and Plymouth Rock Fowls. 318



HEREFORD AND ABERDEEN ANGUS BULLS AND HEIFERS.

WE have on hand for sale a number of Hereford Cows, Young Bulls and Heifers of the best of breeding. They are all from imported stock of the highest merit. The bulls are a robust, vigorous lot and are well adapted for prime feeders. We also hold for sale a choice collection of young Aberdeen Angus Bulls from the best of the breed and they are all imported or from imported stock. A rare chance is afforded to get a superior sire of sturdy constitution.

Prices Reasonable and Animals Right.

DAWES & CO., LACHINE, QUE.,

Importers of Herefords, Aberdeen-Angus and Jersey Cattle.

If you want to sell or buy cattle, advertise in the L.S.J.

THE TUSHINGHAM HEREFORDS



THIS herd is remarkable for the number and uniformity of the good calves that it produces. It has taken all the Medals given in the Province of Quebec, at leading exhibitions the last three years. Breeders who are anxious to get bulls or females with plenty of hair and of good quality and good milk producers, should see this herd before purchasing elsewhere.

J. WALTER M. VERNON,

TUSHINGHAM HOUSE, Waterville, P. Q. Waterville is on the main line of G. T. R., 170 miles east of Montreal. 14/395

THE PARK HERD OF HEREFORDS.

This herd embraces over 60 Head of Choice Animals, All registered. Catalogues sent on application.



F. A. FLEMING, Weston, Co. York, Ont. Farm, half a mile from C. P. R. and G. T. R. Stations, eight miles from Toronto. 22/658

PURE-BRED REGISTERED Holstein-Friesian Cattle.

Special Inducements for the next THIRTY DAYS.

We are crowded for room, and before our stock goes into winter quarters, rather than enlarge our stables we will

Drop in Price.

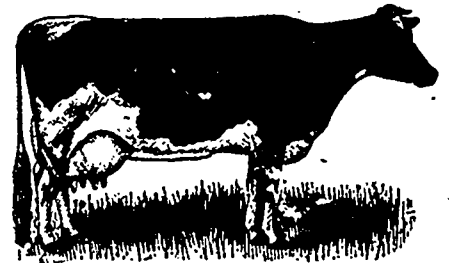
We have one of the finest, largest, and most select herds of Holstein-Friesian Cattle in the country; and this is a rare opportunity to get first-class stock of the best strains at reasonable prices.

REMEMBER OUR OFFER IS ONLY For Thirty Days.

After that time we will stick to old prices. Don't wait to correspond. Come and see our animals; and save time and money. Send for Catalogue. When you are coming advise

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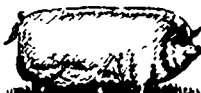
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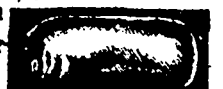
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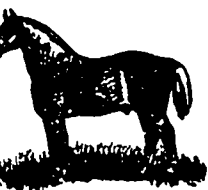
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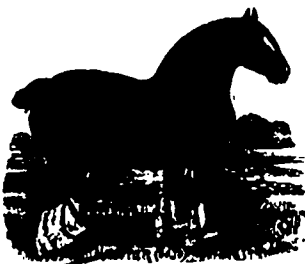
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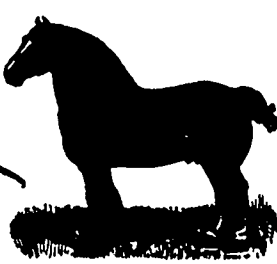
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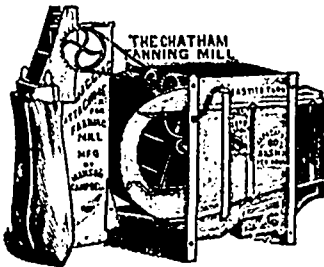
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