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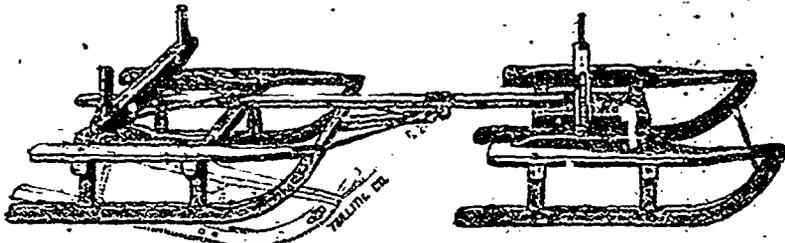
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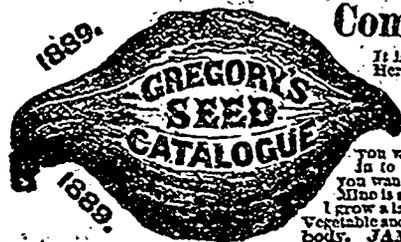
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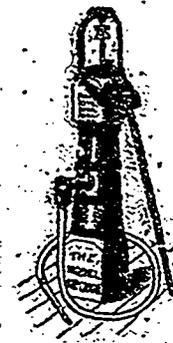
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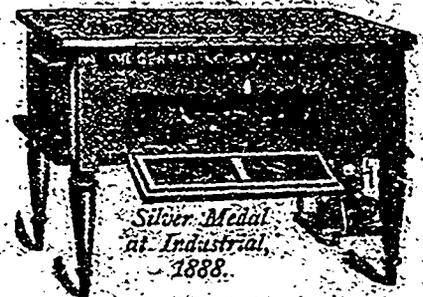


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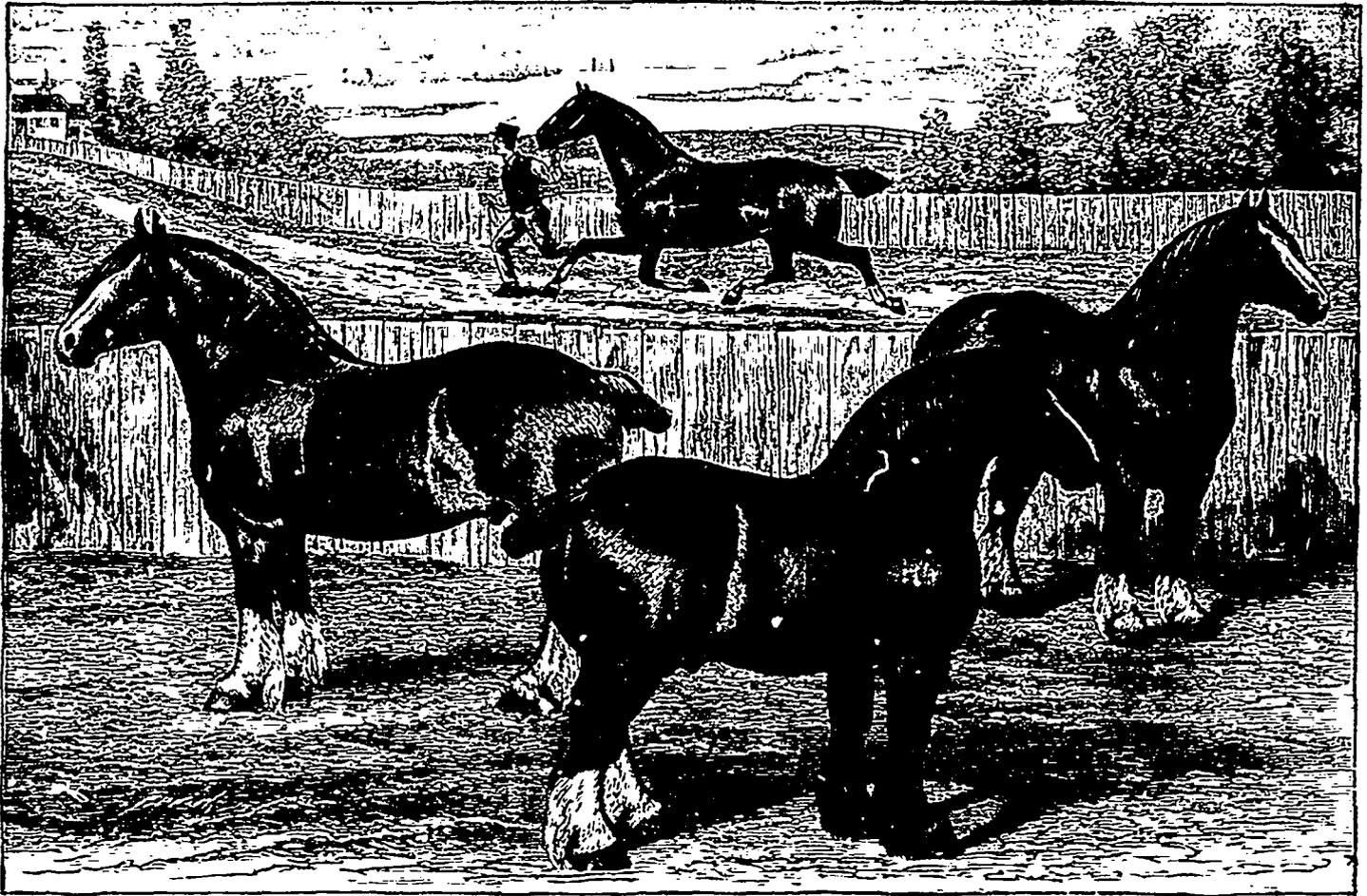
THE CANADIAN LIVE-STOCK AND FARM JOURNAL

DEVOTED TO THE INTERESTS OF THE STOCK-RAISERS AND FARMERS OF CANADA.

VOL. VI.

HAMILTON, CANADA, JANUARY, 1889.

No. 63



A GROUP OF STALLIONS.

Imported by and the property of Graham Bros., Claremont, Ont.

A Quartette from Cairnbrogie.

Truly Cairnbrogie, the property of Graham Bros., of Claremont, has done well in sending such an excellent group of delegates as those above sketched to do honor to their stables in our present issue. In the centre is a life-like cut of Straven Callant. He stands about 16½, with a grand top, and firm, sound underpinning. His chest is deep and full, running smoothly into his rotund body, with loin broad and thick, and rib well sprung. His bone is extra and his quality is vouched for by his finely-moulded form and profusion of silky feathering. His action is fine and easy, gracefulness depicted in every move. Though bubbling over in good spirits he has a kindly eye indicative of a good disposition. He was foaled 4th of June, 1885, sired by Harold (2854), dam Straven Tibbie (2454), by Luck's All (510), by Prince of Wales (673). Harold (2854) gained the Lanark district premium in 1884 and 1885. He is a full brother to the famous mare Young Hawkie. Harold's sire, besides being a winner of many honors himself, numbers among his progeny such horses as the two-year-old Never Behind, that secured 1st at the H. and A. S. at Sterling, in 1881, and sold for £700. Like honors were given to a three-year-old filly of the same sire. All the ancestors of Straven Callant, Lord Lyon (489), Hercules (378), and Rob Roy (714), on his sire's side, and the Prince of Wales (673), on his dam's, are well

known to the Clydesdale fraternity as a superior breeding horse, while possessing rare individual merits. Such is his breeding, and to show that he has not been a black sheep in such a famous family, we give his record in Canada, which, though brief, has been a series of conquests: 1st in a three-year-old class at Toronto Industrial; 1st at Port Perry; 1st at Stouffville; 1st at Uxbridge. He also, before coming to this country, gained 1st prize at Hamilton in a good class of three-year-old stallions. With such an individual record and such an ancestral one also, the conclusion is forced that few of his merit stand in Canadian stables to-day.

Standing in the farm lane we saw MacBean (6030), (who figures to the right in the above sketch) at his best, as he bore down upon us with banner high and head uplifted. This worthy son of McGregor (1487), by Darnley (222), is a grand two-year-old out of Darling of Tynholm (2884). Her sire was Robert Burns (702), by Robbie Burns (699) by Renfrewshire Jock (696), winner of the Paisley premium in 1867. Besides being a full brother to McCall (5189), the winner of the 1st prize at the Royal of England, McBean has won 1st at the Stouffville Society's show. His action is square, each joint faultlessly flexed. He is full of quality, with a wealth of muscle and bone of firm texture. Deep brown, with a splash of white on his face, he at once fills the eye. His neck is nicely arched, joining almost unnoticeably his deep expansive chest, forming a grand prowl for so noble a vessel. Heavily muscled loin, and deep, full quarter, completes the many excellencies of this horse.

Dorington 2d 956, one of the Hackneys of this

stud, and sketched above, was bred by J. R. Crompton, Burton-Agnes, Hull, and was sired by the illustrious Denmark, 177, dam by St. Giles, 687. He is a bright chestnut, five years old, standing about 15 2. He has grand action with plenty of dash, and the vigor and vim of the highest strung thoroughbred. He has a well placed shoulder, combined with a barrel deep, and well ribbed home. Clean cut, with tendons showing like whipcords, he has made many a conquest in the show ring, never having been beaten, and having achieved highest honors at the Royal of England, at London. His quality is not to be excelled, and his bone is of the closest texture. With hocks well let down, and short cannon bones coupled with pasterns sufficiently oblique, and hoofs of closest grain, he is a horse of great utility, while his vigor of constitution as reflected from his noble carriage and undimmed eye, predicts him a glorious record as a valuable stock-getter.

Standing to the left is MacClaske (6996), by Macgregor (1487), dam Kelpie (2034), a noted prize winner, gaining 2nd at the Royal of England, at Kilburn, in 1879; 3rd at Carlisle, 1880, and also 5th the same year at the R. A. S. at Kelso. Her sire was Young Lord Lyon (994), sire of many prize horses, including the before mentioned 2-year-old colt, Never Behind (1773), that sold for £700. MacClaske is not behind his ancestors in show ring honors, having secured first at the Royal of England in 1888, and 3rd at Edinburgh the same year. He is an extra fine colt of superior quality, well jointed, with good feet and pasterns, and strongly coupled. He is withal a very likely youngster, sure to give a good account of himself in future years.

Canadian Live-Stock & Farm Journal

PUBLISHED MONTHLY BY

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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 makes one inch); for three months, 15 cents per line each insertion; for six months, 13c. 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 18 cents per line per insertion.

To Correspondents.—All communications intended for publication in the JOURNAL should reach us by the 20th of each month—sooner if possible. We do not hold ourselves responsible for the opinions of correspondents.

Remittances may be made in registered letter at our risk. The receipt of the JOURNAL will be sufficient evidence to subscribers that their remittances have been received.

All communications to be addressed STOCK JOURNAL Co., 48 John street south, Hamilton, Ont.

HAMILTON, CANADA, JANUARY, 1889.

READERS of the JOURNAL will please observe that all communications, whether relating to the business management, advertising, subscription, or other department of the JOURNAL, must, to ensure proper attention, be addressed to "The Stock Journal Co. 48 John St. South, Hamilton, Ont." We will not be responsible for any errors which may occur when the above is not adhered to. We also beg to remind many of our readers that their subscription to the JOURNAL expired with the December issue, and we shall be pleased to have them remit \$1, the regular subscription price, for 1889. When not paid in advance, the price is \$1.25 per year.

ALTHOUGH sheep will bear exposure better than any other of our domestic animals, yet it is not consistent with good management to expose them too much to storms, etc. That they should be allowed free exit from the fold cannot be denied, but their sheds should protect them from cold winds and storms. Dryness under foot is equally as important. The folly of slighting these points may be seen in the running nostrils and heard in the constant snuffle of some of the members of the flock. Copious applications of tar do not give as good results as a dry bed and good shelter. Sheep can stand a dry, cold atmosphere, and they are most affected by dampness either over or under foot.

LITTLE encouragement is given in our rural districts for the production of fine wool, and hence the disinclination on the part of many to raise sheep with wool of this nature, such as the Merino, Cheviot, Southdowns, Hamps. and Shrops. At the country factories they get so much per pound, while little, if any grading is done according to quality. This surely discriminates unfairly in favor of the Cotswold and Leicester to the detriment of an important industry. The same remarks are almost as fully applicable to the mutton, and we look forward to the time when the masses as well as the woollen manufacturers, may bring about a change in these respects.

IN the issue of December 5th the *Jersey Bulletin* makes copious extracts from our description of Mr. Reburn's Jersey herd, but we look in vain for acknowledgment of their authority. We are always pleased to have others make drafts upon our columns, we only asking in return that they give due credit for the same. Six small words appended to the end of the extract would have changed that which now savors strongly of filching and petty meanness to a course just and honorable in the sight of all men. He we scorn who cannot carry his moral principles of right and wrong into his everyday work, and who can poultice his pricked conscience with the soothing though delusive phrase, "business policy."

ALWAYS on the alert to enlist into our service the best writers on all agricultural topics, we think we have been very successful in this respect in securing such an able writer as Mr. D. McCrae, of Guelph. Though ever interesting, yet we think our readers are in unison with us when we say that his series of articles on "Shorthorn Pioneers," now appearing in our columns, are exceedingly so. The sweetest essence cannot be poured from vessel to vessel without becoming odorless, and so with legendary lore, it cannot be transmitted from age to age without becoming distorted. All honor, then, to Mr. McCrae for rescuing from the realms of dark oblivion a history interesting to all lovers of stock, and giving it stability by placing it in the living annals of the day.

ONE of the strongest points of the pure-bred is due to the fact that they have been selected for years for special purposes, and in these directions their whole vital power is centred. One of the weakest points of the scrub is due to the indefiniteness of his breeding, and hence no decided tendency in any direction save that of consuming the greatest quantity of food and giving the smallest possible return. No one is foolish enough to state that a pure-bred can produce something out of nothing, but what can be advocated without fear of contradiction is, that whether for beef or milk, if given the best of care and food, the scrub will give the smallest returns. What the feeder or dairyman wants is a machine that will turn his raw products into manufactured articles, such as beef and butter in the shortest time and with the greatest economy, and this is why he patronizes the pure-bred.

IT is the idea of many that all that is necessary in fattening animals is to keep them on living rations until about six months before putting them on the market. Then they force them in every possible way. The result of this is an inferior quality of meat, the fat being deposited internally as tallow, etc., and not distributed through the flesh as it should be. It is only by continued good feeding, without loss of the calf flesh, that this true mellowness and ripeness can be secured. The butcher or drover knows by the touch these animals when he is called upon to pay for them, even though the scales may not show the difference, and he grades his price accordingly if he is versed in his business. That springy, mellow touch cannot be given any animal in six months' time, no matter how well fed, if good feed and care have not gone before.

A TEMPORARY makes much of an invention with the avowed object of overcoming the fright of a shying horse. A cord is connected with the blinds in a manner to admit of the sudden closing of the blinds over the eyes. It says: "In case of fright pull the cord and instantly the horse is blindfolded." This diverts his attention from the object of fright

"and puts him into another train of thought." Although not desiring to put a damper on inventive genius we are of the opinion that the train of thought engendered would be highly favorable to the carriage-builder's interests. A horse becomes frightened because he either gets a mere glimpse of an object or else he thinks it will in some way hurt him. Blindfold him and common sense indicates that his fear would become intensified; whip him and he, connecting the natural sequence of events, will look upon the object as the source of his punishment, indirect though it may be. Kind words, with gentle, though firm handling, are far more effective in our estimation.

Retrospect and Prospect.

The prospectus issue of the JOURNAL first appeared in August, 1883. Like a tiny little rill leaping down the mountain side it came at first, scarcely noticed by the multitude amid the profusion of reading matter that is characteristic of modern life. It rapidly increased in volume till now it is the broad and brimming river of agricultural thought in the Dominion, conveying on its bosom the best that the agricultural writers of the day can furnish. For this result we are fully conscious that we are largely indebted to the loyalty of our friends, and we return them once again our heartfelt thanks, for the constancy and devotion of their assistance.

The progress in Canadian agriculture has been rapid during all those intervening years. No similar period in the history of agriculture has been fraught with changes half as pregnant with coming good, and in the introduction and advocacy of every one of these the JOURNAL has taken a leading part.

As many of these changes were referred to in an article which appeared in the October issue of the JOURNAL, we shall not enumerate them again.

With reference to the future, our policy is still unchanged. The trimming of sails to suit the popular current of public opinion is a feat of which the JOURNAL is still incapable. We leave such work to those without a policy of their own.

We shall still support the farmers' institutes, believing them to be most efficient factors in lifting Canadian farmers and Canadian farming to a higher plane. We believe the time has now come when this work is sufficiently important to justify the appointment of a strong and capable man to supervise the working of the Institutes; this we shall therefore advocate.

The Ontario Agricultural College and Experimental Farm shall still receive our cordial support. These are doing a work which the Dominion can no more afford to do without. We favor as much as we did a year ago the erection of an agricultural hall in Toronto for the use of the farmers in Canada, and shall urge its erection.

The Dominion is yet without a sheep breeders' association. Although the preliminary meeting, held in Toronto last September was not enthusiastic in regard to its desirability, our mind regarding this is unchanged, and we shall advocate its establishment.

The good work that is being done by means of the cheese, dairy and creamery associations will receive our hearty support, as also the building of silos and the giving of increased attention to the soiling system.

We are still determined that *the scrub must go*. Better horses, better cattle, better sheep, better swine, better methods, better farming, improved machinery, increased market facilities, indeed, everything that is calculated in a legitimate way to advance the interests of farmers will receive our hearty support in the future as in the past.

Our staff of correspondents is being still further strengthened of late, and we now claim to have the most competent writers on all practical and scientific subjects of any paper in Canada, both in our editorial staff and in our numerous contributors to the various departments. It has been our effort in the past to spare no pains, regardless of reasonable expense, to keep the JOURNAL in the van, to lead the way in everything that is onward and progressive, and in this we shall be thankful for the continued hearty co-operation of our patrons. We invite contributions, terse, practical, and helpful, to our agricultural interests, anything that will assist the cause of agriculture will find welcome in the columns of the JOURNAL.

The outlook for the future was never brighter than at the present time, but as there is still very much ground to be occupied, we hope that our friends will most heartily support our effort this year again by forwarding to us the names of new subscribers as they may have opportunity.

The Tops at Chicago.

To gain recognition in such a concourse as that of the chosen few which annually gather at Chicago is surely worthy of reverberation through the land, while to obtain the first position in any class is an honor of the highest eminence. This, however, was the lot of Brant Chief, on whose goodly proportioned and richly-meated form Bow Park decided to rely for the laurels that it has been customary for them to wrest frequently from this show; and right nobly did he respond to their expectations. Not only was he admitted to be the best in his own class as a two-year-old, but also the champion Shorthorn, and thus to him was relegated the honor of upholding the Shorthorn pennant against all comers. In the grand sweepstakes he stood second to Dot, the standard-bearer of the "doddies." Some thought that in giving such a decision the judges had sacrificed the producers' interests for those of the butcher. However that may be, the contest was a close and exciting one, honorable to both parties. From the *Breeders' Gazette* we learn the weights, ages, etc., of both animals:

Exhibitors.	Name of Animal.	Age in Days.	Weight.	Gain per Day.
John Hope	Brant Chief	1022	1890	1.85
J. G. Imboden	Dot	853	1515	1.75

Brant Chief is stated by the above mentioned journal to have been sired by the Kinellar bull Sir Christopher, of Mr. Isaacs's breeding, from one of Mr. Adam Ferguson's Canadian tribes. The friends and patrons of the "doddies" have every reason to feel proud of the prominent position their favorites have for a number of years succeeded in holding at the largest stock show on our continent. "Dot had for sire the high-bred Blackbird bull Bash-ranger (732), he by the never beaten Young Viscount (181), his dam being Carrie of Montbelton (3077) by Wellhouse; second dam Crinoline (3878), by Black Diamond (546), sire of the famous Lady Ida, of the great Blackbird and Lady Ida tribes, that are so highly appreciated by American breeders of Angus cattle."

It is stated that Hereford men sent down the best average lot that they ever entered. It is to be deplored that their best, however, were debarred from entering in the sweepstakes owing, as it is said, to a bad decision in a preliminary contest. They, however, succeeded in leading the field in the herd sweepstakes contest and also captured first place at the crucial test of the block. Here a Hereford grade, (¾ Hereford, ¼ native) gave the best returns, 70 lbs. net to 100 lbs. gross weight, Dot giving 69 and Brant Chief 68.

The Guelph Fat Stock Show.

This exhibition was held in the drill shed on the 12th and 13th of December, and proved a decided success, both in regard to the number of animals exhibited and in regard to their high average merit, unless in the case of swine, where the exhibit was confined to a few individuals.

In the three-year class the first prize went to James Oke, Alvinston, for a beautiful roan grade Shorthorn steer three years old, very perfect in his shapes and development; whether viewed in front or rear, or a side view taken, it would be difficult indeed to find a fault in his development. He was also sweepstakes animal of the show, and won for his owner the Shattock cup, valued at \$100, which now becomes the permanent property of Mr. Oke.

The second went to a good, strong steer owned by W. Snyder & Son, Brampton, and the third to a younger steer owned by R. Irving, Nassagaweya.

In the two-year class James Oke was successful with a beautiful steer, the only one shown, and in the class of one year olds, W. Sharpe & Son, Eramosa, were first with a fine growthy steer of splendid handling qualities, and giving promise of unusual development, W. Lockhart, Salem, 2d, and Jas. Oke 3d.

In the female class, 3 years and over, Jas. Oke, H. Rawlings, Ravenswood, and J. & R. McQueen, Salem, won in the order named. The cow of Mr. Oke was a superb roan, that of Mr Rawlings, a beautifully finished specimen, and the Messrs. McQueen's a neat, pretty beast. Nearly all the females shown by the Messrs. McQueen at this show were exhibited by them at the Toronto Industrial in a breeding herd, but since that event they have ceased to breed.

In the class under three years the Messrs. J. & W. Watt, Salem, were first with a pretty roan by the Cruikshank bull Lansdowne. She was one of the most perfect specimens we have ever seen, her development over the crops being simply extraordinary.

Peter Rennie, Fergus; Jos. Dingle, Hamilton, and J. Dun, Toronto, were the judges, and they did their work well.

In the sheep classes, J. Rutherford, Roseville, won most of the prizes, some going to T. Waters, Eramosa, and to J. Haugh. A shearling Southdown grade owned by Mr. Rutherford was a marvel of fatty development. The show of poultry was excellent.

After the judging, the president, Mr. J. W. Taylor, called a number of gentlemen present to the platform. Mr. J. Innes, M.P., in a few well chosen words presented the Shattock Cup to the winner, who replied suitably. Addresses were then delivered by D. Guthrie, M.P.P., President Mills, Prof. Shaw and others.

The Continental Congress of the American Breeders.

The great Continental Congress of American breeders was held at Chicago this year again at the same time that the fat stock show was held, and a grander gathering of grander men in the line of live-stock is, we are bound to say, nowhere found in the wide world at the present time. Our article on the advantages arising from the simultaneous meeting of this aggregation of live-stock interests in a former issue has been copied by the *Breeders' Gazette*, and commented upon in very complimentary terms by our powerful and generous neighbor. It says: "The *Gazette* has so often dwelt upon the advantages afforded by this show as a trysting place for all American lovers of good live-stock, that it is pleasant to be able to introduce an expression upon this same point from an outside source, and especially so when it outlines

"so admirably the advantages accruing from this annual gathering of the blood-stock breeding clans. "Seldom, if ever, has the case been so tersely or so vigorously stated, and with our neighbors of the Dominion expressing such unqualified approval, and even the staid old Smithfield of England limbering up her ancient joints preparatory to moving in the matter of adopting some of our more progressive features; and above all with an appreciation by our own people of the grand results being achieved, far beyond any that can possibly be felt by our alien kinsmen, there is no danger that American breeders will ever countenance anything approaching disintegration of this their continental congress."

While duly appreciating the compliment thus paid us from such a source, we seize upon the opportunity of again pressing upon our people the wisdom of renewed effort to have our agricultural hall secured in Toronto, that we, on a more limited scale, may repeat annually what is being so well done in Chicago during the celebrated November week.

The growth of Toronto is phenomenally rapid. The results of the census of the other day are simply astounding. That we have a city in Ontario with a population of 170,000 and more is what but few were expecting to hear, and yet so it is. Such a city brought near to all parts of Ontario by a network of railways that covers the country, is the natural meeting place of the different associations, and if these annual gatherings may be so arranged that they can be held simultaneously, how very much of a saving both in time and money is effected!

It will be remembered that a committee was appointed last winter composed of representatives of the Agricultural and Arts Association, the Shorthorn Breeders' Association, and the Central Farmers' Institute, to confer with the members of the City Council of Toronto in reference to this work. This committee is composed of the Hon. the Minister of Agriculture, the President of the Shorthorn Breeders' Association, and the President and Secretary of the Central Farmers' Institute. The respective bodies who appointed these gentlemen may naturally look for a report indicating that substantial progress has been made. If the efforts of these gentlemen cannot avail, there is dim hope of success in the near future.

It will be a great matter when the Fat Stock and Clydesdale shows shall meet at once and the same time, when dairymen shall meet for conference and exhibition purposes, when all the different live-stock associations may look one another in the face, and exchange kindly greetings in the great public hall of the building where the shows are held, and where, if need be, the annual meeting of the Central Farmers' Institute might be held the same week. All these may meet together in Toronto by the lake, and their presence alone would ensure the success of any winter exhibition.

The Breeders' Watchword.

Ever since this rolling sphere has borne the impress of the foot of man no clearer intellect has ever grappled and wrestled with the weighty problems of science than that of Charles Darwin. As a collector of facts he towers above all others, and as a framer of laws and deducer of principles he knows no equal. We may then be pardoned for quoting the following, emanating as it does, from such a source, and relevant to the matter in hand: "Indubitable patience, the finest powers of discrimination, and sound judgment must be exercised during many years. A clearly predetermined object must be kept steadily in view. Few men are endowed with all these

"qualities, especially with that of discriminating slight differences; judgment can be acquired by long experience, but if any of these qualities be wanting the labor of a life may be thrown away."

This is his advice to those who, as breeders, seek to climb the frail ladder of many broken rounds that leads to fame. His remarks are corroborated by Mc Combie of Tillyfour, whose achievements in the show-ring fits him to pronounce judgment on anything relating to breeders and breeding. To become an eminent breeder demands a nicety of discernment and accuracy of judgment possessed by few. By eminent breeder we must not be construed as meaning he of the heavy purse, who buys first prize animals and turns them over to his farm bailiff to keep them in show-yard form regardless of expense. It is, however, a title worthy of the man who, by bringing into action sterling honesty and perseverance, coupled with ability and patience to bear heavy disappointments, at last hears the clarion of renown resounding his celebrity through all lands. We all see the marked characteristics of our established breeds at the present day, but what piercing accuracy of eye it must have called forth from those who ferreted out these peculiarities in their embryo condition. Selective ability requires more than a mere cursory knowledge of animal life—it calls for the consideration of all that has an influence on it, and the resultant effect of such. It is recorded of Bakewell that he sent some of his best animals to the block, dissecting them and preserving certain parts for comparison with past and future work, so as not to deviate from the narrow path of improvement. By so working he gave to breeders what is known as "correlation," as applied to animal form. That is by the examination of the external parts of an animal by the hand and eye we are able to form conclusions as regards the internal organs, their structure and functional activity. Not only Bakewell, but Booth, Bates, Webb, Ellman, Watson, and many other prominent by reason of having greatly improved the animals under their care, gave this principle of selection not solely of individual animals, but also in the mating of them a first place in their work. They connected a certain form with desirable and useful qualities, and to the propagation of these their energies were bent. Let it not be thought that for the founding of a herd all that is necessary is to purchase the first members of it from another famous in the show ring. Not excepting the human being, all animals tend to revert to a lower type if not checked in this by ennobling tendencies in the case of man, and selection in the other.

Horse Shoeing.

A practice being adopted in many European countries is to have at their agricultural shows competitive contests between blacksmiths, and also examinations on the structure and functions of the different parts of a horse's foot. One was recently held at Nottingham, in England, and the report of the same given by the judges was not very complimentary to those that entered the contest. It is stated that not one of them could tell how many bones there were in a horse's foot, nor did they know the uses of the different parts, such as the frog. We cannot believe there are many blacksmiths in Ontario that do not know all about the horse's foot and the formation of the different structures, but we know that there are a number that do not give a thought to this matter, desiring rather to make the foot conform to the shoe rather than the shoe to the foot.

The foot is made up of three bones, the small pasterns, navicular and pedal, the latter being similar in

shape to the hoof. Covering these is a thin layer of what is commonly called the quick of the foot. It envelopes the whole of these bones, and is a continuation of the internal layer of the skin. In founder (laminitis) it is the quick that is principally involved, and as it is closed in, it gives rise to excruciating pain. Just under the navicular bone is a mass of fibrous tissue, etc., that serves as a padding for the quick just under the frog. The hoof proper is divided into three parts: the wall, sole and frog. The former is that which can be seen when the foot is placed firmly on the ground. It becomes thinner as it runs back, and bending inwards, forms the bars of the foot. The sole, with the bars and frog, forms the bottom of the foot. The frog acts as a buffer, if allowed to touch the ground, as it is very elastic.

There are some who do not believe in shoeing, calling nature to their aid in upholding their contention. While we admit that in many cases it could be omitted, at least for the greater part of the season, yet we hold that horses are far from being in a state of nature when driven over hard roads, and this leads to excessive wear of the hoof. For ordinary summer work of the farm, the hind feet might be left unshod with benefit. Better have a horse slip occasionally than to have him brushing and stumbling continually, the usual result of bad shoeing.

There are a few points in connection with the hoof which are in many cases overlooked in shoeing. The wall of the foot, unless worn or cut back, will grow inordinately, and hence has to be kept trimmed. If this is not done it gives an increased leverage, which will result in a strained tendon or spavin. The frog, if allowed to come in contact with the ground, breaks off in flakes of its own accord, and thus keeps a definite thickness. It should not be touched. The sole of the foot is also of this nature, and will keep its proper thickness without the use of the knife. If pared it leads to dryness of the hoof. A common practice is to open the heels, thus preparing the way for corns and flat feet, as it is by these that the foot is held firmly together. The rasp is the legitimate weapon of the farrier. If the rim of the hoof is rasped too much, thereby shortening it, the elasticity of the pasterns is interfered with, thus giving rise, through concussion, to ringbone, etc. Some object to the applying of the shoe while hot, but as it makes a better fit, serious objection cannot be made to it. A driving horse should be shod once every month. Many think that a horse should not be shod until the shoe wears out, as least their practice favors this opinion. Then they expect the smith to make a perfect job for them, and are loud in their denunciation if he fails. If allowed to go longer than the above stated time the hoof grows over the shoe and throws too great a strain on the ligaments that support the fetlock.

The Burning of the Barns at the Ontario Agricultural College.

As most of our readers are doubtless aware long ere this, the barns of the Ontario Agricultural College were entirely consumed by fire on the evening of the 26th November last, including the four buildings enclosing the quadrangular yard, viz, the main barn, 130 by 70 feet, the horse stable, the sheep house, and silo, and the bull house. The flames appeared to break out simultaneously in the lofts of the horse-stable and of the sheep house at opposite ends of the barn. The fire was first discovered by students at work in the laboratory about 6.40 p. m., and in an incredibly short space of time the whole group of magnificent buildings were one winding sheet of terrific flames that leaped wildly up in rapid succession into

the dark heavens over head, turning night into day for many miles around. President Mills and Prof. Shaw were on the spot almost from the first, the former giving his attention to the working of the hose, the latter to the removing of the stock.

The conduct of the students on the occasion is beyond all praise. They received the instructions given them with as much carefulness as though they had been on drill, with the result that in less than fifteen minutes ninety-eight head of horses, cattle, sheep and swine had been rescued without a single mishap. It was simply heroic the way the gallant fellows braved the dangers of the smoke and flames. So dense was the former in the basement of the barn that no two persons could see one another at times, yet with the one purpose of saving the lives of the dumb creatures, they toiled on, not ceasing in their efforts till not a hoof was left behind, some of them having to be called out from beneath the burning debris that was falling thickly around them. They then turned their attention to the piggery, and by the most heroic exertions beat back the fury of the flames with water and snow. They would have saved the bull-house, but the hose they tried to bring to bear upon it was found too short to reach it. Then, without a single murmur they toiled far on through the night, getting the stock housed, some two miles distant, and trying to quench the flames that were scorching the roots in the cellars.

What recognition has been given them for this? Why, a Guelph correspondent writing to a leading Toronto daily, hints that the burning of the building was the act of a student. An existence that could write such a thing in the face of the facts just given must be far down in the scale of animated being. We were shown a strange-looking mass the other day preserved in a bottle, of which it is uncertain whether it belongs to the vegetable or animal kingdom. We have far more respect for that mass than for the citizen of Guelph who lays the burning of the building at the door of a student. Guelph should disgorge the hydra-headed creature covering it with the infamy which its wilful and deliberate perversity deserves. Shame on the degradation that could be so designedly vile.

Soon after the fire the fat stock were sold successfully by private sale, and a few days later a large proportion of the stock was sold at public auction in Guelph, the prices brought being surprisingly good considering the circumstances. The sheep are being retained. Three span of horses for the farm, one for the garden and several for the college. The stock of cattle is very low at present, but will be replenished when the grass comes again.

The students more than any others are the immediate losers by the fire. The most valuable practical instruction that they get, perhaps, in winter, is in connection with the feeding and handling of live stock. This, of course, has been very seriously interfered with, yet we believe they all intend to remain, making the best of the unfortunate mishap.

The Minister of Agriculture, the Hon. Charles Drury, is showing himself equal to the occasion. We believe it is his intention that the buildings shall be re-erected at once after the meeting of the Ontario Legislature, and are to be completed in time to receive the crop.

The mammoth ruins are already being cleared away by the students, and a spirit of determination pervades the whole establishment to make it some day the envy of the North American continent.

The origin of the fire will never, probably, be fully known. That it is the work of some foul spirit in

league with the powers of darkness there is not the shadow of a doubt in the minds of those who are in a position to know, but who exactly will never, probably, be known before that eventful day which will hang up in eternal sunlight the deeds of darkness that, with the perpetrators, will have a common resurrection.

Feeding and Watering Horses.

Food bears the same relation to the animal body as coal does to the engine. They both give rise to the force that propels the machine, while the former has additionally to repair the ever-changing structures of the animal body. To work well a horse must be fed well, is admitted by all; but what feeding well implies gives rise to difference of opinion. Some would have it meet their idea as embodied in the pampering and stuffing of an animal with soft feed. The ultimate result of this is to clog the machinery and render the animal sluggish and liable to inflammatory diseases so common a cause of death among draught horses. What good, economical feeding is in our opinion, we hope to make apparent in this article.

The most striking difference in the organisation of a cow and horse is the great size and complexity of the stomach of the former and the smallness and simple nature of that of the latter. That of the cow is made up of four different compartments, three of which prepare the food for digestion in the fourth. On this account the cow, sheep and all other ruminants, are specially adapted for the consumption of coarse fodders; while the horse, owing to the limited size of his stomach, is better fitted for the digestion of concentrated foods. Another reason why this should be so, is, that greater exertion is called for on the part of the horse than any of the other domestic animals, and hence he requires a stronger food. Good, clean, well-cured hay should be the basis of the ration. As to whether this should be long or cut, is open to debate. The advantages of the latter are, that it is less wasted, as it cannot be pulled out of the manger and trampled under foot, and it also permits of mixing with other foods. Whether it shall be cut or not is determined largely by the means available for this purpose. The customary way of feeding hay entails a great deal of waste. A large forkful or two is given each horse, the result being that, though he may eat the greater part of it, yet he pulls a great deal of it out of the manger and tramples it under foot. It is a very common mistake, especially with light horses, to feed them too much hay. They do not seem to have as good a command of their appetite as those of a heavier stamp, or perhaps the ill-effects of an over-feed shows itself more clearly in their case. The quantity given should be 1 lb. of hay for every 100 lbs. of the horse's weight. Oats is the best grain to feed. They are rich enough, and their hulls give the food a porosity that enables the digestive fluids to act on all portions. The quantity to feed is the same as the hay, one pound for every hundred of the animal's weight. This should be lessened one-half when not working. Some horses have the bad habit of bolting their oats and wasting the greater part of them. This can be obviated to a marked extent if a small quantity of cut hay is mixed with the oats, thus forcing them to chew their food thoroughly before swallowing. For heavy horses, nothing will keep them in better trim than a mess of bran or boiled barley on Saturday nights. This acts as a laxative and keeps them in good condition.

A standard rule held by many, that we have charily broken frequently, is not to water a horse while he

is warm. Common sense, however, and reasoning from analogy grounded on our own likings, led us to believe that this is just the time a horse is most anxious to get water. You carry your pail of ice-cold water to the harvest field, and slake your thirst frequently during the hottest day, but your horses you bring home and let them stand in the stable until they cool off. We admit that 3 or 4 gallons of ice-cold water drunk hurriedly by a foaming horse, will naturally produce founder, if not death, but we do not admit that they should not be given small quantities at a time (say a gallon or so) until their thirst is slaked. Some say, his blood being so hot, evil effects would soon follow. It is to be remembered, however, that a healthy horse's blood is not warmer in the hottest day of July than it is in the coldest day of December. To keep the blood at a constant temperature is the function of the water in the system. Evaporating from the skin when the animal is heated, or appearing as sweat, it cools the body. This has to be supplied again to the blood, and gives rise to thirst. The best plan is to water a horse as often as possible. It is better to water before meals than after.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Monthly Markets.

One of the inconveniences that strikes old country farmers on their first start in farming in Canada is the lack of facilities for selling their surplus live stock of all kinds. They miss the old country regular monthly markets, and fairs of frequent occurrence through the year, and find they are either reduced to sitting down and waiting till a stray purchaser "happens round" or else to holding an auction sale, if the number of stock is sufficient. Perhaps an unsuspecting old countryman decides on holding an auction sale of his surplus stock, and in the innocence of his heart imagines he will be able to sell for cash; but he is speedily undeceived by the auctioneer, who tells him that unless he gives credit he will realize very little on his stock. On his inquiring as to how long he should give, his breath is completely knocked out of him by being told, "at least six months, but that longer credit would be better." Such is the plight of the seller; and if we turn to the experience of the buyer, his position is perhaps worse. What farmer is there who has not spent days—I was almost going to say weeks—driving through the country, up all the back concessions and bad roads, in search of a purchase, perhaps a horse, or may be a fresh milch cow, till hope deferred has made his heart sick, and in despair he either gives up the chase, or else purchases something that does not suit him?

Now let us look at the situation of the English farmer. He has monthly markets and fairs, which are not exhibitions, but large markets where quantities of stock are brought in for sale by private contract, the sales being all cash. These fairs occur on fixed days, and are held at towns and villages in different parts of the various counties, and are sometimes limited to one or more different kinds of stock, such as horses and cattle, or horses alone, or pigs, etc. Large numbers of drovers, who make their living entirely by buying stock at one fair and selling them at some other fair, where prices may be higher, attend these fairs, as do likewise all the neighboring farmers, who either wish to buy or sell, a good opportunity of sale being afforded to the seller, and a large choice to the buyer. Is not this a better method than spending perhaps a week or more driving over bad roads, and then perhaps not meeting with what you want? "Time is money," runs the old adage,

and to no place or class does it apply with greater force than Canada and the farmers thereof, especially if that time has to be paid for in these days of depression. Monthly markets have been held in a few places in Ontario, but have not, I believe, proved popular and successful, and what is the reason? Surely, if in a country the size of England, where railroad facilities are so good, prices vary so much as to enable a large class of drovers to make a lucrative living by buying and selling, the prices should vary considerably more in this vast country, and consequently afford a good opening for a large number of drovers here; but instead of such being the case, they are comparatively but a few in the land. Why should this be so? I am inclined to think there are several reasons, and amongst the first is the credit system, which hampers the whole life of trade in this country, and would particularly so that of a drover. For instance, let us suppose Drover A. buys and pays cash for a cow at Hamilton market, and hearing there was a good demand for that kind of stock at London, he takes her with other stock to that place. There he meets Farmer B. who, after looking over his cattle, says to him, "What price, Drover A., do you put on that cow?" On being told he replies, "Well, I will give you the price, but I shall not be able to pay you till six months time, as I have sold a horse to neighbor C. and shall not be paid for him till that time; but if that is any use to you, I will take the cow." It will easily be seen that if the drover sold on such terms he would soon have his capital tied up and be compelled to go out of business. Of course this does not apply to an exporter, but it does, I think, explain the reason of men not entering on this business more generally, and also to a great extent the non-success of monthly markets. Credit is often, no doubt, a great help to many persons, but it is a bad state of affairs when credit is the rule, instead of being, as it should be, the exception.

Another reason is the lack of accommodation and the exorbitant charges of railroad companies for short distances, which are enough to kill any trade; what with the arbitrary weights they rate stock of different ages at—weights that no animal ever yet weighed at those ages—and extortionate rates for a few head; thus a shipper of six head is charged as much as for a full car. It would be a great boon to the Canadian farmer if monthly, or even quarterly markets could be made a success throughout the country, so that buyers and sellers might have an opportunity of being brought into contact with one another; but to be a success business will have to be transacted on a cash basis, and as I said before, credit will have to be the exception, and not, as now, the rule. 'Tis a long road that has no turning, and we will live in hopes that it may not be long before we shall see a succession of fairs as well as monthly markets established throughout the length and breadth of this large country, and the list of their dates advertised in the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Writing of markets and fairs one's thoughts naturally stray to exhibitions and, *apropos* of these, as the annual meetings of the various live-stock associations will now shortly be on, would it not be well if some action was taken towards appointing the judges for next year's shows? Mr. McCrae, at the meeting of the Agricultural and Arts Association, at Kingston, fairly struck the nail on the head when he suggested that the different live-stock associations should appoint the judges for their respective breeds. Although the suggestion offered by Mr. McCrae has for

some time occupied the attention of some of our prominent breeders and others, yet the honor of first acting on it belongs to the English Shire Horse Society, which on the 6th of November last elected the judges for their show by the votes of all the members of the society, forms being mailed to the members for that purpose. I am not aware whether the directors of the different large shows have expressed any desire of relegating the appointment of judges to the various associations, but one would imagine the different boards of directors would be only too glad to be relieved of an invidious task. It may be said that all the different breeds are not yet represented by associations; still Shorthorns and Clydesdales have already a large membership, and in these classes is perhaps the strongest and keenest competition of the shows. The plan is certainly worth a trial if it is only to do away with the grumbling one so frequently hears as to the capability of the judges, as any blame attaching from the appointment of incompetent men is by this method transferred to the respective associations.

AGRICOLA.

Shorthorn Pioneers.

BY D. MACRAE GUELPH, ONT.

(Continued.)

JOHN HOWITT, OF GUELPH.

In England, near the south part of Derbyshire in the valley of the Trent, lies Long Eaton. Across grassy meadows, seven miles down the valley, is Nottingham, now a great manufacturing centre for hosiery and lace. Half this distance up the valley is Staffordshire, the land of potters, and to the south, equally close, is Leicestershire. Long Eaton was the home of the Howitts. For over four hundred years John Howitt's forefathers had been landowners there. The family have still deeds in their possession for land in Long Eaton dating back to 1480. In those days Edward IV. was king and the wars of the roses were reddening English ground with some of the bravest of English blood. The Howitts held their home through the stirring Reformation days of "Bluff King Hal" and "Good Queen Bess"—through the troubled years of the fickle Stuarts—through the days when Cavalier and Roundhead fought hand to hand, and Cromwell ruled the Commonwealth, making England's name respected at every kingly court. Through the wars of the Georges they were still at the quiet village, and here in 1805, when Nelson fought and fell at Trafalgar, John Howitt was born. He received a good education as became his position, and had a wife and family when, in 1832, he left to see the new world. Coming to Guelph, he purchased from Mr. D. Linderman the farm known as "The Grange," on the banks of the Speed, and close to the town limits. In 1834 he returned to England, brought out his family, settled down at "The Grange," and never again returned to his native land.

His purchase of the farm and stock belonging to Roland Wingfield took place about 1836. He bought the whole of the imported cows and two of the bulls, Reformer = 212 =, red and white, and Young Farmer = 275 =. Of the cows the names of only six have been recorded. Two called Favorite = 179 =, roan, and = 180 =, red and white. The first named being from the pioneer herd of Shorthorns in Yorkshire, that of Jonas Whittaker, at Otley in Wharfedale—Lily = 302 =, to which a large number of Canadian Shorthorns trace; Dairymaid = 103 =, Pedigree = 408 =, and Cowslip = 94 =, red with a little white. The pedigrees of the others seem to have been lost. Mr. Howitt had the two bulls broken to work in the yoke, and they were for some years regularly used in the work of the

farm. This was an eminently practical way, and one that could be adopted still by many in Canada to good advantage. If it did not help the show-yard form of many of our bulls it would certainly help to keep them healthy and make them sure and good stock-getters. In Aberdeenshire many of the best breeders work their bulls, specially for the exercise, but they at the same time do a good deal of useful work. There they are not usually worked in pairs but singly, with breast collar and traces, and chiefly in harrowing or other suitable work. When a flat field on The Grange, close to the river Speed, was being broken up by the plough, the workmen complained that it was very hard and difficult, and full of stones below the surface, so bad that the horses could not do it. "Put in the bulls," said the master, and the bulls were brought and hitched to the plough. On they went, slowly at first, but on the whip being raised they went forward with a jerk, struck a stone and sent the unfortunate ploughman into the air. They were both used as stock bulls in the herd till 1844. Those who remember them say that the white bull, Young Farmer = 275 =, bred by R. P. Henry, Berry, Yorkshire, England, was much the best animal. He was the largest of the two, of good shape, very wide across the back, a rare good feeder, and got stock having the same excellent quality. Some of the neighbors used these bulls on their grade cows, but many a time, after they were gone, did they express a wish that they had used them more than they did. The old bull Reformer = 212 =, was sold to go to the States. Mr. R. McKersie remembers assisting the purchaser to drive him into Guelph with 2 two-year-old heifers. The American said he paid \$100 for the bull, and would be well pleased if he got two calves from him. He wanted the blood. For the heifers he had paid \$200 each. The bull was very thin. He had become breachy, and had been kept in the house and not well cared for. He had a block and chain attached to his head to prevent his taking the fences. The next bull used in The Grange herd was Comet = 432 =, red; dam, Lily = 302 =; sire Reformer = 212 =. His stock seems to have been well scattered over the country. This is shown by letters from different parts enquiring about his pedigree. Mr. John Walton writes asking for the pedigree of a bull called Young Farmer, which he had bought from Mr. Howitt, and also that of this bull, Comet. Mr. Sam. T. Tabe of Chestnut Ridge, New York, makes a similar request for the pedigree of Comet. In 1845 Mr. Howitt bought Brilliant = 375 =, a roan bull bred by Hon. Adam Ferguson, Woodhall, East Flamboro', and used him for two years. He was a large animal, but not as good as the old bulls. In 1846 the first Provincial Exhibition was held in Toronto. Mr. Howitt took down some of his stock and secured most of the prizes, and made several sales. The exhibit of cattle is mentioned in the society's report as follows: "The show of thoroughbred Durham cattle exceeded the expectations of every man who visited the grounds. Mr. Howitt's stock, of Guelph, was admired by all, and was eagerly bought by gentlemen from various districts of the Province. A three-year-old heifer, owned by Mr. Howitt, was purchased by John A. Walton, of Peterboro, for which the latter gentleman paid the very handsome sum of £57 10s., and for a two-year-old, £45." Mr. George Millar, of Markham, and others, were also purchasers. Abraham Taylor, of River Don, York Township, was much pleased with a little white cow, Victoria, and agreed if she had a heifer calf within two years, to become the purchaser, when four months old, for £20 currency. There does not

seem to be any record of whether Mr. Taylor got his calf or not. In 1846 Mr. Howitt bought a white bull calf from George Vail, Troy, N. Y. This bull, calved 19th June, 1846, was named Prince Albert, = 943 =. He was strong in Bates' blood. Mr. Vail writes to Mr. Howitt on 19th December, 1846, and says, "The bull I have sent you by Peter McIntyre is a very promising animal, and the best of the two I have. I hope he may reach you safe, and doubt not he will please you. As he is young he will fall off on his journey and will not appear as well on his arrival as he does now." Mr. McKersie says he heard the price was \$400. Mr. Howitt used him till 1851, and then sold him to Mr. A. Harvey, Fergus, and he afterwards became the property of Hon. David Christie, Paris. Though he was white, a color objected to by some, yet he and his progeny were much used in the county, and were good animals. Those who remember this bull when in show form, speak of him as a magnificent animal, of good symmetry, with a back like a dining-table.

(To be continued.)

FOR CANADIAN LIVE-STOCK AND FARM JOURNAL Farming in the Canadian North-West.

Farming as distinguished from grazing or growing only for home consumption, is comparatively a new thing in the Canadian North-West. The past season especially has had some surprises for every one. In Manitoba luck has been curiously mixed. On the sandy soil of the Middle Souris, where Hartney and Laughland a little time back raised the champion wheat of their respective years, frost has this year hit as badly as in the remotest north-western corner of the Province, and such a progressive farmer as Donald Frazer, at Emerson, was worse hit than Neepawa on the North-Western railroad, and while there are farms further south than Fargo where the wheat crop was hopelessly frosted, the territories west of Manitoba had the finest crop they had ever known. The finest western exhibit that went into Toronto Industrial Fair this year was gathered in Alberta, and there were not such samples even from the Portage Plains as came from the Red Deer River, an affluent from the Rocky Mountains. It is not only the samples they contribute to a C. P. R. exhibition car that the productive resources of any section can be judged. The best vegetable products this year raised have been got in and around Winnipeg. At the previous Toronto show some of the best were from Brandon, and the same season potatoes from all parts were freely exported to Toronto, Chicago, and St. Louis.

But the great staple export, the crop par excellence of the new north-west is its wheat, the unbeaten No. 1 hard, and it is to this in particular that we will now confine our attention. In the near future we propose giving an outline of what is being done with mixed farming, horse raising, cattle breeding and dairying.

The export of wheat, almost solely of the Red Fyfe variety, has gone on for some seven years, but it was only last year that it bulked out into serious importance. There was just enough rain dropping always at the right time to produce a magnificent average yield, and '87 will be long remembered for its fine crop and prices, not much over fifty cents being the general average. A few lucky men at the beginning and end of the season did strike ten or fifteen cents higher, but they were the exception.

The resources of the C. P. R., which were most sorely tried in the dead of winter, were quite unable to cope with this great and sudden increase of freight,

and the "blockade," though never very serious, was one of the greatest arguments against the C. P. R. monopoly. There will be no block this year.

What is usually called "bonanza farming," the raising of wheat on monster farms, has not been much tried in our own North-west, and the results when tried were scarcely encouraging.

On the much advertised Bell farm at Indian Head, the rebellion was the lucky accident which saved the concern from immediate financial atrophy, and this year after the shareholders had given up in despair, the Major has got on his own account an excellent crop, on the strength of which he has gone to England to raise the wind and form a new company. There any tony fellow with a good address can raise cash to put into a showy scheme here, whether prairie cattle companies or some newer venture with a change of title. There have been a few attempts, such as the Quinte farm near Deloraine, made at joint stock grain raising, but the long haul, sixty miles, to Brandon, in its early years made sad inroads on the returns from an otherwise well-conducted scheme.

Upon the whole the half-section farmer, either with the aid of his own growing family or one or two good hired hands, with himself always leading, has been the making of Manitoba. Where such men brought experience, steady habits, patience and a little money, going slow at the outset, most of them have done well and will yet do better. Those who started with a few jars of Hudson Bay whisky in the bottom of their waggons, bought freely of high priced implements and a buggy, are to-day better known in the records of the loan companies than for any more satisfactory achievement. Free loaning in boom times has sent many a man to Dakota who to-day would have been a well-doing citizen here had there been nothing available but what he could scrape out of his farm.

The Province is getting over that period of debauch and extravagance, but it has had a very bitter and expensive experience. Of course political men blame the measures of their rivals, but general big-headedness, combined with one or two unfortunate seasons, was the main cause of the stagnation from which the prairie province has scarce yet recovered. The fact that more land has this year been sold, and to the best sort of purchasers, small men want to increase their present holding, is the best test of the reliability of Manitoba as a poor man's country.

A limited quantity of oats, and of barley for both feeding and malting purposes, has been sold, going both east and south. Barley for malting purposes may prove a good thing in the near future, but wheat is the crop, and some people will ask what profits there are in raising it. The answer must be a very general one. There are well attested cases of wheat having been raised at even less than 20 cents. Anything from that up to a dollar, according to who does the figuring and who does the farming. There are hardly any farms on which grain only is raised, everyone wants to try a few cattle, or a pair of breeding mares, so as to avoid the risk of having all the eggs in one basket. In easily worked prairie sections, wheat raising must be the principal idea; no use preaching there about mixed farming. But many farms of this sort have hay bush, or unsold railroad lands convenient, and can with advantage follow for a time mixed farming.

A sample of a clear prairie farm favorably situated for a preponderance of grain farming may be here referred to in detail. After ten years experience, in every part of the North-west, the Portage Plains came out with the best average returns, and perhaps also the best staying power. This staying power is an important point in country where as yet the main idea in farming has

been to take all that was possible out of the soil, as quickly as possible, and in the easiest way. The value of these plains is attested by the fact that unbroken land has been selling at or near \$20 an acre, about double the price of the same land elsewhere. The frosts that have dipped down on almost every other place at one time or another, have been here nearly harmless; there is a good market close at hand; good neighbors, no end of plant food without undue luxuriance, and easy cultivation. There are lands there bought last year, which this season's crop has more than paid for. They stretch, roughly speaking, 30 miles east and west, and ten miles broad, a great wheat garden, some of which has been under crop for thirty years or more. Twenty years ago Rat Creek, ten miles west of Portage, was the Indian boundary, and all the settlement was in the bush along the Assiniboine River.

In 1875, a farmer now living a few miles west of Portage, coming in from California, got settled as the result of a business "deal" on his present holding, and good judges decided that neither he nor his farming would ever amount to much. He had been partner in a hotel business before going out there with his ox-team. There was a large swamp now pretty much dried out on one corner of his half section, the rest good dry land with scarcely a stone on it. One patch had borne two crops before he started, and with an occasional summer fallow, is being steadily and profitably cropped yet, almost always in wheat. In spite of booms and all other temptations, he stayed with his land, marrying the daughter of a Highland settler. All the early settlers were either Highlanders or half-breeds. His outfit to-day is about 10 head of horse-flesh, two good breeding mares in foal, two horses, two big colts, and a team of clever driving ponies, for he has a good eye for horse-flesh; about a dozen full grown cattle, and as many youngsters. He milks only two cows, the others suckle their calves, and all are well graded or pure bred Shorthorns, his last four-years' bull being one of the best farmer's bulls in the Province. About a score of good pigs and some poultry make up his live stock. He cut with his relays of horses 5800 bushels of wheat this fall, and all the oats he requires, doing 15 or more acres per day all through, and handling the binder always himself. He had two hired men stooking, one of whom, a capable little English farm hand, is engaged all winter at \$15 a month, having made \$28 the four previous months. There are not many Englishmen of the same pattern, let it be said here. The majority of those that find their way to Manitoba are rather a poor sort, and dear at any money.

All his grain was threshed and cleaned up early in the season, all his stubble plowed except what is meant for fallow and oat crop, which does better with spring plowing, closely followed by the seeder. A thousand bushels of this wheat were sold early at \$1 15, the rest can wait for a spring market. Fifty acres in one block has borne wheat five years in succession, averaging thirty bushels and a little over for the whole time. A summer fallow this year is all the change it will have. The steady good crops keep weed growth at a minimum, and it is one more advantage of these plains that they go less to weeds than almost any other section of country. It must be conceded by every reader that this man, who has never been advertised in the eastern papers, or given a free ride to Ontario to talk up the country, is pretty well fixed, with a good farm, good buildings, good stock and implements, and hard pushed for only a month or two in spring and fall, he may fairly be set down as a pretty successful wheat grower and half section farmer.

The fact that this man can rub along with only one hired man for most of the year is noteworthy. A two furrow plough with four horses abreast turns over a lot of land in a fortnight, and harrowing, seeding, haying, reaping are done in the same speedy way with the best appliances, while the high price of hired labor is balanced by the cheap food of the horses, which do the most of the work.

It must not be hastily assumed that there are very many farmers whose good fortune has been on a par with the example just cited. There are hail storms, and examples might be mentioned of three such storms within eight years on one farm, both here and on the other side of the line. Prairie fires in more sparsely settled districts make great havoc, as was the case at Virden this year, when one Sunday a strong wind carried the fire over a wide strip of country, for many miles burning stacks, granaries and other property. Frosts, too, which, by the way, all old settlers agree are a new thing in their experience, have struck again and again. The whole country embraced by the Red River and its tributary streams has been scourged by the early summer frost of August. It is not all profit, this wheat growing, though at a dollar a bushel, and some men here have made more since harvest. Wheat growing on virgin soil at a low price is fairly coining money. With all drawbacks, it will still be freely gone into by the men who know about those drawbacks, and the wheat area of next year will be the largest yet known. "Hope springs eternal in the human breast," and the hardy yeomen of the north-west are quite as sanguine as other people.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Stock-keeping in Ontario.

The intensified competition in all branches of commerce which now exists, produced partly by the modern facilities for transit, calls for increased energy and economy of resources in manufacturers and producers. While the change has vastly benefitted the farming interests of this and all newly settled countries, we have, through it, to compete with the productions of cheaper land and, in some regions, more favorable climate. If on this account we perceive the need of more intelligence, thrift, and enterprise on the part of the farmers of Ontario, it is even more important to recognize it as arising from the very general deterioration of the soil which is going on by the usual system (or the want of system) of cropping which prevails. Probably not one farmer in twenty realizes the fact that all the plant food which his crops gather from the soil must be returned to it in some shape, or his farm is running down. Happily there is some awakening in the minds of many on this matter, expressing itself by the remark, "I must keep more stock, and have more land in grass." When this course is resolved on, and it is a step in the right direction, the importance of producing stock of the best quality, and at the least cost, at once suggests itself. We do not yet know to what extent the products of the Great West of this continent and the vast prairies of South America may lower the price of beef and mutton, and for this and the other reasons our operations in stock should be carefully and skillfully conducted.

Having in past years had successful experience on a limited scale in breeding and feeding cattle, and being impressed with the foregoing considerations, I would gladly further, if possible, the operations of others in the same line. Although the locality where I reside is favorably known for its superior stock, I can safely assert that but a small proportion of the farmers in the neighborhood breed and feed cattle in

either quantity or quality to the extent which they might with profit. As to quality, a common excuse or objection with a beginner or small farmer, is the cost of first class breeding animals, and the quicker return from grain crops marketed, induces restriction in quantity of stock, though at the expense of the land.

In seeking to further commend, and remove objections to the course I am advocating, I will, in the form of suggestions, describe the special points of my operations, and then give a few of the results. Let me say first, that while appreciating the excellencies of other improved breeds of cattle, I am satisfied that the best results in grade cattle are to be obtained by the use of Shorthorn or Durham bulls.

Begin with two, three, or more heifers or young cows, according to financial ability or size of farm, more or less grade Durhams. My beginning was with a native bred heifer of a superior stock. Make freedom from prominent bad points, such as large head or horns, coarse rump and tail, a wild temper, etc., a main qualification. Do not grudge a dollar or two or a few miles of travel to procure service of the best bull, size being important. (My most profitable cattle were all got by large bulls.) Whatever experience may lead you to prefer afterwards, let the heifer calves which are to breed up your herd, suck their dam or another cow six months and then be well fed with best hay, sliced turnips, and a little oat or pea meal mixed with cut hay or wheat chaff. Make it a leading idea that in raising young cattle either for breeding or beef, it is wasteful to stint feed, and that they should not be suffered to lose flesh so as to be otherwise than somewhat fat. Treat them gently, even pet them and make them thoroughly tame. Never suffer them to be driven by a dog or faster than a walk. Train the heifer calves to lead with a halter by your side during the first winter, which will be a great saving to both heifer and leader. Follow up this treatment from generation to generation, taking care to cross sufficiently in breeding, and never selling your best cows or heifers. Carefully make and keep your cattle perfectly tame and quiet, and you will from the first, and increasingly, find your stock, weight for weight, cost much less to feed than those raised in the usual manner, attain greater weight, and be especially sought by dealers.

The management here suggested and the results predicted are derived from my own experience. From a farm containing eighty acres of arable land of only medium quality, half being usually in grain and roots, fifteen acres of wheat, the average proportion, a few sheep also being kept, buying no feed, and spending not more than twenty dollars annually in phosphate and bone dust, I was able from a herd of from 16 to 20 cattle to take several first prizes, besides seconds and thirds, at all county exhibitions and at seven or eight Provincial ditto. I bred and sold at three years old a pair of twin steers, which were afterward fed to a weight of 7,000 lbs. (seven thousand pounds), also a cow which, failing to breed, was fed twelve months and weighed 2,360 lbs. These were the heaviest weighted animals, but in the latter years I regularly got at Easter from \$50 to \$100 for each steer, then just three years old.

These and other facts which might be adduced, abundantly proved the advantage gained by the management above indicated. I may also mention that being guided wholly by experience and observation in feeding fattening animals with meal and turnips, when I occasionally came to know the rations fed by others, I was astonished at the economy of my own feeding. It may be thought that the careful attention and oversight required can only be carried out on a small scale, but I am satisfied that the contrary is the

case, and that it may be practised more economically on a larger scale than my opportunities permitted.

The breeding and feeding stock to the extent of consuming all the grain excepting wheat, and the hay and roots grown on a farm, will, if the manure is well managed and applied, go far towards preventing the exhaustion of the soil, which is fatal to the owner's prosperity. Further, I think I have shown that the increased profits of improved stock management will enable the farmer to procure sufficient of artificial manure to more than place in the soil the constituents of which it is deprived by the animals reared on and sold off it. Thus he may have the rare assurance that while gaining more than average profit, he is actually increasing the productiveness of his farm. S. H.

Clydesdales at Cairnbrogie.

Any true lover of the equine species that feels despondent in his work, and thinks life not worth living, should visit and inspect the stud at Cairnbrogie, the property of Graham Bros., of Clarendon; and if he does not leave it buoyant of spirit and nerved for greater efforts, with a higher ideal of excellence in horseflesh imprinted on his mind by living models there seen, then we cannot vouch for human nature. Each and every animal, from the diminutive Shetland to the strength-embodied Clyde, bears as its insignia the form and quality indicative of selection by a master hand.

In these cloisters there are at present 15 Clydesdale stallions, 9 mares, and also two Hackney stallions and a number of Shetland ponies—surely a clover field for the cynic as far as numbers are concerned, but not by any such means if he gives utility, quality and substance their proper places.

We take up our position in the middle of the lane separating the house from the stables. First appears McBean (6030), who is fully described in our page. At the heels of McBean, vying with him, comes Fitz James (5763), a gallant two-year-old, his haughtiness reflected from his noble form and imperial carriage, marking him at once as an inheritor of many of the good qualities of his sire, the noted Lord Marmion (267) by the prize-winning horse Blue Ribbon (1961), by the yet unclipped Darnley (222). His dam, Bet II., of High Brogue, was got by Strathclyde (1538) the 1st at Glasgow Spring show in 1878, and 2d in 1879, and also winner of several prizes at H. and A. S. shows. He is smooth of form, sweet in disposition, and rangy in type. No wonder that being so finished, full quartered, and deep-chested, with a well-ribbed and coupled barrel, that he succeeded in gaining 2d at Port Perry, 2d at Markham agricultural society shows, and at these only second to his half brother Marmion. Tete away, two others now disport themselves. Leaving is Barcheskie (4827), a grandly topped three-year-old, the get of Crown Jewel (2708), by Orphan (1498), dam Brenda of Barcheskie (4901), by Young Darnley (1874), the son of Darnley (222), whose value as a stock-getter requires no comment. Firm-footed, broad-jointed and their resultant good quality, well-actuated, he is a type of horse of great utility. With such a forequarter and shoulder, and also well filled out behind, he was surely worthy of the distinction the R. A. S. conferred on him at Kirkcubright in 1886, in giving him 2d prize, and also 4th at Nottingham in 1888. A sister of his sold for £150 after gaining 1st in a large class at Dumfries Union Show. He also gained 1st at Markham Agricultural Society Show, 1st at Goodwood and 2d at Uxbridge and Port Perry, only so to Straven Callant, who figures on our first page. His companion is MacTurk (5203) who bears the impress of his far-famed sire Macgregor 1487, dam Amy of Strathclyde (1538). MacTurk is a massive two-year-old of good quality, bay in color, with

two white hind feet. He is thick, deep-bodied, short-legged, with compact barrel and well-moulded quarters. Pride of Corsock is a low-set 4-year-old, with good bone and substance. His sire was Darnley (222), dam by Samson alias Logan's Twin (741), whose sire Lolly (455) won 1st prize and silver medal at Glasgow.

Spurning the ground with proud disdain, a bevy of two-year-olds pass in review, all tracing to the well-spring of so many prize winners, the redoubtable Darnley. That blocky bay with such a goodly muscled and well-proportioned body, is Mac Math (6050), by Macfarlane (2988), by Macgregor (1487), by Darnley (222), dam Helenslee (4912), by Rumlin Tam (4688), whose get have given good accounts of them at the R. A. S. and other shows. Close at hand is MacNicol (6055), the get of McMaster (3823), by Macgregor (1487), by Darnley (222), dam Jean of Burnbank, by Comet III by Comet II, the winner of the first prize at the H. and A. S. show at Inverness, and also many others. He is a horse of grand substance, short, strong back, deep shouldered, with broad, clean cut joints.

Another of the group is Southern Cross (7273), by Goldenberry (2828) by Darnley (222), dam Bell Dunlop (5429), by Warrior (902), a first prize winner at the H. and A. S. at Glasgow in 1875, and winner of the Lesmahagow premium the same year. His sire, Goldenberry (2828), was awarded the £120 premium given by the Duke of Hamilton, when three years old, and is now heading Lord Polwarth's stud at Mertoun. Southern Cross is a solid brown, with a white star on forehead. He has a very heavily muscled loin, strong shoulder and flat bone. He moves easily, with action like clock work in unison. Quality and substance is not foreign to him, neither is finish.

Adown the lane now come a splendid trio of promising yearlings. The first to catch the eye is MacClaskie (6996), who, however, is described and sketched on our first page. McLaurin (7020), and Kincaid (6879), accompany him. The latter is a son of Prince of Airds (4641), by Good Hope (2146), by Darnley (222), dam Manfreida (6618), by Manfred (1758). This colt is remarkably well bred, all the animals forming his ancestry having been famous prize takers and good breeding horses. MacLaurin (7020), the get of Macgregor (1487), dam Trim of the Ford (7666), by Young Warrior, is a deep, bay, growthy colt with black points.

To do justice to the mares of this excellent stud, for they are in keeping with the high quality of the others, would require more space than we have at our disposal; but we cannot let them pass without a word. They are seven in number, and are of the best of breeding, as the following synopsis will show: Ivy (Vol. XI., p. 64) is a matronly two-year-old, got by Macfarlane (2988), by Macgregor (1487); Lady Roger (Vol. XI., p. 186) is a two-year-old of good girth, got by Sir Roger (4725), by Duke of Hamilton (2074), by Prince of Wales (673): Ashleaf (Vol. XI., p. 194) is a promising yearling of splendid bone and body, got by Macpherson (3825) by Macgregor (1487); Azelea (Vol. X., p. 43), a brown yearling filly of roomy body and smooth form, got by Goldenberry (2828), by Darnley (222); Elm (Vol. XI., p. 15) is a strongly and broadly jointed daughter of Little Jock Elliot (3768), by Macgregor (1487); Helen Douglas (Vol. X., p. 435) was got by Good Kind (2836), by Good Hope (1679), by Darnley (222); My Queen (Vol. XI., p. 144) is a worthy daughter of Macgregor (1487). We must close by briefly noting a handsome and gay pair of Hackneys now at this stud, Dorrington 2d 956, described and sketched on our first page, and Lord Roseberry 1307.

The latter is a rangy horse about 15.3, with firm, flat bone, finely chiselled and good actioned, stepping easily and freely. He is strongly coupled with a deep chest, giving his shoulder blades full play. His legs are splendid, with good feet and pasterns. In color he is a beautiful chestnut, which in conjunction with his fine form and carriage, makes him pleasing to the eye.

To those interested we would recommend a visit to this excellent stud, for it is certainly worthy an extended personal inspection. Cairnbrogie is only about one mile from Claremont station on the C. P. R., some 25 miles from Toronto. It is unnecessary to say that visitors will be met at the station and be made heartily welcome.

Scale of Jersey Points.

"Novice," Windsor, N. S., writes, wanting to know where he can get a scale of Jersey points. We give the following, adopted by the American Jersey Cattle Club, May 6th, 1885:

FOR COWS.

POINTS.	COUNTS.
1. Head, small and lean; face, dished, broad between the eyes and narrow between the horns.....	2
2. Eyes, full and placid; horns, small, crumpled and amber-colored.....	1
3. Neck, thin, rather long, with clean throat and not heavy at the shoulders.....	8
4. Back, level to the setting on of tail.....	1
5. Broad across the loin.....	6
6. Barrel, long, hooped, broad and deep at flanks.....	10
7. Hips, wide apart; rump, long.....	10
8. Legs, short.....	2
9. Tail, fine, reaching to the hocks, with good switch.....	1
10. Color and mellowness of hide: inside ears, yellow.....	5
11. Fore udder, full in form but not fleshy.....	13
12. Hind udder, full in form and well up behind.....	11
13. Teats, rather large, wide apart, and equally placed.....	10
14. Milk veins, prominent.....	5
15. Disposition, quiet.....	5
16. General appearance and apparent constitution.....	10
Perfection.....	100

In judging heifers, omit Nos. 11, 12, 14.

FOR BULLS.

The same scale of points should be used in judging bulls, omitting Nos. 11, 12 and 14, making due allowance for masculinity. But when bulls are exhibited with their progeny, in a separate class, add 30 counts for progeny.

Dispersion Sale.

On the 20th day of February, 1889, the entire herd of Shorthorns at "Riverside," Woodburn, Co. Wentworth, Ont., and owned by Prof. Shaw, of the Ontario Agricultural College, Guelph, will be sold by public auction. The herd comprises some 40 head, of all ages, but a majority of them are young. They are mostly of good colors, on a Bates foundation, with top crosses of the Booth and Cruikshank strains. The pure Mantilini Booth bull, British Sovereign, bred by James Hunter, Alma, Ont., heads the herd. He is the grandson of the great Sir Simeon, so many years at the head of the herd of Mr. Hugh Aylmer, of West Dereham Abbey. He has proved himself a good stock getter and the young stock are all by him. In the lot are a number of first prize cows and heifers and some nine or ten young bulls, of good colors and not spoiled by cramming. Catalogues will be ready by 10th January and will be furnished on application. Teams will meet intending visitors at the LIVE STOCK JOURNAL office, Hamilton, on the morning of the sale. More particulars will be given in next issue. See advertisement.

Call a Halt.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—I am no annexationist, and have done my share for thirty years past Anglicising rather than Americanising any of our institutions with which I have been connected. I am not even in favor of Commercial Union with the States, but where an association of American origin is doing good work in which I am interested, and which I find answers my purpose here, I am not so bigoted a patriot as to want to see the establishment of a rival institution in Canada.

An effort is now being made to start a Sheep Breeders' Association here, which, as regards the only breed of which I pretend to know anything, is perfectly unnecessary.

Our principal customers for imported and pure-bred Shropshire sheep are the Americans. They are not so familiar as we are with the troubles and trials to which buyers in England are subjected. They have not the connection at home that we have, many of them, therefore, are content that we should be middlemen for them in the business of importation. It is quite certain that every breeder and importer here must register at La Fayette, Indiana, and a very expensive job it is, to say nothing of the trouble and wearisome reiteration of details on a pedigree form nearly a foot square, for every animal. Two-thirds of our customers are Americans, and we must register in their book. What object is to be served by having another book here and also registering in it, thereby doubling trouble and expense? My patriotism does not go that far. It is no more trouble or expense to post a letter to La Fayette than to Toronto. It costs less to post back the certificate; and I would ask if our experience with a separate Shorthorn register has been quite satisfactory? or whether some of those who know most of that endeavour would not prefer that the American Herd Book had been allowed to do for both countries.

T. C. P.

Veterinary.

Horse Breeding.

BY F. C. GRENSIDE, V. S., GUELPH, ONT.

(Continued from December.)

Assuming that stallions of the Cleveland Bay or English Coach horse type are available for use in this country, the question arises as to what class of mares they might be mated with in order to produce the kind of carriage horses required.

It must be remembered that the typical English coacher has no quality to spare, and therefore it would not do to mate him with anything coarser than himself; and everyone must acknowledge that there are extremely few mares of his stamp about.

Doubtless there have been many English Coach horses that could not be styled leggy, but we are taught that there was a prevailing tendency in that direction amongst them, which characteristic we could well afford to dispense with, as our market asks for something inclining towards the cobby order, in substance. Now, we have a considerable number of mares in this country varying from fifteen to sixteen hands, some of which are too weedy, but there are others of fair substance, and about as much quality, if not more than a coach horse, but markedly deficient in style, symmetry and action; which qualities a good coach horse would tend to supply.

Perhaps there is no class of horse, but one, possessed of coaching characteristics that could be so successfully mated with the numerous weedy specimens of mares that we have in this Province. The chances are that many good tidy animals could in this way be produced for the lighter class of carriage horse work; and good looking stylish horses of moderate substance, standing fifteen-two, sell well, particularly in pairs.

There are a few Hackney coach stallions making their way to this country, and they should do a wonderful amount of good in producing progeny that will

help to supply the large demand that exists for cobs.

Hackney Coach horses vary in height fourteen-two to verging on sixteen hands. They are stout, active, stylish animals, with more quality than coach horses, and consequently better suited to cross with our common mares. Any neighborhood which has a good specimen of this class of horse to use is fortunate, for they are likely to produce good looking, useful, nice tempered horses, when crossed with our light mares of the stamp of the larger livery horse.

Having admitted that in our humble opinion there are a number of mares in this country, which, if judiciously selected, could be with satisfactory results bred to horses of the Coach or Hackney Coach stamp, still we think that the greatest defect pervading our light horse stock in this country is their deficiency in quality.

We sometimes hear the remark, in referring to a horse of the light class, that he shows breeding. What does this convey to the mind? It simply means that the horse in question shows by his appearance that he possesses a good deal of thoroughbred blood in his veins. In this connection the terms *breeding* and *quality* are often used synonymously, but this is not quite correct, for a horse may show by his appearance that he presents clearly the characteristics of a particular breed, as for instance the Percheron, and yet evidence no quality.

However, there is some excuse for this error, in reference to our light stock, for all the *quality* they possess has been derived from the thoroughbred. It is very evident, then, that if we want to improve our stock in this particular, we will have to resort to a reinforcement of this blood.

Many farmers labor under the impression that in recommending them to use the thoroughbred on their common mares, the object is the production of running speed in the progeny. This is absurd, for it is only an exceptional colt that is sufficiently speedy to be valuable, when the sire and dam are both thoroughbred, so that it is the wildest speculation, to expect a half-breed to be especially valuable for his speed. Some may have a turn of running speed, and it is by no means an objection, in fact, it enhances the value considerably of an otherwise poor saddle horse, but it is by no means of first importance.

The same fallacy exists, in that speedy trotters can be produced from a standard bred trotting sire and our common mares, especially those that have a dash of trotting blood in them.

We will here quote the words of a recognized authority on this subject, viz., Mr J. Sanders, author of "Horse Breeding," and editor of the *Breeder's Gazette*, Chicago:

"Very fast runners or trotters are not produced with certainty, by even the most experienced breeders with the best of breeding stock to work upon, and the best of trainers to develop them."

"But there is a fascination about it which attracts many gentlemen of wealth and leisure to the business, the question of profit and loss being with them a secondary consideration. It affords them enjoyment and recreation, and it is indulged in mainly to that end; and into such hands the breeding of horses for speed alone, whether runners or trotters, should be left."

There is no doubt that our only available source from which to improve the *quality* of our light horses is the thoroughbred. Certainly in his purity he is too highly organized an animal, possessing too much animation and courage as a rule, for the performance of ordinary work, but the mares which we should cross with him have sufficient cold blood in them to modify the tendency towards too much life in the progeny. The ordinary half-bred is very good tempered, and

if he is worked steadily and judiciously from the time he is broken in, he is a very good mannered horse. The thoroughbred has been used in this country but to a very limited extent, and those by whom he was patronized, in the majority of instances, used him on a class of mares that were unsuitable to mate him with, in order to produce the most valuable class of half-breds.

Small broken down weedy mares of nine or ten hundred weight, were those usually bred to him, and can it then be wondered at that the progeny were often undersized, and only fit for livery horses, or such work as they have to do.

However, liverymen are unanimous in acknowledging that they cannot, for their very trying work, procure animals that will stand its wear and tear, and withal be pleasant and good looking drivers, better than a half bred. But, if crossed with roadster mares, they get the best all day roadster, so, if crossed with a heavier class of mares, they will get the different sized carriage horses required, the size of the progeny being largely regulated by the substance of the mare used. There is undoubtedly a tendency for the thoroughbred to get large colts in proportion to his size. For instance, if a thoroughbred of ten hundred is mated with a mare of twelve hundred weight, the chances are that the get will more nearly approach the weight of the dam than the sire.

To be continued

Disease of the Eyes and Catarrh in Sheep.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR: Will you please do me and others the favor of answering the following questions?

Our sheep have got some disorder in their heads. They have had it for the last three years. They take it in the fall, and get all right again in the summer. They run at the nose, and snuffle, and a white scum comes over their eyes which makes them entirely blind. While they have this they do not do well at all. They get very poor and weak. It started with one or two, and now it has gone over the entire flock. We have tried different things for it, and we cannot stop it. Will you tell me how it can be stopped, and what is the cause of it?

TYENDINAGA.

Belleville, Ontario.

ANSWER BY F. C. GRENSIDE, V. S., GUELPH, ONT.

We have seen outbreaks of the trouble described, but no veterinary authority has as yet, so far as we know, thrown much light on its nature, in so far as the cause is concerned.

We have seen whole flocks with their eyes inflamed, and without any sign of catarrh. As it usually occurs shortly after the sheep are taken up and housed, it would seem that the altered conditions must be the determining cause.

It is most necessary that sheep should be housed in very dry and not too warm sheds, so that sweating is avoided as much as possible.

The subjects of this eye trouble should be allowed good food in the shape of roots and grains, and give each sheep in chafed oats twice a day twenty grains of sulphate of iron, and a drachm of powdered gentian.

Remedy for Warbles.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Will you be kind enough to inform me through the JOURNAL, the best remedy for destroying warbles in cattle, and when to apply it, and you will oblige an appreciative reader?

W. S. F.

Bradford, Ont.

To properly understand the means of destroying these pests, which do so much damage to the hides as well as being a source of annoyance to the animals, a short sketch of their life history will not be out of place. The eggs are laid on the backs of the animals in summer by a two-winged fly about the size of an ordi-

inary bee. Whether the eggs are inserted into the hide by the long egg laying tube of the female, or the grub works its way in after hatching, is not decided. However, about the beginning of January some of the holes may be seen and the small lumps felt, indicating that they have encysted themselves in the flesh of the animal. The mouth of the maggot is next the flesh, feeding on the ulcerated matter due to the irritation caused, while the other end, containing numerous breathing pores, is at the opening, a fact which is taken advantage of in killing them. When the maggot is full grown it is about an inch long. As soon as it reaches this stage it forces itself out and soon enters upon the chrysalis state, which is spent under stones, chips, etc., until the return of warm weather, when it emerges as a fly. Now, it is obvious that any soft, greasy substance that would stuff up the holes through which the maggots breathe, or would enter the opening and poison it, is what should be used in seeking to destroy them. There are several substances that would answer these requirements, such as lard or rancid butter mixed with a little sulphur, tar, or McDougall's Sheep Dip, or anything of a similar nature. The best time to apply it is early in the season, as then the wound will heal up and do but little damage to the hide. To prevent their attacks in summer smearing the body along the spine and loins and ribs with train oil has given good results. Miss E. Omerod, consulting entomologist for the R. A. Society of England, recommends the following mixture for that purpose: 4 oz. flowers of sulphur, 1 gill spirits of tar and 1 quart of train oil, to be mixed well together and applied once a week along each side of the spine of the animal.

Bog Spavin and Thorough-pin.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

I have a horse that has a bog spavin and thorough pin on one leg. I think it was caused by a slip. He never showed any lameness. Is there any danger of it causing lameness? Can the enlargements be taken off, and if so, by what means? Please answer in JOURNAL.

SUBSCRIBER.

ANSWER BY F. C. GRENSIDE, V. S., GUELPH, ONT.

If the bog spavin and thorough-pin have not been present more than a month, there is a probability of removing them. I would recommend the application of a biniodide of mercury blister, and after the acute soreness, the result of the blister, has passed off, allow gentle exercise daily.

The Farm.

Preparing Papers for Institutes.

In view of the fact that the coming season will be one of unusual vigor for farmers' institutes, we venture to offer a few suggestions to those on whose shoulders, or rather brains, it may devolve to prepare papers for some of the same. It is only for those inexperienced in this line of work that we write, others will already know the main features of excellence in a good paper. Some think that when asked to prepare an essay on any given subject, that they are expected to give a complete treatise of the same as far as their experience will permit them. That, however, we think to be wrong, as such a course, while not only taking too much time, would lose vigor by putting too great a strain on the hearers. There is a great temptation for one versed in any line of farm work to do this, not only for the fact of it leaving with the hearers a favorable impression as regards the writer's ability to handle his subject, but it also affords him a certain amount of personal satisfaction. This, however, we think should be wil-

lingly sacrificed for the interests of the Institute, which certainly demand that the papers should be short, practical, and full of original thought, furnishing the foundation for an animated discussion which cannot but result in benefit to all. It may be accepted that any important phase of the matter in hand that is slighted by the essayist will not escape the attention of those interested when the time for the discussion arrives. Although the experience of one may be of value, yet it is the garnered experience of many under manifold conditions that brings from "the jewel truth its latent ray." It is an axiom accepted by all that to be a clear writer one must be a clear thinker, hence the absolute necessity of having the ideas well arranged and fixed in your own mind before attempting to convey them to others. Let the papers be concise and spicy, clipped of all words of "learned length and thundering sound," and fully one half of the work for a successful Institute is accomplished.

Seed Potatoes.

The Maryland Experimental station conducted an extensive experiment in this direction, the result of which we present to our readers. The conclusions drawn are based on the growing of forty standard varieties, placed under similar conditions, treatment, etc., the only difference being in the manner of seeding. Five different methods were used with every variety. They were planted in five rows and three feet apart, and the hills were $2\frac{1}{2}$ feet apart in the rows. There were four hills of a kind in a row, making 20 hills planted of every variety.

Row A. One large whole potato averaging 10 oz. to a tuber.

Row B. One whole potato, the size of a hen's egg to every hill.

Row C. One piece about $\frac{1}{3}$ of a fair sized tuber, the piece having from two to four eyes and weighing about one ounce.

Row D. A single eye on a good sized piece of potato to a hill.

Row E. A single eye on a very small piece to a hill.

Row	Total Yield bus. p. acre.	Merchantable bus. per acre.	Unmerchantable bus. per acre.
A	258.95	179.12	65.83
B	174.30	106.70	67.66
C	116.24	82.75	51.48
D	90.51	58.27	31.65
E	57.98	13.10	24.27

Conclusions may be easily drawn from the above, but that they may be more correctly formed we substituted the different quantities that it took to seed the different rows, as it is manifest that the large potatoes would be the most costly in the direct sense to seed with. It was computed in even bushels that the amount required to seed the different rows in the five ways given above would be as follows:

Row A, 60 bushels; B, 18 bushels; C, 6 bushels; D, 3 bushels; and E, 3 bushels. It was found that by allowing a higher price for the large potatoes and taking into account all other considerations, that they gave the best returns.

"I consider your paper well worth the money, and have no wish to be without it, as I mail it to a son in Manitoba."—Chas. J. Fox, Delaware, Ont.

"I would not be without your paper for twice the amount. I always look with pleasure for its arrival each month. When I get time I shall try and earn some of your premiums."—Edward Sugden, Dale, Ont.

"We regard the LIVE STOCK JOURNAL as the best medium in the Dominion for advertising."—A. C. Hallman & Co., New Dundee, Ont.

"I am very much pleased with the cut. It is a real good likeness of St. Gatien, and they have been very well described by Mr. Craig."—Robert Beith, Bowmanville, Ont.

FOR CANADIAN LIVE-STOCK AND FARM JOURNAL

Gentleman Farming.

As a by word for losing more or less money per annum in a way that brings no reproach with it, and at the same time constitutes an absorbing pleasure, "gentleman farming," is a description of business better known in other countries than in Canada. Of course it is usually combined with a penchant for horses, sheep or cattle, and the money is forthcoming for a stud, herd or flock of fashionable blood and intrinsic merit. The men who have recourse to this method of lessening their bank balance are sometimes men who, having spent twenty years in the counting-house or on 'Change with satisfactory results in the pecuniary way, revert, while yet vigorous and energetic, to the rural scenes amid which they spent their boyhood. This class of recruit to the farming classes is generally a painful illustration of the proverb, that a little knowledge is a dangerous thing. Probably he can afford to make tremendous mistakes. It makes no difference to anybody, and is good for trade. Gradually he comes to know good hay from bad, a good horse from a flatcatcher; that when a milch cow looks smooth and round, she is no good for the pail; that a thoroughbred calf at a year old has cost him one hundred dollars; that two-thirds of the work done on his place must be charged to his household account, and that the allegation of its improving the value of the freehold to anybody but himself is a myth, not verified when the auctioneer's hammer is in the air. He has a manager who makes an excellent living on the place, and is far better off on his wages and perquisites than the small farmers of the same neighborhood; and of course he is more or less at this man's mercy, as he is more or less about and aware of what is going on. But on the other hand he has an occupation for his leisure hours that is healthful for himself, while for his children up to a certain age the country is incomparably better than the town. His circumstances relieve his wife from becoming a mere drudge. He has a resident governess for his girls, and the boys go away to a boarding-school: but what joy in their holidays! It is worth a lot of money just to see the way the youngsters enjoy what is a sealed book to their city school-fellows. Hunting squirrels and rabbits in the bush; trapping muskrats, treeing coons by moonlight, riding, driving, shooting and generally kicking a free leg over five hundred acres, what a time they have of it! It is moreover a libel on the domestic servant to say that the difficulty of getting good cooks, housemaids or parlormaidens is one considerable obstacle to life in the country; for there is always here a supply of old country domestics who have been used to country house life, and who, because they are quiet, steady and respectable, prefer it. A true farmer's daughter is, too, always ready to take a place in the house of a gentleman farmer. The kitchen is large, their number prevents dullness, and there is none of the saving and cheese-paring, practiced by city house-keepers, and which are the torment of city servants. Still, in spite of all there is to commend country life—we do not include suburban residences and their limited surroundings—those who resort to it in Canada are few. Whether it is the length of the winter or the want of society that is the main obstacle, the fact remains that the gentleman-farmer is not increasing as a class. Nothing astonishes old-country folks so much as to discover that in this colony, which they have always regarded as rough, agricultural and primitive, the well-to-do people are nearly all persons who have seldom stepped off a plank walk. The Canadian on his travels is generally a man who couldn't put a saddle or collar

on a horse, and never milked a cow, or chopped a tree. On dancing, walking-sticks, cigars, billiards, skating or flirting he is—up to the point of his experience—as well informed as his English contemporary and social equal; but of country life he seldom knows anything. He goes to stay with a country gentleman in an English shire, and can tell him absolutely nothing of the farm wages, work, and agricultural system of his own country. There is in fact a sharp dividing line between town and country residents, and the tendency is to the towns rather than to the fields. This must be regarded as a misfortune: for every man of means that resorts to farming and the breeding of animals, not within the reach of ordinary peasant-proprietors, must be looked upon as a public benefactor. He comes in for a good share of sneers and gibes at the hands of the practical farmer; but in his generation he is of far more utility. But for him the stock in his neighborhood might remain the scrubs that are anything but ornaments to our roadsides. The man who has devoted his capital to horse or cattle breeding, and has not thereby impaired rather than improved his "pile," is hard to meet. Over and over again the cost of keep and attendance, the accidents and mishaps, have weighed against the occasional good sales that lure him on, and creditors have stepped in to bring the experiment to a termination. But this has generally been due to an attempt to do things on too large a scale, forgetful of the fact that those with the means to buy are as yet few and far between. On a reasonable scale there can be no doubt that both ends can be made to meet: but we may as well admit that, with a score, perhaps, of exceptions: men who have lived carefully and economically, and have not incurred expenditure inconsistent with probable prospects, the larger breeding establishments have not been paying concerns: and that, too, whether in the hands of practical men or so-called amateurs. At top and bottom there has been a mistake. At the top the enterprise has been too costly, and the stock too numerous. At the bottom are a thousand farmers who do not provide themselves with a thoroughbred bull; who breed their mare to the first horse that passes their gate, irrespective of his suitability, who are content to see a few scraggy old ewes pottering round the homestead, and a wretched collection of nondescript poultry scratching in the barn yard.

The gentleman farmer would be encouraged and able to keep up his standard of excellence if his poorer but well-to-do neighbor were not blind to the opportunity at his door. And this, we think, has as much to do as anything with the scarcity of settlers, who bring capital and business qualifications to bear on one of the most delightful occupations on earth. In nearly all well-regulated minds there lurks a longing for the soil, a desire to work and improve the land and to own it. Throughout all ages and in all climes this natural propensity finds its adherents. The day may come when there will be more of them in Ontario, a spot most exceptionally suited by reason of its fertility, its excellent municipal system, and the prevalence of railways and market towns, to the practice of mixed husbandry. T. C. P.

"I look upon your journal as a grand agricultural paper. I read it attentively and closely, and my interest grows in it in each succeeding number. If our farmers in Canada would all take it, read it, and profit as they should by the good lessons it teaches, the result would be millions of dollars more annually in the pockets of our people."—W. C. Edwards, M. P., Rockland, Ont.

"I esteem the JOURNAL very highly and recommend it when opportunity offers, as I deem such a paper of vastly greater importance to the farmers of this country than all the party machines combined."—A. Clifford, Meaford, Ont.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

A Plea for the Provincial.

The rearing and breeding of live-stock, at a period when our Province was but a wilderness (so to speak), was an industry very little practiced farther than necessity required. If farmers at that time had only sufficient to fulfil the demands for present use, cows to furnish milk and butter (enough for home consumption), a few sheep to raise wool enough to clothe their families, and horses to do the work on the farm, they considered that they had all that were necessary. Raising grain was the only method whereby they could obtain means to become the owners of the land they had settled upon. But as years rolled by their farms became improved and farmers became more independent, until grain-growing began to be a less profitable part of agriculture. New ideas began to awaken the farmer, the rearing of a better class of stock, a better selection of seed grain, improved machinery, whereby they could obtain more profit from the amount of capital they had invested. Those, with other minor agencies, began to awaken the farmer's ideas. How could they obtain these improvements, or where could they see them to enable them to judge of their value for themselves, but at the exhibition? Those exhibitions have been the means whereby they have been stimulated to greater zeal to improve their stock, and by the offering of liberal prizes, which was done by the Provincial Association (the parent of all our exhibitions), they began to import from other countries, and what has been the result? The scrub has scarcely a hiding place in our Province, and in nearly every county in Ontario can be found improved stock of every description, and at a nominal figure every farmer can have pure-bred stock of every kind to grace his pastures, and to fill the stalls with the best, that will compare with any country, not even the father-land excepted? What influence has caused this vast improvement? I say, most emphatically, the Provincial Association of Ontario, from its very inception down to the present time, it has had for its main object the further development of the interests of agriculture. It has not been an institution to make money, but to give back to the exhibitor; from the people to the people, has been its motto. The great cry now is that the paltry sum which our local Government has been granting should be stopped before our Province is ruined. Let us look at the action taken by the exhibitors at the late Provincial Fair, held in the city of Kingston: Petitions were circulated by each superintendent, and every exhibitor signed the petition, many remarking as they did so, "This is the only show we can call our own, and by all means don't let it stop." The honors conferred upon our stock here stand higher in the estimation of breeders and foreigners than those of any other.

An editorial in the daily *Globe* of September 18th, 1888, proposes a substitute for the Provincial awards, in this way: Let commissioners be appointed to attend the leading fairs, and grant certificates of excellence to various animals, or articles, as the case may be. Let us look at this proposition for a moment. Who shall appoint the commissioners, or what authority would they have to attend a fair and award a certificate to a first prize animal, or perhaps a second, and leave the third blank? Would exhibitors accept of a certificate? There is no doubt some would take it on all the stock they exhibited, but the majority would not.

Let our Provincial Fair be to our Province what the Royal is to England, a purely agricultural show. How often has the remark been made by American stockmen, on visiting our Provincial: "This is

purely an agricultural fair. Our shows on the other side have become so demoralized by attractions that scarcely any good stock are exhibited, except fast horses." So will it be with our Province if the Government does not assist the association to keep up that high standard of excellence which has followed it from the commencement. Take the estimates of the Province and see what a small proportion of the expenditure the agriculturist receives in return. Who supports colleges, universities, and such like in the cities, and who receives the benefit from them? are questions easily answered.

Let the farmers keep a watchful eye on their interests or else they will be found paying most into the coffers of the country and receiving the least.

H. C.

Paris, Ont., Nov. 30, 1888

Essay on Field Roots—their Comparative Value as Cattle Food, Cultivation, etc., etc.

BY D. NICHOL, CATARAUGUS, ONT.

To which was awarded First Prize by the Ontario Agricultural and Arts Association, 1888.

There is, perhaps, no other subject in connection with agriculture in Canada about which there exists so much diversity of opinion.

In the most advanced agricultural countries in the world "Field Roots" have, since the latter part of the last century, been gradually gaining favor as food for live-stock. And now on the best stock raising and dairy farms in Great Britain the root crop is considered of the highest importance—not entirely on account of their nutritive value, but more especially because of their regulating, appetizing, lubricating, invigorating, health-giving properties.

Cattle want, and naturally seem to require, a portion at least of their food in a fresh or green state in winter as well as in summer. And it is now certain that whatever kind of harder and farinaceous food cattle may be fed on during the winter season without green food, they are never so thrifty as those fed chiefly on roots and fodder. In Great Britain and on the continent of Europe hundreds of thousands of cattle are fattened annually on turnips and straw; and it is safe to say that the greater part of the beef and mutton of those countries is produced by the feeding of roots when the animals are not on pasture. There are about ninety parts of water in one hundred pounds of turnips and ignorant persons are likely to draw the conclusion that the water is very expensive! But it has long ago been proved that nature favors the method of water drinking which is involved in the digestion of turnips and other esculent roots. Where roots are raised abundantly they are fed to cattle in such quantities that they require no water except that which they receive in the roots. And so marked is the influence of the ninety per cent. of water administered through the medium of roots, and of the ten per cent. of what the analysis term "feeding properties," that a skilled trader can readily detect the difference between animals fed on roots and those that have been fed on more expensive substitutes.

It is also well known by experienced feeders that meal of any kind can be fed to animals with far less danger of injury to their digestive organs when fed along with a portion of wholesome roots. Roots do certainly materially assist in the assimilation of other food; so on that account their economic value is much higher than the inexperienced may suppose.

In plants subject to such different modes of treatment as field roots, their general composition and the relative proportions of their constituents are liable to great variations. The difference produced in them by wet or dry seasons, by rich or poor soils, slow or rapid growth induced by the absence or presence of stimulating manures, by far exceed that which is always to a certain extent found due to the influence of descent from different varieties. For this reason it is not possible to assign any fixed or determinate value to any kind of root; all we can attempt is an estimate based upon our knowledge of their general composition, and upon the degree of development of the individual plant or crop. In an investigation involving such chances of difference as must ever exist in the composition of our cultivated roots, the result of a

voluntary determination is of but little value, as it may be correct as regards the individual but incorrect as regards the mass.

Field roots are admirably adapted for a systematic rotation, and no crop affords so good an indication of the agricultural condition of the land. On naturally poor soils, or of land exhausted by continuous cropping without a sufficient supply of manure, the poverty of the land manifests itself much more strikingly in the scanty root crop than in any other crops of a rotation; while on the other hand a high agricultural condition, or of great natural fertility, shows itself very clearly in the heavy root crops which are raised on it. It is a mistake, Dr. Volecker thinks, to give the enormous dressings of manure to rich clay land, even for mangolds, which some farmers use, and that in many cases a more economical result and certainly a better quality of roots, although not so heavy a crop would be given, if instead the land were manured in the autumn with a less quantity of farm yard dung and the seed drilled in with superphosphate or ground bone at the rate of four or five cwt. per acre, which manures have a tendency to produce early maturity in the roots.

There is no doubt luxuriantly grown roots always contain more water as a rule, more nitrogen, and mineral or ash constituents than less vigorous plants of the same age, hence large roots, generally speaking, are less nutritious than better matured roots of a moderate size. Small mangolds approach sugar beets in composition, while large sugar beets are hardly better than common mangolds.

Monster roots are always very watery and poor in sugar; the practice of giving prizes for the biggest roots Dr. Volecker calls "childish." Such roots, he says, may delight women and children, but why should prizes be awarded for monsters which generally contain so large a percentage of water.

It is never advisable to devote all the area of acreage allotted for root crops to one kind of roots. In all cases and with all crops it should be remembered that as a rule the longer the interval we can arrange between the cultivation of any one kind on the same land the greater the chances of freedom from diseases and from insect ravages; therefore we should always bear in mind the desirability of substituting wherever we can other crops having about the same economic value and uses, but different in habits and growth requirements. The importance of this rule is particularly marked in regard to turnips, as will be seen when we come to consider the diseases and insect enemies to which the plant is liable. Indeed, the greater the number of different plants possessing about the same agricultural advantages that we can introduce into our cultivation, the more secure we shall be from the chances of weather and other casualties to which our crops are always subjected, and the better it will be for the health and well-being of the stock. The good effects of the change of food on stock of all kinds is readily acknowledged by all experienced farmers. By having a variety of farm products we have the power not only to afford a change of keep, but also when we find the one kind decreasing in its effects, either from its own diminishing value or from satiety in the animals to which they are fed, to be followed up by another kind giving a fresh relish, to be succeeded by still another.

Another benefit which can be derived from various root culture is that some light soils, otherwise nearly useless, can be cultivated with facility and profit; this kind of land is turned to the uses for which it is physically calculated, and by being suitably cleaned with this preparatory crop, a bed is provided for grass and other seeds, wherein they flourish and prosper with greater vigor than after any other preparation. In humus soils containing a large amount of organic matter, which in general are not favorable for the growth of cereal crops, field roots in most cases can be successfully grown, although the root is less in proportion to the top and less firm in texture than in those grown in some other soils.

Does the growing of roots for cattle food pay? is a question we very frequently hear asked. The most direct reply is, that depends on how roots are raised and how fed. There is a class of farmers who winter their cattle in byres that are not much warmer than open sheds. During cold winter weather their shivering animals are turned out daily to drink water from a hole cut in the ice; they return to their cold quarters with humped backs and distended stomachs, occasionally shaking a hind foot as if it had been stung by some poisonous reptile. This class of farm-

ers, whose agricultural operations are chiefly grain-raising on the skimming or slip-shod system, seem to be content with a crop of ten bushels of wheat or fifteen bushels of barley from an acre. It is scarcely probable that their land in its present condition would produce a paying crop of roots to be fed in a frozen state to cattle having their stomachs chilled daily by heavy draughts of ice water. Indeed, it is doubtful whether any crops produced under a shiftless, slip-shod method ever give remunerative returns; and the growing of roots as food for "live stock" does not pay unless good crops can be raised and fed to advantage. This, we think, can be done by any farmer of ordinary capacity, possessed of common sense, and land at all suitable.

It is impossible to give an exactly correct estimate of the cost of producing a good crop of roots, so much depending upon circumstances; but experienced farmers of the first class throughout the Province in giving approximate estimates differ but very little. It must always be observed that as great beneficial effects are derived by after crops of grain and hay from the manure applied to the root crop for at least seven years, so it would not be fair to charge to the root crop more than one quarter of its cost applied to the land. If forty loads of dung applied to an acre costs \$40, only about \$10 could be fairly charged to the crop of roots.

John Gibson, of Lyndale farm, reports to the agricultural press the following quantities of roots grown per acre by him: Long red mangolds, 1,500 bushels; yellow globe mangolds, 1,300, and Swedish turnips, 1,200 bushels. The cost per acre of growing the same is about as follows:

Two ploughings at \$2 per acre	\$ 4 00
Cultivating and harrowing	1 00
Drilling	2 00
Sowing	1 00
Cultivating with one horse four times	4 00
Hand hoeing twice	10 00
Pulling and hauling	17 00
Seed	3 50
Share of manure applied	10 00
	\$52 00

It will be seen by the above figures that the roots cost when stored about four cents per bushel. They are surely worth ten cents per bushel, and that leaves a nice balance for rent, taxes, cutting and feeding in winter.

(To be continued.)

Report of the Judges on the Prize Farms for 1887.

Continued

MAPLE AVENUE.

The First Silver Medal Farm.

On the morning of July 6th, our starting point again was "The Cedars." In a comfortable conveyance provided by Mr. Murphy, we were oblivious of a torrid sun and air heated as with a steady furnace, while driving to Maple Avenue, a 250 acre farm, the property of Mr. Joseph K. McMichael, Waterford. This farm includes lots 9 and 10, 6th concession Township of Townsend, North Norfolk, and lies about 1½ miles to the north east of Waterford, on the high banks of the Nanticoke, a pretty spruce like village, doing a large business in the fruit canning and other industries, and through which many rapid trains of the Michigan Central Railway run both ways every day. The way led through the heart of Townsend, a section on which nature has lavishly bestowed her gifts. The surface is undulating sometimes, at others rolling. The watercourses carry only distilled waters fit for the palate of a king. The soil is a strong sandy loam with many variations, easy of cultivation, and yet not dangerously light. The forests, though not filled with giants, contain trees of rapid development, growing, many of them, amid a carpet ground of plains grass indigenous to this locality, good, comfortable dwelling houses abound, and basement barns are creeping in here and there, betokening the introduction of another stage in the line of agricultural advancement. One of your judges, to whom the locality was strange, was more than surprised at the fine appearance of the crops in a region where the sand on the highway in many places impeded locomotion. The strength of this deceiving sand accounts in part for the fact, no doubt, that the three competing farms in this riding are all in the one township.

Passing the great high hill of gravel to the north of Waterford, and looking to the right, a stately clump

of dwellings meets the eye, a windmill with its painted fans doing the bidding of every breeze. Turning to the right and journeying on a little the way leads through a lovely avenue of maples, and past a stately two story brick dwelling with a beautifully painted wooden paling in front, and looking down upon a receding plain across the highway stretching on to a semicircular environment of protecting forest of lighter and darker green. Before reaching the homestead you pass a lot on the right where smaller fruits are grown row after row, and covering acres, and behind the dwelling and beyond it, are row after row of orchard trees, in different stages of development. That avenue of trees was planted years ago by Mr. McMichael, and that stately dwelling and plain and rim of forest, and fruit field, and orchard trees, and we may add outbuildings with imposing exterior surrounded by a sufficiency of clean kept yards, a homestead garden across the highway, and a pear orchard in profitable bearing a little further on, all belong to Maple Avenue Farm. Whether we viewed this farm from the distant west or all around from the imposing tower of the dwelling, or upward from the remote border of the plain on which the happily located dwelling looks reposingly down, our estimate of its natural beauty of situation was always the same, and the words that sought utterance were these, "Beautiful for situation," the pride of the whole neighborhood. The plan of the farm accompanying will give the reader a more exact idea of its various divisions. Mr. Jas. McMichael, the grandfather of the present occupant, purchased this farm from the Crown in 1797, his father, Mr. George McMichael, came into possession in 1821, and he who owns it now in 1856.

There are 190 acres of this farm under cultivation. The 60 acres of bush is partly ash, on its westerly rim, mainly cedars and tamarack in the prevailing segments of the semi-circle, and sugar bush on the other rim, where 229 trees are tapped every year, with sugar-house and boiling apparatus in its midst. The density of growth in the evergreen part of this bush is remarkable: one can usually extend the hand from tree to tree, and oftentimes they grow in clumps, and in very many portions the fat, dark humus underneath does not sink spongy beneath the tread as is its wont, owing to the wickerwork of roots that intertwine over its mossy surface. A silent little stream runs gently on amid its dark deep shades as though loth to leave its coolness for the open ground below, where relentless fires mowed down a few acres some years ago. In the hope of turning the adverse fortune to good account, as all wise men do, Mr. McMichael purposes flooding this portion in coming time, after having duly covered it with muck and planted it with bushes for purposes of cranberry growth. There is enough of this rich muck beneath the forest to cover the entire farm, several inches deep, and still leave a sufficiency to sustain a vigorous growth of plant life. Winds have fought a good deal with the forest growth, and in their fury have slung a good many cedars down, growing as they do almost upon the surface. Then an insect, like the hordes of an invading army, came along a few years ago and burrowed beneath the bark of the ancient tamaracks, and killed the most stately of them outright, but a younger generation is hopefully growing up in their place. But whether uprooted by the smouldering prairie fires, or slung along by the rage of the tempest, or the life eaten out of them by a brotherhood of destructive grubs, Mr. McMichael is careful to follow with the axe and saw and cutting up everything into lengths suitable to the purpose for which it is best suited, allows nothing to go to waste. Fifty dollars an acre have been realized from this dead tamarack. A younger generation of trees is, at the same time, growing up over the decaying roots of the dead ones, and also many cedar trees worth from twenty-five cents to a dollar per tree.

The system of husbandry is mixed, fruit taking the lead, stock being kept as auxiliary to fruit culture, and grain grown as an auxiliary to stock-keeping.

The apple orchard, of which 4 acres are old and 3 acres young Spys, 20 years planted, and not a tree missing, is in the pink of condition, surrounded by a windbreak of Spy and walnut trees, but not intermixed in their growth. The trees in the windbreak are about a rod apart, and those in the apple orchard 28 feet each way. The walnut trees have been out about 19 years and have some of them trunks about a foot in diameter; eighteen trees of them last year gave about 100 bushels of walnuts. The apple trees are kept neatly trimmed every year, but not butchered,

as is the case with many, and at the time of our second visit, September 8th, the numerous boughs, were bending with a very fair crop of nicely colored apples which brought when sold \$1.25, or 25 cents more than was realized by any one else there, per barrel. Another orchard of two acres consists of apples and pears. There are 9 acres of apple orchard and 280 trees planted as a windbreak, of 1,000 or 1,100 trees in all. The system of cultivation is unique. A crop of clover is ploughed in in the month of June, the ground manured and sown with clover again. As soon as this gets a start the pigs are kept on duty till the fallen fruit gets valuable, when they are kept out. The crop of clover is turned under again the following June. When ready to pick the fruit is put on a boat and drawn to a commodious fruit-house in the orchard, 28 by 60 feet, oblong in shape, with a drive through the centre, and is emptied there for packing on an earthen floor. The trees are scraped every year, and latterly have been sprayed, both apple and pear trees, with hypo-sulphite of soda, one pound of the soda to the gallon of water. This is applied in the hope of destroying that almost unknowable thing some call fungus or leaf blight, that has done so much damage of late years to the fruit crop. The results have been gratifying, but have not been repeated often enough to furnish the data of absolute certainty. The mixture was applied by a force pump from a wagon.

The war of extermination has been declared against the canker-worm. For this purpose tin collars are made by cutting whole sheets of tin into circles, so that the strips formed are an inch broad, which, when placed around the trunk, adjust themselves nicely with a downward and outward projection from the same. Paint of the ordinary consistency is then applied on the upper side so that when the moth attempts to pass this barrier she at once falls to the ground, so much of the mixture adhering as to render her unable to move. This application consists of castor oil and resin melted together.

Immediately adjoining is a pear orchard of 10 acres, containing 1,000 trees, 6 years planted out, which till recently has been kept under cultivation, but now in meadow. They are mulched in the spring, a coat of ashes is applied in the fall when the mulch is removed, and sheet iron collars are kept around the trees near the fences in winter to prevent the ravages of the mice. About an acre of pear orchard across the way netted \$150 last year, though not the bearing year. This year the return was, after paying all expenses, \$145. The fire blight in the pear trees has been kept at bay. This was accomplished by taking off the diseased limbs about three inches below any appearance of the blight, and burning these almost immediately. A sharp look-out is kept for its re-appearance, and once a year, in May month, the trunks and limbs of the trees get a coating of raw linseed oil. Several pear orchards in the neighborhood planted at the same time as Mr. McMichael's, are dead and gone, while his are in the strength of a prime and vigorous fruitage. The pear orchards number 1,300 trees.

The fruit and vegetable plot of 15 acres is worked on shares. The gardener furnishes all the labor and furnishes the horse work in everything save ploughing, the proceeds being equally divided. In 1886 the share falling to Mr. McMichael netted from \$25 to \$30 per acre. The manure is also furnished from the farm, and ashes are freely purchased in the surrounding country. When the strawberries have produced two crops they are turned under; the raspberries produce seven or eight. Two acres of strawberries of the Wilson's Albany gave in the aggregate \$171.36, and were considered not more than half a crop, owing to the drouth. Three acres of Philadelphia raspberries netted about \$40 per acre, and suffered almost equally from the same cause. In 1886 an acre of tomatoes gave 230 bushels, which sold at Waterford for \$69, and 1½ acres of sweet corn gave \$40 of profit, the fodder being considered worth the labor expended.

The house garden, containing ½ of an acre, furnished the household with berries uninterruptedly from 5th of June to 15th September in 1886, and there were also sold therefrom to the extent of \$40, besides providing vegetables in abundance for the wants of the family.

The stock of the farm consists of 14 milch cows, good ones for the purpose, the returns from which at the cheese factory averaged about \$6 per month. There are 20 head of other cattle, 10 head of pigs, and 40 head of Leicester sheep. Four or five head of

cattle are fattened each year. Horses are kept sufficient to do the work of the farm.

The location and outline of ground plan of the buildings are given in the accompanying sketch. From this it is apparent that the room is ample for all purposes. The dwelling house, of white brick with stately tower, and cottage roof, with bay and handsome double windows, and ample cellar, kitchen, and woodhouse adjuncts, is a beautiful farm dwelling. The barn and adjoining buildings are good of the kind, convenient in some respects, and less so in others; a large portion of the basement room is used as a shed, and if this the manure is kept mostly under cover, a hose being turned on it occasionally to keep down fire fang, an excellent arrangement in a sense, but your judges are of opinion that basements under barns are too expensive to be utilized usually for other than stable purposes. The water trough is in this basement. Under the drive house is a cellar for storing fruit, with a capacity for 500 barrels.

The manure is drawn in the spring, and applied on all kinds of crops. Salt is sown on grain that it may mature earlier, 200 or 300 lbs. being applied to the acre, and ashes are freely purchased when they can be got.

Grass seed is sown on all kinds of grain except peas. The ridge land on the south side of the highway is left in pasture from one to two years, but the plain opposite is left five to six years, being peculiarly adapted to the production of that crop. When broken it is followed by barley, oats or peas, the next crop being wheat. A marked difference is rightfully made in the system of cultivation of the high and low lands. The soil possesses many variations from a gravelly texture on the ridge to black muck in the swamp; but it can best be designated by calling it a strong clay loam. The wheat grown upon it averages about 33 bushels per acre. A good deal of attention is given to the growth of potatoes, which usually yield well. Some open drains are in the low ground and some tile underdrains, but as yet not enough of these.

A very interesting experiment was being carried on in the valley. Thirty-three acres had been ploughed, and after a fair pulverization sown to various kinds of grass early in June. Twenty-two acres were sown to permanent grasses. The kinds sown included red top, timothy, meadow fescue, perennial rye grass, meadow foxtail, Kentucky blue grass, and of the clovers white Dutch, alsike and Lucerne. The quantities sown on the 22 acres were red top, 80 lbs.; timothy, 80; meadow fescue, 60; perennial rye, 20; meadow foxtail, 20; blue grass, 66; alsike clover 60 lbs.; white Dutch, 20 lbs., and Lucerne, 20 lbs.; making an average of more than 19 lbs. of the mixture to the acre. On eleven acres of the plot the following grasses were being sown separately to test their seed-producing qualities in our climate. One acre of each of the following varieties was sown at the rate of ten pounds of the seed to the acre: meadow fescue, meadow foxtail, perennial rye grass, orchard grass, Lucerne, white Dutch, alsike, and common red clover. The balance of the ground was sown with English grasses and clovers put in separately. These had made a fair start at the time of our second visit in spite of the relentless drouth, and we shall await the result with keen interest.

From what we have already said the reader will almost wonder why the gold medal was not placed here. The judges were sometimes inclined thus to decide, and in the deliberate and carefully balanced consideration which they gave the subject with Mr. McMichael's farm in one scale and Mr. Fothergill's in the other, for a time our balance went down one way and then the other, as each fresh item of super-excellence was brought forward after the general balancing had been done. It will be observed that in many features the farms were equal, as in fences, buildings, in their external appearance, cleanliness of management, cultivation, rotation, etc. In fruit culture Mr. McMichael was a long way ahead, the advantage was on his side in care of fruit, in the fulness of the garden and in shades; and what is exceedingly important and valuable to the community—the experiments that were being carried on, especially where the results are satisfactory and conclusive. On the other hand, Mr. Fothergill was ahead in the internal arrangement of his barn, the state of private road, the completeness of his drainage, and in the imported stock which he kept for breeding purposes. In Mr. McMichael's experiments he has made it clear that the canker-worm can be completely exterminated, that the codling moth can

be held at bay, and that the pear blight can be kept from wiping our pear orchards out of existence, but he has not as yet made it *conclusive* to our fruit-growers that the climatic influence (if it be such) that has affected the leaves of the fruit during recent years can be overcome in all instances, nor has he found conclusively that it will pay our farmers to grow permanent grasses of foreign varieties, either separately or in conjunction. Had these two counts been satisfactorily set at rest, the gold medal had gone to Maple Avenue Farm rather than to Balsam Lodge. Your judges always keep prominently in view, that it is with results attained rather than those in prospective that they have to deal, for in everything prospective in its nature there is an element of uncertainty, however full of promise at the present time.

(To be continued.)

Mixed Farming.

THIS PAPER WAS READ BY THE SECRETARY OF THE CENTRAL FARMERS' INSTITUTE AT SEVERAL OF THE INSTITUTE MEETINGS HELD DURING THE PAST SUMMER.

(Continued from December.)

The chief difference, as we understand it, between the mixed husbandry of the past and that of the future, or between that which has been and that which is or ought to be, consists mainly in this, that the coarse grains and fodder that were sold direct before, will henceforth be sold in the form of meat, butter, cheese and wool. The returns at first may be less, but ultimately they cannot fail to be more, for under the former system the returns will just as surely decrease as does the farmer's food supplies with the advance of winter; while under the latter they will just as surely increase, with proper management, as the child increases every year in stature, who is properly fed. A due regard must be had to the kind of stock to which the food is fed, for the lean kind and ill-favored that fed in the Nile valley before the building of the pyramids, have a great host of their progeny feeding now in the meadows of Canada, and though given all the produce of the farm they would still be ill-favored and lean fleshed, and would call, in their own particular dialect, for more.

There is no branch of stock-keeping that more completely covers the ideal of mixed farming than dairying, whether it be cheese or butter dairying, for it involves the growth of a great variety of produce. The dairyman requires horse labor to till his land, therefore he must grow timothy to feed them; he wants litter for his cows, and should therefore grow wheat to produce it. He wants pasture in summer in a greater or less degree, according to the system he adopts. He wants corn for silage and other adjuncts, and there is not a single kind of corn grown that our soil will produce in paying quantities, which cannot be utilized as a part of the food ration for the stock. To prosecute dairying successfully, at least three things are required in order to produce the milk. Suitable stables in which to keep the stock, a class of stock that will give the best returns for the food fed, and a liberal supply of food and water with which to sustain them, if at all possible, the product of the farm. Suitable stables are not likely to be found where there is no stone basement, otherwise the temperature is almost certain to be too low at sundry times in winter, and food is given at too great a sacrifice in labor, being fed from the same plane rather than from above. Where the stock can drink pure water flowing to them in the stalls, it is a great boon, and if the stables are built with a due regard to air and light, the milk cows may be tied in in the fall and only let out when pastures come in the spring. Where stone is not to be had, stables may still be built on the basement plan with the aid of tarred paper used as lining on the wood. Old barns may be raised and stables built under them, and thus made to serve a good purpose. It may be difficult for some to provide good stables, but those who do not provide good stock in the course of a few years, are absolutely without excuse. The three chief requisites in providing good stock are, simply, the use of suitable sires, selection and liberal feeding. The adoption of these rules, simple as they are, would enable the Province, five years hence, to accomplish with 375,000 cows what she is now doing with 750,000. If the farmers who are engaged in dairying were to grow fine crops of feed, and were to leave a large portion of the same ungathered, they would be sinning less than they do when they reap this feed and feed it to cows of that character which

give them no return for their labor. To put it differently, the farmer who brought up the milk yield of his herd to 5,000 lbs. a year, and who left a large portion of his crop ungathered, would act more wisely than he whose average milk standard is but 2,500 lbs. a year, and who at the same time gathered in most carefully all the feed grown.

The qualifications enabling a farmer to grow food suitable for dairy stock are in no way different from those enabling him to grow grains for sale. Corn grown for dairy stock, to be fed in summer, may be grown much the same as corn grown for winter use, only cut at a different stage, and so of peas and oats grown in conjunction, or of rye. We favor the growth of a great variety of produce for dairy purposes, for a variety forms a better food ration, and vicissitudes of weather do not affect all crops equally. Hence in seasons when some kinds of foods fail, other varieties succeed.

It may be profitable to sow a field of rye in autumn, and either cut or pasture in the spring, following the ground or planting to corn or roots. It answers a good purpose to sow oats and peas thickly in limited quantity and at different times, to be cut after the rye is done. But the great reserve soiling crop is corn sown in drills with the ordinary drill, and wide enough for easy cultivation. Roots will also come very good to the dairyman in various ways, and a fair quantity should always if possible be grown. Both of these crops should equal a summer fallow in cleansing the land when the work is rightly done. Oats, peas and barley cannot be produced in too large quantities, and when fed ground in conjunction and in due proportion, give the dairymen milk of a rich character with lots of cream. Oats and peas grown together with a small amount of flax sown in them, may also serve a useful purpose, since the whole may be cut with a binder. The most suitable hay is that grown from our three-clovers mixed with timothy, and it may be a sprinkling of foreign grasses mixed, cut at the succulent stage, cured either in the cock, or perhaps what is better, all in all, with the free use of the hay-tedder without cocking.

Vigorous efforts should be made to grow all the feed required on the farm. The bran era in Ontario is on the decline. With the diminished quantity of wheat grown, the output of bran will decline, and will continue to be eagerly caught up by dairymen in the cities and their immediate outskirts. When there is skimming amongst buyers who shall get bran when it is \$12 per ton, our suggestion to the farmers is to withdraw from the contest, and try to grow some substitute. We are speaking here, however, in general terms. We cannot help concluding that the value put upon bran for feeding and manurial purposes by our scientists, is putting more money into the pockets of the bran makers than into those of the farmers.

Never rest content with the effort to grow just enough food for the stock, for when you are compelled to buy, your neighbors haven't much to sell, and an untimely cessation of the milk flow always means serious loss to the dairyman.

Silos and ensilage will form prominent features in the dairyman's practice in future, if he is to take the lead in his profession. When first introduced into this country it was undecided as to whether this method of curing food would ever prove an unqualified success, but now all reasonable doubts are being removed on that score, simpler methods of building silos have been discovered, of weighting them, of filling, and of locating them for convenience. By this means the dairyman can have food almost as good for milk production in winter as in summer when the grasses are at their best, and in quantity only limited by the capacity of the place of storage.

The style of the mixed farming that we are advocating in no way interferes with a rotation of crops, so important an adjunct of successful farming, for it admits of the growing of a variety quite as great as though the produce were sold directly. It relates rather to the use that is to be made of food than to its growth. We all know very well that the system of farming practised has reached a transition stage, that wheat production for home consumption must be our aim in the future rather than for export, and that if Canada is to remain the brightest jewel in the coronet of our Queen, it will be through agricultural production in other lines than those of the past. Let those, then, who have been practising the old-time methods of farming in the grain selling era, remove the old landmarks of their practice and fall in rank in the

march of agricultural progress. To cling to these practices means to fall behind in the race, and to fall behind in the race means a descent in the social scale, and serious injustice to those who are dependent upon us for instruction. In the prosecution of mixed farming on the lines of to-day there is ample scope for this exercise of the best talent, and he who is to do it best will not fail to furnish himself with the best that is to be known concerning it, whether this is obtained from observation, experience, farmers' institutes, the agricultural press or scientific works on this great, grand calling.

A Suggestion in Regard to Rural Schools.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—I was much interested in the articles on education in your journal, and being myself a teacher as well as a farmer am somewhat acquainted with the difficulties in the way of the proper education of the young people of country districts.

As now arranged there is practically no provision for teaching farmers' sons after they have reached a certain standing and attend during the winter only. Usually a country boy requires the constant attendance of the teacher to keep him interested in his work. Again, he is nearly always unfit for the senior fourth in language and literature, and in advance in other studies. This makes it extremely difficult to classify them. They will not submit to be placed in different classes, having an exaggerated sense of self, and will rather leave than submit to it, as they nearly always come on their own recognizance. While I have been teaching I have had the fortune, or misfortune, to have from ten to twenty of such scholars for from two to four months of the winter season, and I know that they have not made the advancement they might have done had I had the time to attend to them properly. There is also about country villages a class of young men who work on farms through the summer, and do nothing or go to school in the winter, who are even more difficult to deal with than the farmer's son proper, being more independent. Do not misunderstand me here. I do not mean that they are hard to govern, usually their management as regards order, etc., is easy, the brutal element having nearly vanished, but they are more sensitive, and generally with receptive minds. For these reasons they require more attention in teaching, and being able to assimilate rapidly what is taught to them, more teaching is required in special lines and in special ways than the teacher in the ungraded school can give. If all this class could be put in one school, and given the time of one teacher, great good might be done. This might be done by two or three sections uniting and forming a winter school. A two or three miles walk would be no hindrance to a country boy of average energy, spurred on by acknowledged advancement; or the first and second classes might be dropped for the winter. This latter would not be advisable, however.

E. W.

Green River.

The Dairy.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Butter in Prints and Packages.

In the best retail butter markets there is a very general popular preference for the "print" form. Purchasers want their butter attractive in appearance, and so they select the small rolls, pats or blocks, round, square, or brick shaped, generally bearing some design or trade-mark, stamped or impressed upon the butter, which gives to this class of the article the name of "prints." This preference is simply one of the many pieces of evidence, afforded by retail markets, of the close relation of the eye and appetite, and the importance of "the looks of the thing" in selling any food product. There is another side, however, to the print butter subject, which is not often considered. Those persons most particular about their butter regard its most important qualities to be sweetness, freshness and high flavor. We all know butter to be an extremely perishable pro-

duct, even when carefully made, injured by exposure to air and the contaminations which are conveyed in the air. This is the reason so much attention has been given to butter packages of all kinds. The more butter is exposed to the air the greater are the chances of its injury. The print form, especially if the prints are small, offers the greatest surface exposure. The "print" is the very worst form in which butter can be put for preserving its delicate flavors. The degree of injury is lessened by wrapping in a cloth saturated with brine. The parchment paper which has come into use within a few years, also furnishes a good protection. If butter is to be printed at all, every print should be carefully and closely wrapped in the water-proof paper, previously wetted, to make a package as nearly air-tight as possible, before leaving the dairy-room where it is made. Thus protected, if well cooled and firm, the closer the prints are packed and kept till sold or used the better. To facilitate close packing the square and brick forms are preferable to the roll and round print or "pat." But there is another objection to printing butter. The best judges of butter, and most successful makers, at the present day, advise handling it, with or without tools, as little as possible. "Working" is almost omitted in some of the most particular dairies, and much butter from large creameries having the highest reputation is actually not worked at all. In making print butter, however, a good deal of manipulation is necessary. Very generally the whole process of putting into print form is just so much extra handling, after the butter is at its best. This needless handling or working injures the grain of the butter. Over-working is the most common fault in butter. If butter is packed into tub or other package, as directly from the churn as possible, these serious objections to print butter, are avoided. It is a wonder that housekeepers and small consumers do not learn the advantages of small packages, in which butter is packed to bulk. In some markets five and ten pound boxes have become quite popular. But, while cheap and convenient, wood is by no means the best material, unless paraffined, in which to pack butter. Glass is the best, or porcelain, and stone ware next. When serving a nice article of butter to private families and other customers who have been accustomed to prints, I was soon able to convince them that they could get a better article, and keep it easier and better by packing in bulk: from 2 to 10 pounds in stone jars. The butter is thus protected from the air, and its grain and flavors well preserved. Moreover the maker is saved the labor and actual expense of putting the butter into print form, and this is quite an item.

H. E. A.

Shelter for Dairy Stock.

This paper was prepared by Prof. Shaw, of the O. A. C., Guelph, for a meeting held under the auspices of the Dairyman's Association, at Kingston, Sept. 12th, 1888.

In the management of dairy stock the providing of suitable shelter is next in importance to the providing of suitable food. A liberal response to liberal treatment, that is otherwise judicious, is a law that pervades both the vegetable and animal kingdoms; so that he who will not provide suitable food for his dairy cows, and abundant in supply, is punished by the operation of a retributive law that universally obtains between man and the domestic animals, the rulership of which has been relegated to his care. He reaps here as in other things, precisely what he sows. The principle of withholding on the part of the owner is met by the principle of withholding on the part of

the dairy cows, and so unfailing and inexorable are the operations of this law of compensation or non-compensation, call it by which of the names you please, that the latter metes out to the former in kind, the exact measure of his deserts.

In the item of food, then, when the dairy cow is put upon a short allowance she has her own mute way of getting an unfailing revenge. But no less unfailing are the compensations or non-compensations of the operation of the law of kindness between man and all domesticated animals. A beneficent Creator has made the conditions of this law to be at once their defence and their shield; hence a man who would not be moved to kindness in his treatment of his dairy stock by the law of obligation which ownership brings with it, is impelled in this direction by the infinitely lower motive of securing greater gain. Whether the owners of dairy cattle will treat the latter kindly or the reverse is not left wholly optional with the former, but is as much a necessity on their part as care in the handling of the product or vigilance in securing a market.

Nowhere is there greater scope for the exercise of this law of kindness after food has been provided for the dairy cow than in providing her with shelter. She wants shelter in winter to protect her from the cold, and shelter in summer to protect her from the heat. Shelter in spring to protect her from cold rains, and shelter in autumn to protect her from cold blasts and the frosts of chilly nights; and shelter in the proper season to protect her from the incessant worry of flies without a conscience.

She wants shelter in *winter* to protect her from the cold. The materials in providing it are wood, brick, stone and tarred paper, and these may be arranged in an almost infinite variety of ways. Yet there are certain principles now becoming pretty clearly understood that must be observed in their construction. They must be built with a view to economy in the first cost; must have abundance of light and ample ventilation. The places of feed storage must be convenient to those of food consumption, the stalls only wide enough for the comfort of the animals, which should be tied with chain and ring, movable on a bar. The water should flow to them in the stall, and the floor on which they stand should consist of block pavement, made watertight with the application of some such substance as coal tar, or better still, consist of concrete, which would readily provide for the absorbing of the liquids and the prevention or removal of foul odors. Fulfil these conditions and the dairy cows may remain tied in the stalls from November to May without any discomfort or harm, and I believe with much positive advantage. This would effect a saving of time and labor far beyond what we would suppose; would obviate all danger arising from hooking, at a time when this is likely to prove most damaging, and would keep the animals entirely free from the discomfort arising from exposure to marked changes of temperature. In my own practice I have adopted this course during the two past winters, not only with dairy cows but with those kept for breeding purposes, and the results, rather than being harmful, have been most decidedly beneficial. The Danes, renowned for butter making throughout Europe and the whole world, carry this system even further, keeping their cows tied up in many instances for ten months in the year.

I know very well that the adoption of this plan will meet with but slim favor at the hands of our dairymen, because of the prevalence of the idea that taking exercise by moving about every day at liberty is absolutely essential to the welfare of stock. But there

is no getting beyond the teachings of experience. I do not regard the evidence in support of it as conclusive and final, but I cannot do otherwise than affirm that it proved eminently satisfactory to myself during the two past winters in my own experience, and that it is the practice in favor in Denmark where it has been adopted for years by the best cattlemen of that country. The idea is deserving, at least, of the careful consideration of the dairymen of Ontario, for, if universally adopted, allowing 10 cows to each dairyman, and that a saving of twenty minutes per day was effected by rendering unnecessary the tying and untying, it implies the loss under the present practice of the labor of 2494 days of 10 hours each in our Province. But this loss is small compared with that resulting from exposure to changes of temperature from which the animals would fain escape.

A most important factor in providing shelter for stock in winter under present conditions is tarred paper. It is not dear, and when tacked upon the inside of wooden stables is very effective in excluding the cold of our stern winter climate. The cheapest material, probably, for warding off cold is stone, which usually is very abundant, and the dearest beyond all comparison is food. The advocates of open shed protection only for dairy cows, pay dearer for adherence to their theories than most of them shall ever know, and the poor cows pay dearly for their vassalage to such un pitying men. If they would provide proper shelter for their cows and allow a large portion of their crops to lie ungathered, they would be quite as well off at the end of the year and the cows would be much better off. The taskmasters of Egypt who wanted bricks without straw, were gentlemen compared to the farmers of Canada, who want milk and butter from dairy cows under open shed and straw-stack conditions.

Dairy stock wants protection in *summer*. In the month of June there is nothing better for them than to roam at liberty under the broad canopy of heaven, both by day and by night, with suitable shade when they care to seek it. The same remarks will apply very largely to the month of July, when food is plentiful in pastures, but later they require protection from the flies, and this cannot be secured for them so well out of doors. When pastures are not plentiful they should be stabled even in July in the day time and set at liberty at night, and this system should continue until the nights get cold, when it should be reversed, housing them at night and giving them liberty in the day. This will involve the provision of supplementary fodder on the part of the dairyman, a course which is now looked upon as indispensable to success by all worthy of the name engaged in this pursuit. There is no place more suitable for feeding this, take it all in all, than the stables in which the cows are milked, and there is no place more suitable for milking the cows than in a stable with a properly constructed floor, nor is there any place superior for watering, where the facilities for this have been duly arranged. It is pleasant for the milkers thus to do this work in a place at once clean and cool, and where they and not the cows control the situation. It is pleasant for the cows to get food and drink and protection from the horns of their neighbors, and it is pleasant for the owners to handle the increased returns that flow to them from the adoption of such a course.

For dairy cows it is thus apparent that all in all the cheapest shelter for them in summer is a well-constructed stable that is properly ventilated. Those who are not thus provided must have recourse to shade in the fields. Where this is at hand in the form of forest, it is good for the cows, but not for the forest.

Where there is access to pastures, a portion of which is in park-like form, the requirements of shade are furnished in their most suitable condition, for where the pastures are all of this character the grass fares poorly.

Where there is neither park nor forest, shade must be provided by planting trees, not in the open in the fields, for though this adorns the landscape it hinders cultivation; not in lines along the fences, unless it be beside the highway, for this hinders crop production; but in corners of the fields or in sections where a space has been fenced off for the purpose.

Of all the trees that Canada produces, none is so suitable for purposes of shade as the elm. Its roots strike deep and spread wide, and it defies the trampling of hoofs and rubbing of bodies to kill it. It grows high and spreads its arms out with a gracefulness unequalled by any production of our forests, and it adapts itself to any and every form of soil capable of sustaining tree life. It will flourish under conditions fatal to the life of the maple, the roots of which lie near the surface, and it makes a rapid growth in almost every variety of season.

She wants shelter to protect her from the incessant worry of the flies. Where can she get this so well as in the stable? Not in the forest, for like the cow, her little winged tormentors are fond of shade. Indeed, the forest is a chosen place with them for holding high carnival, and when a group of cows gather in the edge of the forest in a scorching summer, it is painful to witness the increased activity of their movements, a sure precursor of preparation for carrying out their diabolical purposes regarding the cows. She cannot get this relief beneath a clump of trees in August or September. The attentive observer must frequently have noticed how a group of cows standing beneath a clump of shade crowd together as though they were intent on keeping one another warm. The principle object in so doing is self-defence against the attacks of the flies. The united switching of the tails makes it rather uncomfortable for the flies. It is a combine amongst the cows against the unreasonable exactions of the former.

Keep them in darkened stables in the day, with ample ventilation, and the flies will trouble them but little and they will munch their mute thanks most contentedly all the day long. Then let them out at night into some pasture kept for the purpose and they will graze away beneath the light of the stars and the pale moon until satisfied, and will then lie down and rest, a picture of the most perfect contentment. Of course this cannot be done where the soiling system has not been introduced, but it certainly furnishes a most powerful argument for its speedy and universal introduction, at least in some modified form.

But there is yet an argument, more potent with some, perhaps, than any feeling of humanity or consideration for the comfort of the cow. It is the argument of gain or loss. At the first of January, 1887, the number of milch cows in Ontario was 748,321. The calculation that suitable shelter for these would make a difference of two pounds of milk per day in the yield is surely a very moderate one. Taking the average cheese season at 180 days, the difference in the yield of milk is 269,395,500 pounds for the Province. In 1887, 10.54 pounds of milk were required to make one pound of cheese. If the milk were all made into cheese the difference in the yield of cheese would be 25,559,351 pounds, which at 10½ cents per pound (the average price last year), would make a difference of \$2,683,731 in the returns.

No one, then, will be so wilfully perverse as to say that it is not a matter of first moment the nature of the shelter that may be provided for dairy stock in

summer; and if important in summer its importance in winter is very greatly increased. Suitable shelter for dairy cows means greater comfort for the cows, a larger yield of milk, a larger return in profit, increased comfort to the farmer and his family and the elevation of the standard of dairying in the eyes of everyone, to the ultimate advantage of the nation at large.

Breeding for the Dairy.

BY JAMES CHEESMAN, BOSTON.

If agriculture is a correct measure of the degree of civilization attained by western nations, then how much more is the state of the breeder's art the very highest test of economic farming. What are we seeking for when we buy farm animals, or produce them on the farm? Usually we have some specific purpose in view in our breeding, and the dairy animal, so far from being an exception to the rule, is one of the strongest illustrations of the value of specific purpose in farm work. The instinct of motherhood, and the great function of succor and care for the young have enshrined the very word mother in the heart of humanity as a sacred idea. We can never mention the word dairy without implying milk, and milk involves motherhood. In the savage condition and in the pastoral state, animals give just what milk is required to foster their young and no more. The dairy cow of modern agriculture is a monstrosity as compared with the half wild animal of Texas or the western plains. How did we get her? By what process has she changed her form; how have her functions been modified to produce the animal we have in 1888? She is not the result of a few years' breeding, nor indeed of a few centuries. A few weeks ago I was attending a dairy conference in Maine, and one of the papers submitted for discussion was by a lady, who told how she made prize butter. The butter was very fair, though her process was a little crude; but the secret of her prosperity as a butter maker lay in the Jersey cows which her husband in earlier years had selected from Connecticut bred Jerseys; or, as she said, "Pansy stock." The lady in question is a widow, a plain farmer, having struggled with her farm to bring up a family. Investigation revealed the fact that the animals were not registered in the American Jersey Cattle Club, nor were they eligible. But in 1887 her six cows produced 2,000 pounds of butter, which sold for \$600. I am informed that the yield this year will be less than 1,800 pounds. An average of 300 pounds of butter a year is considered a standard animal by the Jersey Cattle Club. In this small herd one cow produced her two and one-half pounds of butter per day. The old fashioned Jersey of the New England States is still a remarkable animal, for, as far as I can learn, the success of the New England creameries has been due mainly to her influence.

A very competent authority in New York is sponsor for the statement that the cow average of butter throughout the state is less than 130 lbs. New York is the stronghold of the Holstein-Friesian cow. Just how much butter per cow is produced by the average animal supplying stock to the New England creameries I am unable to say. But I do know that the number of farmers producing over 250 lbs. per cow is large and increasing, and that in those districts where creameries flourish, the farmers find more profit than in milk selling. One pound of butter from fifteen to seventeen pounds of milk is an every day experience. We may be sure that no farmer in New England could pay \$22 for bran, \$24 for gluten meal, and \$26 or more for cottonseed meal or an average product of 130 lbs. of butter per cow. At twenty-five cents per

pound this would return only \$32.50 per cow. The majority of New England creamery farmers spend that much on feeding stuffs alone. The earning power of the New England creamery cow is much nearer a gross return of \$60, many reach much higher than this.

Since last May I have had the opportunity of personally canvassing this question of breed in relation to the New England Creamery, and I find that in those counties where butter has been made longest, the Ayrshire and Jersey and their grades predominate.

In Wisconsin and other western States we find the Jersey and Guernsey, and their grades, are making the most profit for the farmers selling stock to creameries. These animals have not come into our possession by chance, and they will not be improved and perpetuated by chance or haphazard work. There is too much of a disposition in many quarters to allow someone else to do the breeding, and to take our chances on getting a fairly good working animal. Every man cannot be a breeder, nor is it desirable that every farmer should keep high class purebreds for his dairy. But we may ask that if he raises his own calves he will give them that amount of care which they need in early infancy to insure good health and a vigorous growth.

As each farmer must breed some sort of calves for the purpose of keeping up a supply of milk, it is of infinite importance to him that the calf should be good. For its breeding the farmer need be quite sure that its sire is at least as good as the dam, and that during its early infancy it should receive as much thought and consideration as the youngest member of the household. Why do I claim for the calf so much? Because it has come of parentage whose sole occupation in life is to furnish food daily for a period of six to eight times longer than that of beef cattle, and to do this requires a nervous organization strong enough to resist any reasonable amount of wear and tear, and delicate enough to respond to a liberal and rational method of feeding for butter production. We may observe all through the range of animal life, from the neglected pig up to the human organization, that the amount of energy expended for profitable returns is in almost exact proportion to the value of breeding in the individual, and its capacity to digest well selected food. A well bred animal necessarily implies one having a good constitution, for without vigor, ability for work is limited. A well born animal will make a thrifty growth, be a good feeder, and possess all those characteristics of health which in boys and girls are often associated with activity and enthusiastic displays of energy. To insure good constitutions demands as much care of calves as in the selection of parentage. While I condemn most strongly the thoughtless exposure of calves to all sorts of weather as though they were Shetland ponies, I do favor liberal exercise, and plenty of it, as soon as they are well over the perils of infancy.

The wider the gap between the wild animal and the domestic one, the more highly organized is the latter, and the greater the demand on the intelligence of the feeder and grower. I have often claimed the attention of girls for the calves, because their gentler and more sympathetic natures admirably fit them to care and nurse the future cows into healthy, robust animals. There is no other animal on the farm so sympathetic and so responsive to kindness and attention as the embryo cow. Our Jersey and Guernsey cows are the products of the care and motherly attention bestowed by the Channel Island women and girls. In all populous cities you will find a large infant mortality among the poor, and a relatively low one among the

well-to-do. The best and strongest men are usually those that were well nursed and properly cared for in early infancy. The law of life is the same for farm animals as for human beings.

Probably one of the most remarkable successes in breeding animals in our century is the career of the late Philip Dauncey, who for more than 60 years bred for the world on his English homestead, the most robust and prolific of Jersey families. Even if time permitted I could not attempt to outline the work of this veteran stockman. Suffice it to say that his name will always be associated with the Rioters, Stoke Pogis, and old Eurotas, the magnificent daughter of Rioter 2nd. The Dauncey system of breeding is familiar to most Jersey breeders, so that it need only be said here that to his persistent adherence to the principle of selection, even when, as often happened, it led to close inbreeding, was abundantly justified by results. It should never be forgotten that an essential part of his practice consisted in growing strong calves, and carefully developing their bodies as early as possible. I have never heard of a case of constitutional disorder among the cattle which, till quite recently, formed part of the Dauncey herd.

Whenever you see a Rioter-Stoke Pogis animal you will almost invariably find a grand constitution and a good udder. We have plenty of these in the New England States.

Within easy reach of Boston there is a herd of Guernseys whose owner's place is much like the late Mr. Dauncey. Recognizing the danger and horrible waste of life entailed in a career of idleness, Mr. E. F. Bowditch conceived the idea of breaking his bulls to the yoke for daily work. Aside from the great economy of receiving work for their feed, this gentleman has developed in his stock a depth of body and a lung power strongly resembling the Dauncey type of Jersey. They are long, deep barreled, strong lunged, and splendid dairy workers.

Having directed attention to the hygienic or sanitary side of the breeder's art, I wish to urge on every man not to be content with a good pedigree, nor even a good individual performer. See that your animals are well built, and that they are physically capable of transmitting good constitutions as well as dairy qualities. Most of us can recall insignificant looking animals which are good dairy performers. It is not enough to have a good record or an unblemished pedigree; an animal should have a vigorous frame, symmetrical, and clothed with skin and hair indicating its quality of blood and ability to transmit its power for work and inheritance of beauty to the generations of dairymen to come.

The farmer who loves live stock will seldom err in his choice of animals for breeding. A good heart and sound wind are as necessary in a bull and cow as to a race horse. All the really great cows in our time have been animals of marvelous functional activity. They were great workers because they were well built, and brought up in a manner becoming those having a large task before them.

In the days of old Rome, the men who struggled to reach distinction in any of the vocations found it as indispensable to get good training as to be well born. This is as true of our time. We cannot recall the name of a great performer on the turf without also recalling the arduous task and undaunted faith of the breeder and trainer who "budded better than he knew," by striving to impose on the high blood pedigreed animal the impress of intelligent care and work. Let us not forget that if we would preserve and improve the heritage of dairy blood we have received from our fathers, we must insure constitutional vigor

as well as purity of pedigree and fashionable ancestry. Whatever we gain in strength will add to the profit of the dairy and enhance the comeliness of form and loveliness of color which have stamped the Channel Island cow as the dairy animal.

Canadian Cheese to the Fore.

BY PROF. JAMES LONG, ROYAL COLLEGE OF AGRICULTURE, GIRENCESTER, ENG.

An important report has recently been published by the Government, dealing with the quality of Canadian cheese. Some time ago, in consequence of action taken in the House of Commons, it was determined to apply to the Canadian Government for some details with reference to the purity of the Canadian cheese which is exported to this country. The chief analyst of the Revenue Department of the Dominion had already made a number of analyses in the years 1885 and 1887, and had been unable to trace any adulteration with fat, other than butter fat, but he at once proceeded to investigate the matter and obtained 112 samples from Montreal, Halifax, St. John's, Quebec, Toronto, Ottawa and Winnipeg, and at the date of his report 49 of these had been analyzed in duplicate for the sake of being perfectly correct. Now, in order to understand the value of the figures which these analyses yielded, let us see what is the normal quality of good English cheese by analyses made in this country. The following figures are provided by the chief analysts at Somerset House:

	Water	Fat	Casein	Ash
Medium Cheddar	35.60	21.67	28.16	4.22
Cheshire	37.11	20.68	26.93	4.42
Single Gloucester	35.75	28.35	31.10	4.49

According to Dr. Voelcker, the following are analyses of Cheddar and Cheshire:

	Water	Fat	Casein	Sugar	Ash
Cheddar	30 1/2	35 1/2	28	1 1/2	4 1/2
Cheshire	32 1/2	32 1/2	26	1 1/2	4 1/2

In the above instances we find that the fat varies from 28 1/2 to 35 1/2 per cent., while the water varies from 30 1/2 to 37.11 per cent. The fat, however, is the best test of the quality of the cheese. The tables compiled by the Canadian analysts show that the percentage of water varied between 14.20 and 37.70; the butter fat between 28.8 and 42.94; the curly matter or casein from 18 to 32.62, and the salt and soluble matter from 5.94 to 20.74. Those figures indicate that the Canadian cheese, as a whole, was better than the samples of English cheese of which analyses have been quoted above, inasmuch as in the case of the water, that sample containing the highest quantity was no poorer than the highest English sample, while that containing the lowest quantity was cheese which contained less than half as much water as was contained in the lowest English sample. Again, with regard to the butter fat, the poorest samples of Canadian and English were about identical, but the richest sample was infinitely richer than either of the English samples. The analyst also obtained some lard or "filled" cheese, which were analyzed for the sake of comparison. In two instances these samples contained 43 per cent. of water and 33 to 35 per cent. of casein, while the fat varied between 15 1/2 and 16 1/2 per cent. Thus not only is the ordinary lard cheese adulterated extensively, but it contains a much larger proportion as it increases in quantity. In one instance one of these "filled" cheeses contained 83 1/4 per cent. of water, casein and salt, the balance only being fat. The public should therefore carefully guard against the purchase of a food of this kind, not because it is unwholesome, but because it is poor in quality and practically a sham. It appears that the Canadians import a comparatively large quantity of cheese from the United States, but they export a very large quantity to this country. For example, the imports during the eight months ended the 31st August last from Canada have reached 320,774 cwt., of the value of £714,000. This is a fall as compared with last year, of 49,000 cwt. and of £83,000, although it is infinitely greater than the imports of 1886. The actual quantity of cheese imported from British North America, which we may practically accept as Canada, in 1887 was 632,000 cwt., of the value of £1,550,352. This is not far short of the exportation of the United States to this country, for in the same year the Americans sent us cheese to the value of £1,851,000. As a matter of fact, therefore, next to America, Canada sends us more cheese than any other country in the world; indeed, excepting Amer-

ica, she sends us more than all the other countries put together, Holland being the next important exporting country.—The Farmer.

Poultry.

Comparison of Breeds.

Mr. Williams, who claims extended experience in respect to the different breeds, gives in the *Poultry Monthly* the results of the same in tabulated form, an extract from which we think worthy of presenting to our readers. Though it may be slightly modified by varying conditions, yet we think it presents a good general view of the position of the various breeds of the present day, viewed from their many standpoints of excellence.

BREED	Dressed Weight at mos.		Dressed Weight at 12 mos.		Age at time of laying.	Number of Eggs 1st year.	Number of Eggs 2nd year.	No. eggs per lb.	Color of Eggs.
	M	F	M	F					
SITTERS									
Light Brahmas	2 1/2	2 1/2	7	6 1/2	160	120	7	Br wn	"
Dark Brahmas	3	2	8	6 1/2	160	120	9	"	"
Cochins	3	2	8	6 1/2	140	100	9	"	"
Plym'th Rocks	2 1/2	2 1/2	6	5	160	120	9	"	"
Wyandottes	2	1 1/2	5	3 1/2	150	120	9	"	"
Langshans	3	2	7	5 1/2	160	120	9	"	"
Games	2 1/2	2	5	3 1/2	150	125	10	"	"
Non Sitters									
BREED									
Leghorns	2	1 1/2	3 1/2	2 1/2	4 1/2	160	130	10	White
Polish	2	1 1/2	3 1/2	2 1/2	4 1/2	140	110	11	"
Hamburgs	2	1 1/2	3 1/2	2 1/2	4 1/2	150	120	11	"
Black Spanish	2 1/2	2	4	3	5	165	150	11	"
Black Minorca	2	1 1/2	3 1/2	2 1/2	5	165	130	9	"

How to get Eggs in Winter.

He who keeps an eye on the market and has produce to sell whithersoever, generally has his account balance on the right side.

In the matter of egg production it is quite obvious that most may be derived from them during the winter months. True, the hens then require more care and give more trouble, yet, if due compensation results from the same, it is surely satisfactory.

The first requisite is to have a henhouse warm and dry, with abundance of sunlight. We know of one who has made a success of this work, having a coal stove in his feeding room, part of the floor of which was sand and the rest boarded. It was on the former the stove was placed, and near at hand was a large window. Here in the coldest day in winter the hens could have a dust and sun bath, which materially influenced the returns from the eggs. With proper construction, however, with the use of felt and good lumber, warmth may be secured.

For dryness, choose a slight knoll or well drained plot as a site. A large glass front facing the southeast is considered the best for the catching of the morning sun which the hens love so much to bask in. Next in importance comes the food, which should, besides giving variety, furnish all the elements necessary for egg production. Meat scraps, milk, oats, wheat, buckwheat, corn, etc., and green food, such as cabbage, chopped turnips and beets, are necessary. Cleanliness, with a supply of clean water each morning, are also important factors. A writer in *The Country Gentleman* thus describes the method pursued by him for years with good results: "For the morning's meal, mix together cornmeal four parts, in bulk, wheat bran two parts, and ground beef scrap one part; thoroughly scald and mix with boiling water, in which enough cayenne pepper has been stir-

red to slightly season the whole mess. Cover the pail containing the mixture, and allow it to steam for a quarter of an hour. Feed warm, but not too hot. Every other day the scraps and pepper can be omitted with advantage, unless one is desirous of forcing the laying as much as possible.

"For the evening meal, use whole corn and oats one day, and whole corn and wheat the next, varying the proportion of corn and other grain according to the condition of the fowls. Ordinarily the mixture should be two parts of corn to one of wheat or oats, but if the fowls seem to be too fat, reduce the proportion of corn, and increase that of the oats or wheat." In regard to the green food, the same writer recommends cutting clover hay into short lengths, putting in a dish, pouring boiling water on it, and then setting it away covered to steam for about half-an-hour. This can be prepared in the evening and allowed to stand until feeding time next morning. Refuse cabbages are also to be commended, which can be hung up just high enough for the fowls to reach; this, while not only furnishing green food, gives them exercise. Chopped turnips or beets, boiled or raw, are liked for a change as well as being nourishing. Small potatoes may be used with profit by boiling and mashing them, and mixing with other foods. Scraps from the table, etc., are of value as a food and should always be saved. Supply them abundantly with slaked lime or coal dust, the former being a large constituent of egg shells, and the latter affording means for a dust bath. Crushed oyster shells or ground lime are also used by many with profit.

The Apiary.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Winter Work.

BY ALLAN PRINGLE, SELBY, ONT.

The bee-keeper who thinks when his bees are once away in winter quarters that his apiarian work is over till he takes them out again, and fails to make the necessary winter preparations for the coming season, will generally come out of the little end of the horn. The best preparation for efficient and successful work in the honey harvest is to be ready for the work when it comes—equipped in head with the necessary knowledge and equipped in hand with the necessary fixtures and appliances. Other things being equal, the most successful bee-keeper will be the one who is able to take the fullest advantage of the honey flow when it comes; and he cannot do this unless he has everything necessary ready. In some districts the flow is of but brief duration, and is half over before the laggard bee-keeper is ready to make the most of it. The best honey of Canada (and no country produces better) comes with the first flow, viz., clover honey, and immediately succeeding it basswood honey. This is an additional reason for being ready in time, or we lose the best.

HEAD WORK.

In these days of scientific discovery and brain-development the head and hand must work in concert—each be ready with its part—to attain success and to achieve the best results. This is more true of bee-culture than most pursuits which are largely mechanical—a routine of manipulation. The laborer, the mechanic, the artisan, have their regular round of work—a monotony, sameness, and roundness, requiring little deviation from a fixed routine. Not so the apiarist—whether amateur or professional. He soon finds that neither the "rule of thumb" nor the "rule of three" will do. New experiences and new phe-

nomena will persist in coming up before him in the bee-yard. To deal with these his eye must be alert to observe, and his head attuned to think. Winter is the time to commence getting the head in gear. During the short days, make the hives and fixtures, and during the long evenings read bee literature and digest it. And as with physical digestion the nutritive material is separated from the waste, so in mental the wheat must be separated from the chaff of bee lore. To be able to do this, the habit of careful reading, of comparison, of reflection, of analysis, must be formed.

HIVES

Winter is the time to get all the hives to be required the next summer ready. But what style shall we make? That is the question. There certainly is a great diversity, and the market is full of hives. There are but two principles, however, the old box-hive principle, and the movable comb-hive principle, and there ought not to be much hesitation with any sensible man or woman in choosing between these two. The movable frame hive and the Honey Extractor are the two great achievements which have revolutionized modern bee-culture. The modern bee-keeper, then, who expects to accomplish anything, must select some style of the movable frame hive. It would be rather invidious as well as presumptuous to begin to advise him what particular style of the movable frame hive to select in preference to all others. There are many excellent ones of different make, all on the one fundamental principle, and the man who thoroughly understands his business can make a success in practical bee-keeping with any of them. We all, of course, have our preferences. The Langstroth hive is good; the Jones hive is good; the Heddon hive is good, and several others are good. I have them all, and more too, and not one of them quite suits me, so I make a hive out of them all to suit myself. I presume this is what most bee-keepers do after an experience of a quarter of a century. To those with less experience, or no experience, I may say, in a general way, that for extracted honey the Langstroth hive is excellent, and for comb honey the Heddon hive is excellent, while for both comb and extracted honey the Jones "Combination Hive" is excellent. The beginner in movable frames who starts out with the Combination hive, will make no mistake.

Whatever hive is selected for next season, get at it now, and make up what you will probably need—if you should have a few over, that will be better than to be short. Should you order your hives from a factory in the flat and make them up yourself, now is the time to do it before the rush of business commences, and while your order can be filled promptly. This, I think, is a better plan than either ordering them made up or making them wholly yourself from the raw material. Of course a novice in ordering a strange and complicated hive would require a sample hive made up as a guide in properly putting together. (I may say here that I am not a supply dealer.) In making up hives I would urge the necessity of extra care with the lids or covers, in order that they may be water-tight. This is an important point in hive-making. I seldom see a first-class hive-cover, and I may say here that I do not like the flat covers. They retain dampness and moisture and prevent one ventilation over the frames. The slanting or growing cover, though of course more expensive, is preferable. Carefully made, of good lumber, and well painted, they keep the colony dry and admit of proper top ventilation.

The "fast-bottom" hives should have larger en-

trances than the loose bottoms, for although they may not be needed full size in summer, they are needed in winter quarters. The loose-bottoms may be raised an inch or more from bottom boards, while the fast bottoms cannot; and hence should have larger entrances—adjustable, of course, either by means of blocks or zinc. Every fast bottom, especially the deep styles of hive, should also have an inch or inch and a half hole in the back part three or four inches from the bottom board, and covered inside with wire gauze and outside with a button, which can be opened or shut at pleasure. This is useful for ventilation, both in very hot weather and in cellar wintering. I mention these three points in hive-making, viz., cover or lid, large entrance for fast bottoms, and ventilator behind, because I notice all three, important as they are, are generally neglected. I have never yet seen a hive from a factory with the latter requisite. It is something, however, which can be easily supplied by the maker.

It is hardly necessary to say that hives ought to get two or more good coats of paint, and a coat every four or five years thereafter. The back part of the hive and the bottom board INSIDE ought also to be thoroughly puttied and painted, so that liquid feed put in the back part of the hive on the bottom board will not run through, that is, in case of fast bottoms. And, by the way, this is a strong point in favor of the "fast bottoms,"—the facility afforded for rapid and convenient feeding.

SECTIONS, CRATES, CASES, ETC.

These ought also to be got in readiness while there is time. Sections ought to be made of nice, clear, white timber, and nicely smoothed. A beautiful section of this kind is a great aid in selling section honey. I prefer the narrow "double-stalled" pound sections, using both pieces, viz., the Jones and the Langstroth.

Even the crates for marketing the comb honey ought to be finished and ready when they are needed, though that may not be till fall, for although the honey season may then be over, other work will be pressing, more so than in the winter. Get everything ready and in order, and it will be like oil to the axle, the friction of your summer's work will be reduced, and the pleasure enhanced.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Burying Bees.

BY R. F. HOLTERMANN, BRANTFORD, ONT.

As some of your readers are anxious to know what the results have been from burying those bees the winter of 1887-8, I will briefly give them. There were three of us conducting the experiment: D. Anguish, S. A. Dickie and myself. Mr. Anguish could not allow his to remain until spring, but examined them by unearthing during the latter part of winter; he found they were all alive, but rather damp, and placed them in the cellar. S. A. Dickie left his until spring, and out of five, two were dead when taken out, two were in fair condition, and the remaining one was very strong when taken out. Out of the five put in by myself, not one was alive when taken out, and as far as I am concerned, have no intention of attempting to winter in this way again. It probably may be done with success, but it appears doubtful that this method will be any more certain than any other. Mr. Dickie signified his intention of trying the experiment again this winter. It appears to me the soil may be an important item to take into consideration, a dry, sandy soil being better than a damp, heavy one. Our losses, however, are of value, and show us the necessity of testing all this, and being

cautious about receiving anything except upon unquestionable authority. If bee keepers were to combine and conduct experiments, the results would be convincing and of value in proportion to the number conducting them, and the care they take in arriving at correct conclusions. This winter I am conducting an experiment in a cellar; the walls are stone, the floor cement, and in one part of it I have an apartment which is separated from the rest of the cellar, by a double wall of felt paper. There is no doubt that in this apartment the temperature will not change quickly, but the question will be about ventilation. If I mistake not the ventilation will be very slight through this paper, and if so, how will it affect the bees? If the argument holds good, that bees require no change of air, and temperature only requires to be considered, then the apartment will be just what is wanted, but I doubt it. The principles for maintenance of animal life are the same in the bee as man. The bee cannot breathe in carbonic acid gas, or expel oxygen, but as all other animal life does just the opposite, and, although, perhaps, in a very small degree when in that quiescent state which bee-keepers are pleased to see their bees in in winter, with the thermometer outside at 10° below zero, and in the cellar 40° or even 50° above, there is a very great inward pressure, and fresh air is forced into the cellar, which is not the case when the temperatures are the same inside as outside.

Another experiment which has been conducted by J. E. Pond, is to take the bees from the cellar at times during the winter, and place them in a warm room for several hours, and then return them to the cellar. The idea is to allow them to throw off accumulating waste matter, and then return to the quiescent state. Mr. Pond reports favorable results from this method.

MARKETING HONEY.

The season has been very poor, and few bee-keepers have had any honey to market, yet a few remarks upon marketing will not be out of place. It is not advisable to hold honey with the expectation of getting exorbitant prices for your product. You will find that after a certain time honey moves out slowly, maple syrup comes in, early fruits and greenhouse rhubarb comes in, and honey does not find the ready sale looked for. Although a few will have honey at almost any price the great majority do not give it its rightful place, and attach a true value to it, and these will readily be induced to do without it. A large proportion of the honey unsold in England is that derived from buckwheat. This should find a ready sale, but in Canada it is not generally desired for table use. In baking it is superior to the lighter grades, and large biscuit firms should be approached. Pork packers are using it for making honey cured hams, and they say there is no ham equal to one cured in this way. Again, tobacconists are commencing to use honey; it keeps the tobacco moist, and, I suppose, makes the unpalatable weed and injurious narcotic more tempting.

Almost every day I receive additional evidence of the necessity of putting a notice on extracted honey, that it will granulate, that this is proof of its purity, and that it can be returned to its liquid state by gently heating (not boiling), placing the vessel it is in into a vessel with water; so many who know no better decide that the honey is impure when it commences to granulate, and bee-keepers will clear themselves of much unjust suspicion by putting this notice on all honey packages. Labels may be secured from supply dealers with these notices, or you can get a small label

printed at your nearest printing office; in this matter you must, of course, consult your own interests.

We should lose no opportunity to explain why extracted honey can be produced for less money than comb.

In closing let me say, if this should meet the eye of one who uses honey, but is not a producer, are you not uncharitable if you judge hastily as to adulteration of honey, and are you not passing judgment in a matter which must naturally be beyond your comprehension? I have visited hundreds of bee keepers, and over a goodly part of Canada, and have yet to see the first trace of adulteration of honey by them. Fortunately, I believe we are in Canada almost, if not entirely, exempt from it.

Horticultural.

MR. MORGAN, an English fruit-grower, says that one of the principal reasons that Britain cannot command her own fruit market is that there are too many worthless varieties grown, and that the market is glutted with these, while other countries raise extensively a few standard varieties, and thus drive them out of their own market. He states that they have now in existence over 1,545 varieties of apples alone, and yet in the face of this he says the Royal Horticultural Society are issuing fresh certificates for new varieties of apples, and in nine cases out of ten are, as regards profit, totally unsaleable and worthless. He claims that there is nothing in the soil or climate to prevent the home growers from securing at least the greater part of the £8,000,000 per annum secured by foreign importers. This is worthy of digestion by our Canadian fruit-growers and shippers.

Fungi injurious to Farm Plants.

Perhaps in no other department of life is there such a mingling of scoundrels and honest livers, filchers and true workers than in the ever-widening and as yet little known division of botany, comprising the fungi. Here are the most inveterate foes of the farmer and his care, and here, of the same parentage, are many of his best and truest friends. In the former crowd we find the infectious diseases of plants and animals—wheat rust, consumption, etc. That the mind may not be too strongly prejudiced against these organisms we desire to draw attention to some of those that are beneficial; and in this light we would mention the many that aid in hastening the decomposition of all animal and vegetable bodies, breaking them up into their original elements to be dissipated into the air or retained in the ground to nurture the millions yet to come. In the darkened soil one of these silent miners works, elaborating a food for higher plants, without a thought of recompense or honor, truly a fitting model for those that cannot sweat but for promotion. On the activity of this minute plant the fertility of the soil is greatly dependent. It is by this means that the process of nitrification is brought about, which results in the production of nitrates in the soil, one of the most valuable foods for cultivated plants, and especially so of wheat; and on this account the latter has been termed the "agricultural barometer," indicating whether or not the soil has been well worked over by these minute organisms.

We purpose, in a series of papers, to briefly outline the life, history and means of combatting a few of the many injurious fungi that attack farm plants. To follow us in this, it is necessary to be acquainted with the general characteristics of all fungi. They are flowerless plants, and include the lowest of vegetable or-

ganisms. Some are so minute as to only measure $\frac{1}{10000}$ part of an inch, and consist of only one cell. Further, they do not possess leaves, stems, nor roots, using these terms in the sense that they are applied to higher plants. On this account most of them have to depend on other plants for their sustenance, and hence the injury they do to farm crops. The substances necessary for the building up of their tissue is obtained through the medium of many slender threads (mycelium) that they throw out, and which penetrate the tissues of the plant upon which they feed. Instead of producing seeds they reproduce themselves from spores which differ mainly from the former in that they possess great vitality or power to resist very high or low temperature. Being light, and of great numbers, and each spore endowed with the property of producing a new plant, if conditions are favorable, it may be easily understood how such diseases as rust and smut are spread so rapidly.

Owing to the fact that these spores are very dependent on certain conditions of moisture and temperature, some have been led to assert that the diseases affecting most of our crops are due to the latter causes. Unless favorable conditions of moisture and temperature are furnished they will not grow, hence anything such as draining, etc., that has an influence on these conditions, may be used with profit in combating these parasitic diseases. Further, there are certain conditions that make the plant more susceptible to their attacks. Insects, by wounding the bark or otherwise weakening the vitality of the plant, may pave the way; lack of nourishment; too luxurious a growth, etc.—all of these favoring the attacks of the fungi. As a man in a strong, healthy, vigorous condition may resist the ill effects of infection, so may plants when healthy overcome the injurious effects of like diseases.

I. BLACK KNOT (sphaeria morbosus).

To successfully combat the attacks of any fungus growth that may prove a source of evil to farm crops, it is necessary not only to know its life history in general, but to be acquainted with all the ins and outs of its method of nutrition, growth and propagation, seasons when it produces its spores and their manner of distribution, so that every weak point in its growth may be taken advantage of.

Until recently nothing very definite was known as regards the cause of black knot, it being claimed by many that insects were the sole cause of the evil. Though the fungus was first described by Schweinitz in 1838, little was done until Prof. Farlow, of Harvard University, worked out the life history in full. In his report on this question to the U. S. Department of Agriculture he gives several reasons why the black knot cannot be credited to insects. The following are the arguments against such a theory: The knots do not resemble the galls made by any known insect. Again, insects are only found in the old knots, never in the fresh ones; and further, the insects that have been found in the knots are not all of one species and they have been found on other trees that have never been known to be attacked by this fungous growth. On the other hand, this fungus has never been found without black knot being present or appearing at a later stage; nor has the black knot ever been found, even before the swelling denotes its presence to the eye, without this fungus.

Being thus firmly established that this disease is not due to insects or any other similar cause, but to the attack of a parasitic fungus, it is well to be thoroughly acquainted with its method of living, etc., that our orchards may be rid of this pest.

Life History.—When the trees are free from foliage it can be easily seen. It varies in size from one half inch to nearly a foot or so in length, running along one side of the branch as a rule. Fig. 1 gives

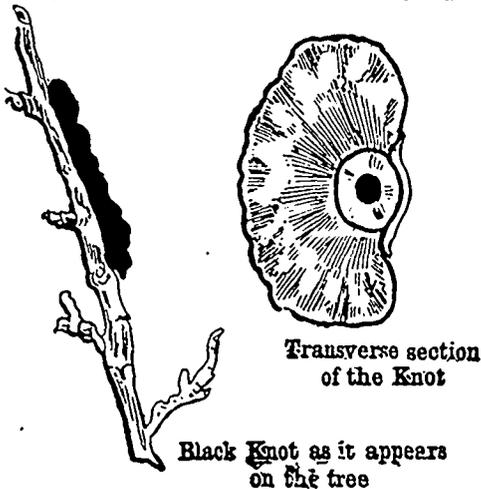


FIG. 1.

a good representation of the appearance of a medium sized knot and also a cross section of the same. It is confined for a host to the cherry and plum, and it is said that the Morello cherry is the most susceptible to it, while the Mazzard comes next. There is as yet no variety of plum that is known to resist it, though it is claimed that some of the varieties of cherries are comparatively free from it. It is in the spring that the principal growth of the knot takes place. The mycelium growing rapidly, soon causes the bark of the affected limb to burst, when a soft substance appears and soon becomes of a greenish hue. Just before the bursting of the bark the mycelium has the appearance of that shown in Fig. 2. It runs all through the tis-

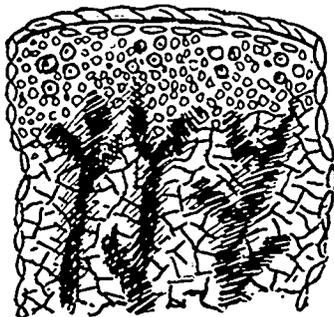


FIG. 2.

sue of the knot and expands in fan shaped masses. The threads are very fine and are twisted into bundles. They begin in the growing layer of the wood and extend outwards. It is in the former part they would receive the most nutriment. It is only in the swollen part of the stem that these threads can be found, and the fact that they have never been found below is worthy of remembrance in seeking to destroy this pest. These threads are about .007 mm. in diameter, or .00027 of an inch, so that they need not be sought for with the naked eye.

After the bark has burst and the knot assumes the greenish hue mentioned before, the work of reproduction commences. This begins about the time the plum trees come in bloom. The mycelium now exposed begins the production of the summer spores. As in most other fungi, the production of these summer spores is the most rapid means of disseminating the disease. The whole surface of the swelling is covered with small filaments, on the ends of which

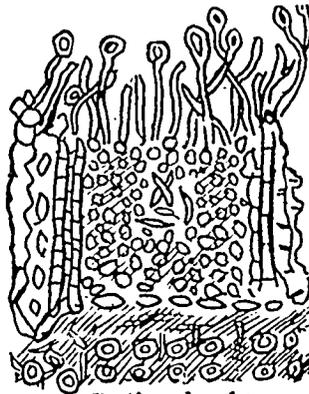
Section showing
Conidiospores

FIG. 3.

are borne the summer spores (*conidia*), as seen in Fig. 3, and magnified in Fig. 4.

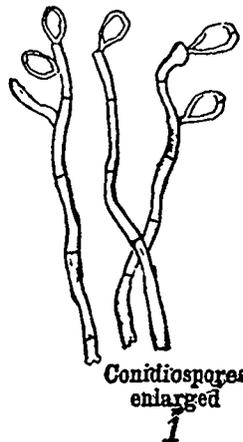


FIG. 4.

These spores are very small, light, and easily carried by the wind. Couple this with the great number produced and the rapidity with which it spreads may be easily accounted for. In size one of them is .006 mm. in length, but a better idea may be gained by stating that it would take about 4,200 of them, placed touching each other to measure one inch; or still better, 17,646,000 such spores to cover one square inch of surface. All through the summer these spores are produced in infinite number until early fall, when their production ceases and the knot becomes shrivelled and dried in appearance, while insects aid in rendering the outer shell a mere covering. It is thus that it goes into winter quarters, which we shall take up in our next.

Growing Black Walnuts.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Kindly inform me in your next issue the best method of planting black walnuts, the time of year to plant, and the after care for shade and for timber purposes.

Claude, Ont.

Walnut trees are grown for two principal purposes—for shade trees and for timber. In the former light they are to be counted among our best, as they are very clean trees, with large compound leaves, and their branches of given scope spread out to a great length. For veneering, furniture-making, etc., walnut takes a foremost place, and hence is very valuable in this respect. Their management and care is largely determined by the object sought after in growing them. If for timber, they should be planted closely together, as this tends to produce an upward

growth resulting in a straighter growth and wood of a sounder nature. The opposite is sought after in a shade tree. The branches are the main centres of beauty in a tree of this kind, and hence they should be given every chance to develop. For shade purposes we think it best to plant the nuts where the tree is to stand permanently, for in transplanting, although it may give rise to many fibrous roots, yet the tap root has to be sacrificed in so doing. Many think nothing of this, but advocate in any case the cutting of the tap root back to within six inches of the collar; but we cannot free ourselves from the idea that it has an important function to perform in holding the tree firmly in place. If transplanting has to be adopted it is advisable to shorten it, however.

The best time to plant the nuts is as soon as they are ripe in the fall. If, however, they cannot be obtained in time for fall planting, put them in a box, sprinkling them over with fine sand, and place them outside that they may remain frozen all winter.

For all seed-beds a free sandy loam is considered the best soil. The walnut growing in nature does best on the rich bottom lands or the gravelly hill sides; a fact worth remembering when the trees are to be laid out permanently. In preparing the seed-bed make it of as fine a tilth as possible, either by spading and raking, if small, or ploughing and thoroughly harrowing if large in extent. It should not be flat so as to permit water to lie on the bed, as the nuts would soon rot. Having the soil well cleaned and free from weeds, the greatest enemy of the young plants, run the rows with a garden line. Between the rows allow about two feet, putting the nuts about one foot apart and two inches deep. Roll or tread the rows firmly, pressing the soil over the nuts. After this, rake the rows loosely, thus checking evaporation. Mulch also with leaves or straw, which should be raked between the rows as soon as spring returns. Above all keep the weeds down by constant hoeing, for if they once get the upper hand it will cause extra annoyance and loss in getting rid of them. No disappointment need be felt if many of the nuts give no indication of life the first year, as many will not germinate until the second. If they make a vigorous growth transplant them as soon as possible, because if left more than one season trouble will result, owing to the development of the tap roots. Transplant and place in rows four feet apart and a foot or two in the rows. This allows of cultivation between rows until the branches so cover the ground that few weeds can grow. As soon as the trees begin to interfere with one another seriously transplant or cut out every second tree, and also a little later every second row will need to be removed. Prune annually, choosing a leader and aim at producing an upward growth.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Berry Notes, 1888.

BY E. D. SMITH, WINONA, ONT.

Another season still has passed by, (teaching to lose with eyes to see, the never learned lessons of nature. Another season, one of the ten, twenty or fifty possibly our lot to enjoy, and what has each of us accomplished? Have we done our duty by ourselves and our fellow-men? Have we got much nearer the goal we are each striving for? If not, why not? Was it ignorance? Then let us study harder. Was it slothfulness? Then let us be more energetic. The berry grower can take no rest if he wishes success. The ceaseless changes in varieties, markets, etc., requires all his vigilance to watch and keep up with. A few years ago raspberries paid exceedingly well; everybody planted; the market got overstocked; prices fell so low

that growers got discouraged; many neglected their plantations and ploughed them up; about the same time jam factories started up in many places and demanded berries, consequence was, last season prices jumped up so that those having plantations of good varieties, on proper soil, made money. But the old sorts cannot compete with the new ones. Such varieties as Clark, Turner, Brandywine, Philadelphia, etc., cost too much to pick, are too small, too soft or too dark in color to pay, when Marlboro and Cutlbert yield paying returns, being large in size, productive, handsome in appearance, and firm. These two make a complete list, except for jam purposes, for which the dark colored Shaffer pays best, as it yields such enormous crops. I think the lesson to be learned is to keep on with your line; if you stop and start another line you have the lessons all to learn. Just after the lessons are learned is the time to make the money. Those very careful people who never try a new variety until all the neighborhood has tested it frequently start in just about time the money is all out of it. I imagine it will be so, however, until the end of time. Raspberries must have moist, well-drained loam to do their best every time. Underdraining has slackened of late, owing, doubtless to dry seasons; people do not see the need of it so much, but nothing pays like it. Plenty of drains and deep ones well laid are worth all the time and money spent every two to ten years, and after every year in fruit. When land is well underdrained, and the sub-soil loosened with sub-soil plough 12 to 15 inches below surface, and plenty barnyard manure applied, a paying crop can be grown of almost anything.

Blackberries and thimbleberries, under favorable condition of soil, climate and variety, also paid well this year, owing largely to severe winter having injured the tender varieties, and drouth in some sections having reduced the crop of the hardy sorts. Owing to its handsome appearance and great productiveness, in favorable seasons, the Kittatinny variety obtained a great celebrity, and well it deserves it, but the great mistake was made of attempting to grow it everywhere, and failure was the result. It is too tender to succeed much outside of the peach belt. It will stand about five degrees more cold than peaches only, and must have, like all blackberries, the best of deep strong soil. When people found Kittatinny too tender, they all started to plant Snyder's, a hardy variety, but they were found to be too small in the berry, especially in dry seasons. Then a rush was made for Taylor's, not quite so hardy as Snyder's, but larger berries. Taylor's in a dry season set so many berries, that the bush is too weak to mature the crop, and they dry up, and withal, the bush is not a strong enough grower, except in very rich ground. I have tried them, also Dorchester, which does not yield enough. Stone's Hardy is too small in the berry, otherwise excellent for hardy sort; Early Harvest too tender; Early Cluster, Staymen's Early, Early Wilson, Wilson Junior, all too tender. What we want is a stalwart grower, heavy loader, hardy cane, large berry. Western Triumph comes nearest to the ideal of any blackberry I have tried; berry is not quite as large as Kittatinny, otherwise it fills the bill exactly. I think blackberries the finest fruit grown, when fully ripe and properly matured; on the other hand, no fruit is viler than the same when picked before it is ripe. Growers should be very careful about this matter. There is a market for ten times the blackberries now grown, if put on the market in the best condition, but when a consumer gets a box of them with hard, green cores, "sour enough to make a pig squeal," said consumer consumes something else than blackberries for tea

next night, and so the grower loses his market, and he deserves to lose it.

The greatest drawback to berry growing is to get good pickers. One needs to consider this matter well before embarking in the business.

Winter Apples for Shipping.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Will you please answer in your next issue the following questions: Where can I get a good book on care and management of fruit trees? Can you recommend or give me the address of a reliable fruit tree nursery in Canada or United States? Give name of six or eight of the best varieties winter apples suitable for shipping purposes.

YOUNG FARMER.

Clearville, Kent Co.

Consult the list of books which we published in our supplement of last month, any one of which we can recommend and may be ordered through this office at the quoted prices. There are several reliable nurserymen in Canada, and we would recommend our correspondent to glance over the advertisements of the same in our spring numbers. As these may not be easily to hand we would mention the firm of George Leslie & Co., 1164 Queen street, Toronto, and also F. D. Smith, Heldeigh Fruit Farm, Winona, Ont. For your purpose we would recommend the following collection: Baldwin, American Golden Russet, Canada Red, Rhode Island Greening, King of Tompkins County, Ben Davis, and Northern Spy. The Baldwin leads in the British market, and ships well, though not of first-class quality; the American Golden Russet is a good keeper, and meets with a ready sale: the Canada Red is a finely colored apple of good quality, superior to the Rhode Island Greening in this respect, though perhaps not so good a bearer or shipper. The King of Tompkins County is a large sized apple, in good demand, while the Ben Davis is very attractive, though deficient in quality. The Northern Spy is a good market apple, but not so showy as some of the others. They are all hardy enough for Kent Co., if given the right conditions of soil and care.

The Home.

Untrue—False—Absolutely Untrue.

These are terms so frequently used by newspaper controversialists that their true import is measurably lost to the mind of the ordinary reader. The painful frequency with which they occur cannot but be offensive to sensitive minds in which true charity finds an abiding rest. It would appear very improper for two men to meet and each charge the other with falsehood, because he had said some things which might be so constructed, though the intention to utter falsehood was quite foreign to the mind of either speaker. But why should it be thought one whit more improper than for two newspaper controversialists to approach each other in this way? Truth may rightly be called the *basis* of all true character. Where truth is lacking true character cannot exist, for then it has no foundation on which to rest, so that if you take away one's veracity, you take his manhood away with it. If you shake his character for truth wrongfully, you do him what may be termed almost irreparable wrong.

Charity is the chief of the graces, but truth is the cardinal virtue. It is the axis of that world of action that goes to make up a rightly ordered life. Like the great Unseen from which it emanates, it is indestructible, hence all character that is to endure the test of

fiery trial must be well wrapped up in this Amianthus garment.

Men may ignore truth in their dealings, and grow great in a prosperity of mushroom growth, but its existence is ephemeral, and down through all the ages the reputation thus acquired shall, like the serpent, its nearest kinsman, leave a slimy trail.

You may give the farmer seed and moisture, heat and implements, and all the other conditions necessary to produce a crop, but unless soil be given there can be no vegetation. So an individual may be given intellect, education and illimitable opportunity for the production of true character, but there will be no germination unless the *soil of truth* be furnished also. Truth makes men strong. The heroes of the Nazarene were strong because they knew they grasped the truth. It enabled a handful of plain fishermen to shake the stability of hoary thrones. It immolated John Hampden and his comrades on the altar of self-sacrifice, from the ashes of which have grown the character of modern civil freedom. It gave England a Wilberforce and America a Lincoln. All coming generations shall rise up to call them blessed. It is leaven, which, permeating human character, is fast transforming humanity into a higher ideal than the world has yet seen.

Then hesitate before you rob a man, or try to rob a man of his character for truth. If he is innocent, you do him wrong, but you harm him less than you harm yourself. You may spatter him for a season, but the rains of time will wash all the marks away, while they but deepen the stain in your own character. This is absolutely certain, that no man has a right to look for weeds in his neighbor's field while any remain in his own.

It may be necessary sometimes to say to men that they are a "generation of vipers," but the occasions for this are rare, and where there is a shadow of a chance for putting a favorable construction on the meaning of a controversial antagonist, he is entitled to the benefit of the doubt.

O the height and the depth, and the length and the breadth of that inimicable sentence of the magnificent old man which reads thus, "Charity doth not be- have itself unseemly"! Who shall go down into the unfathomable depths where its roots grow and tell us to what soil of the human heart it is not adapted? Who shall clamber up into the heaven of its branches and tell us to what phases of human intercourse the healing action of its leaves will not apply? Though one turn it over from day to day, and view it first on this side and then on that, with all the eagerness with which a bride first views her bridal robe, its attractiveness grows apace. If controversial writers and political editors would hold it up before them as a mirror, many of them would surely be found wringing their hands and uttering a penitential, anguished cry. If men always observed its spirit in their actions, the apocalyptic vision of the grand old seer would be fulfilled in anticipation, wherein he represents the holy city as having set up her peaceful pillars throughout all the earth.

"Your picture arrived safely by mail. I thank you very much, as I consider it a piece of excellent workmanship, which cannot fail to be appreciated by all who see it."—John McGregor, Russell Co., Fulton P. O., Ont.

"I received your very handsome engraving of the Agricultural College and Experimental Farm, Guelph, and am very highly pleased with it."—D. K. High.

"I have received the picture that you sent me. I appreciate it very much and your paper also."—Robert Anderson, Wyoming P. O.

"I received the picture and am highly pleased with it."—James Young, Binkham, Ont.

Jottings.

Correction.—In our reference to the sale of stock at the Ontario Experimental Farm we made a mistake in regard to one of the Shropshire sales, Mr. James Rowat, Hillsdale P. O., being the purchaser, instead of Mr. Cowan, of Galt, as reported.

Vancouver's Climate.—We are in receipt of a number of heads of red clover, sent by a correspondent of Salt Spring Island, Vancouver, B. C., picked by him while growing strongly in his orchard on the 17th of December. Though the season is an open one in nearly all climates, yet it illustrates very practically the much talked of genial and uniform climate of Vancouver and its immediate vicinity

The Dominion Dairy Supply Co.—This company have agents in Quebec Winnipeg and London for the supplying of separators to the dairy fraternity They are sole agents in Canada for the Danish and Holmstrom separators. It is claimed for these makes that for rapidity and thoroughness of separation they surpass all others, while at the same time possessing the good points of all separators over the shallow pan and deep setting methods of cream raising.

Premium of the "Western Advertiser."—We have to hand a copy of the beautiful premium, "Falls of Niagara," photo-lithographed and copyrighted by the publishers of the Western Advertiser, London, Ont. It is a truly fine work of art, impressing the mind forcibly, by truthfulness of detail, with the immense power of that mighty cataract. It is a picture creditable to any dining-room, well worth the subscription price, and it cannot fail to augment the Advertiser's ever increasing subscribers' roll.

Knabe Pianoforte.—It is only a short time ago since these pianofortes were introduced into Boston, but now it is claimed that their purity and brilliancy of tone, their strength and durability, gave them a foremost position in that city. It is asserted of them that for beauty of form, resonance, flexibility of tone, evenness of scale, perfection of action and durability, they have few equals, and that it is the possession of these qualities that has made them favorites with the music-loving public.

The Riverside Herd Dispersion.—This herd of Shorthorns, to be dispersed on 20th February, 1889, by public auction, and owned by Prof. Shaw, Guelph, contains 21 cows, 2 two-year-old heifers, 10 one year-old heifers, the stock bull, British Sovereign, and 9 young bulls, one sired by Imp. Waterloo Warden (4722), five by British Sovereign and three by Canadian Prince (9594). The cows are mostly of the Flates foundation, and are good milkers and good breeders, none of them having been pampered. They comprise animals bred on a foundation from such breeders as the Hon M. H. Cochrane, J. & R. Hunter, Alma; C. G. Charters, Chatham, and the late Geo. Miller, Grantham. Out of a possible two hundred first prizes, animals from this herd have won one hundred and fifty firsts. Catalogues furnished after 10th January. See other references.

Annual Meeting of Central Farmers' Institute. This will take place in Toronto, on the first Tuesday in February, 1889, when a number of topics of vital importance to the farmers will be discussed. The order paper so far as completed is as follows: (1) The advisability of doing away with township shows. (2) Railroad and Ocean Freight; introduced by Mr. A. McD. Allan, Goderch. (3) The question of Statute Labor; introduced by Mr. James Cochrane, Kilsyth. (4) The Erection of an Agricultural Hall in Toronto; introduced by Alderman G. F. Frankland, Toronto. (5) Rendering the work of Farmers Institutes more effective, introduced by Prof. Shaw, Ontario Agricultural College, Guelph. (6) Shall we build a silo? introduced by V. E. Fuller, Hamilton. (7) Agricultural Education; introduced by Mr. G. Copeland, Hespeler. This will be one of the most important farmers' meetings ever held in Canada, owing to the nature of the subjects to be discussed, and the results are being looked forward to with very much interest.

Another "Doddie" Victory at Birmingham.—We learn from our English namesake that Waterside Elena 11954, an Aberdeen-Angus heifer, won the Elkington Challenge Plate and the President's prize for the best animal, bred and fed by the exhibitor, at the Birmingham Fat Stock Show. She was got by Waterside Sir 2408, a son of the Erica bull Etonian 1658, and from Elena 6th, by Edgar Erica 1691, as the name indicates, also an Erica bull, and got by the Erica bull Editor. It will be seen that the is rich in Erica blood, that Sir George Macpherson Grant cultivated so successfully. The tussle was between Elena and a Hereford heifer. The decision was

based on very closely drawn lines, the former succeeding, however, in gaining first place, amid the cheers of her friends. The Polled heifer was 1081 days old, and weighed 1708 lbs., giving a gain of 1.38 lbs. per day, the Hereford heifer was 1339 days old, and weighed 1671 lbs. thus giving a gain of 1.24 lbs. per day. Several good crosses were shown, one specially named by our contemporary was a Hereford Aberdeen cross, the offspring of the Aberdeen Angus bull Waterside Sir 2408 on a Hereford cow. He was considered one of the finest animals in the hall. He was 924 days old, and weighed 1916 lbs., giving a gain of 1.98 lbs. per day. All classes were out in strong force, and the show is stated to have been a success in every way.

A Devon to the Fore at Smithfield.—One seeking to form a conclusion in regard to the standing of our several breeds of live stock, based solely on decisions made at our leading stock shows, will find himself in a maze as he hears of first one and then the other securing laurels of honor. At the Smithfield Club Show a Devon steer secured the championship prize as the best animal at the show. He was 2 years, 11 months and 4 weeks old, and weighed 1705 lbs. Our English namesake credits this animal with being a model of symmetry and quality. The plate for the best cow or heifer was awarded to a cross polled heifer, Pride of Earn, one said to be faultless in symmetry and of a remarkably sweet and attractive appearance. Shorthorns were out in good force and the Herefords were very strong in young steers. Cross breeds were out in greater numbers than usual. In the two-year-old classes a Shorthorn-Galloway cross received first and also a similar cross won honors in the 3-year-old class. Sheep were also well represented, and for the championship pen (of three) Lincoln Cotswolds, Leicester, Oxfords, Shrops, Dorsets and Southdowns were entered. The short leet contained Southdowns, Shrops and cross-breeds. After prolonged examination the decision was given in favor of the Shrops, which were said to be of remarkable good quality, with grand strong necks, great proportion of mutton and fine texture of wool.

Table of Contents.

Table of Contents listing various departments and their page numbers: STOCK DEPARTMENT (1-22), VETERINARY DEPARTMENT (10-12), FARM DEPARTMENT (11-12), DAIRY DEPARTMENT (14-15), POULTRY DEPARTMENT (17-18), APARY DEPARTMENT (18), HORTICULTURAL DEPARTMENT (20-21), HOME DEPARTMENT (22-23), MISCELLANEOUS (23-28).

Stock Notes.

Parties forwarding stock notes for publication will please condense as much as possible. If written separate from other matter, it will save much labor in the office. No stock notes can be inserted that do not reach the office by the 23rd of the month preceding the issue for which they are intended.

Horses.

A Cleveland Bay stallion is advertised for sale in this number, by M. C. Brown, of Meadowvale.

A Percheron stallion for sale or exchange. See advt of Mr Hiram Capes this number.

Dundas & Granby, who make an alteration in their advertisement with this number write as follows: "Our importation comprises a large number of choice stallions and fillies, which went into winter quarters in good form, and are doing as nicely as we could desire. Although we hear a great deal about hard times, trade keeps good."

W. C. Brown, Meadowvale, writes us: "My stud of Cleveland Bays are wintering fairly well. We had very short pasture this fall, so that my stock did not come into winter quarters as fat as other years, but are all in good thrivi condition. My coach stallion, King Fairfield is giving entire satisfaction as a stock horse. He stands 16 1/2 hands high, and weighs 1400, and was awarded first premium at Toronto Industrial last fall; the other young stallions are doing fine. My stock has not increased much this season, having lost four colts from three mares, one having twins, I still had one card left, and on the 11th of September my last mare foaled a very fine filly foal, which pleases me very much."

Shorthorns.

Three Imp. Scotch Shorthorns are offered for sale by J. & W. Russell, Richmond Hill, Ont.

Mr. Edward Jeffs, of Bond Head, offers for sale in this issue six young Shorthorn bulls, and a number of Berkshire pigs. All interested should see advertisement.

W. C. Edwards & Co., of Rockland, Ont., place their card in our directory, and also offer for sale in this issue a number of young pure-bred Shorthorns.

J. Dryden, M. P., Brooklyn, makes a change in his advertisement with this issue, offering a number of imported bulls and an imported stallion for sale. See advertisement.

Mr. F. Martindale, York, Ont., reports as follows: "Sold to Walter Hood, Carleton Place, Ont., a pair of Shorthorn bull calf Waterloo Duke, 2008, 8 months old, got by Waterloo Chief 2099, dam and Duchess of Plaster Hill, tracing to Imp Isabella and 2400; he is a very promising young bull."

Mr. John Currie, Everton, Ont., has sold his imported bull, Baron, to Mr. Jas. Gibb, Brookside. The calves of this bull took first at Ottawa and second at Kingston Provincial Exhibition last autumn. Mr. Currie is careful to keep only choice cattle, and he gives them good attention. He now advertises in our columns two Shorthorn bull calves.

Mr. Jas. Gibb, of Brookside, P. O., has now a herd of 90 Shorthorns. Their bull Crown Jewel, bred by Messrs. Nicholson, Sylvan P. O., Ont., out of Prince Albert, has proven himself to be a good stock getter, having thrown some nice young stock. The Imp. bull Baron worthily heads the herd. A number of choice young bulls are now on hand, fit for service. Mr. Gibb also keeps a few Berkshires, Leicester sheep, and Spanish fowl. See his advt. this issue.

Messrs. Green Bros., Inderkip, report their horses and cattle in fine order. They have a grand lot of calves, bulls and heifers, from both the Earl of Mar and Prince Albert, some of which are for sale. Their new purchase, Eclipse, has already achieved a reputation for himself at the late county exhibition. They have also, for the second year running, secured the sweepstakes at their County Fat Stock Show, for the best fat steer any age, with a two-year-old grade Shorthorn.

Arthur Johnston, of Greenwood, Ont., writes us: "My new catalogue will be ready on or about the 20th of January, 1889. It will contain the pedigrees of quite a good lot of young bulls as I have ever offered to the breeders and farmers of this country, and it will contain the pedigrees of by far the best lot of young females I have ever imported or bred. Catalogues will be mailed free on application to all persons desiring to see them without any regard to business. Stock wintering unusually well. Calves coming fast and strong. Equines for stock are quite as good as in former years. Sales so far are ahead of last year at this time."

We desire to draw the attention of our readers to the important auction sale of Mr. Seth Heacock, of Kettleby, Ont. Many of the cattle are bred from importations from Campbell's, Cruickshank's and Currie's, of Scotland. A number of the cows and heifers are descended from the Princess Gwynne family, direct from imported cows. A voucher for the quality of the flock of Southdowns is to be found in the fact that Mr. Heacock has been breeding them for the last 25 years, using only rams bred direct from imported stock by Mr. F. W. Stoeck, of Guelph; Mr. Robert Marshall, of Richmond Hill, and Mr. J. Jackson, of Abingdon. This is a rare chance for the securing of superior breeding animals for herd, flock and drove.

Under the date of December 17th, F. Lowell & Son, of West Montrose, write us: "We have sold this week to Mr. G. Cummings & Sons, who reside between West Montrose and Eldon, on the River Road and farm, three hundred acres of fine land, the high-bred Bates Seraphina wearing bull, Silver King 5th, bred by us, by Waterloo Duke 11th, a son of the 4th Duke of Clarence (Silver King's dam was Lowell's Seraphina 25th, by Count

WE HAVE A FEW BOUND AND UNBOUND VOLUMES OF THE JOURNAL FOR THE YEARS 1884, '85 '86 and '87. Price per volume, unbound, \$1; bound, \$1.60, post-paid. Address STOCK JOURNAL CO., Hamilton, Ont.

Advertising Rates.

The rate for single insertion is 18c. per line, Nonpareil (23 lines make one inch); for three insertions, 15c. per line each insertion; for six insertions, 12c. per line each insertion; for one year, 10c. per line each insertion. Cards in Breeders' Directories, not more than five lines, \$1 per line per annum. No advertisement inserted for less than 75 cents. Contracts broken by bankruptcy or otherwise, shall revert to the regular rate of 18c. per line.

Copy for advertisement should reach us before the 25th of each month (earlier if possible). If later, it may be in time for insertion, but often too late for proper classification. Advertisers not known at office will remit cash in advance. Further information will be given if desired.

STOCK FOR SALE.

FOR SALE—A few young Berkshire Pigs, of Autumn litters. THOMAS SHAW, Woodburn P. O., Ont.

FOR SALE—Shropshire Down Sheep and Lambs, of both sexes. A number of good ones still on hand. THOMAS SHAW, Woodburn P. O., Ont.

FOR SALE—Several good Shorthorn Bull Calves of different ages. Nearly all red in color and good pedigrees. Will be sold cheap. THOS. SHAW, Woodburn P. O., Ont.

FOR SALE—

TWO CHOICE SHORTHORN YEARLING BULLS, both roan, also a few GOOD HEIFERS. Good, agreeable. Prices reasonable. JAMES GIBB, Brookside P. O.

FOR SALE.—LEICESTER EWE.

Served by the prize ram at Toronto. Also FIVE EWE LAMBS. JOHN WOOD, Freeman P. O., Ont. ja 1

FOR SALE.

Cruickshank Bull (Imp) Endymion (53847). ja 1 J. G. SNELL & BRO., Edmonston, Ont.

SHROPSHIRE FOR SALE CHEAP.

from imported ewes, 2 two-shear rams and 2 shearing ewes. All choice animals. Address: ISAAC N. COBER, Hespeler, Ont. ja 6

Shorthorns and Devons For Sale.

A number of young Bulls and Heifers of each breed, with registered pedigrees, also a few pairs of WHITE HOLLAND TURKEYS. Am overstocked; will sell cheap. ja 2 W. J. RUDD, Eden Mills.

Holstein-Friesian Stock For Sale.

One young Bull, six noted Barnton, aged 6 months, mother imported; also one Bull, 3 months; on as reasonable terms as can be found, stock considered. Correspondence answered. WELLINGTON MUISNER, Port Robinson, Ont. nov 1st.

FOR SALE.

AYKSHIRE BULL CALF, 11 mos. old, and some choice young cows and heifers, all registered in Dominion Ayrshire Herd Book. Also A. J. C. JERSEY BULL CALF, 8 mos. old, 50 per cent. St. Lambert. Would sell or exchange Heavy Draught or Roadster Stallions. CALDWELL BROS., Briery Bank Stock Farm, Orchardville, Ont. ja 1

FOR SALE.

JERSEY and GUERNSEY BULLS

We have a yearling bull of each of these breeds, which, on account of shortage of feed, will be sold VERY CHEAP, if taken soon. Write for prices. THOS. BALLANTYNE & SON, Neidpath Farm, STRATFORD, ONT. dec 31st

FOR SALE.

Shorthorns and Southdowns

Young Shorthorn Bulls and Heifers, got by Imp. Cruickshank and Campbell bulls. Good color and good animals. Also a lot of choice Southdown Rams and Ewes, bred from imported stock. Prices to suit the times. JOHN MILLER, Markham, Ont. oct 1st

SHORTHORNS FOR SALE

Four Bulls, 6 to 10 mos. old, also a number of Young Heifers. All registered in the Dominion Herd Book. W. C. EDWARDS & CO., ROCKLAND, ONT. ja 3

THE NEW BOOK, by J. H. SANDERS, on "HORSE BREEDING," in which the general laws of heredity are exhaustively discussed and applied to the practical business of breeding horses, especially with reference to the selection of breeding stock, and the management of stallions, brood mares and young foals, will be sent to any address, post-paid, on receipt of publisher's price, \$2, or will be sent to any person forwarding us six subscribers to the JOURNAL for 1889. Address, STOCK JOURNAL CO., Hamilton, Ont.

Stock Notes.

Bismark = 1157 =, 3 dam by Sanspareil, by Royal Oxford = 2391 =, to place at the head of his herd of Shorthorns he is now forming. The four heifers we bought at Wm. Murray's sale in May are now in nice shape, comprising: 1. Augusta, Duchess of Victoria, by (Imp.) 38th Duke of Oxford (58172), dam (Imp.) 3rd Duchess of Victoria; 2. Princess Beatrice, by (Imp.) Duke of Holker 5th (4687), dam Princess Antimony, by Earl of Ulster = 601 =, 3 Princess Beatrice and, by (Imp.) Leicester 8th = 979 =, dam Princess Beatrice, by (Imp.) 5th Duke of Holker (4687); 4. Lady Verba, by (Imp.) Duke of Salisbury (52780), dam Verba 17th, by Imp. 4th Duke of Clarence (33597). We are wintering thirty head of Shorthorns, and all in fine health, and our herd is free from any disease, and have an abundance of feed.

Galloways.

James Pomery, manager for Wm Kough, Esq., of Owen Sound, writes us under date of Dec 5th: "I like your JOURNAL splendidly, and would not be without it for twice the money. Our Galloways are all doing nicely. We have sent our old prize-winning bull Closeburn to the butcher, but he has left us some splendid stock. His son, General Gordon, which secured first prize at Kingston Provincial, first at Toronto, and first at London, is now seven months and ten days old, and weighs 520 lbs., which goes to show that if the Galloways are well cared for they will get as heavy as any of the beef breeds.

Holsteins.

W. Muisner, Riverside Stock Farm, Port Robinson, Ont., writes under date December 22nd, as follows: "I have within the last year and a half started a herd of first-class Holstein-Friesians, headed by a bull of the Aegle strain, and imported cows, one of which has just dropped a fine bull calf weighing 120 lbs. at two days old. I have thus far found them superior to all other cattle, either at taking on flesh or at the stall. Although only shown at one of our leading shows, this last fall, they were admitted by all, and carried off four first and two second prizes on six animals exhibited."

A letter from Smith Bros., Credit Valley Farm, reads as follows: "The winter sales of Holstein cattle have nicely begun. This last two weeks we made two sales, a four-year-old, Finette, and a two-year-old, Euthalia Ykema. Finette is a fine, well-built, and useful cow. She has been in the habit of giving a large rail of good rich milk twice a day. Her dam, Griette, has a milk record of 83 lbs. in one day, and her sire's dam a milk record of 82 lbs. a day, and a butter record of 17 lbs. 4 oz. in 7 days. She goes to Mr. D. F. Botsman, Helversum Farm, N. W. Territory. Euthalia Ykema goes to R. Babb, Mitchell. This two-year-old heifer is due to calve on Christmas Day. She gives great promise of being a good milker. Her half-sister, Octia, gave 27 1/2 lbs of milk in 60 days, from October 13th to December 13th of this year, making an average of 451 lbs. for the 60 days. The sire of this heifer is the great prize taking bull Ykema. He was never down without taking first prizes, and frequently took sweepstakes. She is large, well-built, and being in the hands of an energetic man, will make herself known in milk and butter records."

Messrs. J. E. Page & Sons write us as follows: "On the 13th inst. our Holstein Friesian cow, Lady Stuart, dropped a bull calf which weighed 156 lbs. when 24 hours old. It was sired by Clothilde and Artis, 6049 H. F. H. B., who has the longest milk and butter record made by the dam and p. dam of any bull living, viz., an average of 24,811 lbs of milk in one year, and 252 lbs of butter in 7 days. Messrs. Smiths, Powell & Lamb, of Syracuse, the owners of the dam Clothilde and Artis, we that although she was milked as light as possible, with no attempt at a record, and yet she gave 00 dry feed, without green grass, and had had none, 97 lbs., 14 oz. in a day. She has given to Nov. 1st, 4 mos. and 20 days, 10,156 lbs., 8 oz. of milk. She made last spring over 25 lbs. of butter in seven days, and over 104 lbs. in 30 days. In addition to Clothilde and Artis, we have Carlotta's Netherland 6066, H. F. H. B., from our famous cow, Carlotta, 1266, H. H. B., with a better record of 22 lbs., 2 1/2 oz. in seven days; and Netherland Prince, he is a fac-simile of his great sire, and is a full brother to Netherland Carl (owned by Jere. Allis, of Minnesota), which this fall swept the North-west as a show bull, and is considered one of the best in the country. He met in competition Tritoma, Mercedes Prince, who had never before been beaten; it also fell brother to Prince Imperial, who was equally successful in Kansas, where he is owned. Carlotta is due to calve in January next to Clothilde and Artis."

The following is from A. C. Hallman & Co., New Dundee, Ont.: "Our cattle are now home from quarantine, and seem to enjoy their new quarters. They are in good shape considering their long journey and ninety day quarantine. With the new lot just received and our former herd, we have now about forty head to select from. We were always determined to establish a herd second to none in the Dominion, and we think we have now fairly succeeded. We have now three calves dropped from our new lot. Lady Lorraine, a choice three-year-old, with a two-year-old butter record of 12 lbs., 5 oz., gave birth to fine bull calf, sired by Prince of Aitiss, a bull of great renown. Ralthe and, a two-year-old (granddaughter of Netherlands Prince), also dropped a fine bull calf, sired by Clothilde 4th Aitiss. This is a calf of great breeding. His g. dam, Clothilde 4th has a better record of 23 lbs., 10 1/2 oz. in a week, and her dam, the great Clothilde, sweepstake for better at the New York Cattle and Dairy Show in 1857, competing against all breeds, with her milk record of 36,001 lbs. and 2 oz. in one year, and a better record of 28 lbs., 2 1/2 oz. in one week, besides, this calf traces back to the great better bull, Netherland Prince. Acme, a cow that stood in the gold medal herd in 1851 in New York State, dropped a fine heifer calf of much promise. We expect more calves shortly of very rich breeding. Since our last report we made the following sales: a yearling heifer to Mr. Robt. C. Hunter, Peterboro, from our last importation; bull and two heifer calves to Messrs. Head & McNaught, Rapid City, Man. This is our third sale to that Province since spring. Holsteins seem to do well in that country. A bull calf to Mr. Teinant, Princeton. We sold a bull and heifer in that section in 1885, which has now sold us three bulls more. This is another

RECORDED SHROPSHIRE FOR SALE—A choice flock of 13 (recorded in A. S. R.), comprising 8 ewes and 5 rams, from one to three years old. Two of the ewes imported. Will sell cheap for cash, on account of dissolution of partnership. W. & M. Bell, Springfield, Oxford Co., Ont. ja 1

Bronze Turkeys For Sale.

Fifteen pairs of Mammoth Bronze Turkeys for sale. I won the following prizes this season: At Toronto, first and third; Collingwood, two firsts and one second; Stayner, first (only one entry). Male at head of pen weighs 43 pounds. Price, \$5 and \$7 per pair, according to size and color.

W. J. BELL,

Banda P. O., Simcoe Co., Ont.

SHORTHORNS FOR SALE.

3 Imported Shorthorn bulls 22 months old, bred by Mr. Campbell, Kinellar, Aberdeenshire, Scotland, and selected by him as the best raised by him in 1887. A few young bulls, home bred, from imported cows also a few heifers, imported and home bred. J & W. RUSSELL, Richmond Hill, near Toronto, Ont. jan 3

Ayrshires and Oxford Downs.

MR. WM. RODDEN, of Plantagenet, Ont., announce his wish to discontinue extensive farming and stock raising, and will sell out in one lot, or in lots to suit purchasers, on reasonable terms, 25 head of very fine Ayrshires aged 6 mos. and upwards, 18 head of Oxford Down Sheep, rams and ewes. Some are imported, others bred from imported. Send for catalogues. jan 1st

FOR SALE

6 CHOICE YOUNG SHORTHORN BULLS and a fine lot of Berkshires, very, very CHEAP. Send for prices. EDWARD JEFFS, Bond Head, Ont. ja 3

FOR SALE—CLEVELAND STALLION, bred from prize-winning stock. For further particulars apply to W. C. BROWN, Meadowvale, Ont. ja 3

SHORTHORN BULL

FOR SALE.

12 months old, Cruickshank blood. Sire and dam both won first prize at Provincial fairs.

H. & W. D. SMITH, Hay P. O.

Exeter Station, on G. T. R., 1/2 mile.

SHORTHORN BULLS FOR SALE

We offer the following well-bred Scotch bulls for sale:

MARQUIS OF NEIDPATH, roan, calved Sept. 11th, 1887, sired by the Duthie bred bull METHUEN HAZO (imp.), a son of the \$1000 cow purchased for the Exp. Farm; dam, Marchioness 4th (imp.) by Cayhurst (47560); and dam, Marchioness of Derby, by the great show bull Earl of Derby 2nd (31061), etc. Also

2nd MARQUIS OF NEIDPATH, red with little white, calved April 1st, 1888, sired by Lord Stratford, a son of Methick Hero; dam, Marchioness 6th by Furbelou Duke (imp.); and dam, Marchioness 4th, as above.

They are first class bulls, and fit to head any herd.

THOS. BALLANTYNE & SON.

Neidpath Farm, STRATFORD, ONT. dec 3

FOR SALE.

My stock bull STATIRA DUKE 12th (50518), Bates; color, dark red; 5 years old; splendid server and a sure getter. Has every year from a calf taken first prize and diploma at county and other local shows. Would exchange him for one equally as good.

BULL CALVES of his get also for sale. A HOLSTEIN BULL CALF, 8 months old, from imported stock. Dam, sire from Lord Barrington. Grand dam imported.

SUFFOLK PIGS, 6 weeks old, for \$5 each, or \$9 a pair. Address, F. J. RAMSEY, MOUNTDALE STOCK FARM, DUNNVILLE, ONT.

LORRIDGE FARM

SOUTHDOWN SHEEP.

Flock first established 1857. Commenced exhibiting 1867. Since then have taken over 1,200 prizes, including a large number of medals and diplomas.

Imported Rams used only.

Stock for sale.

ROBERT MARSH, Proprietor RICHMOND HILL, Aug. 17th, 1888.



\$200 GIVEN AWAY for the Largest Spanish King Onions grown from seed procured from us. Full particulars free. Address THE HOUSEKEEPER, Minneapolis, Minn. jan 3

Stock Notes.

evidence that where Holsteins have once gained a foothold, they are bound to stay. The demand for Holsteins is very strong, enquiries coming in from all quarters. Our three year old bull, African Prince, is now for sale. He is a bull of rare individual merit and choice breeding. We solicit a call from intending purchasers before buying. We can suit the most particular

Sheep and Pigs.

John Snell & Sons, Edmonton, Ont., report a very much improved demand for Cotswolds, and the following recent sales at good prices: To Uriah Privett, Greensburg, Ind., ram and ewe; to Frank Wilson, Jackson, Mich., 2 rams, 2 ewes; J. B. Heakless, Knightstown, Ind., 1 ewe; J. Potter, Sulphur Springs, Montana, 13 rams; H. Doner, Bushnell, Ill., 1 ram; Putson Bros., Wallen, Ind., 1 ram lamb; Jos. Ward, Marsh Hill, Ont., 1 imported ram lamb; J. Runciman, Orwell, Ohio, 5 rams and 4 ewes; A. & W. Carruthers, Kerwood, Ont., 1 ram lamb; Paul Langan, Belmont, Wis., 1 ram; Brian & Williams, Westchester, Ind., 1 ram and 2 ewes.

John Snell's Sons, Edmonton, Ontario, have recently sold Berkshires as follows: to E. V. Miller & Co., Morley, Ia., 1 boar; J. H. Blumer, Fredonia, Pa., 1 boar; John Thompson, Uxbridge, 1 boar; Ont. Ag. College, Young, Princeton, Iowa; J. S. Ross, Yonvil, Iowa; Kingston Penitentiary, boar; W. M. Sproule, Westbrook, Ont., boar; R. M. Brown, Bridgen, Ont., boar; W. C. Edwards, M. P. Rockland, Ont., sow; Andrew Cochrane, Almonte, Ont.; Edward Horton, New Dublin, Ont., boar; C. S. Smith, Tilsenborg, boar.

Messrs. R. & J. Gurnett, of Ancaster, report the following sales of pure bred Chester White pigs since 25th October, 1888: 1 sow, G. W. Frank, Carleton Place, 1 boar and sow to Samuel Brett, Alberton; 1 sow to Daniel Hanley, Ancaster; 1 sow to Wm. Filman, Ancaster; 1 sow to Fred's Reiniche, Ancaster; 1 boar and sow to Jas. Hunter, Carleton Place; 1 boar to Wm. McCormick, Copetown; 1 boar and sow to J. Silverthorn, Scotland; 1 boar to Jas. Facey, Ratho; 1 boar to James Field, Ancaster; 1 sow to John Brett, Carleton Place; 1 sow to John Tweedle, Abingdon. Many thanks to the JOURNAL, as most of these sales have been made through our advertisement in the JOURNAL. Our pigs are doing well, and we have a few nice young sows and boars for sale yet.

John Jackson & Sons, Woodside Farm, Abingdon, Ont., write us as follows: "We have made the rounds of the shows with our usual success, securing some 60 prizes on our South downs, amounting to over \$500. The following is our list of sales since August: Peter Metler, North Pelham, 1 ram lamb and 2 shearing ewes (imp.); Robt. Shaw, Glanford, 2 imp. shearing ewes; A. Symington, Blackheath, 1 ram lamb; A. N. Carr, Lyons, Pa., 2 rams; Phil. Hubbard, Caton, N. Y., 1 ram lamb and six ewes; L. Griswold, Wayland, N. Y., 1 shearing lamb; G. D. Doover, Avon, N. Y., 1 ram and 2 ewe lambs; Ontario Experimental Farm, Guelph, 1 shearing ram and 5 shearing ewes (all imp.); J. W. Russell, Hornby, 1 ram, 1 two-shear ewe and 1 imp. shearing ewe; T. C. Douglas, Galt, 1 ram lamb and 2 shearing ewes (all imp.); Geo. Baker, Simcoe, 2 imp. shearing ewes; Mr. Burgess, Burgessville, 1 ram lamb; A. Beattie, Vanocck, 1 ram lamb; Mr. Bowman, Flamboro, 2 shearing ewes and 1 ram lamb; L. C. Anderson, Anderson, Ohio, 1 shearing ram; J. A. Jackson, Abingdon, Ont., 2 shearing ewes, 1 ram and 1 ewe lamb."

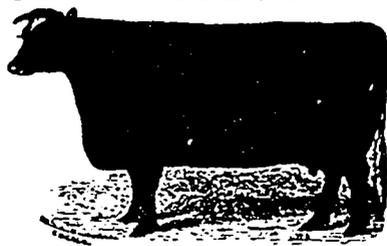
John Miller, Esq., Broughm, Ont., writes as follows: "Since August 1st we have had unprecedented sales in Shropshires. We have sold in Canada, 20 in York State, 13 in Ohio 90; Pennsylvania, 19; Mich., 207; Iowa, 15, and Wisconsin, 92; making in all 400 sheep disposed of in four months. We have still lots of enquiries, but have nothing left but imported ewes and rams. We have 90 ewes in lamb, six ewe lambs and six rams. We will part with 50 imported shearing ewes yet. They have done well, and we think them the best lot that have ever been on one farm in Canada; half of them are in lamb to our unbeaten ram lamb, that so successfully headed our flock at Kingston and Toronto, and the other half are in lamb to Director, the yearling son of the great Rector, imported for our own use. We have also sold five Clydesdale stallions in the last four months, and several bull calves. We have the best two-year-old stallion we have ever imported, and two others that are extra good; also several more Shorthorn bulls and heifers, which we are offering at reasonable prices. Canadian horses have never been in more demand, and times seem to be generally improving. The open autumn will do much toward making the feed stand until grass comes."

The Hollett Bros., of Cassel, Ont., write: "This month we have to report a valuable addition to our Holstein-Friesian herd. On the 24th of Nov. our noted cow, Trijntje, dropped a beautifully marked bull calf, sired by our Aaggie bell, Maad Hamming's Neptune. This youngster is a direct descendant of the most noted families of this valuable breed, having in his pedigree such bulls as Barrington, Neptune, Bunley (of T. G. Yeomans fame), and Billy Boelyn, the greatest sire living, and such cows as Nixie L., with a milk record of 76 lbs. per day, and 18 lbs. of butter in seven days; Hamming, 60 lbs. of milk in a day; Sybil and, with butter record of 17 lbs. 7 ozs. in seven days at 3 years old. Aaggie, 84 lbs. in a day, 16,000 lbs. in a year. Trijntje is one of the greatest cows living, having in her 11th year (and while a cripple) made a record of 95 lbs. in a day, and tested 13 lbs. 9 ozs. of unsalted butter in seven days on winter feed. She is a remarkably fine and large cow, and a grand breeder. She won sweepstakes prize in her native country for producing most and best milk of any cow on exhibition. Her daughter, Queen of the Hill, also won sweepstakes prize this fall at Lay State Fair for producing most butter in 24 hours (Jerseys and Ayrshires competing). We believe this calf to be without an equal in the Dominion."

Poultry.

Wm. Collins, who places his card in our directory, has taken a number of prizes on his fowls, including ten prizes on ten pair

DISPERSION SALE OF SHORTHORNS



The entire Riverside Herd of Shorthorns, owned by PROFESSOR SHAW, OF GUELPH, and formerly editor of this JOURNAL, will be sold by public auction,

At Riverside, on Feb'y 20th, 1889.

It consists of at-out 50 head of well bred animals, only in good breeding condition, and not in any way injured by pampering for breeding purposes. About nine head are young bulls, from 6 to 18 months old, fine lusty fellows, kept in proper condition for going well ahead when they are sold. They are nearly all red in color, and from the Mantilini Booth bull, British Sovereign, bred by James Hunt, Ains, Ont., and a grandson of the great Sir Sirmeon, for 50 many years stock bull in the herd of Mr. Hugh Aylmer, West Dereham Abbey, England. The balance of the herd are females, mostly young, and right in color, form and pedigree. A goodly number are first prize winners at many prominent exhibitions.

There will also be a number of

High-Bred Grade Shorthorn Females sold, some of them first prize winners at Toronto Industrial, Kingston Provincial, and Great Central, Hamilton, 1888.

FARM IMPLEMENTS

New from the manufactory, will also be sold, as Reaper, Fanning Mill, Sulky Plow, etc. Full particulars will be given in next issue.

TERMS—All sums under \$50, cash; over that amount, 3 months' credit on furnishing approved notes. Discount will be allowed for cash at the rate of 6 per cent per annum.

Intending purchasers will be met at the LIVE-STOCK JOURNAL office, Hamilton, on the morning of the sale.

Catalogues furnished on application after 10th Jan. next. This sale will furnish an excellent opportunity for securing useful young bulls or foundation females for new herds.

THOS. SHAW, 48 JOHN ST. SOUTH, HAMILTON, or, EXPERIMENTAL FARM, GUELPH.

IMPORTANT AUCTION SALE

Durham and High-Grade Shorthorn Cattle, Southdown Sheep, and Berkshire Pigs,

AT OAKLAND FARM,

The property of SETH HEACOCK, 4 miles from Aurora Station, G. T. R.,

ON WEDNESDAY, FEB. 6, 1889.

About 30 head of pure Durhams, including males and females, all registered in D. H. B., and about 10 head of Shorthorn Grades; also 40 pure Southdowns, bred direct from imported stock. The whole to be sold without reserve, as farm has been leased.

SALE AT 12 O'CLOCK SHARP.

TERMS—\$50 and under, cash; all sums over that amount, 3 months credit by furnishing approved joint notes. Catalogues on application after Jan 15th. to

SETH HEACOCK, Kettleby, Ont.

CREDIT AUCTION SALE OF SHORTHORNS.

A Credit Auction Sale of Major Lloyd's Herd of Shorthorns, together with Horses, Implements, etc., will be held at Oakville, in March or April next. Further particulars will appear later on.

FOR SALE—PERCHERON STALLION

Charleston 1740, 304. Write for particulars to FRANCIS RUSSELL, Mt. Forest, Ont.

Stock Notes.

at St. Thomas, 17d seven prizes on ten entered at Aylmer. See his advertisement.

W. J. Bell, Banda P. O., Ont., has sold to James Anderson, Guelph, the bronze turkey pullet, winner of 1st prize at Toronto last fall. He has a number of good birds still on hand for sale, (see adv.) among which are two pair weighing 43 lbs. per pair

Stock for Sale.

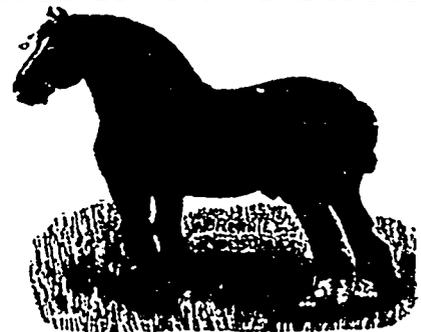
Caldwell Bros., of Orchardville, offer in this issue for sale or exchange an Ayrshire bull calf and a Jersey bull calf.

W. J. Reid has for sale a number of Devons and Shorthorns. See advt. this issue.

AUCTION SALE

Of High Class Pedigree

IMPORTED CLYDESDALE HORSES



The undersigned has received instructions from Wm. Rennie, Toronto, to sell his entire stock of imported Clydesdales, viz., fifteen stallions and seven mares, on TUESDAY, MARCH 5th, 1889, at the stables, 87 Duchess St., Toronto. As Mr. Rennie is retiring from business, all will be sold without reserve. This will be a rare opportunity for farmers to secure first-class imported Clydesdales for breeding purposes, at reasonable prices. Six Shetland Ponies will also be sold. For Catalogue address WM. RENNIE, Toronto. ja-3 GEO. ANDREW, Auctioneer.

Important Auction Sale

Durham and Grade Shorthorn Cattle, Clydesdale Horses and Berkshire Pigs

AT SPRUCE PARK FARM

(The property of the late James Deans) 2 miles west of PARIS STATION, G. T. R.

On THURSDAY, JANUARY 24th, 1889

22 head of pure-bred Durhams, all registered in the D. H. B. 23 head of Grade Shorthorns (good). The whole will be sold without reserve, as the farm has been leased. Sale at 10 o'clock sharp.

TERMS—\$10 and under cash; over that amount 12 months' credit by furnishing approved joint notes. Catalogues on application after January 1st, to

MRS. ELIZABETH DEANS, (Administratrix), Paris Station P. O. or, D. A. ANDERSON, Auctioneer, Paris P. O. Terms met on day of sale at Paris Station. dec-2

Imported Clydesdales For Sale IMPORTATION OF 1888.



At prices moderate and terms to suit purchasers we offer a

SUPERIOR LOT OF CLYDESDALE Stallions and Fillies

ranging from one to four years old. Several prize winners in the leading shows of Scotland and Canada, securing three 1st prizes and two 2nd and a third at the Provincial Exhibition, Kingston; also first and third at the Canadian Clydesdale Association Show, Toronto, 1888. Including gets of six celebrated horses as Darnley, Macgregor, Lord Erskine, Lord Hopetown, St. Lawrence, Sir Hildebrand, Doocaster and Old Times. Our horses are all selected with the greatest care by one of the firm from the best studs in Scotland. Parties wishing to purchase richly-bred animals of superior individual merit should inspect our stock. Catalogues furnished on application.

DUNDAS & GRANDY, Spruce Park P. O. Residence about 3/4 mile from Cavanville station, C. P. R. By telegraphing us visitors will be met at Cavanville.

10 NOVELS, Illus. Catalogue, and a large paper 3 mos for 25c. Advertiser and Farmer, Bay Shore, N. Y. ja-4

SHORTHORNS FOR SALE.

A fine SCOTCH SHORTHORN BULL, fit for service, sired by Roan Prince (imp.), also a few good COWS and HEIFERS.

H. J. DAVIS, Box 790, Woodstock, Ont.

SHORTHORN BULLS FOR SALE

12 and 14 mos. old, one red, the other roan, sired by (imp.) BARON (52434). For further particulars apply to JOHN CURKIE & SONS, Everton, Ont.

SHORTHORN BULLS.

FOR SALE—Seven Shorthorn Bulls (Bates) from seven to eighteen months old, sired either by 5th Duke of Holker (imp.) = 12422 = (44687), or Duke of Salisbury (imp.) = 9250 = (58780). Excellent animals of good pedigree and chiefly red. Apply to JOHN IDINGTON, Stratford, Ont.

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 mos., which is eligible to N. S. H. B.

A. C. BELL, Troutbrook Farm, New Glasgow, N. S.

STALLION FOR SALE.

PURE GOLD Rising three years old; stands 16 hands; weight 1,150 lbs.; sired by Morgrave Gold Dust, dam Whalebone, by Buckland's imported British Champion; color, chestnut; as handsome as a picture; has taken a number of first prizes. This stallion would have received the first prize at Buffalo only for a temporary injury to his front leg at time of which he has entirely recovered.

JAMES MATTHEW, ACTON.

PONIES FOR SALE.

One dark brown, 13 1/2 hands, 700 lbs., from T. B mare and half Arab stallion. One light brown, 13 hands, 600 lbs., from a 4 minute trotting Exmoor pony mare, and a 14 1/2 hands, Phil Sheridan stallion, 2.40. Both very kind and nicely broken to saddle. Address:

JAMES MOODIE, Eschol Grove Stock Farm, CHESTERVILLE P. O., Dundas Co., Ont.

FOR SALE.

TWO IMPORTED HORSES

ONE Cleveland Bay, 3 years old, weighs 1470 lbs., 16 hands high; winner of 3 first prizes and 1 silver medal. One Clydesdale, 2 years old, weighs 1,580 lbs., 16 1/2 hands high, and registered in 10th vol. C. S. B. of G. B., also C. S. B. of Canada, winner of 4 first prizes; also 12 varieties of pure-bred Poultry, at low prices. Bronze Turkeys a specialty. Correspondence answered by sending 3 cent stamps. Address:

MAJOR THOS. HODGSON, Port Perry, Ont.



For Sale or Exchange.

The Dapple Gray Percheron Stallion **VOL AU VENT 1233**, Foaled 1877. Imported from France by M. W. Durham, Illinois, 1881. Recorded in the Percheron Norman Stud Book (Vol. 2), at present owned by the Lansdowne Percheron

Horse Association. The above stallion is for sale, or exchange for a pure-bred Percheron Stallion. This is a good stallion, sound and gentle, and a sure foal getter. Apply to A. D. McNEIL,

President Percheron Horse Association.

OR, HIRAM CAPES, Secretary, Ganarque P. O., Ont.

AUCTION SALE!

The subscriber will offer for sale at his residence, in the **TOWNSHIP OF WATERLOO**, Half a mile from Hespeler Station, on the G. T. R. **On Wednesday, 16th January, 1889**, at 1 o'clock p.m., the following valuable stock.

HORSES—2 heavy draught brood mares, 7 years old, in foal to the imported Clyde horse Tarry Rob; 2 heavy draft geldings, rising 5 years old; family driving mare, 11 yrs. old, perfectly reliable; heavy draft brood mare, 11 yrs. old, in foal to imp. Clyde horse Tarry Rob; gelding, 3 yrs. old, by Sadler's Suffolk Pasch horse, Young Hero.

CATTLE—3 Shorthorn Durham bulls, from 14 to 16 mos. old; Durham cow, with heifer calf at foot, heifer in calf. All registered or eligible for registration in the new herd book.

SHEEP—6 Shropshire Down ewes, in lamb to an imported buck; 14 Shropshire Down ewe lambs and 4 ram lambs. All bred from imported stock. The lambs were got by the imp. buck at the Model Farm. Imported Shropshire Down shearing ram, bred by Mr. Williams, of Newton, on the hills of Shrewsbury, and imported by Mr. John Campbell, Jr., of Woodville. 4 grade Southdown ewes, in lamb to Shropshire buck; 2 grade ewe lambs, and grade shearing buck. 5 pure bred Southdown ewes, supposed to be in lamb.

TERMS—\$10 and under, cash; over that amount, 9 mos. credit on approved joint notes. 6% per annum off for cash. JAS. TAYLOR, Auctioneer. JAMES P. PHIN, Proprietor.

PERCHERON HORSES!

SAVAGE & FARNUM,

ISLAND HOME STOCK FARM, Grosse Ile, Wayne County, Michigan. About 200 pure-bred animals on hand. Prices reasonable; terms easy. Horses guaranteed breeders. Large catalogue with history of the breed free by mail. Address SAVAGE & FARNUM, Detroit, Mich.



FRENCH COACH HORSES.

Beautifully formed high-stepping Stallions and Mares, superb action, bred under the patronage of the French Government. For catalogue and history of the breed address

Savage & Farnum, Detroit, Mich.



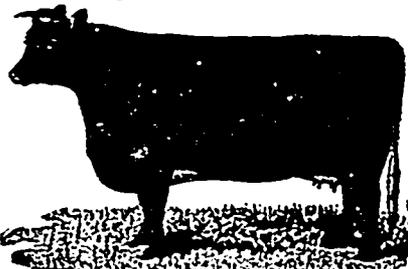
CLYDESDALES; SHORTHORNS AND SHROPSHIRE. JOHN MILLER, Brougham, Ont.



has on hand for sale a large collection of pure-winning animals of the above breeds. The Clydesdales are large and of the best quality. The Shorthorns are of the best Scotch families and of superior individual merit.

Particular attention is called to our Stallions and young Bulls, which will be offered at moderate prices. Terms easy. Residence, 3 miles from Claremont Station, C. P. R., or 7 miles from Pickering, G. T. R., where visitors will be met by telegraphing us at Brougham. Correspondence solicited.

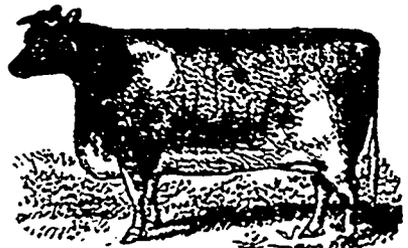
J. Y. REID, HILLSIDE FARM, (2 1/2 miles south from Paris.)



BREEDER of Shorthorn Cattle, all registered in the new Dominion Herd Book. The highly bred Bates bull, 7th Earl of Darlington, bred at Bow Park, at head of herd. The herd is composed of a choice lot of young cows and heifers, all of the ROAN DUCHESS strain. Young stock at all times for sale. Apply to

James Goddio, Manager, PARIS, ONT.

JOSEPH REDMOND PETERBOROUGH P. O. - ONT., CANADA.



I have still on hand and for sale an excellent lot of imported bulls, heifers and young cows, besides an exceedingly good lot of home-bred heifers and bulls all by imported sires and mostly from imported dams. I can supply intending exhibitors with first-class show animals of either sex and of various ages, from calves upward. Of my last imported ten were from Bruce and Crinckshank breeding, all show animals. Peterborough is on the C. P. R. and G. T. R. Six trains daily. Write or wire me when to meet you. Will be pleased to show the stock, whether you purchase or not.

JOSEPH REDMOND.

Farmers will find it profitable to read the advertisements, and will confer a favor by mentioning this Journal when corresponding with advertisers.

MAPLE LODGE STOCK FARM

We breed and have

FOR SALE

Shorthorn Cattle
Leicester Sheep

AND
Berkshire Pigs

of the choicest quality and best breeding.

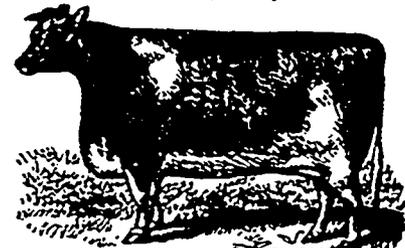
Herd established 1857.

Our stables are one mile west of Lucan crossing, on Grand Trunk and London, Huron & Bruce Railways.

Several females and young bulls, sired by Duke of Colonus = 9254 = can be purchased now at very moderate prices. We are pleased to show our stock.

JAS. S. SMITH, MAPLE LODGE P. O., ONT.

ARTHUR JOHNSTON, Greenwood, Ont., Can.



I HAVE still on hand and for sale an excellent lot of imported Bulls, Heifers and young Cows, besides an exceedingly good lot of home-bred Heifers and Bulls—all by imported sires and mostly from imported dams.

I can supply intending exhibitors with first-class show animals of either sex and of various ages, from calves upward.

I have also a good lot of imported CLYDESDALE STALLIONS and MARES for sale.

Claremont Station, C. P. R., or Pickering Station, G. T. R. Write or wire me when and at which station to meet you. Send for catalogue. 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-1 Shorthorns

Baron Constance 10th heads the herd.

Leicester and Cotswold Sheep, Berkshire Pigs,

THOROUGHBRED AND HEAVY HORSES OF ALL KINDS.



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

J. R. MARTIN, CAYUGA P. O., ONT.

AGENTS wanted for the JOURNAL at every post-office.

THE GLEN STOCK FARM,

Innerkip, Oxford Co., Ont.

**SCOTCH SHORTHORNS,
SHIRE HORSES,
BERKSHIRE PIGS.**



Herd headed by imported Earl of Mar (47815), winner of 11 gold medals at the Grand Dominion and 30th Provincial Show, and numerous other prizes. 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 Canada Pacific and Grand Trunk R. R.

GREEN BROS., THE GLEN, INNERKIP.

IMPROVED YORKSHIRE PIGS

SHIRE AND CLYDE HORSES.

SHROPSHIRE SHEEP.

J. Y. ORMSBY, F. S.

ORMSBY & CHAPMAN,

GEO. S. CHAPMAN

English Shire Horse Society.
Dominion Clyde Horse Association.
English Nat. Pig Breeders' Association.
American Shrop. Sheep Breeders' Assoc.

ONTARIO LODGE,
OAKVILLE, ONTARIO

Imported and home bred stock for sale.
Every pedigree guaranteed. Prices low.
Correspondence promptly attended to.

All our pigs registered in the English Herd Book. "Good Stock with Straight Pedigrees," our motto.

HILLHURST HERDS

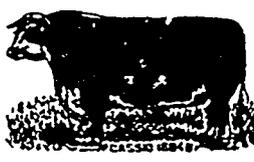
HEREFORD,

Aberdeen-Angus and Jersey

HEIFERS, COWS AND YOUNG BULLS FOR SALE

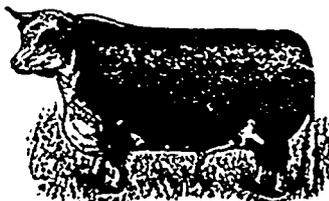
At reasonable prices. Send for new catalogue.

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



POINT CARDINAL HERDS.

THE TUSHINGHAM HEREFORDS



HEREFORDS

Selected with great care from the celebrated herds in England. At the head of the herd stands the imported Marlow bull Rambler 6th (6630) 1354.

SHORTHORNS

Heifers and bulls for sale, mostly sired by imported Duke of Hazelton 68th, 65797.
Also a number of fine Hereford grade heifers and young bulls.

G. F. BENSON, Cardinal, Ont.

THIS herd, grounded on selections from the best blood in England, is remarkable for the number and uniformity of the good calves that it has produced during the three years of its existence, owing in a great measure to the excellence of the stock bull Tushingham (8127), by Charity 3rd (6350), by The Grove 3rd (5051). Several young bulls of his get are held for sale.

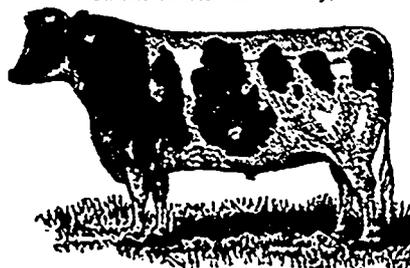
J. W. M. VERNON,
Waterville, P. Q.

Tushingham House.
WATERVILLE is on the main line of G. T. R., not far from the United States boundary.

J. E. PAGE & SONS,

AMHERST, NOVA SCOTIA,

On line Intercolonial Railway.



Importers and Breeders of

HOLSTEIN-FRIESIAN CATTLE

Including strains of the best milk and better families living. Herd headed by CLOTHILDE and ARTIS, whose dam Clothilde 2nd, gave at 4 years old 21,609 lbs. of milk, and made 23 lbs. 4 oz. of unsalted butter in seven days when six years old. G. dam, Clothilde, winner sweepstake prize at New York Dairy Show, has milk record of 25,060 lbs. of milk and 28 lbs. of unsalted butter in seven days. Sire, Artis, winner first prize at New York Dairy Show.

Young stock, all ages, for sale, including Carlotta's Netherland Prince, dam Carlotta, with butter record of 27 lbs. 1 oz. unsalted butter; sire, Netherland Prince. Prices low for quality of stock.

OAKLANDS 'JERSEY' STOCK FARM

(All registered in the American Jersey Cattle Club (Herd Register).)



Cows with well-authenticated test of from 24 lbs. to 24 lbs. 13 oz. in one week, and from 81 lbs. to 106 lbs. 12 1/2 oz. in 31 days are in this herd. Young bulls (registered in the above herd book) for sale from \$100 to \$500 each.

A herdsman always on hand to show visitors the stock, and the stock-loving public are always welcome.

VALANCEY E. FULLER, Hamilton, Ont.

BROOKSIDE FARM

New Glasgow, Pictou Co., N. S.,

STANDARD-BRED TROTTERS

American Cattle-Club Jerseys.

A. C. HALLMAN & CO.,

NEW DUNDEE, WATERLOO CO., ONT.

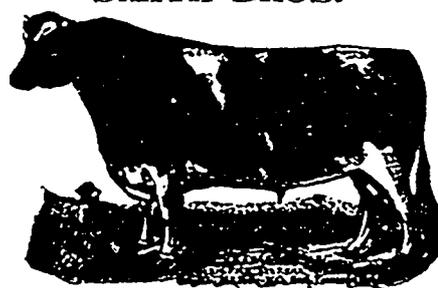


Importers and Breeders of Thorough-bred

HOLSTEIN-FRIESIAN CATTLE;

Herd headed by the noted prize-winner Prairie Aggie Prince 1st P. Q. B. No. 2, first prize at the Industrial and Provincial in 1880; dam, Prairie Flower, 5 yr. old butter record of 20 lbs. 1 oz. unsalted butter per week. This herd has been crowned with more honors in the show ring than any other herd in Canada. Selections made from the finest herds and most noted milk and butter producing families in America. Every animal selected for its individual merit—symmetry, size and weight a special object. Our motto, "QUALITY." Stock for sale. Visitors welcome. Correspondence solicited.

**CREDIT VALLEY STOCK FARM.
SMITH BROS.**



CHURCHVILLE, (FEEL CO.) ONTARIO,
Breeders and Importers of Pure-bred Registered

**HOLSTEIN-FRIESIAN CATTLE
SADDLE and CARRIAGE HORSES.**

Stock always on hand for sale. Send for catalogue. Visitors always welcome.

JAMES DRUMMOND,

Petite Cote, Montreal.

Importer and Breeder of

PURE-BRED

AYRSHIRE

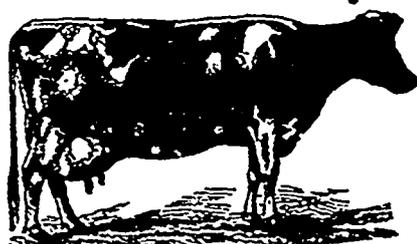
CATTLE

Of Large Size, and from Choice Milking Strains.

The herd numbers 65 head, and for three years in succession has won Provincial or Dominion prize as best milkers. The imported bull PROMOTION (3212) at head of herd.

Young Stock on hand at all times for sale.

The Manor Stock and Dairy Farm



HOME of the imported Holstein-Friesian bull MARS H. ELLIS No. 661, Vol. 1, H. F. H. B., selected in North Holland by special request, and whose 3 calves secured first prizes at the Dominion Exhibition, held at Sherbrooke, Que., Sept. last, 1886.

Parties wishing to secure bull calves or yearlings from such a grand individual, and out of nothing but imported Holstein-Friesian cows, will find it to their advantage to write to

B. N. RITCHIE,
St. Anne la Perade, Co. Champlain,
on line C. P. R., near Quebec.

No Reserve. All stock for sale, and in A1 condition.

John McMillan, M. P. & Sons,
CONSTANCE P. O., ONT.,

Importers and Breeders of
CLYDESDALES
AND
Canadian Draft Horses



Stallions and Fillies, from one to five years old, always on hand

FOR SALE. PRICES REASONABLE.

Our selections are made with great care from the best blood in Scotland, including such strains as the Darnley, Prince of Wales, Newhope, Gilderoy, etc., etc.

RESIDENCE, Huron Co. Ont., 31 miles from Seaforth, and eight miles from Clinton stations.

Correspondence solicited, and visitors always welcome. nov-17

PERCY & YOUNG,

Bowmanville, Ont.,

Home of the Provincial Champion
Manfred (1758).

Have on hand for sale, on very reasonable terms, their 1887 importation, consisting of 8 very choice and carefully selected



REGISTERED CLYDESDALES

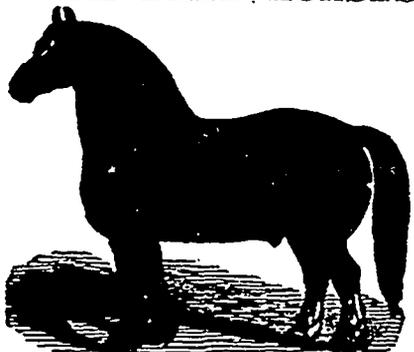
prize winners, of very superior quality, form and finish, consisting of 3 two-year-old stallions, 2 one-year-old stallions, 1 four-year-old mare, 1 filly two years old, 1 one-year-old filly.

Our importation consisted of the get of Lord Erskine, Cairnbrogie Keir, Good Hope (by Darnley), Crown Jewel and other noted sires.

We invite the attention of intending purchasers to the rare individual merit and excellence of our stock.

Also two very fine Canadian-bred Stallions, 3 and 4 years old, almost solid colors, sure foal getters.

SHIRE BRED HORSES



MORRIS, STONE & WELLINGTON
IMPORTERS, offer for sale choice Stallions, Mares and Fillies, which are registered in the English and Canadian Shire Stud Books, including prize winners at the Royal Agricultural in England, and the Industrial at Toronto.
MORRIS, STONE & WELLINGTON, Welland, Ont.

GRAHAM BROS.,
CLAREMONT, ONT.

RESIDENCE ONE MILE FROM CLAREMONT STATION.

Importers of Registered

Clydesdale

STALLIONS AND MARES

constantly on hand and

FOR SALE

At reasonable terms.

The importations of 1887 comprise a large number of one, two, three and four-year-old registered stallions and mares, the gets of such sires as Macgregor (1487) Darnley (222), and Prince of Wales (573). Also a few choice **SHETLAND PONIES**.
Correspondence solicited, and visitors always welcome.

JAMES HUNTER, ALMA, ONT.

Importer and Breeder of

SHORTHORN CATTLE,
CLYDESDALE HORSES,
AND SHROPSHIRE DOWN SHEEP.

Stock of both sexes for sale. mar-7



GEORGE G. STEWART,
IMPORTER.
Howick, Chateauguay Co., Prov. of Que.



OFFERS
FOR SALE
On Reasonable Terms
Choice
STALLIONS
AND
FILLIES

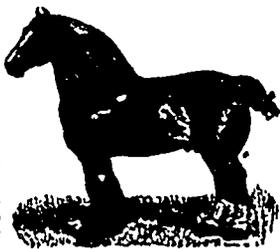
Which are registered in the Clydesdale Horse Society of Great Britain and Ireland. One of my present importation is Duran Bru, winner of the first prize at the Stormont Union Show, Scotland, last year as a year old.
Correspondence solicited, and visitors always welcome.

Imported Clydesdales For Sale.

FROM one to four years old, stallions and fillies from the best studs in Scotland, including get from Macgregor, Harold, Knight of Snowdon, Sovereign, Crown Jewel, McMaster, What-Care-I, Clyde, Scotts, Laird Craford, etc., etc.

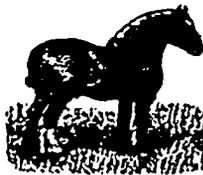
The stock is selected by myself with great care. Parties wishing to purchase would do well to inspect personally before deciding.

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Importation of 1887.

Not long arrived, a superior lot of



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The largest herd of Holstein cattle in Canada, from which we are prepared to sell bulls and heifers. If you are in want, come and see us. Prices reasonable. Correspondence solicited.

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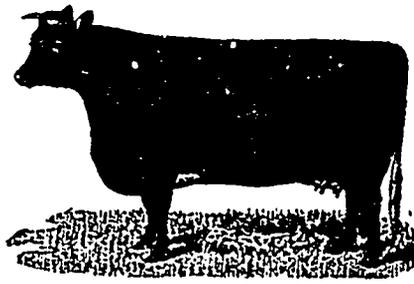
We have on hand and for sale a superior lot of imported and home bred
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and mares. Several of them were prize winners at the leading shows in Scotland and Canada.



ALSO A FEW CHOICE SHETLANDS.
Prices to suit the times.

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Have a grand lot of bull calves sired by our imp. Cruickshank bull Vermillion (5087), and a very choice lot of heifers, now in calf to Vermillion; also shearing rams and ram lambs from imp. sire and dams. Prices moderate. Terms easy.

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FOR SALE-SEVEN IMPORTED BULLS
of superior excellence and extra individual merit, also
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PRICES MODERATE.

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TO FARMERS' SONS:

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TORONTO, ONT.

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In over 30 Field Trials with other Disk Harrows the past year the "Corbin" was sold and settled for.

Every Farmer should insist on a trial with the "Corbin" before buying any other.

Read What the Best Farmers Say:

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 J. C. BATES, Esq., Elmsdale, Muskoka, manager of a 500 acre farm, writes:

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 "Have found it to be the most labor saving implement ever used on a farm. It is ahead of any gang plow, cultivator or harrows that has ever been in use."

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 "I consider it one of the best of implements, and far surpasses anything of the kind I ever saw as a pulverizer; also, for working up sod, uneven ground, or among stumps, I believe it has no equal."

Wm. T. WILSON, Esq., Lullamon, Peel Co.:
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"Have used it three years. Boxes not much worn. Disk are now 1 3/4 ins. diameter (originally 1 1/2 ins.) Have cultivated about 900 acres with it (once over). Can cultivate from 12 to 16 acres per day with it. I work 300 acres, and find I can do work better, easier and faster. I use them for nearly everything, sowing all my grain, fall and spring, breaking sods on fallow, etc."

[Memo—Mr. Wilson uses a 7 ft. Corbin with Seeder. He also bought another 7 ft. No. 30, last spring, having use for two harrows. The work above referred to was that of the first harrow only.]

T. TREMEER, Esq., Ex-Reeve of Tiny Twp.:
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"Have used it for three seasons, and given entire satisfaction. Boxes and disks not worn to any appreciable extent. The draft is considerably less than the Spring Tooth harrow, in fact this harrow has been laid aside since we used the Corbin. Can cultivate about 10 acres per day with ease."

The Corbin Steel Roller

Habbited and Chilled Boxes, Weight Box, Steel Drums, Grass Seeder. It is strong, durable, convenient, silent running, easily turned. The Grass Seeder has been perfected and the Roller is strongly recommended by those who have used them.
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Cremeries, Butter Factories, Have your Choice.

Danish, A. size, skimming	2250 lbs. per hour.
" B. " " "	1150 " "
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Backstrom Separator, " " "	800 " "

The cheapest on the market and the best. Before buying ask for our circulars and prices, and descriptive pamphlet showing points on which to judge of Separators. Factory plans free to our customers. Write to J. C. L. TACHE, General Manager, box 1023, Quebec. Western Agency—S. M. BARRÉ, Winnipeg. JOHN S. PEARCE, London, Ont. Jan-3

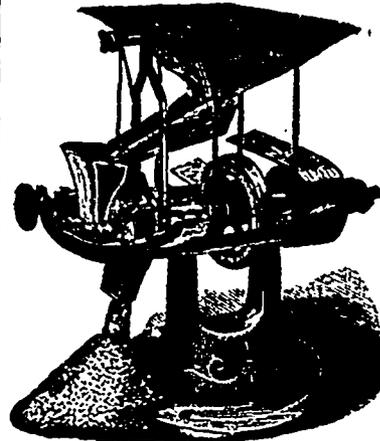
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Brigden, Lambton, Co., Ont



My Shorthorn herd now consists chiefly of imp. Lady Violet Lustre and seven of her daughter's, and two daughters of imp. Beauty 15th, almost all sired by one bull, and of one character, thick, and fine quality. Can furnish a splendid young herd, including an imported bull. Trains twice daily. Station one mile.

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TESTIMONIALS

HAMILTON Oct. 24th, 1888

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THE SHEDDEN CO. (LIMITED),
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PIANO BOX TOP BUGGIES

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A. & J. BELL, Atholville P. O., P. O., importers and breeders of recorded Clydesdale horses, Ayrshire cattle, Cotswold sheep and Berkshire pigs. Stock for sale. 65

THOS. FLANCHARD, Appleby, Ont., breeder of Shire horses, Shorthorn cattle and Leicester sheep. 71

CLYDES a specialty. Registered brood mare. Stock for sale. R. C. Brandon & Co., Pearlside Farm, Cannington, Ont. 64

E. W. & G. CHARITON, Dumfries, Ont., importers and breeders of pedigree Clydesdale and Coach horses. 73

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J. W. ROBINSON, St. Marys, Ont., importer and breeder of pedigree Clyde horses, Shorthorn cattle and Shropshire Down sheep. Stock for sale. 72

JOHN C. ROSS, Jarvis P. O., Ont., extensive importer of Clydesdale horses, Shropshire, Oxford, Southdown and Cotswold sheep. 72

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THOMAS TAYLOR, Harwich P. O., Ont., breeder and importer of recorded Clydesdale and Cleveland Bay horses. Stock for sale. 64

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ADAM A. ARMSTRONG (successor to John S. Armstrong), breeder and importer of Shorthorn cattle and Oxford Down sheep. Speedvale P. O., (near Guelph), Ont. 72

THOS. BALLANTYNE & SON, "Nodpath Farm," Stratford, Ont., importers and breeders of Scotch Shorthorn Cattle and Shropshire Sheep. Herd headed by the imported Cruikshank bull Prince-Royal. 64

J. E. BRETHOUR, Oak Lodge, Bedford, Brant County, Ont., breeder of Shorthorn Cattle, Registered Berkshire Pigs and Poultry. Imported Scotch bull Earl of Rosberry. 70

A BROCKIE, Ferns, Ont., breeder of Scotch Shorthorns and Oxford Down sheep. Stock for sale. 73

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ALEN BURNS, Maple Lodge Farm, Rockwood, Ont., breeder of Shorthorn cattle. Young stock for sale. 68

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JOHN CURRIE, Telegraph P. O., Everton, Ont., breeder of Shorthorn cattle, Berkshire Pigs and Leicester sheep. Stock always for sale. Four miles from Rockwood, G. T. R. 65

JAMES I. DAVIDSON, Balsam P. O., Ont., importer and breeder of Clydesdale horses and Shorthorn cattle from the herd of A. Cruikshank, Esq., Sittytown, Scotland. Stock for sale. 64

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W. DAWSON & SON, Littlewood Farm, Victoria P. O., Co. Norfolk, Ont., breeders of Shorthorn cattle and Southdown sheep. Several young animals for sale. 65

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FRANCIS DOCKER, Glasserton Farm, Byng P. O., Haldimand Co., Ont., breeder of Shorthorn cattle. Stock for sale. 74

W. M. DONALDSON, Huntingford, South Zorra P. O., Ont., breeder of Shorthorns and Shropshire Down sheep. 64

WILLIAM DOUGLAS, Caledonia, Ont., breeder of Shorthorn cattle. Young stock for sale at all times. 65

W. C. EDWARDS & CO., Rockland, Ont., breeders of Shorthorns. All entered in Dominion Herd Book. Stock for sale at all times. 75

V. FITCH, One, Ontario, Woodstock station, breeder of Durham cattle and Cotswold sheep. Stock for sale. 72

GRAHAM BROS., Belvedere Stock Farm, Altona Craig, Ont., breeders of Shorthorn cattle. Young bulls, cows and heifers always for sale. All entered in Dominion Herd Book. 74

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ALBERT HAGAR, Bellevue Farm, Plantagenet, Ont., breeder of Shorthorns (Cruikshank bull "Soldier Boy" at head of herd), Shropshires and Berkshires. Stock for sale. Prices to suit the times. 72

JOHN HARRISON, Owen Sound, Ont., breeder of Shorthorns and Shropshire Down sheep. The latter won 6 prizes at the Toronto Industrial and Provincial, 1888. 64

W. S. HAWTHAW, Glenworth P. O., Ont., breeder of Shorthorn cattle and pure-bred Shropshire sheep. 65

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C. N. KIDD, Carp, Carleton Co., Ont., breeder of Shorthorns and High Grade Cattle, Clydesdales and Berkshires. 65

SIMEON LEMON, Poplar Lodge, Kettleby, Ont., breeder of pure-bred Shorthorn cattle, Oxford and Shropshire sheep, Berkshire and Suffolk pigs. Stock for sale. 72

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J. P. PHIN, Hespeler, Ont., breeder of Shorthorn cattle and importer and breeder of Shropshire Down and Southdown sheep. Stock for sale. 64

W. PORTER, Cedar Grove Farm, Lloydton P. O., Ont., breeder of Shorthorn cattle and Southdown sheep. Young stock for sale. 64

W. C. B. RAYBUN, breeder of Shorthorn cattle, Clydesdale horses, Shropshire Down sheep. Bay View Ranch, Deseronto, Ont. P. O. Box 235. 65

HEBER RAWLINGS, Ravenswood P. O., Ont., Farmer, breeder of Shorthorn cattle, Shropshire and Cotswold sheep. Stock for sale. 64

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R. R. SANGSTER, Lancaster, Ontario, importer and breeder of Cruikshank and Campbell Shorthorns. 72

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G. BERGE THOMSON, Right, Ont., breeder of pure Scotch Shorthorns and Southdown Sheep. Stock for sale. 74

GEO. THOMSON, Alton, Ont., breeder and importer of Shorthorns, Alton station, C. V. R. Stock for sale. 74

JAS. TOLTON, Walkerton, Ont., breeder of Shorthorn cattle and Oxford Down sheep. Stock for sale. 64

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JOSEPH WATSON, Greenbank, Ont., breeder of Shorthorn and high grade cattle. Imported; full Vice-President at head of herd. Young stock for sale. 74

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ALEXANDER WOOD, St. Marys, Ont., breeder of Shorthorn Cattle and Clydesdale Horses. Stock for sale. 66

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JOSEPH SHAMMAN & SONS, Toddhorn P. O., Man., importers and breeders of Hereford cattle. Young bulls for sale. 64

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J. S. HART, Saybrook Farm, Whyococum, Cape Breton, N. S., breeder of Jersey Cattle. Poss and Victor Bulls blood a specialty. Service bull Oscar of St. Lambert 12547, double 200 of Stoke Pops the best. 65

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SAMUEL SMOKE, Canby P. O., Paris, Ont., breeder of Jersey Cattle. The St. Lambert and Victor Bulls blood a specialty. Service bull Oscar of St. Lambert 12547, double 200 of Stoke Pops the best. 65

A. A. J. C. Jersey 66

JOHN TURNER, Lakehurst, Jersey Farm, Oakville, Ont., breeder of Jersey Cattle. 72

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- A. GERRARD**, Hamilton, Ont., breeder of pure Ayrshires. Bull calves, sold young and cheap. 72
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- NICOL & SONS**, Cataract, Ont., breeders and importers of Ayrshire cattle, SOUTHDOWN SHEEP and BERKSHIRE PIGS. 63
- W. M. & J. C. SMITH**, Fairfield Plains, Ont., breeders of Ayrshire cattle, American Merino sheep, Poland China pigs, and all the leading varieties of land and water fowls. 72
- E. W. WARE**, Hamilton, Ont., breeder of pure Ayrshires and Jerseys. Stock for sale. 66
- JOSEPH YULL**, Carleton Place, Ont., breeder of Ayrshire Cattle, Shropshire Downs and Berkshire swine. 72

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- MAPLE GROVE STOCK FARM**—Cassel P. O., Oxford County, Ont. H & W F Bollen, importers and breeders of pure-bred Holstein-Friesian cattle. Stock for sale R R Station, Tavistock, on G. T. R. 72
- S. SHUNK, JR.**, Maple Grove Farm, Edgeley, Ontario, breeder of pure-bred Holstein-Friesian Cattle. Stock for sale. Thornhill Station, on N. R. R. 65

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- R. & J. GURNETT**, Auster, Ont., importers and breeders of Ohio Improved Chester Whites. Pigs for sale. 66
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