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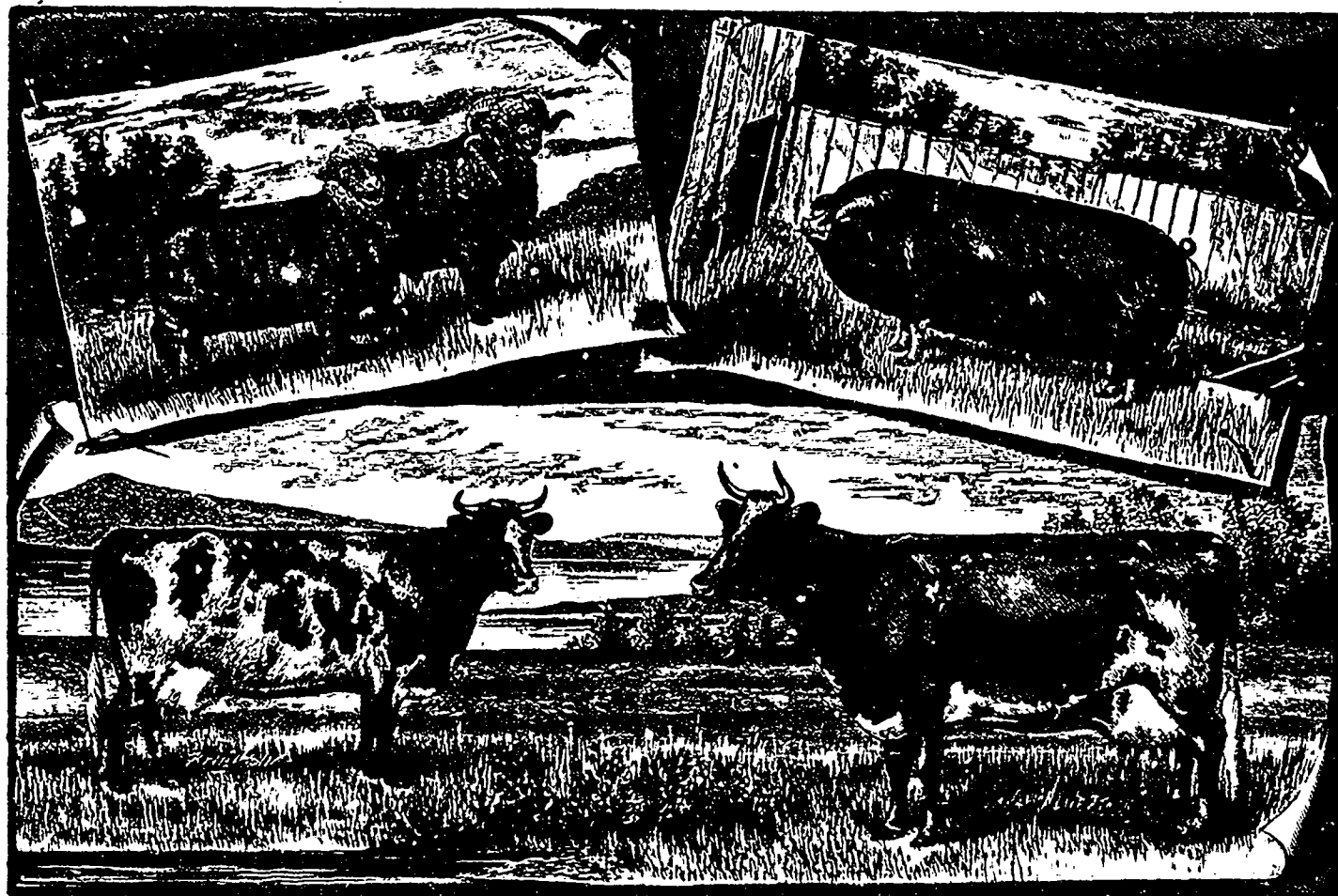
THE CANADIAN LIVE-STOCK AND FARM JOURNAL

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

VOL. V.

HAMILTON, CANADA, SEPTEMBER, 1888.

No. 59



GROUP OF PURE-BRED STOCK.

The Property of W. M. & J. C. Smith, Fairfield Plains, Ont.

The Live-Stock of Fairfield Plains.

The beautiful sketch by our artist this month represents live-stock on the farm of the Messrs. W. M. & J. C. Smith, Fairfield Plains, Ont, some four miles south of Burford station on the Brantford, Norfolk and Port Burwell railroad. Good stock of various kinds has been bred on this four hundred acre farm of gentle undulations, for many years, and in so quiet and unostentatious a fashion, that the more distant portions of the country would scarcely know about it were it not forced on its attention by the fact that the Messrs. Smith were last year and probably for a number of years previously, the greatest live-stock prize-winners in Canada. Last year the prizes awarded to this firm at leading shows amounted to nearly \$1,500, and during each of the four preceding years to more than \$1,000.

Merino sheep have been a leading feature on the Plains farm for many years; also many kinds of land and water fowls for a quarter of a century, Ayrshire cattle since 1884, and Poland China pigs since 1885.

The Ayrshire cow Empress [599] was a prize-winner when a calf at the leading shows, and has retained this place as a yearling, as a two-year-old, a three-year-old, and an aged cow. At the Provincial, Ottawa, 1887, she won first prize in a ring of 19 cows, a number of whom were imported, and sweepstakes

prize for the best female any age. The heifer Gurta 9th, [840], so accurately brought out in the sketch, was bred by the Messrs. Smith; was first at the Industrial, at Hamilton and at other leading shows, and the Ayrshire herd won first at the Great Central last autumn.

The flock of Merinos at this farm comprise some of the very best in Canada. The shearing ram Zach Chandler, and the ewe Kate Thompson, shown in the sketch, have taken all the prizes thus far that could have been won by them, when exhibited at the principal shows of Ontario.

The Poland China herd is also one of the best, and probably the largest in Ontario. The sow Duchess, a typical Poland China female, was first as best sow any age at Ottawa last fall, and along with her companions won the pen prizes wherever shown.

The fowls bred so numerous and of a fine quality have won many of the highest honors given at our Provincial Exhibitions for a long term of years. Amongst the leading varieties at the present time are the Dorkings, Polands, white and black Cochins, La Fleche, Dominiques, Games, Hamburgs, silver, gold and black; Crevecoeurs; bantams; turkeys any color and white; Bremen, Toulouse and English geese; Cayuga ducks and Guinea fowls. A fuller description will be found on another page.

PROF. J. W. ROBERTSON, of the Ontario Agricultural College, gives us information of exceptional value in this issue in the dairy department.

Holding Exhibitions Simultaneously.

In looking over the dates fixed for holding leading exhibitions in Ontario, our attention has been fixed upon the very large number of them that will be held simultaneously. During the week September 24-29 the following leading exhibitions will be held: The Great Central, Hamilton; The Western, London; The Central Exhibition, Ottawa; The Peterborough Central; The Ontario Central, at Port Perry; The Great Northern, at Collingwood, and the Bay of Quinte at Belleville. If this is the outcome of mutual consultation it is not creditable to such consultation; if it arises from the lack of it, which is far more likely, it is a strong plea for the continuance of the Canadian Association of Fairs and Expositions. It cannot but lessen the extent of the exhibit more or less at every one of those shows. The only good that can come out of it is, that it gives local exhibitors a better chance to win prizes, but they do it at the expense of the associations, for a good attendance cannot be sustained without a good exhibit.

Canadian Live-Stock & Farm Journal

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THOMAS SHAW, RIVERSIDE FARM, EDITOR.

To Subscribers.—Subscription price, \$1.00 per annum in advance. Single copies, 10 cents each; sample copies free. No names will be removed from our subscription list when in arrears and without we receive instructions to that effect. Those in arrears will be charged \$1.25.

Clubs.—Any person is at liberty to form clubs. Clubs of five copies to any address, for one year, \$4.00. Clubs of ten copies to any address, \$7.50.

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, SEPT., 1888.

IN breeding live-stock of any kind successfully a man must have an ideal before him as clearly defined in his own mind as though it were on canvas, and he must adhere to it with a persistency that knows no faltering. How many of our breeders can clearly and distinctly define their ideal, and of how many may it not be said that when they come across a herd or stud of some other ideal of great excellence it shakes their faith in their own. It follows, then, too much care cannot be shown in fixing this ideal. A mistake here is disastrous. Without it, however, marked success will never be realized, for the breeder without any fixed aim is like the mariner on the wide ocean without a compass. He may meet a favored gale that will blow him landward, but he is more likely to meet one that will carry him out toward mid-ocean, and then another to blow him back in mockery. This fixedness of purpose must be rigidly adhered to in adverse as well as in prosperous times, unless the event has shown that the ideal is lacking in intrinsic merit, a discovery that should have been made at the outset. One who abandons his ideal because of some mistakes that may be mended, is not of that material which makes successful stockmen.

SOME three years ago the Highland Society offered a prize of £400 for an essay on the best method of utilizing the valuable properties of the urine of house-fed animals, and it was to be especially adapted to dairying districts. In response to this offer no less than thirty-nine essays were written, many of them in foreign languages, but to none of them has the prize been awarded, as they are not considered sufficiently practicable. This strengthens our opinion—one that we have long held—that the most practicable way of utilizing this liquid is to absorb it in the stables before it goes into the wheelbarrow, with cut straw, sawdust, muck or earth, and apply it to the land at the earliest possible moment. This necessitates the use of a tight floor, which may be made with cement. The passage behind the cattle should incline toward the

drop where the liquid is licked up by the absorbents. Our own stables are constructed on this plan, and by using plenty of cut litter we retain the valuable properties of the liquid without adding anything to the cost of handling the manure, unless it be cutting the litter. What method more simple and effective can possibly be devised, even though £400 a year should be offered every year for essays on this important subject? But this plan would probably be too simple for the sage fathers of the Highland Society. They are doubtless waiting for some one to tell them some great thing which must be done in order to conserve the valuable properties of a liquid manure.

THE practice of keeping service stallions of the draught breeds in show condition the year round is of questionable wisdom, and can only be done at the hazard of the future usefulness of the horse. On the other hand violent changes in condition are hurtful, and should be guarded against. It is a fact that the percentage of sure foal-getters amongst draught stallions is not so large as amongst sires of the thorough-breds or those of other classes of pure-bred stock. This cannot be accidental, and must be the result of defective management. It is very largely, we believe, the result of feeding too highly, with too little exercise, keeping the stallion too much on the principles by which steers are fattened. Wherever it can be done, would it not be well to put draught stallions to moderate work after the season, and thus make them pay their way during that portion of the year succeeding the service term? It would be good for the horses and good for the owners. Draught horses are intended for work, quite as much so as the Angus steer is intended for beef. The steer would fall far short of his design if kept on the principles best adapted to the welfare of the horse, and so the horse must fall far short of the end sought if kept on principles best adapted to the welfare of the steer. Where it is impossible to work the stallion he should have a large paddock all his own, but it may be found difficult to keep him within the enclosure unless the fence is strong and high.

A WRITER of prominence in the *Breeders' Gazette* argues that as inferior Shorthorns are superior to scrubs, it would be a better plan to sell them to farmers at butchers' prices than to castrate them. With this view we can by no means agree. They are, to be sure, much better than scrubs, but their free use as sires will not tend to bring credit upon the Shorthorn interest. Giving such advice is only wounding this great interest in the house of its friends. The use of such sires will only be partially satisfactory. Very many persons would thus be led to base their estimate of Shorthorns upon these animals and their progeny, which must fall a long way short of the results that will flow from the use of suitable sires. It would be much better to put down the service fee so low that the owners of scrubs would bring their cows to first-class sires. It is only by judicious mating, careful selection and constant weeding, that the standard of excellence with any breed can be maintained. Stay this process in any direction and the standard lowers. Let this happen, and the breed falls proportionately in the estimation of the public. Instead of doing the keeper of scrubs a kindness, the reverse of this would be true. It would be educating him in a system the principles of which, applied to the breeding of Shorthorns, would soon annihilate it. It is true that sometimes inferior-looking calves develop wonderfully and make useful sires, but it is much oftener true that they do not. The great one law of breeding is that "like produces like." The breeder of pure-breds of any kind who

admits the suggestion of the writer to whom we refer, cannot easily do himself a greater injury than to sell his inferior animals to the keepers of scrubs, or indeed to any one save a butcher.

THE breeding of pedigree stock in Great Britain, where more of it is done than in any country of equal area on the face of the globe, is all in the hands of a few thousand farmers. A majority of the farmers there have, according to the *Agricultural Gazette*, looked upon the attention given to pedigreed animals as something bordering upon the ridiculous. It is the chance of the breeders now to ask who have been most ridiculous in their actions, the breeders of pure-breds or the rank-and-file farmers, who cared but little whether they succeeded or failed? The export trade in pedigreed live-stock in Great Britain this year is in the neighborhood of £100,000 per month, and this handsome sum all goes into the pockets of the few thousands of breeders to whom we have referred. The class who were indifferent in regard to their labors are at the present time barely able to hold their own against foreign competition. There is a moral here for the farmers of Canada. With but few exceptions we have a good market for our pedigreed stock, and it is very largely a foreign one, too. But our average farmer has a great advantage over the farmer of Britain in that he is virtually free from competition. Instead of purchasing stores he can sell them to his neighbors to the south, and the better the quality of these, the higher price does he get. The pure-breds of the various breeds in the country are now so numerous that any who fail to take advantage of them for improving their stock, and thereby bringing up the general average, are standing sadly in their own light. The farmers of any country who look upon stock improvement with indifference are enemies to themselves. Where the market for stock is many-sided, as with us, the neglect is suicidal.

The Crop of 1888.

Mr. Blue has again felt the pulse of the agriculture of Ontario, and has found that it still beats feebly with some symptoms of improvement.

Bulletin XXIII summarizes the results of the crop reports sent in by 763 correspondents in all parts of Ontario.

The crop of *Fall Wheat* is a long way below the average, although in some localities the yield and sample were both good. 60,896 acres are reported as having been ploughed up, most of the area being in the Lake Huron, West Midland and Lake Ontario groups of counties.

The *Spring Wheat* crop promises to be more than usually good, but the acreage given shows a decrease from 484,821 acres in 1887 to 367,850 acres in 1888.

Barley is about an average crop, but has been injured considerably by rains in harvesting, especially in the Lake Ontario counties.

Oats have given a satisfactory return in the western lake counties, and a large portion of the West Midland group. In the nine Lake Erie and Huron Counties the crop is abundant, and so generally in Middlesex, Oxford, Brant, Perth, Wellington and Waterloo. In all other parts the larger portion of this crop has been light and short of the average. In the East Midland and St. Lawrence districts the reports are extremely unfavorable.

But little *Rye* was grown for the grain, its chief use being for fall and early spring pasturage, and to plow under as a green manure.

The *Pea* crop is good in the west, but in the centre and east under an average. The pea bug has for the

present gone quite away. Will our scientists tell us why and where?

Corn. The crop is good in the few localities where it is grown for the grain, as Essex, Kent and Lincoln. The average for fodder purposes is happily increasing.

Beans, chiefly grown in Kent, are a good crop.

Roots are good in the west; save Huron, Bruce, Grey and Simcoe, where they were injured by drouth and the fly, and in some localities by grasshoppers. In Lake Erie counties the potato crop will be very large. In the eastern counties the root crop is quite deficient.

Fruit with stones has been a light crop. Grapes promise well, and winter apples fairly.

The **Hay and Clover** crop is under two-thirds, owing to the dry weather of 1887-8, and to the inclemency of the winter. Clover seed will also be a very short crop.

Pastures and Live Stock. In the west pastures have been fair, but from Peel eastward correspondents report brown pastures, and in many instances are now feeding their stock. The milk yield of the east is very deficient, also in the northern groups of the west. In some localities supplemental crops of corn, mixed grains and millet have been grown, but with a large majority no provision of this kind has been made—a most fatal omission.

Bees and Honey. The season has been an unfavorable one owing to the backward spring, dry weather and cold nights.

The outlook, therefore is far from re-assuring. Following upon the short crops of last year, the pinch upon the farmers is very severe. Where there is much of a deficiency in the fodder crops, the stock which cannot be carried over on the supply should, if possible, be sold, as it will not pay to purchase food at dear prices to carry it over. Neither will it pay to sell it when out of condition, but what else can be done? Whatever is sacrificed, make it a point to save the dams for the furnishing of future supplies.

The Outlook in Manitoba.

From all we can learn there seems to be a splendid crop prospect in Manitoba this year. It is estimated that 525,000 acres are under wheat. From a return issued by the Winnipeg Board of Trade it appears that the wheat crop last year yielded about 32½ bushels per acre. This year nearly every one agrees it will be much heavier. Some Manitoba gentlemen estimate the wheat crop of that province will this season foot up to 25,000,000 bushels. The acreage under oats and barley is also much in excess of last year. The crops this season are slightly later than last year, perhaps a week or ten days, and some are anxious lest frost should touch them.

On August 11th the Winnipeg Board of Trade issued a return to the effect that the acreage of wheat is 20 per cent. in excess of last year, of barley 25 per cent., and of oats 10 to 15 per cent. Upon the whole the outlook in Manitoba is most cheering. In addition to good crop prospects our friends in the west are jubilant over the abolition of the monopoly. Arrangements are said to have been made, whereby the Northern Pacific will effect an entrance to Manitoba from the South, and will also build several hundred miles of branch lines. It is expected this will result in decreased freight rates, a matter of much importance to the farmers, when there is a crop of 25,000,000 bushels to be moved.

The Manitoba Government has this year been very active in disseminating information regarding the province. An office has been established in Toronto in charge of Mr. A. J. McMillan, and much active

work has been done in the way of beating up recruits. Several large excursions have gone to Manitoba, and several more are announced to follow. Dairying is now receiving much more attention than formerly, and Manitoba manufactures large quantities of butter and cheese.

Altogether, it looks as though the Prairie Province had entered upon better times. The settlers have profited by many of the mistakes of earlier years, and have now adopted better modes of farming than obtained in those days. Let them continue to move in this direction, and we have but little fear for their future.

The Staff at the Ontario Agricultural College.

The adage that a tree is known by its fruits is well nigh as old as language itself, and yet, like language in a sense, it never grows old. There is as much of newness and freshness in the transmission of ideas through the medium of the good old Anglo-Saxon tongue as there was a thousand years ago, and likewise trees are known as much by their fruits to-day as they were in sunnier days when man wandered amid the primeval bowers in innocence.

But in the application of this simile it should not be forgotten that though trees always produce true to variety, yet the quality of the fruit depends a good deal on the character of the soil in which the tree grows. A certain variety will produce fruit, at once large and round, and with exquisite flavor, where the conditions are all favorable, while in another place where the conditions are adverse, the fruit will be small and unshapely and flavorless.

Without a good, able staff of teachers in any educational institution, the best results cannot be looked for, and without raw material of a good type in the form of students, the finished product—educated men who will be a credit to the institution—will not be forthcoming. The form and shape of the moulds in furnishing a casting are not more vitally important than the nature of the molten mass poured into it if the casting is to be of high quality.

In an agricultural institution such as we have at Guelph, before we can have the best results, the two conditions, workmen and material, must be provided, and of a high order. It is difficult to decide which is the more important of the two, as it is probably no more of an achievement for a teaching faculty to turn out a well furnished graduate of inferior gifts, than for a student of good parts to reach the level at the top of a high incline, freighted with the deplorable burden of an inefficient staff of teachers.

Under the conditions on which our Agricultural College exist, it is the duty of the Government to provide the first, and of the farmers to provide the second. If the Government performs its part, it has a right to expect that the farmers shall perform theirs. If the farmers do their duty they should expect the same of the Government, and both alike are in duty bound to work for the best interests of the institution.

It is not our purpose to enter into the past record of the college in this paper, but rather to refer very briefly to the present teaching staff of the Guelph Ag. School, that our farmers may more generally know to what manner of men the instruction of their sons has been committed, who may be sent to this institution.

The staff at present consists of a president, professor of agriculture (to be appointed), professors of natural history and geology; of chemistry; of veterinary science, and of dairying; assistant president and mathematical master; farm foreman; foreman of the horticultural department, and of the mechanical department.

President.—Jas. Mills, M. A., has filled this position for several years. He was brought up on a Canadian farm and thoroughly trained in early life in the details of farm work. Professor Mills is one of those self-reliant men who has fought his way to his present position by means of the most indomitable pluck and application. He has a just view of the great advantages that will flow to any one intending to pursue farming as his life work, who avails himself of educational advantages bearing upon this.

Professor of Natural History and Geology.—Jas. Hoyes Panton, M. A., F. G. S., who fills this chair, is an experienced high school teacher, with several years prior practice on a Canadian farm. He is an enthusiast in his work, and exceptionally well furnished for it.

Professor of Chemistry.—C. C. James, M. A., is a teacher and lecturer of some years' experience, trained in chemistry by that distinguished teacher, Dr. Haanel, of Coburg. Professor James is thoroughly in sympathy with his work, as every man must be who is to succeed.

Professor of Veterinary Science.—F. C. Grenside, V. S., who fills this chair, is a graduate of the Ontario Veterinary College. He is so well known to the readers of the JOURNAL through his able contributions to the veterinary department that, we need make no further comment here.

Professor of Dairying.—Jas. W. Robertson, who fills this chair, is not only extensively known throughout this Province as being foremost in everything pertaining to the cheese and butter industry, but also in the United States and Europe.

Assistant President and Mathematical Master.—E. L. Hunt, B. A., is an efficient teacher and disciplinarian of several years' experience.

Mr. J. E. Storey, the foreman in the farm department, was brought up on a Canadian farm in the eastern part of Ontario. Mr. Jas. Forsyth, foreman of the horticultural department, has proved himself well worthy of the position, and the same may be said of the foreman of the mechanical department, Mr. Jas. McIntosh.

These gentlemen are not only equipped for the work they have in hand, but possess character without reproach. During the absence of a number of the clergy of Guelph, on the occasion of assembly or conference meetings last summer, it was incidentally told to us that the services in three of the city churches were conducted simultaneously by the professors on the same Sabbath. Possibly some who read may smile a little, and there may be scorn in the involuntary movement of the lip when they scan the above paragraph, but to those who are parents purposing to send their son to the college, and who believe that this one life is but the vestibule to illimitable growth in all that is good and noble, it will prove balm to their anxious spirits. They need have no apprehension that the nobler parts of the being of their sons shall be shattered on the rocks of infidelity or error, through even the negative teachings of pernicious example.

From what we have said it is surely apparent that the Government is doing its part well in furnishing teachers; it now remains for the farmers to do theirs in furnishing pupils. Think of it, ye fathers. It is not fair to spend one thousand dollars ungrudgingly in giving one son an education in the profession which is to form his future life work, and refuse the outlay of one thousand cents extra in preparing the farmer son for his. We would shrink from encouraging discontent in the farmer's household, but we do not for one moment shrink from the advocacy of fair play. If

the brighter sons are to be forever sent away, give the less bright a chance. Their lack of the most commanding ability is their strongest plea for getting an even chance in the race. Give the boys of the farm a chance by allowing them a course in the Ont. Ag. College, the one institution in all the Dominion which can thoroughly ground them on the scientific side of that wonderful pursuit which shall still be in its infancy when the seventh millennial period shall have been ushered in.

Swine Rearing in Canada.

That this industry will continue to grow with the increase of dairying cannot be questioned, and that dairying in Canada will continue to grow is the opinion of those best informed on the subject. That swine rearing will ever occupy that important place in Canada that it does in the United States is not at all likely, not even in our vast north-western prairies, for there the climate is too cold for corn. Yet it may be greatly extended in each of the provinces, and a better quality produced.

There is much food for thought in the statement of Mr. Wm. Davies, of Toronto, in that admirable little work on swine-rearing by Mr. James Cheesman, of the same place, when he says that out of 63,457 hogs slaughtered by his firm in 1887, no less than 33,113 of these, or more than half the number, came from the United States, and that their cost laid down averaged \$5.19 per hundred pounds, while the 26,244 prime hogs purchased in Canada averaged \$5.25 per hundred pounds. This means that under present conditions Americans are rearing hogs and forwarding them to Canada for slaughter at a less price than the Canadian producer receives. The American producer will always have the advantage in raising corn-fed pork, but in one respect the Canadian is more favorably situated, and always will be—he can produce a better *quality* of pork; by that we mean a grade better adapted to the wants of consumers. He can grow nitrogeneous foods to better advantage than can the American farmers of the prairie, and so, if supplied with the right styles and breed of hog, can distance American competitors. As it is, however, the Americans produce the most suitable pork for the merchant to handle, accounted for in part by the fact that they have been necessitated to study the wants of the buyer, and thus to shape the breeding and feeding accordingly.

The style of pig wanted now is thus described: The weight is about 160 lbs. It must possess long, deep sides, and have plenty of hair and large bone, the two latter points indicating the capacity to carry a fair proportion of lean. If properly fed, two litters can be reared in a year, as a hog of the stamp described above can be made to reach the weight desired in six months. Yet it should be remembered that in this country the autumn litter cannot be reared with a profit equal to that of one coming in the spring. We feel that we cannot impress with too much earnestness upon our farmers, the wisdom of trying to produce what the *market* calls for.

During the year's purchases of 1887 the firm of Mr. Davies paid on an average for outside weights and inferior of those bought in Canada, no less than 54½ cents per hundred pounds, or 87½ cents less on each hog weighing 160 lbs.; that is, instead of getting \$8.40, the price received was \$7.52½ cents.

There is another statement in Mr. Davies' letter of much moment. It is this: "The time taken to produce a marketable pig governs the *profit* of pig-feeding." It has been customary for many farmers to keep pigs till about one year old and market them

at a weight of about 250 to 300 lbs. Now, there can be no doubt that a pound of pork is made at a cost considerably less in feeding a pig under six months than after that age has been reached. Let breeders govern themselves accordingly. If the young pigs come to hand about first of April they will be ready to market from October to December.

We do not affirm that all retail dealers in Canada would choose just the style of pork that we have indicated, but the current of taste on the part of the consumer has set in this direction, and the counter desires of the producer can no more arrest its flow than they can dam the waters of the St. Lawrence. The ocean tide of the taste of pork consuming nationalities moves in this direction, and producers who are wise will shape their course accordingly. The pork merchant must provide the class of meat public taste calls for, and he is compelled to get it where he can. If his own country will not furnish it he must go abroad. We can grow leguminous crops more readily than the inhabitants of the prairie. Our country can grow roots in abundance, an important factor in producing winter-fed pork. No country is ahead of Ontario for pea-production. All southern Canada is very suitable for dairying. With such facilities for pig rearing, why cannot we hold our own against American producers in providing the consuming public with any amount of pork in consonance with the requirements of to-day?

Soiling—The Great Resource of the Farmers of Canada.

In the years that are gone the attention of the farmers of Canada was concentrated mainly in providing supplies of food for winter. The reason was that grain-growing being the principal business, relatively a considerably less proportion of stock was kept. With the development of the export meat trade and of dairying the number of animals kept upon our farms has so largely increased that it is coming to be felt a greater difficulty to keep them in summer than in winter. The importance of having meadows go ungrazed is beginning to be recognized, but not a moment too soon. The increase of weeds has led to the happily growing practice of ploughing stubble fields as soon as possible after harvest. The clover of Ontario at least is engaged in deadly conflict with the midge, backed up by the severity of recent winters, all of which curtails the area of lands that were usually cropped closely in former times, and hence the area available for autumn pastures is very small indeed. After the first of July the cream of our pastures is gone, and unless we provide some supplement our dairy cows will rapidly dry up, and even our store cattle will fail to hold their own.

If there were no remedy it would be calamitous indeed, but happily such is not the case. It rests mainly with the farmer whether his stock shall fare quite as well in the months of August, September and October, as in those of May and June, unless in years that are exceptionally dry in the early months. Happily large supplies of supplemental food may usually be grown, only limited by the industry and management of the farmer.

But it is not enough to have a supplemental crop grown. It is very important that it shall be a good one, full of vigor and nutriment. We have seen crops of corn in some localities this present year higher than one could reach, and on precisely similar soils in the same localities not higher than our waist. There need be no doubt as to the comparative value of the two crops for feeding purposes. In the one case the land had been starved and the land sown broadcast; in the

other case well fed, sown in drills and properly cultivated. One acre of the latter, cut at the right stage, was certainly worth from two to three of the former. Of the three soiling crops—rye; oats, peas and vetches, and corn—the latter is unquestionably the main reliance, owing to the enormous quantities that can be produced on a given piece of land; but that the second food factor indicated will grow in popular favor is our unhesitating prediction. It has been discovered by our dairymen that a much larger per cent. of fat in the milk is produced by feeding oats, peas and vetches. They may be also sown early in the season, and are sure to grow, and are more pleasant to handle than corn. When a large amount is wanted per day a mower may be kept in the field, and a strip cut off one side or around the plot as may be desired. By sowing quite early and then at intervals while there is moisture, or until the middle of May or later, this crop might be made to do service for at least six weeks.

But if vetches are to be used, and doubtless they form a valuable factor, the price of the seed must come down. We paid the seedsman \$2 per bushel last spring, which we deem too large a sum when peas can be got for say 75 cents, and oats from 30 to 40 cents per bushel. The proportions to be sown are two parts oats, one peas and one vetches, and the quantity about three bushels to the acre.

Let it be borne in mind that the time to prepare for a soiling crop for 1889 is *now*. Unless the soil is rich it should be well manured and deeply ploughed this fall; and just as soon as it is dry enough to sow in the spring, a portion of the seed should be put in on a finely and deeply pulverized surface.

The ground intended for corn may be worked altogether in the spring, and the manure applied then also, but it there is time it also may be ploughed deeply in the fall with much advantage.

No consideration should allow the farmers of Canada to fail to make provision for sowing these crops in the spring of 1889. Their abundant growth means abundance of milk, butter, cheese and beef, and their absence means a shortage of these, and the after benefits reaped are increasing fertility and the increased crops that follow.

We can conceive it of less importance to many to fail to grow a crop of wheat than not to grow a soiling crop, for bread can be bought cheaply, while at such a season pasturage, or its equivalent, cannot be obtained.

The only real objections that can be advanced to the adoption of the soiling system are the additional labor it entails at a busy season, and the laboriousness of that labor. These should not prove a serious barrier any where. The object of all labor on the farm is to produce the best results, and where timely effort has been made to provide this labor, or where its necessity has been properly recognized, it will come to be looked upon as a part of the regular routine, rather than as something additional and burdensome. The sons of men who subdued the obstacles of the wilderness, and thus provided space for the growth of crops, will surely not complain in the handling of these after a beneficent Providence has made them to grow luxuriantly.

"I am well pleased with the JOURNAL, and hope to have one dollar to pay for it every year."—Peter Toles, Mt. Bridges, Ont.

"I have been a reader of your JOURNAL from its first number and would not be without it, though not a farmer any more."—A. Martin, Jordan Station, Ont.

"I like your paper very much and gain much useful information from it."—E. B. Carver, Colpo's Bay, Ont.

Character of the Instruction Tested.

It is not easy to determine the precise value of the information given to the students at the Ontario Agricultural College, Guelph, in each of the departments, but an experiment in this direction is worthy of note. For the last four years three of the students (a fresh group each year) have been put into the ring at the fat stock shows at Guelph and Toronto, with the experienced judges chosen on such occasions. In less time than that occupied by the judges the decisions of the students have been handed to the secretary of the show, and in every instance have almost invariably agreed with the decisions of the judges. In 1886, at Guelph, they differed from the judges in only one decision, which was appealed and decided in agreement with the decision of the students. All this could not have been accidental.

The American Live-stock Congress.

Life moves not only swiftly with our American neighbors, but with wonderful precision. There is wisdom in their methods, at least so far as worldly wisdom is concerned. Their plans move more rapidly than their rivers flow, or indeed than the iron horse can gallop. Chicago, that wonderful city of the west which grew in a day and perished in a night, and grew greater the day after, is a study in itself. It is a thing of yesterday and yet it is more populous and has more of real life than the steady growth of centuries brought to old time cities considered great in the old world.

The city is a marvel in itself, but even less so in a sense than the wonderful gathering or aggregation of gatherings that will be held there in November during the time of the holding of the American Fat Stock Show. During that week no less than twenty-six live-stock associations will meet in annual conference to deliberate on matters relating to the welfare of each and undividedly through the Consolidated Cattle Growers' Association, as to what will be for the welfare of all.

That such an arrangement should be agreed to by the members of associations whose families are scattered over States and territories stretching from sea to sea, no matter where the strongest centre of the work of each is found, is wonderful indeed, and is strongly indicative of the practical sagacity of the average American mind. England has had her Smithfield for well nigh a century, and yet there is no such a coming together of her different societies which that famous show is held. She has given the world nearly all of what is worth having in the live-stock lines adapted to the temperate zones, and yet there is little or no co-operation between her live-stock associations. Thus it is in monarchical Britain, while in republican America the different associations come together as though moving at the imperative fiat of some absolute despot. They are demonstrating that thoughtful self-interest is stronger than a despot's sceptre.

The superiority of the American method must be apparent to the mind even of a constitutionally conservative Briton. The fat stock on exhibition is only one feature of the great American show. Draught horses are coming out of late as thick as November snow flakes. Dairy products are being exhibited in conjunction, and what is there in the way of exhibiting dairy cows? The advantages of this concentration are manifold. 1. There is the advantage of the most favorable rates of travel for man and beast. 2. There is a great saving of time in the killing, as it were, of several birds with one stone, as several exhibits may be thus taken in at one and the same time. 3. The success of the shows is thus assured, both as regards numbers of visitors in attendance and animals

on exhibition. 4. It is a great advantage to have men of the different live-stock associations rub against one another once a year. The friction of friendly contact rubs off all the unsightly excrescences of jealousy and suspicion. They learn from such intercourse what lofty manliness and magnanimity of purpose may characterize the conduct of one whose energies are concentrated on the improvement of a wholly different breed. There it is they learn that each is but a detachment of the one great army with diversity of uniform, but whose banners bear this one inscription—"The improvement of the live-stock interest in all the land." 5. This coming together affords facilities for making common cause, which they could not otherwise have. They are thus enabled to encourage one another in the long fight against the scrub system, which for tenacity of life is far ahead of the proverbial household cat, and to unite in self-defence against aggression from any quarter whatsoever.

May we in Canada be swift to learn the lesson. Time is just as precious in this country as in the great republic. The obstacles in the way of our stockmen coming together are not one whit more than those in the way of theirs.

But we labor under one great disability. We have not the building in which to hold our winter exhibits. Some progress has been made, but not nearly enough. The city fathers of Toronto have their eyes on the drill shed to meet the present need, and we may get along for a time with that until the day arrives when a building shall be erected worthy of the great live-stock interest of Canada, and of the men who have helped to make it great. The committee appointed by the different organizations last winter have done something, but not enough. It is time they were met in conference again. We would therefore respectfully suggest that the Minister of Agriculture, Mr. V. E. Fuller, John Dryden, M. P. P., and the writer, the members of that committee, make a point of meeting sometime during the holding of the Toronto Exhibition for the furtherance of the scheme.

The contemplation of the number of live-stock associations that will then meet simultaneously is very pleasant, and the prospect of its becoming a reality is stimulating. The success of our fat stock show would be assured, and an amount of time and travel saved which must surprise any one who gives the matter his earnest attention.

Preserving Corn Fodder.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Could you kindly inform me in your next number the best way or ways of preserving Indian corn for winter fodder when you have no silo, and I shall be extremely obliged.

E. C. CARVER.

Hughenden, Colpoys Bay, Ont.

The writer of this letter asks a question of much significance. It merits a careful answer, as it relates to the curing of a crop of fodder which almost any farmer, in Ontario at least, can grow in quantity, from two to ten times greater in nutritive value than can be produced in any other way.

If the corn is sown broadcast, the harvesting of it will be a slow process. It may be cut with the mower one course at a time, and gathered into sheaves by hand, or into stooks set up in the usual way. If sown in drills it may be cut in the same way or with a hook. If bound into sheaves it may be tied with corn stalks or rye straw cut green and saved for the purpose, or with binding twine. If it is to be husked it had better be set up in stooks without tying, and put into sheaves at the husking season, which

should be as early as possible. When husked, from two to four stooks may be put into a larger one carefully tied at the top, which is important. These are again, later by some, put into still larger stooks, and drawn as required in winter. The objections to this are the snows that gather and the frosts that bind the stooks to the ground.

If tied in sheaves at the first, where there is room under cover, in the mow or anywhere, it should be drawn before snow and stood on end, one, two or three tiers deep, but always on end, as it will not keep lying flat under cover, or, indeed, anywhere.

When sown thickly broadcast, and of moderate growth, a well made binder will tie it in sneaves, but when cultivated in drills the growth is usually too strong for this. The advantages of growing in drills are, that if cut in the glazed state, the grower has a very complete food ration for his stock, owing to the amount of grain produced; 2, a much larger proportion of nutritive matter, and 3, the ground is cleaned at the same time if the cultivation has been thorough.

The one objection to the growth of corn for fodder is the amount of labor that must be expended in curing it properly, which does not apply where it is put into a silo. It is well to feed as much of it as may be required early in the season, reserving other kinds of fodder for use after it is gone. In this way much of it may be drawn from the stooks as first made, and fed to the stock on some old sod or in the stable, before snow comes in any quantity, which will bring us to the first of December usually. Any stooks fallen or tottering should be drawn first.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

The Clydesdale Horse in Canada.

BY D. M'CRACK, GUELPH, ONT.

(Tenth paper.)

WELLINGTON CLYDES.

The Clydes at Woodlands, owned by D. & O. Sorby, are by far the finest lot kept for breeding purposes in Wellington, probably in Ontario, and they are well worthy of a leading place among the very best on this continent. The farm itself is very pleasantly situated about four miles from Guelph, in the township of Puslinch, between the Waterloo road and the river Speed. The land is good and well worked, as it gained for the proprietors the bronze medal as the best farm in the county of Wellington in 1882. The dwelling and buildings are surrounded by evergreens and shrubbery, and are on a rising ground, from which nearly all the fields can be readily overlooked. The stables are models, roomy and well lighted. Under the basement of one of the barns are 14 loose boxes, 7 on either side, about 12 x 21 ft., with a wide passage between. Another stable adjacent, on a rising ground, contains 10 stalls, 12 x 15, and the largest stable, just finished, with 20 large loose boxes, and a large hay barn above, is some distance from the others, near the foot of the wooded ridge on which the other buildings stand.

Messrs. Douglas and Oswald Sorby began importing and breeding Clydes in 1882. The first animal they had was Princess (214), a bright bay with four white legs and white face. She was foaled in 1878, being bred by Mr. A. McVicar, Linlithgow, Scotland, and imported for the Messrs. Sorby by Mr. John Duff; sire Prince of Renfrew (664), dam Susie by Lochend Champion (448); g. d. Jean by Lofty. She had been the winner of several prizes in Britain, being second at the Highland Society Show at Perth in 1879, in the yearling class. In 1880 she was first at Girvan, at Hamilton, at East Kilbride, and at Glasgow, and the same year was first again at the Royal

of England at Carlisle. She proved a capital mare, a good worker and fast walker, but it was some time before she could be got to breed. At the Guelph Provincial in 1886, she was a clear first for mare with foal by her side, this being the first time she was shown in Canada.

The second importation was Lady Jane [216], bred by John Ralston, Stranraer; sire Lord Lyon (489), dam Nell (637), by Clansman (150), g. d. Beauty (355), by Victor, g. g. d. Nell by Muircock (550), g. g. d. Jean by Farmer (292). She was first at Stranraer in 1882, and again in 1883, at which time she was purchased for export. She was then in foal to the celebrated stallion What Care I (912), and her foal Daisy Guelph [227], the first pure bred Clyde foaled at Woodlands, is to-day one of the very best animals on the farm.

In 1884 Mr. Oswald Sorby went to Scotland and imported 6 head. One stallion, Farmer Lyon [302] (3340), a bay with white feet and ratch on face, a nice low-set horse, with fine, clean bone and splendid action. Trots and moves nicely. Many breeders think him too small for a Clyde, but he is just the type of horse for crossing on many of our Canadian mares. He has proved a good breeder; was bred by Wm. McKenzie, Milton, near Stranraer, foaled 1882, sire Lord Lyon (489), dam Nell of Milton (2650), by Drumflower Farmer (286), g. d. Jean, by Farmer (292).

The females brought out at this time were five—Kate Hill [215] (4129), a chestnut with white face and legs, foaled May, 1880, bred at Lockerbie; sire Young Surprise (1034), dam by Prince of Wales (674). She has proved a useful mare and a good breeder. Fair Helen [218], foaled 1882, bred by W. A. McTurk, Barlae, New Galloway, sire Sir Michael (1530), dam Barlae Doll (344) by Victor (892). She is a fine bay with white star on forehead and white hind feet. Corsock Daisy [219], bred by S. Armstrong, Dalbeattie, Scotland; sire Corsewall (1420), dam Corsock Dandy (976), by Dandy Jim (221). These were two-year-olds when imported, and with them came two yearling fillies, Lorna Doone [220] a big, rangy filly, inclined to be leggy; bay, bred by James McQueen, Crofts, Dalbeattie; sire McGregor (1487), dam Brisk II (618), by Pride of Galloway (601), and running back through Lochfergus Champion (449) and Lothian Tam (506). The other yearling was Mignonette [221], a daughter of Blue Ribbon (1961), dam by Farmer's Fancy (300). This was a nice sweet filly, and came out well, winning several prizes. At the Provincial of 1886 she was first as a three-year old filly, and was also first at Toronto the same year. She is a fine, bright bay, with clean legs, nice hair and good quarters.

The same year Duke of Kelso (2075) was purchased in the United States from Powell Bros., and used for a short time, but has since been sold, as have also several others, which need not be named.

In 1885 Mr. Oswald Sorby again went to Scotland and brought out seven Clydes, four mares and three stallions. At the head of the mares stood the Queen, in good show condition, and one of the finest-looking mares that ever came to Canada. She was sired by Darnley (222), dam by Prince Charlie (634). She won many prizes, both in Scotland and Canada, the most notable being in 1883, when she was awarded first at the Highland Society show at Inverness, where she beat Moss Rose, one of the crack mares of Scotland, and for which \$5,000 was paid. A fine cut of Queen appeared in the September number, 1886 of the CANADIAN LIVE-STOCK JOURNAL. Jane Eyre [217], a bay, two white feet and white face, good flat

bone and short, chunky body, sire King of Kintyre, (661), dam by Old Times (579). Lady Emma [222], an Aberdeen bred mare, foaled 1883, was good enough to win a place at the Highland Society Show in 1885, and has also gained a first with the Queen at the Provincial, Guelph, 1886. She is a good mare with good legs and fine rounded barrel; sire Prince Charlie (629), dam by Topsman (886). With this shipment came the yearling filly Mossflower [223], bred by R. & J. Shennan, of Balig, Kirkcudbright, sire Macgregor (1487), dam by Glenlee (364), g. d. by Victor (892), g. g. d. by Lofty (454), etc.

Of the stallions brought out at this time the best was Blue Jacket [304] (4254). A cut of this animal appeared in the LIVE-STOCK JOURNAL, February, 1886. He was by Lord Blantyre (2242) out of Kathleen (1008) by Farmer (288), and was bred by Thomas Biggar & Sons, Dalbeattie, Scotland. He was one of the most promising youngsters that ever crossed the ocean; was first as a foal at Dalbeattie in 1884, and twice obtained the first place in Canada. His early death was a loss to the country.

Gallant Boy [303], foaled May, 1883, a son of Top Gallant (1850), dam by Briton (2639), is a big, heavy horse of good color and weighty bone. He has given some good produce. The other stallion is a big roan of great size, but a color not to the taste of most Canadians. It has been said that there never was a good horse a bad color; and in this class we may put What's the Odds [301] (4780). He is by What Care I (912), a horse with a big record in Scotland, and one that, while it does not come up to that of his sire, Prince of Wales (673), is yet on the short list of the good sires. His dam is by Lord Lyon (489), and his g. dams trace back to Clyde (155).

In 1887 Mr. Oswald Sorby brought over 5 from Scotland, 3 yearling fillies and 2 stallions. The fillies were (1) Bessie of Overlaw [451], a light bay, bred by John Houston, Overlaw, Kirkcudbright, Scotland; sire Macpherson (3825), dam by Champion of the North (1092); (2) Lady Vera [452], by Belted Knight (1395), dam by Clansman (150); and (3) Miss Greig [453] also bay, and like the others, with very little white. This filly is by Golden Berry (2828), dam by Monkland Farmer (543), g. d. by Lochfergus Champion (449).

The stallions of this importation were Harlequin [622], a yearling, sire Skelmorlie (4027), dam by Robert Burns (702), and Lord Cross [623] (5157), a two-year-old by Scots Wha Hae (4006), dam by Superior (837), g. d. by Lochfergus Champion (449).

During this season the Messrs. Sorby purchased and now have at the head of their stud, the stallion Boydston Boy III [216] (1872), foaled 1874, bred by W. Caldwell, Boydston, Ardrossan, Ayrshire, imported in 1881 by R. Miller, Brougham, Ont. His sire was Prince Charlie (629), dam by Sir William Wallace (803), g. d. by Rob Roy (714), g. g. d. by Victor (892). This horse has an extra good pedigree. His sire was by Vanquisher (890), he by the old Lochfergus Champion (449), and carries a great deal of the blood of Broomfield Champion (95). He is still a good active horse, though now 14 years old. In Scotland he met with an accident which somewhat injured one of his fore hoofs, but he shows it but little, and has good bone and splendid action. Perhaps the best part of his pedigree is the fact that he is the sire of Lord Erskine (1744), now one of the most celebrated horses in Scotland, and one whose produce has taken a foremost place in the prize-ring. There are not four better horses in Scotland at the present day than Lord Erskine, and when his sire left Scotland in 1881 it was said that there were not more than five better

horses than Boydston Boy (III) left in Britain. His record in the show-ring in Scotland was a very good one. As a yearling he was first at Ardrossan; as a two-year-old first at Renfield, and third at the Highland Society's show at Aberdeen. As a three-year-old he was third at Glasgow Spring Show, second at Glasgow Fall Show, and commended at the Highland Society's Show at Edinburgh. In 1878 he was highly commended at the Highland Society's Show at Dumfries. In 1879 he was first at the Royal Northern Show at Aberdeen. With a lot of such well-bred mares as are at Woodlands some good produce may be expected, with such a sire as Boydston Boy.

This year (1888) Mr. Oswald Sorby has again been in Scotland and has just returned with 16, which will be quite an addition to the breeding stock. In this lot there is but one stallion, a yearling, MacLay, bred near Airdree after Gallant Lad (2781). He is a bay with white on face and one white hind leg. All this lot are either bays or browns with white on face and more or less on legs. Only one is classed as brown with three white legs, and one is described as brown with one white leg; others yellow; one is a six year-old mare, Bell, a daughter of Good Hope (1679). Three are by Belted Knight (1395), viz., Leila, a five-year-old mare, dam by Campsie (119); Lady Alison, four-year-old, out of a Strathclyde (1538) mare; and Adela, three-year-old, who has for dam a mare by Ivanhoe (396). The most celebrated sire whose stock are in the list is Lord Erskine (1744), sire of a two-year-old mare, out of a dam by Farmer (288). There are some half dozen yearling fillies in the lot. Lady Ailsa seems to have about the best blood, with sire Macneilage (2992), and dam by Sanquhar (2393), or perhaps Adelina Patti, with sire Golden Treasurer (4417), and dam by Darnley (222).

Altogether this last importation does not seem to have as much high-class blood as those at Woodlands before, while all have good pedigrees. The range extends over a dozen different sires, and no two of the animals have dams by the same horse, so that blood is well scattered, and may not, on that account, be less effective.

Woodlands is well worth a visit by all who admire heavy draughts, and a neater place with better stock will be hard to find anywhere.

(To be continued.)

The Guernseys as Dairy Cattle.

The Guernseys, though not numerous in Canada as yet, are following the current of the stream of emigration westward. It is not very long since they were introduced into Canada at all. Now, amongst others who own good herds, are the Hon. J. C. Abbott, Montreal; Mr. Fisher, M. P., Knowlton, P. Q., and Mr. William Davies, Toronto. We anticipate their pretty general introduction as they have proved themselves not only good butter cows, but the results from using the sires on other breeds for the production of dairy stock have been found satisfactory. This opinion is confirmed by a writer in the *London Live-Stock Journal*, who speaks thus of the breed:

"With regard to its uses for exportation, as I have said before, as a dairy breed it stands unrivalled. The bulls cross well with any breed, and the cross with Shorthorns, or any other large breed, makes a fine large animal easily fattened. The Guernsey is hardy, can rough it, stands cold well, but is worth taking care of, though not coddling. Mine lie out from April or May till the end of October, and are then brought in and housed for the winter. In the house they get chopped hay and straw steamed, with roots pulped, and from three to six pounds of artificial food, according to the milk they are giving. In summer, on grass, they get one pound

linseed and one pound cotton-seed meal. I calved them down about 27 months old. I have had big heifers to calve as early as 21 months that have done well, but in this case they must be extra well fed. I have always been afraid of milk fever, though I have never had a cow with it, and I attribute this immunity to the fact that I have, in the first place, careful and considerate people with the cows, and, in the second, that the animals are given daily, for a fortnight or so before calving, sufficient treacle to keep their bowels in an open condition."

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Herefords.

(First Paper.)

Of all the varied pastoral scenes in Great Britain there is perhaps none more pleasing to the eye of the stock-loving traveler than the glimpses he catches of the different herds of Hereford cattle dotted here and there amongst the picturesquely wooded glades and valleys of Herefordshire. One is struck with the uniformity of the color and markings the red and white blending harmoniously with the rich green herbage and the darker foliage of the large spreading oak trees, which abound in profusion, so much so that they have been called the "weeds of Herefordshire," and which give a very park-like appearance to the country. Such is the native home of the Hereford, a breed which is universally admitted to be of ancient descent, but whether it has always had white faces is a disputed question which has excited much controversy. Youatt says that 100 years ago their color was brown or reddish brown without a spot of white about them. Mr. Rolanson, in his prize report on farming in Herefordshire, also corroborates him, and gives the following account of the first introduction of the white face, which occurred in the herd of an ancestor of Mr. Tully, residing at Huntingdon: "About the middle of the last century the cowman came to the house announcing as a remarkable fact that the favorite cow had produced a white-faced bull calf. This had never been known before; and as a curiosity it was agreed that the animal should be kept and reared as a future sire. Such, in a few words, is the origin of a fact that has prevailed through the country, for the progeny of this very bull became celebrated for white faces." History relates that Robert Fitzhammon, the usurper of the lordship of Glamorgan, in the reign of William Rufus, was also lord of Asterville, in Normandy, where a breed of red cattle is still found; also that Sir Richard de Grenville, one of the twelve knights who took possession of the lordship of Neath, in Glamorgan, was lord of the manor and castle of Bideford, on the northern coast of Devon, and probably either or both of these persons introduced a red stock of cattle into Wales, from whence they may have been brought into Herefordshire. The color of the then prevailing cattle in Wales is indicated in the laws of Howell the Good, in which compensation for injuries done to the Princes of Aber-Ffraw, in North Wales, and Dinevawr, in South Wales, was fixed at 100 white cows with red ears, and also a bull of the same color for every cantref (a hundredth or division of a county) in the possession of the transgressor. Speed also records that Maud de Brehos, in order to appease King John, who was highly incensed against her husband, made a present to the queen of 400 cows and one bull from Brecknockshire, all white with red ears. Lord Scudamore (who died about 1670) also introduced into Herefordshire Flemish cattle which had white faces and white underlines, and a Mr. Galliers (of the Grange near Leominster), about the year 1750, also brought from Yorkshire a red bull with a white face and rather long horns, the produce of which became fashionable in Herefordshire. Mar-

shall, whose work was published in 1788, and who was himself a Yorkshireman and a good authority, says that at that period the Herefordshire cattle resembled very much those of Sussex, and still more nearly the then present breed of the Vale of Pickering, which was the home of the ancestors of the modern Shorthorns.

These facts are suggestive of the mode in which the white face may have originated. It is interesting to remark that the markings of the Hereford are not confined to that breed, the same markings being still to be seen in the Gayal, a semi-domesticated breed still existent in India, which has white face, white legs and a red body. Youatt describes the Hereford of his time as being larger than Devons and of a darker red, some being brown and a few brindles, but as being principally distinguished by their white faces, throats and bellies, the white in a few cases extending to the shoulders. Up to within a few years ago the horns of both bulls and cows were stronger, and had an upward spread, but a downward spread and finer half-length horns in both sexes are now preferred, and meet with more favor in the show-ring.

Mr. John Hill, of Felhampton Court, Salop, gives the following points in judging Herefords: "In a bull I should look for a good masculine character and good carriage; the head should be well set on and not carried too low or stuck out; it should not be narrow or too long, but wide between the eyes, which should be full and prominent, yet mild, showing a quiet disposition and aptitude to fatten. I like a good wide muzzle and clear nose. The crest should be well developed and have a good white mane. I do not fancy Herefords without some white on the shoulders, although its absence is no great point against an animal; and I dislike a bull with narrow crops. I think this is a very bad fault, for Herefords are essentially a beef breed, and narrow chines are most objectionable where beef is wanted. A young bull having good crops, wide between the top of the shoulder blades, and having a good foreflank, will even, if he is not quite filled up behind the shoulder, nearly always 'come' in that place as he matures, so that it should not be thought a very great fault if he is slightly deficient there. A good back is a point that should carry a good deal of weight with the judges. A bad-backed one should be put on one side, as most of the cuts of beef worth most per pound come from that part. I think there is a difference between a low-loin and a weak-loin. The former may be well-covered and packed with flesh, and is not such a fault as one that is bare and lean. If an animal has rather prominent hips and is high on the crop, the loin often looks lower than it really is; as also, when the ribs are especially well sprung the hollow behind the shoulder looks more than it really is. Long, full hindquarters and well-developed, wide thighs, well let down to the hocks, should score many points, and narrow thighs should be always considered one of the gravest faults. Quality counterbalances a multitude of faults, and an animal that does not handle well should always be rejected, as failing in this, they will never feed. Good hair and plenty of it is also a desideratum. I like a beast that stands over plenty of ground, and his legs well set outside of him, the belly line as close to the ground as possible, without being 'tubby'; a big bony animal is certainly to be avoided, but size, combined with quality, is an advantage."

AGRICOLA.

(To be continued.)

"I like the JOURNAL very much, could not well get along without it."—Geo. W. Fuller, Capelton, Ont.

Galloways from the Highland Society Show, Glasgow, 1888.

(From our own correspondent.)

There was a large turn out of the hardy blackskins at Glasgow, and the animals forward were a very good lot, with abundance of hair. The prizes were distributed over half a dozen competitors. The largest number of awards went to Sir Robert Jardine, M. P., of Castlemilk, Lockerbie, but the greatest number of first prizes went to the herd of His Grace the Duke of Buccleuch and Queensberry. For some years past this herd has not been fitted for show, though in the past it received more H. S. prizes than any other. It is now under the management of Mr. Neil McKenzie, who brought out his entries in good bloom, and was deservedly successful. He secured first for the five-year-old bull Kinsman 2d (1790), a son of Harden 2d. There are several heifers now in quarantine at Quebec, sired by Kinsman 2d. Some of them may be expected at our fall shows. He also showed The Squire (3737) and got fourth place for him. He is by the bull Stanley 3d (1793), now at the Ontario Agricultural College, Guelph, and is a much larger and heavier bull than his sire. The Squire was the only bull shown that had received a prize, and had also his produce in the prize-list, he being sire of Pride 4th (10337), the first prize yearling, a very fine, lengthy animal, and a good first in a very strong ring. Vich Ian Vohr (4121), also shown by the Duke, was first as the two-year-old bull. He was bred by F. E. Villiers, of Closeburn, and was first at Castle Douglas, the highest award obtainable for a Galloway. He is a son of John Highlandman (1905), the valuable bull which Mr. Thos. McCrae, of Guelph, lost by the wreck of the Brooklyn on Anticosti in 1885. The second prize bull in this class was Roger of Castlemilk 4364, a son of Roger of Oakbank (3390), purchased and imported by Mr. J. H. Bass, Fort Wayne, Indiana, U. S. In this class Regent Moray (4251), bred and shown by Messrs. Thos. Biggar & Son, and a son of Crusader (2858) was fourth. In yearling bulls Sir R. Jardine got first, second and fourth, while J. Jardine, Paterson, got third with Macleod 3d (4646). The second prize animal in this class was Talisman 2d, on which Sir Robert Jardine this spring put the reserve bid of \$1,500. The cows were large and fine. The two-year-old heifers, a strong class. Jas. Cunningham was first with Lizzie 3d 9680, a daughter of the celebrated Harden (1151). Sir R. Jardine was second with a daughter of Queensberry 4th (1785). Messrs. Biggar were third with a daughter of Crusader (2858).

Altogether the display was very creditable to the lovers of the blackskins. Blackskins are coming still more to the front. In the recent work, "India as seen by Robert Wallace in 1827," that great agricultural writer says that though the cattle are white or grey in hair in India they have all black skins, a provision of nature to suit the climate. The white-skinned animals are all failures there. To cross with success the animals must have black skins, whatever the color of the hair may be—and so in all hot climates.

The families that got first place were the Squire Porters, and the Statelys of Balig, with four representatives each. The other families well forward were the Claras of Chapelton, the Elrigs, Wellingtons, Blaikets and the Hannahs. The order of merit for the sires was—(1) John Highlandman (1905); (2) Crusader (2858); (3) Queensberry 4th (1785). The first belongs to the Black Beauty family of Balig, the second to the Claras of Chapelton, and the third is a Hannah.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Carp Culture.

BY D. NICOL, CATARIQUI.

(Second Paper.)

FORMATION AND CONSTRUCTION OF PONDS.

The first and most important consideration in this matter is, that in limited ponds carp only do well when they have exclusive right to the water. They cannot be successfully grown along with any other kind of fish. Hence it is always advisable to have ponds constructed so that they can be emptied when necessary, in order to have them cleaned out, and cleared of all other fish, destructive reptiles and amphibians. Besides this, there is the annual necessity of assorting and separating the large fish from the small ones, which are to be put into other ponds under more favorable conditions, which cannot very easily be done unless nearly all the water can be drawn off.

On many farms there are springs near the homestead, when small ponds can be formed in the land lying below at comparatively little expense. For amateurs the advantage of such ponds are, their slight liability to being overflowed by spring freshets. Being in close proximity to the dwellings, they are more frequently visited. The fish are more easily protected from the depredations of the kingfisher bird and other enemies, and can be more readily domesticated and regularly fed with little trouble.

The coldness of the water in summer, however, produces but a comparatively slow growth, and, generally speaking, its area is too small for the extended growth of fish, except when high dams are built, which are sometimes very risky, being so liable to break away at the opening of spring, or during very heavy rains. There is generally but a small area of rich soil at spring heads, consequently a scarcity of insect and vegetable life, which is the natural supply of food for the carp.

In farming a pond of this kind, or indeed any other kind, the dam should never be built of stone, but with soil of a clayey nature, at least nine feet wide, and three feet above the level of the water inside the pond. Dams built of stone and earth are far more liable to be opened by the frost than those built with any kind of earth alone, properly sodded over the wide slanting embankment.

The overflow from ponds of any kind should never be made over the dams, but by a wide shallow ditch or canal cut in the solid ground from one side of the pond, where the water is nearly on a level with the natural surface of the adjoining land, when there is little danger of wash-aways, and where screens are more easily kept in place, for, be it observed, all outlets must be properly secured with wire netting. Herein was my first difficulty in carp-culture. The only stock I have lost escaped over a washed away dam, when the screen was displaced by a spring freshet.

In many places ponds can be easily formed on the beds of branches of small streams or creeks. By constructing them on one side of the stream or creek the inflow and outflow can be so arranged that there may be but little danger of loss of fish by wash-aways or the displacement of wire screens. This is perhaps the most practical mode of constructing ponds for the growing of carp profitably. Where there is a natural descent of the land, one pond after another can be formed by the side of a stream or creek, canal, mill-race, or below mill-dams, so that only a certain quantity of water under any circumstances can enter the pond, and so that the outlet can be regulated according to the inflow.

Most persons would readily conclude that the best way of making a fish-pond would be to erect a dam across a stream as the beaver does, and allow the overflow to be over the dam; but this is a mistaken idea, because on streams which are liable to periodical freshets it is almost impossible to prevent the washing away of parts of the dam, and as a consequence the loss of many, and probably all the fish.

Where there is a continual inflow and outlet the pond need not be more than $3\frac{1}{2}$ or 4 feet at the deepest parts, because it probably will never freeze in winter more than half that depth; but when in winter the supply of water is liable to be stopped, the ponds must be deeper. This also necessitates the cutting of holes in the ice every few days to admit air, without which the fish would certainly suffer, and probably perish.

Now, the sum and substance of the whole matter is this:

1st. If large ponds are to be formed by the building of dams across streams, rivers or creeks, they must be so constructed that floods may pass away without entering the ponds.

2d. That the most economical ponds are those made in rich alluvial soil, in which vegetable and insect life is abundant.

3d. A carp pond, to be of much value, must be so arranged that all the water flowing in and going out must be passed through screens.

4th. That each stock pond should have in connection with it a shallow pond for spawning in, because when large fish are scarce of food they will eat the spawn and fry when they come on them in their dwelling place.

Size of ponds.—Among the first enquiries made by a beginner is, how many carp can be raised in a pond of a certain size? There can be no exact calculation made regarding the question, so much depends on the natural supply of fish food. It is commonly stated that under ordinary circumstances, when carp are left to themselves, without being fed artificially, an acre of water will produce annually about 1,000 pounds of fish. If, however, the fish are fed liberally the produce will be larger in proportion. The breeding and feeding of fish must be discussed in another article.

(To be continued.)

Erecting an Agricultural Hall in Toronto

This paper was read by the Editor at the annual meeting of the Ontario Central Farmers' Institute, held in Toronto, February, 21st to 23d, 1888.

We read in ancient story that once upon a time a quarrel arose between the body and its members. The hands, feet, ears, eyes and nose, all joined in the strike, and refused to provide food for the stomach, which they said had reduced them to a state of servitude to which they would no longer submit. They got their revenge, but it was at a most outrageous price, for no sooner was food withheld from the stomach than they began to languish, and although the story does not say it, without referring the matter to arbitration even, they were doubtless glad to close the strike and resume work at the old rate of wages. The members for the time being had forgotten that although they ministered to the wants of the body in supplying it with raw material in the form of food, it gave them back the finished article in the form of a well-sustained vigor, and that when they combined to make that foolish strike, as strikers too often do, they commence to cut down the tree of their own prosperity.

In this we have a picture of the inter-dependence of the different interests of the commonwealth, and the necessity for giving to each a due share of attention. Hence as we see it, it is the perfection of statesmanship to keep not only the body but all the members thereof in a happy equilibrium of healthful condition. That is not a complete body where any

one member thereof discharges its function imperfectly, nor is that a perfectly adjusted commonwealth where any of the industries thereof receives an over or an under amount of attention.

In every commonwealth the body is the most important interest. In Ontario that interest is agriculture, hence the urgency of the necessity that this stomach of the nation be well ministered unto by the members of the body. If the merchant of the city and the artisan of the workshop, the lumberman of the forest and the shipper on the lake, the manufacturer of the factory and the miner in the wilderness, are all agreed as to the wisdom of keeping this body well-sustained, it will not fail to send every one of them in return the most vigorous pulsations of prosperity. On the other hand the very moment they commence to play the greedy game of grab, appropriating to themselves the supplies this body should have, they shall indeed weaken the body, but by a retributive law, from the effects of which there is no escape, they shall just so far weaken themselves.

But while the relation between the body and each of the members is most intimate, that relation is relatively closer and more important in the case of some of them. The relation between the eyes and the body is closer than that between the body and the toe. Of the former class of relationship and inter-dependence is that between the city and country. It may be compared to the over and under currents of the Straits of Gibraltar, by which the waters of the Mediterranean are always kept in the most perfect equilibrium as to saline properties and volume. There is a steady outflow of the foods of the manufacturer and the merchant to the country, and a steady inflow of the farmer's products into the city, and the prosperity of each depends upon the equilibrium sustained by the volume of those respective currents. Let the current of the outflow exceed that of the inflow, and there soon follows a toppling amongst the houses of the wholesale merchants all along the line. The manufacturer's wheel runs more slowly, and the ominous "to let" is soon read in many windows. On the other hand, where the inflow increases, it begets renewed prosperity in every avenue of trade, so that the strength of this current through whatever channel or channels it may come, is very largely the measure of the prosperity and extension of the city. It follows, then, that any measure which is likely to increase the productive capacity of our farms should not be viewed with indifference by the people of any city. But when the benefits to the people of one city are largely in excess of those to other cities, and when the efficacy of such measure is largely dependent on the action of the people of that city, then indifference on their part would surely be a grievous mistake.

At the request of the executive of this Institute I have undertaken the pleasant and important work of preparing a paper on the desirability of having an Agricultural Hall erected in the city of Toronto, for the use of the farmers of the Province, but not necessarily for their exclusive use. The want of such a building is being most seriously felt, and at no period more keenly than at the present time. Next month a stallion show will be held, and it must needs be held on the street. Last December a fat stock show was held, and the farmers were indebted to the kindness of a private citizen for a place in which to hold it.

It is exceedingly desirable that a building should be erected, or, if now erected, secured, in which might be held the fat stock and stallion exhibitions, sales of fat and pure-bred stock of every description save the scrub, where the dairymen might hold their dairy shows, and the poultry of the Province would have a place of exhibition in keeping with the millions of money it brings into the Province every year. The building should have a council chamber sufficiently large for the holding of the annual and other gatherings of the different live-stock associations, of which we have quite a number, and yet more are coming.

The importance of agriculture relatively demands this attention at the hands of some one. Its investments in 1886 were no less than \$989,497,911. In that year the value of the live-stock industry alone was put at \$107,208,935. In the same year our sales of 16,113 head of horses from Ontario brought us about \$2,000,000 from the United States. Our sales of 25,338 head of cattle, \$633,094, and of 313,201 head of sheep, \$829,884. The output of cattle from the Dominion in 1886 was 85,887 head, with a return of \$5,631,421 in English and American gold, the great proportion of which went from Ontario. The output

of cheese from the 770 factories alone, which made a return in 1886, was \$5,893,818. In the same year out of a total export sent southwards of \$31,503,290, no less than \$15,495,935, or nearly one-half, came from the farm.

(To be continued.)

Rendering Stable Cleaning Easy.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL

SIR,—Some two or three years ago we constructed a system of tracks similar to hay car tracks, and cleaned the stables with a dump box attached to a car. This worked well, but it did not lessen the time occupied in performing the work very much, nor did it overcome the disagreeable part of handling with the fork and shoveling over the floor to take up the softer portions. It did not lessen the work enough to make it any inducement to stable the cattle in summer and adopt the soiling system. We have long thought of a system of partial soiling for dairy cows, but we could not see our way clear to make it pay for the expense and disagreeableness of keeping cattle clean when fed on soft summer food. This has led to the study of plans for overcoming these difficulties.

After a considerable expenditure of time and some in money, we have arrived at what we consider a device thoroughly practical and simple. I call attention at present to the merest outline of the machine, but may in a later issue give you fuller and more complete details. I may simply say here that it consists of certain scrapers, drawn by a rope or chain attached, in stables which have a gutter.

It may vary in details to suit the stable, but the principle remains the same. We have gone to no little expense in trying to get endless chain and other kinds of conveyors to work, without any satisfactory results, while with the cleaner I am now describing the expense is very trifling. The entire cost would not exceed five dollars.

In a stable similar to yours, where there is no gutter, it would be necessary to place a bar or scantling on the floor, about one foot from the drop and parallel with it, to form a gutter.

Its practical value seems to be contained in the principle that a given amount of power is represented in conveying a certain amount of manure to a given distance; and in this also, that if a horse power or other power can be applied to the work there can be just so much more done than can be performed by hand in the same time.

We find that the conveyor cannot fail to remove the contents of the gutter, no matter what condition it may be in, to the end of the stable, and clean out of the gutter. It not only removes everything clean but does not necessarily waste any bedding. All the hand work necessary consists in sweeping what does not fall in the gutter back into it. A boy can operate the conveyer, and disagreeable and heavy work is obviated, and the cows may always be kept dry and clean, an essential so important in dairying, and the difficult problem of keeping cattle stabled in summer, when the droppings are so difficult to handle in the ordinary way, is thus far solved.

When the manure is drawn to the end of the gutter it falls into a strong box without the stable, and by means of another device may be emptied into a wagon or on the pile.

I write thus much for the encouragement of those who may be looking in the direction of soiling, a system without the adoption of which, in one form or another, dairying cannot be successfully carried on. Some time, when I have more leisure, I may give you further particulars.

W. J. STOVER.

Norwich, Ont.

[We hope the expectations of Mr. Stover will be more than realized. The work of cleaning stables by hand is both laborious and disagreeable. In this era of improved machines handling manures has not received that attention which it deserves at the hand of the inventor. When the young men of the farm are found concentrating their attention on the invention of labor saving devices and their application, the future is certainly full of hope. Mr. Stover, who by the way is a graduate of the Ontario Agricultural College, is evidently not content to follow the ruts of centuries, as is the case with those who in blissful ignorance are innocent as to what is better.—ED.]

Agriculture in our Rural Schools.

This paper was read by the Editor at the Annual Convention of the Teachers' Association, held in Toronto, 16th August, 1888.

The statement of this subject is most fortunate for the writer. It gives him the freest and fullest license in his treatment of it. If Agriculture is not taught in our common schools, it allows him to assign the reasons for this strange neglect, and to shew why it should be introduced, the best mode of introducing it, and of teaching it when it is brought in. He may dwell upon its relative importance, and its relation to other callings. He may endeavor to point out the communities to whom it may and may not be taught, and set up, if he can, the landmarks that mark the limit of its claims.

Perhaps I cannot do better than launch my boat upon this rill of thought, following it in the order of simple sequence indicated, and sail away through the lone country through which it flows, noting the tributaries that swell its volume seaward, in the hope of discovering, at least, the bars in its bed that have kept the good ship, coming to us laden with agricultural treasures, at least nine miles and more at sea, and of devising some plan by which these may be cut away.

Virtually, agriculture is not taught in our common schools at present. I have scanned with a jealous care the programme of studies for Forms I to IV, for public schools, in the Departmental regulations, and I find no trace of agriculture there. The subjects of the lessons enumerated there all treat of other things, although the parties who study them in rural schools are nearly all from the farm. Again, in the General Directions, Forms I to V, I read: "The authorized text book on agriculture should be introduced into every rural school." How many have introduced it? And who has been the better of its introduction? We must first get a text book on agriculture before we can introduce it. This I make bold to say, with all due deference to the powers that be, that we have not as yet. Agriculture, like the children of the outcast, has been assigned a home in the street.

While it is true that Dr. Ryerson's Agriculture was sanctioned for use in public schools, in 1870, no work having been prescribed on the subject previously, continued as an optional subject on the revised list in 1880, was superseded by Tanners' First Principles, in 1882, which was left off the list in 1887, and replaced by "Public School Agriculture," in course of preparation, and to be authorized if found suitable, my statement holds good that we are at present virtually without a text book on agriculture in our common schools, and always have been so, for those we have mentioned were not text books at all in the sense of adaptation to the requirements of Canadian agriculture. That such has been the judgment of the general public is clearly manifest from the limited number of pupils who have used them. The report of the Minister of Education, for 1887, gives the number engaged in the study of agriculture in the public schools as 1489 out of a total attendance of 487,496—that is, one pupil out of every 327, while the subject was not taught in high schools at all. It is therefore of the first moment that the coming text book shall come speedily, and that it shall be in every way worthy of the subject of which it treats.

Various other elementary studies have been brought into the school-room and comfortably warmed, while agriculture yet slays shivering without in the cold. That shy little fellow now stands at the door waiting for some one to open, that he may spend his first day at school. That little lad is the Canadian representative of the first and last of the sciences, so interminable in its scope, that the pick-axe of the scientist has taken nearly six thousand years to break open the doorway leading into its illimitable treasure-house. May our Minister of Education, whom we all so much respect, take that timid little fellow by the hand and bring him in. May every teacher, male or female, in the rural schools of all Ontario give him welcome. He has within him the germs of a wonderful development that will bring much honor to the school. The material interests of the entire farmers of this Province will be affected by the treatment that boy receives at school.

The reasons why agriculture has not received more attention at the hands of our educational authorities are not far to seek. It has not been sought by those who need it most, that is, the farmers. Hitherto they have been so largely absorbed with the work of removing physical obstructions on their farms, and getting bread and butter for their families, that they have not

given due attention to the nature of the mental food these should get at the school. They have not clamored for the introduction of an agricultural text book, or it would have come long ago. They have been content with bread when they could have had the butter for the asking. This Province has several thousands of common schools, and high schools by the score, and there are not too many, yet it has but one school, virtually, where agriculture is taught.

That the year 1888 is more than half gone, and agriculture yet untaught in our common schools is enough to stir the ashes of our departed fathers, whose labors largely made this country what it is. Though the Guelph College were brimful of students, only one farmer in 1500 in the Dominion could send his son there. The sons of the 1499 must pine for the lack of instruction in what is to be their future life-work, or get their instruction at home.

Surely this is a sweeping reflection on the ignoble content of the farmer. Thus it is that the flower of rural communities are drafted away to the cities; that in the governing voice of the country the farmer gets a place amongst the thirty rather than the first three; and that in the social scale he is pressed tightly against the wall. We are without a text book—why? Book-making is a good deal of a trade. It is largely governed by the law of supply and demand. Now that farmers clamor for it, it is sure to come. The old National Series of school books came from Britain. A text book on agriculture, adapted to the wants of Canada, cannot come from Britain or any country but Canada. The soil of Canada forbids it. The climate of Canada forbids it. And the honor of Canada forbids it. It must be written by a Canadian.

The reasons why the study of agriculture should be introduced into our rural schools are not far to seek. There is, first, its relative importance to the farmer whose children almost exclusively fill the forms of rural schools. It is to him both meat and drink, and clothing and money. It is the steed he rides from the cradle to the grave, and the funeral car that conveys him to his last resting place. Why shouldn't he be taught this from his earliest infancy? The youthful mind has been compared to soft wax on which impressions are made, and there is much truth in the homely figure. Why shouldn't his impression after impression of the beauties and the wisdom that abound in the realm of agriculture be made upon the youthful mind, from country homes, when in the waxen state? Why shouldn't the farmer boy and girl have all the knowledge that the father and mother can give them, supplemented by a great deal that they cannot give them, and that will be to them of life long value? We cannot but think the study of agriculture would prove, to most youthful minds, one of the most interesting in the whole curriculum, dealing as it does wholly with truths that relate to natural objects, in striking contrast to many of the other studies, which are mere abstractions that seem so difficult for them to grasp. The perceptive faculties go out in search of them, and after wandering a little in realms of shadow, come back in despair, and then lie down and go to sleep the sleep that knows no waking. We know of no study so well calculated to stimulate the perceptive faculties at a tender age as the study of agriculture.

Then there is its relative importance to the whole community. The prosperity of every one is largely bound up with that of the farmer. The number of spokes in every wheel of business, the number of wheels and the number of their revolutions are largely determined by the success attending the operations of the farmers. About two thirds of the population of this country are farmers. I believe they own more than two-thirds of its property. They furnish more than two-thirds of the brains that stock the professions. The part they play in the commonwealth is surely all in all, a two-thirds factor, and therefore they are surely entitled to a two-thirds consideration at the hands of our educational authorities. A boy who, to the practical training he gets at home, adds sound theoretical information from a school text book, will beat the boy at farming who has only the first. Whatever then tends to improve farming should be countenanced by the whole community.

But one objects, is not this class legislation? Why not introduce a book on medicine into the rural schools? I answer, when the medical men form two-thirds of the population of the country it will be legitimate. I grant that the artisan in the town or city is justified in asking that a text book on practical mechanics be introduced, and on the ground of numerical strength. The principle of class legislation has already

been fought, for a text book (so called) was introduced years ago. The exact numerical preponderance that makes class legislation of this nature justifiable, it is not for me to fix.

(To be continued.)

The Processes of Milling Revolutionized.

The capabilities of the human mind are little if anything less than infinite. Where else can we find a more striking illustration of this than in the improvements that have been made by man in the one process of preparing the one item of wheat for the hands of the baker. The savage has no wheat to prepare. He knows not how to grow it. The semi savage beats his little morsels with a club in a trough, and so gets his flour. The best that the wisdom of the ancients could do was to set women and slaves grinding at a mill, where the grain was crushed between the upper and nether millstone. Thus it was that the millions of old Rome had their daily bread supplied from the granaries of Egypt, and thus it was that our forefathers prepared theirs but a few centuries ago.

When the process of grinding by water-power was introduced, a great advance was made, and when steam was set to the work of whirling the old burr-stones with rapid revolutions, the perfection of the art was supposed to have been attained. But where shall we find perfection in the haunts of the living? Soon the roller process was introduced, and the old burr-stones were cast out to waste away by the slow processes of the action of the elements. Mill-owners grumbled loudly, saying they could not bear the loss, but invention is a tyrant master that knows no pity, so there was no alternative but to introduce the rolls, or hand the whole mill, stones and all, over to the possession of the rats.

But lo! the last mill has scarcely introduced the rolls when consternation is in the camp again! The roller process is to be revolutionized by an improvement upon itself, and the inventor this time is a Scotchman, Mr. W. F. Cochrane, whose home is in Canada, and who is working in concert with Mr. V. E. Fuller, of Oaklands Jersey fame. Without entering into details we shall simply state here that the invention consists in the application of a belt in such a way that a saving of at least 40 per cent. is effected in the power required. Apply this to one mill and it means that the power formerly required to produce 300 bbls. of flour per day will now produce 500 bbls., and the present surplus of 250,000,000 bushels of wheat in exporting countries may be ground with the same expenditure of power under the new system as though it were but 150,000,000 bushels under the old. Apply it to the world's grinding, and it means a saving in power that it is not easy to express adequately in figures.

This improvement was first tried in a mill in Peterboro more than a year ago. This mill continues to do work so satisfactory that it has not failed in a single instance to convince the most sceptical who have examined it, that the invention is all that is claimed for it.

Other improvements have been introduced relating to different processes, but all pointing in the direction of utilizing power and turning out a more finished product. These improvements are protected by patent in Canada and the United States, and so completely satisfactory has every trial of their merits been to the cleverest milling experts of the continent, that a company has been organized for the manufacture of chilled rolls in Dundas, Ont., which is now in full operation, and another in Michigan, where manufacturing is soon to commence on an enormous scale.

Mr. Fuller is president of both companies. The

machinery manufactured is of course expressly adapted to the application of power in the line of the invention, which, it seems, necessitates the discarding of the old form of machinery hitherto used in grinding.

It was our privilege to visit the Roller Mills Supply Co.'s mill at Dundas on the day on which the machinery for the first mill manufactured by this firm was tried. It consisted of 28 rolls of the most perfect finish and unique in its adjustments. It ran beautifully, and without a jar. The whole was driven by one belt, which produced a triple motion with three wheels, which gave animation to every part in the most regular and uniform manner. This mill was to go to Ingersoll. The process of making the rolls is very interesting. In the molders' apartment is a deep pit with moulds for receiving the molten mass, which, when poured in, ascends from below and fills the mould. The utmost skill is required here, for on the temperature of the molten mass depends the degree of hardness in the chilled roll. By the outer portions cooling first the surface of the roll has the hardness of flint, but gradually softens as the center is approached. So great is the difference in this respect between the outer and inner portion of the rolls that while the outer surface can only be smoothed by means of the most gigantic pressure, the center can be bored without difficulty. The rolls consist of long circular pieces, which are cut to the required lengths. They are then polished, and where necessary, the surface beautifully corrugated with lines which gently curve as they traverse the length of the roll.

The many incidental improvements, none of them unimportant, we may not dwell upon now. The machinery of the entire establishment is the most perfect of its kind. One iron plater cost \$25,000, and the most skilled workmen that can be found are employed. The capacity of the establishment is one complete mill about every 15 days. Orders are pouring in, we were happy to learn, faster than they can be filled.

One is curious to know what led to the introduction of grinding by the roller process. It is based on the principle that the most desirable portions of the grain are extracted by pressure rather than by abrasion. Just as the most perfect fragrance may be obtained from a flower pressed but not torn, and the strongest and most perfect characters emerge from the pressure of difficulties in early life, when the spirit is not torn and lacerated by the utter hopelessness of surrounding conditions. Be that as it may, the roller process of grinding has come to stay. The dyspeptic must henceforth get his baker to put bran in his meal rather than the miller, and those who will may feed upon the finest of the wheat.

It falls to the lot of few to stand upon the highest pinnacle of achievement in a lifetime. Those who do so once are reckoned exceedingly fortunate amongst men, but those who do so twice are more rare than the decades. This is the unique position of our townsman, Mr. Fuller. It has been stated on good authority that Jerseys are the most numerous of all the improved breeds of dairy cattle on the American continent, but Mr. Fuller is the owner of the most famous of them all, and indeed of the most famous herd of Jerseys in the world. Now he is closely identified with the greatest improvement in the art of milling that the world has yet seen, an improvement that will cause even the experts of the art in all the continents to pay respectful homage to the triumphant achievements of Canadian wisdom in this line.

"I am well satisfied with your JOURNAL; the veterinary department alone is worth the subscription."—*Jan. Fleit, Prince Albert, N. W. T.*

The Live-Stock Establishment of Fairfield Plains.

Some rivers are so quiet in their onward flow that their presence is only made known to the eye of the experienced traveller in the distance by the rich vegetation of some wide valley spreading out before him. The roar of the mountain torrent and the spray of the hissing waterfall, and the wild and rugged scenery that are wedded to these are all absent, and yet he concludes an important watercourse is there, or such a wide expanse of luxuriant growth could never be sustained. There is surely some resemblance to the quiet watercourse we have been describing, in the operations of the Messrs. W. M. & J. C. Smith, of Fairfield Plains, whose work in the breeding and handling of pure-bred live stock we propose to sketch in this paper. For fully twenty-five years this river of stock improvement has been emanating from Fairfield Plains and flowing on in divers rills through many places in the land. Very modestly, indeed, has this been done, but none the less effective perhaps on that account. It was only through the number of their winnings in the show rings during recent years, that the general public came to get any adequate idea of the extent of their operations.

The farm itself is located on the Burford Plains, four miles from Burford, and as the name indicates, is somewhat level, but has gentle undulations. The soil is sandy loam with a clay and gravel subsoil. Fully 300 acres are cleared, the remaining 100 being woodland.

Fully a quarter of a century ago the Messrs. Smith commenced the breeding of land and water fowls, and during all those years have gone on gradually extending their operations until now they possess many kinds, some of which are enumerated on the first page. They have bred more than twenty-five distinct varieties first and last. Only one other person in Canada has shown fowls so long.

During all those years they have also been breeding Merino sheep, and as they are increasing their flock quite considerably of late, we have this most conclusive evidence that the sheep have done well for them. They have taken the larger share of the prizes, from year to year, at the Provincial during all this time, both on sheep and fowls, and the flock now numbers 13 males and 220 females.

Some of the stock sheep were bought from Mr. W. E. Kennedy, Somerset, Michigan; some from Mr. J. C. Thompson, Romeo, Michigan; some from Mr. Hugh Chisnel, Armada, Michigan; and others from Mr. L. La Pere, Paris; W. Buchanan, Glen Morris; and R. Bailey, Union. New blood is brought from celebrated American flocks when required. Many of the individuals in the flock are heavy shearers. On one occasion four rams clipped 98 lbs. of creek-washed wool. Nor had they been fed specially with a view to get heavy fleeces. This year several averaged 25 lbs. of creek-washed wool, and a ram owned conjointly with Mr. Bailey clipped 33 lbs.

The Ayrshire herd was established in 1884, when four prize heifers were bought from Mr. T. Guy, Oshawa, and the first prize bull calf from Mr. Drummond, Petite Cote, P. Q. A cow was bought at the sale of Mr. J. Jardine, Hamilton, in the fall of 1886, and the same year a yearling heifer from Mr. Beaty, Omagh. In 1887, the stock bull, Rob Roy, was obtained from Mr. J. Yuill, of Carleton Place, Ont. The herd now numbers twelve females and two males, and they are a neat lot.

Poland Chinas were introduced in 1884, when a pair were purchased from Mr. W. G. Baldwin, Colchester, Ont. An aged sow in 1885, and others have

been bought from Mr. Bell and Mr. Walker. During the last three years the most of the prizes at leading shows on Poland Chinas, have gone to the Messrs. Smith. They have found good sale for them, having sold all they had to part with of last year's stock, some going to Manitoba, and some to Nova Scotia.

The Fairfield Plains Farm will turn out a contingent to the shows this year again that will no doubt do credit to the shows, and to the owners as well. So many years of patient painstaking work deserve the rich reward that is now being reaped.

"Pure-Breds Brought in the Back Way."

X. Y. Z. REPLIES TO H. K.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR—To reply in kind to the *gentlemanly* article of H. K. in your last issue would be neither interesting nor instructive to your intelligent readers, consequently I shall not attempt it. I have re-read my card sent you at first, and see nothing objectionable in it. When writing it I took it for granted that every reader knew that breeders were not in the habit of selling stock to the butcher that were in every way suitable for breeding purposes in their class, also that there are frequently defects in animals, caused by accident, which though not transmissible to their progeny, render them undesirable to purchasers for breeding purposes. Evidently I was mistaken. H. K. appears to understand the matter now. He certainly should after reading your very timely article, "Don't Spare the Knife," in the July issue. I would advise every breeder to castrate every male intended for the butcher, and do it as early as possible after birth.

X. Y. Z.

Veterinary.

FOR CANADIAN LIVE-STOCK AND FARM JOURNAL

Horse Breeding.

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

(Continued from August.)

A short back with plenty of ground covered is considered to be perfection. But too frequently in short-backed horses we find the fore and hind legs stand too close together, and such an animal is confined in his action, and is very liable to that annoying habit of "forging" or striking the fore foot with the hind, particularly if fatigued. Hollowness of the back is decidedly unsightly, and, unless it is the result of old age, is very apt to be transmitted to progeny. It is a defective formation that is by no means uncommon, perhaps more so amongst heavy than light horses. Usually associated with a hollow back is found a deficient loin, and such deficiency generally indicates that there is not that robustness of constitution so desirable in a horse. In addition, it is often found that there is not that freedom and elasticity of movement in a hollow-backed horse that is desirable. This is particularly noticeable in an animal used for riding purposes, and in carrying weight fatigue is sooner induced. The opposite formation to hollowness, or what is called roach or hog-backed, is equally unsightly, and seems to give rise to the same imperfection of movement; but I have not noticed it associated with an unsturdiness of constitution.

Opinions differ considerably as to the formation of hindquarters desirable. Some think more of symmetry, than of indications of power. Perhaps no point of horses varies so much in form. The contour is to a great extent determined by the size, form and direction of the bony foundation, or haunch bones; but the muscular development and amount of flesh carried modify the outline considerably.

There is no doubt that at least proportionate breadth of quarters is necessary in the brood mare for

safety and ease in foaling, and that breadth gives space for bulky muscles; but there is often found plenty of width without an adequate muscular development, and if the bones are prominent it gives rise to the condition termed tagged hips, which is by no means handsome; although some useful horses are so formed.

The formation most indicative of power and constitutional vigor is the deep quarter with bulky muscles, from the stifle backwards, and well-filled up between. You seldom find such a formation of quarter associated with a poor middle-piece; on the other hand one may frequently observe broad but shallow quarters with a very light middle.

In addition to depth of quarter another important point is length, as it gives the necessary leverage for the muscles. One seldom hears the drooping croup admired, for it is certainly not a handsome formation, especially if the tail is set on low. The horizontal croup is much more attractive, but is unfortunately more apt to be found where the quarter is shallow. The lower thigh or gaskin has been already referred to as a favorable situation for determining the muscular development of a horse.

Before speaking of the hock it may be remarked that the bones which form the foundation of the upper and lower thigh should be long, in order to bestow the advantage of leverage power. This is more particularly necessary in horses used for fast work; and it lets the hocks well down, a point often referred to as being desirable.

In the fore leg our attention is most frequently drawn to the foot as being the commonest seat of unsoundness; but in the hind leg the hock is the most important point; so that in breeding animals we cannot be too cautious in inspecting the hocks, not only for symptoms of hereditary disease, but with the object of determining whether the joints are strong or not. It must not be forgotten that in defective formations we have the most fertile cause of predisposition to disease of the limbs. It is hardly necessary to state that the most perfectly formed hocks are occasionally the seat of disease; but we cannot do better than breed from animals with good, strong hocks, free from unsoundness. It is a most annoying thing to have a well-topped, good-looking horse depreciated in value twenty or thirty per cent. by a blemish that at the time does not inconvenience him; and one is apt to persuade oneself that it never will. This is the trouble, for we can never tell when this particular part may be subjected to some extraordinary trial, and give way; and it is wonderful how the weak part is usually found out. The formation of the hock influences the shape and general appearance of the hind leg. There is considerable variation in the extent of the natural bend in the hind leg. The two extremes are usually spoken of as the straight hock, or straight hind leg, and the sickle-shaped hock or crooked hind leg. As in most other cases, the happy medium is the thing to be aimed at for general purposes, and for soundness, although for certain kinds of work the extremes are considered advantageous. Horses with very bent hocks are considered to be at an advantage for fast trotting, and for jumping, while straight hind legs are thought to be best for fast running. But as has been said, for appearance, durability and usefulness, a moderate bend is the best. Sickle-shaped hocks are particularly liable to strains of the various cords connected with the joint, but do not seem to have the same tendency to the development of bone, and bog-spavin or thorough-pin.

Irrespective of the degree of curve in the leg, the form of the joint itself is of the utmost importance. A perfect hock may be described as a broad, flat,

clean-cut one. By a broad hock is meant one presenting full proportionate size, when viewed sideways; not only from the point of the hock in a straight line forward, but at the lower part of the joint.

Flatness of hock is determined by viewing the joint from either in front or behind. There is no objection to moderate width from side, in fact it is an advantage, providing the joint is clean-cut; that is, with the natural prominences and depressions well defined, the skin fitting tightly with an absence of gumminess or puffiness. One has to be conversant with the natural form of the hock in order to be able to detect any departure from what is normal; particularly in discriminating between what appears to be an undue size of a natural bony prominence, or a diseased growth or bone-spavin.

This is one of the most troublesome questions that a veterinary surgeon has to settle between a buyer and seller, in order to do both justice. The buyer does not only want to know if a prominence on the hock is likely to become the seat of active disease, and thus incapacitate a horse for work, but he further wants to know what view another individual might take of it, if the animal was again to be put in the market.

These are both difficult questions to answer, particularly the latter, as different individuals take different views. Even veterinary surgeons frequently differ.

It is obviously an unfairness to a seller to destroy his chance of a good sale when the evidence of unsoundness is not much more than conjectural.

It is to some extent a guide if we find a suspicious prominence existing in the same place in both a horse's hocks, unaccompanied by any imperfection of gait. Unless it is evidently abnormal, either from its size or peculiar form, one is generally safe in assuming that it is not a cause of unsoundness. But in some instances we find one hock larger than another throughout, and of course the protuberances in the usual seat of spavin will seem more prominent in the large hock than in the small one; but it is questionable if this should be regarded as an unsoundness, although it is undesirable, as an element of weakness for work, and may possibly be perpetuated in breeding animals. Rough hocks of any kind are most decidedly objectionable in a breeding horse, particularly any tendency to curbiess, even if there is no absolute unsoundness, for a tendency towards a roughness is frequently intensified in the progeny.

(To be continued.)

Cure for Injured Hocks in Horses.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR.—I have a two-year-old stallion colt and intend fitting him up for the fairs. I had him tied in a single stall for a short time and he began to scrub his tail. In order to do so he would turn around and strike his hocks against the sides of the stall. This caused the caps to enlarge. They are not real soft nor hard. Can you tell me a cure for them?

F.

Shower them with cold water with a hose two or three times a day, and rub twice a day with compound soap. But first of all remove the cause. A board fastened to the side or sides of the stall about the height of the horse's side, with the edge toward the horse, will prevent him from getting very close to either side of stall.

Growth of Tissue.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR.—Would you kindly give your opinion on the following in your next issue?

I have a valuable mare, three years old, and last February she cut her fore leg with one of her shoes,

from the knee to the hoof. I had two veterinary surgeons to attend her, and they sewed up the cut and treated her for a long time, and it has not yet healed as it should, where the cut was; the stitches also giving way. There has grown a welt about the size of two fingers in thickness all the way down. What would you advise to take this off? Otherwise she appears to be all right on the leg. She is not lame, and stands good and square on the ground.

Clarksburg, Ont.

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

I don't think this growth of tissue will ever be reduced altogether. You ought to try rubbing in a little iodine ointment every day until it begins to irritate; then stop its application until the soreness disappears, when, if it is doing any good, it might be re-applied.

The Farm.

THE farmers who benefit the country most are not always those who gather the most money. A farmer may make riches by fleecing his land with a diligence that knows no cessation. When one farm is thus shorn he sells it and buys another, to repeat the process. Such an one, if active and frugal, is pretty sure to accumulate money, but he does it at the expense of the country. He teaches no one any good from his methods, takes no interest usually in breeding the better kind of stock, very seldom takes much stock in the local improvements of the neighborhood, and we think it will generally be found that he is much inclined to neglect the education of his family. His whole life is one continued system of land spoliation, the undoing of the ill-effects of which it may, and likely will, take generations of good farming. If it is the whole of life to accumulate money, such a man is making a good use of it, but every body knows it is not. Our country has claims upon us, since it has cradled and protected us. Our neighbors, too, claim certain things at our hands, including effort on our part to benefit the neighborhood in which we live. Those who live after us have also claims, especially those of our own family, and prominent amongst these are the claims of education. There are so many ways in which life may be made grandly useful if we are so disposed to use it, but the time will never come when systematic land-robbing will be included in the number.

MR. GILBERT MURRAY, writing in the *North British Agriculturist*, says, "No amount of scientific cram will ever turn out a practical agriculturist without a system of training on the farm," and Mr. Murray is certainly correct. While some physical labor is necessary at agricultural colleges to keep the students in touch with farm work, it is not the best place to learn to labor physically. That is done far better on the farm, and should begin long prior to the period at which a student enters an agricultural college. The work of the farm, sometimes laboriously irksome and distasteful, is not likely ever to become a pleasure to one who has not borne a good deal of the yoke of labor in his youth. The farmer who is to succeed in this country must have a good, practical knowledge of farm work in all its phases, and this he can never get so profitably as in earlier years, nor so well anywhere as on the farm. Farming is a business compound in its nature, in which the physical plays a more important part than in the professions. True, as in war, where mere physical prowess is not all important now, physical culture is not so important relatively in farming as in other years when the great problem was how best to annihilate the forests. But it will always be of much importance to the average farmer. Those, then, from

other walks of life, whose hearts are set on farming, cannot do better than serve a thorough apprenticeship on the farm until they become thoroughly accustomed to all forms of farm work.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

The Education of Farmers.

BY J. H. SMITH, ANCASTER, PRESIDENT OF THE ONTARIO TEACHERS' ASSOCIATION, 1887-8.

[Mr. Smith has for many years strongly advocated giving increased attention to the teaching of agriculture in our public schools.—ED.]

Standing in imagination upon the banks of a majestic river, whose current is carried far into the ocean before its waters mingle with the surrounding waters, and upon whose surface the combined fleets of the world might find room to perform their evolutions, the thoughtful observer is led to enquire, from whence comes this vast quantity of water, and where is the source of this mighty river? Journeying along its banks, towards its source, he soon arrives at a point where another but smaller stream pours its flood of waters into the current, and if he continue his journey he will find, from time to time, other tributaries adding their quota, until at last he will reach a series of rivulets, over any one of which a child might leap, coursing down the hillsides, and having their sources in springs in the mountains, many hundreds of miles from its confluence with the parent ocean. So it is with our educational system. We can trace it back to the time when our forefathers were occupied in clearing away the forests and carving out for themselves homes in the wilderness; and when this beautiful country, whose landscapes are now dotted with pleasant homes, the abodes of peace and plenty, was only a sparsely populated colony. Nor is the comparison less true in regard to the sources from whence our system has sprang.

The springs may be compared to the homes, the smaller tributaries to the public schools, the larger branches to the high schools, and the main body to our universities and professional schools. These, united, form one grand system, which has grown with our growth, and strengthened with our strength, until its beneficial effects are felt in every hamlet in the province. All honor to those sturdy pioneers who, bearing the heat and burden of the day, and with a self-sacrifice not even now fully appreciated, have bequeathed to us an educational system that challenges the education of the world. Well may we feel proud of it, not only for what it has done in the past, but for the grand possibilities that lie in its future.

Our intention, however, is not to dwell upon its many admirable features, nor to speak of its merits as a whole, but to direct attention to one department, which, if properly developed, will add much to its practical utility, and be of inestimable value to the people of the country. That department, then, of our educational work to which we purpose directing special attention is the proper education of farmers. We do not think that the education of farmers differs from the education of any other class of citizens, for all true education is the same, but the instrumentalities used and the means adopted may vary according to the circumstances of each class, just as different roads may lead to the same central point, or the radii of the same circle converge to one common centre. We use the word "proper" advisedly, for there are many subjects taught in our high and public schools that do not commend themselves to our judgment, either for their practical use in after life, or for their value as a means of developing mental power, especially when we take into consideration the manner in which they are taught. The subjects themselves may be, and

doubtless are, valuable as a means of training the mind, but the methods of teaching that are too frequently pursued can be considered as little better than "cramming," for the great object seems to be to see how many pupils can pass the prescribed examinations. All examinations, when properly conducted, are to a greater or less extent beneficial, but it is possible to have too much, even of a good thing, and we certainly have had sufficient of these to fully meet the popular demand.

That there is valuable educational work done in many of our best schools, few will deny, but no one will affirm that all our schools are doing what we have a reasonable right to expect of them. There is room for improvement, and to discuss some of the ways and means in which our educational work can be advanced is the object we are aiming at.

Before directing our attention specially to this part of our subject, it may be well to enquire: What is education? and how is it to be obtained? The answers to these two questions will form the basis of this paper.

In considering any subject in which certain words and phrases are used in a somewhat technical sense, it is essential that these terms should be clearly defined, so as to prevent misapprehension or confusion. The popular idea is that education and knowledge are synonymous terms, and these words are generally used in a vague and indefinite sense. Education is a word of much more comprehensive meaning than is generally attributed to it. One may be well versed in mathematics and the languages, and have a knowledge of science and art, and yet be far from being educated, while another may be, comparatively speaking, ignorant of many of these subjects, and yet be the better educated man of the two; for the reason that while the former possesses a large fund of knowledge, he is without the ability to use it: the latter, though possessing less knowledge, is able to use it to advantage. Education brings wisdom, just as the accumulation of money brings wealth. Knowledge is the food of the mind, instruction the proper preparation of this food, and education the assimilation of it, so that the mind may grow and develop by the use of mental food, just as the body grows and develops by that of material food.

(To be Continued.)

Identification of Grass.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—I have read your answer to my question as to the kind of grass I sent you in a former letter. Your invitation to send a whole plant pleased me much. I enclose the same. We ploughed the field up two or three times and sowed the ground to spring grain, but the grass has grown up again. I have shown it to several of my neighbors, but they do not know what kind it is. It is land that we bought, and therefore I don't know how it came there. If you can identify it you will oblige me, and perhaps others. I thank you for your past trouble.

WM. NUIR.

Presque Isle, Lanark, Ont.

There is no mistaking the plant this time, as we have a complete specimen. We are sorry, indeed, to have to pronounce it couch grass or quack grass, one of the most difficult forms of plant life to get out of our fields that we have. In another column of this number you will find a sketch of this miserable intruder, and a description of it, with the best methods of destroying it, from the pen of Prof. J. Hoyes Panton, Guelph. Farmers everywhere should be diligent, informing themselves as to the various kinds of weed life that invade our fields; oftentimes they get a footing before their dangerous character is known, and then comes the difficulty of dislodging them.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

Weeds.

BY PROF. J. HOYES PANTON, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

X.

CLASSIFICATION OF WEEDS ACCORDING TO NATURE AND HABITS.

Triticum repens (couch grass, squitch grass, twitch grass, quack grass, scutch grass). This creeping perennial can boast of almost as many names as localities in which it grows. From each joint of the root it is ready to spring, and the point of the creeping root is so sharp and stiff that it has been known to force its way through a potato. The plant will withstand the hardest treatment, and as a grass for permanent pasture is not to be despised; but if the field is to be broken up, a task lies before the farmer, whose field has become overrun with quack grass. The accompanying cut will suffice to identify this undesirable pest.



Triticum Repens (Couch Grass).

The following remedies have been followed with success in getting rid of this grass:

1. Plough deep about the first of June and sow buckwheat, at the rate of about two bushels to the acre. When this is in full bloom plough down and sow buckwheat again, in the same quantity, and plough in this crop about the end of September. This will enrich the land and clean the field.
2. Manure in the fall and plough. In the spring cross-plough and harrow about the time the grass is starting to grow. When about time to sow corn, plough and harrow so as to prepare for planting with corn. The corn, if planted about the first week in June, gets a good start, and if thoroughly hoed, the quack can be kept down and finally got rid of by another hoed crop.
3. Plough early and deep in spring. Stir up the ground frequently with a gang-plough, as often as once a week, if necessary. In the fall give it a good, deep ploughing. Grow next year a crop requiring to be hoed, and keep it thoroughly hoed. In this method a year's crop is lost.
4. Some have been successful by ploughing the ground in the fall, and in spring cross-plough or cul-

tivate and sow peas, which get a start over the grass and weaken it to such an extent that if succeeded by a hoed crop, good results follow.

5. Corn sown broadcast, so as to cover the ground thoroughly, harrowed in and rolled, will smother out quack very successfully.

Setaria glauca (common foxtail). Exceedingly common in stubble, at the close of the season; comparatively low; the spike is tawny yellow, dense and long bristles. Though very common, this annual is never viewed as difficult to get rid of.

Panicum crus-galli (barn-yard grass). A coarse grass, usually growing about the barn-yard; lies flat to the ground, has very coarse stems, swollen joints, broad leaves, and flower clusters forming a dense mass. This annual does not trouble much, and seldom usurps ground occupied by more useful plants.

Avena fatua (wild oat). This annual in some parts of the province is a very serious weed. It is very hardy; the seeds will grow after being buried in the soil for years.



Avena Fatua (Wild Oat).

The seeds, oat-like in appearance, are quite hairy at one end, and bear a short awn at the other. The plant has a somewhat spreading habit, and ripens comparatively early, so that it soon seeds, unless a crop is grown which can be cut before the oats ripen.

It would seem from discussions at some Institutes in the northwestern part of the province, that it is almost impossible to get rid of this weed. However, some have been fairly successful in destroying it by adopting one or other of the following remedies.

1. Sow barley; this ripens before the oats, and thus prevents them from seeding. Follow by a crop well hoed.
2. Sow barley and seed down with clover; this prevents the oats ripening for two years. The clover may be ploughed up and fall wheat sown.
3. Barley sown and seeded down with clover, and this followed with turnips, well hoed.
4. Gang-plough in the fall; after a short time plough well. Harrow or cultivate in the spring so as to encourage the oats to sprout; then cultivate and sow barley. The great object is to keep the oats from seeding, and as they are annuals, they must soon diminish.

Having given a brief outline of the most of the common weeds in Ontario and the remedies likely to be successful in getting rid of them, I shall close my task by placing in a tabulated form some information

which may be of service to intelligent readers for reference in the future.

If a perusal of the series of papers upon weeds has led some readers to give these plant wails closer consideration so as to more thoroughly understand their nature and habits, the writer has been well repaid for the time his attention has been occupied in supplying a monthly contribution to the columns of the LIVE-STOCK JOURNAL.

(Concluded in next issue.)

The Construction of Outbuildings on the Farm,

WITH A VIEW TO THE COST OF ERECTION, ECONOMY OF SPACE, AND CONVENIENCE FOR FEEDING STOCK. AN ESSAY BY MR. THOS. SHAW, TO WHICH WAS AWARDED FIRST PRIZE BY THE AGRICULTURAL AND ARTS ASSOCIATION.

(Continued from August.)

The essentials of a cattle barn, in addition to those already named, are: (1) That the uncut food, except roots, goes down from above as nearly as possible to where it is to be fed, and the same of litter, and that the arrangement overhead be such that access to feed or litter in any of the mows may be had at any time. (2) That the chaffing and grinding room above be as nearly central as may be, and contiguous to granaries, and that the feed room below be similarly situated, and conveniently accessible to roots and water, unless when a car and track are used. (3) It should be well equipped with ordinary stalls and box-stalls in proportion to the wants of the farm. Unless the tempers of cattle improve, they will not all do well in a shed or stable loose, although cared for ever so attentively, and it is too expensive to build what is simply shed room enclosed in costly stone walls.

The other essentials of a horse barn are: (1) Over-ground construction to avoid dampness. (2) Loose boxes for stallions in service and for breeding mares, also for colts and young horses. (3) A floor that will not absorb the urine, that will be durable, and on which the horses will not slip. (4) Inclosed compartments where the harness may be kept from the injurious influences of the ammonia, and out of danger from horses that may get loose. (5) A high ceiling, to give ample room for an abundant supply of fresh air. (6) Particular attention to the facilities for getting down feed from above.

The special features of a sheep barn are: (1) Abundance of yard room where the sheep may get access to the air and sun almost at will, save in the time of storm or during the lambing period. (2) A number and variety of compartments to suit the changing conditions of the flock as the winter advances. (3) A warm temperature where the youngest lambs are kept. (4) Racks in which the feed may readily be placed from the hallway without endangering the cleanliness of the wood. (5) Special provisions made for the feeding of the early lambs apart.

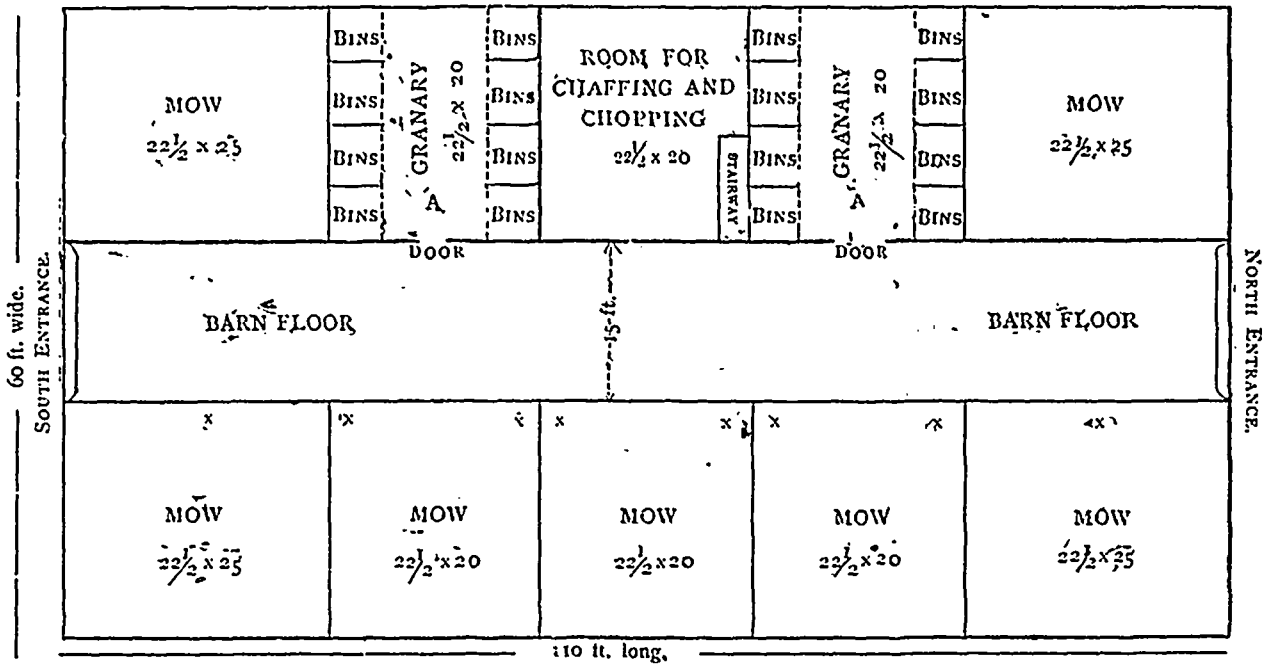
The special requisites of a piggery are: (1) Comfortable temperature without dampness. Hence, stone basements in a bank are not good places for keeping swine. (2) A yard or yards to which access may be had from the compartments of the pens, when breeding is the principal object. (3) Apparatus for cooking feed, and for slaughtering. (4) In case of pens anywhere near cheese factories, provision for absorbing the manure so that the odor will be destroyed.

In poultry-keeping, to the requisites already given, we may add: (1) Suitable apparatus for cooking food and for heating incubator, if desired. (2) Incubator room or rooms, and also those for breeding for stock. (3) Yards for the "coilers" and the breeding chicks distinct. (4) Compartments for keeping food in. (5) Bureau for labelled eggs.

CATTLE BARN WITH PLAN.

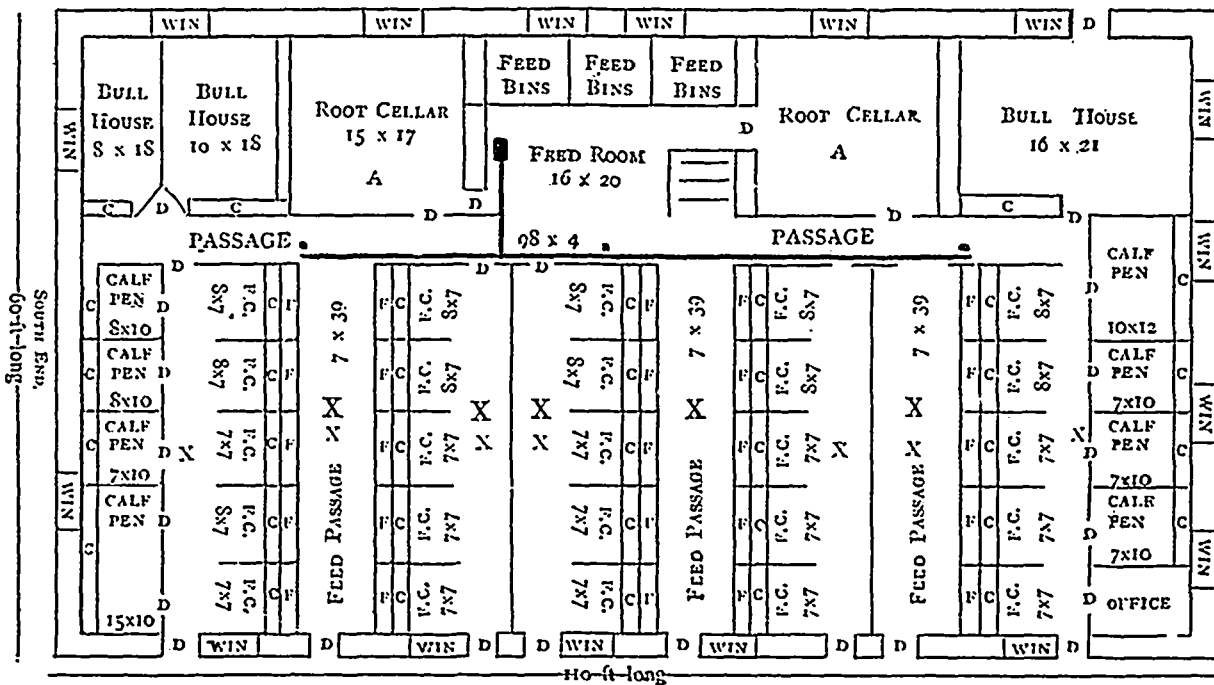
The cattle barn that we have selected as the most nearly fulfilling the conditions specified, is that erected on our own farm at Riverside, in the summer of 1886, a sketch of which appeared in the JOURNAL of that year. It was at that time the plan most to our mind, and although we have seen a considerable number of the best barns of the Province since then, the opinion just expressed has not been materially changed.

An accurate survey of the accompanying plan will give the reader a pretty full knowledge of details, but



GROUND PLAN.

A—Turnip chutes. X—Feed and bedding chutes.



PLAN OF BASEMENT.

A—Root chute above.
 Black line—Water pipe just under ceiling.
 C—Manger.
 F.C.—Cow stall.
 D—Door.
 F—Water trough.
 O—Tap and hose attached.
 WIN—Window.
 X—Feed chute.

we add some particulars that may not be self explanatory.

The building, as will be observed, is oblong in plan, and built on the end drive principle. It is 110 feet long and 60 feet broad, with outer posts 20 feet high, inner ones 37 feet, and 16 feet apart. The height from floor to peak of roof is 52 feet. The internal divisions are shown in the plan. The tank, 8 x 10 feet, is placed above the chaffing-room. Although protected only by straw, the frost does not trouble it. In the chaffing room, which is supplied with a window, are placed cutting-box and grinder, with an opening in floor for belt if required to run paper below. The elevating is done by means of a

rack-lifter placed upon a track bolted to the inner posts, and which may be moved from space to space. In this way the entire barn may be filled to the roof, including that part over the drive passage, with the exception of one space. The windows above, all swing, and also the gables at both ends. The windows below slide. In filling the mows the fodder is put on one side by means of a horse-fork, and the grain on the other, leaving the end mow in the rear vacant. In threshing this is first filled with straw, the rack-lifter being utilized for straw scaffold, and thus the threshing-machine works forward as occasion requires. The capacity of the barn overhead is more than ample for the wants of a full supply of

stock kept below. The windmill, a 16 feet Halliday, does the pumping, chaffing and grinding, and it will do any of these operations well, but requires a stiff breeze for grinding, so that one requires to be forehanded to keep up supplies.

The plan of basement very nearly explains itself. Each of the partitions rests upon a dwarf wall, so that every upright in the basement forms a support to the upper part, thus giving great solidity to the building. The feed-boxes are 14 1/2 inches wide at the top, and 12 inches at the bottom. The height at the back is 9 1/2 inches, inside measure, and they rest nearly on the floor. The space between the feed-box and the rack above is 20 inches, and through this the cattle

reach and drink in apertures made by drawing up self-supporting slides in the shelving lid of the water-troughs, which also forms the slide into the feed-box, and is 15 inches wide. The racks for sodder incline toward the passage, and are tight on that side. The spars stand upright, are 2½ feet long between the scantlings, and 6¾ inches from centre to centre, but should be one inch less. They are 1½ inches square, and are made of sawed maple. The distance from the base of the manger to the drop of the stall is 6 feet 4 inches, and the width of passage in rear of cattle 6 feet 8 inches, and in front of them 6 feet for the single stalls and 7 feet for the double ones. For young cattle the floor of stall should be from 6 to 10 inches shorter. The floor is one of the best arrangements about the building. It is concrete, by which we mean, that below it consists of from 2 to 4 inches of broken stones, above this 3 inches of water-lime, and on the surface ¾ of an inch of Portland cement. This also covers the floors of the box-stalls, which are depressed about 3 inches, and those of the root-house as well. The drop, 6 inches high, is formed by a straight ledge of quarried stones sunk on end in the earth, and almost level on the top with the floor of the stall. The passage inclines to this ledge, hence the urine runs toward the drop, and is absorbed amid the droppings and litter, thus all going into the manure pile together. A little short litter should be placed at the base of drop near the door to prevent any escape of urine. In this we have to our mind the cheapest and most complete solution of the liquid manure question that we have hitherto met with, and with us it is no longer theory.

The water is pumped into the tank from a drilled well in the feed-room, and comes down from the same in a pipe protected as far as the basement roof, and is conveyed along the passage from end to end, or nearly so, and comes down where required into troughs, which, at the other end, are furnished with a grate over a duct, leading into a line of sewer-pipe laid beneath the floor, which conducts the waste water to the rear of the building. There are taps at suitable places in the passage for drawing water for the animals in the box-stalls, and also one in the feed-room, with a short hose and sprinkler attached. A longer hose may be attached to any of the taps, and the floors slushed at will, cleaning them out as perfectly as the floors of a kitchen are cleaned, which would be of great value in a dairy barn.

The height of the ceiling is 9 feet, and there is a door in rear of largest bull stall, leading into a yard in the rear. Box ventilators reach up the walls, opening under the eaves, but it would be better if they went on up the rafters to the cupolas above. The shutters for the fodder are also used sometimes for the purposes of ventilation. The only inconvenience from lack of light is in the two box stalls adjoining the approach, and this may be avoided by bridging the part of the approach next the building, and putting in an additional window.

Where water cannot be had by drilling, it could be caught by the eaves in a large cistern, elevated sufficiently to admit of a spontaneous flow into the basement on the turning of a tap. Where dairying is practised largely, the box-stalls could be utilized as cow-stalls, and in sections where more room is required for roots, the bull-houses could be used. At present the breeding cows are kept in the stalls opposite to the calf-pens, and when being suckled the calves may be kept apart by bars, which slide from the calf-pen partitions, and are merely slipped backward when not in use. Doors are so arranged that the cattle from any one of the divisions cannot reach those of another division in case of getting loose.

Some prefer to so arrange the basement of these barns that there is but a double tier of stalls facing a passage running in the centre, from end to end, the box-stalls lining the two sides, and the passage behind the cattle wide enough to admit of cleaning the stable with a horse and boat, the root-house being in one corner and the feed-room in another. This plan has its advantages, but it entails a loss of space, which, in build ings so costly, is always valuable.

This barn required from 120,000 feet to 130,000 feet of lumber and timber, 100 squares of pine shingles, and 100 cords of stone. The partitions and divisions of stalls all rest upon dwarf walls, and each of the upright timbers reaches to the ground floor, and thereby forms a support. In this way much solidity is given to the building. The floor used 130 barrels of water-lime, and 30 barrels of Portland cement. The windmill and the attachments cost about \$500.

Painting and materials, including two coats for roof and planed railroad siding, battened, \$325. The entire cost, including board of men, etc., would foot up about \$5,000; but taking off the cost of board, and deducting work done by farm teams and hands, also the cost of windmill and attachments, would bring the cash outlay in the neighborhood of \$3,000. Although this would be an unjustifiable expenditure on a small farm, yet ideas may be got from the general plan that can be utilized to much advantage in the erection of any kind of a cattle barn.

Each of the basement doors has a small door hung on the top front corner, of much advantage in summer. As metallic roofing or slating only costs about twice as much as shingles, or a little more, we conclude that these substances would make cheaper roofing in the end.

Old barns can be very profitably utilized, as in the case of Mr. Thomas Russell, Exeter, Ont., by splitting them in twain longitudinally and widening them, putting a suitable basement underneath at the same time. In a country with a climate such as ours, basement barns for cattle of one form or another are in a manner indispensable, and every one about to rebuild or to re-model old buildings will do well to keep this fact in mind.

The attempt has been made, where the ground is suitable, to have a storey below the basement of those barns for conserving the manure, which, if it could be successfully done, would be a step still in advance, but the system should be introduced with caution until it has first been demonstrated that the odors from the fermenting manure below can be kept from proving a source of annoyance above, more especially in stables that are adapted to dairying, and so utilized. But there can be no doubt in such a case of the wisdom of running it out on a car to a floor roofed over on the same level, and dumping it through a trap where it will be protected until removed.

(To be continued.)

Report of the Judges on the Prize Farms for 1887.

MOUNT PLEASANT.

The Bronze Medal Farm for South Waterloo.

About the time of the arrival of the Toronto "Globe Train" on its westward journey, while yet the cows were in the pastures, we journeyed eastward on the morning of the 28th, then northward in the direction of Galt, at first through a pleasant arable country of gentle undulation, but some miles short of the Plattsville road we lit upon a region of hills and clear water lakes, with rims of sedges around the border.

Mount Pleasant was the object of our search, a farm of 200 acres, or rather two farms of 100 acres each, on opposite sides of the Cedar Creek Road, and at opposite angles. It comprises lots 19 and 20 in the 10th concession of North Dumfries township, South Waterloo county, and is owned by Mr. Geo. R. Barrie, whose post office is Galt.

Farm No. 1, containing the homestead, is pretty even in surface, has two widths of fields, and a magnificent strip of 15 acres of healthy pine bush on part of the west border, a heritage of rare occurrence in the Ontario of to-day.

Farm No. 2 has an eccentric hilly front, a wide plain of rich deposit crossing its centre, and other 15 acres of pine bush beyond. The soil in the main is a strong clay loam, inclined to a gravelly loam, in the elevations, and to muck in the low parts of the plain, and in most places resting on a not very retentive subsoil of clay or gravel, so that not very much is wanted in the line of underdraining unless in the plain.

Mount Pleasant can scarcely be called a model of neatness in every respect, and yet it gives evidence of good management and care of that character which brings in large returns, and guards fairly well at the same time the productive capacity of the farm. The system of husbandry is essentially mixed. Grain is grown to feed the stock; wheat, barley, and some hay, being sold when the price for the latter is tempting. The growing crop consisted of: hay, 37 acres; wheat, 37; barley, 11; oats, 10; peas, 17; roots, 6½; and potatoes, 2; all of which were looking admirable, fed by the local rain that had fallen of late.

The rotation consists of seeding barley and wheat ground with a mixture of alsike and red clover and timothy—1 lb. of the first, 6 lbs. of the second and 3 lbs. of the third; but when the timothy is sown in the

fall only one pound is used to the acre, lest it should hinder the growth of the wheat. The hay is mown once or twice, though sometimes the second season it is used as pasture. A part of the meadow land is followed by peas, the residue being made summer fallow. The manured part of the pea-land is sown to wheat, and the unmanured portion to oats. If the wheat sown on this is not seeded it is sown to oats. The root crop is invariably followed by barley sown to grass. Mr. Barrie is anxious to follow a short rotation, breaking up meadow land frequently, under the conviction that he is paid for the extra labor in the return. The crop for the past three years has given an average for wheat 30 bushels per acre; oats, 55; barley, 38; peas, 32; and hay, 2 tons.

The manure is drawn out as made, and when drawn in winter about three loads are put in one pile. From these it is drawn on a boat in the spring and spread from the boat. It is applied on ground intended for roots, potatoes and peas, which latter on this farm are much relied on as a food factor. The yard is shaped like a shallow basin.

The stock consisted of 6 head of working horses of a strong Clyde type, 19 head of cattle, and swine to supply the wants of the farm. The milk of the cows is sent to the cheese factory, and brought last year an average return of \$34 per cow for the season. About 20 head of cattle are fed each winter. They are bought at two years old from men who, unconsciously on their part, raise them at a loss, and are sold when three years old. Those fed last winter realized 5 cents per pound live weight, and made an average gain of 340 lbs. during the 200 days of their feeding, a showing that is creditable. With judicious buying and these returns there is money in feeding cattle at the present prices of grain. They are fed one feed of long hay in the day and three feeds of chaff, or cut straw and hay containing meal—one half gallon to each at first, increased after a time to one gallon at each feed. This mixture is made up of two parts ground peas and two parts ground oats, middlings or bran, but often a mixture of the three.

The house is strongly built of stone, and the barn, 70x40 ft., with rearward wing 40x40 ft., has 18 ft. posts and basement under the whole, providing ample accommodation. Mr. Barrie keeps a threshing machine and separator of his own. Five men can put through about 150 bushels per day. The bedding is all cut with a chaffer, and nearly all the feed.

The implements used indicate progressive farming. A hay-loader and tedder, manufactured by M. Wilson & Co., Hamilton, were used and prized, and a large hay scale was placed at the end of the barn, with facilities for loading grain for market from the same. In this way two teams have put 600 bushels in a car 1¼ miles distant, in a short day. The cattle are weighed on these scales every month when being fed.

The garden does not merit much praise, but the orchard is sufficient for the wants of the farm, and more than that, unless fruit is made a specialty, is ordinarily a nuisance under present market conditions.

Mr. Barrie had no opposition in his own county, but his farm is well deserving of the honor given to it.

BALSAM LODGE.

The Gold Medal Prize Farm.

While the sun was yet lingering amongst the tree-tops, we were quietly taking in the consistent harmonies of this pleasantly lying farm, and making an accurate record of its methods, modified in no slight degree from those of last year, as given in the report for 1886, where a full statement of the system then practised is given. At that time one of the principal products of the farm was beef, now it is milk. The reference to the stock in the report of last year reads thus: "One of the best herds of Shorthorns and Shorthorn grade cattle that we met with in all our rounds, fed in the pastures of Balsam Lodge—for it should not be forgotten that here is the home of Prince James—95—, on so many different occasions the sweepstakes Shorthorn bull of Ontario. The Shorthorns number 40 head, and the herd on both farms, Shorthorn and high grades, from 85 to 100 head. They have deep, heavy bodies on short limbs of medium bone, and possess much of that wealth of substance so eagerly sought for by the Shorthorn breeders of to-day." Owing to the recent change of standard adopted by the Dominion Shorthorn Breeders' Association, the major portion of the entire herd was cut off from registry, so that Mr. Fothergill was

necessitated to relay the foundation of another herd or go out of the business. He chose the latter alternative, and has replaced those stately beauties with a herd of grade dairy cows, whose principal mission is to furnish milk in large quantity, which is sold to the Oaklands dairy. The change just referred to necessitates some variation in the methods of tillage, but less of this than in the varieties of feed grown.

Balsam Lodge, lot 17, in the 3d concession of Nelson, County of Halton, contains 210 acres situated on Dundas street, and about one mile northward from Burlington. The balance of the 460 acres owned by Mr. Fothergill, and worked in conjunction with this portion, is three miles away.

The accompanying plan shows at a glance the location of the buildings, the arrangement of the fields, the natural depressions, which are slight, and the situation of the 30 acres of forest, which, in a remarkable degree, has escaped the tendencies to a destructive savagery in the item of woodland, strangely associated with what is termed an advancing civilization, for we find in this plot a strong representation of ancient pines, once the glory of this region, and of oak and beech, and a goodly dash of butternut and walnut, with a sprinkling of chestnut. Young pines are numerous springing up, where, like young people, they thrive best growing in the shade.

Richness is written in the appearance of the soil of this farm. It is dark in color, and varies from a sandy loam to a clay loam, with a strong clay subsoil, and is sufficiently underdrained with 7,750 rods of two inch, 188 rods of three inch, and 261 rods of four inch tile, the laterals being 27 feet apart and three feet deep. The surface is smooth, and has only sufficient inclination to show the surplus waters where to run. The two water courses only run in spring and autumn, and do not in any way impede cultivation. Standing on the railway track and looking far around, you feel that you are in a wide valley hemmed in by a wall of distant hills on the north and south, and the wide waters of Ontario sparkling in the sunlight like a sea of burnished brass, lies but a little way to the sunny south. The fences are straight rail with post and stake, and wire with scantling on top and board at bottom, and are all good and well built, save a piece of line fence, the building of which belongs to a neighbor. Why should the indolence or the indifference of a neighbor be allowed to mar the appearance of a neighbor's farm? A little of the spice of compulsory law might prove wholesome here.

Having looked over, around, and under the surface of Balsam Lodge Farm, we shall now look at and into its buildings. The beautiful, two story, gothic, brick dwelling, 30 x 50 ft., with suitable rear attachments and first-class cellar, is properly protected by a white paling along the highway, where some grand old honey locust trees furnish an element of beauty from year to year without any change. The drive past the dwelling is intercepted by the carriage house which somebody's lack of taste placed in front of the barn in the years of long ago, thus obscuring the front view of the latter. Utility should not be sacrificed to beauty, but in this case it need not be, for there was ample room to the right for placing it, and utility and beauty combined are always a long way ahead of bald utility.

To the leftward stands the dairy house, and sufficiently far away a stone piggery, with suitable divisions. To the rear of the carriage house is the barn and attachments, the divisions of which will be readily understood by consulting the basement plan. One of the excellences of this plan consists in the location of the place of storage for roots. It is central and near the feed room, which is also in a good position for receiving the cut feed from above, and for re-distributing below. The barn floor declines a portion of the distance toward the approach, which renders the latter less steep. The mangers consist of a box wider at the top than the bottom, and divided by strong slats in the centre, thus forming, as it were, a double manger, the part projecting into the passage being for the convenient reception of the feed where it slides down against the slats to be consumed. It is a good general purpose manger.

The garden had ample store of vegetables, fruits and flowers, and was in the pink of condition, and the orchard, comprising five acres of venerable trees in sod, was looking as well as could be expected from such old veterans.

(To be continued.)

The Dairy.

Leading the Way.

It is very encouraging to us to witness the adoption of our methods, one by one, by the other agricultural journals of this province. The all round improvement that has manifested itself in the style and matter of every one of them is very suggestive of the power the JOURNAL is exercising as an educator of the people. Following the example given them, better paper, better sketches, better writing are now given to their readers, much more of which is prepared with the pen rather than the shears. Those of them that railed upon the improvers of our stock are now dealing out to them taffy right and left. That is all right, if they give them bread and meat along with it. We don't mean scrub meat, in which they have dealt so long. We rejoice in their conversion. We feel gratified to see them on our trail, and hope they may never lose it. We will try and so regulate our pace that they may not lose heart altogether, but continue to follow on.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL. A Lesson from the Drouth.

BY PROF. JAS. W. ROBERTSON, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

The Ontario creamery closed for the receiving of its patrons' cream on August 18th. That unusually early date points a lesson for Ontario Farmers. The small quantity of cream which was being furnished by its 145 patrons was the reason for the unseasonable stopping of operations. During June and July they furnished cream to make an average of 400 lbs. of butter per day. During August the quantity averaged only 235 lbs. per day. The expense of collecting so small a quantity was too great to be allowed to continue, as the rate per trip was fixed for the season.

Scarcity of feed last winter left many of the cows poor in flesh and weak in constitution. Such a condition of affairs in cow life reduces the product rapidly after July. The imperative need for providing a suitable green fodder in the shape of peas and oats, oats and vetches, fodder corn or millet has not yet been half recognized by even the said-to-be-advanced farmers of Guelph neighborhood. All over the province the gravest loss has resulted from neglect to prepare for and provide against the days of dry pasturage. Not only has there been immediate loss from the lessening of direct dairy profits or returns, as well as a loss of flesh and quality in the dry or feeding cattle, but in many instances the stock will go into winter quarters in no fit state for enjoying winter thrift. But little of any cheap stable fodder has been grown. Short straw and in many districts light hay, threaten to leave a shortage of spring fodder.

In our own case, 20 common grade milking cows (to be more heard of hereafter) have been kept in good heart on 20 acres of fair pasture, with the supplementary feed furnished by half an acre of oats and peas and half an acre of mammoth southern sweet corn. I fully expect to winter—from November until May—20 head of milking cows, so far as fodder is required, on the product of seven acres of ensilage corn.

The winter is going to be a trying one on cattle and profits; but if its threatened disasters, which in some sections have been already too intensely realized, do but awaken the stockmen and general farmers of Ontario to a prudent course of preparation for the future, the losses will have brought equivalent compensation. In the evolution of the intelligence, judg-

ment and prudence of men, nature will not be baffled, though in her persistence she may seem occasionally dry and cruel.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

American Dairy Rambles.

BY JAMES CHEESMAN, TORONTO.

A recent business jaunt through several of the Eastern States which have distinguished themselves in dairying, gave me the opportunity of examining the most predominant features of their practice as compared with ours. My path was through New York, New England, New Jersey and Pennsylvania. Entering the barns and pastures of some of the best known breeders of Channel Island cows, one sees at every point that the primary cause of excellence is in the cultivation of good field crops and the breeding and feeding of animals having behind them royal butter blood as far removed from suspicion as Caesar's wife. Men who have been engaged in breeding dairy stock for twenty to thirty years, not unnaturally point with pride to the large number of thoroughbred cows, and to grades almost innumerable throughout the dairy and creamery districts.

The reader will best appreciate the tremendous improvement in the animals providing buttermakers with milk when it is learned that the Guernsey grades giving from 8000 lbs to 10,000 lbs of milk are by no means uncommon, and these animals sell readily at \$100 to \$120 each, fresh. The earnings of one such herd within twenty-five miles south of Philadelphia were given me by the proprietor. He has been breeding Guernsey cattle for thirty years and the herd consists of 39 cows just now. This dairyman is a plain farmer, scarcely known beyond the district. He does not keep his books very systematically and could not give me any complete statement of connected results. I have, therefore, gathered a few isolated facts from a very ordinary farmer in a purely rural style. They cannot, therefore, be objected to as selected, because they are all I could get from him. Milk was sold to the Separator creamery.

| DATE. | COWS. | LS. OF MILK. | PRICE PER 100 LBS. | AMT. |
|------------|-------|--------------|--------------------|----------|
| Apr., 1885 | 35 | 16,378 | \$1.60 | \$262.00 |
| Aug., 1885 | 35 | 16,217 | 1.60 | 259.47 |
| Aug., 1886 | — | 14,895 | 1.60 | 238.32 |
| Feb., 1887 | 37 | 13,096 | 2.00 | 260.00 |

The animals in this herd are of all ages and conditions, about one-fifth are grades, the others are pure bred, and their ages vary from two years to sixteen. The owner could not tell me how much milk per year his herd gave, what cows were most profitable, nor what it cost to produce the milk. Most of the Guernsey and Jersey breeders secure the prices named, while those keeping Shorthorn and Holstein cattle cannot obtain more than 90 to 95 cents per 100 lbs. of milk in summer and about the same proportion in winter. The milk is sold at summer prices for six months and at winter prices for the same term. I had no time to interview the farmers who keep grades only, but when in Franklin county, Mass., last May, I had an opportunity of examining the manager of the Conway creamery as to what breed of cattle predominated in that county. I was informed that the Channel Island cows and their grades had been kept for 25 years and were preferred to any other as butter cows. Franklin county, Mass., has quite a reputation for good butter, whether farm or creamery made, hence the importance of this experience in breed.

It would not be fair for me to quote the earnings of fancy herds, such as I saw in the early part of August. The number of private herds in the Eastern States which make butter for special customers the

year round at prices varying from 50 to 80 cents per lb. is considerable, and they are scattered all round. The great point, however, is the increasing number of cows which make \$100 a year the standard of earning power.

Many of the farmers in the East sell only cream, veal and pigs off the farm, and such of their cows as do not pay to keep. In Central New York I saw the finest lot of pigs I have ever seen on this side the Atlantic. The feeder had been using the separated Guernsey milk from a creamery. His practice was to slaughter on the farm and sell his pigs to the village at a higher price than could be obtained elsewhere.

The cow of the Eastern American farmer supplying milk or cream for butter making is an all the year round animal, coming into profit from the early fall and during winter months and going dry when pastures begin to fail and the fly nuisance is at its worst, during the dog days of July and early August.

The proportion of creamery butter to farm made goods is always on the increase, and to whatever little town you may go there may be seen the butter shipping case for creamery made print goods. It is difficult to buy really choice creamery goods put up in good form at less than 28 to 30 cents even in early August. The success of the separator factory around the Philadelphia district is largely due to the manufacture of the skim milk into cheese. Let it be understood that this is a soft cheese, scarcely cured and very wet. It is consumed chiefly by the German people and is known as Schmerkase—a soft skim cheese which is handled by ladders. The article is sometimes called Cottage cheese. It is sold by the factory at 2 cents per lb., green. It requires about six pounds of milk to make a pound. In New England the cooler creamer is in general use.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Advice to Cheese-makers.

BY PROF. JAS. W. ROBERTSON, ONTARIO AGR. COL., GUELPH.

General congratulation comes from the makers of cheese, on the fact that milk was never before delivered at the factories of better quality or in sweeter condition. General complaint comes from the shippers of cheese that a weak body, full of ragged holes, characterizes a great many of the June and July cheese of the continent. These two conditions of the business ought not to have come into existence at the same time. Certainly the latter should not have followed the former.

Careless manipulation; haste to get done for the day; the leaving of too much moisture in the curd after the whey is removed from the curd, and the inefficient development of acid, are common evident causes of the defects. The excellent reputation, built upon years of slow progress, will be apt to collapse unless a very marked change is observable in August, September and October made goods. Presently I recommend for the immediate action of every cheese-maker:

- (1) That he urge, agitate for, and insist upon every herd of cows having free access to salt every day.
- (2) That he dilute the rennet extract with pure water, and mix it thoroughly and rapidly with the milk.
- (3) That he stir the curd, while in the whey and out of the whey until the whey is so well out of the curd that it will "squeak" when bruised between the teeth or otherwise.
- (4) That he keep the curd at a temperature of 98° until the removal of the whey, and above 92° after its removal, during the development of acid.

(5) That he air the curd by fifteen minutes' stirring just before the addition of salt.

(6) That he suddenly and forever cease to excuse the presence of soft or hard, or open or leaky, or any kind of inferior second class cheese on his curing-room shelves by saying or thinking that every factory must have some of such goods.

Exhibitions and Prize Butter.

BY JAS. W. ROBERTSON, PROFESSOR OF DAIRYING, ONTARIO AGRICULTURAL COLLEGE, GUELPH.

The usefulness of most of our agricultural societies during the past ten or fifteen years has been mainly in the direction of holding fairs or expositions. Some critics have been severe in their censure of the responsible directors for permitting or encouraging that one aspect of all the work, ostensibly undertaken by these organizations, to effectually monopolise their funds and energies.

On the other hand, it should be recognized and remembered that the stimulus of healthy, hearty and friendly competition which they have fostered in every branch of arts, manufactures and agriculture, has been very beneficial to all connected with those occupations. Every department of farm work, even on the farms whose tillers are the most remote from educational influences, has felt the quickened pulsations of industrial life, through the presentation and circulation of information resulting from the holding of exhibitions. Few farms are now so isolated from such aids by reason of their geographical location, but many are still out of reach and touch because of the isolated and isolating mental attitude of the men and women who live on them. If any man or woman, boy or girl, can be enlisted into a fair competition with others of their fellows in the performance or production of any branch of their work, a great economic boon will have come into their lives. Hence, I see a unity of aim between the purpose and achievements of the now popular Farmers' Institutes in their work of informing, instructing and educating those engaged in agricultural pursuits, and the plans and action of agricultural societies in providing expositions for comparing attainments through open competition.

The dairy industry is now recognized as the most important of all branches of Canadian agriculture, and unquestionably, profitable agriculture lies at the foundation of the economic prosperity of the Dominion. Whatever just means may be used to aid the farmers in increasing the marketable quantity of dairy products per acre, and in improving their quality and consequent value, cannot be considered as of only local, rural or class interest. Every inhabitant has personally, to a greater or less degree, some financial stake in the business of the farms.

The marvellously rapid growth of the dairy business in Ontario brought it into prominence after the fairs and exhibitions of the Province had become respectably stereotyped in their management. Its magnitude now entitles it to more attention from those entrusted with the expenditure of public monies through these institutions. In a few lines can be stated facts showing its unappreciated extent. In Ontario alone there are no less than 750,000 milch cows. Of these the milk of 250,000 is manufactured into cheese; 250,000 furnish the butter for home consumption and export; about 160,000 supply the milk required for table use. The cheese factories number over 770, and the creameries now in operation less than forty. The production of cheese, steadily increasing in this Province, now exceeds 70,000,000 lbs. annually. Its value last year was over \$7,500,000.00. Butter is manufactured to the estimated quantity of 30,000,000 lbs., worth last year over \$5,000,000.00.

In 1886 the annual report of the Bureau of Industries gives as the number of municipalities in Ontario, 445 township and 206 city, town and village municipalities. Besides the few yearly expositions of Provincial scope and interest, a fair or exhibition might be held annually in at least 200 municipalities. If by such means only five per cent. of those engaged in dairying were benefited to the extent of only five per cent. of the value of their dairy products, the receipts from that source would be thereby augmented by \$31,250. I think that fifteen per cent. of those who keep cows could be helped to the extent of ten per cent. of the present value of their butter and cheese. Such an increase in value would represent at least \$187,500 per year.

To make expositions truly educative as well as entertaining, certain uniform methods of judging should be adopted. A scale of points should be established, and butter and cheese should invariably be judged with reference to the standard recognized by these points. I present a form for use in the judging of both:

.....Exhibition, 1888, Exhibit of..... BUTTER (or cheese). Class.....Section..... Lot..... Exhibitor's name and address..... For the use of judges only.

| Butter. | Perfection. | Points awarded. | Cheese. | Perfection. | Points awarded. |
|--------------|-------------|-----------------|--------------|-------------|-----------------|
| Flavor..... | 40 | .... | Flavor..... | 35 | .... |
| Grain..... | 30 | .... | Quality..... | 25 | .... |
| Color..... | 15 | .... | Color..... | 15 | .... |
| Salting..... | 10 | .... | Texture..... | 15 | .... |
| Finish..... | 5 | .... | Finish..... | 10 | .... |
| Total..... | 100 | .... | Total..... | 100 | .... |

For the judges (signature).

Remarks.....

After the judging is completed such a card should be attached to each lot, clearly specifying the number of points awarded under each head. Exhibitors would thus be informed of the expert's judgment as to wherein the excellencies or the defects lay. A short analytical report by an expert, voicing the verdict as to the main faults or marked good qualities, and as far as possible assigning and explaining the causes of each, would readily obtain wide circulation through the press. To briefly restate the matter as related to butter and cheese, some of the uses of exhibitions to the dairy industry are:

- I. By providing for competition to stimulate to better thought, plans, preparation, action and production.
- II. By authoritative comparison with fixed standard of quality to instruct and educate the producers.
- III. To educate the tastes of consumers by attracting their attention to extreme differences in qualities.

The work of preparing for the Fall Exhibitions will be engaging the thoughts and hands of some farmers' households at this season. I could wish that such an interest were more general and intelligent. To arouse such, as well to help those who may be ambitious to take a prize on butter at one of the exhibitions, I offer the following suggestions:

1. See that the cows have an abundant supply of good wholesome feed. Supplement the grass with bran or grain. Corn and pease make firm butter. If grass be dry or scarce, furnish green fodder. The quality of the feed determines to some extent the quality of the fat globules in the milk. Fine butter is mostly composed of these. Green fodder is fed with better effect on the quality of the butter after being wilted for a day or two.
2. See that the cows have a liberal supply of pure cold water. As well might a cook expect to make good palatable porridge out of musty oatmeal and stagnant water as to get pure, sweet-flavored, wholesome milk out of musty feed and foul drink consumed by a cow.
3. See that the cows have access to salt every day. They know best when to help themselves.
4. Let the cows be saved from annoyance and worry. Any harsh treatment that excites a cow lessens the quantity and injures the quality of her yield.
5. Where practicable let the cows be milked regularly as to time, and by the same person.
6. The udders should be well brushed and then rubbed with a damp coarse towel before milking.
7. All milk should be carefully strained immediately after the milking is completed.
8. Thorough airing of the milk for a few minutes, by dipping, pouring or stirring, will improve the flavor of the butter.
9. When set for the rising of the cream, milk should be at a temperature above 90° Fahr.
10. When shallow open pans are used, for setting, it is most important that the surrounding air be pure. A damp cellar is not a fit place for milk.
11. When deep-setting pails are used, the water in the tank should be kept below or as near 45° Fahr. as possible.
12. The skimming should not be delayed longer than 24 hours.
13. Cream should invariably be removed from the milk before it is sour.

14. The cream for each churning should all be gathered into one vessel and kept cool and sweet. A good practice is to mix 25 per cent. of pure water with the cream.

15. The whole of it should be well stirred every time fresh cream is added, and half-a-dozen times a day besides.

16. Two days before the churning is to be done, about one quart of cream for every four pailsful to be churned (or equal to two per cent.), should be set apart and kept as warm as 70° Fahr.

17. One day before the churning, that small quantity of cream (a fermentation starter, which will then be sour), should be added to that which is intended for churning, and well mixed therewith.

18. It should afterwards be kept at a temperature of 60° Fahr.

19. During summer the best churning temperature is 57° or 58°. During late fall and winter 62° to 64° are found to be preferable.

20. The agitation of churning should be kept up till the butter comes into particles rather larger than clover seed.

21. The buttermilk should then be drawn off, and pure water at 55° added in its place.

22. By churning this for a minute or two, the butter will be washed free from milk while still in a granular state.

23. The milky water may then be drawn, and replaced by a weak brine at the same temperature.

24. After a minute's churning, the butter may be removed from the churn and pressed for salting.

25. Pure salt of medium fineness, and with a body velvety to the touch, should be used.

26. Three quarters of an ounce to the pound will be the right quantity for most markets and judges.

27. The butter should be kept cool during the working, and also during the few hours while it may be left for the salt to thoroughly dissolve.

28. As soon as the salt is thoroughly dissolved, the butter may be worked the second time to correct any streakiness, which the first mixing of salt may have caused.

29. It should then be put up neatly and tastefully with as little crimping and beautifying as feminine fondness for these will permit.

30. It will then do its maker credit, and if it does not receive the first prize it will be prized and praised by its eaters. — *Bulletin XXXVII.*

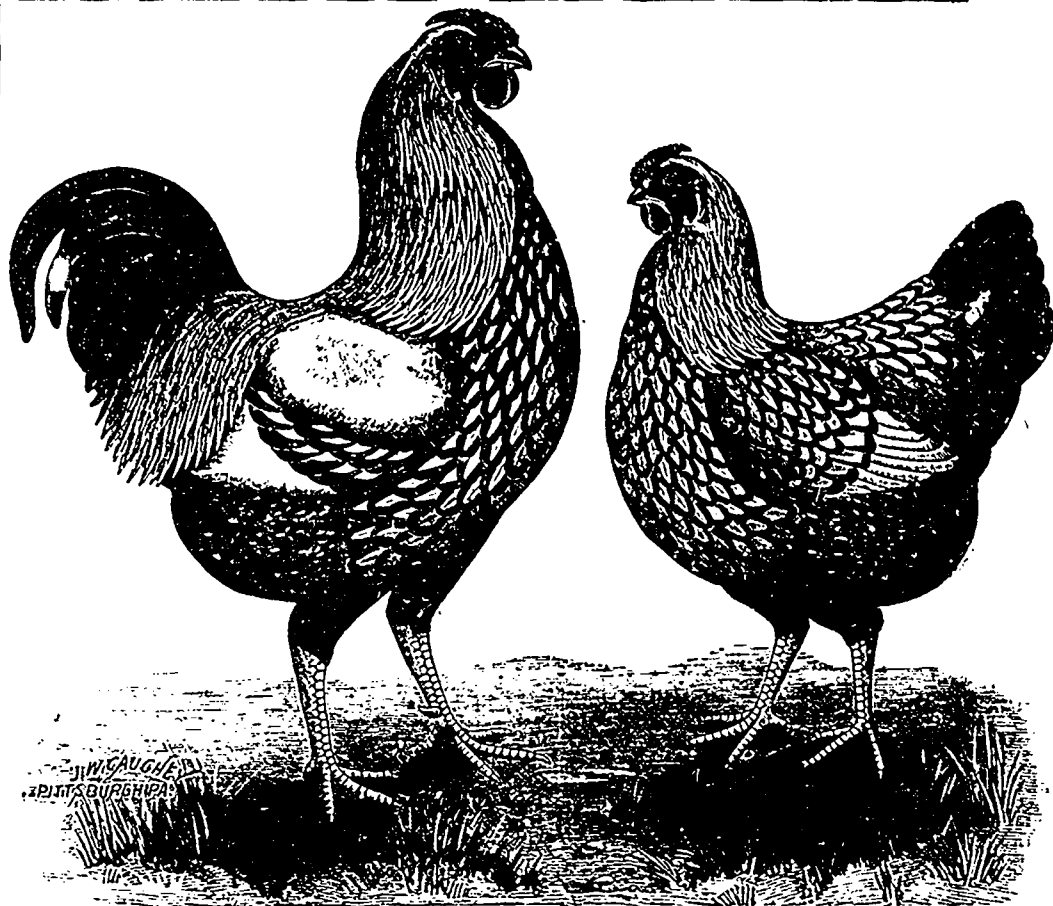
Poultry.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Wyandottes.

BY J. W. BARRIETT, LAMBETH, ONT.

The accompanying illustration is an excellent representation of the silver laced Wyandotte. This is to many a new breed. Although previous to its admission to the standard at the revision of 1883 in Worcester, Mass., it was scarcely known in Canada, and although up to the following fall the breeders, so far as Ontario was concerned, might have been numbered on the fingers and thumbs, they have been bred for many years in the adjoining republic. It is generally admitted that they originated from a cross of Dark Brahma and Silver Spangled Hamburg. That such is the case seems more than probable, as the beautiful penciling of the D. B. hen slightly transformed, becomes the lacing of the Wyandotte, while the colors are those of the Hamburg. The rose comb of the Hamburg is also retained, although modelled after the pea comb of the Brahma to the extent of conforming to the shape of the skull. They also have the yellow flesh and legs of the Brahma, and the clean leg and foot of the Hamburg. As an all round farmer's fowl they are pronounced by many as excellent both for egg-production or as a table fowl. Being of medium size they mature early on the whole, are unusually quiet for birds of their weights, lay comparatively young, and are fit for market early. They were first known as "American Sebrights," probably from the resemblance of the plumage to the Sebright Bantam. The



SILVER-LACED WYANDOTTES.

American Poultry Association afterwards decided to call them Hambletonians, and later Wyandottes, the present name. From the Silver Laced Wyandotte came a white sort, which was carefully bred until now we have the beautiful white Wyandotte, which, though differing in color, has all the points of excellence of the silver-laced variety, and are easier bred to color, though not, in the opinion of some, as handsome a bird. These, however, must not be confounded with the Golden Wyandotte, which is not related to the white and laced varieties, but simply resembles the silver laced.

Whether the Golden Wyandotte has superior merit or not, is not yet generally known, from the fact that it is scarcely out of the hands of the originators. While we are prepared to give it a fair trial, we cannot expect it to equal the other varieties, as it would be strange indeed to see two distinct varieties within one lifetime possessing so much merit.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Shipping Coops.

BY W. B. COCKBURN, ABERFOYLE, ONT.

A dry goods box, in my opinion, is not the best article for shipping single birds, pairs, trios, or larger numbers to purchasers at a distance by express, as the box will weigh more than the birds, which means extra express charges. Besides, no birds can be shipped in good order when enclosed in boards all round.

For a good, light, durable coop, take half-inch cedar or pine, about six or eight inches wide; cut the bottom the length you want your coop, which depends on the number of fowls to be shipped. Cut the end pieces the same width as the bottom, and ten or twelve inches long, saw on the top corners an even slope down to the centre of the boards, so as to leave room for a three-inch top on the coop, which must be

the same length as the bottom. Now, as the pieces are all made, nail the bottom to the under side of the end pieces, and the top to the top of them. You have now a coop almost the shape of a house without sides; for these take cotton and nail on both sides, leaving a corner open till you put the birds in, after which nail it up; but there must be a place for air and to enable the coop to be handled. For this round out a piece on each side of the top board, the openings opposite each other. Shipping coops are made in many ways, but I believe this makes a cheap, light, and in every way a very suitable coop for the purpose.

The Apiary.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

September in the Apiary.

BY ALLEN PRINGLE, SELBY, ONT.

THE WEATHER, ETC.

Fortunately the drouth appears to be broken. Just after my last letter was sent to this JOURNAL in July we had a heavy shower of rain (18th), which was quite general throughout the dry district in central Ontario. There was not, however, enough to go to the roots of potatoes and other vegetables, yet it did much good to late grain and the root crop generally. Then, within the following 18 or 20 days, there were two more showers, each less in amount. But now, at last, we have had what may be fairly called a rain. On the 13th of August, the long looked for and welcome descent came in sufficient quantity to reach the roots of everything. And withal it came so gradually that it ran *in* instead of off the land—into the roots of the potatoes instead of down off the hill, and between the rows, as it does when it comes down rapidly. As a consequence, everything now is looking up, and the bees with the rest.

TO WORK AGAIN.

After a long, enforced idleness, that is, so far as the ingathering of surplus was concerned, the bees are again at work, with a good prospect of laying in, not only winter stores, but probably some surplus for the expectant apiarist. The rains have helped the buckwheat up and along, and it now promises well, the earlier sown lots in favorable situations having come into bloom the first week in August. Should the frost keep off and the weather prove favorable, the bloom will be continuous and protracted, as the buckwheat is now (August 15th) in all stages, from just above ground to blooming. The casual fall flowers are also coming out, and altogether there will probably be a good fall for the bees to partially offset the very bad summer.

LESSONS FROM DROUTHS.

These drouths, which of late years recur so frequently, ought to teach the apiarist, as well as the farmer, useful lessons. The chief one of these is to give more attention to the propagation and cultivation of the flowers, plants and crops which best stand the drouth. The farmer ought to "scatter his chances," as it were; that is, he ought to diversify his husbandry more, and the agricultural apiarist ought to keep his "weather eye" in the same direction. Corn, for instance, is a crop that stands a great deal of drouth, for if the rain refuses to descend upon it from the clouds we can keep cultivating it and stirring the earth around it persistently, thus getting at night by absorption the moisture which the clouds deny us. Over and above the corn which this very useful crop yields, there are the stalks which make excellent feed for cows; besides, corn planting, with proper cultivation, is death on all weeds. Then it yields both pollen and honey for the bees. All things considered, corn is one of the most profitable crops the farmer can raise, especially in a dry season like the present, and I am at a loss to explain the neglect of this crop among farmers except on the ground of laziness to give it the extra attention it requires. Corn for fodder should also be more extensively raised, and the southern white seen to be much ahead of the western corn for this purpose. And in order to raise a good crop of this in a drouth, instead of sowing it broadcast, harrowing it in, and allowing it to shift for itself, it ought to be put in hills or drills and thoroughly cultivated, the same as field corn. This also yields pollen and honey. Sorghum is also excellent for all the purposes mentioned, and may be likewise made to afford a supply of syrup.

Rye could also be grown to advantage against the contingencies of drouth. In most cases it will grow on the poorest land on the farm, and the drouth seldom commences early enough in the spring to materially injure it. Rye yields an abundance of straw, which makes very good fodder, especially when cut up, and comes in good with a light hay crop.

SWEET CLOVER AND THE CHAPMAN HONEY PLANT.

These two plants (*melilotus alba* and *echinops sphaerocephalus*), though good for little else than honey, ought to get more attention from the bee-keeper as resources against the drouths. The sweet clover will stand up alone and bloom bravely when almost everything else is dried up. And it blooms from June till fall, yielding an excellent quality of honey. I shall not say that it would be profitable to occupy good field land with sweet clover just for the bees, take one season with another, but I mean to say that it certainly would pay to scatter it freely along fences, on roadsides and in waste places within reach of the bees; and in time of drouth, when almost every other source

fails, this may yield enough at least to keep up brooding.

The other plant, the "Chapman," so called because the gentleman of that name, at Versailles, N. Y., first cultivated it in this country, and brought it to the notice of bee-keepers, is a native of France, is perennial, and from the experience already had with it in Canada, promises exceedingly well. Some three years ago the North American Bee-keepers' Association appointed a committee to investigate the merits of the plant. Others have also tested it within the last year or two in Canada, as well as the States, and on the whole the reports are very favorable. It is reported as hardy, withstanding the drouth, yielding nectar abundantly for from one to four weeks, and growing upon almost all kinds of soil.

WINTER STORES.

At last writing it was thought, owing to the severe drouth, that feeding to supply winter stores would have to be extensively resorted to. Happily the prospect is now changed and the probability is that the bees will be able to procure natural stores, and that but little feeding will be necessary. This, however, is the month (September) when the matter of food for winter must be attended to and any deficiencies supplied. As to the amount per colony of food required from September till June, that depends upon various circumstances, but it is best to be on the safe side and give plenty. An average of 30 to 40 lbs. per colony is little enough. Of course those wintered outside require more than those in more comfortable quarters, for in the bee as in other animals, the animal heat is kept up by the food. In a good repository, with other conditions right, a colony of bees will pass the winter from November till April on from 2 to 10 lbs. of honey. But this presupposes a repository and temperature which will secure quiescence—a sort of semi-hibernation, into which the bees pass periodically between the first of December and the commencement of spring brooding, about the first of March. When wintered in a low temperature where the requisite heat inside the hive must be kept up by the bees themselves, there is but little of this hibernation, and as a result a much larger consumption of food. Therefore, other conditions being equal, the lower the temperature, the more food required.

As to the best food for winter stores, the bee-doctors differ in opinion. Mine is that the natural stores are the best—that is, good honey capped over. Some advocate excluding all pollen from the hive and wintering exclusively on syrup made from number one granulated sugar. It is said the pollen is the prime cause of bee-diarrhoea. For myself I do not fear the presence of pollen in the hives in wintering. Indeed, as it is an essential part of the food in brood rearing I prefer its presence, so that when it is required by the bees for that purpose in winter and early spring, it will be there. With plenty of honey in the hive there is not much danger of inordinate pollen consumption by the bees before they are compelled to use it for the young. The honey gathered early in the season, thoroughly ripened, may be the best for winter stores. I think it is; but my experience is that buckwheat honey, well ripened and capped over, answers all right for winter. And as it is worth less in the market, and stored the last of the season at the most convenient time for the apiarist, there is no good reason why it should not be used for winter stores wherever it can be obtained. But the hives ought to be kept warm and dry while it is being stored, and all remaining in the combs uncapped in October ought to be extracted. This being done, all colonies found

deficient by actual weight (weighing is the only safe method of determining) must be liberally supplied.

Let it not be inferred from this that the work of supplying winter stores may be safely put off till October; but it sometimes happens that when we think we have supplied all with enough in September, we find some of them short later on, especially after extracting the thin, uncapped honey. And they may still be supplied should the weather be at all favorable, always remembering when feeding for winter late in the fall to keep the colony warm, so that the food may be properly capped over. The instructions given in the August number how to feed for stimulating purposes will apply to fall feeding, and need not be repeated here. There is this difference, however, that the feed for winter should be given much more rapidly—as fast as the bees can take it up and dispose of it.

*Horticultural.***Marketing Fruit.**

This is a business, as it were, by itself, when entered into on a large scale, and requires a more minute attention in many respects than the marketing of other produce. Most kinds of fruit are so perishable in their nature that unless the greatest care is exercised in the preparation for shipment, that discouraging statement, "Arrived in bad order," will blight the hopes of the producer as early frosts wither the corn in autumn.

Growers living near a city with a good market can forward their own produce, and though they may not get the best returns, owing to the strong competition they meet from neighbors, with advantages in every way equal to their own, those returns are less liable to vicissitudes and variation than when the fruit is sent to a distant market and sold through a commission merchant.

But of all those engaged in growing fruit the number who are thus situated is very limited indeed. For everyone who can market his fruit in this way there are probably a score who cannot. They are so situated that they can no more think of conveying their fruit to its ultimate destination than the average grain farmer of taking his to the market of final consumption. As great consuming centres of fruit are often located where soils are unfavorable to its production, it follows that some effective means must be adopted for conveying it to such places in good order.

Here, as in all other lines of agricultural production, the attention should be fixed upon growing a first-class sample. Where the sample is inferior, the grower who markets at home may save himself from loss, but he who ships to the distant market can only look for disappointing results. The carriage is the same as for first-class fruit, and all the incidentals are quite as dear; the cost of picking is probably more, and while the fruit is shown to be slow of sale, the price is as certain to be discouragingly low, so much so in some instances, that the commission man has to call upon the grower to forward his cheque to cover expenses.

When good fruit is grown, let all promptness be shown in picking it and preparing for shipment according to the most approved methods. Delay here means certain loss, and carelessness in packing is the forerunner of sorrow.

In the handling of large quantities of fruit the commission man is even more essential than in handling other lines of produce. The great requisites in such an one, who may be termed a trading official, are (1) natural business capacity, (2) a knowledge of the re-

quirements of his customer, (3) the closest fidelity to his work, and (4) honesty. This man is essential in the marketing of fruit. Let him be a fruit-grower, if you please, who has shown a natural aptitude for dealing, but come whence he may, he cannot be dispensed with. He must receive a return for his work in the form of a commission, and the amount of said commission should be proportionate to the success which attends his work. It is possible that a commission man who charges 10 per cent. may give his patrons better returns than the one who charges but five, owing to a better class of consumers whom he supplies. Experience alone can determine this.

Again, it is not always wise to forward direct to the commission merchant. Those who are extensively engaged in producing, and who are well up in the art of shipping, may do so with advantage, but usually it will be found best to engage an experienced person at a moderate fee to attend to the forwarding as his exclusive work. It is sure to be better done by one who is experienced than by a novice, or perhaps by a producer who, though well up in that part of his work, will always find it an uncongenial task to do his own snipping.

Here, again, comes in the fear that through middlemen the producer will be shorn. This does not follow of necessity. Intermediaries are recognized as a necessity in all lines of business, and the aim of producers should be to stipulate for a reasonable allowance for their work, rather than to clamor for the abolition of a system of intermediaries which the world will no more consent to do without.

Steam and ice are the two firm friends of the producers in the transit of perishable fruits. But railway and express company officials have shown far less of a friendly disposition to the fruit-grower than the two inanimate agencies already referred to. They have not always evinced a disposition to remove obstacles as they might have done, hindering the prosperity of a trade, the expansion of which is of the utmost moment to them.

But here again it has been found that there is nothing better for us than to look one another in the face in friendly conference. Because of this, greatly increased facilities have been obtained by the people of the Niagara peninsula in the transit of their fruit, and still better things are looked for. In this we have the promise of great advantages that will yet accrue to the farmers through negotiation on the part of the Fruit Growers' Association and the Central Farmers' Institute in relation to the carrying trade. It is only when large bodies move in concert that the pressure of their demands becomes irresistible.

The Prospect for Fruit.

The dry season has not been without its effect upon orchard and garden. Although summer apples are rather small in size, fall and winter sorts will likely be well up to the average in size as well as quality. The borer and codlin moth have appeared in a few places, and occasional complaint is made of wormy apples, but the crop generally will be a good one. The pear blight is reported in portions of Kent, but the general yield will be an ordinary one. Stone fruits are all light in yield. Only a few correspondents in Lincoln speak hopefully of the peach; the majority report the crop as a failure. Plums and cherries are being steadily destroyed by the black knot, and where the plum has escaped that enemy it has been weakened by the curculio. In some of the Lake Erie counties, however, the cherry is reported as having yielded a big crop of large fruit. In the grape growing counties a magnificent yield is anticipated, but in Oxford and Brant the rose bug attacked the vines as the grapes were budding, and wrought much injury. Other small garden fruits have been about an average except strawberries, which were hurt by the drouth of last summer and fall. In the county of Grey, where the huckleberry is regarded as a standard fruit, the crop is light. — *Bulletin 23 Bureau of Industries, of date 10th August.*

PREMIUM OFFERS FOR 1888-9

More than \$1,500 offered in Live-Stock Premiums.

As intimated on the first page of this issue, and for the reason given there, we have decided to offer a list of live-stock and other premiums to friends of the JOURNAL who are desirous to aid in extending the circulation, without parallel in the annals of agricultural journalism in the Dominion. In making these offers we feel that we are consistently working in the line of the policy we adopted at the very outset, and to which we have strictly adhered. It will afford an easy way of making a start in improved stock to those who are of limited means, and of thus laying the foundation of increased prosperity.

Making these offers on our part is but an *advance* step in the line of our effort to improve the live-stock of Canada, in which we confidently lay claim to a consistency that is deserving of support, and which some of our contemporaries have failed to show. We have not slandered the live-stock interest at one time in the hope of getting the support of another class in the community, nor, failing in this, have we at another time sought to conciliate them, by the bribe of purchasing from them what they might have to sell. We have without hesitancy or faltering, given the first place to the live-stock interest in the JOURNAL because we thought it the most important, and every day but strengthens that conviction.

The premium list published below is at present incomplete. It is our desire so to extend it in future issues as to enable any one to secure stock of any class who may desire it from any of the breeders of the Dominion who are advertisers in the JOURNAL.

It will be observed that unlike some other offers that are being made, those who secure lists for us have the privilege of getting stock from any of our advertisers who may have them for sale, and as these advertisers have unquestionably the best stock in Canada, it enables them to secure of the very best.

Any person forwarding to us lists of new subscribers containing the requisite number in any of the clubs mentioned below, will have his choice of any of the pure-bred animals mentioned in connection with the respective lists.

- Five Names and \$5.**
Plymouth Rock, Light or Dark Brahma Cockerel, value \$3 00
- Ten Names and \$10.**
A pair of Plymouth Rock fowl or Pekin ducks male and female, value 6 00
- Fifteen Names and \$15.**
A pair of Bronze Turkeys or Toulouse geese, value 8 00
- Twenty Names and \$20.**
A trio of mammoth Bronze Turkeys or Toulouse Geese, value 12 00
- Thirty Names and \$30.**
A pure-bred Berkshire boar (from 2 to 6 months), or a pure-bred ram lamb of the Leicester, Lincoln, Cotswold, Southdown, Oxford, or Shropshire breed, value 16 00
- Forty Names and \$40.**
A pair of pure-bred ewe lambs of the Leicester or Southdown breed, value 25 00
- Fifty Names and \$50.**
A pure-bred ram of any of the above breeds, one year and over, value 30 00
- Seventy-five Names and \$75.**
A pair of pure-bred Berkshire pigs, between 6 and 12 months, male and female, of different strains, value 40 00
- One Hundred Names and \$100.**
A pair of pure-bred ewes of the Leicester, Lincoln, Cotswold, Southdown, Shropshire or Oxford breeds, value 50 00
- One Hundred and Fifty Names and \$150.**
A pure-bred Shorthorn, Hereford or Galloway bull, under one year, value 100 00
- Two Hundred Names and \$200.**
A pure-bred Shorthorn cow in calf, between two and six years of age, value 150 00
- Five Hundred Names and \$500.**
A Shorthorn herd consisting of 1 bull and 2 females between one and three years, value 300 00
- One Thousand Names and \$1000.**
A pure-bred Canadian Clydesdale stallion value 600 00

The above are subject to the following conditions:
 1. The cash must be forwarded along with each list of names.
 2. The names forwarded must be those of new subscribers.
 3. It is not necessary that all the names should be forwarded at one time.

Observe:
 1. This offer will enable any canvasser to secure pure-bred stock from any one whom he may prefer, having it for sale, and who is an advertiser in the JOURNAL. This is far more advantageous to the canvasser than if he were restricted to purchasing from some particular individual.
 2. Arrangements will be made with any one desiring to secure any class of stock of the breeds not enumerated in our list, to enable him to do so, on his communicating with us. Any one who decides to engage in this work is requested to communicate with us at once, when further details will be furnished, which will be found valuable.

This is the largest offer of live-stock premiums ever made by any firm in Canada, and the extent to which it will be increased is only limited by the number and energy of the farmers who choose this easy and profitable way of securing first-class stock.

Additional Premiums Offered.

The following additional premiums are offered to those who prefer them to a cash commission. Favorable arrangements have been made for the purchase of these articles, our friends get the benefit of the closest rates. \$1.00 must be sent with each name sent in. Articles by freight or express, the charges to be paid by recipient. The subscribers may be either new or old, and may belong to different post offices.

- Four Names and \$4.**
1 copy *Weekly Mail*, Toronto, to 31st Dec., '89 \$1 00
1 " " *Globe*, " " " " 1 00
1 " " *Free Press*, London, to 31st Dec., '89 1 00
1 " " *Western Advertiser*, London, to 31st Dec., 1889 1 00
1 " " *The Gazette*, Montreal, to 31st Dec., '89 1 00
1 " " *Witness* " " " " 1 00
- Six Names and \$6.**
Horse Breeding, by J. H. Sanders 2 00
Feeding Animals, by Prof. Stewart 2 00
Home Corn Shelter (Copp Bros) 2 00
50 lbs. Hamilton Thorley Cattle Food 2 50
- Eight Names and \$8.**
Cattle and Their Diseases, by A. J. Murray, M.R.C., V. S., Vet. Editor *Breeders' Gazette*, Chicago 2 50
Truck, made by H. Bell & Son, St. George 2 50
75 lbs. Hamilton Thorley Cattle Food 3 00
- Ten Names and \$10.**
Butter Scale, with weights 1/2 oz. to 6 lbs., Burrow, Stewart & Milne 4 30
Breeds of Live-Stock, by J. H. Sanders 3 00
Allen's Shorthorn History 3 00
Truck, Hand, made by Burrow, Stewart & Milne 4 25
100 lbs. Hamilton Thorley Cattle Food 4 50
- Twelve Names and \$12.**
Farmer's Even Balance Scale, with weights, 8 lb. 5 00
Cast Road Scraper 6 00
Farm Bell, made by Armstrong, Guelph 6 50
- Fifteen Names and \$15.**
Corn Cultivator, Copp Bros., Hamilton, makers 7 00
Horse Hoës, " " " " 7 00
Butter Scale, with weights 1/2 oz. to 17 lbs., Burrow, Stewart & Milne, or Gurnoys & Ware, makers 7 10
150 lbs. Hamilton Thorley Cattle Food 6 75
- Eighteen Names and \$18.**
Farmer's Union Family Scale, B., S. & M., or G. & W., makers 8 00
Smith's Reaper and Mower Sharpener 8 00
An Armstrong Farm Bell 7 50
100 lbs. Hamilton Thorley Cattle Food 9 00
- Twenty Names and \$20.**
An Armstrong Farm Bell 9 75
Wortman's & Words' Revolving Churn, capacity 15 gallons 9 00
Union or Family Scale, 1/2 oz. to 200 lbs., B., S. & M., or G. & W., makers 10 45
- Twenty-five Names and \$25.**
Root Cutter, made by T. Gowdy & Co., Guelph 11 00
Steeleyard, capacity 100 lbs., B., S. & M. makers 9 00
250 lbs., Hamilton Thorley Cattle Food 11 25
- Thirty Names and \$30.**
Bell's Champion Horse Hoe and Cultivator combined 13 50
Burrell's Corn Shelter 12 00
Iron Cultivator, Copp Bros., Hamilton 12 00
Gowdy & Co.'s Horse Turnip Seed Drill 13 50
Imp'd Jointer Plough, Gowdy & Co., makers, Guelph 13 50
- Thirty-five Names and \$35.**
Root Pulper and Slicer, B. Bell & Son, St. George .. 16 00
Double Drill Seed Sower, B. Bell & Son 15 00
General Purpose Plow (Fleury Mauffg, Aurora) 17 00
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rams of superior quality, from the flock of Mr. H. Webb, also 3 ram lambs. We noticed among the ewes a fine pair of two shear animals bred by Mr. Colman. Amongst the shearing ewes are the winners of the 1st prize at the Royal Counties Show at Bourne-mouth; of 2d prize at the R. A. S. E. at Nottingham; of 2d at Norfolk, and 2d at Essex; also a pen of 1st prize ewes at Cambridge; three pens of flock ewes, five in each, from Mr. Webb, one from Mr. Jonas, and one from Mr. Colman; also a number of ewe lambs. Mr. J. has, therefore, not only had a regard to fine individuality, but also to blood from flocks in the highest repute. Although they were fifteen days on the ship—five of which were prior to the departure of the ship—all have reached Woodside safely in the best of health and without a single casualty. The sheep trade has seldom been so brisk in this country. Mr. Jackson informs us that on Aug. 9th there were over 1000 sheep in quarantine at Quebec, by far the largest and finest lot ever there at one time previously. They all left by special train of 19 cars via G. T. R. destined for Ontario, the middle and western States. With the exception of about 47 head of Cotswolds, they were of the Down breeds, including Southdowns, Shropshires, Hampshire and Oxfords.

Poultry.

W. B. Cockburn, Aberfoyle, Ont., writes: "Crops good. Stock all looking well. Never had better success in raising a fine lot of chicks—the best I ever had. Some fine show birds in the number."

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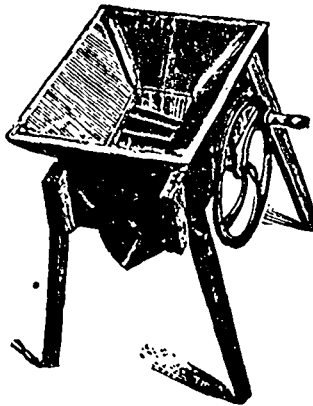
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Send for Specimen Sheet. Address,
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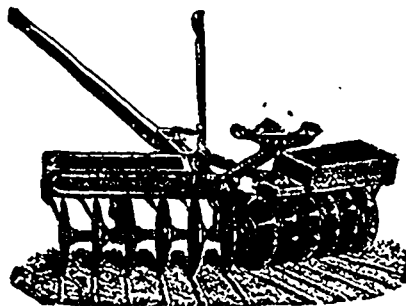
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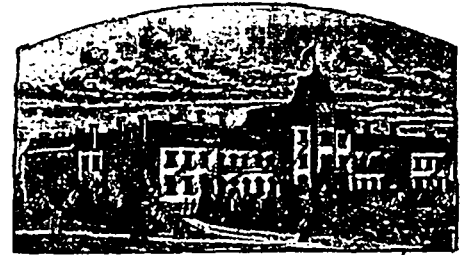
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For circular giving full information, apply to

JAMES MILLS, M. A.,
PRESIDENT.

GUELPH, July 27, 1888.

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BY HON. L. F. ALLEN.

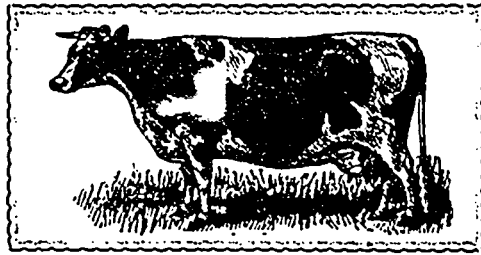
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Any person can cut and fit any article of dress perfectly without trying the garment on. It is pronounced to be the best tailor system in the world, its simplicity overcomes the complicated points of other systems. In fact it is so simple that a child 14 years old can cut and fit as correctly as the most experienced dressmaker. As there are no mathematical calculations to be made in using this system, every measure is figured on the scales as you require to use them. By following the book of instructions and diagrams you know exactly the amount of goods you need. How to fit stout or lean people, how to fit round or hollow shoulders. In fact you have got the secrets of dressmaking by the French tailor system. There is an extra sleeve pattern goes with above system that is alone worth \$5 to any lady. Worth's system sells the world over at \$10, but we have made such arrangements with the owner that we can send it to you with the instruction book and the extra sleeve pattern with one year's subscription to *The Ladies' Home Magazine*. A beautifully illustrated ladies' journal, filled with charming stories, fashion notes, art needle work and all home subjects, for \$1. To induce quick replies we will also give one of our *Every Day Cook Books* (copyrighted), with nearly 400 pages, retails at \$1, filled with the choicest household and toilet recipes of all kinds, to the first 500 answers to this advertisement. Send at once and receive our great offer. Everything as represented or money returned.
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OF THOROUGHBRED
Holstein Cattle



BY THE
**WYTON
STOCK-BREEDERS'
ASSOCIATION**

WILL BE HELD OCTOBER 3rd, 1888, AT 12:30 O'CLOCK

About **Forty Bulls and Heifers** will be offered for sale. In order that the buyers may see the sires and dams, the sale will be held at **WYTON**, a station on the Grand Trunk R. R., between London and St. Marys. For further particulars and catalogue, address **W. B. SCATCHERD, WYTON, ONT.**

PUBLIC AUCTION SALE
On October 17th, 1888.

Owing to the extremely cold and stormy day my sale in January last was not as successful as it should have been, and as feed is scarce and I am short of stable room, I intend selling about 20 head of my

DURHAM CATTLE
by Public Auction, at my place,
ONE MILE EAST OF ST. MARYS,
On Wednesday, 17th Oct., 1888.

I would call the attention of breeders to the excellent quality of my cattle. They are either imported from or descended from the well-known herds of Cruickshank and Campbell. They are all regular breeders. My bull calves are a particularly fine lot, combining both quality and pedigree. Catalogues ready about the middle of Sept. All will be sold without reserve.

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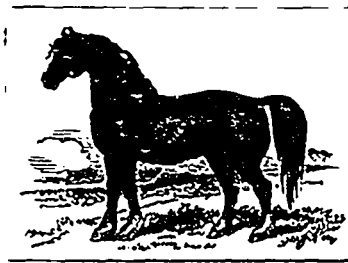
AUCTION SALE
—OF—
OAKLANDS' JERSEYS

Our Annual FALL Sale
WILL BE HELD AT
OAKLANDS FARM
—ON—
WEDNESDAY, SEPT. 26

At 12 o'clock, noon.
The offering will consist of Bulls, Bull Calves,
Cows and Heifers—including sons
and daughters of
CANADA'S JOHN BULL.

All registered in the American Jersey Cattle Club Herd Register.
OAKLANDS FARM is five miles from Hamilton and 1/2 mile from Waterdown station, on the G. T. R. (Southern Division).
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REPOSITORY**



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SPECIAL AUCTION SALE
Tuesday, Sept 18

28 Irish Blood Mares and 2 Stallions

The property of Colonel H. COLLIER and O. T. SLOCOCK, V. S., Carlow, Ireland, all of which have been carefully selected direct from their breeders in Ireland, with a view of their producing Hunters, Hacks and remounts for the army. Among them are thorough-bred, three-quarter and half-bred animals of the best and most valuable hunting-strains. The services of Leontes foal 1883, see English Stud Book, vol. 15, page 357, was secured in Ireland for these mares, and it is believed they are all in foal; they are all perfectly sound, 4 to 7 years old, stand from 15.1 to 16.2; will arrive in the city a few days previous to the date of sale, when they can be seen at the Repository.

Catalogues ready in a few days, and may be had on application

W. D. GRAND, Manager and Auctioneer.
We have received instructions from Mr. Malcolm McKinnon, of Calgary, N. W. T., to sell on Wednesday, September 19, one carload of ponies and horses, 4 to 7 years old, direct from the Northwest ranches. Sale each day at 11 sharp.

W. D. GRAND.

**SALE OF
CATTLE AND HORSES**
AT THE BRIARS FARM
Sutton West, Ont.
ON THE 18th OCTOBER

Will be sold about 70 head of Shorthorns, all registered in D. H. B., equal in pedigree to those registered in the English Herd Book; also 17 Horses, preparatory to the owners leaving for China. Catalogues will be issued.

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As I am giving up farming I will sell by auction

AT KINGSTON

(at the time of the Provincial Exhibition)

ON SEPTEMBER 13th AND 14th

my herd of Jersey cattle, comprising over 40 head, all registered in A. J. C. C. and which are of Stoke-Pogis, Signal and other choice strains. Every animal will be sold for what is bid for it, so that bargains may be expected. Time given for portion of payment if desired. Catalogues cheerfully mailed to all applicants. Address

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BY AUCTION

On Thursday, 11th Oct., 1888

Of the entire herd of the undersigned, consisting of four young bulls and twenty females, of the latter 16 are of a beautiful dark red color.

For the last fifteen years we have used nothing but the stock bulls of John Dryden, M.P.P., all of which were bred by Amos Cruickshank, Sittyston, Aberdeen, Scotland.

The principal sires of herd are: Vensgarth (47192), Lord Glamis (48192), Royal Barmpton (45503), Victor Royal (52299).

This sale being a dispersion sale there will be no reserve, and it will afford an excellent opportunity for purchasing choice breeding stock.

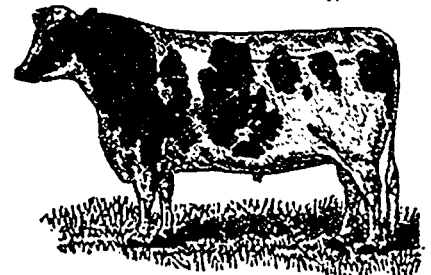
Sale to begin at 10 o'clock.

Trains met on day of sale at Brooklin station (G. T. R.) and Myrtle station (C.P.R.)

Catalogues sent on application. Correspondence invited.

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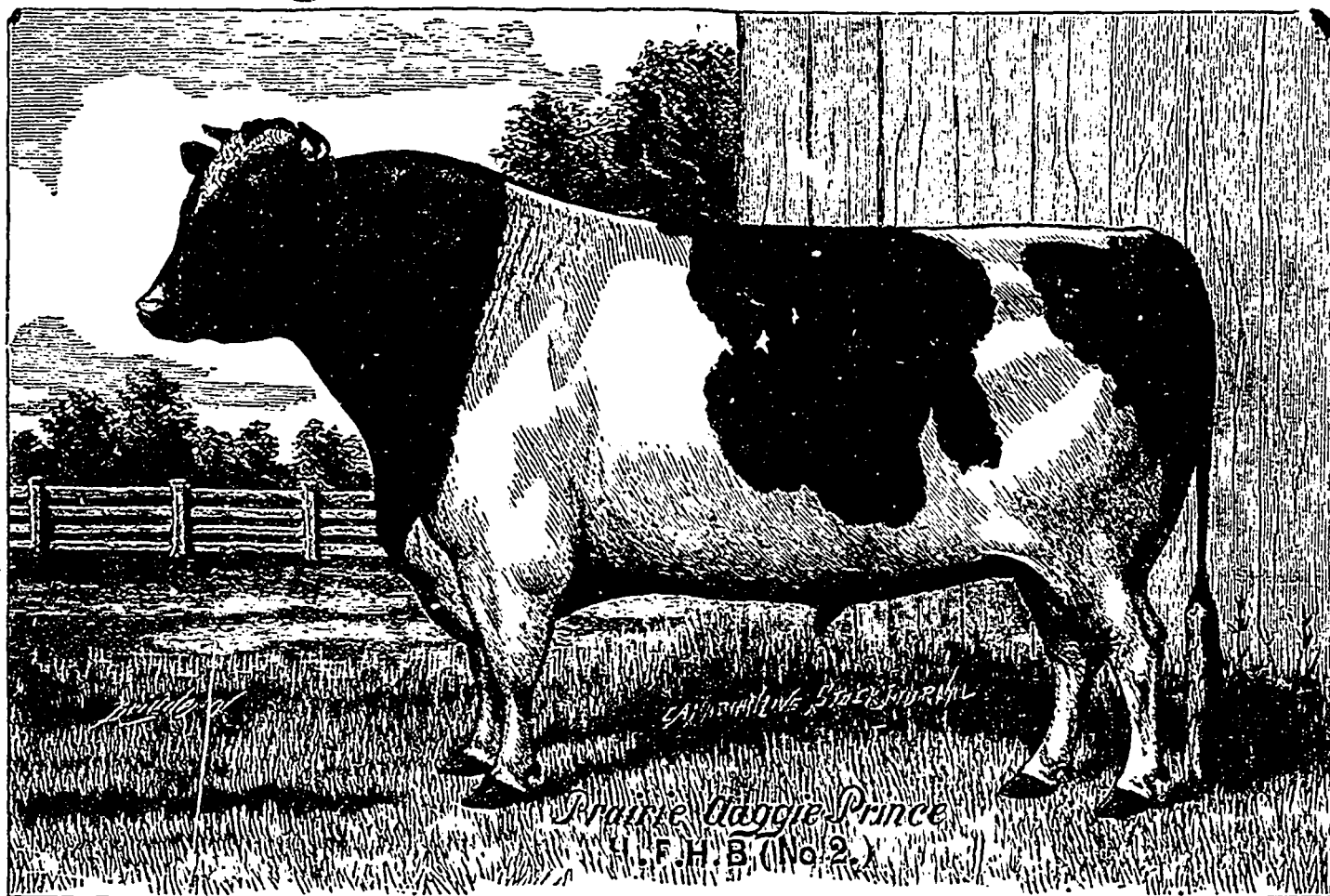
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Including strains of the best milk and butter families living. Herd headed by CLOTHILDE and her ARTIS, whose dam Clothilde 2nd, gave at 4 years old 23,602 lbs. of milk, and made 23 lbs. 4 oz. of unsalted butter in seven days when six years old. G. dam, Clothilde, winner sweepstake prize at New York Dairy Show, has milk record of 26,650 lbs. of milk and 23 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 22 lbs. 1 oz. unsalted butter; sire, Netherland Prince. Prices low for quality of stock.

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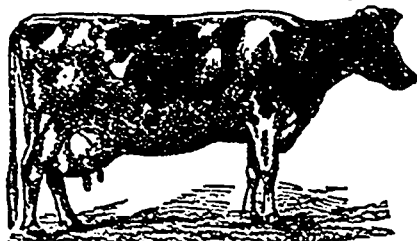
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HOME of the imported Holstein-Friesian bull **MARS** ELLIS No 661, Vol 1, H. F. H. B., selected in *Norfolk Holland* by special request, and whose 3 calves secured first prizes at the Dominion Exhibition, held at Sherbrooke, Que., Sept. last, 1886.

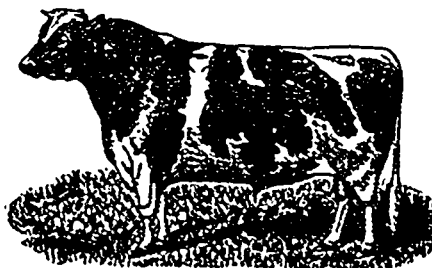
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Importer and Breeder of



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CLYDESDALE HORSES,
AND SHROPSHIRE DOWN SHEEP.**

Stock of both sexes for sale. mar-y

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We breed and have



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Shorthorn Cattle
Leicester Sheep

of the choicest quality and best breeding. Duke of Colonus = 9282 = heads our herd.

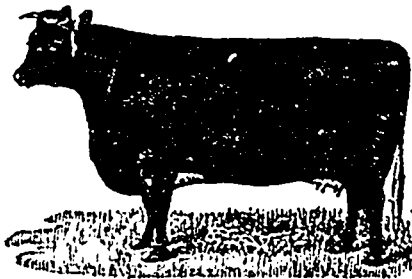
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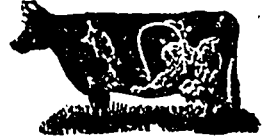
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PURE-BRED

**AYRSHIRE
CATTLE**



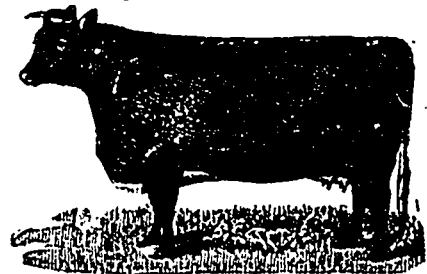
Of Large Size, and from Choice Milking Strains.

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. fe-17

J. Y. REID, HILLSIDE FARM,

(2 1/2 miles south from Paris.)

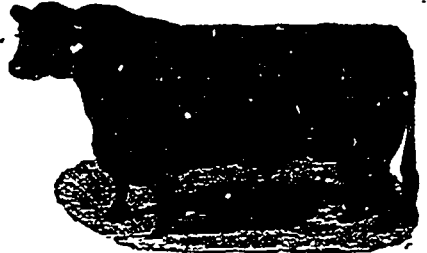


BREEDER of Shorthorn Cattle, all registered in the new Dominion Herd Book. The highly bred Bates bull, 7th Earl of Darlington, bred at Bow Park, at head of herd.

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 Geddie, Manager, PARIS, ONT

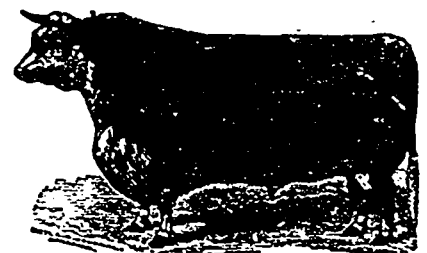
ABERDEEN-ANGUS POLLS



The undersigned are in a position to supply young bulls of the above excellent breed of cattle at prices within the reach of all, and as to their quality we need only mention that our herd finished last season by taking the medal and diploma, for the fifth year in succession, at the Provincial Exhibition, held in Ottawa. Send post card for our Illustrated Catalogue, and give us a call before investing.

HAY & PATON, Proprietors,
New Lowell, Co. Simcoe, Ont., Canada.

The Park Herd of Herefords,



THIS herd embraces over fifty head of choice animals. All registered. Catalogues sent on application.

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Farm, half a mile from C. P. R. and G. T. R. Stations, eight miles from Toronto.

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American Cattle-Club Jerseys.

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HEIFERS, COWS AND YOUNG BULLS FOR SALE
At reasonable prices, Send for new catalogues.

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IMPROVED YORKSHIRE PIGS

SHIRE AND CLYDE HORSES.

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English Shire Horse Society.
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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.

THE GLEN STOCK FARM,

Innerkip, Oxford Co., Ont.



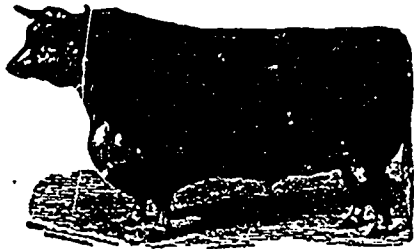
**SCOTCH SHORTHORNS,
SHIRE HORSES,
BERKSHIRE PIGS.**



Herd headed by imported Earl of Mar (4785), winner of the gold medal at the Grand Dominion and 39th 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.

POINT CARDINAL HERDS.



HEREFORDS

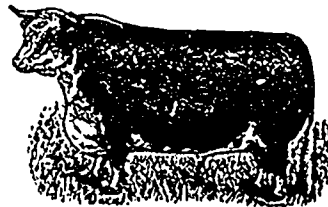
Selected with great care from the celebrated herds in England. At the head of the herd stands the imported Marlow bull Rambler 6th (6630) 13514.

SHORTHORNS

Heifers and bulls for sale, mostly sired by imported Duke of Hazelcote 68th, 65707.
Also a number of fine Hereford grade heifers and young bulls.

G. F. BENSON, Cardinal, Ont.

THE TUSHINGHAM HEREFORDS



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,

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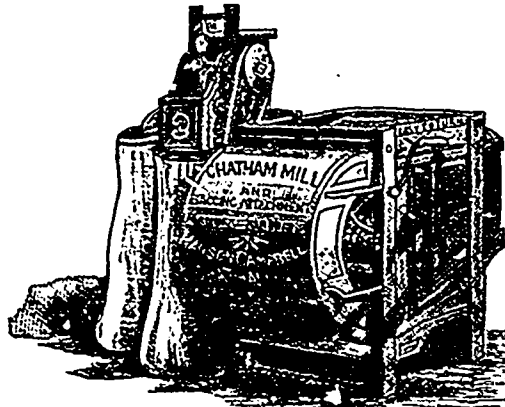
Waterville, P. Q.

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

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**BAGGING
ATTACHMENT**

For Chatham Fanning Mill.



This cut represents a new machine and is an attachment for bagging the grain as it comes from the Fanning Mill. It is complete in every respect, and will give the best of satisfaction to those who use it.

A few points in its favor are these:
It turns very easy.

Takes up very little extra room on the floor. Fourteen inches square space on the floor will hold the machine, and any farmer can spare that from his barn or granary.

Will bag any kind of grain, from the finest

seed, such as timothy and clover, up to the coarsest grain, such as beans or corn.

Will bag from 60 to 80 bushels of wheat per hour, 100 bushels of oats per hour.

Your grain does not go to the floor, thereby saving considerable waste.

Two men with the bagger will do the same work as three without it.

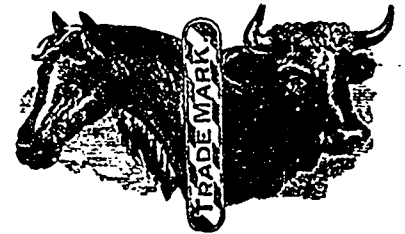
It can be attached to any Chatham Mill manufactured during the last four years.

This machine is worthy the inspection of all farmers.

For prices and full particulars apply to **MANSON CAMPBELL, Chatham, Ontario.**

MASSEY MFG CO., of Toronto, 66 McGill St., Montreal, Sole Agents for the Province of Quebec. VAN ALLEN & AGUR, Winnipeg, Man., Sole Agents for Manitoba and N.W.T. E. G. PRIOR & Co., agents for British Columbia.

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1888.**



Stockmen feeding stock for all purposes will find the addition of

**THORLEY IMPROVED
CATTLE FOOD**

to their daily feed of great benefit. Be sure you get the HAMILTON THORLEY.

\$4.50 per 100 lbs. Special rates for large quantities.

THORLEY HORSE AND CATTLE FOOD CO., Hamilton, Ont.

CRUICKSHANK SHORTHORNS,

CLYDESDALES

AND

Shropshire Sheep



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FOR SALE—Superior show Cows, Heifers and Bulls, of the best Cruickshank families.

Purchased in England, for arrival in August, 175 Shropshire sheep, including Rams and Ewes, winners at the great Royal show and other exhibitions.

Inspection invited. Catalogues on application.

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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.

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Cheltenham Station, C. P. R. R.,
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Thoroughbred Horses
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of highest strain and pure-bred.

SUFFOLK PIGS, all registered. Young stock of all the above for sale. All orders promptly attended to. A number of young Shorthorn Bulls for sale at moderate prices.



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IMPORTER AND BREEDER
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Stock for Sale. Registered pedigree.

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Address, STOCK JOURNAL CO., Hamilton, Ont.

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



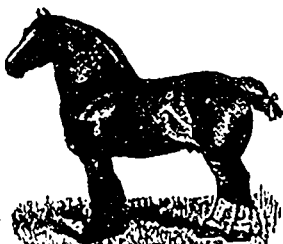
OFFERS
FOR SALE
On Reasonable Terms
Choice
STALLIONS
AND
FILLIES

Which are registered in the Clydesdale Horse Society of Great Britain and Ireland. One of my present importations is Duncan Bruce, 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 gets from Macgregor, Harold, Knight of Snowdon, Sovereign, Crown Jewel, McMaster, What-Care-I, Clyde, Scotts, Laird Crawford, etc., etc.



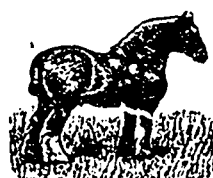
The stock is selected by myself with great care. Parties wishing to purchase would do well to inspect personally before deciding.

Also a few **Shetland Ponies.**

Correspondence Solicited. **Howick Station, C. A. R.,** on the farm. (G. T. R. one mile from Howick also.)

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Clydesdales
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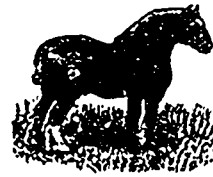


Importation of 1887.
Not long arrived, a superior lot of

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Ranging from one to five years old, including gets of the celebrated Lord Erskine, Belted Knight, Sir Wyntham Warrior, Goodhope, Lord Kirkhill, Old Times, Pride of Galloway and Macgregor. Prices reasonable. Catalogues furnished on application.

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Bowmanville is on the main line of the G. I. R., 40 miles east of Toronto and 29 1/2 west of Montreal.

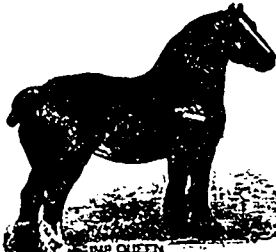
CLYDESDALES,
SHORTHORNS AND SHROPSHIRE.
JOHN MILLER,
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has on hand for sale a large collection of prize-winning animals of the above breeds. The Clydesdales are large and of the best quality. The Shorthorns are of the best Scotch families and of superior 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.

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OF PURE-BREDS on hand and for sale, including gets of the following sires: Lord Lyon (189), What-Care-I (912), Belted Knight (1395), Goldenberry (2828), Corsewall (1420), Prince Charlie (629), Sir Michael (1530), Scots-Wha-Hae (400), Macpherson (1885), Good Hope (1679), Lord Erskine (1744), Macneillage (2992), Golden Treasure (447), Gallant Lad (2781); of which 13 are Stallions and Colts. Several of our mares are supposed to be in foal to our well-known Boydston Boy (111), sire of the celebrated Lord Erskine (1744).

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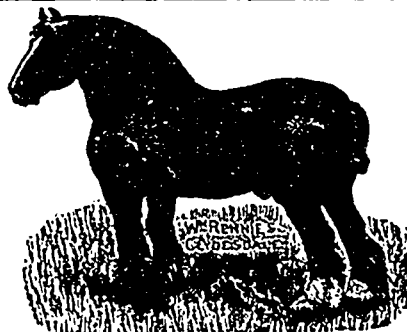
We have on hand and for sale a superior lot of imported and home bred Clydesdale Stallions and mares. Several of them were prize winners at the leading shows in Scotland and Canada.



ALSO A FEW CHOICE SHETLANDS.

Prices to suit the times.

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IMPORTED CLYDESDALE HORSES

of superior breeding and quality

FOR SALE AT REASONABLE PRICES

both Stallions and Mares, from 2 to 4 years of age, all registered in Scotch and Canadian Stud books, bred from the following noted sires: Darnly (222), Belted Knight (1395), Breadalbane (1279), What Care-I (912), Mac Ammon (3818), Harold (2844), Trademark (1279). Inspection solicited.

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Stables, 68 Duchess St. P. S.—Also SHETLAND PONIES.

Imported Clydesdales
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Prices moderate and terms to suit purchasers.

Not long arrived, a superior lot of registered

CLYDESDALE
Stallions and Fillies

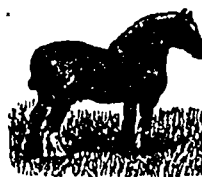


from 1 to 3 years old, and with the exception of three all have been prize winners at leading shows in Scotland. Including gets of the celebrated sires Darnley, St. Lawrence, Lord Hopton, Macgregor, Old Times, Gallant Lad and What-care-I.

Our horses are all selected with the greatest care from the best studs in Scotland. We pay a little more for our choice than those who buy in job lots. Parties wishing to purchase superbly bred animals should inspect our stock.

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Pontypool station on the C. P. R., 50 miles east from Toronto.



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Home of the Provincial Renowned Manfred (1728).

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.

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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.

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RESIDENCE ONE MILE FROM CLAREMONT STATION.

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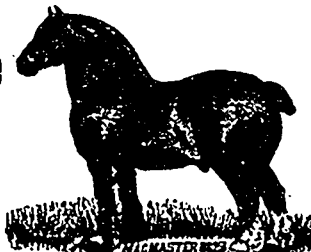
Clydesdale

STALLIONS AND MARES

constantly on hand and

FOR SALE

At reasonable terms.

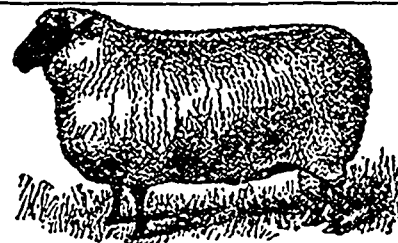


The importations of 1887 comprise a large number of one, two, three and four-year-old registered stallions and mares, the gets of such sires as Macgregor (1487), Darnley (222), and Prince of Wales (673). Also a few choice SHETLAND PONIES.

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BREEDER OF

SUFFOLK AND BERKSHIRE PIGS,

eligible for registration, also

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