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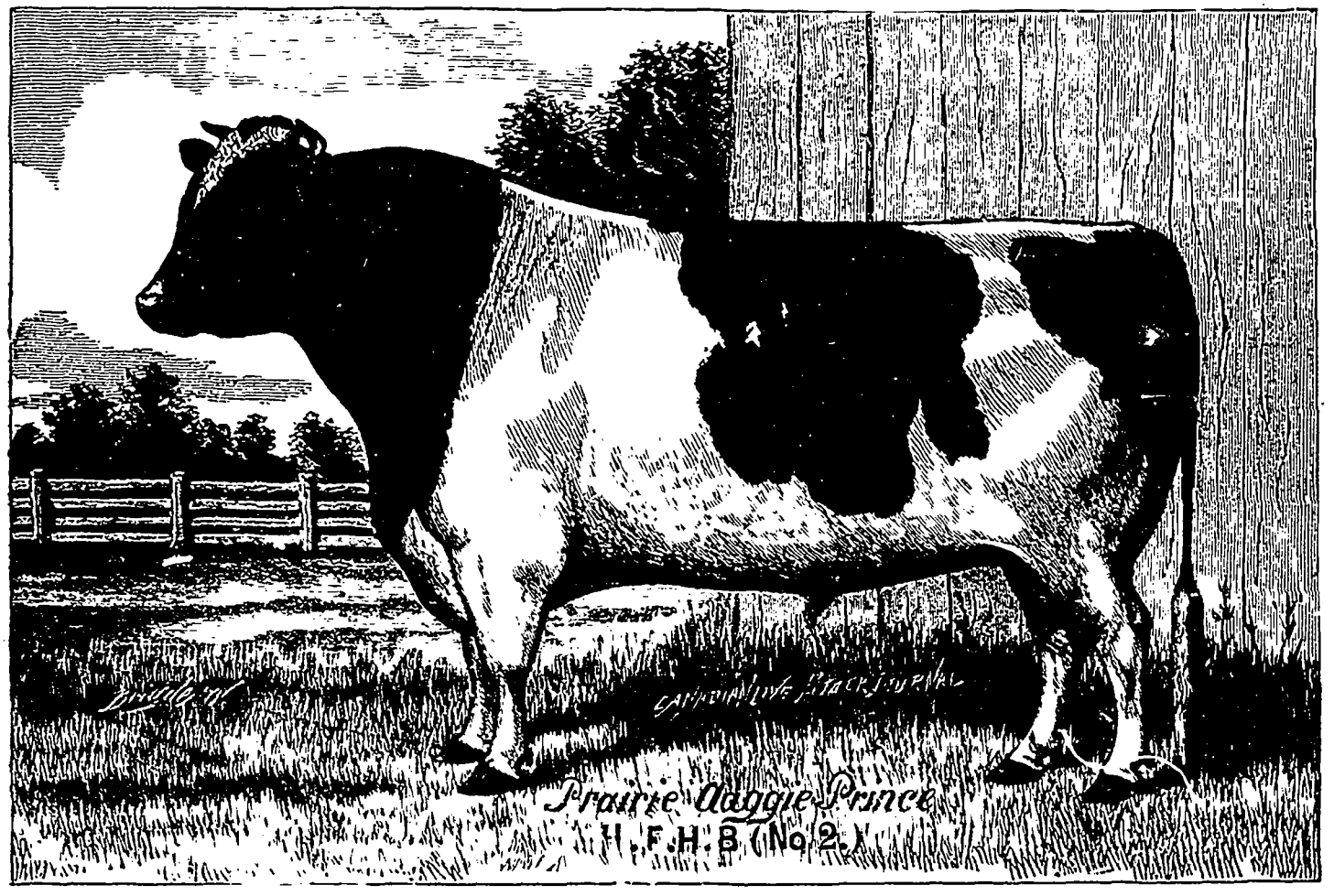
THE CANADIAN LIVE-STOCK AND FARM JOURNAL

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

VOL. V. HAMILTON, CANADA, JUNE, 1888. No. 56



THE HOLSTEIN BULL PRAIRIE AAGGIE PRINCE, H. F. H. B. NO. 2.

Imported by and the property of A. C. Hallman & Co., New Dundee, Ont.

The Prize-winning Holstein Bull Prairie Aaggie Prince.

This admirable specimen of a Holstein bull which leads the herd of A. C. Hallman & Co., New Dundee, Ont., is rather under than over drawn in the sketch. He was bred by T. G. Yeomans & Sons, Walworth, N. Y., and imported by his present owners in 1886; calved April 6th, 1885, he was sired by Royal Aaggie H. H B. 3463, advanced registry No. 3, for whom his owners paid $1,500 when one year old, and for whom a cash service fee of $200 is charged in the Walworth herd. The g. sire DeRuiter, N. H. B. 89, won first prize at Leyden, 1880, and is out of a dam with a milk record of 80 lbs. a day. He is sire of such cows as Aaggie Constance—milk record 76 lbs. 1 oz. in a day, and 16,761 lbs. as a two-year-old, and Aaggie Clara, whose milk record reached 84 lbs. 4 oz. in a day as a three-year-old. His g. g. sire Jacob, N. H. B. (56), one of the most noted sires of Holland, won first prize at Haarlem in 1879. His daughter Aaggie 2d has a record of 20,763 lbs. milk in a year as a six-year-old, and 21 lbs. 7 oz butter in 7 days. The g. g. g. sire Jacob, N. H B, No. 20, was first at Amsterdam in 1886. His daughter Aaggie Rosa gave 20,225 lbs 2 oz. milk in one year, and 22 lbs. 8 oz. butter in 7 days. His g. g. g. g. sire Rooker came of Degoda, a prize winning cow at the Paris Exposition; milk record 91 lbs. 8 oz. in a day, and his daughter Aaggie made a record of 18,004 lbs. in a year. The g. g. g. g. g. sire was a prize bull at Hoorn in 1871. DeShut, N. H. B. 573, the dam of Royal Aaggie, gave 82 lbs. 8 oz. in a day, and the g.g. d. Oude Shut 2d 75 lbs. 8 oz. Numerous other cows of the same family possess equal merit.

Prairie Flower H. H. B. 762; A. R. 17, the dam of Prairie Aaggie Prince, as a five-year-old made a butter record of 20 lbs. 1 oz. unsalted butter in 7 days.

Prairie Aaggie Prince, possessing fine milk and beef form combined, is low, blocky, straight and square, possesses good length, and has admirable head and horns. His nicely crested neck fits snugly to the shoulders; his back is broad and level, and quarters deep and long; his breast is wide, style and quality of the first order; hide mellow and coat silky. His weight at two years was 1,735 lbs., and at present he weighs about 2,200 lbs. Few bulls are so happily descended. His ancestors have been prize-winners for many generations, and his pedigree is written in milk and butter on every hand. We think we are safe in saying that the Aaggie family, of which he is come, have done more to popularize the breed than any other family of this famous race of milkers.

As a prize-winner this bull well sustains the record of his ancestors, having never been defeated in the showring. He took first at the Toronto Industrial in 1886, and headed the young herd which carried a medal, and came first at the Provincial, Guelph, also heading the first-prize herd there, which won in competition with the best herds in the country. Not satisfied with the action of the Industrial Exhibition board as to the rules of competition, the Messrs. Hallman, in common with many others, declined to compete there in 1887, but in London carried 1st and diploma on Prairie Aaggie Prince as best bull of any age, though in his two-year-old form; 1st and 2d on three year cows, and yearling heifer calves; 1st on yearling bull and on bull calf, and diploma on herd. Similar victories followed at other exhibitions. His stock are very uniform and of fine quality, and are much admired. They have been very successful in the show-ring.

The females of this herd are of equally fine quality and choice breeding, a number of them having never met defeat in our leading show-rings.

A number of fine animals have been sold out of this herd, and have gone to all parts of the Dominion, even to Manitoba; but that which remains is equally good and better, as the firm have wisely determined to handle only the choicest of stock. They have every confidence in the intrinsic merits of this useful race of cattle, of which we have another proof in the fact that they are soon to make another large importation. The enterprize shown by them cannot fail to find a fitting reward.

Canadian Live-Stock & Farm Journal

PUBLISHED MONTHLY BY

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THOMAS SHAW, RIVERSIDE FARM, EDITOR.

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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, JUNE, 1888.

THERE is but little doubt that one of the most serious hindrances to the extension of improved stock production arises from the difficulty of isolated farmers to get a proper price for an improved steer from the local butcher. He knows that giving a better price to one man in a locality would increase the difficulty of all succeeding purchases, for a time at least, in that same neighborhood. The shipper avoids such a section for the reason that he cannot get sufficient improved stock there to encourage him to go. The farmer, then, who alone has been trying to improve his cattle, finds himself no better off than his neighbors, save in the less amount of food used in preparing his improved steer for market. What is to be done in such a case? Why, *persevere*. It is of itself encouraging to know that an important saving has been effected in feed in attaining the object sought. Work away till you can get several good steers ready for the market at one time, and then a shipper will visit you who will give you a price that will astonish your neighbors—that is, if you persist in asking it. One by one they will drop into your ways, and in due time your neighborhood may become a fine centre for the production of shipping steers.

THE past winter with its scarcity of food supplies has taught a very important lesson to many, if they will only try and profit by it. Their stock has been brought through and in condition not much below that of other years when food was plentiful. How is this to be accounted for? Why, simply in the better methods of feeding adopted. If, then, when feed is scarce, such and such results may be obtained by its judicious use, why may not equally good results be secured on similar principles when feed is plentiful, the farmer thus having a goodly surplus to be fed to an increased number of stock, or to dispose of in some other way? If we would lay these lessons to heart as we should, a pinch now and then in supplies like that of the past winter would doubtless prove a profitable reminder. But there is a system of economy adopted by some, that is falsely so called. Because the price of hay has ruled high, and that of coarse grains has increased, they have withheld these and sold them, which has been most destructive to flesh sustenance in the stock. This is a kind of economy very much like those who adopt it, pretty narrow. If straw can be cut and fed in conjunction with a grain ration, and thereby hay sold, because dear, and some sort of fertilizer used to make up the loss, good and well; but to starve the stock that hay may be sold at a good price, is a practice unworthy of the most primitive times.

SOME persons are disposed to take a somewhat gloomy view of the future of the live-stock trade, owing to the slackened prices that have been received during the two years that are past. We do not think that this view is sustained when one calmly reviews the situation. The larger portion of the available range territory of the Western States is already stocked to its full capacity, while the population of the country is increasing at the rate of one million a year. In ten years this means an increase of ten millions of people, to feed which would require more beef than is now exported annually from the United States. Of course better farming will likely result in the sustenance of a greater number of cattle on a given quantity of land, but this will not hold true of the range country, which is relatively a very large area. Our populations also will increase, though more slowly, and the consumption will be greater. It is true, however, that we have a large country in the Northwest, much of which is well adapted to growing good cattle, but the difficulties of transit increase with distance from the market. The two great markets for the live-stock of Canada are Great Britain and the United States, and contrary to the popular idea, we send greater values in live-stock to the United States now every year than to Great Britain. The export to the former is really much greater than the estimate, for, going as the greater proportion of it does in the face of a duty, the temptation is strong to make an entry much below the actual value. If we continue to furnish to both markets the class of stock that is wanted, the demand will increase rather than slacken, particularly as regards the trade with the United States.

THE breeders of improved stock are sometimes discouraged with the slow advances that their stock is making by way of supplanting the scrubs, and are ready to conclude that the scrub, like the poor, is one of the things that will always be found in the land. This much is sure, that so long as the scrub retains its footing the poor will remain with us, for since the world began it was never known that the scrubs made anybody rich. But the scrub will not always remain, or the breeders of pure-bred stock will not be true to themselves or to their high mission. It is true that in some benighted sections the sale of an improved class of stock is slow indeed, but so it was at one time in sections that are more advanced. Prejudices, like the ice of winter, are slow to break up ordinarily. It takes a deal of ocular demonstration to persuade the breeder of scrubs that his course is not a wise one, and that as a matter of duty he should forego these injudicious ways; but in no neighborhood is the case a hopeless one. The number of pure-breds is rapidly increasing, and the number of good grades in all the lines is increasing equally fast. The character of the highway sheep even has changed, through the general diffusion of better blood, and the best of our home markets are regularly supplied with meat that is not scrubby in its character, to say nothing of the large trade with Britain and the United States, all of which is done in beasts of an improved order. We do not find any instances of breeders going back from improved to non-improved, so that every inch of ground that is won is sure to be retained. In this way hundreds of farms are being reclaimed every year, every one of which narrows more and more the scrub-producing region.

The Outlook for Live-stock and Products in America.

Every year witnesses a large increase of population in the United States, which means an increased consumption of meat and live-stock products. Commissioner Colman, in his address, delivered in 1885 in Chicago, stated: "In 1880 we had "50,000,000 inhabitants; in 1905 we should have "100,000,000; in 1930, 200,000,000; in 1980, less "than 100 years hence, 800,000,000 of inhabitants. "Where are these teeming millions to live? On what "are they to subsist? Where and how are the cattle "to be bred and reared that must be relied upon to "furnish beef? To keep up our present beef supply "we must increase our stock of cattle to 70,000,000 "within twenty years, and to 140,000,000 within "forty-five years. Is it possible for us to accomplish "this under the most favorable conditions? In the "states east of the Mississippi in 1850 we had 15,- "300,000 head of cattle; in the 30 years from 1850 "to 1880 the cattle in these States increased only "5,000,000 head, or 33⅓ per cent. Taking the "country as we find it to-day, is there any reason to "suppose that the percentage of increase will be any "greater in the next thirty years than it has been in "these States during the last thirty?"

These are very interesting figures, and coming from such a source should carry all the more weight. Their perusal should interest the farmers of Canada quite as much as those of the United States. We know that the western ranges are well nigh stocked to their full capacity. The ratio of increase of live-stock cannot therefore keep pace with the ratio of the increase of the population. The United States cannot continue to be so great an exporter of live-stock and products unless the increase of the product of these keeps pace with the increase of the population. In such a case estimating the population in 1887 at 60,000,000, and the number of cattle at 48,000,000, and basing the further calculation on Commissioner Colman's estimate as to population, the number of cattle in 1980, to keep pace with the increase of the population, would require to be 640,000,000 head. It seems unreasonable to suppose that the territory of the United States could ever support that number of bovines.

Now all this is full of hope for the future of the live-stock interest in Canada. With increased home consumption in the United States the price of meat must rise in that country; and could we but have free access to their markets, we would be sharers in the benefits of such rise. It is true that the Northwest can produce many millions more of live-stock of all kinds than it does, and this will have its influence upon market values, but will the relative increase in live-stock in the Northwest more than supply the increasing demands of our home population? Ontario has nearly reached the limit of the number of animals which it should sustain, and so of the older Provinces, but not of the out-put of live-stock or live-stock products, for the usual returns we get from the stock we have is not more than half what it would be if rightly fed and rightly managed.

It seems then impossible for us to err in the direction of stock improvement judiciously carried on.

Scrub stock will find no market either in Britain or the United States, hence those who are to enter these markets with the flesh they grow must have a suitable article to offer. It takes some years to radically improve a herd on the old foundation, the most common way in which improvement is made. Those, then, who desire to have equal chance with others already in the field *must* set about the improvement of their herds at once. No mild comparative will do here. If they are to enter the field in successful competition they *must* do so. With as much confidence in the future for live-stock as when beef brought six cents per pound live-weight, we urge upon our readers to give increased attention to live-stock and live-stock products.

Hiding Exhibits.

This is what we might expect only of a thief, and yet in practice it is often done by exhibitors of stock. When one spends a whole season in preparing stock for exhibition and then takes it to a show and boxes it in for the greater portion of the day, insomuch that no one is certain of seeing it at any hour of the day, what else, we ask, is he doing but hiding it? It does sound paradoxical indeed that a person should take stock to an exhibition to show to the people, and yet adopt a course that effectually prevents the people from seeing it, but such is the fact. It is a common practice with the owners of horses, and sometimes with the owners of cattle, who keep them curtained. The exhibitor has his rights, which should be defined and respected. He should not be required to keep his stock open to gaze all the time, only at certain hours; but visitors have their rights also. They pay the admission fee with the full expectation of being permitted to see whatever is on exhibition, and if any portion of this exhibit is to be withdrawn from them the same should be made public before they are admitted. It is with much satisfaction that we chronicle the action of the Canadian Association of Fairs and Exhibitions, recently held in Toronto, in agreeing to require of the exhibitors of stock that their animals shall be accessible to the public during two hours of each forenoon and afternoon. We believe it would have been better to have said *three* hours rather than two.

It should not be considered a great hardship for exhibitors to attend upon their exhibits for six hours in the day, seeing that they go avowedly for the purpose of allowing the public to see the exhibits. If they are to be kept screened, this can be easily done at home, without carrying their animals a long distance to accomplish such an object.

No penalties have yet been fixed for non-compliance with the requirements, but we presume that this will be done by the different individual associations. It seems strange to speak of penalties for non-compliance with what is so plainly in the line of self-interest, but is not this singular fact equally true of every individual application of that unfailing code of primitive justice that follows in the footsteps of all human transgression? All obedience to infinite law is in the line of self-interest, whatever else may be its outcome. It is not flattering to stock-owners to have to say of them that exhibition legislation must compel them to carry out the very thing that they have avowedly gone thither to do; but there is no getting over the fact that much of the stock, especially horses shown at our exhibitions in the past, have been provokingly screened from the public gaze the major portion of the time.

There are two sides to this, as to every other question. Human perversity is largely responsible for the adoption of the practice. Men, and farmers especially, to whom it is a hardship to be kept chattering all day, and answering the simple questions of many townspeople regarding the breed and other things, conclude that the simplest method of relief is to lock the door. But this is conflicting right and convenience. The public have paid their fee to be permitted to see those animals, and if the beggar-man has done this he should not be debarred from seeing them. Then again, curious visitors, whose manners in the drawing-room and in society generally are all that could be desired, are rude enough to poke at the beasts at rest as they pass the stalls, that they may get a better view. They might just as well take it upon them to turn around the goods of the manufacturer and replace them to suit their own view. It is the duty of the farmer to show his beast, but he is not bound to show him in any particular position, and no visitor has any right to take it upon himself to disturb a beast in any shape or manner. As to answering questions, it may seem a hardship sometimes, but it is scattering light, a work in which the sun in the sky never grows weary, and happiness to mankind is the constant outcome.

We shall hope, then, that exhibitors will cordially acquiesce in the action of the association, and require no urging or compulsion to do what is so manifestly to their own interest in the end. While exhibition managers have duties which they owe to exhibitors and the public, so have exhibitors duties to the management and the public, and giving the latter a chance to see their exhibits at times that may be fixed upon is one of them from which there is no escape by any device of logic however ingeniously it may be framed.

Ensilage.

Ensilage is fast becoming the question of the hour amongst agriculturists. Like every other introduction of a strikingly novel character it has been thrown into the heated crucible of prejudice. In the case of ensilage, however, the crucible has been heated sevenfold. The dross of mistakes in making it is fast becoming separated, and soon we can expect that it will be made with as much certainty and uniformity as to quality as is to be found in the curing of fodders by the ordinary process. That green fodder of various kinds can be cured in silos and in pits without sacrificing the valuable properties of the same, will not be disputed now, notwithstanding the fierceness of the battle that raged in reference to it only a few years ago. The champions of ensilage have assuredly won the victory, of which we have no better proof than the rapid increase in the number of silos constructed on both sides of the Atlantic.

But there is another mode of preserving fodder practised in Britain and some other countries by means of stacking, the different layers being compressed by means of rollers passing over them as they are put on. From frequent references to this process in our old country exchanges we are led to believe that good ensilage *can* be made in this way. We have in our mind a letter addressed by one Mr. J. A. Gordon to Messrs. Thomas Pearson & Sons, Midland Iron Works, Wolverhampton, England, which appeared in the *Farmers' Gazette*, in the issue of March 3d. Mr. Pearson is giving the results of his experiment to the firm we have mentioned, who manufacture the rollers. The stack was built on an estate in Mitchelston, County Cork, Ireland, and cost in its erection but 4s. 3d. per Irish acre, a much less sum than is paid for making ensilage in the ordinary way. In reference to the quality of the clover thus saved, Mr. Gordon says: "Owing to the dry season "the stack in some places got rather hot and over-"colored, but nine-tenths of the bulk is of a golden "brown and oily appearance, very sweet to the taste, "and giving out a sweet and pleasant odor. All "our cattle are exceedingly fond of it, from the young "calves upwards, and since we commenced using it "I notice a marked improvement in the condition of "the cattle. No waste whatever, sides, top and "bottom all consumed and seemingly relished."

A difficulty here presents itself in adapting this process to our country. Would not the hard frosts of our winters turn the outer portions into a solid mass that would prevent its being fed in the winter season? If so, what would be the chemical effects of freezing upon it? Will some of our men of science who know, favor their fellows who do not, with light upon this point? It is alleged in answer to this objection that ensilage is made by this process in Norway, with a climate as stern as ours. If so, this is a most effective answer, but how are we to get at the facts conclusively?

This is certainly a most interesting question. If fodder can be cured successfully in this way, the advent of such a process into our North-West would be a boon to the people beyond all estimate in that land where timber is so scarce. Even here in Ontario we have some seasons so showery that the practice might be adopted with much profit.

These things must receive our earnest attention. As the wheat production of the great region now no longer "lone" gradually lessens the growth of that cereal in the older provinces of the Dominion, stock-keeping must increase. The best methods of raising and curing feed for stock will always be questions of first importance, and it should always be remembered that economical methods of curing fodder are only second in importance to economical methods of producing it.

The Canadian Association of Fairs and Expositions.

The organization of this association was completed at Toronto on May 2d, when the following gentlemen were elected as its officers for the present year: President, John Adams, Port Perry; vice-president, C. Lawrence, Collingwood; 2d vice-president, S. C. Stevenson, Montreal; sec-treas, George McBroom, London. Executive committee, Messrs. Smeaton, Belleville; Power, Barrie; and McKenzie, Guelph.

Prof. Brown read a very suggestive paper before the association on "The Necessity of a Uniform Plan "in Judging Live-stock," which drew forth no little discussion.

Mr. F. Nichols, Toronto, secretary of the Manufacturers' Association, read one on "The Influence of Exhibitions on the Arts and Industries."

The paper read by Mr. T. Shaw, of Hamilton, was upon "Exhibitions, their principal Objects," and that by Prof. G. W. Robertson on "The Use of Exhibitions to the Dairy Industry."

As one outcome of the paper read by Mr. Shaw it was decided to recommend that exhibitors who keep their stables locked so that visitors cannot have free access to inspect the animals at least two hours in the forenoon and two hours in the afternoon, forfeit any premiums awarded them. A committee was appointed to confer with the different railway authorities in reference to the more rapid transit of live-stock at exhibition times. Much other valuable legislation was done.

This association has not been organized a day too soon. There is very much work to which it may

profitably give attention. No movement of any great importance is now managed without a central organization to direct its movements in a general way, and to harmonize them. We predict for it a useful future.

Exhibition Catalogues of Live-stock.

An attempt, and we believe an honest one, has been made on several occasions by the Toronto Industrial and Provincial Exhibitions to provide catalogues of the stock on exhibition for visitors who desired to purchase them, but they have in every instance proved of little or no value. Nor have we the slightest hope that they ever will be of much service until the exhibitors themselves become fully alive to the importance of having them properly prepared.

Hitherto it has been quite out of the question to furnish anything like a full list of the stock on exhibition because entries were received up to the very day on which the exhibition opened. So long as this is done, the publishing of catalogues will be a sham.

We take it, then, as an auspicious omen, that the Canadian Convention of Fairs and Expositions held in Toronto on May 2d and 3d, decided to recommend to the different associations to refuse to take any entries later than the dates named in prize lists. We hope the directors will adopt this recommendation and *adhere* to it, throughout all Canada.

Catalogues may then be prepared that will be of use providing the exhibitors of cattle heartily co-operate with the secretaries in furnishing the requisite information. Fancy how it must dampen the ardor of the enterprising secretary to furnish an exhibitor with the necessary entry forms and with a prize list, clearly stating all requirements, to have them very imperfectly filled, some of the details given and some of them lacking. Then think of the chill it must produce to furnish blanks to horsemen to fill out and tack on the stable doors, when it is observed that many of the latter neither fill in the name of the horse nor the owner.

While all this goes to prove that we are slaves to custom, it is a state of affairs not creditable to the intelligence of our live-stock exhibitors. Publicity is what they seek by going to the exhibitions, and those who are wisest will not fail to seek it in every legitimate way. With very many exhibitors it appears to be a leading article of their creed that the thing which hath been is that which ought to be, hence they practically resist wholesome innovations in their line, to encourage which would be very much to their own interest.

It is to be hoped that the recommendation to receive the entries only to the date mentioned in the prize lists will be universally adopted and adhered to. If adopted and published in the prize-lists and not adhered to, exhibitors learn to value the word of the association on this score as being worth less than the cost of the printers ink that recorded the rule, and will soon look upon it as a statement uttered by a foolish old woman who has no intention of adhering to her threats.

Because the attempt to provide catalogues has not been a success, we should not think of abandoning it. To perfect the system would prove a valuable acquisition to our exhibitions, and if we cannot accomplish this at once, let us do it by degrees. Exhibitors will in time be led to see the use to them of catalogues, and so will visitors. In the meantime let us try and have them as complete as possible, and let all exhibitors of live-stock cheerfully and in good time furnish the secretaries with the necessary information.

The Kinellar Shorthorns.

As has been stated before in these columns, and as intelligent observers must have noticed, Shorthorns imported from Kinellar, and their descendants have been very successful, in recent years, in the show-rings of this country. A goodly number of the breeders of Shorthorns are now possessed of them. We have concluded that a sketch of the original Kinellar herd would therefore be of much interest to many of our readers and have accordingly prepared it, having been indebted very largely for the materials to an Aberdeenshire exchange.

The herd, which at the present time numbers about 100 head, was founded as long ago as 1847. It is owned by Mr. S. Campbell, who, in 1844, came from his father's farm of Tillyeve in Udny, and took possession of Kinellar.

Two calves were purchased at a sale of Captain Barclay of Ury. One of these, Isabella, bred till fourteen years old, when she was sold to the butcher. She is the ancestress of the famous Isabellas of Centennial fame, in the hands of Mr. James Russel of Richmond Hill, of the even more popular Urys and of the Clarets. Some seven cows named Ury and three of the Clarets are now in the Kinellar herd. The former have been an uncommonly prolific strain. In 1849 the red calf Thessalonica was bought at Tillygreig. Her granddaughter, Golden Drop, by Scarlet Velvet, has representatives in Canada though but one of the name is now in the Kinellar herd. The Rosebuds, another prolific family, sprang from Thalia, a massive red, bred at Rettie by the sire, Earl of Aberdeen, 12800, bought in 1857 when two years old. Her most useful calf was Rosebud, by Scarlet Velvet, numerously represented at present in the herd. In 1860 Nonpareil 24th was bought at Sittyton, the strain having come originally from the herd of Mr. Cartwright, Tuthwell, Lincolnshire, England. The stock bull, Gladstone (43286), is of this family, and though much sought after by American purchasers, there is a good representation in the herd. The Mina family sprang from that of the Crocus, tracing to Crocus, by Sir Arthur, a female rich in Ury blood bought from Mr. J. Whitehead, at Little Methlick, in 1854. Canada has been ravenous for these, but Mr. Campbell has managed to retain a goodly number. The Clementinas trace to a purchase at the dispersion sale of Mr. Turreff, at Upper Criggie, Stonehaven, when Bess, a two-year-old daughter of Lord Ythan, was bought. The Wimples came from Gordon Castle, and the Cecelias from Sittyton. The Fair Queens hail from Meikle, Endovie, the Maids of Promise, almost pure in Sittyton blood, from Cattie, the Marys from Little Haddo, the Jessamines from Broadland, the Lady Ythans from Tillygreig, and the Gipsys from Glendronach.

In the selection of sires Mr. Campbell had large faith in the ability of those bred at Sittyton to produce growth and fleshiness, and early made his selections from that famous herd. Beeswing (12456), one of the earliest bulls used at Kinellar, came from Sittyton, as did Scarlet Velvet, a grand, lengthy dark red, for which 74 guineas were paid. He was first at all the Royal Northern Shows when shown, and captured a second at the H. S. S. at Perth, 1861. His grandson Diphthong, a thick, low built bull, valiant in the show rings, was his associate and successor. In 1863 Prince of Worcester was bought for 120 guineas from Mr. Fletcher of Radmanthwaite He was a bull of fine quality, less in size than his predecessors which peculiarity followed his stock, but he produced better milkers. Diphthong 3rd, of Ury-Isabella descent, served for two or three seasons, and was followed by the red Sittyton bred Gladstone (26256), not notable as a sire, who in turn gave way to Nobleman, of home breeding. Next came Sir Christopher (22895), a pure Booth bull, by General Hopewell, and bred at Warlaby. Duke of Buccleuch (25939), and Duke (28342), the latter by Nobleman and bred at Kinellar, and out of an English cow, followed in turn. Novelist (34929), by Scarlet Velvet, did good service for three years, when Vermont (47163), of the Sittyton Victoria family, preserved unsullied the reputation of the Kinellar cattle. In 1886, Gravesend (46461), a red, son of Royal Victor, from the Gold family, was bought at Sittyton and is now in service.

It is thus apparent that Mr. Campbell has had the courage to step out of line in his choice of sires, and though in some instances the results have been disappointing, the constitution of the animals composing the herd has been preserved intact, and the all round results have been most satisfactory, The reputation of the herd in the show yard was established in a former generation, and is still amply sustained by the purchasers of Kinellar stock in both hemispheres, who so often look to Kinellar when selecting Shorthorns with which they wish to lead in victory. Prior to 1857 the surplus stock was sold privately, and since 1876 it has been sold in the same way, the residue going off at the spring and autumn sales at Aberdeen. From 1857 to 1876 annual sales were held at the farm with the following results:—

Year.	No. of Bulls sold.	Average.	Highest Price.
1857	8	£43 16 9	£72 9 0
1858	12	36 6 3	54 12 0
1859	10	35 16 0	46 4 0
1860	8	37 13 4	63 0 0
1861	15	32 11 0	70 7 0
1862	14	37 13 0	64 1 0
1863	13	34 7 10	52 10 0
1864	17	38 2 2	106 0 0
1865	19	39 15 9½	78 15 0
1866	15	36 10 0	78 15 0
1867	17	43 9 7½	89 5 0
1868	20	33 19 4½	53 11 0
1869	17	27 17 3	44 13 0
1870	20	32 0 6	55 13 0
1871	17	32 19 0	52 10 0
1872	17	38 18 0	52 11 0
1873	20	34 17 2½	73 10 0
1874	17	36 7 7	69 6 0
1875	18	36 11 5	73 0 0
1876	14	31 16 0	52 10 0

From 1859 to 1876. 94 head of heifers were sold at the sales, averaging £24 17s 10½d.

With 60 or 70 head of breeding cows in fine breeding condition, and none now specially fitted for show purposes, the ability of the Kinellar herd to produce fine breeding stock was never better than at the present time.

Diseases of Sheep.

BY A W. JACKSON, V. S., WOODSIDE, ABINGDON, ONT.

This paper was read by Mr. Jackson before the Medical Association of the Ontario Veterinary College, and is now published for the readers of the JOURNAL by the kind permission of the author.

The existence of the millions of the ovine race now owned on this continent should be ample reason for studying and attempting to expound means by which that as yet unparalleled mass can be caused to be as remunerative as its representative value imperatively demands it should be. In order to acquire an efficiency in this particular, the nature and cause of disease, as well as structure and functions of the animal body are paramount in the curriculum, and these pave the way to a rational system of treatment and prevention.

Is is a field in which the scientific veterinarian is pre-eminently at home, but it is one at present almost withheld from him. Veterinary science has ministered too little to the welfare of this class of stock, but the fault, as one of omission or commission, is not attributable to her. Hitherto the dogmas and traditional mystifications of the farrier, cow-leech and shepherd have been preferred, and even now many owners tenaciously cling to their mode of snigging, while a rational mode of treatment is totally ignored.

As it is not within the limits of this thesis to consider in anything like detail the many diseases to which the sheep is subject, I have been at some loss whether it would be expedient or not to describe the more common diseases as seen in this country, or some of the more dread maladies as yet little recognized on this continent. But judging from the increase of the latter thus far, and from the analogies derivable from the histories of disease in other domestic animals and in man, I think it quite evident that as this country grows older and our systems of husbandry more artificial, the same causes will be developed here which now produce many of the diseases of Europe. It is already found that as we treat our English sheep according to English modes, maladies long known in England, but not previously known here, and not yet known among our other breeds of sheep, make their appearance among them, and some of the fellest ovine maladies of Europe are liable at any time to be introduced here by contagion. Considering the probability of any or all of these dire plagues being introduced into this country in the near future, and the necessity of limitation, I have thought it advisable to confine myself to brief descriptions of a few diseases principally confined to the sheep. Some of the

most rapidly fatal diseases to which sheep are liable may often be traced to sudden changes from low diet to high feeding—sudden removals from poor to rich pastures. As excess of the nitrogenous elements (greater than the wastes of the system and its power of throwing it off by the different modes of excretion) causes many blood diseases in all animals, excessive plethora should be guarded against, particularly in sheep, which are so liable to these dangerous diseases. A state of plethora or redundancy of rich circulating blood, more particularly when preceded by a previous stinting, as when stock have been removed from a diet comparatively poor in nutritious materials to decided abundance, or when the supply of food is so provided that the animals have no necessity to take even moderate exercise to procure it—is extremely prejudicial to pregnant ewes, particularly as relates to progeny, and in them is a fertile source of that fatal congestive fever occasionally met with. Young sheep subjected to a sudden change from low feeding to a rich nitrogenous diet or the reverse, or those kept in exceedingly high condition for exhibition, are often the subjects of very fatal disease of an anthracoid character. It not infrequently occurs that the attendant, on going to the flock in the morning, will find one of the most thriving and vigorous dead or dying—left the previous evening apparently in perfect health. Investigation will prove that a change has been made in the food—the animals have been limited in their exercise, or have by other means rapidly assumed that dangerous plethora which induces disease. To anthracoid disease—remarkable for appearing suddenly, and frequently resulting fatally, without having given premonitory symptoms of disturbance of the system—sheep are particularly liable from these causes. Of the diseases classed as anthracoid, to which sheep are liable, that known to English and Scotch shepherds as braxy, striking of blood, etc., is one of the most common.

As it is not within the province of an essay of this kind to consider at any length the pathology and etiology of the disease under consideration, a general and practical view of things only is permitted

Although it is stated in the *Mountain Shepherds' Manual* that this disease is of an inflammatory nature, observers who have watched these affections most closely, almost unanimously conclude that in sheep they result from septaemic conditions produced by the absorption or introduction of putrescent matter into the system, characterized by great prostration and rapid emaciation, due to dietitic errors, more particularly sudden and violent changes in diet, whether that change be from a poor to a highly nutritious, more particularly a nitrogenous diet; from dry and good food to watery, unripe provender; to damaged food of any kind; the influence of undrained lands; defective ventilation and drainage of stables; to food and water contaminated with the morbid products of animals which have died of blood disease.

Animals in a dangerous state of plethora, if turned out to pasture in the early summer season, when vegetation springs up in all its perfection, are peculiarly liable; also when in a debilitated state from deficient nutrition, the system not being able to withstand the effects of the superabundance.

As in other blood diseases, there are few premonitory signs that indicate the fatal consequences that ensue. Those which have been noticed are blood-shot eyes, accompanied by a strange and excited appearance; full and rapid pulse; accelerated respiration; hot mouth, limbs and body; costive bowels; urine deficient and highly colored, with a peculiar staggering gait. If the symptoms of the disease are noticed, one of the earliest seen will probably be a peculiar short step. The animal will shortly begin to lie down and rise frequently, or to stand apart from the flock, with the back arched and the head low; the eyes will be heavy and dull—sometimes bloodshot or with a peculiarly excited appearance. The contracted step is occasioned by pain in the bowels, as it is observed before swelling takes place to cause an impediment in walking.

As the disease advances, colicky pains ensue; straining to void fœces; the wool is clapped to the skin and has lost its soft, unctuous feel. Should the disease not terminate rapidly, and the animal hold out for some time, putrefaction sets in before death. When diarrhœa is present the rumen is distended; with constipation the gaseous distension is chiefly subcutaneous. When the acute symptoms are present insensibility rapidly follows the symptoms mentioned, during which the animal falls, struggles and dies. The *post mortem* appearances are—a great tendency to rapid decomposition of the blood and tissues; the vessels are full of a dark, semi-fluid blood; bloody froth issues from nose, mouth, and sometimes ears; fœtid emanations escape from all parts, as exposed. The flesh has a dark appearance; petechial spots are visible upon the visible-mucus-membranes and in the sub-cutaneous tissues; the abomasum and duodenum are highly congested and colored with dark colored spots of ecchymosis; the alimentary matters are mixed with blood, and the mucus membranes generally infiltrated in its substance, and coated on its surface with a layer of semi-coagulated blood. The peritoneal cavity is generally filled with serum, and the bowels distended with fœtid gas. When the symptoms of this disease are fully developed, little benefit can be effected by medicinal interference, being of such a quickly fatal character, although an occasional case may be amenable to treatment. In all diseases of sheep, from the comparatively feebleness of its constitution, it is of paramount importance to endeavor to sustain as much as possible the strength of the animal, therefore mild, supporting treatment in hopeful cases, with stimulants later on, will be found most advantageous.

The chlorate of potash, from its action on the blood, may be given in drachm doses twice a day. As the intestinal mucus membrane is usually in a state of congestion, purgatives generally do harm, but the bowels may be acted on by bland laxatives, and alcoholic stimulants are to be preferred to any other in these cases.

The preventive treatment, which is of the most importance by far, to the stock-owner, should consist in avoiding excessive plethora, want of exercise, exposure, and sudden change in diet, described as predisposing to the disease. Reducing medicine; exercise, and a lowering of the diet, are essential in combating excessive plethora, one of the principal predisposing causes of this disease. Owners of pure-bred sheep, and especially those who exhibit them at the different fairs, in their anxiety to attain a given end, are too apt to neglect the necessary hygienic and physiological laws, on which the maintenance of perfect health and longevity depends. The young sheep especially, and also in pregnant ewes, a dangerous plethora is particularly to be avoided. If peculiar vegetation, by reason of its abundance and luxuriance and influence of season and climate, are causes, animals should be removed from their effects, and when the pasture of farms varies, sudden removals from poor to rich land must always be avoided.

In lambs charbonous fever is accompanied by external manifestations, and from the fact that the umbilicus is often involved in the tumefaction, the disease has been called "navel ill." It closely resembles braxy in older animals, characterized by a similar stagnation and rapid coagulation of the blood in the vessels, attended with local tumefactions beneath the skin.

The symptoms are great prostration, the animal pants and lies persistently, having no inclination to move. The pulse is small, excretions deficient, and swellings appear on various parts of the body, which are soft and fluctuating, containing a yellow gelatinous fluid. The body exhibits every indication of being in a thriving condition, but the blood vessels throughout are congested and the contents coagulated. General ecchymosis also occurs over the closed cavities and serous membranes.

(To be continued.)

The Most Pressing Needs of the Canadian Farmer at the Present Time.

(Continued from May.)

And this is just what is to be feared in coming time, that when the legislature is dissolved and the members are again sent back to the country, that the daughters of the Philistines will again deck themselves in their fairest array, and that the farmers will again go down to Delilah and allow themselves to be shorn of their great strength. When this is gone, and the various minor interests get what they want, the mocking tempters will derisively say, "The Philistines be upon thee, Samson," and while Samson goes out to shake himself, they bind him with cords and make him grind at the mill, and he makes much merriment for the Philistines. If the country is to be ruled in coming time through party, as doubtless it will be, let the representatives of the farmers of whatever party, be taught that they have interests which in the legislature or out of it must not be sacrificed at the shrine of party.

Benevolence is one of the liveliest traits of humanity, but it, too, has its limits. We are rightly indignant when we behold our farmers benevolently voting away their rights to feed other sections of the community, nay, to fatten them. There is a gospel which tells us farmers to feed the hungry and clothe the naked, but nowhere in the past do we find one that tells us to do what we are doing—gorging the rich.

And then see our slowness in the endeavor to secure positive advantages. Suppose we had free trade with our southern neighbors, what would this mean to the farmer in the item of barley alone? Why, just ten cents per bushel on the 10,000,000 bushels exported to the United States last year, which means to us the loss of $1,000,000. What a magnificent libation poured out in a single year on this one item alone, by the farmers of Ontario, on the altar of indifference, or benevolence, or whatever it may please you to term it, it is lost to the farmer all the same.

Then think what is lost on cattle exported and on other agricultural products to that portion of the community which represents nine-tenths of the wealth of the country. Why, the export of the farmers on the item of eggs alone to the United States is two-thirds as much as that of all the manufactures going there annually from our province. Oh think of it, ye farmers! Think of it in silence and alone, and weigh against the present with all its reproach, the future with that reproach wiped away.

Allow no place for selfishness or unreasonableness in your demands. Beat a halt and sound a truce when your objects are attained, and give not the shadow of room for the charge that with the awakening of a hitherto slumbering power it has been used with undue severity.

Fair play should be your battle cry from this day onward. Let it be your watchword. Inscribe it on your banner floating over smoke of battle. Let it be read upon your standard in the day of victory, and in every treaty made with corporations, railway companies, and the various industries, let fair play be indelibly impressed on the farmer's representation seal.

It should never be forgotten that every class in the community has its rights, and that it is the duty of every other class to concede their rights and to protect them, in virtue of the obligation resting on us all as loyal citizens to conserve the best interests of the State. The best interests of the State are never secured when one class of the community oppresses another class, where this can be avoided. The newsboy on the streets who enlivens them with the shrill cry of the morning and evening papers has an equal right to protection in the enjoyment of his just rights as the millionaire with the monopoly of a railroad that stretches from sea to sea.

Where the interests of the different classes clash somewhat, as sometimes they do, in the same commonwealth, the path of right is easily discernable. Those of the minority must give way to those of the majority, the majority meanwhile dealing as tenderly as may be with the interests of the minority. Tried by this standard, how galling the yoke borne by the farmers in the past, heavy as the pyramids beside the green old Nile, and though not self-imposed, self-allowed.

With the collective unity of the advancing tide, and with the consciousness that they possess an equal strength, we urge upon the farmers of Ontario to sound the advance march in the search of their inalienable rights, and to beat no halt, or listen to no compromise, until they obtain what they seek.

(Concluded.)

Dishonesty of the Shrivelling Order.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—I would like if you can give space for these lines in your JOURNAL. You would oblige a subscriber. Having seen the flourishing advertisement of R. A Brown, Lock Box 276, St. Mary's Ont., in the JOURNAL, I mailed to him $1 for a setting of Aylesbury duck eggs, and I have neither seen eggs nor money since. That was in the month of May, 1887. So dishonest a trick should not be kept secret from the public.

R. A. DECERGAT.

Springville, Ont.

If the JOURNAL has been used by designing men as the medium of assisting them in defrauding the public, it will also be made the medium of exposing their villainy whenever the evidence is straight and conclusive.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

The Shire Horse.

(Fifth Paper.)

England's Glory [79] (7371), bay; foaled 1865; bred by Capt. Colthorpe, Boston, Lincolnshire; imported by John Kemp, Weston, Ont.; sire Farmers' Glory (862); dam, a prize black mare (Captain Colthorpe's) by Napoleon (1592). England's Glory was a prize-winner in England, and at the Provincial and Toronto exhibitions, and other local shows.

England's Glory [14] [G], bay; foaled 1871; bred by Mr. Namby, Eling Manor, Lincolnshire; imported in 1872 by Richardson & Wilson, Columbus; sire England's Glory, dam by Honest Tom.

England's Glory 2d (4374), bay; foaled 1884; bred by — Markham, Godmanchester, Hunts; imported in 1887 by W. H. Millman, Woodstock; sire Le Bon II (2822); dam Beauty by Colonel (502).

Enterprise of Bothwell [114], bay, white star on hind feet; foaled 1884; bred by Geary Bros., London, Ont.; sire Enterprise of Cannock (2772); dam Crony (vol. v, p. 154 E. S. B.), by Welbourn Sweep (2315). N. B.—This horse must have been imported in dam.

Fancy Tom [123], brown; foaled 1882; bred by H. Smithson, Kirkham, Lancashire; imported in 1886 by A. Fanson & Son; sire Honest Tom (1105); dam Jewel (vol. iii., p. 201 E. S. B)., by Prince of Wales (1809).

Farmer's Friend [39], brown; foaled 1881; bred by W. Cartwright, St. James, Lincolnshire; imported in 1882 by J. Leithwaite, Clinton; sire Sweep IV. (2083); dam Manilla by Samson (1946).

Farmer's Glory [82] [N], black, ratch on face, white hind feet; bred by G. Champlain; imported in 1852 by I. Hollowell, Toronto; sire England's Glory, owned by Mr. Brown, probably (717), he by Major; his dam by Mr. Bingham's England's Glory (705). N. B.—The dam of England's Glory (717), is by Lincoln (1326), but I am inclined to think that this must refer to the dam of Farmer's Glory.

Farmer's Glory [108] (3082), bay; foaled in 1879; bred by Thomas Cawdron, Gosberton, Spalding; imported by R. I. Turner, Brucefield; sire Honest Tom II. (1121); dam Brisk by Hertford (1038). Farmer's Glory won first at the 40th Provincial Exhibition.

Fashionable [124] (5044), grey; foaled 1884; bred by Wm. Dunderdale, Garstang; imported in 1886 by A. Fanson & Son; sire Lincoln (1350); dam Jewel (vol. viii., p 261 E. S. B.), by Master of Arts (1500).

Financier [125], bay; foaled 1882; bred by Daniel Morris, Endon, Leek, Staff; imported in 1886 by A. Fanson & Son; sire Staffordshire Hero (5358); dam Mettle (vol. viii., p. 285 E. S. B), by Tom King (4752).

Fine Tone [121], bay; foaled 1882; bred by E. R. Cornish, Totness, Devon; imported in 1886 by A. Fanson & Son; sire Royal Honest Tom (3990); dam Flower (vol. viii., p. 232 E. S. B.), by Duke of Manchester (Shapters).

Forward [126] (5057), bay; foaled 1884; bred by John Tucker, Kingbridge, Devon; imported in 1886 by A. Fanson & Son; sire Royal Honest Tom (3990); dam Volet (vol. viii., p. 351 E S. B.), by Czar (4987).

Fylde John [22] (4405), black; foaled 1880; bred by J. Cross, Fleetwood, Lancashire; imported by A. Fanson & Son; sire Lincoln (1350); dam Miss Princess (vol. vi., p. 326 E. S. B.), by Prince of Wales (1812).

Geary, imported by Geary Bros., London, Ont.; sire Thumper (2136); dam by England's Glory (733).

General Benefit [129] (5068), brown, stripe on face, near feet white; foaled 1883; bred by John Lee, Burton-on-Trent, Staffs.; imported in 1886, by Morris, Stone & Wellington, Welland; sire William the Conqueror (2343); dam Mettle (vol. vii., p. 285 E. S. B.), by Samson (Hipwell's).

Grand Wonder [4] (3105), chestnut; foaled 1879; bred by J. Caudwell, Holbeach, Lincolnshire; imported by A. Fanson & Son; sire Great Wonder (2430); dam by Wonder (2357)

Great Britain [P], dark bay; foaled 1850; bred by N. Cass, Healough, Yorkshire; imported in 1856 by John Fishburn, Markham. His pedigree is unknown. He weighed about 2,000 lbs., was a famous prize-winner, and undoubtedly a superior draught horse.

Good All Round [110] (2790), brown, two white heels; foaled 1881; bred by — Ward, Pinchbeck, Lincolnshire; imported by John McVey, Plover Mills, Ont.; sire England's Glory (756); dam Ward's mare by Wonder (2357).

Good Stamp [112] (4423), bay; foaled 1883; bred by R. K. Porter, Haddenham, Ely; imported by Geary Bros.; sire Lord Beaconsfield (115); dam by Honest Tom the younger (2594).

Halwell [49] (4435), bay, foaled 1882; bred by A. Thorning & Bros., Halwell, Totness; imported by A. Fanson & Son; sire Royal Honest Tom (3990); dam Blossom (vol. vii., p 157 E S. B.), by Bismarck.

Hanbury [59] (4436), bay; foaled 1881; bred by W. Harris, Hanbury, Burton on-Trent; imported by A. Fanson & Son; sire King of the Vale (1242), a roan horse, winner of first at the Alexandra Park show, and second at the Royal; dam by Drayman (646); g. dam by King John (Bowers).

Hard Fortune [13] [I], brown; foaled 1850; bred by John Simpson, Hummanbyfield, Yorkshire; imported by Wm. Davis, Lambton; sire Hummanby Bob, by Little John, by Old Blacklegs, he by old Derbyshire Horse (this is probably Blacklegs (142) who is by Derbyshire (577). Hummanby Bob's dam Depper, bred by I Simpson by Young Bob, g. dam by Young Bob, g. g. dam by Tucker, g. g. g. dam by Reynolds' old horse. Hard Fortune's dam was by Robin Hood.

Hercules of New Haven [50] (4454), brown; foaled 1879; bred by — Ball, Brixton, Derbyshire; imported by A. Fanson & Son; sire Hercules (1022); dam Blossom by Comet (507).

Hero (3716), brown, white hind feet; foaled 1880; bred by — Selsey, Boston, Lincolnshire; imported by J. Gardhouse & Son, Malton; sire Lincolnshire Hero; dam by Farmer's Glory (862); g. d. by England's Glory (723). Hero won first in 1881 and 1883, and second in 1882 at Toronto Exhibition.

Honest Lincoln [137] (3140), bay; foaled 1882; bred by T. H. Miller, Poulton le Fylde; imported by Geo. Tweedy, Charlottetown, P. E. I.; sire Lincoln (1350); dam Molly (vol. iv, p. 171 E. S. B.), by Honest Tom (1105).

Honest Tom [38], black; bred by Sherly Shaw, Horncastle, Lincolnshire; imported in 1871 by John Jackson, Malton; sire Champion (429); dam by Drayman (Allen's).

Jack's Alive [D], black; foaled 1851; bred by W. Witty, Beverly; imported in 1852 by W. Davis, Weston, Ont.; sire Fisher, owned by Johnson Gembling, Druffield; got by Robin Hood out of a mare by Well's Crackwaggon, g. dam of Fisher by Davidson's Fisher; g. g. dam by Dickson's Brown Horse; dam, a superior cart mare by old Jack's Alive.

Jasper [53] (3763), black; foaled 1882; bred by M. Mortimer, Ludgarshill, Bucks; imported by A. Fanson & Son; sire Pompeii (1759); dam by A 1 (6).

Just in Time 1142, black, two white hind feet, and star in face; foaled 1879; bred by I. Waltham, Parson Grove, Lincolnshire; imported by C. E. Mason, Brucefield, Ont; sire Lincolnshire Tom (1367); dam by Waxwork (2302).

Kherkonk [3] (3771), bay; foaled 1881; bred by T. Taylor, Boston, Lincolnshire; imported by A. Fanson & Son; sire Brown Stout (3508); dam Smart, by England's Glory (723). Kherkonk won first prize at Tattershall foal show in 1881.

King Alfred [72], bred by Sir George Strickland, Yorkshire. N. B.—I can obtain no information as to his pedigree. He was imported to the United States in 1829, and from thence to Canada in 1847 by Mr. Davidson, Toronto, and died in 1849 at the age of 24 years.

King of the Castle [71] (3171), brown; foaled 1882; bred by S. Roberts, Sibsey, Boston; imported by Chas. Harrison, York Mills, Toronto; sire Honest Tom (1111); dam Smart by Honest Tom (3143); g. dam by Farmer's Glory (862).

King of the Dominion [9], rich bay; foaled 1869; bred by Mr. Dane, Hartling, Lincolnshire; imported by I. I. Fisher, Benmiller; sire Brown Champion (292); dam The Star of Chesterfield, by Thumper (2123).

King Tom [107], brown; foaled 1883; bred by George Hudson, Cherry Burton; imported in 1884 by John Donkin, Roseview, Ont.; sire King Tom (2446); dam Topper by Lincoln (1350).

AGRICOLA.

(To be continued).

"I am much pleased with your paper. It is full of practical information and must be of great assistance to the Canadian agriculturists, by giving them information of the advantages derived from having pure-bred stock."—Joseph Crust, Driffield, Eng.

The Free Power of Durham Cattle.

BY WM. BROWN, C. E., PROFESSOR OF AGRICULTURE.

What has been written upon the Durhams, even within the last quarter of a century, would make a large library; but England's first, and as yet her last, improvement in cattle life is not all known, or at least has not been put distinct enough for everybody.

We are induced to contribute to the historical pile, as by study of different classes of cattle here, and particularly in the practical handling and breeding of them under precisely equal conditions during the last twelve years, we have necessarily noted various features of their conduct that few are privileged to enjoy.

We have not met with anything on the subject our station desires to call "*Free power.*" What that is exactly 'tis somewhat difficult to explain. How often we feel and know something, and yet are in trouble how best to make it plain in plain language!

All animal life repeats itself by class distinctions, and by individual characteristics. The perpetuation of the species in nature is clearly a more systematic thing, and indeed, is a law as against man's best judgment for a like purpose; hence the intensification of all that goes to make reliability is incomparably better in the one case than in the other. Man's interference has simply brought about much more difficulty in the struggle for existence.

Taking the principal breeds of cattle of the present day, it would not be difficult from their history and facts still accumulating, to make out a list indicating the order of what is usually termed "prepotency," or the ability to maintain and to stamp their characteristics by reproduction. But this term is not definite enough when applied to the great variety of distinct races of animals, nor even to our domestic cattle.

There may be said to be three easily placed lists among farm cattle in respect of character acquired by different methods of breeding—usually called improvements; 1st, Those cared for in a general way from so-called native breeds, and not having been interfered with by any outside crossing; 2d, Those also from native breeds, but gradually selected by individuals and families from among themselves to attain certain results; and 3d, Those nearly altogether made by man upon a system from various sources and by subsequent inter-breeding, so as to hold as permanent as possible the properties gathered.

Now we need hardly say that the Durham belongs to the third list, that the Hereford may be taken as a type of the second, and the Holstein of the first.

It is, we believe, a fact in all life, vegetable as well as animal, and necessarily more easily observed in animal, that the nearer nature the more intense and deeper in whatever special things characterise them—at the same time that such a source does not *diffuse* and *change* to such a degree as we require when applied to others. It seems to be too concentrated and *unyielding*, and in more familiar words, the two sources always necessary for reproduction do not "*nick.*" On the other hand, that which is considerably removed from nature, and is a *cultivated* thing, has the greater power of diffusion and changing when linked with another of its kind.

We desire, then, to draw attention to these important facts as part of our profession and observation here, and how much stronger the Durham cattle are when cropping value is considered.

It is not contended that the Durhams are valuable in the sense of doing well under conditions outside of those that have made and maintained them, any more than that our best hybridized wheats succeed *anywhere.* Whenever any one claims for a particular breed the universal and the best of everything, we may at once set it down as untrue—as a simple impossibility. Indeed, nature in any shape gives no example of it, and all our science and practice have never secured it; but there is the best evidence today that man has made a remarkable specimen of what may be termed the impossible.

Intense cultivation has made the Durham the nearest to the best of everything; from no other source and by no other method meantime, in all our experience, is it possible to get the approach to the combination of the beef and the milk.

But this is not all: We have yet to learn that any breed can, as it were, throw the whole essence of its being when coupled with any others—native, half-bred or thorough-bred—as the Durham does. The Free power of the class is astonishing, and is unquestionably the following of its cultivation. True, no doubt, as with any other profuse product,

that more system—in rotation, in tillage, and in fertilizing—is required in comparison with other breeds, in order to maintain the crop, but then as in the field so here the crop is the paying one.

A Durham bull, having in his constitution much of all the virtues that run from Collings, is unquestionably the most free or liberal agent for rapid wealthy returns; the power is there, and it is a free or open power—not so tied up or conservative as others more near nature.

The free power, then, of the Durham breed of cattle is what no other class can claim in like measure, in our experience, because it is not in their breeding. Such a property can only exist in its fullest value in stock that has been bred in a special direction. We have a prominent example of the like Free power with Leicester sheep and possibly in some pigs.

It may be impossible to explain the physiological reasons for such a difference in animals of the same species, or what it is that has been cultivated in the animal system that acts so differently so that the one *holds* and the other *gives*, but we are certain of its existence nevertheless.

We must not confuse in this study another property usually called "marking," or external coloring, which as a subject in our experience has been described in Bulletin xvii., and we trust to have time soon to submit some characteristically powerful things in other classes of cattle that in our experience are worth knowing.—*Bulletin 24, Ontario Agricultural College, Guelph.*

Progress in North York.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—The position of the Ontario farmer at the present time is more critical than it has been at any previous period in the history of the country. The low prices for nearly everything the farmer has to sell and the increase in the cost of production, bring him in contact with difficulties and questions unknown a few years ago; hence the necessity for greater efforts, more knowledge, more experience, more economy and better method in the cultivation of the soil.

Grain-growing, especially wheat-growing in Ontario, in our opinion, is no longer a paying occupation, particularly in those districts that have been continuously cropped since the first settlement. We noticed this to be the case in a good many districts in North York, where the land has been cropped till its fertility and resources have been exhausted. But this riding, like other districts, is on the eve of change, when grain-growing will give place to stock-raising and dairying. Then the farmers of York will have better returns, better barn buildings, more fruitful possessions and a greater degree of zeal in their occupation and will be more reconciled to the institutions relating to agriculture in Canada, especially the Agricultural College at Guelph.

Some of the leading farmers of North York are improving their stock by importing cattle, sheep and horses. Notably among those is Mr. Wm. Mulock, M. P. He imported a pair of Clydesdale mares last summer. They are among the most promising of that breed in Ontario. He has also added a few very superior animals of the Guernsey breed from the stock of Mr. Abbott, Brockville. From those he has several young males and females, which will be of much value to the farmers of the immediate locality, as the Guernsey cattle for dairying are by high authority considered second to none.

Mr. Mulock's farm, near Newmarket, on historic Yonge Street, is beautifully situated. It contains 210 acres. The principal crops raised are hay, roots and coarse grain for feeding. A good deal of tile draining has been done on the place. The buildings consist of a large brick residence, a brick cottage for the foreman and servants, a frame horse stable, and a large bank barn, both neatly painted. The cattle stabling is paved with cement and kept perfectly clean. The cattle are watered in their stalls by a force pump, which forces the water through tubes into troughs in the mangers. These troughs can be turned over so as to be out of the way and kept clean. On the barn is a large windmill for crushing grain, pumping and cutting fodder. The manure is wheeled into a reservoir in the yard; a tank is attached to hold all the leached liquid.

Near Mr. Mulock's farm is the Industrial Home, a fine brick edifice, and is beautifully situated, commanding a splendid view of Newmarket and the surrounding country. It is neatly and very conveniently arranged, and any person who may have the privilege of visiting the institution, cannot but feel that such a home is a blessing to those whose circumstances have been so unfortunate as to send them there. The officials of this institution appear to be doing everything in their power for the cleanliness and comfort of the inmates. A fine collection of books is furnished, and a reading-room provided.

The members of Parliament for North York appear to be doing a good deal for the Industrial Home. Mr. Mulock donated a fine collection of books for the library.

The electors of North York as well as the Province are to be congratulated in having such able representatives—men who are trying to uphold all true principles relating to the support of free and charitable institutions, who labor for a more liberal policy in our trade relations with other countries, especially the United States, for the suppression of monopolies, for more protection to the farmer and laboring classes, and for the advancement of all moral, religious and political liberties that have a tendency to elevate mankind.

WM. SMITH.

Morriston, Ont.

Prices of Pure-bred Stock.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—On page 103 of the April number of your paper two very contradictory opinions are expressed, and one of them, I think, is a very selfish and unreasonable one.

One correspondent says: "We regard all combinations for the purpose of raising the price as pernicious in their tendencies; nay, they are unjust. It is robbing in the garb of plausibility. * * * The surest guides in the estimates of intrinsic values are judgment on the part of the buyer and reputation on the part of the seller."

The other correspondent (X. Y. Z.) not only approves of keeping the price of good stock so high that it cannot all be sold for breeding, but (like the dog in the manger) objects to any one else finding sale for them. So far as there was any deception in the action of the butcher he speaks of, it was wrong, but otherwise it was perfectly proper, if he could make more by selling an animal for breeding than by killing it, that he should do so. He is thereby benefitting himself, the purchaser and the country. We blame the manufacturers for combining to keep up prices, but we should blame them still more if they sold some of their goods at less than half price for some inferior use, in order to decrease the quantity left for sale, and thereby get more than the fair market price for it.

But perhaps the most reprehensible part of the whole proposal is the cruelty of the means advocated for securing this selfish end. The infliction of needless pain on the lower animals is not only morally wrong—it is forbidden and punished by our laws—so the opposition to it cannot be contemptuously set aside as the whim of a crank. When a person is punished for cruelty to animals, he might frequently make the excuse that he was under the influence of passion, but even this poor excuse cannot be made here; it is a cool proposal to torment the animals without any good object, for the castration would have to be deferred so late (waiting an opportunity of sale for breeding), that it would be no advantage to the fattening, but rather a hindrance.

This selfish attempt to keep the price of good breeding stock above the figure that the law of supply and demand would warrant, is a great injury to the poorer farmers and to the country generally.

H. K.

Rambler's Remarks.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Having set Easter Monday apart for the purpose of taking a stroll among the stockmen of Ekfrid, I found the clay roads of that township nearly impassable, hence pulled up very abruptly at the White House estate, presided over by John Tristram, Esq. We were fortunate in finding this gentleman at home. But as Mr. Tristram, who by the way is not only a distinguished stockman but also an intelligent reader of the JOURNAL, is entirely too logical and hospitable a man to show his animals to a visitor on an empty stomach, we were conducted to the castle, which is both commodious and well situated, and surrounded by beautiful shrubbery of the evergreen varieties, which do good service when a nor'-wester comes along. After a sumptuous repast, the next act on the programme was music by the three youngest boys, the organ, violin and mouth-organ sweetly harmonizing. Our reflection was, "Behold how good and how pleasant it is for brethren to dwell together in unity!" We next wended our way to the capacious and well arranged cattle barn. Here was our host in his element, waxing eloquent upon his little herd of Shorthorns, though it must not be inferred that he has entirely forsaken his first love—the grades, which would be a credit to the herds of many making much greater pretentions.

The massive young beast that heads the herd was bred by Frank R. Shore, White Oak, and is of a Cruikshank family. He is a low, level, thick-fleshed worthy fellow. Amongst the females are 2 two-year-old heifers, purchased last spring from the veteran Shorthorn breeder, E. J. Yorke, Wardsville, and of Wild Eyes Gwynne descent. They are exceptionally fine, and each has a promising youngster at foot, by Billy O'Bryan, also of Cruikshank descent. This herd won 2d prize at the late fall fairs pitted against all comers, and were beaten by a narrow margin only by the Evergreen herd from which most of them came. From a personal knowledge of Mr. Tristram's pluck and skill in developing his young things, we have no doubt that these animals will continue to give a good account of themselves. Of the others in Ekfrid more anon.

RAMBLER.

"Agricola" on Shore,

HIS REPLY TO "CLYDESIDE."

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

"Clydeside," in a letter which can hardly be called courteous, appears to be under the impression that I have attempted to disparage Clydesdales. If he re-reads my paper in a cooler and more dispassionate frame of mind, he will see it distinctly stated that such was not my intention. Apparently he takes umbrage because I mentioned that the Clyde of fifty years ago was considerably lighter than they are at present, and goes on to say that "I quote to let it be known how deformed they are." Is the thoroughbred or the Shetland necessarily deformed because they are not heavy draught? If he seeks further evidence of the truth of my assertions let him refer to "Low's Domesticated Animals," and he will there see a plate, drawn by a Scotchman, of a Clydesdale as he appeared forty or fifty years ago, and he will there see that the Clydesdale was only a light van horse. He takes exception to my asserting that the Clyde of the present day is closely connected with the Shire, and immediately proceeds to say that a great many of the registered Shires of the present day are closely connected with the Clydes; if the transposition pleases him, I have no objection. In one sense it is possibly true enough, as probably many Clydes trace to Shire mares related to registered Shires; but it is not true that there is any trace of Clyde blood in any of the registered Shires in the English Shire stud book, as he implies. It is easy for "Clydeside" to make sweeping assertions such as that "probably 6 Clydesdale horses went to England to improve the breed of Shire horses for every mare taken to Scotland." Why does he not mention one or give the name and number of a registered Shire tracing to Clyde blood? What he says about Englishmen being the principal buyers at Mr. Drew's sales is no doubt perfectly true. Mr. Drew was an excellent judge of a horse, and purchased some of the best Shire mares. Some of these were rebought and taken back to England. For example, the pure Shire mare Betsey by Lincolnshire Lad (1196), who was in foal to a Clydesdale horse, and was purchased for the Shire stud of a gentleman in England, the foal being subsequently sold to go to Glasgow, there being no demand for them in England. Some of Mr. Drew's horses were purchased for work horses and some Clydesdales were probably bought for some of the Clydesdale studs in England. I might here mention that I have now before me a letter from one of the editing committee of the E. S. H. S. B., in which he says, "In no case is there a trace of Clydesdale blood in any of the registered Shires in the E. S. H. S. B."

"Clydeside" lavishes his superfluous pity on me for quoting Burns' description of the auld farmer's Maggie, and asks what proof I have that Maggie was Clyde or any one of the Scotch draught breed of that period? I have of course no positive proof that she

was either; but it is fairly presumable that Burns was describing the ordinary farm horse of that period; and as some of the best studs of Clydes are in the adjoining counties, it is possible, if not probable, that some of the Clydes may trace back, if not to auld Maggie, to some of her type.

He asks me for evidence that Prince of Wales (673) is half Shire, and mentions as proof of his being a pure Clyde that his g. dam on the one side was the first prize mare at the Highland Society's show at Glasgow five years before General was foaled, and on the other hand Kate was purchased in a Scotch market. Why the fact that his g. dam was first at the Highland Society's show, even if it was five years before General was foaled, should make her a pure Clyde, I fail to see. Let "Clydeside" refer to the prize list and he will there see that the prizes were open and not limited to pure Clydes; and as to Kate, does he think that the mere fact of a purchase of a horse in a Scotch market transforms it into a Clyde? It seems rather as if *he* imagined there were no horses but Clydes in Scotland. If "Clydeside" refers to the revised edition of the Scotch Clydesdale retrospective volume, he will see that the g. dam of Prince of Wales (673) was old Kate, purchased from the late Andrew Giffen, who purchased her in Dumfries market. Mr. T. Dykes, who is the author of History of Clydesdale Horses, in volume i. S. C. S B., and than whom there is no better authority on the subject, says: "This is the same Kate that is g. dam of Prince of Clydesdale and Old Times, and was undoubtedly a Shire mare; there is no use beating about the bush regarding the fact. Dumfries fair was the very fair where many of these mares were procured, and is the nearest horse fair of any note at all to the English border, being less than three-quarters of an hour's railway ride from Carlisle. I have never doubted Kate's English extraction. In 1875 I was at Knockdon, where she was trotted out for inspection, though very old. Her English shapes were undoubted. She was heavy, massive, bigger and better topped than most Scotch mares."

With respect to Maggie *alias* Darling, the g. dam on the other side, who appears in the stud book as a mare of unknown breeding, a well-known English correspondent says, "General is the first cross from an English mare. I remember the feeling amongst the first breeders in Scotland that day in Glasgow Green in 1857 when the grey mare from Wellshott, the Prince's grandmother, got the red ticket; but all they could say against her was—'she was English.'"

Mr. D. Riddell, the noted Clydesdale breeder, and the present owner of Prince of Wales (673), himself admits he is half Shire. He says: "To no one is the country more indebted for the improvement in the Clydesdale horse than the late Mr. L. Drew, who early in his career was imbued with the idea that the difference between the Clyde and Shire mainly consisted in size, weight and symmetry," (thus indicating that the Shire was the heaviest horse, A.), and goes on to say, "This belief was no imagination, but was founded on careful observation. It is more than thirty years since Mr. Drew purchased in England three geldings which he exhibited at the leading agricultural shows in Scotland, and wherever exhibited they carried off the first honors in their classes. These circumstances satisfied Mr. Drew that his opinion was shared in by the judges, who were all men of integrity and practical experience, and in whose judgments agriculturists generally concurred; but it was only after carefully examining and comparing the various animals presented for examination that these judges were of opinion that Mr. Drew's English geldings were the best. Prince of Wales (673), as every body knows, is half English, his g. dam on both sides having been English mares. His pedigree on both sides is as good as any one could desire, but if his name had not been entered in the retrospective volume of the S. C. S. B., it could not be entered now."

I am perfectly aware of Topsman (886), and his career; he was purchased and used on the studs of Clydesdales owned by Mr. I. F. Crowther; and I am also aware that although he possessed so fine a stud of Clydes, Mr. C. finally decided in favor of Shires, which he still breeds, and disposed of his Clydes, Topsman (886) being sent back to Scotland.

In conclusion, when Mr. Drew's three Shire geldings were continually victorious at the leading Scotch shows, I would ask "Clydeside" where were the Clydes, his vaunted "kings of draught horses"?

AGRICOLA.

Stock Matters in Prince Albert, N. W. T.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—Enclosed I send you names of twenty new subscribers for your valuable JOURNAL, and will also embrace the opportunity of forwarding a few notes regarding the stock interest here.

It is astonishing the strength and endurance of our native ponies here. The other day I rode twenty-five miles on a native pony that you would imagine unable to carry 10 pounds. I would like to know what class of stallions would make the best cross on these to produce road horses.

Mr. R. J. Pritcherd bought a fine herd of Shorthorns from Mr. Gilbert, of London, and they wintered out in the bush and came through fat. Mr. P. says in future he will only stable old cows and calves.

Mr. John Stewart last fall imported a number of Shropshire Downs from Mr. Hunter, of Alma, Ont. The sheep wintered well and are beginning to lamb. He also purchased from the same distinguished breeder, a bull calf and cow, which have wintered remarkably well considering they had to walk about three hundred miles last December to get here from the railway.

Mr. James MacArthur, ex-mayor and winner of the Lorne Agricultural Society prize cup (solid silver) 1887, wintered about 500 sheep. They are in good condition. He has some choice Southdowns purchased from Boyd & Crowe, Carberry, Man.

Mr. Thos. Scott brought in a remarkably fine bull with good strain of blood.

Mr. Chas. Robertson, of Carrot River settlement, (who by the way is at present in Ontario), and who won the magnificent stock cup (solid silver), has a fine band of 100 head of cattle. He has a grand bull from Ontario. This is the country for stock raising.

Mr. R J. Pritcherd has wintered about eighty head, one man looking after and drawing the hay about two miles. He will have an increase of about 45 head. His hay cost $2 75 per ton, in stacks of ten tons each. He has a beautiful place to winter on his ranche, situated in the centre of an immense pine bluff where not a breath of wind can reach them in the coldest of weather and worst of blizzards. Even his paths are made winding, so that wind cannot possibly get in. His cows are commencing to calve. He did not lose a single animal all winter, and all his stock are fat, some, almost fit for the butcher.

A. H. CLARK.

Prince Albert, April 30th, 1888.

The Ayrshire Herd Books.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR.—Kindly give me space to answer the letter o Mr. Wm. Rodden, in your issue of last month, in which he charges me with endeavoring to create erroneous impressions in the minds of your readers. In the first place, Mr. Rodden states rather egotistically that his record was commenced in 1870, and is the only work in Canada devoted to pure-bred Ayrshires. Second, that it is not a sectional or party work. Third, that amalgamation was prematurely disturbed by unfair actions on the part of myself and others. Fourth, that the breach of faith cannot be justified by the subterfuge of substituting the standard passed at one meeting for what he considered to be the standard passed by the use of the word *nucleus* at the next. Fifth, he then asks if it would not have been better to have continued recording all good pedigrees in the second volume of the Quebec book, and letting the Dominion Book alone. He also advises Ayrshire breeders to conduct their own business, in order that the Agriculture and Arts Association might be saved the great expense, but he would not object to their donating a certain sum for the Ayrshire Association, and ends with a neat little business request to enter in the Quebec book only.

I will endeavor to answer these assertions and queries in as brief a manner as possible.

First. The Ontario, now called the Dominion Ayrshire Record, was started in 1872, only two years after the Quebec book. All animals entered in it were considered pure at that time, according to the then standard; but there were some cattle admitted that are not up to the present first-class standard, as there were also in the Quebec book, as I shall show later—that is, animals in both books that in all their crosses cannot be traced to importation; so Mr. Rodden cannot boast that the Quebec book is the only one devoted to pure-bred animals.

The second assertion, that it is not a sectional work, is best answered by the decision of the committee at Montreal, on the 24th of February last, where, after the meeting had accepted the double standard offered by me, they refused to let the offices go to Toronto, where the book would have been published by the Agriculture and Arts Association with no other expense to the breeders than the registration fees. With the revision of all the pedigrees under the control of the Ayrshire breeders, this small committee preferred to subscribe large sums of money to keep the book at Montreal, or rather, Plantagenet, although at the inception of amalgamation it was well understood that the book should eventually come to Toronto. As to either of the books being partisan, I do not think anyone but Mr. Rodden ever thought politics had anything to do with the Ayrshire herd book.

Fourth, No breach of faith has been made on our part, consequently no subterfuge was required. The facts relating to amalgamation are plainly set forth in the JOURNAL for April, and can be vouched for by the Hon. Charles Drury, Minister of Agriculture, Mr. David Nicol, Mr. Joseph Yuill, and other gentlemen, present on both occasions, which facts were corroborated at the Annual Meeting in Kingston, when the standard was repassed. The real cause of the breaking up of amalgamation was the action of Mr. Rodden himself, in persistently refusing to enter pedigrees that were passed by a properly elected revising committee, and in retarding by every means in his power the completion of Ontario pedigrees, and finally by refusing to accept office at the annual meeting and declining to allow the second volume, largely made up of pedigrees sent in during the amalgamation, period, to come to Toronto to be completed, under very advantageous circumstances, proposed by the Agricu ture and Arts Association, as it was well known that the Quebec Association at that time was in a state of serious financial embarrassment. The offer to publish in Toronto was made solely for the benefit of Ayrshire breeders throughout the Dominion.

Fifth, As things have turned out it certainly would not have been better for Ayrshire breeders to have continued registering in the Quebec book, for after all Mr. Rodden's eulogy on the superior excellence and purity of the book he now has complete control of, we find in the first volume that even hundreds of pedigrees are incomplete in their termination, and there are a great many clerical errors. One cow is recorded without a dam; another is recorded twice with different sires. These mistakes can very likely be corrected, but we also find a bull, used by Mr. Rodden himself, that actually has two crosses running to one of the Ross cows, as will be seen from the following pedigree taken from the Quebec book, and the corrected pedigree from Mr. Patrick R. Wright's private register, now in my possession. I also hold the original certificate of the grand dam, Lady of the Lake, as given by Mr. Wright in October, 1861, to C. J. Fox, of Winchester, and given to me by a son of Mr. Fox. The pedigree is not in full, but it shows she is out of a different cow than appears in the Quebec book:

"Prince Arthur, 325, calved May, 1868; bred by J. Fox, Winchester, Ont., and the property of Wm. Rodden, Plantagenet; sire Lord Clyde 1807, dam Jenny Deans 1876, by Prince of Wales 1874, g. dam Lady of the Lake 1875, by Dundee III 182[illegible]; g. g. dam Lady Betty, imported by Mr. Ewart, of Dundas."

We now give the correct pedigree, taken from the Appendix to the new Series of the Dominion Ayrshire Herd Book. It reads thus:

"Prince Arthur —A14—, calved May, 1868; bred by J. Fox, Winchester, Ont., the property of Wm. Rodden, Plantagenet; sire Lord Clyde —122—, dam Jenny Deans —A30—, by Prince of Wales —?—, g. dam Lady of the Lake —A29—, by Neil Gow —A13—; g. g. dam Primrose —A28—, by Dundee —A12—; Jennie Deans —A26—, by Dandie Dinmount —A11—; Lady Betty Beaton —A25—, by Ayrshire Lad —?—; Lily of the Valley (imp.)."

In the pedigree as recorded in the Quebec Herd Book, the imported cow is Lady Betty, said to be imported by Mr. Ewart, but investigation has failed to show that any such cow was imported by Mr. Ewart. The Lady Betty meant is Lady Betty Beaton, a cow bought by Mr. Wright from Capt. R. L. Beaton, of the Royal Engineers, in 1854, out of Lily of the Valley, imported by Mr. Murray, of Three Rivers, Que. In the pedigree as given by Mr. Rodden, the sire of Lady of the Lake is Dundee III. 1826. Now this bull was never near Cobourg. The cow was sired by

Neil Gow —A13—, who was sired by Marquis II —A5—, a bull sold to Mr. Wright by Col. Denison, and out of Buttercup, alias Maggie, one of the Ross cows. Then again, Lady of the Lake is out of Primrose —A28—, and not Lady Betty, as is shown in the pedigree given to Mr. Fox. She is sired by Dundee —A26—, who was sired by Marquis II —A5—, out of Buttercup, alias Maggie, the same Ross cow. So here we have two direct crosses of this fearful strain of cattle that Mr. Rodden has been trying all summer to keep out of the Ayrshire Herd Book in his own stock, in the very herd even of this apostle of purity. Then again, Dandy Dinmount —A11— has not a complete pedigree, as his sire Gen. Wolfe has no history—it is believed he was pure—and Prince of Wales 1874 has a sire, Alfred, with no explanation as to whether he was imported or not. Mr. Rodden was requested a month ago to send his certificate, but it has not been received yet.

This bull, Prince Arthur —A14—, 325, affects the following pedigrees in the first volume of the Canadian herd book: Prince Frederick 659, Carrick Farmer 971, General Brock 1658 and Colorado 2751 amongst the bulls, and the following cows: Miss Agnes 558, Jennetta 561, Carleton Lass 566, Mimette 567, Erina 656, Lady Jane 657, Red Lady 658, Blossom 660, Laura 662, Dairymaid 966, Eliza 1666, Dairymaid 2nd 1462, Nelly 1715, Lassie 1717, Rosalie 1150, Lady Harriet 2324, Lady of the Lake 1875 and Jennie Deans 1876—5 bulls and 18 cows. Of course these will have tainted in their various ramifications a very large proportion of the pedigrees in the second volume of the Quebec book.

And now I think, sir, I have disposed of Mr. Rodden's oft repeated boast of purity for his herd book. I fear I have already trespassed on your space too far, but there is one thing yet I would like to impress upon your readers and then I have done.

I have in this and my former letter, given the whole history of amalgamation, from our point of view. There were grave difficulties in the way of making the standard trace to importation in all its branches at the outset, and these have become graver as the work progressed, so that after the break-up a correspondence was begun on the subject of a dual standard, and it met with the approval of the Western breeders. This proposal, as I said before, was offered to the Quebec people and accepted, but they quickly ignored the tacit understanding that the book was to come to Toronto, so we had to reorganize. A new series of the Dominion Ayrshire herd book has been begun with a pure standard and an appendix. We will try now to steer clear of the errors of our first volume and the similar errors of the other book, and leave it to the Ayrshire breeders to choose between the two records.

Thanking you again, sir, for your kindness in giving me space for this long letter,

HENRY WADE,
Sec. D. A. B. A.

Toronto, Ont.

Veterinary.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Tuberculosis.

BY E. RENNIE, STUDENT ONT. AG'L COL., HAMILTON, ONT.

The readers of the CANADIAN LIVE-STOCK AND FARM JOURNAL have had the good fortune and pleasure of reading a very excellent and instructive article by F. C. Grenside, V. S., on the subject of "How should tubercular subjects be dealt with?" The great importance of this subject, and the fact that this article will cover ground not touched upon in the paper of Prof. Grenside, are the only excuses for the appearance of the following remarks.

The population of Great Britain, France, Germany and Russia, according to statistics, is somewhat less than 200,000,000, and the annual deaths from phthisis are about 870,000; and of the total inhabitants of the globe at least 3,000,000 die annually from this disease.

"Boston, from its population of 250,000, loses by consumption about 25 every week, 100 every month, or about 1,200 per annum. An equal mortality from any disease not often in our midst, would drive our citizens in terror to the country, and cause the stoutest hearts to feel that 'in the midst of life we are in death.' Massachusetts loses about 6,000 per annum; New England not less than 20,000, and with the state of New York added the victims of this single disease swell 40,000 a year."—*Warren's Household Physician.*

The population of the province of Ontario, according to assessment, was 2,115,971 in the year 1886, and the number of deaths from consumption as shown by the Registrar General's report was 2,419. The population of the 11 cities of the province for 1886 was 298,683, with 642 deaths from this disease. The whole number of deaths from specified causes in this province is shown below:

1877	1878	1879	1880	1881	1882	1883	1884	1885	1886
19260	16852	16897	20152	21997	21097	20299	21149	21422	22371

The number of deaths from phthisis during same years:

2157	1999	2063	1254	2397	2464	2500	2347	2313	2419

Percentage of deaths from phthisis in relation to deaths from all sources:

11.2	11.8	12.2	11.2	10.8	11.6	12.3	11.1	10.8	10.8

The above statistics when presented to any person, must impress him with the seriousness and importance of this disease. Among all the diseases reported upon by the registrar this one heads the list in regard to the number of persons who have succumbed to its deadly attack. For the ten years ending 1886 the number of deaths in this Province from this fell destroyer was 20,915. Who were the 20,915 who died of this disease in the last ten years? Who were the 2,419 that died of this disease in 1886? Who will be of the 2,091, who will in all probability die of this disease in the province this year? When reliable figures are presented to the public in the above form, the most reckless must be impressed, and all must conclude, that time and money spent in making research in regard to the prevention of the spread of this disease is time and money that could not be better spent.

What is life? View some of the disease bearing germs, magnified one thousand diameters, then consider man, the noblest work of God. Think of these connecting links between the animal and vegetable kingdoms. The living dust, many forms of which are blown about by every wind. Then concentrate your thought on a little rod shaped form from among them —the tubercle bacilli. It is but from one fourth to one half as long as a red corpuscle, still to it, and to it only, is attributed the great loss of life spoken of above.

To the increase of this bacilli, which measures $\frac{1}{2500}$ of an inch in length, is imputed the death of 3,000,000 persons annually. In the year 1881 R. Koch discovered the special carrier of this disease, the bacilli of tubercle. Oft repeated experiments have shown that consumption is communicable to healthy animals, man included. The study of the various means, and avenues by which this disease obtains a foothold in the system is of vital importance. The bacilli may find entrance to the body in different ways—by the air passages, by the intestinal canal, and by the skin.

Air passages:—Dr. Tappernier, of Meran, experimented with puppies. Fine tubercular matter was scattered by an atomizer, and out of eleven pups experimented upon, the lungs of ten were found to be effected with tubercule.

Experiments made at the Munich Pathological Institute, by eminent scientists, with powdered tubercular sputa, prove that infection is contracted in the air passages by the breath.

Dr Khrishaber was awarded the prize Montyon of 2,500 franes by the Academy of Science for proving the inoculability and contagiousness of this disease.

Dr. Villemin's memoir, published in 1865, details experiments by which he proved the inoculability and contagiousness of tuberculosis, some twenty years before.

Dr. Grad, veterinary surgeon at Wasselonne, Alsace, was impressed by the spread of this disease from a contaminated stall. When visiting an extensive farmer in Leinheim he was informed that annually for the last five years one of the cattle had died of tuberculosis in a certain stall—the last one he had the opportunity of examining. It had been there but ten months, and had all the symptoms of the malady. The doctor selected an animal from another stable, a three-year-old heifer, in calf, which was to all appearance healthy, and whose progenitors had never been affected with phthysis. The animal became a mere shadow of her former self in twelve months, the symptoms exhibiting themselves shortly after calving. It is thought that the animal contracted the disease by the air cells, from the dust rising from the dryed mucous which had been dropped about the stall from the nostrils of a former occupant; the disease might have been admitted by the digestive system, however.

By the intestinal canal—"Stang reports a case of the accidental infection of the son of healthy parents by the habitual use of the warm milk of a tuberculose cow."

"Prof. Orth, of Gottingen, fed fifteen animals with tuberculous matter from a diseased cow, and nine were infected, of which four died, the remaining five becoming extremely emaciated."

"A gentleman in Connecticut had a cow evidently sick with tuberculosis. She dropped a calf, grew weak and emaciated very rapidly. He allowed the calf to suckle from the mother for a week or ten days as an experiment. The calf grew poor, and had diarrhœa so badly it could not stand and soon died, whether from the poor quality of the milk I could not say, so I took a healthy calf from a native cow, and allowed her to suckle from this sick cow until the cow died. Soon afterwards we killed the calf, and it showed marked signs of the disease, that was brought about by diseased milk."

By the skin—"Toussant found tubercular lung products of cows constantly infecting in rabbits and pigs, after they had been subjected to 55° 58° C. in a water bath, and even after they had been roasted like a beefsteak in a gas flame. He found the nasal discharges, the saliva and the urine infecting, and as already noticed, the lymph of a vaccine vesicle."

The infection doubtless often occurs from little fissures and excoriations of the skin. In health, it is said, the bacilli of tubercle when swallowed, are usually destroyed in the stomach.

Grass off the ground, where an animal that died of anthrax was buried, when fed to sheep, was not extremely fatal, but when the grass was mixed with thistles and fed, its danger was greatly multiplied.

From the above a long article of warning could with much profit be written to our farmers, in this day of self-binders, when the hand of the ingatherer has not to come rudely in contact with that foe of good husbandry.

What is said above in relation to the bacilli anthraxis, with regard to the disease being more easily contracted when the mucous membrane is lacerated, we presume is equally applicable to bacilli of tubercle.

(To be Continued.)

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Horse Breeding.

(Continued from May.)

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

It is not true to say that appearance has no influence on the market value of a draught animal, outside of all utilitarian considerations. Quality, style, and symmetry always have a tendency to open a little

wi ler the purse of a purchaser of a drayhorse, so that in going over the points that should receive attention in selecting, for the purpose of making a male and female, the formation of the head cannot be ignored. Some admire a head small in proportion to the size of the animal which possesses it, but a fair sized head, t iat is well-shapen, cleanly chiseled, and shows quality, cannot be found fault with, particularly if the forehead is broad, and the eye set well forward.

It is very seldom that a dished face is met with amongst the heavy breeds, being rather a characteristic feature of the descendants of the eastern horses. A full face, or what is called a Roman nose, is not uncommon in heavy horses, and if associated with a small eye placed well back, is usually indicative of obstinacy of disposition. A Roman nose associated with a broad lower jaw, as it usually is, and large ears, is a very unattractive formation, and if possessed by either sire or dam is very apt to be handed down to their progeny. The tendency to transmit this feature is accounted for by some with the explanation that a Roman nose is evidence of a masculinity of character, and consequently prepotency.

As already stated, a medium-sized, clean-cut head, with firm and small, not pendulous lips, a straight face, broad forehead, eyes of fair size, and well set forward; plenty of space between the branches of the lower jaw, and not over-sized or lopped ears, makes up a pretty perfect head for a dray-horse, not only as being pleasing to the eye, but as evidence of the possession of useful qualities

The manner in which a horse's head is put on his neck has a marked modifying influence on the appearance of the head. If the position of the head is straight, or with a tendency to run in a straight line with the neck, that is with the nose protruding, it makes even a good looking head unattractive. If, however, the medium of attachment between the head and neck is not over thick, and there is a good space between the branches of the lower jaw, the head will bend on the neck, and incline to make even a plain head look presentable. These remarks are more particularly applicable to the light classes of horses, but are not without their importance in the dray breeds.

A horse with a well-set on head usually has a clean-cut throttle, or an absence of that over abundance of the tissue immediately underlying the skin in the neighborhood of the throat. It is seldom that you find a horse with a coarse throttle that otherwise shows much evidence of quality. There is a natural tendency among heavy breeds to shortness of neck.

If there is one thing more than another that tends to enhance the range, beauty and style of any class of horse, it is a fair length of neck; and if you get the length there is usually found a good, shapely, clean-cut organ, with a sufficiency of muscular development and crest. The only objection I have ever heard urged against a lengthy neck on a horse is that it places the muscles at a disadvantage in supporting the head; that is, that they sooner become fatigued in supporting the head at the end of a long lever than at the end of a short one. However this may be, and it seems sound reasoning, we seldom meet with any appreciable ill results from it. In the majority of long-necked horses a good mouth is usually found, and such animals are easily guided, and are consequently pleasant to handle. Further than this it is difficult to explain definitely the practical advantages of length of neck, although we are of the opinion that it gives an animal a mechanical advantage in the collar; and in addition we seldom find that in a long neck there is an unduly large base to it. If the base of the neck, or that portion of throat which joins the shoulders, is very bulky, it is usually found that the shoulders are not sufficiently prominent in order to give a good resting-place for the collar. Such a formation predisposes to sore shoulders, and it is hardly conceivable that a horse so formed can have as much power in the collar.

These points are all worthy of consideration in the choice of a sire or dam; but it is usually almost impossible in a heavy draught entire, to determine much with regard to the base of the neck on account of its great development in stallions.

The shoulder is no doubt an important point in a draught horse. That it should stand out prominently on each side of the neck, there seems little doubt.

The degree of uprightness or obliquity of the shoulder that is desirable in a draught horse has been much discussed. It is generally acknowledged that length and obliquity of shoulder usually confers good action, while the straighter position of the shoulder blade gives advantage in the collar. Some consider the ability to draw of paramount importance, while others think the manner of movement of hardly second moment to drawing power. Leaving the shoulder and proceeding down the leg, the next most important point is the fore arm. There is no more favorable position for determining the degree of muscular development of a horse than at the fore arm, for fleshiness or thinness has not so much influence in altering the circumference of this part, as it has in modifying the apparent development of the muscles in other situations, for fat does not accumulate amongst the muscles of the forearm to the same extent that it does amongst the muscles of many other situations. So that the forearm affords the most reliable index of a horse's muscular development, along with the muscles of the lower thigh or gaspin.

In addition, the bones that form the foundation of the fore arm should be long. The perfection of formation in the bones of the fore leg is to have those of the forearm as long as possible, while the canon bones should be short.

Freedom of movement and soundness of limb are to some extent regulated by the size and formation of the joints. The larger joints are, the more extensive movements are they capable of. Joints receive weight and distribute jar or concussion, so that the longer they are, providing they are not coarse, the better. The formation of any one joint in an individual horse may be taken as an index as to the formation of the articulations throughout his skeleton, so that the knee joint is a favorable one for determing the character of an animal's joints throughout. It should stand out somewhat prominently, both on the inside and the out, when viewed from in front, and the natural projection behind should be clean, sharp and protuberant. In other words the natural prominences and depressions should be well marked, constituting a clean-cut joint, which is strong evidence of quality throughout.

Calf-knees, or those with a tendency to bend backwards, are not infrequently met with in heavy horses, which defective formation is not so serious a drawback in horses used for slow work as in those kept for fast, for in the latter class it gives rise to awkwardness of movement to some extent, and there is a greater liability to strain of the ligaments of the knees, and consequent unsoundness. Nevertheless it is well as a rule to avoid breeding from calf-kneed animals, as it is an unsightly formation, and depreciates the value of a horse. Heavy horses appear to hand down this defective formation more faithfully than they do bending forwards of the knees, usually called "over in the knees." "Over in the knees" is more a defect of light horses, but is occasionally met with in heavy ones. It does not seem to be so hereditary in draught horses as in the light classes. Although with moderate work it seldom interferes with a horse's usefulness, still it depreciates a horse's value in the market considerably; and it is well not to risk breeding either from a sire or dam that is over in the knees, unless it is the result of hard work, and not a natural formation.

(To be continued.)

The Farm.

It is not generally known that when clover lodges to any great extent in a field, it is better to cut it than to wait for a more perfect stage of development. When it lodges there may be some improvement in the top, but there will be at least a corresponding loss in the lower portions of the stem. When cut soon after it lodges there is no cessation of growth, the young crop springs up at once, and the extra growth in the second crop far more than counterbalances any loss from cutting the first crop at the stage indicated. We have known instances where the growth of the first crop was very strong, in which the clover destroyed its own vitality by self-smothering, whereas had it been cut as soon as it fell, there would have been a vigorous after-growth, and another cutting, though less strong, for the next year.

The idea is too prevalent that the improvement of the appearance of the surroundings of a farm is only a matter of sentiment—that there is nothing in it in the form of dollars and cents. No greater mistake can be made. We venture the assertion that a farm well fenced and the surroundings of the buildings tidily kept, will bring one-fourth more money than one alongside of it with soil and buildings equally good, but where no attention is paid to neatness or ornamentation. No man is so well situated as the farmer for chastely adorning his surroundings. He has plenty of room, team and hand help, and can command time where there is a disposition to do so. If the adornment consists in nothing more than a fine lawn with a tree here and there, it is a great attraction in itself, and stands out in striking contrast to the wholly unjustifiable untidiness that so often characterizes farm dwellings. And this care should extend to the whole front of the farm, we might say to every part, but it is from the appearance of the front of the farm that we usually take our impressions, and if any part is to be overlooked it should not be the front. It does add so much to its appearance when the side of the highway is smooth as a lawn and contains one or two rows of pleasant forest trees. Of course this is impracticable where stock is allowed to run on the highway. And here we find a strong argument for passing a stringent by-law by every municipality banishing stock from the roads in all the older settlements. We have said nothing about the highest form of return the farmer gets by thus adorning his home, in the attachment it awakens in every member of the family to the old steading, and the refining and elevating influence it has upon them, which is above all price.

It is simply astonishing the amount of the discount in value on all kinds of farm machinery and implements when offered for sale. A machine which cost originally one hundred dollars, though but a year or two used, will be knocked down at an auction sale at about one fourth of its original value. And this does not apply alone to that class of machinery which is ever new and ever improving, as binders and hay implements, but to those kinds regarding which there

is but little improvement, as waggons and sleighs. It is not at once apparent why it should be so. It may arise in part from the desire to possess what is now at full value, because it is new, in part from the rapid and constant improvements that are being made in machinery, and in part from the practice, too common, of repainting farm implements in the hope of making them sell better. It is not so easy judging of exact values when the wear and tear are covered up with paint. Usually farmers are careful and economical, but in the amount they spend in farm machinery and in the neglect of this from exposure, we find a painful departure. The value of farm lands in Ontario for 1886 is $648,009,828, and of implements, $50,530,936. About one-thirteenth as much is invested in implements as in land, and these are renewed, according to recent practice, on an average about every eight years. In one hundred years, then, the farmers would expend as much in implements as their land is worth on the above basis. This is a great drain and should be duly considered. An implement that has lost the gloss of newness should no more be discarded than a horse who may have commenced the down grade.

Curing Clover.

"W. F. C.," in the *Rural Canadian* for April, p. 100, uses the following language: "For the first time "in all my travels among Canadian farmers, I met "with some who understood how to cure clover. "They found it out by accident. One was obliged "by stress of weather to stack up a crop of clover "much sooner than he would have done for fear of "rain. He was afraid it would heat and spoil. It "did smoke somewhat, but when he came to move "the stack, instead of finding it musty, it was in "splendid order, and smelt as sweet as a clover field "in summer. Another had a similar experience in "his barn. Both these men corroborated my asser- "tion that in good weather clover may be carried the "same day that it is cut." If the farmers of Canada universally adopt the plan suggested by "W. F. C.," they will soon turn the entire clover crop of Canada into a heap of useless manure. If clover is cut at the right time, let the weather be ever so favorable, in ninety-nine cases out of a hundred it is not safe either to draw it or stack it the same day, when much of it is put in the one place. It will heat and mould and come out utterly worthless for feed or anything else. When we speak thus positively we neither speak from hearsay or at random, but as the result of a costly *experience* built upon suggestions similar to those made by "W. F. C." We have a tedder too, and by using it ever so freely, in no case can we succeed in getting clover cut at the right season before the blossoms brown—to go in safely the same day.

It is an old time subject, the best way to cure clover, and as the introduction of modern machinery is having a modifying influence upon it, we may continue the subject. When it is very full of sap, (and the nature of the weather previous to cutting has a modifying influence on this,) it is best just to ted it once the same day, but when not so juicy it may be drawn into winrows the same evening if the outlook is fair, but if threatening put up in cock. In the first instance the tedder may go over it again the next morning, when, after a time, it may be raked and safely housed. In the second instance it may be drawn from the winrow the second day, but if put up in cock, it will require a day longer. An hour or two before drawing the cocks should be opened out.

We are aware that the best quality of hay is got by putting it in cock, but if by using the tedder two or three times the hay can be got into its abiding receptacle the second day, we would much sooner have that class of hay than what is put up in cock and subjected to a heavy rain, and there is certainly a great saving in the labor. Caps may be used when hay is cured in the cock, but very few farmers have them. We look upon the tedder as the most valuable farm adjunct in curing hay, and unhesitatingly recommend using it freely. It pitches the hay, which is left hugging the ground, by the pressure of the mower, up into the air. When it comes down again it is all topsy-turvy, and so it lies, the wind blowing through it in fine form and drying it rather than the sun. In our own practice we seldom put up hay any more, but rather labor to get it ready for the barn with all possible dispatch. Timothy hay alone, or with a sprinkling of clover in it, may be sometimes drawn the same day, but in this case the clover is rather overripe, if the timothy is taken at its best.

Cultivating Green Crops.

Where farmers are engaged in growing large quantities of green crops, the month of June will be largely occupied in their cultivation. The advantages of giving the utmost degree of attention to this item are at least threefold.

(1). Thorough and frequent stirring of the soil with the cultivator tends to *moisten* it, and is followed by a large *increase* of crop. We do not propose to discuss here whether the moisture is secured by a retention of what the soil already contains or whether it is drawn from the atmosphere. The fact cannot be disputed that soils frequently stirred possess much more moisture than those not so stirred, and that this is followed by a large increase in the yield of the crop. In dry seasons the comparative increase is much greater, but in any season it is considerable. Indeed, so marked is the contrast in the returns in such seasons between well and ill-cultivated crops, that after the plants have appeared above ground the extent of the harvest may be said to depend upon the thoroughness of the cultivation. All times are not equally auspicious for the purpose. After a rain however slight, the results from cultivating are greater than at other times. When heavy rain falls sufficient time must be allowed before stirring the soil to render it friable, and so to prevent undue adherence to the cultivator. The depth of this cultivation must be ganged by the kind of the crop and by the stage of its advancement. The more advanced the crop as a rule, the shallower should be the cultivation, lest rootlets be torn asunder in the operation. We have not yet met with an implement that in cultivating green crops stirs the soil most deeply midway between the drills, but can readily see its advantages. With such aid a crop could be cultivated at an advanced stage of growth with much advantage.

(2) The destruction of *weeds* follows in the wake of frequent cultivation. Some farmers look upon the growing of green crops that require cultivation so suitable for this purpose, that they have abandoned every other form of summer fallowing. By using well-constructed cultivators hand-labor is reduced to a minimum, and the destruction of weeds is very complete. In growing corn where a suitable harrow is freely used in the early stages of its growth, hand-labor may be dispensed with altogether, but in the growth of roots more or less of it is required. By using the cultivator often, whole generations of weeds are destroyed in a single season, the dense shade of the foliage of the crops in the later stages of their growth materially assisting. It is of prime importance that weed destruction commence in ample time. If once the roots interlock their destruction will be very difficult, for when disturbed by the cultivator they retain so much earth around their rootlets that many of them do not die. In no part of farm work is it of such vital importance that one should be forehanded.

(3) Thorough cultivation adds ultimately to the *fertility* of the soil. It increases its power of absorption very materially by breaking its crust, and hence aeration with the retention of what is valuable in the air is facilitated. But most of all does it tend to the enrichment of the soil by the large crops which follow to be turned into manure. Growth on any farm where manures are not purchased, is the surest indication of future growth, hence every additional pound of growth means an increase of capacity for growth where the products are rightly handled.

So important is close attention to thorough cultivation of green crops just at the right time, that nothing should be allowed to interfere with it. Mr. T. B. Terry says that he once gave offence for refusing to attend a farmers' meeting in the month of June when his potatoes required cultivation. If a farmers' picnic is going to interfere with cultivation at the right time, our counsel is, let the picnic go, and attend to the cultivation.

Of all the green crops that will be grown in Ontario this year it rests with the farmers to increase the total yield by at least one-fourth, let the season be what it will. It is not enough that these should be kept clean. The soil for several weeks may be stirred with much advantage once a week, though weeds should not be growing.

Waste from Surface Washing.

Every thoughtful observer who lives upon a farm must have noticed with regret the large waste from washing in surfaces not covered with a sod, particularly in the spring of the year. The amount of plant food lost in this way every year is very large, and any means that will tend to arrest this silent and oft-unheeded waste is well worthy of a careful study.

Bearing upon this subject we subjoin some pointed remarks gleaned from a paper read by Mr. Thomas Harris, Meaford, at a Farmers' Institute held there on March 13th. He says:

"No doubt many of you will notice that on our rolling land large quantities of surface soil are washed away to a great extent every spring and fall, and it is perhaps as well to remember that these washings represent more than an average of the fertility in proportion to their bulk, inasmuch as they contain in a very neat measure all the lighter and vegetable portions of the soil, which if retained, go to form the humus or vegetable mold which is so essential to fertility, to wit, the decayed leaves and roots of clovers and other plants, the soluble portion of all the droppings of the animals and other matter which being on the surface and lighter in their substance, are easily floated into furrows and low places and washed from thence by the excess of water in spring and fall. Now the remedy for this in a great measure is underdraining the soil and under certain circumstances, a judicious use of surface draining in connection with grass seeding. By this I mean that we should always endeavor to have a strip of grass, of greater or less width according to circumstances, on each side of an open water-course. My observation convinces me that there is no better means of arresting or checking this waste than a good thick sward of grass, and in my opinion the day is not far distant on many farms when we will have to commence hauling this vegetable mould now collecting on these low grounds, back to the uplands from whence it originally came."

We would particularly emphasize the remarks of Mr. Harris on the advisability of having a rim of grass on both sides of large open furrows. The open water courses of this class should be made with the scraper, the banks nicely sloping to admit of passing

over readily with machinery. Then a narrow ledge sown to grass on either side. In the absence of this, when a field has been ploughed in the fall, accumulated waters rush down these open ditches in the spring and carry away the earth on both borders to parts unknown, unless to the fishes of the deep. If one were to cut a hole in the farmer's pocket sufficiently large to allow all the little silver pieces put into it to drop through, he could not more effectually drain him of his money than he is drained of it by those watercourses in their gambols. They not only find a strange delight in carrying away the rich soil on their borders, but to all the mischievous little neighboring feeders, so often stealing from the farmer, they say, "come and welcome, we will go shares in all things," and so they conspire along with the combines to bleed the farmer every year. Against every form of theft the farmer must be on the alert, for watercourses will steal almost as unblushingly as the combines if they are allowed to do so.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Clover.

BY S. A LAIDMAN, BINBROOK.

A successful farmer may usually be known by the amount of clover seed he sows. In driving along our roads it is surprising to see how many farmers allow their fields to lie idle so long when they might be growing a beautiful crop of clover.

Clover is called the "great renovator." It is good for a sandy soil or a clay soil to have a crop of clover ploughed down. Every crop should have some clover sown with it. No matter if the field is to be ploughed up soon after the crop comes off, the clover will do it good, and will give considerable pasture in the fall. Clover grows quite rapidly, and having so many leaves, it absorbs a good deal of plant food from the air. The roots are long, reaching far down into the subsoil, and obtain a great deal of food which they raise to the surface. Therefore when a heavy crop is ploughed down, the land is very much better than it was before, because it has had food added to it from the air, and the subsoil, besides having all the food the plants derived from the soil restored to it.

Not only this, but clover is of great use when ploughed down on a sandy soil to retain the moisture. Sand dries out very quickly naturally, but if a large quantity of vegetable humus be present, the moisture is retained. On a clay soil the clover keeps the ground from being packed closely together, and this keeps it loose and open.

A field that is intended for summer fallow should always have clover sown with the previous crop. It may then be pastured some in the spring and then ploughed down in June, when the crop has grown to nearly its full size. Decayed clover provides the exact food that is required for wheat, and thus, besides enriching the soil, prepares it for the next crop.

Some farmers think that clover seed is too expensive to sow. But good things are usually expensive, and are done up in small parcels. When not intended to be left for a crop it need not be sowed very thickly. Three or four pounds to the acre will do very well, and will more than pay for itself. It is much cheaper than selling hay and straw to get money to buy a seed drill or self-binder. It would be a good thing for the country if every farmer in every county would sow clover with every crop every year.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Sap Flows, but Why?

(Held over from April.)

BY J. A CRAIG, STUDENT ONT. AG. COL., GUELPH.

To apply its truths to things of ordinary life, is the tendency of modern science. If we glance backward upon science in its earliest days we cannot but be struck with the great changes in this respect. The old and weird herbalist, by incantations and charms, sought to ascribe to his herbs wonderful healing powers. His aim was to mystify and befog the common mind, but the aim of his successor, the modern botanist, is to make the teachings of science as clear and as practical as possible. Formerly science was in the hands of the few, who used their knowledge for unworthy purposes. But now, the great aim of the scientist is to scatter as widely as possible useful information; thus giving life that spiciness and relish which can only result from feeding our mind with healthy food. I purpose in this paper to throw out a few stray thoughts on some of the ordinary phases of plant life, which (probably from their very commonness) have not been thoroughly examined by most of us.

Starting with the tree in full vigor in early fall, it is not long until the cold, bleak winds of October cause the juice of the leaves to seek the twigs on which they have grown. Consisting of organic substances in solution, potash, and phosphoric acid, this juice materially aids in nourishing the buds of the next season's growth. The leaves then take on those varied and striking autumnal hues that one sees only in the trees which are natives of America. With the advent of the first frosty nights in October, the leaves drop to the ground to thicken the blanket and increase the fertility of mother earth. The sap that is left in the tree is stored up in the wood of the past season's growth, and in the medullary rays.

This nutritive fluid is thus stored for the feeding of the spring buds. During the winter changes are partly undergone by the sap to make it suitable food for the buds; and it is these same changes that make it and its products so toothsome. Sugar, in common with all other organic compounds found in plants, has starch for its basis. Starch is the first compound to form in the leaves of the growing plant of which we have any definite knowledge. It is mostly found in the green leaves of plants under the influence of light. The green coloring matter of the leaves acted on by the sunlight is able to decompose the carbonic acid gas of the atmosphere; the oxygen is given off, while the carbon remains in the plant to unite with water and form starch. It is yet a debated question whether starch is formed as soon as these substances enter the leaves of the plant or whether it is the result of numerous chemical changes in which these elements take part. In tubers and bulbs there are certain grains that possess the power of manufacturing starch independent of the leaves. These, under the influence of light, become changed to regular chlorophyll grains. We know that when potatoes are exposed in a hill they become green where the light strikes them. This is owing to the formation of chlorophyll grains similar to that of the leaves, and possessing the same power of making starch.

It is thought that the conversion of starch into sugar is brought about by ferment; but it is known that somewhat similar changes can be made to take place from the action of acids or even water at extreme temperatures. We know that if grain is frozen before it comes to maturity it has a sweet taste, and it will make sweet but heavy bread. The sap of the maple contains 8 per cent. of sugar, which is just half the quantity contained in sugar cane. This percentage is larger in trees growing in the open fields, and it also varies with the species of maple; that of the hard maple (*acer saccharinum*), being sweeter than that of the soft *acer rubrum*.)

The dormant period is now entered upon. No matter how favorable the conditions may be for vegetation, these resting stages occur in the life of most plants. It is a remarkable fact that autumn grown potatoes or onions cannot be made to grow during November, December or January, of the same year; even by planting them in a warm, moist, loose soil. But later on they will sprout under adverse conditions, and continue to grow until the water contained in them to do so. How striking is the comparison between this phase of plant life and that of the pupa stage of many of our insects! Given the most favorable conditions, the latter cannot be induced to forego their sleep.

To clearly see why the sap flows better in spring than at any other season, it is necessary to have some idea of a cell and its contents. The cell is the unit of growth, and consists of a thin wall formed of cellulose, which is lined by a thin layer of a soft albuminous substance known as protoplasm. This latter is the life-giving principle of the plant. Enclosed in this cell wall is the sap; but notice, the cell cavity is not completely filled with sap, for air occupies a portion of it. Any one who has ever had anything to do with sugar-making, knows that the most favorable condition for the free flow of sap is to have a clear, cold, and frosty night, followed by a warm, spring day. Now couple with this the fact that air, like many bodies, will expand and contract under the influence of heat and cold, and the whole phenomenon is easily understood. During the cold nights the air in the cells contracts, and as a result no sap flows. But soon the warm, spring sun chases the sap from the twigs and branches, and being directed by the bark it seeks the only vent given it, namely, the auger-hole of the sugar-maker. This flow was caused by the air in the twigs (they being thinnest, and hence first to warm) expanding, which forces the sap into the branches and body of the tree. The warmer the day, the more the air expands, and hence the more copious the flow of sap. We know that continued warm weather without the cold nights, causes the flow to lessen; and further, we know that a tree of many, widespreading branches, will yield far more sap than a tree with a large trunk and less branches. The same principle underlies these facts, and it only requires a little thought to account for them.

The action of air in the cells may be shown more clearly in the following experiment: On a cold day cut from a maple a piece of a twig about half an inch in diameter, and six inches long. Having cut the ends smoothly, observe that they are perfectly dry. But if taken into a warm room and held in the hands for a short time, or wrapt in a warm cloth, small beads of moisture will soon appear at either end. Before it gets too moist, put it out in the cold again, and in a few minutes the water is all re-absorbed. Owing to the contraction of the air, suction draws the moisture back into the cells. The suction into a maple tree has been found by direct experiment to supply force enough to raise a column of water 25.95 feet. This was during the sugar season, and at 6 a. m.; but at 8.15 a. m., when the morning sun shone upon the tree, the *outward* pressure was sufficient to support a column of water 18.47 feet in height. As soon as the buds begin to swell, the sap then becomes bitter and unfit for use. This is probably due to the formation of alkaloids, tannin, or some kindred sub-

stance, which results are due to the sap made use of by the growing buds. It may be these substances acting on the sap, that hinders the sugar from granulating when sap is boiled, that has been gathered after the buds have started to grow.

I have heard it stated that the tapping of the trees does not materially affect them. But knowing that the tree has stored up the sap as food for its future growth, I am led to believe that the effect is hurtful. It is quite possible that after generations of such culture the plant might look so far ahead as to provide enough, not only for its own growth, but to supply the wants of man as well. But if the trees are intelligently tapped, these evil results can be mitigated to a marked extent. By intelligently, I mean the boring of holes not more than half an inch in diameter, and not deeper than the wood of last season's growth, which will vary with the size of the tree. The old method of making a slanting gutter partly encircling the tree has, along with the wooden bucket, forsaken the camp of the modern sugar-maker.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

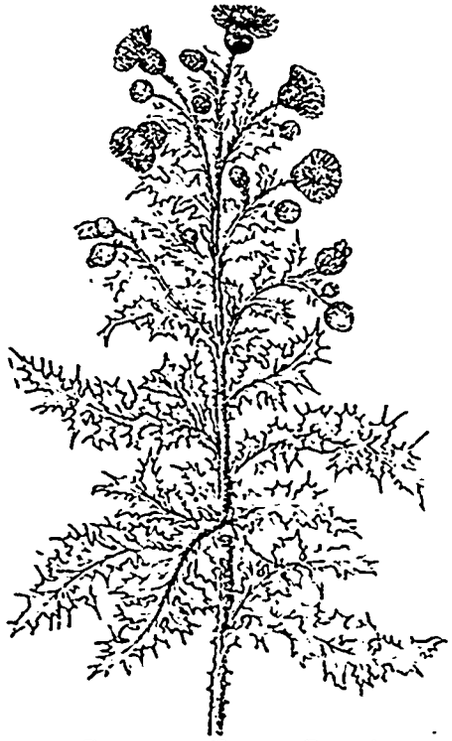
Weeds.

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

VII.

CLASSIFICATION OF WEEDS ACCORDING TO NATURE AND HABITS.

Cirsium arvense (Canadian thistle). Few plants have received more attention, both from the practical farmer and the theoretical botanist, than this. No weed has been so fully discussed as to the way and means to get rid of it as this; and yet it lifts its head year after year as a living testimony of its vitality, vigor and reproductive power.



Cirsium arvense (CANADIAN THISTLE).

It possesses a perennial creeping rootstock with many joints, every one of which is capable of sending out roots. All thistle flowers do not bear seed, for some have stamens only, whilst others have pistils; the latter only can produce seed. This explains how some persons have failed to see thistles grow from what they thought seed. In all likelihood they planted a head of stamenate flowers. There is no doubt, as many know to their sorrow, that the thistle will grow from seed as well as other plants. The writer proved this by experiment in the college laboratory, and reported it in a bulletin issued from the Department of Natural History.

This plant is well adapted for spreading rapidly, bearing many seeds well fitted to be blown about by the wind, and its roots bear latent buds at each joint. The following methods for its destruction are selected from many which the writer has heard described at Farmers' Institutes during the past four years. From these discussions one is forced to believe that to the thorough-going systematic farmer this weed offers no obstacle, to its extermination, but what may be readily overcome:

1. In the case of summer fallowing plough shallow in the fall, and in spring continue cultivation in such a way as not to permit the thistles to see light, for under its influence they prepare food material, which is stored in the rootstock, and thus the plant is fortified against future adverse conditions, and the roots will put forth growth for a time. Now if the plant is never allowed to add to the rootstock force, in time all the reserve material of the root will be exhausted. Some maintain that after four cuttings in this way the recuperative power of the plant is gone and the root begun to decay. But if the plant is allowed to get above ground and elaborate food, it at once stores it away, and thus its destruction is deferred. This continual cutting, whether by cultivator, plough or hoe, makes no difference; the same result is attained, and the thistle completely destroyed.

Some readers will not be inclined to accept this, and be ready to say that they have cut thistles many times and still they grew. However, if they examine closely how the work is done, it will be found that considerable irregularity was observed in trying to kill them. The summer fallow was neglected to be ploughed at a time when vigorous young thistles were hourly storing away reserve material that would enable them to withstand two ploughings, or it may be that even in the ploughing the plough here and there has been knocked out by a stone or root, so that young thistles at that point were allowed to escape cutting. A few spots like that and enough seed would be produced in the coming crop to soon produce many thistles. Keep thistles from light by hoe, cultivator or plough, and their continuance will not last long.

2. Plough in the fall, cultivate in the spring from time to time until about June, and then sow buckwheat. Plough this under about the time that it is flowering. If necessary a chain may be used to assist in covering the buckwheat; then harrow and roll. Cultivate regularly on the surface until time to sow fall wheat.

3. Seed down spring crop with clover (10 15 lbs. per acre), cut early the next year. Manure the clover stubble and plough deep; then cultivate weekly and sow at the proper time fall wheat. Some, instead of manure, let the second crop of clover grow four to six inches and plough that under.

4. Plant corn and keep the thistles well hoed; never allow any of them to get above the soil, at least but a short time. Repeated cutting will soon weaken them and finally destroy them. If this is followed by another well-hoed crop, but few if any thistles will remain. All the old roots will be dead, and what, if any, remains, will be seedlings, which will always be appearing as long as careless farmers permit thistles to seed.

5. Some place considerable faith in letting the thistles grow till they are in bloom, and then cut them. For one that succeeds in extirpating them in this way, very many fail, and the testimony of the most successful is along the line of thorough tillage, so as to keep the plant from getting strong and storing up food in its rootstocks.

Cirsium lanceolatum (Bull Thistle). This large species of the thistle is frequently seen on new land, but is never viewed as a serious weed. It is a biennial, and is soon got rid of by cutting or spudding a little below the surface. If cut below the crown before flowering it is soon killed. It requires no technical description, as its large purple heads with strong prickles and darker green of the foliage, in contrast with the common Canadian thistle, serve to distinguish it. Unless in new land, they are generally found growing isolated along the roadside or in the fence corners of the fields.

DISSACEAE (TEASEL FAMILY).

Dipsacus Sylvestris (Wild Teasel) The only plant in this order to be noticed as a weed is a large, coarse, prickly plant, 3 to 5 feet high, resembling to some extent the thistle. The flowers are in very dense heads, bluish color, surrounded by bracts terminating in a long awn. It is common around Niagara, and has been seen by the writer along the banks of the Grand River, near Galt. Being a biennial it is comparatively easily killed, by cutting below the crown. It seldom invades the fields, being usually confined to fence rows, roadsides, and along the banks of streams.

PLANTAGINACEAE (PLANTAIN FAMILY).

Plantago Major (Common Plantain). This common plant, growing about the back doors and in the barnyards, can scarcely be considered a serious weed. It is readily known by its large, roundish leaves, lying close to the ground, and with well-marked veins. About the time it flowers it sends up a stalk about nine inches high, along which the minute flowers are arranged in the form of a spike.

Lanceolata (Rib-grass). In this the leaves are much longer and narrower; the flower-spike short, thick and dense. The leaves are 3 5 ribbed. This plant is often sown in grass mixtures, and by some has been called sheep-grass; but escaping from the fields it has found its way to places where it is not desired. Though both these species are perennial they are seldom troublesome, where thorough cultivation is followed.

SCROPHULARIACEAE (FIGWORT FAMILY).

Many of the flowers of plants in this order, present a somewhat irregular appearance, showing a sort of two-lipped structure, as seen in the snapdragon, toadflax, etc.

Verbascum Thapsus (Mullien). This common plant by the wayside is too well known to require a minute description. Its coarse, hairy-like leaves, the long spike 3 5 feet high, covered with yellow flowers, serve to identify it readily. It is a biennial and can be easily got rid of by pulling when young. Its presence is always taken as an evidence of slovenliness and negligence on the part of those near whom it grows.

Veronica (Speedwell). There are several varieties of this plant found growing out of place. V. *arvensis* in some fields is very common; the stem is hairy, 3 feet 8 inches high, and bears small blue flowers. Cultivation soon destroys this annual.

Linaria Vulgaris (Toad-flax). This is the worst weed in the family, being a creeping perennial; it spreads rapidly, and in some parts has become quite common. The thin, smooth, pale green crowded leaves on stems about one foot high, covered with pale

yellow flowers, having an orange centre, make the plant have a striking appearance. Owing to this combination of color, the name Butter-and-Eggs has been applied to this plant waif. It bears a large number of seeds, and in most cases you find this weed growing in patches. However, it can be overcome by thorough cultivation so as to never allow the plant to grow above the surface. As it usually occurs in patches the area that requires constant vigilance is not large.

Swindling the Farmers.

The committee appointed by the Dominion Government to examine into the various forms of fraud practised upon the farmers by designing agents has rendered the country a most effective service, even though no legislation as such should result from the inquiry. The publicity which has thus been given to the practices of designing men will put the farmers more on the alert in the future, and will lead those shameless, villianous agents who have hitherto made the farmers their especial prey, to consider the advisability of seeking a livelihood in some other way. We had fondly hoped that the Ontario Government, whose name was used as a stepping-stone to success in the case of the "Red Lyon" wheat swindle, would have taken up this work, but it allowed the golden opportunity to pass unimproved. The charter under which the rascals operated was obtained under the Ontario Government from no fault of theirs, but the very fact that the name of this justly popular Government was linked with the fraud, made it the more imperative that they should show to the farmers that their skirts were clean, and that they were anxious to do all in their power to assist the victims of the shameless fraud and to protect their guild in future.

In our opinion Mr. Adam Brown, M. P., of this city, the mover in this investigation, and the chairman of the committee, is deserving of very much credit, although perfectly aware that his motives have been assailed in a way that seems to us as uncharitable as it is unjust. It is a dangerous thing to assail any man's motives, even on presumptive evidence, that may have not a little calculated to support it. It is very liable to lead to accusations that are unjust, and is likely to impair the healthfulness of our own moral sense. If we ourselves were assailed in this way, we would writhe under a sense of the injustice. Leaving Mr. Brown's motives with the only tribunal in the universe competent to deal with them, we look at the good results that are likely to flow to the farming community from his action, and we say all honor to the man. It is a thousand pities that men are so ready to cry "forbid him," because "he followeth not us."

Some are resenting investigation of this nature on the ground that it is a slight upon the intelligence of the farmers and upon their capacity to do their own business. Well, slight or no slight, let their intelligence and capacity be what they may, the fact is notorious that the farmers have been the *especial* prey of professional robbers, who operate under the guise of business, and if any remedy is provided that will bring relief, it matters little whether it emanate from the city or the country. Farmers need not feel troubled over any constitutional lack of inherent capacity. The guild that builds up the ranks of the professions in all the towns more than any other class, cannot be greatly deficient, at least in the elements of capacity.

That the farmers have been singled out as the target on which those graduated swindlers practice arises from other causes. It is owing in the first place to their limited experience in business transactions, in the second to the fact that they read so little comparatively; and in the third place advantage is taken of that generous disposition which leads them to desire to oblige a fellowman. We will not say that avarice does not play an important part in these transactions, for the farmer, with all his redeeming qualities, is possessed of a share of the usual infirmities of the race. The number of business transactions engaged in by the farmer is limited, hence he is less aware of the various "tricks of trade" that are practised. A good many farmers do not take anything in the form of a newspaper unless it be a local, and hence are not aware of the current frauds. This explains the success of swindlers in a county the following year, where their frauds have been already reported in the adjoining county. The gigantic "Bohemian oat" swindle has been in operation for the last twelve or fifteen years, and is still a flourishing business. Its field is the North American continent. It has no regard to nationality or tariffs, and is always on the outlook for the virgin soil of ignorance, where it never fails to flourish. In the JOURNAL, as already stated in the February issue, we exposed the Red Lyon wheat swindle on three several occasions—first in the September issue 1886, when the fraud was in its infancy, and by so doing incurred, though advisedly, the risk of prosecution; and again in the April and May numbers of 1887. But of what avail was all this to men who would not give $1 to pay an agricultural paper for one year. To our certain knowledge some of the victims of the Red Lyon wheat swindle preferred to pay $300 for what turned out to be the price of their mistake. Farmers are naturally inclined to hospitality, and thinking it inconceivable that incarnations in league with the lower regions, whom they innocently seat at their tables, can flatter them blandly with the tongue, while they artfully spread the snare in which to entrap them, are thus all too easily taken captive. While angels may be entertained in the garb of strangers, so may devils. The farmer less frequently meeting this latter form of visitor than the business man of the city, is less upon his guard.

Let us look at the facts calmly and accept conclusions which we cannot deny. Let us cease to rail at the men who are laboring to bring legislation to help us. The country *is* the favorite hunting ground of men who live by the plunder of fraudulent truckling, and investigation by a Parliamentary committee *will* help us. Success to the legislators who are on the trail of the swindlers of the farmers. May they continue the investigation another year, until every covert of those evil practices shall have been ferreted out, and the whole agricultural community of the Dominion put upon their guard as never before.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Alsike Clover Growing.

BY R. C. BRANDON, PEARLDALE FARM, CANNINGTON, ONT.

(Concluded.)

But one principal object of this paper is to treat of alsike from a commercial standpoint, which is embodied in the market value of its seed. As a factor in the crop rotation of the Midland and Lake Ontario counties, for at least twenty years past, it has in the return of dollars and cents, acre for acre, held its own with any other crop grown. As the reader perhaps knows, a great impetus has been given to its production in the four past years, stimulated no doubt by the declining profits on wheat. We can readily trace cause for its increasing demand during the past half century. The British farmer, to meet the ever-increasing cost of living, with a keen sense in investigation, selected the forage plants which were mostly likely to give the best return per acre in beef production, hence alsike formed an indispensable factor in laying down to permanent pasture. Just here I may tread on dangerous ground, *i. e.*, as to the coloring purposes to which alsike is said to be applied. I have never had much faith in such reports, though I would fain hope they were true. Yet to test the possibilities we have first experimented as to its coloring capability, and with the use of a little alum find that it produces a well-set pale green; and we enclose you the result in woolen and cotton. However, we will leave this part of the discussion to the editor, though we were rather agreeably surprised at the results. Our trade returns do not quote Canada's export of alsike, hence we are unable to give any approximate idea of the increased attention it is receiving.

Production as to quality should be the aim of every grower. A high-lying dry field inclining to clay-loam with a porous subsoil should be selected on which to grow this crop. Such a location will be found infinitely the best bottom, as in early spring it gives a uniform start in growth, and only a medium length of stock when the ripening season sets in. On this kind of stand the sun, wind and varied atmospheric influences have full play in the growth, development and ripening of the seed, whereas a long growthy stand is continually putting out laterals, which in turn develop later heads, hence an unevenness in both development and color of seed, and a consequent deterioration in value.

It is rather a source of pride to know we produce the best alsike clover seed in the world, especially in York, Ontario and Victoria counties. This assertion has already been proved, as one of our Toronto seedsmen carried off first honors against all comers at the French Exposition, not long since held in Paris. The German product is our greatest competitor in the British market, *i. e.*, in quantity; but we have seen samples from there which is only equal to our number three in quality, therefore we have a monopoly of the desired market.

It has been our custom for years to go carefully through our crop, scythe in hand, and cut down weeds, thistles and timothy, when such appeared growing in our clover fields. This prevents adulteration and saves a great deal of trouble and vexation when cleaning.

Harvesting is a critical period in our round of duties to the crop, and should be commenced when three-fourths say of the heads have turned a dark brown color, and are willing to give off the seed pods on being rubbed; don't wait longer, for by the time all heads are brown a great many of the early ones will have shelled and more will be lost than gained.

A strong light table attached to the mower-bar is a good machine to use in harvesting; but on this principle two hands are required, one to rake off the sheaves. The more modern and common sense plan is to use a good self-rake reaper, keep knives sharp, and cutting alsike will be found a pleasure. After lying a few days in the sheaf, or when it is sufficiently cured, get all available force on with barley forks, and lift sheaves clean and carefully to the load, and don't allow any decline of energy until all is safely stored in the barn.

Thrashing. The locality in which alsike is grown is well provided for, if the use of a new Miller Clover Huller can be secured. This machine, though long invented, has recently reached a comparative state of perfection. It is the result of a life-long study. It is propelled by a fourteen horse engine, and runs at a speed of 1,500 revolutions per minute. As it is pro-

vided with two fanning mills, it has thorough facilities for cleaning, and will work well in damp weather. We have two such machines in our own immediate neighborhood, and it goes without saying that our seed can be prepared to catch the early market. Your correspondent had fifty-two bushels thrashed in a single day by one of those machines in October last at a cost of twenty-seven cents per bushel.

Cleaning for Market is a kind of trade which requires an apprenticeship, and scores of farmers have neither patience nor skill enough to prepare it properly for sale, and as very much of our profits can be enumerated from this one particular, it is an important matter to study it out. Many men, otherwise successful, have been failures at the eleventh hour. When we see the result of their labors, we think of the American general who, after giving full instructions to his men on the best mode of retreat when the enemy made the attack, said, with a nasal whine, "As I am a little lame, I'll be agoing now." Yes, they are extremely lame, they won't stand at the post of duty. Neither the agricultural journal, protection, or commercial union, would benefit such men. They want a good horsewhipping. However, in view of such, I shall give our methods of cleaning. It will be found, when the thrashing is done, a large heap of rough chaff, in which a lot of good seed is mixed, remains for the farmer. Don't use a leaky mill. Place a fine clover-screen 20 meshes to the inch, in the bottom of shoe. Next put in short clover-sieve, fourteen to the inch, then take your ordinary long wheat-screen and place right below the hopper; it will extend back over shed and downward of course; blind off wind; put on good shake, and put a good man to shovel into mill. A few minutes will clean your tailings. Now remove wheat-screen and short clover-sieve, and place instead of latter a sieve with same number of meshes, but having two breaks or drops on its surface. Over this rough fibre and other large foreign seeds and matter are kept tumbling, every fall giving it a fresh start from the wind, while the tiny little seeds slip through. Seed is now worth $4.50 Next repeat the last process with more wind on mill; seed worth $5. Now prepare for work; get an alsike hand-sieve 19 meshes to the inch, it will not let red clover through, but don't sift out too close; go over the whole heap carefully, after which repeat the cleaning, and with a little careful skimming with scoop your seed will be worth $5.50. Annex figures to show why men should be severely dealt with for not securing the full value of their commodity rather than give from fifty cents to one dollar per bushel to the seedsman.

Marketing. As with everything else, a well-cleaned good sample, dark in color, is always sure of a good market, while a badly-grown, ill-prepared article always goes begging for a place. As our natural outlet for this seed is England, we should by all means market early, that its destination may be reached by the middle of February; if held later, sales are imperilled and prices recede.

In conclusion, I may remark that in handling alsike as a rotation crop, much depends on the preparation and attention bestowed, without which the majority of trials will fail. Here let me remark, that alsike is not a perennial plant. Flint calls it a perennial, Stewart a perennial, Whitcomb and others, a triennial, while your correspondent knows it to be as a rule only a biennial.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

The Threshing Machine.

THE HISTORY OF A VALUABLE INVENTION.

BY J. OSBORNE, WYOMING, ONT.

When we reflect that we are indebted to the last century for the *conception* of many of our most important agricultural implements, and to the present century for the *perfecting* of these machines, we are inclined to ask, What were our forefathers doing all those years and centuries of years in which agriculture formed the principal occupation of the majority? Long before there were any representatives of the "learned professions" or even a merchant to cater to the wants of our primitive world, the farmer might have been seen with his coat off, "dressing and keeping" a soil not yet cursed with either thorn or thistle.

To suppose there were no talents in those days, no intellect, no ambition, no inventive power, would be an injustice to a people that have left a stamp upon both science and art that can scarcely be surpassed at the present day. But labor was cheap—human life of little value, and so long as such a powerful enemy as Samson can be had to grind corn in the prison-house of Gaza, the lords of the Philistines need not waste the public funds in bonuses to any manufacturing company, nor need ingenuity be lavished on any more elaborate grist-mill. In the same way when we find the times so perilous that in order to conceal the fruits of the harvest-field from the greedy eye of an enemy whose very camels were without number, and who came "as grasshoppers to devour the increase of the land," Gideon has to thresh the wheat under the shadow of the oak and wine-press, "to hide it from the Midianites." No noisy machine such as we use would answer those times.

When the threshing was done on a small scale we have in the case of Ruth the most primitive kind of threshing implement there is any record of. "So she gleaned in the field till even and *beat* out that she had gleaned." A plain, straight stick then appears to have been the earliest weapon used in separating the grain from the straw, and this mode must have continued for many years, as we find both Greeks and Romans using the *fustis*, *baculum*, and *pertica*, *i. e.*, club, staff or cudgel.

When the threshing required to be done on a larger scale the Egyptians used "threshing-floors" which were simply a piece of ground beaten solid and ranging from 50 to 100 feet in diameter. On this were spread the sheaves and oxen driven over them. Some of those threshing-floors, from their central situation, supplied the wants of a whole district, and acquired an eminence among the useful institutions of Canaan; thus we read of the threshing-floor of Nachon, 2 Sam. vi. 6; the threshing-floor of Atad, Gen. l. 10; the threshing floor of Araunah, 2 Sam. xxiv. 16; while that of Boaz, Ruth iii. 2, may have been of a more private character.

A great improvement on the feet of oxen was the Hebrew *moreg*, a heavy frame mounted on rollers and dragged over the sheaves. This sledge was used by the Phœnicians, Egyptians and Hebrews, as well as the surrounding nations that followed agriculture as a living, and the picture is handed down in ancient sculpture of the teamster sitting in the middle of the floor—the Roman *area*, or threshing-floor, with a long gad, while he cheers the oxen with the song:

"Gee along, oxen—tread the corn faster,
The straw for yourselves, and the grain for your master."

The Romans made use of their captives in threshing their grain with the *fustis* as well as with the feet, but the most effective implement used by this nation was the *tribulum*. This instrument may still be seen in Asia Minor, Georgia, Syria, etc. It differed from the *moreg* of the Hebrews and Egyptians, in having pieces of iron or sharp flints fastened to the lower side in place of rollers. The Roman *tribulum* has given to the English language the word *tribulation*, a word of frequent accurrence in the New Testament, and if we wish to trace the connection between tribulation and a threshing-machine, we have only to consider what is the purpose of a threshing-machine, viz., to separate the grain (that which is valuable) from the straw (of no value in eastern countries), and as the produce of the harvest field was neither fit for food nor salable till it passed through the *tribulum*, the apostle says, "I am exceeding joyful in all our *tribulation*," as it fitted him for usefulness here, and "ministered an abundant entrance into the everlasting kingdom."

The straight stick or *baculum*, also underwent some improvement, and took the form of the modern *flail*, which appears to have continued down to the middle of the last century without anything appearing to successfully supersede it.

As considerable obscurity surrounds the invention of the threshing-mill, I think it better to give a condensed record of the earliest attempts where there is a reasonable certainty of following.

About the year 1750 a Michael Menzies, of East Lothian, in Scotland, invented an apparatus on the principle of driving a number of flails, using a water-wheel as a power, but from the force with which they were wrought, the flails were soon broken, and the invention did not succeed. It deserves to be recorded, however, as it is the first attempt we can point to at constructing a threshing-mill.

In 1755 another invention on the principle of revolving flails, but somewhat different from the former, was made by a Mr. Marshall, of England, but was given up "for want of due efficiency." The wheel in this case was turned by a horse.

In 1758 Michael Stirling, a farmer in the parish of Dumblane, Scotland, invented a machine on the principal of the flax-mill. This consisted of an upright shaft with four cross arms enclosed in a cylinder 3½ feet high and 8 feet in diameter. The shaft with its arms were turned with great velocity by a water-wheel, and the sheaves of oats let down through an opening in the top of the box. The grain was beaten off by the arms and separated from the straw by fanners and riddles. It broke off the heads of wheat and barley, and was only fit for threshing oats.

In 1765 Edward Gregson, copying from a flax-mill, made a threshing-machine, *worked by one man*, that could thresh 12 bushels of wheat in a day. It had a cylinder 5 feet in diameter and 18 inches wide. On this were the switchers that were turned by the foot with a crank, like a cutler's wheel. It was hard work for one man, and the inventor dying, it fell into disuse. About the same time two threshing-machines of different construction were made by a Mr. Oxley, of Flodden, and Mr. Ilderton, of Hawkhill, both on the English border. Both machines went by horse-power. Mr. Oxley's threshed the grain by switchers or beaters hung on hinges, and the Ilderton machine was constructed on the principle of rubbing the grain out by projecting pieces of wood on the circumference of a large cylinder rubbing against fluted rollers or set with small iron staples. Both the above machines did their work so imperfectly that the straw had to be put through twice.

For eight or ten years about this time a few more experiments were made with machines on the two principles of beating and rubbing, but with very in-

different success. Still, slow and imperfect though they were, compared with subsequent inventions, they were a long way ahead of the flail and other methods still more primitive, for one described by a Mr. Meldrum that was got up similar to a small flax-mill, and was used about this time in the south of Scotland, "threshed 150 bushels of oats in a day, which dropped through a screen into a winnowing machine that dressed it at the same time."

But to Andrew Meikle, a Scotch mechanic, living at Knowmill, Clackmannonshire, Scotland, belongs the honor of elaborating the first threshing-machine that combined the elements of efficiency and permanancy. Persuaded that the true theory of separating grain from straw must be by beating, he confined his ingenuity to that principle alone, and in 1785 perfected a working model turned by water, in which the grain was beaten by a drum, after passing through two rollers. This gave so much satisfaction that Mr. Meikle's son George took the contract of constructing a threshing mill for Mr. Stein, of Kilbaggie Farm. As the inventor was a poor man, Mr. Stein furnished all the material and agreed to pay Mr. Meikle for his work "only in case the machine answered the desired purpose." The work was completed in February, 1786, being the first that was made of any practical utility, and was found to do its work exceedingly well, the only difference made from the father's model was in substituting fluted rollers for plain ones. After considerable opposition from a person no ways concerned in the invention, a patent was obtained in April, 1788, so that whilst we bid adieu to the year of jubilee with renewed expressions of loyalty and attachment to the British throne, we are made aware that we are approaching the centennial of one of the most important agricultural implements of our day. The cost of one of Meikle's machines of the highest horse power with rakes and fanners, was £100, and it seems strange that in this age of remarkable invention and agricultural improvements, the stationary threshing mills of England and Scotland are to-day essentially those of the original inventor.

In Meikle's mills the sheaves are taken in by two fluted rollers, behind which is a drum or cylinder with four beaters revolving very rapidly. These beaters are armed with iron parallel to the axis. The rollers revolve slowly, and as they move the sheaf towards the beaters the heads of grain are rapidly and forcibly struck as they are carried along. The separation of grain and straw takes place in course of transit similar to our own machines. This machine was rapidly introduced among the larger farms of England as well as Scotland, so that from the reports of the English Board of Agriculture, established in 1793, we learn that threshing machines were becoming general in the northern parts of England, while in the middle and south of the country they were a great curiosity. But while the beaters answered very well for oats, they were found ill adapted for wheat. This led to a change in the cylinder, from a beater to a rubbing cylinder, composed of iron teeth working in a toothed concave, as we have it to day in Canada. Still beater machines are yet in use on many farms both in England and Scotland.

There was one point of merit in favor of those early machines that may surprise some of our modern threshers, given in the words of a writer of that day. He says, "A greater extent of buildings is required for barn work when the corn (oats) is separated from the straw by flail than by the threshing machine." Hence any small building would answer the purpose of threshing, and the same style of an implement may be seen to day in Lower Canada, for the writer was lately informed by a gentleman from Quebec, that he had witnessed a "delivery" of eight threshing-mills this last season, and the whole eight were being conveyed to their destination on four two-wheeled carts, that is, two threshing machines in one cart, and each cart drawn by one little pony.

The readers of the LIVE STOCK AND FARM JOURNAL are too well acquainted with the construction of the present threshing-machine to need any description, and many of them can remember the low, open machines of early days driven by oxen or horses as the case might be. These were, under the name of the "spike machines," on account of the cylinder being armed with spikes or teeth, as at present, to distinguish them from the beaters that were beginning to be laid aside. The spike machine consisted merely of a toothed cylinder and concave, having neither rakes nor fanners, and was little larger than a good-sized cooking stove. As straw, grain and chaff came all together, a great many hands were needed, while the amount of work that can now be done in a day would last one of them nearly a week.

The imperfections of the spike machine led to further improvements, till at length the separator made its appearance in the neighboring republic. The honor of its introduction into Ontario is ascribed to Mr. McPherson, of Fingal, who was at that time, 1845-47, carrying on a miscellaneous business in grain and cord-wood in Yarmouth and Southwold. Mr. McPherson, having a talent for mechanics, and fired by a spirit of enterprise, paid a visit to Rochester, where there was an American manufactory of threshing machines, and purchased three, which he brought over to Canada. This is said to be the first known use of separator machines in the western part of Ontario, and the consignment gave such good satisfaction that Mr. McPherson paid a second visit to Rochester, upon which occasion he effected an arrangement with Mr. Glasgow, who was employed in the factory, the result of which was that the two entered into partnership, and erecting a foundry at Fingal, laid the foundation of the well-known firm of Glasgow & McPherson. About the same time, or a year or two later, Messrs. Billington & Forsyth erected a foundry in Dundas, and also Mr. Rumsay one in Ingersoll, where, along with other agricultural implements, both firms added separators, that soon acquired a well known reputation.

From these small beginnings the wants of our country and the enterprise of our manufacturers have been extending the business year by year for the past forty years, till now we have an annual output throughout the Dominion of 900 threshing machines, while our own Province alone required 500 last year. Ontario has about 13 establishments for the manufacture of threshing machines, and of that number the Sarnia Agricultural Manufacturing Company make a specialty of threshing machines, and have worked the celebrated McCloskey Separator up to such perfection that it has been crowned with laurels at our agricultural exhibitions, and has entitled the company to the claim of being the most extensive builders of threshing machines in the Dominion. The number made by this company in 1886 was 125, last year 100, and this year they purpose to turn out 130.

"I appreciate this JOURNAL very highly and would not like to do without it for twice the subscription price. I think both as a stock raisers' and farmers' paper it stands without a rival in Canada."—W B. Calder, Grimsby, Ont.

"I enclose $1 for the subscription of your valuable journal, as I get more interesting news from it than I get from any other paper.—Walter Telfer, Lowville, Ont."

Slip Shod Farming,

BY D. NICOL. CATARAQUI, ONT.

(Continued from May.)

The gentleman farmer, or the theoretical farmer as he is sometimes called, is often sneered at, but it is a mistake, because, whether he farms merely for amusement or for the enjoyment of scientific research, his practical neighbors have the privilege of profiting by his experiments. True, his influence may sometimes be misleading, for want of proper understanding, but he must be very stupid indeed, who does not profit by the theoretical farmer's failures as well as by his successes. In almost every locality the introduction of improved live stock and improved implements is in a great measure attributable to the liberality and unselfish enterprise of this class of farmers.

The gentleman farmer readily undertakes greater risks than the practical farmer of ordinary means can afford, consequently, nearly all the greatest improvements in agricultural science have been brought about by rich experimentalists.

We ought to be thankful for such men as are willing that mankind generally may be benefited through their speculative talents and abundant means. It is surely folly to scoff at them. Only fools will do it.

An old Scotch saying is, that "the careless man is the beggar's brother." The slip-shod farmer is more annoyance to his industrious neighbors than hundreds of honest travelling mendicants. His half starved pigs, squealing as they hunt along the highways for a hole in the fence, make nervous persons very uncomfortable. In some parts yet, the highways are commons, and shiftless men never fail to take advantage of lax laws. I have seen orchards that were planted under the most favorable conditions, with the very choicest kinds of fruit trees, destroyed in a night by a careless neighbor's intelligent yoke of breechy steers, which had been turned out on the road to forage their supper as best they could.

Doubtless, some will say, why not have recourse to the law? If there is one thing that the frugal husbandman dreads more than another, it is law process, and when we come to think of the time it requires, the annoyances of false evidences which he would probably have to contend against, and the enormous fees which lawyers can legally charge, we need not wonder that he prefers to suffer long, and in this course I think he manifests wisdom and prudence.

To the stock breeder, the slip-shod neighbor is an everlasting terror on account of his tumble down fences and scrub male animals. I speak from experience; I have been so provoked with interlopers of this kind that I fear I have sinned in thought, word and deed, and be it observed, there are none more ready to make gracious promises than this class of men, yet the same offences against your property in live stock continue to be perpetrated. It is not easy overcoming faults fixed by a lack of early training.

It may be that these pests in human form are intended for our good, just as I believe that pests of the lower form of animal life may be calculated to stimulate us to energy and watchfulness

Does not the potato bug thoroughly teach us the importance of punctuality? The remedy for him must be applied at the right time, otherwise, no potatoes. He brings the indolent man to time under fear of starvation.

We have the beaver as our emblem of industry. He strictly minds his own business, and chiefly feeds on that which is otherwise worthless, yet he has been a source of wealth to the nation.

But we have also the skunk, who will not only insinuate himself into your premises and steal your chickens and ducklings, but if you offer to reproach him for his misdemeanor, he will make the surrounding atmosphere so disagreeable that you will have a strong desire to be elsewhere. Does not this teach us the necessity of carefulness? I know of some so called farmers who should be approached very carefully.

Indolent men are prone to grasp at seeming excuses, and it is remarkable how readily they adopt and tenaciously cling to superstitions or traditional notions.

The frugal husbandman has learned from experience that success with all his crops depends chiefly on the condition of the soil the suitableness of the weather and the manner of cultivation. The other calculates on the influence of the moon. He will not sow peas, plant potatoes or kill his pigs, until the moon is just so and so.

Although the change of the moon is universal, thinking men know that the weather is a local matter, and

that when we have a drought in our province, there are generally floods in another. South California has its dry summer and rainy winter as certainly as it has day and night. North China invariably has its dry summer and rainy winter. No one in either of those countries can think of attributing the state of the weather to the effects of the moon's changes. In my youth a friendly old wife implanted in my mind a thorough belief in the effects on the weather by the changes of the moon every seven days, but a poor Paisley weaver who was subsequently in my employment, convinced me that the moon changes only once a month, and that if it had any influence on the weather, it was entirely overcome by other influences. Indolence, ignorance and superstition have always accompanied each other.

The farmer who most assiduously attends all markets and auction sales within his reach, freely attributes very much of his want of success to bad luck, although a half-worn horse shoe hangs on the back of the front door.

Brother Gardiner says, "When you see a front gate off its hinges you may know that the occupant spends mos' of his time cussing bad luck," and that "when you meet a man with a red nose you may sot it down that his 'tater bin and his flour bar'l am empty;" and that, "doorin my forty years experience in dis wicked wo'ld I have found dat de man who am hottest to argy for politics and religun, does de leas' good for mankind and pays de leas' pew rent to the church."

I have known scores of men bringing ruin on themselves by their persistent endeavors to retain a position in the township council. It is surely not the meagre emoluments that tempt them to leave the farm at busy times. Perhaps it is for the honor of it. If councilors were elected by the free voice of the people, there might be some honor about it, but when one has to canvass the whole municipality, begging the support of each voter, the honor becomes sadly tarnished. I doubt whether it even gains respect for a man. It has a powerful tendency for drawing a man's attention away from the farm, his own business, and then to be sneered at for the folly of neglecting his farm. For habitual loafers, the monthly meeting of the town council is a great convenience, at least in some halls that I know of, but men who detest work can always find a refuge somewhere.

It is surprising to see how energetic men of this class become at elections, and what an interest they manifest in law suits. The indolent loafer almost invariably becomes envious, contemptious, sneering at his honorable neighbor's misfortunes, for he always knows his neighbor's business better than his own. He is very generally a scandal-monger and a talebearer, propagating lies and magnifying misrepresentations. His influence is poisonous; he is a curse in any community and should be sat upon.

I have never known an honest, sober, industrious man fail to provide good table-fare for his family, but the family who depends on the habitual lotterer, fares on fried pork and insipid potatoes; that or nothing. His example is derogatory to the noble calling of farm life. It is surprising how persistently some newspaper correspondents hold forth this most miserable class as being the representatives of the whole farming community. 'Tis a pity.

The practical husbandman seldom borrows farm implements; too much time would be lost going for and returning them. The other, whose mowing and reaping machines, fanning mill and other implements, are left out doors year after year, is continually borrowing freely, and very seldom returns the borrowed article; thus the careless lout robs the obliging neighbor of his valuable time. Very often when the lender sends for the article lent, he finds it so damaged that it must be sent for repairs before it can be used, and I know that many articles borrowed by careless men are never seen again by the owners. Post-hole augers, axes, wrenches, hammers, spades and forks gradually disappear. Slip shod neighbors having to be continually watched, are a perpetual tax on the industrious farmer.

Many thousands of acres of timber, and a large proportion of the land on which it grew, have been destroyed by fire during the past dry summer, representing a loss of many millions of dollars, and it is safe to say that the greater part of the loss was caused by carelessness. I know of two instances last September of very destructive fires being started by careless men, one of whom suffered death by burning in his own field as a consequence. This matter demands immediate effective legislation. We have a deal of silly talk about protection for the farmer. Institutes of this kind should devote part of their energies to the obtaining of enactments which would help to prevent the repetition of such crimes as have been perpetrated in this line the past summer.

Farmers in any community are benefited generally by the introduction of an improvement in the production of any article of commerce; so are the products of a locality depreciated by filthy producers. Butter from the eastern townships is worth in the Montreal market from 2 to 5 cents per pound more than that of some other districts. I presume it is because there are fewer slovenly butter-makers, hence less bad butter. Cheese from Ingersol is on demand at one cent per pound more than that made elsewhere. There may be some difference in the quality of the pasture, but I have no doubt the chief difference in value is attributable to the cleanliness and carefulness of the patrons of the factories. One single slovenly patron of a cheese or butter factory seriously affects the value of the whole product, although the cause may be imperceptible. When we know how small a particle of filth carelessly dropped in the milk defiles the whole mass, we need not wonder that our cheese brings not the highest price. I have seen milkers frequently wetting their dirty fingers with the milk as it was drawn from the udder. While the abominable practice of milking with wet hands is allowed, top prices need not be expected. Indeed if consumers knew where it was done they would strenuously avoid the use of the article produced. I would never expect pure milk from a slip-shod farmer; the milk of his cows needs to be analyzed before being mixed with clean milk.

In the Oneida community of shakers, if a member becomes careless and indifferent, he is expelled. If all the slip-shod farmers were compelled to live in communities by themselves, it would be a gracious blessing to decent farmers.

The slip-shod farmer is a nuisance because of his careless habit of allowing free scope for the propagation of noxious weeds. When we find that a single plant of the Canada thistle is capable of producing 42,000 seeds in the year, and that each seed is furnished with a pappus or wing to carry it a great distance which ever way the wind blows, and that a healthy burdock plant produces over 400,000 seeds, and that each seed-vessel is covered with a coat of hooks ready to catch hold of every creature coming within its reach, to be carried wherever the creature bearing it may go, we may be able to form some idea of the evil effects of such neighbors. I have known of several industrious farmers leaving the country in disgust on account of it.

(To be Continued.)

The Dairy.

WHETHER soiling for dairy purposes should be complete or partial will depend on various considerations. The price of land, wages, extent of the work, all enter as factors for consideration in the comparison, as also the price of dairy products. Where land is cheap one can better afford to pasture it. The cheaper the price of labor, the better the proportionate returns from soiling. When the dairy will not absorb the time of one man in getting the feed ready, the returns from complete soiling will be crippled, as this man will get full wages without full work, or must employ a portion of his time at something else. The better the market, the better the relative returns also from soiling, as on the wholesale way of doing things, when prices are good the corresponding returns are always greater. There is no doubt but that one acre of hay or some other supplemental feed will give from two to ten times the quantity of an equal area of pasture, and the manurial advantages are all in favor of soiling. When grass is eaten closely it so exposes the land to the heat of the sun in summer as most effectively to stop all growth for a time. The system of complete soiling will increase as the lands get older and more valuable. Those looking forward to its adoption will do well to study its nature and the best methods of practising it, for the introduction of silos, instead of superseding, will tend to increase it more and more.

FOR THE CANADIAN LIVE-STOCK AND FARM JOURNAL.

The Method of Manufacturing Oleomargarine.

BY E. A. RENNIE, STUDENT, O. A. C., HAMILTON.

There are provisions made by nature to sustain the life of animals when they are subjected to unfavorable influences. In some cases the unfavorable conditions have been extended and repeated so often, that the power to overcome these has become constitutional. The bear puts on fat in the fall, to use as fuel during the siege of inclement winter weather.

An animal fed upon insufficient or unwholesome food will not die at once, but will linger for a number of weeks or perhaps even months, life being sustained in the interval by the fat and tissue of the animal's body being used as fuel, to keep up the required temperature. If the animal is giving milk or suckling young, the milk does not cease for some time, although it changes in character in regard to its constituents, the per cent. of fat and other solids being less and the liquid relatively more. If you give a cow a food deficient in fat, or if you give her no food, the result will be the cow will give milk not altogether deficient in fat: a wise provision of nature to sustain the young; but where does the fat come from? The cow uses a portion of her own body (becoming thin) to produce the milk and keep up the animal heat.

What does it mean? *It means that in the cow animal fat has been taken and changed into butter fat.* It was because of the above fact that the French inventor studied the subject of making animal's fat more soluble by chemical processes, and producing what is now known as oleomargarine.

The process followed in the manufacture of oleomargarine by different manufacturers is so nearly identical that but one description is necessary.

Wishing to get at the truth in regard to this subject, I made an inspection of the large factory of Mr. Jacob Dold, of Buffalo, N. Y., a short time ago. Mr. C. H. Dold did all in his power to show the different parts of the process. The oleo oil-maker and the dairyman (or butterine-maker) were very communicative, and from the facts gathered from them and from observation during inspection, I consider the method of manufacture practiced in Buffalo is as follows: The fresh fat is taken from the cattle (where they are slaughtered on the first floor, and thrown into iced water, to free it of animal heat). It is then hashed to a pulp by machinery, and put in a jacket kettle heated by hot water, at a temperature of from 130° to 165° F., and kept in motion by an agitator. When the fat is liquefied, and the fibrous tissue is set free, the agitator is stopped and the fat is run off into galvanized iron lined wooden vats, where it is allowed to remain for a day, or until the inferior fat and the fibrous tissue settles. The fat is then wrapped in linen cloths (a few pounds in each) and submitted to great pressure, when the oleo oil is pressed out, leaving the pure white stearine in the cloths. This residue stearine is sold at 5c. to 6c. per pound, to fancy soap or candle-makers. Some manufacturers add sugar, rennet, bicarbonate of soda, and bicarbonate of potash, during the heating described above. The pure caul fat from the hog is heated in the same way as described above, and while hot is run into agitated iced water, which leaves it in a flaky, divided state, when it is known as neutral lard.

The oleo oil, the neutral lard, and a certain percentage of creamery butter are put in a churn with some milk, skim-milk or cream, and churned at about 120° above the ordinary temperature for churning.

The oils churned while hot are run into cold, agitated water, which makes the mixture take a feathery, uncrystalized form. It is then placed on a circular butter-worker, salted and worked, when it is made into rolls or pats, placed in tubs and stored in the cold storage chambers.

There are three grades of butterine made—cream ery, choice dairy, and dairy. In the winter a large proportion of lard is used in the manufacture of the butterine, and some manufacturers use a small quantity of sesame or salad oil (made from cotton seed) to soften the product, but no cotton-seed oil is used in Mr. Dold's manufactory. Some factories use butter color, but it is not used in Buffalo, as it is against the State law. The butterine, as described above, is made from the fat of the animals slaughtered in the factory. There is an inferior grade of oleomargarine made, however, from the fat obtained from butchers in the city. The inferiority of this article is due to the fact that the fat is not freed from the animal heat, in the manner described in the first part of this article.

Throughout the whole operation the greatest care and the utmost cleanliness is maintained. In relation to the oleomargarine and butterine being wholesome, the evidence of fifteen chemists say it is. The following will show their opinion on the subject:

The Board of Health of the city of New York, in the year 1881, investigated by medical and chemical aid the purity, healthfulness and value of oleomargarine as an article of food.

*Prof. Chandler, who carried on investigations under direction of the board, used the following language in his report:

"Nothing objectionable exists in the original material, nor is anything objectionable added during the process, and the operations are conducted with the utmost cleanliness. The product is palatable and wholesome, can be made of uniform quality the year round, is in every respect superior as an article of food to a large proportion of dairy butter sold in the city of New York, and can be manufactured at a much lower price."

Prof. Henry Morton, of the Stevens' Institute, Hoboken, N. J., says:

"I have remained as long as a week in one of these oleomargarine factories continuously, sometimes spending the night as well as the day there, in order to watch the process completely, and see the operations from beginning to end, to see what was put in and what was not, and to observe what was done and what was not done. In the course of these examinations I have reached the conclusion, founded on these observations, that the material is of necessity a pure one, and cannot possibly be unwholesome; and it is in fact in that sense a thoroughly desirable and safe article of food."

Prof. G. F. Baker, University of Pennsylvania, says: "I see no reason why butterine should not be an entirely satisfactory equivalent for ordinary butter, whether considered from the physiological or commercial standpoint."

†Prof. Carpenter says: "The Lansing Butterine Works went into business as a creamery establishment and made 5,000 or 6,000 pounds of butter or butterine per day, and sold at 25 cents until detected. They furnished me with "pure butter" for upwards of a year before I discovered that I had been eating oleomargarine instead. I did not know the difference, yet didn't like to be imposed upon. Farmers may demand that butterine shall be sold under its own name."

"Mr. Armour proved that the Premium Iowa Creamery butter was made of his butterine."

Mr. V. E. Fuller made the following remark: "At the fat stock show of Chicago I have tested oleomargarine which was in every way infinitely superior in appearance to three fourths of the butter that can be bought on our markets and at our grocery stores."

There were 37 oleomargarine manufacturers in the United States from May, 1886, to June, 1887. Each of these manufacturers have to pay a yearly tax of $600 per year, and also a tax of two cents per pound for the output. There were 288 wholesale dealers in the United States, who each paid a tax of $480 per year. The retail dealers were 6977 in number during the same period, and they each paid a yearly tax of $48 per year.

The receipts for the eight months, ending 30th June, 1887, amounted to the handsome sum of $723,948.04, being equivalent to a tax of $3\frac{1}{16}$ cents per pound on the actual output. The receipts for the four months next following amounted to $226,100.66, making a total for the year of $950,048.70.

The above article will no doubt be severely criticised. There is a great deal that can be said on the other side of the question, and I hope those who have the knowledge will not be backward in bringing it to light through the columns of the CANADIAN LIVE-STOCK AND FARM JOURNAL. I made this investigation to get at the truth, and having given a full description of its manufacture, I have said all that can be said in its favor. In a future number I hope to give the objections to the use of oleomargarine. The farmers generally do not know what butterine is, and it is hoped that the above will let them know what the farmers in the United States have to contend with.

*U. S Dept. of Agl. Bulletin, No. 13, 1887.

†Report, 1886, Michigan Bd. Ag.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Applied Science in Dairying.

BY JAMES CHEESMAN, SECRETARY ONTARIO CREAMERIES ASSOCIATION, TORONTO.

If we look abroad among the manufacturers of woollens, cottons, iron, flour, or any of the more finished goods known to commerce, we observe in their products the strongest and highest expression of natural law and the triumph of art over crude endeavor. The reasons for this are that departure from time-worn practice has been discovered in some well defined law of physics or chemistry. No great improvement has been possible in any of the staple industries of this world without a frequent use of weights and measures in the sampling of raw material and the exercise of skill and judgment in seeking economy in cost of production, and improvement in quality of product. Let us apply a few well-established principles of science to our butter industry and see in what direction it can be most effectually improved.

First, we take the animal used to produce our milk. It matters not whether the milk is to be used for cheese or butter, so far as feed is concerned. There is the same need for a proper proportion of albumenoids to starch and heat-giving material, or a well-balanced nutritive ratio. The man who fancies that butter is butter the world over will make a tremendous mistake. The raw material of the food which produces the best butter is one having great variety in flavor. Difference of food not only affects the proportion of solid matter in milk, but the very composition of the butter fat, its flavor, body, and melting point also. One of the most remarkable facts in dairying which has come under my notice is the case of the Manitoba creamery, which took the first prize for butter at the Toronto Industrial and the Provincial Exhibition, Ottawa. The creamery which produced that butter has, I think, beaten the world in the quality of milk required to make one pound of butter through its working season. I have heard of as low an average for a season as 22 and 21½ lbs. of milk, but never of one so low as 19¼ lbs. The result is no doubt due to two causes, partly to the old French Canadian dairy cow, which is largely used up there, a small animal nearly like the Jersey, but much more to the high nutritive value of the Manitoba grasses. To be forewarned is to be forearmed, and the sooner our farmers, who send cream to our creameries understand this, the better it will be for them, and the creameries.

I have often pointed out the paramount importance of intelligence and skill in dealing with dairy matters, that it seems almost tiresome iteration to repeat, but permanent improvement depends on repetition of this kind. Doing work well and trying to improve every time a routine method is practised makes for perfection, though it may seldom be attained.

The judgment passed on some samples of butter at the Chicago Dairy Show will illustrate this. I will number the prize butters 1, 2, 3, 4, and the points of excellence attained will show how far they were short of perfection. The possible 100 is very seldom reached in any part of the world, and when it is you may usually consider they are less than ten samples a year throughout the universe:

SCALE OF POINTS.		1.	2.	3.	4.
Flavor	40	33	31	30	32
Grain or body	30	27	26	26	25
Color	10	11	10	10	10
Salting	15	8	8	8	7
Package	5	3	5	5	5
	100	82	80	79	79

It will be instructive to follow up these awards with a statement of the physical and chemical characteristics of the butters examined:

CHEMICAL ANALYSES.

	1.	2.	3.	4.
Water	9.25	8.05	6.43	14.69
Fat	86.34	90.55	88.80	81.25
Caseine or Curd	.61	....	2.39	1.71
Salt	3.80	1.48	2.38	2.35
	100.00	100.00	100.00	100.00

From a superficial view of the chemical analyses of these butters I incline to the judgment that number two being the richest in fat, freest from caseine and lowest in salt, was therefore the best. The chances are that the food of the cow producing number one enabled her to give a higher quality of fat. It will be noticed that she scores two points higher in flavor, and one higher in grain or body. The inference is fair that the maker of number two was over-anxious to produce a too dry butter, and very probably overworked it, when it was taken from the churn, thus injuring its grain. Its freedom from caseine should have entitled the maker to the full number of thirty points for grain had it not been spoilt in over-working to remove the brine.

We take another lot of butters from the prize list of the New York Dairy Fair, May, 1887, and give the analyses from nine competitors in the order of quality of butter. No account was taken of the quantity, so we are entirely in the dark as to the comparative value of these butters except so far as analyses will aid us:

	1	2	3	4	5	6	7	8	9
Water	21.06	17.82	14.56	15.23	22.19	17.01	20.80	15.43	16.45
But'r fat	77.55	81.51	84.52	84.05	76.75	81.98	78.33	83.65	82.98
Caseine	1.39	.67	.93	.72	1.06	1.01	.87	.92	.57
	100.	100.	100.	100.	100.	100.	100.	100.	100.

So far as the making is concerned, number one was the poorest made of them all. Numbers 2, 3, 4, 7, 8, 9, were the best made, having a low proportion of water and caseine.

There is a very important connection between the care and ripening of cream and the churning of the butter. the relation of these two and their skilful execution will usually determine the chemical analysis and market values of the butter product. While it is true that Sweden and Denmark export a larger quantity of uniform quality creamery made butter at the highest market values paid in Great Britain, it is

also true that individual makers of farm dairy butter in France, England and the United States produce butter more nearly approaching perfection, and obtain four francs, 2s. 6d. to 3s., and 65c. to $1 per lb, in the Paris, London, Manchester, Boston, New York and Philadelphia markets. The reason of this is that the science, knowledge, and the art-skill necessary for producing the best cream, ripening it uniformly, and churning it properly for butter, is concentrated in one person. Let us examine this for a moment. The choicest butters in the world are made by breeders of butter cows in the United States. The cows being selected, their food is carefully prepared, and their milk is set at low temperatures, or separated; if separated, the cream is cooled down to near freezing point as fast as it comes from the machine, so as to have it all of uniform sweetness. When the whole of the cream is obtained the temperature is raised to 58° or 62°, according to the season of the year, and the time required to ripen it. In this connection I wish to utter my most emphatic protest against the Danish practice of using what they call the "fermentation starter." The use of any kind of butter-milk should be avoided, as the ripening will never be so uniform as when the lactic ferment is developed in the cream by rise of temperature and occasional stirring of the cream so as to bring all the smaller fat globules into more complete contact with the slightly acid media developed. Here, then, the average farmer, making western butter from four or five cows, will find his error; and here, too, the farmer sending cream to the creamery will discover his duty. If one man sets his milk at a temperature of 30°, another at 40°, a third at 45°, and so on up to 55°, it is manifestly impossible to secure uniformity of age or ripeness in the cream skinned.

The Dairy Farmers' Association of England recently held a competition for awarding diplomas to butter-makers for proficiency in dairying. After the theoretical examination, the candidates were required to churn an equal quantity of cream of uniform quality. There were six candidates for examination, and the awards were based on the following considerations:

SCALE OF POINTS.		1.	2.	3.	4.	5.	6.
Straining Cream	1	1	1	1	1	1	1
Intelligent use of Thermometer	3	3	1	3	0	2	3
Ventilation of Churn	4	3	0	4	4	1	1
Skill in Churning	2	2	0	2	1	2	2
Judgment in stopping Churn	10	10	3	9	8	5	2
Time in Churning	3	2	3	1	2	2	3
Straining Buttermilk	1	1	0	1	1	0	0
Washing Butter in Churn	4	4	2	4	0	0	0
Cleanliness in Handling	4	4	2	4	0	0	2
Use of Butter Worker	4	4	1	4	0	2	1
Making Up	2	1	1	2	2	0	1
Texture	4	4	1	3	0	2	2
	42.	39.	15.	38.	19.	17.	19.

CHEMICAL ANALYSIS OF BUTTERS.

Water	13.7	14.00	12.8	14.70	14.5	14.3
Fat	85.4	84.60	86.3	83.20	83.7	83.6
Curd	.9	1.40	.9	2.10	1.8	2.1
	100.00	100.00	100.00	100.00	100.00	100.00

There is in this statement a vivid picture-lesson for the creamery man. Special attention is urged on the use of the thermometer, ventilation, stopping of churn, washing butter in the churn, and the use of the worker, as applied in these awards, and the correspondence between these points, and the features in the butter analyses.

Unless cream be ripened uniformly, uniformity of granulation in the churn is impossible, and therefore imperfect cleansing of the butter will result. Every creamery-man should aim at producing a butter of uniform flavor and grain. The quantity of salt is a small matter in well-made butter, but in poorly made butter a good deal will be needed to prevent or rather delay the fermentation of the large proportion of caseine. In any case, butter having been thoroughly washed in the churn, should be finished off with a weak brine of about one or one-half per cent. of salt of the very best quality as to fineness of crystal and chemical purity. It may be removed from the churn for salting at such rate as the market calls for. Salt should be sifted over the butter on the table of the worker and stirred in with a rake, then set away till it has dissolved. When the salt has dissolved the butter may be worked only enough to remove the excess of brine and to compact and solidify it in packing.

In storing butter it is better to aim at a temperature below rather than above 45° and as much below as possible. The same reasons which apply in cooling cream apply with equal force here. The further we can remove the degree of temperature from 60° the more inert will be the caseine in the butter. Very few creamery butters contain less than one per cent., and some are as high as two per cent. One per cent. of caseine is eight ounces of the horrible filth in a 50 lb. tub of butter; and here comes the point which determines the salting and the degree of temperature in storing. A bad butter stored in a cellar at 55° to 62° is exposed to the same fermenting activity which takes place in the cheese-curing room, and rancid butter is the result.

The Ayrshire Herd Book Controversy.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

Sir,—I notice that Mr. Rodden, of Plantagenet, has a letter in the May issue of the JOURNAL. Of this I would not have taken any notice if the circulation of the JOURNAL had been confined to the part of the country where Mr. Rodden is best known, but in his letter he makes statements which are not true, and which it is important should be put right.

The first meeting of the Dominion Ayrshire Breeders' Association was held in Guelph in September, 1886, not in Toronto. Mr. Rodden states that at the meeting at Ottawa the Quebec book was to be taken as a nucleus, but he omits adding that that was for numbering only, and that the following resolution was the basis of amalgamation:—

"It was resolved that all pedigrees now on record be submitted to a joint committee, consisting of three members from each of the existing associations, who shall be empowered to pronounce upon the admittibility of such pedigrees to future publications of the new association, it being understood that the standard aimed at is imported stock on the side of both sire and dam. In case of disagreement the question will be referred to the Executive committee of the Amalgamated Association." This resolution was agreed to at Ottawa, 6th April, 1887.

The understanding was that the papers were to be ready for handing over at the first annual meeting. This was not carried out, for Mr. Rodden arrived at Kingston minus the papers. No doubt he will say they were not complete, nor would they ever be, for so cranky was Mr. Rodden with breeders, that some of them refused to send him pedigrees. If the pedigree was not up to the standard, his plan was to keep the money, write for information and return neither money nor pedigree.

Mr. Rodden says he was willing to have us join with them and revise our work. He ought first to have revised the work of their association, as it turns out they have what he calls "grades" in the Dominion Herd Book, recorded in the Quebec Book as pure-breds. They are the descendants of the Ross cows. They were owned by Mr. Rodden. He sold them and gave pedigrees with them, and they are recorded in the Canada Ayrshire Herd Book. When he writes again I hope he will be kind enough to tell us how he did this. I have the information thus given from a reliable source.

He (Mr. Rodden) accuses Mr. Wade, and others, with disturbing the arrangements of the amalgamation. Now Mr. Rodden was the cause of the breaking up of the amalgamation. He says there were but five of their party at Kingston, and they were taken advantage of, but omits to say that one of the five voted with us, and did so on the ground that he was carrying out the agreement entered into at Ottawa, April 7th, 1887. I believe that Mr. Rodden came to Kingston with the intention of breaking off amalgamation, as he said to Mr. Smith, of Simcoe, that if he was out-voted as he had been at Ottawa, he would gather up his papers and go home.

Now at Ottawa, in September, 1887, where the Ross cows were voted on, the vote stood twelve to four, four against the cows and twelve for them, the Quebec men voting with the majority, or absenting themselves, with the exception of Messrs. Rodden, Drummond, Irvine and Ness, who comprised the minority vote. Three of these were at Kingston and again in the minority. Mr. R. says, further, that we now admit that there were grades in the Dominion Herd Book. Of this he has no proof, but we cannot prove them from imported stock, and, in justice to all, consider it better to record them as No. 2 in an appendix. No. 1 will form the only Ayrshire Book in Canada that grades are not recorded in as pure-breds.

We in the West respected the agreement and carried it out as far as we went, and would have done so to the end, but if Mr. Rodden was not allowed to dictate everything, it could not be right.

I hope, Mr. Editor, that you will excuse my trespassing thus far upon your valuable space.

JAMES MCCORMICK, Pres. D. A. B. Ass'n.
Rockton, Ont., May 12th, 1888.

Care of Milk for Cheese-Making.

BY JAMES W. ROBERTSON, PROFESSOR OF DAIRYING AT THE ONT. AGRICULTURAL COLLEGE, GUELPH.

In dairy matters, as in most other affairs, continuous progress is essential to successful practice. The philosophy of successful dairying is like that of bicycle riding—the man who does not keep going on will quickly go off. Thus, in order to maintain our reputation as dairymen, we must increase the quality and quantity of our dairy products per cow and per acre.

The one aspect of dairy practice that will be presented in this Bulletin, while perhaps less interesting than others that might be treated, is nevertheless one of vital importance to the persons who have to do with the manufacture of cheese, viz., the preparation and care of milk for cheese-making purposes.

Before the dairyman undertakes to prepare milk for a cheese factory, he should make careful provision for his cows that they may have a chance to yield good, wholesome milk. While the products of milk may be easily preserved from speedy decay, it is impossible to reorganise good milk out of that which is inferior in the first place. Hence, I urge upon every dairyman the importance and necessity for keeping only healthy cows. They should receive plenty of nutritious and wholesome feed. The quality of the feed will show itself in the milk and cheese. General experience certainly points to the conclusion that unless we have well-fed cows, we cannot have milk of either fine flavor or satisfactory keeping quality.

Cows should have access to *pure* water only, and that in abundance. We have found a great many farmers careless as to the quality of the water which their cows drink. They seem to imagine that if the cows drink anything liquid, the milk will not be in any way affected thereby. I have even known farmers to argue that cows like to drink stuff that is not fit nor good for them. So do some other animals; but the *animal* is not always the best judge. The superior intelligence of the dairyman is always indicated by the special care he gives to the surroundings of the cows.

I have examined milk under the microscope and found therein microbes that had been taken into the system of the cows through the water which they drank. It is possible to destroy those microbes in the process of cheese-making, but it has not been found possible to impart to such milk the fine flavor which it would have possessed had the water been pure. Cheese made from such milk will not keep sound as long as if the cows had drank only pure water. It is not possible to make cheese of fine quality unless the milk used is clean, pure and wholesome.

Another requirement is that the cows should have access to all the salt they care to lick, as often as they like to take it. It is often said that if cows be allowed to take as much salt as they like they will take too much, and thereby harm themselves. When denied access to salt for some weeks, or even days, they will take too much when a chance is got.

We made a simple experiment in 1886 to define the effect of salt on milk. Eleven cows were divided into four groups, so arranged that the cows of two groups had no access to salt, while those of the other groups

had access to all they liked to take. Within two days the cows of the former groups had fallen off in milk yield 17½ per cent. ; while the others, on the same feed, on the same pasture, and under the same conditions and care, had not fallen off appreciably. After twelve days, a change of the groups was made, one group on and three groups off salt rations, when an almost similar result followed. The yield of the three groups not having salt was reduced on the average 14½ per cent. ; while the yield of the one group with access to salt every day had not been lessened during the test. Each cow of the latter group consumed a quarter of a pound of salt per day.

The effect upon the quality of the milk for cheese-making was also shown. It was found that the milk from cows that had no access to salt turned sour in twenty-four hours less time than the milk from cows on the same feed that had daily access to it. I have frequently had occasion to attribute the taint in milk to the fact that no salt had been fed to the cows.

The salting of cows as often as once a week is not sufficient. In Ontario we are said to be the most church-going and religious people on this continent. That is our reputation. But one practice, performed with religious regularity, is all too prevalent. Many dairymen salt their cows only on Sunday afternoons. This practice is no better for the cow than for the man.

Another essential condition for the production of good milk is that the cows be kept free from all foul odors. Many farmers do not understand the delicate sensibility to smells that cows possess. Several years ago a case came under my notice where the milk from a patron owning some twenty-five cows was rejected at the cheese factory. He could not locate nor explain the cause of the trouble. I visited his farm, travelled over his pasture and found in the woods the unburied carcass of a horse which had been hauled there the previous spring. The cows often pastured in the field near by, and their milk was positively offensive both to the smell and taste. The carcass was buried at once and no further trouble was experienced with the milk. It is still desirable to emphasize and impress a knowledge of the need for having all milking animals kept under such conditions of location that the air is practically pure, or free from all contaminating taints.

Foul smells in the stables result sometimes from the generosity of the man who attends to the feeding. He will feed so often, and so much, that every one of the cows will have indigestion, with all its accompanying disagreeable odors.

If the cow is abused in any way, she inflicts upon her owner the only retaliation she can. She reminds him of his duty to be kind and good to her by withholding the milk which he requires. For cheese-making, particularly, the flavor and quality of the milk depend largely upon the disposition of the man who manages the cows.

Trouble is frequently had with inferior milk because the cows have been chased home by "that useless dog." He is more expensive to keep on a dairy farm than a first-class cow. *Shoot him this week!*

Milk should not be used for cheese-making within four days from the date of the calf's birth. It should be protected against all contamination from foul odors that may be adjacent to the place of milking, or which may come through the air. Taint may also be imparted from the vessels used by the milkers, but oftener from their hands. When in Denmark, two years ago, I took some pains to study the methods of an excellent farmer who keeps no less than 250 cows in one stable. One of the regulations of the stable was that every milker should wash his or her hands after milking two cows. The rule was invariable and the butter from that herd brought at least ten or twelve shillings per cwt. more than the price of ordinary first-class Danish butter. The owner attributed a large measure of his success to the observation of that one practice.

Having drawn the milk, and the pails being clean—as they generally are since the women folks look after them—the milk should be thoroughly strained. A deal of trouble has arisen from the use of strainer pails, simply because there is often an accumulation of impurity liable to be hidden from the eyes of the washer. Children have been known to get dangerous attacks of illness from contact with that kind of stuff. The germs it contains can be killed by lactic acid, but prevention is better than cure.

(Concluded in next issue.)

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

Management of Chicks.

BY W. B. COCKBURN, ABERFOYLE, ONT.

Our journals, it is true, are full of information regarding modes of care and of feeding young chicks, yet I admit, we as fanciers are too backward in giving our personal experience as to what we have found to be best and most profitable. I do not feel disposed to dispute any mode of feeding if the person can prove that it will make chicks mature early and feather fast without hindering their ultimate growth. There is nothing against fancy feeding except waste, and as far as I can see it can be done without this, but this cramming of chicks with soft food three times a day I do not agree with. Look at a chick that has been given food till its crop is hard every meal for three months, and what a mean, stunted looking bird it is, and for the reason that they should never get all they will eat at one time.

But I set out to give my mode of feeding and care of young chicks. I am satisfied they should have nothing for the first thirty-six hours after leaving the shell, after this time we feed bread crumbs or soft feed, consisting of ground barley, oats and bran or middlings, scalded to a thick mash. But this treatment just lasts the first two or three days, when they get cracked wheat or screenings, and soon the soft feed is withheld, except once or twice a week, when ground bones or oyster shells are mixed with it. Milk is sometimes given which is not only profitable but excellent for them, but they also require pure, clean water. By all means keep them free from vermin, for nothing will kill a chick quicker than if it becomes infested with lice, especially those that come on the back of their heads. If they are neglected, death will be certain. For lice I use insect powder, which is the quickest and surest remedy, blown into the down and feather with a little gun to be had at any drug store. One point I am strongly in favor of is to feed more solid food to young chickens than is usually fed till they have come to the age when they are expected to fill the egg basket.

The Essex Poultry Farm, Managed as We Understand It.

BY ARTHUR HARRINGTON, KINGSVILLE, ONT.

(Continued from April.)

SELECTION OF BREEDING STOCK.

But whatever breed is chosen, bear in mind this important fact, that a good strain of a poor breed may equal or surpass a poor strain of a good breed. We could cite numberless instances in proof of our position, but will content ourselves by simply telling what systematic breeding for a particular object has done for us, and let the intelligent reader draw his own conclusions.

Among our birds in 1884, we noted one particularly large, prolific layer, and being somewhat enamored of her beautiful shape and handsome markings, combined with gentleness of disposition, we placed her in a pen where a record could be kept of her laying qualities, with the following results: Began laying December 8th, and laid in December, 24 eggs; January, 29 eggs; February, 25 eggs; March, 29 eggs; April, 29 eggs; and up to May 6th, when she was set six eggs, laying *142 eggs in 150 consecutive winter days* during the coldest winter and spring known for many years, and this, too, on care that any hen should have. We raised a number of pullets from these eggs, and they nobly sustained the breeder's axiom that "like produces like," not one of them but what would lay 22 eggs per month *any time*, while some of them could be depended upon for *twenty-eight*. From this noted hen (Old Regular) and her pullets our present flocks are descended, and we challenge the world to produce an approximation to our records.

CARE OF BREEDING STOCK.

But with the best of stock, intelligent care must be rendered if adequate returns are expected. No one point is more generally overlooked or less understood than the management of breeding stock. As are the parents, so will be the progeny; if the former are strong and vigorous, so will be the latter. If the parents are fat, sluggish or out of condition, many eggs will not hatch at all, and what chickens do manage to thrust themselves into this would had "better have died a-bornin'." A generous but not too stimulating diet is what is needed. Abnormal fat or a well filled egg basket are not what are wanted, nor anything that tends to lower the vitality. There is much to be learned in this direction, and we, with all our experience, are still eager for reliable information. We obtain very satisfactory results by feeding lightly about 9 o'clock in the morning a mixture of two-thirds oats and one-third wheat, and about 4 in the afternoon what they will eat up clean (no more), a little less if anything, of corn, two-thirds, oats, one-third, varying the ration two mornings in the week by scalding corn and oats ground together in equal parts, and mixed with one third wheat bran in water. Where fresh meat has been boiled, add a pound or two in addition to every one hundred hens. Abundant water is supplied them. White ground shell and unlimited range on clover is also accorded them. There may be a better method of feeding, but while eggs all over America have been hatching poorly this spring, ours have averaged 90% fertile, and so long as this satisfactory state of affairs continues, we shall not worry over the matter.

Kingsville, Ont., May 11, 1888.

(To be continued).

Vermin in the Poultry House.

BY J. W. BARTLETT, LAMBETH, ONT.

As the warm weather advances the vermin will invade the best and most carefully constructed poultry houses, unless timely remedies are made use of. Many are the remedies suggested in the various papers and journals from time to time, and we cannot just at present call to mind any remedy proposed in all our reading that would not be efficacious if properly used. And we seldom, if ever yet, examined a farmer's poultry house in the heat of summer without finding myriads of red mites congregated on the lower sides of the perches, or some other part of the house. Hence it is evident the trouble is in the attendant, rather than in the remedy.

These mites caused us almost endless annoyance for some time, and although constantly attended to, such remedies as kerosene would not keep them away although it would kill them for the time being, but an application every few days was necessary. Sulphur and lard rubbed on the perches was much better, but carbolic acid and water—one gill of the former to a pail of the latter, applied thoroughly with an old broom once a month, proved a positive preventive and also destroyed to a great extent the foul odor of the droppings. For setting hens we always use a handful of sulphur, placing it in the nest at the time of setting, and again a few days before the eggs are due to hatch.

While adult fowls are very much annoyed by the various kinds of lice, and their prolificacy to a great extent destroyed, results are less fatal than with young

chicks. One writer, Mr. W. H. Rudd, of the Oroco poultry farm, South Scituate, Mass., says: "Every chick ever hatched by a hen has from one to forty embryo lice on it before leaving the nest." Whether this be correct or not, certain it is that chicks hatched and raised by hens are almost sure to have some lice on them. They may be found on the back of the head and neck, very often by the dozen, and when the chick is at all inclined to be weak the lice usually survive it, but when strong and hearty, with ample range and clean quarters, they very often pull through. But prevention is much better than cure. We therefore take the hen about sundown or a little before, when the chicks are about ten or twelve days old, and sponge her all over, rubbing against the feathers, with a sponge well moistened with kerosene and then squeezed thoroughly dry, or as neat so as can possibly be done with the hand. The chicks when under the hen of course nestle their heads in the feathers, and the strong smell of the coal oil kills every one of the lice on them. We have given this method repeatedly, in fact every year since the JOURNAL came before the public, but it is well worth the repetition, and no one that tries it once will be likely to neglect it afterwards.

Color of Pekin Ducks.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—There seems to be a difference of opinion between Mr. Cockburn and Mr. Bartlett in reference to the color of Pekin ducks. I have bred Pekin ducks for some years, and I must say that Mr. Cockburn's description is a very good one. In plumage, the Pekin area creamy white throughout, except the wings. However, he is mistaken when he states a white color is a disqualification. Mr. Bartlett claims that all competent judges give their preference for white. Who are the judges that do, Mr. B.? This assertion, I claim, is not correct, and misleading to parties buying. The standard calls for plumage downy and of a faint creamy white, and my experience is, that I have yet to see a white bird win over a creamy white when other points are equal.

AN OLD PEKIN FANCIER.

Springville, Ont.

Pekin Ducks.

EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL.

SIR,—I notice a criticism of my article on Pekin Ducks by Mr. J. W. Bartlett, of Lambeth, Ont. He charges me with making a great mistake in reference to the color of these. As I do not wish Mr. Bartlett to leave a wrong impression on the minds of the readers of the JOURNAL, with your permission for space, I think I can convince Mr. B. that in quoting from the American standard of excellence, I made no mistake, as the disqualifications therein given plainly, and distinctly read: "Plumage, any other color than creamy white." Up to the present I have found that competent judges give the preference to creamy white if the birds are otherwise up to the standard. But as age comes on the outside ends of the feathers sometimes get white, yet, if you open the feathers they will be found a rich, creamy white, while in Aylesburys the preference is for pure white.

I have been very successful in exhibiting Pekins and in carrying off the highest honors, as have also my customers, so that I know whereof I speak.

W. B. COCKBURN.

Aberfoyle, May 8th, 1888.

The Apiary.

Bees and Honey,

The May Bulletin issued by Mr. Blue, of the Ontario Bureau of Industries, furnishes some interesting statistics in reference to bees. From returns collected from 651 persons it appears that in 1886, 19,015 hives were put into winter quarters, and 23,828 in 1887. Of the former 4,402 colonies perished in the winter. The increase by colonies last year was 10,863, making an aggregate of 25,476 hives for the season. These gave a product of 112,477 lbs. of comb honey, 499,093 lbs. of extracted honey, and 6,686 lbs. of wax. Full returns from the Province would make it apparent that the honey industry is one of very considerable importance.

For the CANADIAN LIVE-STOCK AND FARM JOURNAL.

June Jottings.

BY ALLAN PRINGLE, SELBY, ONT.

By the first of June the "spring dwindling" in the apiary has about spent itself, and the bee-keeper can balance up his winter and spring losses, which from all accounts received, appear to have been unusually heavy up to date. Within the area of my knowledge in this district (Lennox, Addington and Hastings) about four-fifths of the bees are dead. My own winter loss, which is on an average from 3 to 4 per cent., is the past winter and spring from 5 to 6 per cent. The great loss of bees throughout the country, though perhaps chiefly owing to mismanagement, is in part at least due to natural causes over which the most expert apiarist has but limited control. Yet while this is a fact, so much of the loss is obviously the result of incompetent management that it affords another argument against everybody going into bee-keeping.

There is perhaps no other department of agriculture that requires so much special knowledge and adaptation as this, and hence the folly of those without skill or experience going extensively into bee-keeping, either as an exclusive or main pursuit. Of course if but little is invested in it, and but little expected from it, there can be but little loss, and the disappointment will be correspondingly small.

The natural causes to which the late mortality is partly due may be traced to the excessive drought last summer and the continued severe cold of last winter, which persisted continuously for several successive weeks. The drought operated injuriously on the winter prospects of the bees in several ways. The failure of the honey flow resulted in a shortage of winter stores, and as a consequence some starved to death; while from the same cause brood rearing was checked in the fall and discontinued much earlier than usual; and as many old bees went into winter quarters, they naturally died off during the winter and spring before they could be spared from the hive. A poor quality of food, resulting in bee-diarrhœa, was another cause having its origin in the drought. Not that clover, basswood, or buckwheat honey gathered during a drought is inferior in quality, but during a scarcity the bees will gather sweets from any and every source. They thus get into their hives at such times odds and ends in the shape of sweets of various kinds, which though perhaps good enough for summer food, are quite unfit for winter.

Then, the continued cold weather lasting through several weeks in the middle of the winter operated against the bees in two ways. Bad food and low temperature are, in my opinion, the prime causes of bee-diarrhœa. The unwholesome food and the excessive cold together had their natural effect, while the latter alone had the effect of preventing the bees from reaching such stores as they had, with the result of starvation with food in the hive.

But while these primary natural causes are beyond the control of the apiarist, be he experienced or inexperienced, wise or otherwise, wisdom and experience may to a great extent obviate their pernicious effects. The brood-rearing, checked by the drought, can be kept up in the fall by judicious feeding, thus securing young bees for winter. The unwholesome stores can be extracted and good food supplied. Under proper wintering conditions such temperature can be secured and maintained in the hive during the coldest weather as will enable the bees to reach their stores when needed, and thus avoid the risk of starvation, and also reduce the risk of disease to a minimum.

THE PROSPECTS.

Considering the freaks, fancies and general instability of June, it would be unsafe to prophesy, but the present prospects of a good honey season are favorable. That the surviving colonies will be in strong condition to take advantage of the harvest when it comes is more questionable. Generally they come out of winter quarters in rather poor condition, and the spring has not been overly favorable for building them up. Only, therefore, in the hands of the skilled few will the colonies be strong and ready for the harvest when it arrives. There may be an abundant yield of nectar and a comparatively small ingathering. One of the main conditions of successful bee culture is the faculty of taking full advantage of the crop or flow—that is, to "make hay while the sun shines." When the flowers are yielding, keep the bees at work—at work honey-gathering instead of brood-rearing and comb-building. How can this be done? By diminishing the size of brood nest and confining the queen thereto, and by supplying the workers with storing comb. The former can be successfully accomplished by the use of the queen-excluding perforated zinc, and the latter object attained by the judicious use of foundation and securing store combs built at leisure—I do not mean built in a factory (that can't be done), but built at the leisure of the bees in their own grand factory, the hive. There should be no artificial check put upon brood-rearing during the spring and up to the clover honey flow. On the contrary, the queen should have full swing, and any natural checks to brood-rearing should be overcome if possible. But when the flow comes her maternal operations should be so restricted as to enable the workers to devote their time to gathering outside instead of nursing inside.

Everything should now be in readiness so that no time will be lost. Put on extracting stories and section cases directly the flow begins. Give them work and room to work. With the flow comes the propensity to swarm—a propensity we often desire to check, and can check by proper means, among which giving plenty of room is foremost. But in the production of section honey this remedy is sometimes worse than the disease, for the workers will often refuse to commence in the sections at all if you lay out too large a job for them at once, especially in cool weather—the time when human bipeds feel most like tackling a big job.

SWARMING.

When the season is favorable June is the swarming month. In old times from the old box hive there used to be considerable swarming in May, but in these times from the improved hives and management, swarming in May is the exception. The old *saw* of our grandfathers was that "a swarm in May was worth a ton of hay, a swarm in June was worth a silver spoon, but a swarm in July wasn't worth a fly." In these times, however, the bulk of the swarming is done in July should the season be at all backward, but in those good old days the bees swarmed when they liked and as often as they liked; now we let them swarm once or twice or not at all. We need not have a swarm at all should we choose to keep ahead of them dividing and sub-dividing. But I am growing less and less in favor of the 'artificial swarming" over which natural swarming has some important ad-

vantages. Not the least of these are superior queens and the extra working impulse which almost invariably characterizes the new swarm. I believe in natural swarms, and ordinarily in but one to a colony. Unless increase is a special object there is no profit and less pleasure in "after" swarms. They give annoyance, because they are necessarily accompanied by young, unclipped queens which not unfrequently give much trouble. And this brings us to the question

HOW TO HIVE SWARMS.

The plan I have followed for many years is very simple and expeditious, but presupposes the queens clipped. I am strongly in favor of clipping. The practice is opposed by some good apiarists, but I have never yet seen one valid objection advanced by them against it. When I see a modern bee-keeper chasing his swarms around the fields and through the "woods" to catch and cage them, I always think he is an old fogy and away behind the times. With clipped queens the process of hiving is as pleasant as it is expeditious.

When a swarm is issuing the queen may be seen near the entrance endeavoring to take wing. I hold the open end of a little wire cage, about the size of your finger, over her, when she will immediately crawl up into it. I then shut her in and either put the cage in my pocket or lay it away near at hand. As soon as the swarm is out I lift the old hive, carry it away to a new stand, and place the hive for the new swarm on the old stand, putting the caged queen down aside the entrance. The swarm, finding itself without a queen, will soon return, without any chasing, beating of tin pans, blowing of dinner horns or ringing of cow bells. It comes back to its old stand and of course enters the new hive placed there to receive it. The bee-keeper's part of this business can be done in about one minute with very little work and less worry. The caged queen can be liberated, when she will run into the new hive along with the bees. By this method an active man will hive a dozen swarms in a few minutes.

Horticultural.

IN his paper on raspberries in this department of the present issue, Prof. Panton refers to the "toilsome tramp and weary hours" spent by the members of many a household in the search for wild berries. Their desire to secure these at any cost of labor or endurance amounts to almost a mania. It demonstrates, however, the store that is put upon the value of berries by those who manage our households, a manifestation of a desire that cannot be ignored by any head of a family without manifest injustice to her whom he vowed to try and please a thousand times in the years that now are gone. The female portion of many and many a farm house are still found gathering wild berries while the bushes and grass are dripping with the unlifted dews of the morning. They must gather them thus early or go without them, for a dozen homesteads in the neighborhood have all gone on the same errand, and those first on the ground secure the largest share.

All this might be avoided by a little labor on the part of the male portion of the household. A very small plot of ground will furnish them in abundance for any household, and certain varieties of red raspberries will flourish in almost any part of Canada that is now cultivated. Red raspberries bear enormously, and are easily managed. They will grow on any kind of soil that is dry and strong, and entail but little labor in comparison with the return they give. When thus grown at our door they may be gathered whenever convenient, and in the most perfected stage of ripeness. Any farmer who will not provide for his wife and family a raspberry plot has not done his whole duty to them.

Cultivation of Raspberries.

BY PROF. J. HOYES PANTON.

Having had considerable experience at the Agricultural College during the past seven years in growing raspberries, I purpose in this Bulletin to give our results.

The area planted in 1881 consists of about four acres and forms part of the orchard set apart at that time, so that while the apple trees have been growing the land has not been idle, but bearing yearly a crop of raspberries. As the trees are now reaching a considerable size the raspberry plot will be changed and the land used solely for the orchard.

CONDITIONS SURROUNDING THE CANES.

Location: Latitude north 43° 38', height above sea level 1,100 feet, above Lake Ontario 858 feet.

Exposure: Westerly inclined to North; no shelter of any account as yet.

Soil: Clay loam and somewhat gravelly on the north and west sides; partially drained.

MANAGEMENT.

The canes are in rows six feet apart, while the plants are about five feet apart in the row. This renders cultivation with the horse-hoe comparatively easy, and thorough cultivation is carried on during the summer so as to keep down weeds and render the soil loose and friable. In summer, during the time of growth, the young canes are kept cut back to about two feet so as to encourage a bushy habit. The plot is manured at least every second year. We have pruned in the spring, believing that an advantage is gained in leaving the old canes through the winter with a view to their assisting in holding the snow around the bushes, and thus serving as a protection in a climate comparatively severe. Early in the spring the old canes are cut out and the number of canes in each hill reduced to not more than six (usually four) and cut back to about 3½ feet in length. We do nothing to protect the canes during winter except leaving the old ones, which serve to keep the snow upon the hills.

VARIETIES AND NUMBER PLANTED.

Red.—Philadelphia, 617; Cuthbert, 376; Thwack, 84; Turner, 96; Herstine, 115; Niagara, 98; Clarke, 44; Highland Hardy, 114; Brandywine, 86.

Black Caps.—Davidson's Thornless, 94; Dorchester, 12; Gregg, 217; Mammoth Cluster, 150.

White.—Caroline, 12; Saunders' Hybrids, No. 53, 50: No. 70, 18; No. 72, 16; No. 57, 12; No. 50, 12; No. 67, 5.

RESULTS OF CULTIVATION.

Red.—Cuthbert has proved to be by far the best with us. Though somewhat tender, it has stood our severe climate conditions well and proved itself to be prolific, large, good color, firm and of delicious flavor. The severe winter of 1886 87 injured many of the canes. It is somewhat late, but extends the time of berries, and is a variety which should be found in every raspberry plot. Growing side by side with the Philadelphia, an excellent opportunity is found for comparison; and, as from time to time I have gone to the ground in the berry season with visitors, I have always found they soon judged in favor of this variety, popular both for home and market use. Philadelphia with us ranks second. It is very prolific, hardy, but not a firm berry, and thus not so marketable. It makes a fine show on the bush, but does not pick so readily as the Cuthbert. It has rather a poor color and ripens comparatively early. Turner comes next, of good flavor but not very firm berry, and consequently not a good shipper; hardy, and seems as if it would grow under adverse conditions better than most varieties, but not an early berry. Herstine has not done much with us. Its bearing season seems short; berry soft and canes fairly hardy. Niagara has given a fair yield, but late. Clarke is a large, bright, luscious berry, but soft and not very prolific here; canes tender. Highland Hardy is a small bush, and a poor grower, tender with us, killing down and bearing soft berries. Brandywine has produced some fair crops, but on the whole has done poorly. Thwack has not fruited well.

Black.—None have done remarkably well. All have suffered considerably from our cold seasons, many hills having died out completely. Davidson's Thornless, though killed badly, has proved to be a strong grower and has furnished some good fruit. Gregg is a little late in season and has also suffered, but has yielded a fine, large, firm berry. Mammoth Cluster has killed out very much; it is medium early; Saunders' Hybrids have proved themselves to be prolific; the berries are inclined to be soft: a good flavor but a very poor color; being a cross between the red and black, they have the color of neither the one nor of the other, but a sort of mouldy-like appearance. This no doubt would affect their sale, but for home use these berries are worthy of a good place. They seem to possess the flavor of black more than red berries.

White.—Caroline has been fairly prolific and comparatively hardy.

CONCLUSIONS.

1. We have been very successful in obtaining a satisfactory yield from red raspberries, especially the first mentioned on the list.

2. We are inclined to believe that leaving the old canes till spring aids in keeping the snow about the hill and thus serves as a protection during the winter months.

3. Our climate is rather severe on black varieties.

4. Ground for raspberries should be well drained and thoroughly cultivated.

5. The best red varieties: Cuthbert, Philadelphia, and Turner; of black: Gregg, Mammoth Cluster and Saunders' Hybrid (57); of white: the Caroline. These make up a collection likely to do well in most places in Ontario.

6. Farmers, with a little care and a small amount of labor, might easily grow raspberries for home use, and thus save many a toilsome tramp and weary hour to members of their household who strive to gather wild raspberries from patches where fruit is obtained under most adverse conditions.—*Bulletin 27, Ont. Ag. Col., Guelph.*

The Home.

Bind-Weed.

The verdant garlands creep and twine
About the branches of the vine,
And holds in close embrace
The blushing beauty of the rose
That year by year untended grows
In this deserted place.

Its blossoms, like a shallow cup
Of purest Parian, lifted up,
Is full of morning dew;
My comely lilies, nursed with care
To glad the garden borders, wear
No whiter, purer hue.

And yet, and yet, I know the vine
Whereon its graceful garlands twine
Had come to better fruit
If this lush growth of white and green,
The bind-weed's close and clinging screen,
Had never taken root.

And yet, and yet, I know the rose
That thro' its greenness glints and glows,
Had come to fuller flowei,
If this fair, fragile parasite
Had never spread its green and white
To summer sun and shower.

I pull the slender leaves apart,
There lies a lesson, oh, my heart!
Beneath the bind-weed's spray.
It saps the vine and dwarfs the flower;
So clinging love hath oft the power
To sap and dwarf away.

To sap the soul of strength divine,
To blight its fruit, like cumbered vine,
Which scarce a cluster shows;
To dwarf with narrow, selfish claims
The growth of wide and generous aims,
As bind-weed dwarfs the rose.

And yet, God wot, the love is clean,
And, like the bind-weed, fresh and green
It springeth in the heart;
'Tis only when we lack the grace
To train it fairly in its place,
To portion out its part;

'Tis only when we let it climb
O'er holier heights and more sublime
Than earthly love should go;
'Tis only when we let it creep
Across the gifts that we should keep
For God, it brings us woe.

For let the bind-weed have its will,
Nor human toil, nor human skill
Can keep the garden fair;
But train the bind-weed in its place,
And larger blossom, fairer grace,
Will straight repay the care.

So if the garden of the heart
Be overcome in every part
By love beyond control,
Life's worthy labor cannot speed,
And flower of thought and fruit of deed
Grow never in the soul.

But train that weak and clinging love,
By sturdy props, to wave above
Life's work, and give it grace;
No longer then a parasite,
Love clothes with garlands of delight
Its own appointed place.

For CANADIAN LIVE-STOCK AND FARM JOURNAL

Cultivation of Flowers.

There is in all of us, whatever our business or occupation, a time which this does not entirely fill—a time which, if not filled in with some change and that an interesting one, will be wasted.

Many are the things resorted to, to take up this space with more or less success, varying with the individual and his tastes. Viewed from all standpoints, perhaps none does this better than the cultivation of flowers. Rare specimens or kinds difficult to manage are not required, but flowers that may be kept conveniently, whose growth may be watched, and which will bloom occasionally, and perhaps render a perfume. They respond quickly to care. Their beauty is restful, and a complete change to one's other duties.

From so simple a beginning one's interest is aroused in these "relics of Eden," and we begin to wish to know more of them? How do they grow? What kinds of soil do different flowers require? How so beautifully tinted. Such questions demand an answer, and lead us to read for ourselves, where we may find more than sought. Even an elementary botany will give us much satisfaction, giving us the different parts of the flower and much information about our familiar friends—the wild flowers. If some morning our plants are frozen, we may also find the way in which it affects them.

Beside being interesting and instructive, the more we study them, the more we see of the wisdom and beauty of the Creator, and these the microscope will further reveal, marvelous to the minutest detail.

FOREST LEAVES.

"He Called Me Whittaker."

Hero worshippers have a better time of it than the heroes who have to submit to their worship. The latter (including all distinguished men) are largely at the mercy of a class of admirers who are too obtuse to see any violation of good manners or taste in their pursuit of interviews and autographs.

William Warren tells a delicious story about a St. Louis man who went East last summer and hunted up the poet Whittier. He found the quiet old Quaker poet trying to hide from civilization in a farm-house near Nahant. He had gone there to escape just such bores as the St. Louis man was.

At first he declined to see the visitor, saying that he was not feeling strong, but the Missouri man was so persistent that at last Whittier yielded, and he was admitted. He pounced upon the poet, and nearly shook his arm from the socket. He declared that he adored the poet's work—in fact, he read nothing else.

He asked Whittier to write his name a few hundred times on a sheet of note paper that he might distribute his autograph among his friends, and it was all the poet could do to keep the impetuous visitor from cutting the buttons from his coat to take away as mementoes.

"And all the time," said Whittier, pathetically, as he told his adventure, "he called me Whittaker."—*Youth's Companion.*

Jottings.

The 43rd Provincial.—This fair will be held in Kingston this year, from Sep. 10th to 15th. All necessary information may be had by applying to the Secretary, H. Wade, Toronto.

Bargains.—The attention of farmers is directed to the Combined Reaper and Binder, and Fanning Mill (new) offered for sale cheap by Stock Journal Co. See advt. on inside front cover.

Registrations of Jerseys.—During the year 1887 there were registered in the Am. J. C. C. R. 8,608 animals, of which 2,208 were bulls and 6,328 cows, an increase of 308 over the previous year.

Correction.—The statement occurs in the account of the London Shire Horse Show, p. 135 of last issue of JOURNAL, that Prince William (3956), repeated his victory of "1886." It should read "1885."

The Western Fair.—The Western Fair this year will last nine days, from the 20th to 29th September. It will be conducted on a larger scale than on any former year. Entries for live stock received up to 15 Sep., for all other exhibits to 12th Sep. See advertisement.

Manitoba.—Mr. James Sidey Upper, of Two Rivers, Man., writes: "There is a very large emigration to this country this spring. A large numbe. of horses are being shipped here for sale; the number sold at Brandon alone this spring is over four hundred. Seeding commenced April 16th; somewhat later than usual."

The Industrial Exhibition.—Prize lists for the Industrial Exhibition to be held at Toronto from the 10th to the 22nd of September next, have been issued. The book is very neatly gotten up, and is superior to any of those previously issued by the Association. Mr. Hill, secretary of the Toronto exhibition, will be glad to send copies to any of our readers who may desire them, if they drop him a post card to that effect.

Farmer's Picnic.—We are authorized to announce that a Farmer's Picnic will be held on the Clearville Stock Farm of Mr. J. R. Martin, C. C. A., Cayuga, Ont., on the 21st June Games and other entertainment will be arranged for. Visitors will be met at trains on the Canada Southern and Air Line railways, and conveyed to the grounds. There will also be an exhibit of farm implements. Addresses will also be delivered on farm topics by prominent speakers. Ladies specially invited. No gate money.

Farmers' Institutes.—Our counsel is repeatedly asked as to the best methods of arousing interest amongst farmers who care for none of those things. In the month of June a good rousing picnic with speakers who can say a good deal in a little time, and controlled by a chairman who can easily bend the multitude to his will, will serve a good purpose. Some adapted to the work should, before the meeting is held, be appointed to secure members on the grounds. None of these picnics should be held later than June 25th, lest they interfere with hay-curing.

Flax Culture.—EDITOR CANADIAN LIVE-STOCK AND FARM JOURNAL, SIR,—Your article on Flax Culture may be misleading to some, as the price paid by the millers is only $12 per ton for the straw with the *seed on*. The average crop of seed is from 10 to 12 bus. per acre and the fibre when well-dressed averages 200 lbs. per acre, and the tow, both fine and coarse, generally pays for the scutching.—J. A. Donaldson, Toronto. [We shall be glad indeed to get any information on the subject that will be helpful. Our aim is to scatter light, let the rays be caught up by whom they may.—Ed.]

Sheep Dip.—Mr. James Cameron, East School, Carmyllie, in a paper on the management of black-faced sheep, gives the following as a very suitable mixture to be used as a sheep dip: 1 gal. carbolic acid, 2 lbs. arsenic, slowly dissolved in about 2 gals. of boiling water, 3 or 4 lbs of common washing soda added and the mixture poured into about 90 gals. of water. Arsenic is objectionable, as the noses of the animals must be carefully kept from getting a dip into the mixture. But the arsenic may be left out, and about half a gallon of the acid put in instead. The above would do for about 100 sheep.

Jersey Organization.—An Association designated as the Ontario Jersey Cattle Breeders' Association, with Dr. L. H. Yeomans as provisional president and Henry L. Drake as secretary, both of Mount Forest, is under process of organization there. A circular has been issued containing an outline of the proposed constitution and details of organization, also a form of application to be signed by those who are desirous of becoming members. Suggestions as to any amendments in the proposed constitution are also requested. Any further particulars can be obtained by writing the secretary.

A Question for "Clydesdale."—To the Editor CANADIAN LIVE-STOCK AND FARM JOURNAL, SIR,—Would "Clydesdale" be so kind as to let those who are most interested know, through your paper, one of the vital questions in the breeding of Draught horses, viz., what are the points which make what he styles the *king* of Draught horses or Clydesdale entitled to such high praise. As this is the time of year for horse breeders to select their sires, I, for one wish to gain all the information on this subject I can, and he will, I am sure, confer a favor to very many of your readers by so doing.—D. Messenger, Guelph, 20th May, 1888.

The Late John Chas. Morton.—Mr. John Chas. Morton, the able editor of the *Agricultural Gazette*, London, Eng., died suddenly on May 3rd, at the age of 67. He was a nephew of the celebrated Dr. Chalmers, and like his uncle an indefatigable worker. His career has been singularly useful. The *Agricultural Gazette* is the out-growth of his life. His name and labors are intimately associated with the growth of the Royal Agricultural Society, and with many other movements of great value to British Agriculture. Mr. Morton was energetic, kind, generous and much beloved by the large and influential circle amid which he moved.

Arab Horses for Canada.—The Hon. Louis Beaubien, of Montreal, is showing much enterprise in the line of stock improvement. His agent in France, Mr. E. De Mandat Grancy, we learn from the Montreal *Gazette*, has purchased for him two Arab stallions once in the possession of the Khan of Khiva. They belong to the contingent of fourteen stallions and mares secured from the Khan's stud after the taking of Khiva by M. De Mailly Chalon, who took part in the Russian campaign against that ruler. The Khivan variety of horses is accustomed to a climate where the cold is often extremely severe. In such a case they should be admirably adapted to a country like ours. The very fine Percheron mare Fanchette, by Monarch, has also been selected for Mr. Beaubien's stud.

Assistance to Importers.—We desire to call attention to the advertisement in another column of Mr. E. G. Preece, pedigree live stock agent, Shrewsbury, England. Mr. Preece is one of the best authorities in Great Britain on Hereford cattle and Shropshire sheep, hence his services should be of much value to those who are desirous of making selections in either of these lines. The register of pedigree live stock for sale by private treaty which he keeps, contains full particulars as to breeding, character, etc, of pedigree animals from all the best flocks and herds in the counties of Shropshire and Herefordshire. We can readily see the disadvantage at which an importer must often purchase, as to prices paid, who buys directly, hence the wisdom of securing the assistance of one who is thoroughly posted. Mr. Preece gives for reference the editors of any of the agricultural journals.

The Buffalo International Exposition.—True to the characteristics of this go-ahead people, Buffalo, a city of no less than 250,000 inhabitants, opposite our little village of Fort Erie, is establishing a great International Exposition which will be opened on Sep. 4th, of the present year, and close Sep. 14th. Magnificent buildings are being erected, and cash premiums will be paid amounting to $100,000, the premiums on horses alone amounting to $13,450. Accommodation is being fitted up for 800 head of horses and as many cattle, besides sheep, swine and poultry. Premiums will also be offered on pigeons and blooded dogs. Buffalo is a great railway centre; no less than 22 lines converge there, and 248 passenger trains arrive and depart daily. The officers are evidently live men, and the Secretary, C. W. Robinson, is just the man apparently for the position. Its success, we believe, is a foregone conclusion. May our stockmen well sustain the honor of Canada at this exhibition.

The Outlook for 1888.—The bulletin issued by the Ontario Bureau of Industries, May 15th, 1888, does not paint the prospect for the season's crop in roseate colors. It represents the outlook for fall wheat as unpromising, which we feel safe in assuming has very materially darkened since that date. The causes are dry weather last autumn, but more especially dry cold winds in April. Clover will be almost a failure, as much of the seed sown last year failed to grow. The Spring crop went in in fine condition, and may be good, but rains must come soon or it too will be gone. The outlook for fruit is fair. Cherries have suffered much from black-knot in the trees. Peaches, except in the Niagara and Essex regions, will be a failure. Farm supplies are consumed in nearly all parts, so that a surplus, always a safe guard to a stockman, cannot be held till next year. Let the farmers weigh this well, and grow millet, corn, anything that will furnish good feed. Live-stock are thin owing to a scarcity of feed. The average rate of wages paid to farm laborers is about $3 per month less than it was five years ago. The present average with board is $16.39 per month, and without board, $24.28.

Live Stock Sales in the West.—At the sale of Mr. Luther Adam's, recently held at Dexter Park, Chicago, 25 bulls sold for an average of $308; 26 females brought $281 each,

and 51 animals sold brought $15,015 or an average of $294.41. Mr H F Brown sold at Minneapolis on May 8th, 8 bulls at an average of $265, and 31 females for $259.20 each. The 39 head sold averaged $260.44. Mr. W. S King sold 9 head Shorthorns at same place for $133.90 each. Mr. J. J. Hill, of North Oaks, on the 9th May, sold 33 females at an average of $385.15, and 4 bulls at an average of $408.75. The 37 head sold averaged $360.54. On the 10th, at North Oaks, 36 head of Aberdeen Angus females brought an average of $183,55, and 6 bulls an average of $133.35. The 39 animals sold averaged $168. Mr. Brown's Wild Eyes Winsome 4th, sold to Thos. Lowry, Minneapolis, for $1,000. Mr. Hill's Grand Duchess of North Oaks 2d., was bought by W. Steel, Ionia, Mich., for $1550, and a similar price was paid for North Oaks Lady of Oxford 2d. The highest price was paid by B. C. Rumsey, Buffalo, N. Y., who gave $1,900 for Duchess of Rowfant 2d. The North Oaks herds were brought out in fine shape by the very competent manager, Mr. John Gibson, but the stormy weather kept a large number away from the sale.

Stock Bulls for Collynie.—We learn from the Aberdeen *Free Press* that Mr. Wm. Duthie, Collynie, has just purchased from Mr. A. Cruikshank, of Sittyton, the beautiful red yearling bull Norseman, got by Strong Bow (52220), dam Nonpareil 20th, by Cumberland (46144). This bull was considered by Mr. Cruikshank the best of last year's crop and retained for use at Sittyton when so many good ones left for America in December last. Since then he has made rapid progress and is now a rare good one even for Sittyton. He is accompanied to Collynie by his sire Strong Bow (52220), also a red, by Dunblane (47792), and out of the dam Silvery, by Champion of England (17526). Strong Bow has been used at Sittyton for the last three seasons and has left much excellent stock. He is from the same dam as the Royal Northern Challenge Cup bull Shapinshay (45581), of whom Mr. Duthie had so favorable an experience. Mr. Duthie is not content without securing the best of the good when he is selecting a stock bull. Mr. Lawson, manager for Lady Lovat at Beaufort, has also purchased from the Collynie herd the red yearling bull Lord Violet, the third bull in succession that has gone from Collynie to Beaufort, who worthily follow the predecessors Daybreak (49360), and Crown Prince (51048). Lord Lovat, very perfect in shapes, was sired by Mr. Duthie's Field Marshall (47870), and has for dam the dark roan, Sittyton-bred cow Violet Blossom, by Viceroy (32764).

Wallace's Year Book.—The third volume of this book has just come to hand. It contains summaries of all the *trotting* and *pacing* performances of the year 1887, in which any heat was trotted or paced in 2.40 or less, carefully compared with and corrected from the official reports of the National Trotting Association and the American Trotting Association. It also gives a complete 2.30 list of trotters and pacers from the earliest dates to the close of 1886, with best records to the close of 1887; a table of new 2.30 performances of 1887, with those that lowered their records that year; the table of great performers and producers under their sires; table of sires of dams of performers; table of great brood mares, and table, fastest records. We regard this book as invaluable to the lover of the thoroughbred horse. The labor involved in its preparation has been simply enormous, and its completeness is exceedingly helpful to all desiring this class of information. Amongst the improvements of this volume over the preceding ones are the extension of pedigrees and other historical facts given of all sires and performers, and the handsome illustrations of such famous animals as Hambletonian, Almont, Grey Wilkes, George Wilkes and Green Mountain Maid. The book is edited and published by Mr. John H. Wallace, 280 Broadway, N. Y., and will be mailed to any address for $2.10 per copy, with special rates for clubs. It contains 424 pages, and is suitably bound in cloth.

Meeting of the Executive of the Dom. S. H. B. Association.—At a meeting of the Dominion Shorthorn Breeder's Executive Committee, held in the board room on the 23rd of May, the following members were present: John Dryden, M. P.P., President, in the chair; other members John I Hobson, James I. Davidson, F. Green, Ed. Jeffs, Geo. Moore, L. E. Shipley, Jas. Hunter, Wm. Linton, Jas. Russell, Hon. C. Drury and H. Wade, Secretary. After reading and adopting the minutes of the last meeting, John R. Martin, of Cayuga, was heard asking whether the Association would request of the Dominion Government to allow cattle after being exhibited at Buffalo or some other of the American shows, to be returned to Canada without the usual quarantine delay. The Association declined to interfere. A letter from the solicitor of W. Pettit, of Burlington, accompanied by an affidavit from Lewis F. Allen, of Buffalo, re the bull Roger, was read. As no new evidence was stated, the president and secretary were empowered to consult with a solicitor. Some disputed pedigrees were examined and evidence heard in regard to them; also some details in office management were agreed to. The 3d vol. was presented almost completed. It was ordered to be sent to the members of the Association as soon as received from the binders. The tender of Hunter & Rose being the lowest for the 3rd vol. was also accepted, with the condition that it be completed in three months after its commencement by them. Mr. Davidson and other gentlemen expressed great satisfaction at the success of the deputation consisting of Mr Dryden and Mr. Wade, appointed to wait upon the American Breeders' Association last winter in Chicago. As the result of their visit the Dominion book was recognized, and a new rule adopted, allowing Canadian bred cattle of all ages to be recorded at a uniform charge of $1, and it was ordered that the railway fares be paid by the Association. It was also resolved that the Dominion Government be requested to send monthly or tri monthly returns from the several quarantine stations to H Wade, the secretary of the Agricultural and Arts Association, for the use of the office and for the benefit of the different associations, giving the number of animals of the several breeds of horses, cattle, sheep and pigs arriving, and whether for Canada or the United States.

Stock Notes.

Horses.

Mr. Robt. Ness, Howick, P. Q, writes: "I enclose a few notes of how I succeeded last season. Have sold all the last year's importations of stallions at fairly remunerative prices. The Laird o' Balfary goes to the most enterprising society in the province of Quebec—the county of Beauharnois. They have now three of the best breeding Clydesdales ever imported. McLae, a grandson of the great McGregor, has been secured by Jeremiah Murphy, of Huntingdon Co. Press on, the fashionably bred son of What Care I, by the celebrated sire Prince of Wales, goes to John Lockerby, of Beauharnois Co. Pride of Woodside, another grandson of Prince of Wales, went to Wm. McDowell, of Havelock, Huntingdon Co. Conquering Hero, sire Sir William, has recently been sold to Chas. Normandin, Chambly Co., Que. The sales made earlier were reported in the Feb. number. I have still Fullwood Prince, the very promising son of Harold. I may say that for size and quality of bone he is unequalled in the Dominion and seems to take well with my patrons. I intend leaving for Scotland on the 24th (May), and will, in all probability fill the empty boxes before the fall, if spared and in health. The seed is mostly in here some time ago. On the 14th we had all sowed; the weather since then has been rather backward and cold. Your JOURNAL is greatly prized here, and it should be when so ably managed. I hope you may still be better supported."

Shorthorns.

Mr. D. K. High, Jordan, Ont., mentions: "Since last writing you I have sold the fine Shorthorn bull calf Gold Dust, got by my Golden Drop bull, Golden Robe, imp., by Vermont (47193), dam, Mildred, by Wellington Chief —2382—, to Mr. Jacob M. Houser, Campden Lincoln County, Ont. Gold Dust is red and a little white, good sire, and promises to make a Superior animal.

To our sore regret the manuscript of sale of Shorthorns recently held by Mr. Jas. S. Smith, Maple Lodge, Ont, so kindly furnished by the owner for the May issue, was lost by a messenger, and our efforts to recover it have been vain. We may say, however, that the sale was a decided success, considering the times. Although only a draft sale, the 9 females sold averaged $111 each, and 8 bulls $120. The average for the 17 head was $115. The herd still numbers from 30 to 40 head, and is made up of famous Bates milking strains, with some animals of Cruikshank ancestry. The herd is headed by Duke of Colonus 9282.

Mr. J. Gibson, North Oaks, managing the mammoth estate of J. J. Hill, writes under date of April 21st: "Your valuable and improving JOURNAL ranks amongst the best of its class. Since I last wrote a heifer that was sold at my sale, March, 1886, for $400, was resold along with a draft from this herd and some from N. P. Clark's, for $1100, making the highest figure of the 60 head sold. This was a year ago. May 9th and 10th we are selling about 100 head of Shorthorn and Angus cattle at this farm. They are a good lot and in fair condition. Have had a very cold winter and still cold. Only two or three nights up to this date without frost. Snow about all gone and no frost in ground. We are already sowing. Do not grow much grain on this farm; shall plant about 50 acres of roots. Of last year's crop we have yet a goodly supply."

The Messrs. J. & W. Watt, Salem, Ont., report as follows "To-day we have shipped to Mr. J. E. Smith, Beresford Stock Farm, Brandon, Man., 28 head of Shorthorns, comprising a choice lot of young bulls, cows and heifers, the get of Harmpton Hero and imp. Lord Lansdowne, the latter being of the shipment. He goes to head the herd, along with Sunrise, by Barmpton Hero, sold by us two years ago to Mr. Smith along with Lady Irvine, both of which have been very successful prize-winners in all the leading exhibitions in Manitoba. This is the largest sale we have ever made to one person, and have always had a ready sale for all that we could raise, without the necessity of putting them up by auction. Our herd still numbers over 50 head."

Messrs. R. Rivers & Son, of Spring-hill Farm, near Walkerton, mention that they have just sold the last of their yearling bulls. All went at fair prices. The following farmers were the purchasers: Labold Kramer, Mildmay; James Pinkerton, Pinkerton; John Hinghan, Walkerton; Gavin Kirkwood, Chesley; Peter Grant, Teeswater; John McIntyre, Brant Tp., and Joseph Allen, Greenock, all in the County of Bruce, and 2 Berkshire boar went to John Marshall, Williscroft P. O. This season's crop of calves, from their 1st prize yearling bull "Victory," are a nice even lot, chiefly heifers. Victory, with two top crosses of Cruickshank blood, is growing to be a fine animal and good stock-getter. The flock of Southdown and Leicester ewes have given a good increase this spring. 42 lambs from 32 ewes, all strong and healthy, from 1st prize and imported sires. Just the place to select a good ram lamb or shearling for the coming season.

Mr. Geo. Gould, sr., Rutherford, Ont., writes: "I always like to hear the opinions of people in regard to raising good stock, good pedigrees, and good colors. The color makes a great difference in the prices. Have sold my two yearling Shorthorn bulls at good prices, according to the times, $100 each. They were both dark red in color. Since last fall show-time dozens

were here to see them. Some would offer $30, some $50, and some $75. I wanted the $100, and would have castrated them rather than have sold such as there for less. Parties are offering light reds and whites, black noses, and such like, almost for a song, and this spoils the sale of those of a better quality If our brother farmers would ship such to Toronto or Montreal, when from two to three months old, they would save money. One of my bulls went to Jas Smith, Camlachie, and the other to Jas. Langstaf & Sons, Wallaceburg, Ont. Have a fine roan bull calf, Lord Stanley, which weighed, when dropped, 98 lbs. Sire, Commander, by imp Vermillion (50537), bred by F. R. Shore & Bro., White Oak, and dam, Scottish Rose. I would like any one to show how a good calf can be sold for less than $100 when it has sucked the cow for seven months, and is fed chop twice a day. Our stock bull is Seraphina Duke, by 6th Earl of Antrim —1212—, and bred by J. Cowan & Sons, Galt.

Aberdeen-Angus

DISPERSION SALE OF THE POLLED ANGUS CATTLE owned by M. Boyd & Co., Bobcaygeon, at Dexter Park, Chicago, May 23rd.—Twenty-eight cows and heifers aged two years old and over, sold for $11,335, or at an average of $412 ; 6 one-year-old heifers for $1,690, averaging $281 ; 6 heifer calves for $1,535, averaging $256 ; 3 doubtful breeders, $665, averaging $221 ; 19 bulls and bull calves, $4,455, averaging $234 ; 62 head of both sexes and all ages from 6 months to 12 years old, $19,880, averaging $320. Details : To M. P Brown, Davenport, Iowa, Pride 2d of Big Island, 3 years old, $645 ; to A. B. Mathews, Kansas City, Mo., Pride of Verulam, 2 years old, $700 ; to T. W. Harvey, Chicago, Ill., Rose of Bobcaygeon, 3 years old, $605 , Exile, 4 years old, $530 ; Blue Bell 2d, of Big Island, 3 years old, $700 ; to B. R. Pierce, Creston, Ill., Lulu Windsor, 4 years old, $400 ; to A. B. Mathews, Kansas City, Mo., Lucia Windsor 2 years old, $500 , to Geo. Geary, Brookfield, Mo., Coquette 10th, 8 years old, $450 ; to T. W. Harvey, Chicago, Coquette of Big Island, 5 years old, $500 ; to Ed. Reynolds, Prophetstown, Ill., Blue Bell 3d, of Big Island, 5 years old, $420 ; to T. W. Harvey, Chicago, Blue Bell 3d, of Big Island, 2 years old, $500 ; to F. M. Mills, Des Moines, Iowa, Dutchess of Verulam, 5 years old $400 ; to T W. Harvey, Chicago, Rose of Big Island, 4 years old, $405 ; to F M. Mills, Des Moines, Iowa, Lucy 9th, 6 years old, $420 ; to T. W. Harvey, Chicago, Victoria 01 Verulam, 2 years old, $390 ; to F. M. Mills, Des Moines, Iowa, Isabella Windsor, 5 years old, $300 ; to H. Taylor, Earlham, Iowa, Rose of Verulam, 2 years old, $300 ; to B. R. Pierce, Creston, Ill., Countess of Big Island, 4 years old, $320 ; Countess of Bobcaygeon, 3 years old, $300 ; to A. B. Mathews, Kansas City, Mo., Elena 4th, 6 years old, $400 ; to Benton Garinger, Washington, C. H. Ohio, Minnie of Mary-Park, 8 years old, $325, Mary 2d of Knockiemill, 3 years old, $325, Mayflower of Verulam, 3 years old, $310 ; to B. R. Pierce, Creston, Ill., Minerva of Big Island, 5 years old, $270 ; to F. M. Mills, Des Moines, Iowa, Caroline of Verulam, 3 years old, $310 ; to J. D. Brooks, Hedrick, Iowa, Countess of Verulam, 2 years old, $295 ; to F. M. Mills, Des Moines, Iowa, Fair Maid 3d, of Earnside, 6 years old, $280 ; to H. S. Wellington, Dubuque, Iowa, Pauline, 11 years old, $215 ; to T. W. Harvey, Chicago, Victoria 2d of Verulam, 1 year old, $230 ; to A. B. Harvey, Chicago, Coquette 2d of Big Island, 1 year old, $400 ; to B. R. Pierce, Creston, Ill., Pearl of Verulam, 1 year old, $270 ; to A. B. Mathews, Kansas City, Mo., Julia 3d of Verulam, 1 year old, $310 ; to Benton Garinger, Washington, C. H., Ohio, Lady Alta, 1 year old, $280 ; to J. C. Spangler, La Rose, Ill., Lucy of Verulam, 1 year old $200 ; to Wallace Estill, Estill, Mo., Lucette Windsor, 8 months old, $230 ; to T. W. Harvey, Chicago, Ill., Eva of Verulam, 8 months old, $400 ; to Wallace Estill. Estill, Mo , Duchess 2d of Verulam, 8 months old, $300 ; to V. Barber, Decatur, Ill., Pearl 2d of Verulam, 10 months old, $205 ; to B. R. Pierce, Creston, Ill., Minnie of Verulam, 8 months old, $200 ; to J. D. Robbins, Hastings, Iowa, Fair Maid of Verulam, 7 months old, $200. The bulls, principally young calves and yearlings, were pretty well distributed to breeders in Illinois, Minnesota, Iowa, Nebraska, Kansas, Ohio, Missouri. The entire lot of 62 head were sold by auctioneer, Colonel Judy in 4½ hours, being an average time of four minutes per head, and although two days were claimed for the sale the whole lot was disposed of during the first afternoon.

Ayrshires.

We learn from Mr E. W. Ware, of this city, that he has sold to Mr. Jacob W. Miller, of Victoria, B. C., eight head of Ayrshire cattle.

Jerseys.

The sale of the famous little Jerseys held at Oaklands by Mr. V. E. Fuller, on May 1st was very successful, notwithstanding the unfavorableness of the weather, which interfered seriously with the attendance, yet it was fairly good. The following is a list of the cattle sold with the names of the buyers and the price paid : Bull calf, Canada's John Bull 5th, Wm. Rolph, Markham, $1210 ; bull calf, Columbine's John Bull, Mr. Lock, West Paris, Me., $440 ; cow, Etta of Riverview (9338), Hon. J. H. McDonald, Estanaba, Mich., $330 , cow, Eastern Star (20145), A. M. Dodge, New York, N. Y , $235 ; cow, Albert's Queen (20631), A. M. Dodge, $230 ; cow, Gilead's Daughter (21264), J M. Loutridge, Hamilton, $215 ; cow, Lady Coreopsis 2nd (44766), John Turner, Oakville, $200 ; cow, Jetsam (32893), John Turner, $175 ; heifer, John Bull's Queen (49662), Wm. Rolph, $195 ; cow, Lady Brownie (32889), W. F. Cochrane, Washington, D. C., $180 ; heifer, Surprise Pogis (49671), Wm. Rolph, $165 ; heifer, John Bull's Jenny (49666), Wm Rolph, $165 ; heifer, John Bull's Fancy (49672), David Duncan, Don, $155 ; heifer, John Bull's Pussie (49663), W. F. Cochrane, $150 ; heifer, Lady Brownie's Duke (16870), J. L. Clark, Brampton, $160 ; heifer, John Bull's Polypusa (49664), W. F. Cochrane, $150 ; heifer, John Bull's Creamella (49668), David Duncan, $145 ; heifer, Beatrice Pogis (49669), Wm. Rolph, $145 ; heifer, John Bull's Coreopsis (49665), Wm. Rolph, $140 , heifer, Doe of Coplay Springs (32443), John Turner, $125 ; cow, Guy's Flower (32881), John Turner, $120 ; heifer, Belle of the Manor (32891), W. Defoe, $120 ; cow, Lady Artist (17965), John Turner, $125 ; cow, Dolly 2nd (32883), John Turner, $120 ; cow, In Time (32887), W. F. Cochrane, $115 ; cow, Cocotte 2nd (26046), J. W. Miller, Victoria, B. C., $110. The 26 animals sold aggregated $5620, or an average of $216.16. This is a higher average, we believe, than has been realized at any sale of any kind of stock in Canada, or probably even in the United States, since the commencement of the year. A few Jersey grades were also sold at relatively high prices, demonstrating the estimate put upon this class of stock by the public.

Sheep and Pigs.

Mr T C Patteson left Canada, on three month's leave of absence, on the Sarmation from Quebec, May 17th. He is likely to bring a fine lot of Shropshire sheep back with him.

Messrs. John Snell's Sons, Edmonton, report a steady demand for good Berkshires at fair prices Their late sales included a pair to H. G. Nichol, Nashville, Tenn ; 1 boar to A. G. Wellwood, Unity, Ohio , 1 boar to T. S. Stewart, Franklin, Mo. ; 1 sow to J. Oughton, Crystal Lake, Man. ; 1 sow to E. C. Cook, Norwich, Ont. ; 1 boar to Wm. Trestaim, Strathburn, Ont.

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