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THE NOVA SCOTIAN
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CONTENTS:

THE PROVINCIAL EXHIBITION.

His Excellency the Lieut. Governor, in opening the Provincial Parliament on 30th January, referred to the contemplated Exhibition in the following terms:—

GOVERNOR'S SPEECH.

"There is one subject to which I deem it necessary to call your attention, in order that you may make some provision from the Treasury. I refer to the contemplated Industrial Exhibition. Such Exhibitions are calculated to develope and display to advantage the Industrial Resources of a country, and merit as liberal support as the circumstances of the Province will justify."

ANSWER OF THE LEGISLATIVE COUNCIL.

"Industrial Exhibitions have proved a great advantage to those countries wherein they have been held, and we shall give our best consideration to any legislation which shall tend to make the proposed Exhibition a successful display of the resources and industry of the country."

ANSWER OF THE HOUSE OF ASSEMBLY.

"We are aware of the advantages of Industrial Exhibitions, and, as many persons have probably been preparing for that which has been contemplated, we shall make such provision from the Treasury, for its encouragement, as the circumstances of the Province will warrant."

MEETING OF GENERAL COMMITTEE OF PROVINCIAL EXHIBITION.

A meeting of the General Committee was held in the Legislative Library on Wednesday, 12th Feby. The Hon. the Chief Justice in the Chair. There was a large attendance of the Committee, and several Members of the Legislature were present and took part in the proceedings. The special subject of discussion was the proposal to erect a suitable permanent building. Several gentlemen in the city having expressed their willingness to erect such a building, at a cost to themselves of $20,000, on certain conditions, applications had been made to the City Council for permission to erect it on a piece of waste ground at the Common; but for some reason the negociations of the Committee had not been successful. The Mayor, however, stated that after the explanations that had been given, he had no doubt the Council would comply with the request, as far as in their power, and otherwise co-operate with the Committee in carrying out the Exhibition to a successful result. It was stated that both the Government and the Legislature would, no doubt, facilitate in every way any arrangements that were necessary to enable the Council to give the use of the ground. A prominent Member of the Government stated that a grant of $6000 might be expected from the Legislature.

ROTATION OF CROPS.

If Nova Scotia is to become a grain-growing country, a rational system of Rotation of Crops such as is employed in other countries, must be adopted.

Some plants require certain inorganic matters in larger quantities than others, and it is upon the knowledge of this circumstance that the rotation of crops is founded. The soil is certainly losing inorganic matters. Oats contain 4 per cent of ashes, hay 9 per cent. A ton of hay removes 180 lbs. of ashes, and these ashes are the very substance required by another ton of hay. By constantly cultivating the same crop, we deprive the soil, to the depth of which the roots extend, of certain materials, while others are left

nearly untouched; but by alternation of crops, the latter may be made available for the purpose of growth. Farmers on this account have different crops succeeding each other in the same field. Wheat, barley and oats, are described as silica plants; peas, beans, and clover, as lime plants; turnips and potatoes as potash plants. These crops from the difference in their predominant inorganic ingredients are made to alternate with each other. The three rotations most commonly followed are the four-course shift, or what is known, as the Norfolk system, the five-course, and the six-course. The four-course shift usually consists of 1st year, turnips; 2, wheat and barley, and in many cases wholly barley; 3, grass; 4, oats. The five-course is formed by simply allowing the grass to remain for two years; while the six-course shift, or system of rotation, consists of—1, turnips; 2, wheat and barley; 3, clover; 4, oats; 5, beans or potatoes; 6, wheat. The system of rotation, in other words the number of years over which it extends, varies in different countries.

In some virgin soils, rich in phosphates and other inorganic matters, the same plants may be cultivated successfully for many years. This occurred in Virginia, where for 100 years, the same crops were grown without manure; but ultimately exhaustion took place, and the crops became deficient. On lava soils there are often good crops. Thus the soils of Versuvius, formed by disintegrated lava produce excellent crops for many years in succession. It must be remarked, however, that frequently important materials exist in the soil in an insoluable state, and that unless means are taken to render them soluble the plant cannot avail itself of them. A soil thus considered as comparatively barren, may in reality have abundant materials of fertility in its composition.

There are few cases, says Sir John Sinclair, where the same land will constantly yield one and the same plant, or where a repetition of the same crop, or indeed the same species of grain, without some interval, is not found to be injurious. Hemp is one exception to that general rule; for in Russia, the same ground invariably produces it, without either fallow or any mixture of crops, but in consequence of great quantities of putrescent manure being annually applied. It appears from Mr. Butterworth's experiments that carrots have been successfully cultivated for seven years, on the same ground. In some instances, Bear or Big has been sown for years on the same ground in succession, but in general, a change, or rotation of crops, has been found not only expedient but necessary. Indeed every farmer who conducts his own operations on rational principles, will be attentive to such a change.

In theory, there is certainly no absolute necessity for alternation of crops when dung and labor can be readily procured. (Vide Boussingaults "Economic Rurale," p. 452 et seq). But, says the Chemist-Farmer of Bechelbronne, "there are nevertheless certain plants which cannot be re-produced upon the same soil advantageously except at intervals more or less remote. The cause of this exigence on the part of certain vegetables is still obscure, and the hypothesis for clearing it up far from satisfactory."

Without following out the subject more fully in its chemical ramifications, we shall proceed to discuss its practical details. It has been pointed out by Sir John Sinclair that the propriety of adopting any particular rotation must depend on a variety of circumstances, more especially the following: 1, On the climate, whether it is wet or dry, wet climates for instance being favorable to the production of oats, dry climates for peas, and for the harvesting of beans; and the rotation to be adopted in each climate ought to be formed accordingly; 2, on the soil; for clay, loam, or sand, have each various crops best calculated for them; 3, a rotation must also depend *upon the situation of a farm*, in regard to the probable sale of its productions, for instance a field of Potatoes near a great town or on a line of railway or near a wharf, would realize a much larger sum than one of the same size would realize in a remote part of the country; 4, on the *means of improvement* by extra manure, as lime, marl, sea-ware, town dung, &c.—"The celebrated Dunbar rotation of, 1, Turnips; 2, Wheat; 3, Clover; and, 4, Wheat, could not according to Sir John, have been possibly carried on without the command of sea-ware, which that neighbourhood possesses: and 5, the rotation must also depend *on the state or condition of the soil*, whether it be old cultivated land, or a new improvement; whether it be land which has been cropped judiciously or by exhausting management; whether it is in good heart, or the reverse, whether it is foul or clean.

The Historian of Scottish Husbandry has laid down certain maxims, which have been recommended as the best calculated to lay the foundations of judicious systems of rotation.

1. A farmer must have more than one kind of crop upon his farm; indeed he could not otherwise carry on his business. For instance if he had nothing but wheat, he might not be able to procure hay and oats, and so on. By having various articles, also, he does not run much risk, either in regard to the season, or to the sale of produce afterwards. Besides if a farmer were to cultivate but one crop, he might often be materially affected by one unfavorable season; or, if the article which he raised was not saleable, the land had better have remained unploughed.

2. To have the crops so arranged, that the labour of ploughing for each, or sowing, weeding, reaping, &c., shall proceed in a regular succession, and that the labor or business be not too much crowded on the farmer at any one season of the year, nor any quantity of extra stock rendered necessary; but that the crops produced on the farm, shall be cultivated by the same hands, and with the same cattle. To this general rule, hand-hoers in spring and summer, and reapers in autumn, must form an exception.

3. To avoid forcing crops, or frequent repetitions of the same articles or species; as a diminution both in quantity and quality, except in very rare instance, never fails to be the consequence. By frequent repetition of the same crops (as we have already observed on the authority of Boussingault and others) the soil loses stamina, which neither manure nor culture can replace, and it is also to be kept in view that great luxuriance in vegetation can be made to take place without much real productiveness as we see where grain is sown on the sites of dunghills.

4. To avoid two white crops in succession, but alternately to have white and green crops. On this head it is contended that it is impossible to lay down general rules without modifying them by such circumstances as are often only to be known by real practitioners; and though the system of alternate green and corn crops is beyond question, an excellent one in general, deviations from it may sometimes be admitted; for instance, when old rich leys are broken up, two crops of oats in succession may be permitted. This however has been objected to by some of the ablest farmers, who maintain, that on dry lands the second crop should be either turnips or potatoe as the situation answers, and on clays either beans or fallow, which in general will pay better than a second crop of oats.

5. To avoid crops likely to encourage weeds; and founded on this principle, Lord Kaimes objects to the culture of pease, which, if not an extraordinary crop, are apt to foster weeds. If the land has been previously fallowed for wheat, and thus cleared of weeds, pease, after wheat may be hazarded. This doctrine however is in a great measure superseded by modern improvements.

6. To raise those crops the most likely to be productive of manure; hence green crops are to be recommended, and barley is to be avoided, producing when compared to crops, the smallest quantity of straw.

7. To arrange the crops so as to keep the land in good condition and increasing, rather than diminishing in point of fertility. This is best accomplished by alternate husbandry (or white and green crops in succession), and giving every

part of a farm the advantage of being occasionally pastured.

8. To commence a lease with a meliorating system, but during the remainder of the term, to crop the land in such a manner, as to reap in moderation the advantage of the improvement that has been made. In farming a rotation, therefore those articles should be included, which are the most likely to afford a profitable return to the farmer.

These "maxims" which originally resulted for the most part, from practical observations and experience, are in many points, well supported by the more precise chemical results of our own day, and are well worthy of the attentive consideration of every farmer.

Communications.

PRACTICAL HINTS ON TILES AND TILE DRAINING.

BY ALFRED C. THOMAS, ESQ.

Windsor, Jan. 25, 1868.

My Dear Sir,—I understand you wish for information respecting the cost of tiles imported by me from New Brunswick. I have not Mr. Lee's list at hand just now, but as far as I can recollect it is as follows:—

1½ inch	$8 per M.
2 "	9 "
3 "	10 "

I am not quite sure about the three inch being ten or eleven dollars, but I am of the smaller sizes. I have been hitherto using two inch; the freight costs me $2½ per thousand. I have supplied a few out of my own lots to people about Windsor, and charged them 1¼ cents, or 20 cents per rod; this includes everything, and half a dollar for breakage.

As I have drained pretty much all the clay land with a sound clean cutting subsoil, I considered it necessary to lay tiles and collars for the future. I accordingly proceeded to New Brunswick on purpose to make arrangements with Mr. Lee to manufacture them for me, and I hope to get sufficient to finish my farm. I think if large quantities were ordered Mr. Lee would reduce his price still further. He also stated that if sufficient encouragement were given him, he would move his machine over to Nova Scotia and manufacture a certain quantity, and leave them with an agent to be sold. I think that when we come to consider that the tile yard is some miles out of St. John, and the tiles are all twice handled before they can be shipped, also the expense of wood near a large city, it is creditable to the manufacturer's enterprise, that after starting this business such a short time, that he can turn them out so reasonably.

Perhaps it is necessary that I should say something about the quality of the tile, as objections have been made to them on that ground before. As regards the material, nothing can be better; they are completely burned, and very hard. The first lot turned out did not compare favourably for straightness with the Elmsdale tiles, and Mr. Lee acknowledges that they cannot make the round ones as symmetrical in form as he could wish, but he has succeeded in making the flat-bottomed ones beautifully straight. As I intend to use all the round ones, with collars, it does not matter if they are slightly misshapen.

With regard to digging the ditches, if you cannot succeed in getting them dug very narrow, one great advantage of tiles is lost. I have had some difficulty in getting the proper tools, and had it not been for the kindness of a gentleman who imported English tools and scoop, and lent them to me for patterns, my work would have been seriously delayed. Ordinary tools will do for all but the last spitting, but for that a peculiar spade and scoop are required. A four feet ditch should only be 1 ft. 6 in. wide on top, and slope accurately to about two inches in the bottom; many good ditchers make them narrower. I pay eighteen-pence a rod for digging and filling a four foot ditch. This is the New England average price. I may give a word of encouragement to intending drainers, that out of eighteen thousand feet of tile drain that I have laid, there has not been a single instance of failure; and wherever we have cut into old drains they have all been running, perfectly free of sediment.

I have made this longer than I intended, but my excuse must be the importance of the subject. I may have something to communicate this winter about the distance drains should be placed apart, and depths, strictly as applied to this climate.

Yours, very truly,

Alfred C. Thomas.

[We have to return our best thanks to Mr. Thomas for his valuable communication, and shall be glad to hear from him again, on the subject of distances and depths.]

To the Editor of the Journal of Agriculture.

SOOT.

Sir,—How often we find people otherwise well informed, who think to put seeds or plants into the ground is all that is needed; and how often I have been told, that the seeds purchased from me came up very well, then languished and died,—the fault always attributed to the seeds or the vendor, parties themselves not dreaming that a little care and attention on their parts would have saved them a disappointment. Thousands, aye millions, of plants are lost annually, for want of a little attention on the part of the grower.

I wish to call the attention of your readers to a substance, which, if rightly used, is one of the best protectors of seeds and plants. The substance I allude to is Soot; and no one who values his own success as a cultivator, will throw away any of this precious article. It is not only a protector of seeds and plants, but it is also a stimulant to the plant if used when growing. It is true it will hinder the vegetating powers of seed, if put in too close proximity of them, but, if judiciously used, it is invaluable. In the first place, to protect seeds from the numerous insects that infest most soils, give the ground a coating of Soot just before sowing the seed, and work it in well with a fork, rake, or cultivator, before the ground is made fit for the reception of the seed; by doing so the Soot will be so well incorporated with the soil, that there will be little danger of its affecting the seed, and it is so obnoxious to insects that they will beat a hasty retreat.

As the young plants appear above the earth, a slight sprinkling of Soot on a dewy morning, or just before rain, helps them to grow strong and robust looking.

The Brassica tribe, or "cabbage family," is very subject to having their roots what is termed "clubbed," and thus thousands of plants are lost yearly which would be saved by mixing equal quantities of soot, cow dung, and clay, with water, until they form the consistency of thick paint, in which dip the roots of cabbages before planting. This is what the market gardener round London calls "puddling," and will prevent the club.

Turnips can be saved from the "fly," by sowing Soot over them on a moist day, when they are an inch or so above the surface, and forming their first leaves.

Soot is invaluable for carrots. Six bushels to the acre, where only twenty-three tons were grown without it, thirty-four tons were obtained by its use.

Sown over the tops of potatoes, and worked into the ground between the rows, it is one of the most useful manures, and fifteen bushels to the acre increased the crop one-third.

Soot, from twelve to twenty bushels per acre, is good for all cereal crops when growing—six quarts of Soot to a hogshead of water. Two hundred and fifty gallons to the acre, diluted in this way, is a good invigorator to the grass crop when in a growing state; but there is no manure equal to fine coal ashes for this purpose.

Soot sown upon wheat or barley on a moist day and immediately harrowed in, especially if it be weak, or if from the wetness or coldness of the season it has a yellow cast; the stimulating powers of the Soot soon improves the colour, and the plant will soon tilter out and furnish the ground.

The best time to sow it is in the evening, when the weather is calm, and

always before rain, because if the weather proves dry the volatile parts are dispelled and destroyed, and the crop not benefitted by it. Care should be taken to sow it regularly, and not too thick, because it has been known to destroy plants entirely, when overdone.

ALFRED SAUNDERS, Seedsman,
168 *Argyle Street.*

A PLEA FOR DEVONS.

Granville, Feb 5, 1868.

DEAR SIR,—If it is not too late, I would suggest an addition to the list of premiums of the Provincial Exhibition. Devon cattle are, I think, not sufficiently represented. No breed, in my opinion, is so well suited to the Western part of the Province as Devons; no doubt the Short Horns are altogether unsuited, they have been faithfully tried by many, but our pastures are so short and our marsh hay of so poor a quality, that the breed 'Durhams' have no chance to develope their good qualities, and have been abandoned by our farmers.

Ayrshires are well liked, but the Devons will, I am sure, answer better. We now have two pure bred Devon bulls in the County, but their stock is yet young.

Bees wax is also, I see, omitted.

As I see I am an *ex officio* committee man, pray excuse the liberty I am taking in thus troubling you, and believe me,

Yours sincerely,
GEO. T. BINGAY.

I have some fine specimens of fossils from the Devonian and Silurian formations; would you like some for your museum? G. T. B.

[Yes, if you please. They will be very acceptable.—ED.]

To the Editor of the Journal of Agriculture.

"CAPONS."

SIR,—The absence of "capons" from the markets of Nova Scotia has, with me, been a matter of surprise; and as the art of "caponing" fowls forms part of rural economy, and from many conversations I have had with farmers and the vendors of poultry in the different markets, many of whom were entirely ignorant of its practice, the following mode of making "capons," as practised in many of the large poultry yards both in England and France, may be useful to some of your readers:—

Hold the wings of the fowl back until they meet, the left foot of the operator is placed on them, the fowl lying on its left side, the great toe of the right foot is placed on its legs, the feathers are then plucked off the side. An incision about an inch in length, commencing an inch from the back bone and extending obliquely downwards and forwards, is made with a levelled pointed knife; this is carefully carried through the skin and muscles till the intestines are laid bare, the incision is kept open with a bit of cane or whalebone in the form of a bow; the intestines are pushed on one side with a pair of forceps, the spermatic cord is then sawn asunder with a horse hair drawn through a hollow tube, the testicle is then removed, the other testicle is then laid hold of and removed in like manner; no blood issues from the cords nor does the bird seem to feel any pain. The wound is now closed (pressed together), feathers which were plucked off are stuck upon the wound with the blood, and the wing being put down our castrated rooster struts off as if nothing had happened. When fully fed they often exceed nine pounds in weight. They are usually fed on refuse, potatoes boiled, coarse meal, the skimmings of the pot, (something greasy), with a little carrion occasionally for dessert. I would call the attention of the members of the Poultry Club to the above; and a prize offered at their next exhibition for well fed "capons" would, no doubt, help to remove those half-starved unsightly mites of fowls often exposed for sale in our markets.

A LOVER OF GOOD POULTRY.

ON THE BREEDING OF CATTLE AND HORSES.

Being a Lecture delivered before the Bridgetown Agricultural Society,

BY DR. GEORGE T. BINGAY.

In my intercourse with our farmers I have found many of them so unacquainted with the laws which govern the generation of animals, and of some of the fundamental rules that must be carefully observed by one who wishes to be a successful stock breeder, that I have been induced to pen these few remarks, in the hope that they may supply the necessary information, and enable you to pursue one of the most lucrative branches of rural economy in a way that will prove pleasant to yourselves and be not injurious to your pockets.

Firstly, I will explain what is meant by the term 'blood,' as applied to stock. I know the greatest misapprehension exists as to its meaning, even amongst men of good general information. Many seem to think that if they can get a little 'blood' infused into their stock that they should at once see some astonishing improvement,—that a few drops from a Berkshire boar should enable a pig to live on nothing and fatten on a little more of the same,—that an English cow should give any amount of milk as rich as cream, not presuming to go dry more than half a day per year,—that her calves should weigh at least thirty pounds per quarter,—the heifers coming in when a year old, and the steers, be full grown and fat at three years, in a pasture where spruce bushes offer an agreeable change of diet when the appetite craves something more than thistles and bull-rushes. But extravagant as is the herdsman, he is far surpassed by the horseman. His blooded animal must be big, with straight shoulders and strong fettocks, to bring a good fat price as a dray horse, and yet he is expected to be an easy saddle beast,—he must out-trot anything on the road, and yet outrun all competitors,—he must have high life and a fine carriage, and yet a quart of oats a day is too much for a colt, it might founder him,—he must be without speck or blemish, even if at two years old he was broken by means of a heavy sled and a deep snow bank,—and if he is not "the toughest bit of horse flesh ever wrapped in hide," that is, if he cannot be driven at the rate of two-forty, fifteen miles, and then gather strength for the return journey by rubbing his nose for five hours on a fence post, why blood is a humbug, and we had much better keep to our tough and patient ponies; and, perhaps, with such ideas this conclusion is a perfectly just and safe one.

Blood only means that certain qualities, bad as well as good, have become inherent in a race of animals; and as applied to a horse it generally means that he has descended from some branch of the far-famed Arabian family.

You all know that in man the peculiarities of the parent are transmitted to the child. So strong is this tendency that accidental deformities are sometimes thus handed down, as six fingers on a hand, or superfluous toes, a cross eye, hare lip, and many others; and were it not that the law of the land, and a natural repugnance prevents the marriage of near relations, these family peculiarities would be of much more frequent occurrence. This fact, that the offspring will possess, to a greater or less degree, the particular qualities, physical and mental, of the parent, is one of the fundamental rules I spoke of; it is in truth the most important of them all, it governs not only the animal but the vegetable world, and if it were suspended there soon would be no such thing as successful husbandry,—no one could be sure that the seed he planted would reproduce its kind, and the world would soon be overrun by a race of monsters.

From the earliest historical times we find man domesticating certain of the animal tribes, and taxing them to contribute to his support. Thus the horse, horned cattle, sheep and goats accompanied him in all his wanderings, and became, as they still are in Eastern countries, almost members of his family. In a state of nature, that is, the wild state, animals of

a kind are alike in colour and shape; but as soon as they are tamed this uniformity disappears. Wild rabbits are as alike as peas in a pod, so are wild geese, wild horses and cattle are generally all of one colour,—domesticated, as you all know, they are met with of all colours and combinations of colours; so, too, they begin to shew other qualities till then latent. Probably the first improvements arose accidentally, that is, without man's interference; but once established, no doubt he availed himself of them, and soon learned that it was in his power to develope still farther these useful points. Thus originated what we call breeds—and the way to establish a breed is to select from your stock the animals, both male and female, that have the desired points, *i. e.*, the greatest perfection, and breed from them alone; but it requires a great many years of careful selection and of close attention to several other things, presently to be mentioned, before any acquired quality will be transmitted with anything like certainty from parent to offspring.

There is one very curious unexplained fact that has, no doubt, caused much disappointment to you all. It is this, that an animal never forgets the male by whom she has first bred. It is very marked when a mare has had her first colt by an ass, every one of her subsequent progeny will shew unmistakeable points of an assinine character. A blood mare in England was covered by a quagga, a peculiarly marked wild ass from Africa, and the mule was striped like its father; the mare had several colts afterwards by blood stallions, but they were all marked like the first foal. A bitch will, in every litter, have a part of her pups like the dog that first lined her, this I have myself verified in several instances. One spaniel bitch cohabited for the first time with a dog that had lost his tail, in that and in several after litters were pups equally tailless. How often do we hear a person complain that a fine mare has never bred after herself, but been the mother of awkward, worthless colts, or that a cow, famous as a milker, never had a calf worth raising, no matter what bull had leaped her. But knowing the fact, I now state to you how easily is the failure accounted for, and it will impress upon you the necessity of great care in selecting a good male in the first instance. To talk of a cow's imagination may seem rather absurd, but there are some practical truths connected with conception and gestation that seem to prove the lower animals to have some such mental quality. An English gentleman had a gelding very peculiarly and handsomely marked, and wished very much to match it, so he tried the experiment of turning loose with it, in a paddock, a fine young mare in heat; after an hour or so the mare was taken out carefully blindfolded and covered by a stallion she had never seen, and then again turned in with the gelding,—in due time she dropped a foal marked precisely like the horse. Here the imagination must have been impressed—how otherwise can it be explained. Last summer I told a man of this, and he said it explained a circumstance that had puzzled him a good deal. He had two mares, a bay and a calico, they were both in heat and playing together, and they were both covered by the same bay horse the same day; the bay mare had a calico colt, the calico mare a bay. In neat stock, fancy colours and shape are not much sought for, but here is a hint that horse-breeders might turn to good account. The Bible gives us an instance of the same kind. The agreement between the patriarch Jacob and Laban, his father-in-law, was, that all the lambs and kids that were born speckled and spotted should be set apart as Jacob's hire—so he took rods, and peeling the bark off in rings and spots, placed them so that they would be before the eyes of the females when the flocks of males met them at the watering places; here they conceived, and the effect was that a very large proportion of the young were marked as Jacob wished. It is also said that he only used them when the strongest of the flocks were in heat. So that in this old time some of the laws which govern the breeding of animals were well understood and acted upon, viz., to breed from the best, and to influence the yet unborn young through the imagination of the mother.

As the instinct of love preserves a race, so is there another instinct which contributes, when animals are in a state of nature, to preserve it in all its pristine vigor and perfection—it is the combative principle, which, in the rutting season, becomes so excessive in some of the brute creation as to amount to fury; and even in domestic animals often leads to fierce combats for the possession of the female.* Were this not so the race would rapidly deteriorate and soon become extinct. I have no doubt that one great reason why both our horses and neat stock have, of late years, so materially degenerated, is the circumstance that often colts, and generally young bulls, are used in breeding, thus, from a mistaken idea of economy, doing the stock an injury that only great subsequent care can remedy; and many a fine young bull has been ruined by serving all the cows in a neighbourhood, begetting little sickly runts of calves fit neither to raise nor fatten.

Having now touched upon the three great laws that govern the reproduction of animals, I will mention a sub-law which experience has established, applying it more particularly to the breeding of horses. The horse differs from all other domestic animals in this: he may have, in great perfection, speed, endurance, and a good disposition, but if he is not handsome his other good qualities are, in a great measure, overlooked, and his value is materially lessened. The law is this, never let there be a great difference in size between the mare and horse. You have all noticed how often the young of a poney mare will be clumsy, ungainly brutes, without action, speed or bottom, loggy and heavy headed. The cause is, that the small mother cannot, either before or after birth, furnish the young with the nourishment it requires properly to develop its form. And the crossing of the heavy, highly fed imported horses with our under-sized mares has resulted in this, that our present breed has deteriorated in many respects and improved in none. How rarely do we see a horse of any age perfectly sound; and where can you find the hardy little colt that would do his seventy miles a day withotu injury to his appetite, once common enough in the country? The most serviceable horses we now have are those that retain, in the greatest degree, the good qualities of the Canadian, or of those English horses first imported, as the Stag, Randolph, and some others. The old Duroe was, I believe, a Messenger.

When I was in England I visited the Queen's stables in Windsor, and there saw the saddle-horses used by Her Majesty and the late Prince Consort. They were all medium sized horses. Amongst them were four white Arabians, a present from the Sultan of Turkey, and two Barbs from the Emperor of Morocco,—not one of them was fifteen hands high. The English hunter is not large, but where will you find combined, in one animal, the same courage, speed and bottom. The race horse is almost worthless for any other purpose than the one usually assigned him; here everything has been sacrificed to the one great object—speed or a great stride. The drawings of them in the illustrated papers of the day are not at all exaggerated. They are called full-blooded horses, but it would be as great a mistake to cross our mares with one of them as some of the studs that travel the country. Until we adopt a better system of feeding and grooming, and this will only go hand in hand with a better system of farming, we must be content with a medium sized breed of horses. That a horse may be small and yet possess all other desirable qualities, is proved by the Arabian, the Hunter and the Morgan. I am aware that the heavy horse will, other things being equal, sell much more readily, and for a better price than the other; but I think any one of experience will join me when I say, that

* Nature in this effects not only a selection, viz., that the strongest, bravest and most mature males alone beget the young, but it prevents the young male from seriously injuring himself by excess.

for every valuable large horse raised in the country ten have proved almost worthless. For our own use a horse of fifteen hands or smaller is, no doubt, the best, and breeding such will prove most profitable. While the chance that healthy, well-formed mares will, at times, drop a foal, that from some unusual vigor of constitution will far outgrow both sire and dam, is not a small one. A breeding mare should be perfectly healthy, and sound in wind and limb, with a large body, broad hips, and a full udder—these are indispensable points, if she is handsome so much the better. The stud should be equally healthy, without spot or blemish, short, compact and strong, and if of handsome shape and high carriage, with good trotting points, he should be preferred to the one who, with long legs and narrow chest, may run a good race. A first rate English hunter, a small Morgan, or a well bred Canadian, would be of great service in our County—but of all the rest I have a poor opinion. Here is the advice given by one of the most successful of English breeders,—"Gradual improvements will always be followed by ultimate success, but violent attempts to effect a sudden change will always result in disappointment."

Of neat stock and sheep it is more difficult to speak with precision, for they are kept in subjection by man, not simply to aid him in his labour and contribute to his amusement, but they are expected to furnish him with food. If a farmer then wishes to improve his stock, let us say of horned cattle, his first step must be carefully to consider what particular sub-division of this branch of husbandry it will be most to his advantage to pursue—"what will best suit my means and the capabilities of my farm." When he has fully made up his mind, let him select the breed that possesses, in the greatest perfection, the qualities he would have in his herd. But these good points are, as I said before, sure to be combined with some bad ones. If a herd could be bred whose cows would milk like Ayrshires, make butter like Alderneys, and keep flesh like Durhams, the males fattening at an early age in poor pasture, the fortunate breeder might demand his own price for such paragons, and perfection in neat stock be at last obtained. This, however, is an impossibility. Having made his selection, let him procure the best specimens of that breed within his reach. He should not be content to purchase an animal because it is called by the name of the vanity he wishes; but he should satisfy himself not only that the animal, but the herd from which he selects, has, in perfection, the points claimed for it.* He must never forget, both when purchasing and breeding, that there is a tendency, in all improved stock, to breed back, as it is termed, that is, return to its original or wild state; and nothing but intelligent supervision and selection will counteract it.

I will now consider what it is that our farmers require from their neat stock, as best suited to the mixed plan of husbandry here followed. Firstly, we want a breed good as milkers, and the milk profitable either to the cheese or butter maker. Secondly, good working cattle, strong, quick and docile, that will fatten profitably when full grown; and thirdly, as our pastures are not by any means first rate at any season of the year, and at midsummer always very short, we must have a breed that are not gross feeders. Now, which of the famous English herds shall we select,—not the Durham or Short Horn, they are not good milkers, either in quantity or quality; it is the opinion of an experienced breeder in Maine, that not one in six was worth raising for the dairy. They are not good working cattle, being slow and hard keepers; and they only develope their good qualities of fatting at an early age when they have the best of feed both in summer and winter. We will exclude them then as all unsuited to us, though when so placed that their good qualities can have fair play, they are probably the handsomest and most profitable cattle in the world. I must be careful how I speak of the Alderneys in Bridgetown, but since I hear their champion is absent, I will take heart to speak a few truths about them. I once before, from this place, stated that it was not a breed suited to our wants. Now, hear what is said by Mr. Norton of New York, who imported, and now has one of the finest herds in America, and who would naturally be disposed to regard them in the most favourable light:—

"The pure Alderney cattle come mostly from the Island of Jersey, in the British Channel, where they have been kept free from mixture for a hundred years—no other breeds being allowed on the island. Similar cattle are found on the other Channel Islands, but all more or less mixed with other breeds. About two thousand head of cows and heifers are annually sold from the island, the area of which is not much greater than that of one of our largest New England towns, at an average of £5 sterling each, making £100,000 sterling, or $500,000, from this source alone.

The Alderney cows are small and thin, with delicate deer-like limbs—generally light yellow or fawn color—always poor in flesh when in milk, but taking fat readily when dry. They are remarkable for gentleness and docility—easily kept, and usually give milk nearly up to the time of calving.

The important question in relation to these cows, is their value compared with other breeds. It will be conceded at that for fattening, for labor, and for furnishing milk for sale, they are inferior to almost all other breeds.

In Great Britain they are kept mostly by the wealthy, to supply their own tables with milk, cream and butter. Colman says: Every nobleman and large land-owner keeps one or more tethered on his lawn, for family use.' They are also kept by many London dairymen in the proportion of one Alderney to ten other cows, to color the milk for market.

My own experience, after many years, has led me to the conclusion that for butter-making they are superior to any others, yielding more in quality and of better quality.

In all other breeds, and also among grades, superior milkers and butter-makers may be found, equalling in quality of butter, and giving more milk, and producing more butter, than most Alderneys. But there is no other breed known here that can always be relied on. I have never known an Alderney cow whose milk and butter had not the characteristics of the breed. They differ, as do others, in quantity, and somewhat in quality. but the peculiar color and quality are manifest in all.

The daily yield of milk of each cow, during their best milking period, varies from six to twelve quarts. This milk will make about one pound of butter to six quarts of milk. One pound from twelve quarts is not far from the average yield from other breeds.

The average product of butter from my cows in 1859, was a fraction over two hundred pounds each. The average product of the dairies of the State of New York, I think, is about one hundred and twenty pounds to each cow.

The premiums by the New York State Society for the greatest product, have been given to dairies producing about one hundred and eighty pounds each cow.

My cows have had no extra feed. In summer they are kept on grass only. In winter they have one feed daily of cut cornstalks. straw, or coarse hay, with a light sprinkling of bran, or cotton-seed meal, and two feeds of dry hay.

The average price for which my butter sold in 1859 was thirty-five cents. The price now is forty cents. In March and April, it is to be forty-three cents, by contract, in Boston.

In relation to any improvement in the stock. I am of the opinion that none can be made by crossing with any known breed. Increase in size, or an increased disposition to fatten, will be gained only at the expenses of a loss in cream and butter.

An analysis of numerous specimens of milk made in 1858 by Dr. S. R. Percy, under the direction of the New York Academy of Medicine, resulted as follows, viz: The milk from six of my Alderneys, taken indiscriminately, exhibited butter compared with the best other milk, as seventy-two to forty-seven, and compared with mixed country milk, as seventy-two to forty."

This is exactly what I stated two years ago. They are first rate butter makers, and that is their only good quality.

The Ayrshires particularly, when bred so as to develope their milking qualities, are a good, hardy, profitable breed. But the milk is poor, though larger in quantity. The cows are very valuable to dairy-men when the sale of milk or cheese is his pursuit; but not the best where a mixed system of husbandry and dairy work is carried on. The oxen are small slow, and docile, and their beef is poor

* It is better to breed from a slightly defective animal chosen from a good herd, than from a perfect animal out of a defective herd.

hard, and tough. The Devon is the breed that, in my opinion, presents the greatest advantages and suits best the wants of the country. They are hardy, very good milkers, both as to quantity and quality —some of the herds are, in this respect, surpassed by none. The oxen are unequalled by those of any other breed, as working cattle, being large, strong, quick, docile, and of a uniform red colour, easily matched. When grown, they fat so readily and make such superior beef, that it is now a disputed point in England, whether the Durham surpasses it. These last two points should particularly recommend them to us. The old red stock of the country, well remembered by many who now hear me, were Devons; and I have heard men of good judgment say were quite equal to any ever imported.

These are the principal English breeds. The others sometimes mentioned are only sub-varieties. Thus the North Devon almost equals the Ayrshire as milkers, retaining the other peculiarities of the original breed. Herefords, a large Devon, raised for working oxen or beef. The Yorkshire is a Durham, the cows very large and great milkers; but these peculiarities it is only possible to preserve where the breeder has the greatest skill and uses extra care, and are quite unsuited to us in our present state of agricultural advancement. I intended making some remarks on sheep raising, a branch of husbandry too much neglected by us, but have already exceeded the time I proposed to occupy; and although my subject is far from being exhausted, is, in fact hardly touched upon. I shall now close, hoping to hear some practical remarks from the men of experience I see before me.

FRUIT GROWERS' ASSOCIATION OF NOVA SCOTIA.

The annual meeting was organized at the Temperance Hall, Wolfville, on the 15th January, by the taking of the chair by the President, C. C. Hamilton, Esq., M. D.

The President delivered the annual address, in which he described the origin and history of the Association, and made such suggestions as his lengthened experience as a fruitgrower, and as President of the Association, indicated with reference to the future.

PRIZES FOR ESSAYS.

A member proposed a debate upon the pruning of fruit trees, as a subject not sufficiently understood, but of great importance, and desired that the Association should have the benefit of the experience of those knowing most upon the subject; after some discussion it was

Resolved, That prizes of ten, seven, and five dollars, be offered for the best essays by members of the Association, on "The pruning of fruit trees; the mode, season, extent, treatment of wounds, &c., and with application to the different varieties of Apple, as well as of other fruit trees.—The conditions to be arranged by the Council of the Association."

CLASSIFICATION OF APPLES.

The Council's classification of Apples as adapted to our Province, and recommended for general cultivation, was submitted and discussed; and it was understood that some alterations would probably be required, as the results of further and closer trials of certain sorts. It appeared also that a different value would have to be placed on certain varieties, as to be recommended for the usually heavier lands of Annapolis county, or for the lighter soil of King's, and so in reference to other counties of the province; and this subject is to have the consideration of the council, who will be glad to receive information as to the success or failure of any particular variety of apple in any section of the province, and as to the supposed cause or causes. As it is of very great importance that a judicious selection of sorts should be made by every person setting out an orchard, the Council desire to be able to give the best and most reliable information.

After considerable discussion it was decided, and ordered to be published, that experience has proved the true *Roxbury Russet* to be comparatively useless on light soils in this province, and therefore not to be recommended generally for the county of King's, where the orchard lands are generally light.

DOMINION PRIZE.

It was resolved

"That the Association appropriate $— in cash, and $— for a gold medal, both to be awarded for the best collection of apples from any of the provinces of the Dominion of Canada."

It was left to the Council to fix the amount of money to be appropriated under this resolution, on the most liberal terms that the funds of the Association will admit of.

REPORTS, ETC.

The Secretary read and submitted his annual statement of the finances of the Association; also the report of the Council for the past year; also a list of members, and statement of arrears of subscriptions due; also a Report of the Monthly Exhibitions held in the summer and autumn of 1867; also a petition to the Legislature for the usual grant to the Association.

On presentation of the report of the Exhibitions of the smaller and summer fruits, the Floral Gilt Medal of the Royal Horticultural Society of London was presented to Mr. George V. Rand, of Wolfville, whose admirable exhibition of strawberries fairly won it.

This Challenge Medal was taken in 1866 by Dr. C. C. Hamilton, and with his consent and that of its present holder, it was resolved.

"That the Silver gilt medal be retained by Mr. Rand for the ensuing year, and thereafter be held by the Association, as its property."

The Secretary was directed to order the American Journal of Horticulture for the use of members of the Association; and to make arrangements for depositing a portion of the Library of the Association in Annapolis, with one of the members of the Council.

REPORT FOR THE YEAR 1867.

This Association was formed in the year 1863, and was designed to bring together the earnest practical fruit-growers of the province, with a view to the fostering and improving of the great fruit growing capabilities of the country.

Hence, the chief efforts of those concerned in its management, were directed in the first place to the selecting and bringing together for comparison and examination of the leading marketable varieties of fruit.

To this end public annual Exhibitions have been held, open to all parts of the province, and an ever-increasing interest has been manifested on the part of the public generally; this was never more distinctly manifested than during the past year; though the season had been unfavorable, particularly so for many kinds of fruit, yet the increased knowledge, taste, and skill of cultivators, attributable in no small degree to this association, enabled the exhibitors to present a display of fruit in the highest degree creditable, and which peoved beyond cavil or doubt the adaptation and resources of Nova Scotia as a Fruit-growing country.

There are no reliable statistics at the present time to shew the extent of the fruit growing interest of the province; since the last census an immense advance has been made. In the regions best adapted to fruit-growing almost every farmer has planted an orchard, many entering quite extensively into the business; and the information obtained in and by this association, and disseminated throughout the province, enables those starting in such enterprise to do so to great advantage, as they have now the means of knowing the best kinds to cultivate, with reference to healthiness and thriftiness of the trees, and adaptation of different varieties to different soils, as well as with regard to the quality of the fruit for different seasons, markets, and uses. Connected with the Association, and purchased by its funds, is a most valuable library of the best horticultural works, all of the most practical kind, treating of the tree,

its cultivation and its fruit, and of the diseases and enemies of both.

Resulting, it is believed in no small degree, from the operations of this Association, an important nursery interest for the growth of fruit trees has arisen within the last few years; when it is known that a single American firm has introduced into the Province young trees to the value of from $8,000 to $10,000 per annum for several years past, in addition to the large number of trees supplied already by our local nurseries, the rapid extension of fruit growing, and the importance of local production will be more fully realized.

Of the sum of four hundred dollars granted by the Legislature, there has been expended in prize at the Exhibitions the sum of three hundred and ten dollars, and in procuring specimens of fruit, putting up the same and sending it abroad fifteen dollars; the remainder, together with the contributions of the members, admission fees, &c., has been devoted to expenses of Exhibitions and of management of the affairs of the Society, and a small sum in addition to the library.

Parcels of apples, each consisting of several specimens of from forty to fifty different varieties of apples, have been sent to Mr. Downing, the great fruit authority at Newburg, to Mr. O. D. Judd, of the *American Agriculturist*, New York, to the office of the *Canada Farmer*, Toronto, and to the Massachusetts Horticultural Society. Notices of our fruit, and reports upon the varieties submitted for examination are expected from these several quarters, which there is no doubt will be both interesting and useful.

It is proposed that the next annual Exhibition of the Association shall be held in connection with the Great Agricultural and Industrial Exhibition in the City of Halifax, in October of this year; and this Association has voted, conditionally, the sum of two hundred dollars towards the prize list of the Horticultural Department at that Exhibition.

Respectfully submitted, on behalf of the Council,

C. C. Hamilton, *Pres.*
J. R. Hea, *Sec'y.*

Reports of Agri. Societies.

YARMOUTH COUNTY AGRICULTURAL SOCIETY.

BYE-LAWS.

1. This Society shall be called the 'Yarmouth County Agricultural Society,' open to members from either township. It shall be organized in connection with the Central Board of Agriculture, and in accordance with the Act for Encouragement of Agriculture.

2. The annual subscription fee shall be fixed at one dollar, to extend the benefits of the Society to those of least ability; but it is hoped and expected that as in the original subscription list, members with ample means will subscribe liberally.

3. The officers of the Society, who shall constitute the Board of Management, shall consist of a President, Vice President, Secretary, Treasurer, and five Directors, to be elected annually at the general meeting on the first Tuesday in December.

4. The object of the Society shall be the promotion of Agriculture, by the introduction of improved stock, seed, fruit trees, &c., by the holding of exhibitions whenever deemed advisable, by the dissemination of information through regular meetings or through agricultural publications, &c., or by any other means that may seem adapted to attain the object in view.

5. There shall be regular quarterly meetings in the Court House, at 2 p. m., on the first Tuesday in February, May, August and November.

6. Special meetings may be called, whenever necessary, by the President, or by requisition of any five members.

7. Three of the Board of Management shall be a quorum competent to do business.

8. The members of the Society agree to be governed by the vote of the majority at any regular quarterly or annual meeting.

Chas. E. Brown, *Sec'y.*

GREAT
Provincial Agricultural & Industrial
EXHIBITION
OF 1868.

LIST OF SUBSCRIPTIONS

By County & District Agricultural Societies, towards the Provincial Exhibition of 1868.

Western Halifax Agricultural Soc'y, half of grants for two years	$100 00
Antigonish Agricultural Society	100 00
Windsor Agricultural Society	100 00
Egerton Agricultural Soc'y, E. R., Pictou, the Society's annual grant for '68, about	60 00
Dartmouth Agricultural Society	50 00
North Sydney Agricultural Society	40 00
Pictou Agricultural Society	40 00
Parrsborough Agricultural Society	40 00
Union Society of East Cornwallis	40 00
Sydney Agricultural Society	40 00
Newport Agricultural Society	40 00
Lower Musquodoboit Agricultural Society	30 00
Upper Musquodoboit Agricultural Society	30 00
Baddeck Agricultural Society	30 00
Middle River of Victoria Agri. Society	30 00
Boularderie Agricultural Society	30 00
Mahou and Port Hood Agri. Society	30 00
Shubenacadie Agricultural Society	30 00
West Cornwallis Agricultural Society	24 00
St. Ann's Agricultural Society, South Gut	20 00
Minudie Agricultural Society	20 00
Broad Cove Agricultural Society	20 00
Fenwick Agricultural Society of Noel and Maitland	20 00
Bridgewater Agricultural Society	20 00
Bridgetown Agricultural Society	20 00
Mahone Bay Agricultural Society	20 00
Weymouth Agricultural Society	20 00
Paradise Agricultural Society	20 00
Upper Stewiacke Agricultural Society	20 00
Merigomish Agricultural Society	20 00
Hardwoodland Agricultural Society, Nine Mile River	20 00
Chester Agricultural Society	20 00
Maxwelton Agri. Soc'y, Co. of Pictou	20 00
King's County Agricultural Soc'y, Horton	16 00
Digby Agricultural Society	15 00
Red Islands Agricultural Society	12 00
North East Margaree Agricultural Society	8 00
North Shore St. Ann's Agricultural Soc'y	6 00
South West Margaree Agricultural Soc'y	4 00
Stirling Agricultural Society	
Upper Londonderry Agricultural Society	
Onslow Agricultural Society	
Amherst Agricultural Society	
Wallace Agricultural Society	
Clare Agricultural Society	
Eastern Annapolis Agricultural Society	
Lower Stewiacke Agricultural Society	
River Philip Agricultural Society	
Glenelg Agricultural Society, Guysboro'	
Milford Haven Agricultural Society, Co. Guysborough	
Aylesford Agricultural Society	
Lunenburg Agricultural Society	
River John Agricultural Society	
Caledonia and Kempt Agricultural Soc'y, Co. Queens	
Barrington Agri. Society, Co. Shelburne	
Yarmouth Township Agri. Society	
Yarmouth County Agri. Society	
Pubnico Agri. Society, Co. Yarmouth	
	$1225.00

Intimations of additional Subscriptions by Societies should be sent to Prof. Lawson, the Secretary, without delay.

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