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Omnium rerum, ex quibus aliquid acquiritur, nihil est agriculturâ melius, nihil uberius, nihil homine libero dignius.—Cicero : de Officiis, lib. I, cap. 42.

VOL. III.

HALIFAX, N. S., MARCH—APRIL, 1879.

No. 25.

Ten Copies of this Journal are sent, Postage Prepaid, to every Agricultural Society in the Province, in payment of which a reduced charge of \$4 is deducted annually from each Society's Grant. Societies requiring their copies addressed separately to individual Members will be charged \$5. Any greater number of Copies to one address may be obtained at the same rate of \$40 per hundred. The Annual Subscription for a Single Copy is Fifty Cents, payable strictly in advance.

Halifax, 1st April, 1879.

In view of the new trade in shipping cattle for Europe at Halifax, which promises to be of very great importance, not only to Halifax but to the Agriculturists of the whole Province, we have devoted a large portion of the present number to articles on the Cattle Trade, Cattle Diseases, and other matters affecting the commerce in cattle. Professor McEachran's lecture puts the statistics and finance of the Cattle Question in a clear light. The article headed "Montreal vs. Chicago" shows how Chicago, Montreal, Portland, have all been bidding for the Cattle Trade, and it shows what Halifax has to do, and that immediately, if we are to make sure of retaining it. In Montreal the cattle "are charged no yardage," expense of handling the cattle is less than in the States, cattle men can buy feed wherever they chose, and at whatever price they can get it for. The Road from Montreal to Portland returned as rebate \$18 of the \$38 per car freight charges, and in Port-

land privileges like those given in Montreal are secured.

The authorities, Dominion, Provincial, Civic, and also Railway Companies, shipping agents, and business men generally, will not let the cattle exporters complain that they are treated less liberally or less considerately at Halifax than at Montreal, Portland or Chicago. It will be seen that the State Commissioner of New York has promulgated an order prohibiting the conveyance of milch cows and other store animals by railway westward or northward, &c.

It is obvious that the Superintendent of the Public Gardens is determined not to be found napping when the inhabitants of the Province flock into the city to see the Provincial Exhibition and all the city sights. The hot-house is already filled to repletion with young bedding "stuff" (that is the technical term that gardeners use); there is so much bedding material already well advanced, and the propagation is still going on so rapidly, that we feel assured the Garden will this year completely eclipse its former self.

Some very interesting and attractive additions have already been made to the shrubberies this spring, among which we may note a large number of rare and beautiful coniferous trees and shrubs, such as Juniperus japonica, J. aurea variegata, J. Sabina and its white variety, and the Canadian, Irish, and Swedish junipers; Retinospora aurea, obtusa, pisifera, p. aurea, plumosa, and p. argentea; Taxodium distichum; the Maidenhair Pine (with fern-like leaves), Salisburia adiantifolia, and the following yews:—Taxus Washingtoniana, Canadensis, and C. variegata; also Thuja Sibirica, T. occidentalis Vervaincana. Several other evergreens may be noticed, such as Andromeda floribunda, already in bloom, Kalmia latifolia, Prinos glabra, Ilex Japonica and Ligustrum Japonicum. Of deciduous shrubs we may note the following, nearly all of which are new to Halifax gardens:—Aralia spinosa (Devil's walking stick), Hypericum calycinum, Osmanthus ilicifolius, Viburnum Sieboldii, Yucca filamentosa (Adam's needle), Ailanthus glandulosa (Tree of Heaven), Alnus aurea (golden alder), purple leaved Barberry, Catalpa syringæfolia, Colutea arborescens (the bladder senna), the silver-striped Cornus (wood used for bows: "bona

bella cornus"), golden Elder (*Sambucus aurea*), *Forsythia viridissima* and *suspensa*, *Halesia tetrapteris*, the Oak Hydrangea (*H. quercifolia*), *Ptelea trifoliata*, Tulip Tree, *Liriodendron tulipiferum*, *Prinos verticillata*.

The Commissioners of the Public Gardens have shown great discretion in this selection.

We have received so many direct enquiries as to how to use Superphosphate that it is evident this artificial manure is to be used this season by a large number of persons who have not used it before. It may therefore be useful to specify, in a few words, the best modes of applying it to ordinary crops. Good Superphosphate may be applied at the rate of 250 lbs. per acre to grain crops, and double that amount, (500 lbs), to root crops. It should not be applied to poor soils without other manure, but for exhausted lands, if applied along with other manure, it will speedily bring them back to fertility. The practical difficulty of spreading so small a quantity as 250 lbs. evenly over an acre of land is easily got over by mixing the Superphosphate with good earth or compost before distributing, or it may be evenly sown over the land like timothy seed. It should always be put in the land before cultivating, so that the harrowings and hoeings may help to mix it well with the soil. In drilled crops, such as potatoes, it may be put in the drills along with the manure, but should be slightly covered with earth to prevent the seed coming into immediate contact with the soluble and powerfully acid Phosphate. For turnips it is a very special manure; it may be run into the seed drill, either as a compost or slightly covered with earth to protect the seed. The best way to use for turnips is to mix with ground bones. In fact, for crops generally ground bones is the complement of Superphosphate, and Superphosphate the complement of ground bones; the two go hand in hand.

It is not profitable to scatter Superphosphates or bones on the surface of grass lands, except when the soil is very soft, as on land newly seeded down. We prefer to apply these materials, and most other chemical manures to arable lands in active cultivation, where the motion in the loose soil and the passage of rains through it enable the soluble substances to come into contact with as large a proportion as possible of the particles of soil. It is by attention to such conditions that the full benefit of these applications can be realized.

A LISBON dispatch says a decree has been issued prohibiting the importation of pork in every shape from the United States, because of trichinosis.

CENTRAL BOARD OF AGRICULTURE.

*Committee Room, Provincial Library,
15th March, 1879.*

The Annual Meeting of the Board was held this day, in terms of the Act for Encouragement of Agriculture.

Present:—Colonel Laurie, Oakfield; David Matheson, Esq., Pictou; Hon. Hector F. McDougall, M. L. C.; C. F. Eaton, Esq., Cornwallis; C. E. Brown, Esq., Yarmouth; John Ross, Esq., Glen Farm, C. B.; Prof. Lawson.

On motion, Col. Laurie was requested to take the chair. He called upon the Secretary to read the names of the members of the Board as appointed by the Governor in Council; this having been done, he stated that the first duty of the Board was to organize by appointing officers.

Moved by Mr. Brown, seconded by Mr. Ross, and resolved, that Col. Laurie be re-elected President of the Board.

Moved by Mr. Matheson, that Hon. Mr. McDougall be elected Vice-President. Mr. McDougall, in view of the inconvenience of attending the Board meetings from so great a distance as Cape Breton, and also on account of his being a new member, recommended the Board to select another member for nomination as Vice-President.

Mr. Ross was pleased to see Mr. McDougall nominated, as it was an indication that the time would come when justice would be done to Cape Breton, but, as it might be inconvenient for Mr. McDougall to attend the meetings, now that the business of the Board had increased so much, he would move the re-election of Mr. Matheson. Mr. McDougall seconded the motion, which was passed.

On motion of Mr. Brown, seconded by Mr. Eaton, Professor Lawson was elected Secretary and Treasurer.

On motion of Mr. Ross, Mr. McDougall was requested to arrange with the Agricultural Committee of the House of Assembly for a conference with the Board.

The Secretary read a letter from Mr. Wilson, Secretary of the Exhibition Committee of the City Council, transmitting the Prize List of the Provincial Exhibition of 1879, which was laid upon the table for examination.

Moved by Mr. Brown, seconded by Mr. Matheson, and passed, that the City Corporation be requested to nominate a committee of three to confer with the Board on the subject of the Prize List, and to meet on Thursday morning at 11 o'clock.

The subject of the revision of the Herd Book Registers was then entered upon, and, after discussion, it was moved by Mr. Brown, seconded by Mr. Ross, and

resolved, that Messrs. Matheson, Eaton and Brown be a committee to consider the subject, and submit a scheme to the Board.

The Board then adjourned till 2 o'clock, then to take up the Prize List of the Provincial Exhibition.

*Committee Room, Legislative Library,
15th March, 1879.*

Business was resumed at 2 o'clock.

Present:—Colonel Laurie, President; D. Matheson, V. P.; Hon. H. F. McDougall, John Ross, I. Longworth, C. E. Brown, C. F. Eaton, Professor Lawson, Secretary.

The Board took up the Prize List, submitted by the City Council Committee, of the proposed Provincial Exhibition to be held at Halifax, and examined the items in detail. In Class 1, Horses, and in Class 2, Cattle, numerous changes have been made upon the Prize Lists of former years, which it is expected will induce a larger competition in these classes. The Prizes for horses have been increased in number and amounts; additional Prizes for Working Oxen, to be tried at work, have been introduced; a new class of thorough-bred cattle, Guernseys, has been established; the classification of grades has been so adjusted as to specially admit the Collins and Cunard stock to competition as a class with grade Guernseys, apart from Jersey grades; this will no doubt bring out a most valuable class of domestic dairy cattle, whose merits are well known here; prizes are to be given for calves under 6 months as well as between 6 and 12 months old. Various minor improvements have been made. The Board approved of the Horse and Cattle Lists, with several suggested changes and additions, which they thought would increase still farther their utility.

At six o'clock the Board adjourned till the following morning.

19th March, 1879.

Business was resumed this morning at ten o'clock. Same members of Board present.

The Board had the Prize List under consideration until eleven o'clock, when the following gentlemen of the Committee on Agriculture of the House of Assembly were announced, viz:

Captain Calob W. Shafner, M. P. P.,
Chairman.

Joseph R. Kinney, Esq., M.P.P.

Lt.-Col. William Blair, M.P.P.

I. S. Ford, Esq., M.P.P.

John Morrison, Esq., M.P.P.

Colonel Laurie, President of the Board, referred to the printed Report of the Board's operations for the past year, and explained at length the nature of the

work done in the past, and what was contemplated in the future.

Mr. Kinney made several enquiries on points connected with the management of the Board's affairs, and expressed his interest in its operations. He referred to the advances made in agriculture in his own County, and the consequent increase in agricultural wealth, of late years, advances which he said were simply marvellous for a County not specially adapted to agriculture.

Mr. Ford stated the difficulties of dealing with Agriculture, as with other departments, in view of the present financial condition of the country. Captain Shafner, Chairman, stated that the Agricultural Committee would carefully consider the Report of the Board, and be prepared to recommend what they thought advisable in the interest of the Province. Remarks were likewise made by Mr. Longworth and Mr. Ross, the latter referring to the desirability of granting a special vote for an Exhibition in Cape Breton, which was farther spoken of by Mr. Morrison. Colonel Blair said that he had long looked forward to the time when the Agricultural interest would be put upon a proper basis. A small grant had been given, hitherto, which was well so far as it went, but it seems as if, in present financial circumstances, no immediate development were possible. He referred to the immense advantages derived by the Province from the operations of the Board, the Agricultural Societies, and the Provincial Exhibitions, and hoped to see the time when scientific Agriculture would be taught in every part of the country.

After the Agricultural Committee retired, the Board adjourned, to meet again at 2 o'clock for further consideration of the Prize List.

19th March, 2 o'clock, P. M.

Business resumed. Members all present.

A letter from Mr. D. W. McDonald, Lorne, Pictou County, proposing the establishment of an Agricultural Society at Lorne, was remitted to Mr. Matheson, the member of the District.

A letter was read from W. H. O. Halliburton, Esq., Wolfville, containing valuable suggestions in reference to the forthcoming Exhibition, and the Prize List therefor:—

Wolfville, 15th March, 1879.

PROFESSOR LAWSON:

DEAR SIR,—As the Board of Agriculture is about to meet for business, allow me to offer a few suggestions which that honourable body may, possibly, feel disposed to consider.

Persons competent to act in the different classes as umpires are not always to be had, and those whose information qualify them are not always selected to act in their peculiar sphere.

Would it not be advisable, in the dairy department, to invite a few ladies to assist the gentlemen in their decisions—ladies who are accustomed to the use in their families—of the higher grades of "gilt-edge butter;" also in the fruit and flower departments. Women are closer observers than men, and have a certain intuitive knowledge by which they arrive at correct conclusions.

In judging dairy stock, the accompanying record should be the leading point of the best cow, and that should be plain and distinct on attending circumstances. In the root department, beets in varieties, especially the white sugar, should make a prominent feature, and all monstrosities should be passed over or excluded, but seed of the best varieties, grown in the Province, should come under consideration. I think it very important that we should grow, as far as practicable, such seeds as will mature in this climate. This country is beginning to feel the want of pasturage, and all forage plants should be called for. The several varieties of *Millet*, *Caucasian Consery*, and the clovers in the dried and green state. The mode of cultivation, soil and situation, with the loss of weight in drying, in fact the whole history, should accompany the plant. In apples, those fit for the European markets should lead the list, especially high coloured ones (red is a favourite colour). A uniform size is desirable. A few of the best-keeping varieties, labelled for the foreign market, should be on exhibition properly marked with the growers name and variety. A half dozen apple barrels of full size should claim a first prize, no second class barrels are wanted. Indeed, I think in some things second and third class prizes could be dispensed with. What is wanted now is the best. This contemplated Exhibition is being looked forward to with a great deal of interest, and I am confident that it is about to open a new era in the industry of our Province. Home-made fertilizers should not be passed over the quantities of fish refuse annually thrown into the sea, if properly composted and condensed, would be a mine of wealth under proper regulations. Farmers want it, especially in the valleys. We want now, right away, an experimental station or farm school; it has been delayed too long. You know the value of it to a country like Nova Scotia.

Yours, etc.,

W. H. O. HALLIBURTON.

The consideration of the Prize List resumed. In class 3, Sheep, the improvement introduced by the Council Committee of separating Southdowns from Shropshire Downs was extended by a suggestion of the Board, that Leicesters should likewise be separated from other Long Wool Sheep.

At six o'clock the Board adjourned till the following morning.

20th March, 1879, 10 A. M.

The Board resumed business. Present, all the members.

Mr. Eaton placed on the table a letter, which was read by the Secretary, from R. W. Starr, Esq., Cornwallis, containing suggestions in reference to the prizes offered for grain, &c., many of which

were thought very valuable. The letter was ordered to be transmitted to the Exhibition Committee with a request that if not too late, they should give it due consideration.

Mr. Brown presented the Report of the Committee on Registration of Thoroughbred Stock, which was read. Consideration deferred.

His Worship the Mayor, Alderman DeWolf and Alderman Murry appeared before the Board on behalf of the City Exhibition Committee to confer on the subject of the Prize List.

The President of the Board expressed the satisfaction of the Board with the general arrangements, so far as made, for the approaching Exhibition, and with the liberal character of the Prize List, but called attention to the deficiencies in several of the classes and suggested amendments. These were considered in detail, and finally agreed to. The Exhibition will commence on 29th September, and close on 3rd October.

A communication was read from Mr. W. D. Dimock, Secretary of the Provincial Exhibition held at Truro last year, referring to the Board a dispute that had arisen in regard to the pedigree of a Brood Mare to which a prize had been awarded. The Board did not consider that the matter should have come before them, as Sections 6 and 24 of the General Regulations would appear to be so framed as to prevent such a question arising.

A letter was read from Mr. Stathern Bailey, Secretary of the Annapolis Royal Agricultural Society, sending Prize List of the Society's last Exhibition, and explaining Society's accounts, after considering which, the Board directed the Secretary to allow the Annapolis Society to draw its grant for 1878.

The Secretary was directed to readjust the terms of Affidavit required from officers of Societies, so as to make it clear that no money is to be regarded or attested to in future as subscriptions from members, except cash actually paid by members individually and specially as their annual subscriptions for membership.

Moved by Mr. Longworth, seconded by Mr. Ross, and resolved, that arrangements be made for continuing the publication of the *Journal of Agriculture* as formerly.

A letter was read from Mr. McGillivray, Baddeck, explaining the accounts of the Baddeck Society, some of the entries of which were obscure. The explanation was satisfactory, and the Board authorized the Society's grant to be paid.

Moved by Mr. Brown, seconded by Mr. Ross, and resolved that the following gentlemen form the Executive Committee of the Board, viz: Colonel Lau-

ric, Mr. Matheson, Mr. Eaton, Mr. Longworth, Professor Lawson,—three to be a quorum.

A letter was read from Mr. Freeman, Secretary of the Kempt Agricultural Society, in reference to the returns of that Society. Mr. Eaton addressed the Board on the subject, pointing out the difficulties with which Societies in remote localities had to contend.

Moved by Mr. Brown, seconded by Mr. Eaton, that the Kempt Society be allowed a modified grant of \$40.

Moved in amendment by Mr. Longworth, seconded by Mr. Matheson, that the Returns before the Board are not sufficient to justify the Board in authorizing the grant.

The amendment was carried.

The Secretary was directed to explain to the Society that they would have the power of re-organizing on a satisfactory basis, and of drawing grant for 1879 upon the subscriptions already actually paid, as well as upon those that may be collected during the year.

The Board then adjourned till 2 o'clock.

20th March, 1879, 2 P. M.

Business resumed. Members all present.

The Report of the Committee on Registration of Thoroughbred Stock was taken up, discussed very fully, and passed, with slight amendment. The Secretary was directed to print and circulate full instructions as to requirements for registry of thorough bred stock.

The following gentlemen were nominated for the revision of the Registers:—

Mr. Longworth, Devons.

Mr. Brown, Ayrshires.

Mr. Eaton, Jerseys and Guernseys.

Mr. Matheson, Short Horns.

It was determined that in preparing the new Registers of stock, with a view to the publication of a Herd Book, it would be absolutely necessary, in order to insure perfect accuracy, that full pedigrees should in every instance be furnished by the owners of animals whether they are already registered or not.

The Board had a second interview with the Committee on Agriculture of the House of Assembly, when mutual explanations were given, and an understanding arrived at as to the operations that should be undertaken by the Board during the present season.

A letter was read from Rev. Mr. Godfrey, Clements, in reference to his application for registry on the Jersey Register of a Heifer, which had been refused by the Registrar, on the ground that the animal was not thorough-bred. The correspondence on this subject was referred to Mr. Eaton.

On motion of Mr. Ross, leave of absence was granted to Mr. Eaton for the remainder of the present series of meetings of the Board.

At 7 o'clock the Board adjourned till the following morning.

21st March, 1879.

Present:—Colonel Laurie, *President*; D. Matheson, *V. P.*; Hon. H. F. McDougall, I. Longworth, Esq., John Ross, Esq.

The Board met this morning specially for the purpose of making arrangements for the importation of Sheep and Pigs. After fully considering the matter, in view of their conference with the Agricultural Committee of the House of Assembly on the previous day, it was agreed to limit the importation to a small number of Shropshire Down Sheep from England, and a few pigs from the United States, and to endeavour to effect an importation of Longwool Sheep from Ontario or Prince Edward Island, by offering a premium to a breeder, as was done last year.

Moved by Mr. Brown, and agreed, that the Executive Committee be authorised to make arrangements for importing 10 Shropshire Down Ewes, and 10 Shropshire Down Rams from England, in time to be sold at the Provincial Exhibition at Halifax, during the first week of October; also, to purchase 6 White Chester Boars, and 6 White Chester Sows, from 3 to 6 months old, in the United States. The Committee were further empowered to arrange with a breeder to sell, at his own risk, during the Exhibition, about fifty Leicester and Southdown Sheep, for which a premium might be allowed.

The Secretary was directed to report the amended Prize List to the Exhibition Committee, and to request its return to the Board when completed, for submission to the Governor in Council for approval, in terms of the Act. A Committee of the Board will meet on Wednesday for this purpose.

Mr. HENRY ALLSOPP, M. P., purchased from the Earl of Bective the short-horn cow Eighth Duchess of Onedia, calved in November, 1872, and Duchess of Underley the Second, calved July, 1877, for £7,500. He also purchased Red Rose of Tweeddale and three other young short-horn Heifers for £3,500, making a total of £11,000 for the three animals. The Eighth Duchess of Onedia is the dam of Duke of Underley the Second, bought by Sir Curtis Lampson for £1,750, and also of Duke of Underley the Third, purchased by the Duke of Manchester for 3,000 guineas. Duchess of Underley the Second is a grand-daughter of Eighth Duchess of Onedia, a daughter of the celebrated cow Tenth Duchess of Geneva.

PLEURO-PNEUMONIA AMONG CATTLE.

The active measures which have recently been taken by the Governor of the State of New York for stamping out pleuro-pneumonia among cattle will, it is to be hoped, effect that much-to-be-desired result. All over the State the strictest quarantine of all herds or stables where the disease is known or suspected to exist, will be kept up, affected animals will be slaughtered, and every precaution that science or experience can suggest will be resorted to, to prevent the spread of the disease.

Recent developments in the dairy stables on Long Island, and in some other regions near New York, disclose the most revolting condition of things it is possible to conceive of. The manner in which these cows are kept—the filthy, unventilated stables in which they are housed—form a picture of such disgusting features as to recall, in all their horrid details, the illustrations in Frank Leslie's paper some years ago, when he made his war on the swill milk venders of that period. That war was waged with unremitting fierceness, but the public grew apathetic, opposition died out, and the swill milk venders, after some pretended reforms, continued their nefarious practices.

Pleuro-Pneumonia, as it is found in these stables, is very virulent, and the repressive measures adopted by the State authorities were applied none too soon. This dangerous and commonly fatal disease is so contagious that persons employed among cattle who are affected with it have been known to carry the infection in their clothes for long distances, and thus become the means of introducing the disease into herds remote from the points whence they came. The existence of the disease has already affected our meat trade with Europe to such a degree as to very materially decrease shipments. In the December number of the *Pen and Plow* we gave an account of a new law adopted in England, regulating the introduction of cattle to the British markets. The United States and Canada, at that writing, were among the very few countries from which cattle were received without restrictions. In view of the prevalence of pleuro-pneumonia on our Atlantic coast, the English authorities have placed cattle shipments from this country under the same stringent regulations as apply to the least favored countries which come under the operations of the law. In New Jersey the disease is prevailing to an alarming extent, and the origin of the plague is believed to be the swill stables in Hoboken, Newark and Jersey City. These stables fatten cows on distillery and

browery refuse, and then sell them throughout the country.

It has been shown that at the first indications of the disease the owners of swill stables, in order to avoid the loss that would ensue from the death of the animals, send them into the country, and by specious arguments, succeed either in selling or exchanging them for sound cattle. Thus the scourge is rapidly spread. It is a pretty well established fact that a Jersey farmer is not likely to rest quietly under a bad bargain. In many instances it has been shown that they have sold these diseased cattle to unscrupulous butchers, who, after removing the more diseased parts, have in turn retailed the meat to their customers. It seems a pity that New Jersey has no law under which the authorities can successfully combat the disease. The State Agricultural Society, however, have taken the matter in hand, and will urge upon the Legislature the immediate passage of a law embracing the main features of the New York law, which permits the authorities to slaughter any animal suffering with contagious disease, to establish quarantine over infected districts, and to absolutely forbid the sale of animals suspected of infection. It cannot fail to strike the readers of the *Pen and Plow* that the healthfulness of their cattle, in view both of milk and meat product, is a subject that should engage their earnest attention. Happily the disease, of which we are writing, is not wide-spread (no case having occurred west of the Alleghany Mountains), and the repressive measures which are being actively pursued, it is to be hoped, will be successful in stamping it out.

[The above article from the March number of the *Pen and Plow* suggests the propriety of city authorities in other places than New York, making some enquiry as to the treatment and mode of feeding of Milch Cows.—Ed. J. of A.]

Wednesday, 9th March, 1879.

At a meeting of a Committee of the Board of Agriculture, appointed to devise some measures to ensure accuracy in recording pedigrees in the Nova Scotia Herd Book. Present—D. Matheson, Chairman; C. F. Eaton, I. Longworth, C. E. Brown, Secretary.

Resolved:

1. That all animals shewn to be of full blood, under the Herd Book rules that obtain in England and in the United States, shall be entitled to registry.

2. Animals bred from full blood registered sires of the same breed by four crosses, shall be entitled to registry; evidence of such breeding, and the date of birth of the animal to be recorded, to be authenticated by the breeder or owner upon oath, to the satisfaction of the Board.

3. That animals duly registered in Canadian, English, American, or other Herd Books, not less restrictive than our own, may be admitted to registry in the Nova Scotia Herd Register, full record of pedigree for four generations being furnished.

4. In view of the revision and the publication of a Nova Scotia Herd Book, if doubt attach in regard to any animal already registered, it shall be required of the owner to authenticate the pedigree on oath, as above, failure in which shall lead to exclusion from the Register, or to the affixing of an asterisk, as the Board may determine.

D. MATHESON, Chairman.

AN ACT TO PREVENT BULLS AND RAMS OVER ONE YEAR OF AGE FROM RUNNING AT LARGE.

WHEREAS, for the encouragement of Agricultural Societies, and farmers who have large sums of money invested in pure bred stock, and with a view to raise the character of the neat cattle of the Province,

Be it enacted by the Governor, Council and Assembly, as follows:

1. That hereafter all bulls and rams over twelve months old shall be kept in charge by their owners, and shall not be permitted to run at large in any season of the year, or under any circumstances.

2. That no such bulls and rams shall be let out to pasture in any locality, unless securely tethered in such manner as will restrain them from going at large.

3. The owner of every such bull and ram found going at large, shall forfeit a sum not exceeding twenty dollars, nor less than five dollars, for every offence, in the discretion of the Court before which he shall be convicted.

4. Penalties under this Chapter may be recovered in the name of any person who will sue therefor, in the same manner, and with like costs, as if they were private debts, and shall be paid to the person suing.

5. This Act shall not be construed so as to deprive parties injured by bulls and rams of any civil remedies they may have for damages against their owners.

6. Any existing law, or regulation, or by-law, of any Town, or Court of Sessions, inconsistent with this Act, is hereby repealed.

Mr. MARGESON'S imported Shropshire Down Sheep, purchased at the sale last autumn, have wintered well. He also bought from Mr. J. E. Starr the Shropshire Ewe purchased by him at the same time. The Ewes have each dropped a Ram Lamb, one on March 8th, the other on March 10th. These Lambs will be for sale next autumn.

THE following items are from the *Liverpool Advance* of 19th March:—

Mr. William Godfrey lost a yearling thorough-bred heifer on Friday last.

Two fine salmon were taken at the Bridge on Saturday—one by Mr. Wm. Kenny, and one by Mr. Plummer.

The river opened rapidly last week, and very little ice remains except on the banks. Some nets have been set, and Indians are to be seen daily in boats fishing for salmon. Three or four fish were caught the end of last week.

A Seal, weighing 200 lbs., was captured in a mill brook, in Lower Village, Colchester Co., on Tuesday last.

I have been so annoyed with the glare of the light carried at the side of the vehicle, fastened on the dashboard, or attached overhead, all of which ways are common with us, that I gave up using a light altogether, until it struck me that the best place for a lantern was underneath the wagon. So a stout strap and snap-hook were placed just back of the forward axletree, and to this a lantern hung. It swings about somewhat, and casts the most remarkable wheel shadows. Nevertheless, the road is well lighted for rods in front, and every rut and pebble is plainly seen several feet before the wheels.

MR. JOHN A. McCURDY, Onslow, has become owner of the Ayrshire Cow Bello of Avondale. She was purchased from Mr. Fleming, at Strathaven, in the West of Scotland, and imported by the Board in 1875. She was then bought by Mr. Jack, Bellahill, for \$200, and her first calf, just dropped, by Mr. A. Anderson, for \$30. Last October, after being exhibited at Truro, she passed over to Laceyfield Farm, along with three of her progeny, a fourth having gone to N. E. Margaree. The price paid by Mr. McCurdy for the cow was \$240. She is in calf to Baron of Bellahill.

CISTERNS WITHOUT BRICKS.—J. R. Huff asks: "Can a cistern be made by simply digging a round hole and plastering on the earth?" The writer has five cisterns built in this way, and they can always be built safely without bricking them from the bottom, wherever the soil is an adhesive clay. Two of the five cisterns are large ones for stock purposes, ten feet in diameter, and they are filled by a short under-drain that works admirably. The water is pure and cold, so that it is used as drinking water in summer. In a soil where gravel or sand prevails, it is necessary to brick your cistern from the bottom; but in such soils as described the arch can be built on a shoulder or offset sufficiently deep to be out of the way of frost.—Ohio Farmer.

CAMPER ON CATTLE DISEASE.

TRANSLATED BY ROBERT MORROW, ESQ.

[Our farmers and farmers' sons would better appreciate the immense advantages of Nova Scotia as an Agricultural country if they knew more fully the discouragements and difficulties with which the farmers of Manitoba, Australia, Britain, California, the Western States, the Solid South and the United North, have each to contend. Here, with a soil naturally fertile, we have a seaboard studded with harbours into which fertilizers to make it still more fertile may be freely brought from the ends of the earth. We have markets at every shipping place, and the whole commerce of the world is open to us. Our climate is genial and capable of ripening all the most profitable crops of temperate countries, those which form the staples. There are few labour difficulties, no socialistic combinations. The grasshopper comes only in the fall, and in quantities sufficient to fatten our turkeys for Christmas. Last, but not least, we enjoy perfect immunity from every form of contagious and epidemic cattle disease.

At the present time, when the commerce in cattle is so seriously clogged by the prevalence of disease in various countries, it is of the first importance that the Agriculturists of those countries upon which the shadow of the vulture has not fallen should acquaint themselves intimately with the symptoms and treatment of the disease, as a precautionary defence against its advent, and that they should likewise think out in detail the various means that may be adopted to render its introduction impossible. We have reprinted a timely article from the *Scientific American* in the present number, and now proceed to give the first of a valuable series of papers by the old philosophic Dutch Zoologist Camper (a contemporary of John Hunter), for which we are indebted to the great kindness of Robert Morrow, Esq., whose own contributions to Nova Scotia Zoology are well known to the members of the Institute of Natural Science.—Ed. J. OF A.]

FOURTH LECTURE.

History, nature, symptoms and cure of the distemper now prevalent, (last century.)

The difficulties which the subject of these lectures naturally offers, and the small experience which I have obtained of this painful disease, frighten me when I think of the hope and expectation which is painted on the faces of my auditors! It was more easy for me to satisfy your curiosity in dissecting and in showing the affected parts of horned cattle, which gives to you the exact history of the origin of this devastating plague. However, the indulgence which you have so often shown to me, the kindness with which you have always deigned to appreciate

my zeal and the uprightness of my intentions, embolden and warrant me even in this painful task.

In the introduction to the first lecture, I have already observed to you, how difficult it is to write the history of the distemper, because the ancients rarely, or better to say, never opened the veins which died of it; at least they speak only in their writings of the external symptoms, consequently from those only which, being also common to other diseases, cannot serve to give an idea of the nature of the distemper as exact as one might desire. Their superstition and idolatry put besides great obstacles to the discovery of the causes and the symptoms of this disease, as we can chiefly see by the writings of Porcius Cato the elder, who died about one hundred and forty-eight years before Christ. This Roman teaches us in his admirable work upon agriculture, that we ought to offer every year, in the woods, honey, lard and wine to Mars Sylvanus, in order to prevent the mortality of the cattle, with the ridiculous prohibition to women and slaves of being present at these kinds of offerings.

However, if one had reason to fear the distemper, he must give to the healthy cattle a mixture of salt, of laurel leaves, onions, cloves of garlic, incense, flour, rue, wild vine (black bryony?), of live coals with a little wine; but for this it was necessary according to the superstitious ideas of the ancients, that the person who administered this remedy was not only fasting, but also that he stood up in the same way as the ox.

If the animal becomes sick, adds Cato, make him eat a hen's egg whole, which must be newly laid, and the next day give him a clove of garlic softened in wine. You will see by this, that the advice which is given now-a-days to make use for this object of onions and fresh eggs is anything but new.

Columella, who lived under the reign of Claude, about 42 years before the Christian era, gives the description of a contagious disease which he calls "cruditus," which differed little, by its symptoms, from the present distemper; this is what he says of it: † "Crebri ructus, ac ventris sonitus, fastidia cibi, nervorum intentio, hebetes oculi, propter quæ bos neque ruminat, neque lingua se deterget;" that is to say: "The eyes become weak, the animal from time to time trembles, food is repugnant to him, he breaks wind upwards and downwards; the ox consequently ruminates no longer, and does not lick itself with its tongue." He advises that they open the vein which is underneath the tail, that they draw the excrement from the rectum with the hand, after having anointed it with tallow, and that they give the animal some salt, honey and onions, as well as injections which he calls "collyria." If this is not done in time, he says, the belly distends, the colic of the intestines increases and the animal groans very much.

If the disease becomes contagious he orders (Cap. IV., pg. 577) that they separate the sick cattle from those which are healthy: "Segregandi a sanis moribidi;" and that they ought to put them in the meadows where there are no other cattle, &c.

*Gesner, Auct. de Re Rust., chap. 83, pg. 79.

†Anciently the laurel was regarded as an excellent preservative against contagious diseases, as we see in Herodian, liv. 1, chap. 30.

‡Lib. V., Cap. 6, page 578.

Vegetius, who describes the disease in the same manner as Columella (ibid, lib. III, cap. 2, page 1105), gives to it the name of "cruditus" and of "mullens;" he then points out the same remedies, particularly the fresh eggs administered whole with some honey; but he recommends above all to mix a great deal of salt with the food: "Expedit tamen salum pabulis misceri." He attributes the distemper to the dung of the pig which the cattle may have eaten; but I think that this is wrong. His advice is much more material when he requires that they separate from the other cattle those which they suspect are attacked with the disease: "Statim omnia animalia, quæ levem suspicionem habuerint, de possessione tollenda."

In the same manner he advises that they carry away those which have died of the distemper far from the farm, and bury them at a great depth under ground: "Mortua cadavera ultra fines villæ projicienda sunt, et altissime obruenda sunt subterris."

He will have above all that in the distempers they take the greatest care to separate the sick cattle from those which are well, "in order that the negligence of the owner should not be wrongly attributed to the anger of the Supreme Being; as thus do fools." It might be wished that they also always made use in this country of the same discretion and of the same wise reasoning. Our farmers, although Christians, have upon this subject the same ideas as the cow-herds of antiquity, or rather they accuse the Supreme Being of an evil which they might often prevent by their care.

The virtuous and celebrated Outhof has given at the end of his "Judicia Jehovæ Zebaoth," in 8 vo., 1721, the "Severi Sancti," idest Endeleich: Rhetoris, de moribus Buom Carven." Although we have different separate editions of this last work, I think it ought to be mentioned here, because Outhof has been very precise in citing many distempers which have taken place. This poet lived at the beginning of the fifth century, or as others claim at the end of the third century, particularly in 395. He gives the description of a distemper which does not differ much from that which is now prevalent. It occurred in Hungary, Austria and in Dalmatia, and had penetrated by Brabant into the Low-Countries:

Hæc dira lues serpere dicitur
Pridem pannonios, illyricos quoque
Et belgas graviter stravit, et imple
Cursu nos quoque nunc petit.

That is to say, to the French, for the author was from Aquitaine, situated in the southern part of the kingdom of France. This disease was analogous with that of the present time; nevertheless it appears to have been much more terrible: "Sic mors ante læm venit;" "Scarcely were the cattle attacked by this pestilence when they died." Then he says:

Hic fontis reprensus, graminis immemor
Erat succiduo jucula poplite.

page 827.

Infantur tumidis corpora ventribus
Albent lividulis lumina nubiis
Tenso crura rigent pede.

page 835.

Which I translate: "Here the young heifer refuses to drink, and not having ruminated for a long time, it staggers; its stomach is distended; its eyes seem covered with purple membranes; its hind legs become stiff and immovable." All symptoms which we meet in the present distemper. The idolatrous

cow-herd asks Tityrus, who is represented here as a Christian, what he must do in order to preserve his cattle which had remained perfectly healthy, whilst the mortality was general? This is the answer:

Signum quod porhabet esse crucis Dei
Magnus qui celsus solus in urbibus.
Christus perpetua gloria numina.
Cujus filius unicus.
Ho. signum medius frontibus ditum,
Concitarum peccidum certa salus fuit

page 337-339.

That is to say: "I make the sign of the cross of Jesus, etc., upon the foreheads of my cattle; and it is this which has preserved them." It appears likely that the custom which we still have in this country, but especially in Rhineland, of painting white crosses upon the walls of the stables, is a remains of this ancient superstition.

I do not think it necessary to delay longer upon this subject; I therefore pass to Ubbo Emmius, who informs us that in 1272 there was such a mortality among the horned cattle, that it resulted in a great famine; yet he says nothing upon the nature of the disease.

Outhof further gives account of others (distempers); but one of the most remarkable was that of 1682, during which he lived in this city. This contagion took rise in Italy, from thence passed by Burgundy, into Switzerland, Germany and Brabant. It differed however much from that which is now prevalent, and from that of 1710, etc.; for the cattle had especially a great heat and many pimples upon the tongue, which they lanced; as they also did in 1732, which saved them.

Then Outhof passes to the mortalities of 1710 and 1713. These he says broke out at first in Dalmatia, penetrated into Italy and Austria, ran along Bohemia and Hungary and also into Prussia, Russia, Sweden and into Denmark; and in 1714 into many villages of Switzerland, "Per plurimos Helveticos pagos," page 752.

It is then untrue that Switzerland has not been afflicted with this contagion during this century. This appears so much the more evident as by a prejudice or perhaps by a fact, which, I will not decide, they ascribed this disease to certain pills which malvolent men (as they believed in the Canton of Basle) spread about; this was inquired into by the College of Medicine of Basle. It confirmed this fact by the "Mercure d'Europe" of the month of September, 1714, page 175. Similar prejudices have also existed elsewhere, and prove to us evidently, "that a contagious disease has prevailed among the horned cattle at different periods, of which they have wrongly pointed out the causes." Agobard, Bishop of Lyons, who lived under Charlemagne, that is to say, at the beginning of the ninth century, has left a work entitled: "Contra vulgi opinionem insulsam de Grandine et tonitruis," in which he says, page 156: "When there was there some years ago a mortality, some persons pretended that the Duke Grimaldus had sent certain men with powders which they scattered upon the fields, the mountains, in the meadows and the rivers, in order to kill the cattle, because this Duke had a great hatred for his most Christian Majesty the Emperor. That he had not only heard of, but that he had seen when they had caught some of them, who after having been fastened upon planks, were thrown into the river and killed. And that which was the more surprising, they testified against them-

selves, that they had possessed and had in fact scattered such powders, etc. This was considered by every body as so true, that no one had the least doubt upon the subject." But Agobard looked upon all this as fabricated and absolutely impossible; which I do not however venture to assert. It appears to me that nothing prevents the spread of the distemper in a country, since we know that a single dried shirt of a person who had had the small pox at sea, a long time before arriving at the Cape of Good Hope, spread this disease in the whole Colony by the washing of it there. Do we not know that the variolous matter which we save for inoculation of the small pox and of the distemper can alike produce a similar effect? I am far from thinking that the case reported by Agobard can be true; but I do not find in it the same absurdity as this Bishop, who had no knowledge of inoculation, and ignorant that the contagious matter can be carried far without its losing its morbid virtue. But let us return to our subject. It appears to be sufficiently proved by what I have said, that distempers have taken place at different times, and that even Switzerland has not been exempt from them. I also know with certainty, that this disease was prevalent in 1768 at Housse, in the Canton of Zurich, as well as in the Cantons of Zug and Schweitz.

But I return to Outhof, because he alone, as far as I know, has well described the distemper of 1714, which made such terrible ravages in the United Provinces.

Outhof informs us that the contagion broke out in 1713 in the Low Countries, and that in 1714 it penetrated into Friesland, where it prevailed with so much violence, that in less than a year it swept away forty thousand cows. It afterwards attacked the province of Groningen, by the side of Friesland, and to the east towards Eems, and spread at the end of December over all East Friesland. He also observes that the States of Holland and of West Friesland prohibited by placards, in 1714, the throwing of any animal which had died of the contagion into the sea, the lakes or the canals; and ordered them to be buried three feet deep under ground. They also prohibited the eating of the flesh of animals which had died of the contagion, in order that the people should not be exposed to pestilential diseases.

This foresight was so much the more necessary as those whom necessity induced to feed upon these cattle which had been thrown into the water, kept them hidden in their houses, although they began to be corrupt, from whence would follow very great evils.

It would render an essential service to publish, if we possessed them, all the placards which have been promulgated, both here and elsewhere, since the formation of the Republic, relative to the distemper; which the historians of this country generally pass with silence as not having anything in common with their political discussions.

I can assert at least that before the year 1713 there is no mention in the "Grand Livre des placards" of Cau of any ordinance upon the measures to be used against the distemper; and I have noticed by a very exact list of the ordinances published in the Province of Friesland, concerning horned cattle, which has been made known to me by M. le baron G. F. Thoe de Schwartzberg and Hohenland:berg, that the introduction of foreign cattle was prohibited for the first time

the 27th November, 1713, until the 5th November, 1721, and afterwards from the 11th December, 1744, until the 29th January, 1747; from whence it must be concluded that, since the rise of the Republic, no contagious disease has prevailed among the cattle before the year 1713. This subject requires however further investigations.

Up to this time I have only spoken of the writers who not having any knowledge of anatomy or medicine, have however spoken of the distemper. But how can I quote the authors of Italy, England, France, Germany and of other countries, who have treated of the contagion which was prevalent in all Europe, from 1710 up to 1719? I must, however, recall to your memory that Ramazzini, Lancisi, Boromeo, Mazini, Nigrisoli, Michelotti, Magati, Lanzoni, G. Guerra, F. Fantasi, D. di Ferraris, L. Castelli, C. F. Cugrossi, H. Corazzi, Raimi, Valisneri, and others, have published in Italy, shortly after the origin of the distemper, their judicious observations upon this disease.

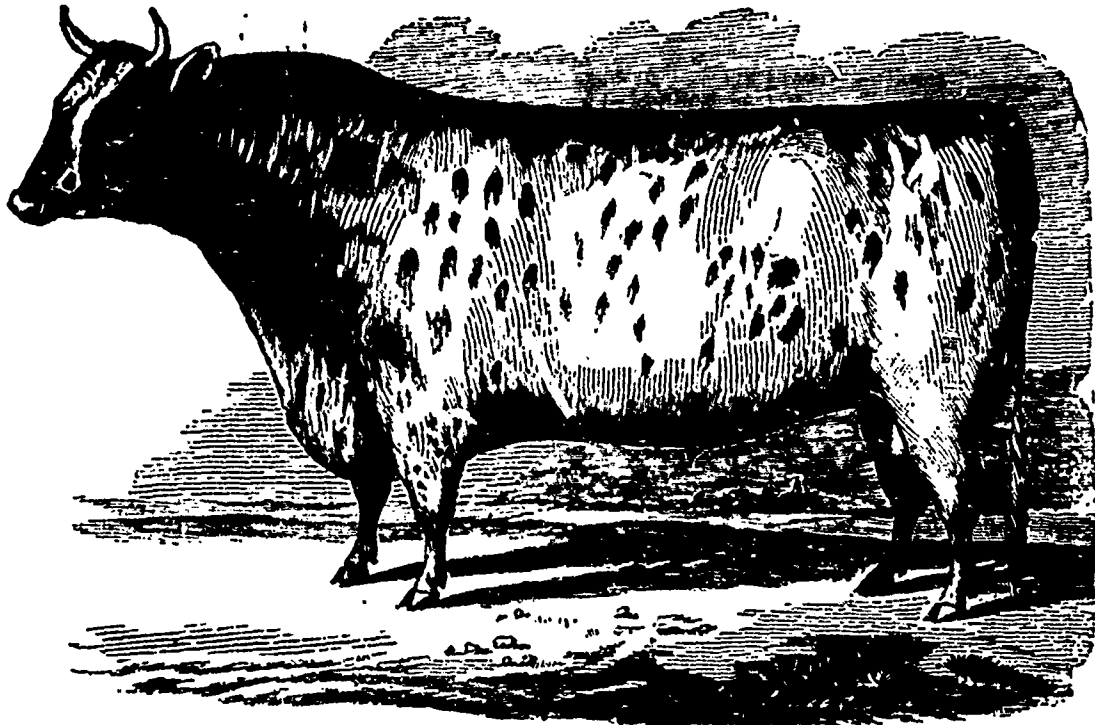
The principal of these writings, particularly those of Ramazzini, of Lancisi and others, have been translated into German by Ch. Nic de Lange, and in 1719 into Dutch by A. Maubach. Abraham-Sal. Vander Voort also published in 1716 at Leiden a letter addressed to a friend upon the distemper which then prevailed among the horned cattle; but it has been impossible for me to obtain this morceau.

The English have also translated the principal Italian writers; but no people has shown itself more eager in this respect than the Germans. Bates, however, had already published in 1714 excellent observations upon this disease of cattle, and he had even opened many, as may be seen in the Philosophical Transactions, as well as in the abridgement of its memoirs.

When in 1740 the distemper broke out anew, all the nations at once appeared to take notice of it. The French have published many anonymous works upon this subject. In 1744, they printed at Besançon a volume in 8 vo. entitled: "Observations sur la maladie contagieuse qui règne en Franche-Comté parmi les bœufs et les vaches," etc.; at Paris appeared, in 1748, in 12 mo., a "Dissertation sur la maladie épidémique des bestiaux," etc., by Blondel; at Besançon, a Mémoire sur les maladies, etc., des bêtes à cornes; a work which obtained the prize of the Academy of Besançon in 1766, in 8 vo., which up to the present time I have not been able to procure. The observations of the Marquis of Courtivron have given me much pleasure, and although in some things they may be rather superficial, yet they present much which is not found elsewhere; they are inserted in the Memoirs of the Royal Academy of Sciences, 1748 and 1752.

M. Sauvages published in 1746 a dissertation upon this subject; but I have not read it.

This disease attracted in 1746 at London the attention of Mr. Broklesby, a man of great attainments, and that of Mr. Crowwell Mortimer, in 1745 in the "Philosophical Transactions," number 477, vol. XLIII, and 1746, No. 478, vol. XLIV.; but these gentlemen have treated the matter more as theorists than practitioners: their numerous occupations and the immense extent of the City of London has prevented them from making experiments. The work of D. P. Layan, published in 1757, in 8 vo., is one of quite another nature.



Ayrshire Bull "BISMARCK," property of C. P. Blanchard, Hillside Farm, Truro, N. S. "Bismarck" was imported from Ontario by his present owner. In 1876, when three years old, he won the Ontario Ayrshire Association medal—competing against bulls from Scotland, the United States, and Canada, and has since won numerous first prizes both in Ontario and Nova Scotia.

The Germans have not merited less praise; it is impossible, so to speak, to enumerate the observations, the essays, and the remedies which they have published and proposed upon this subject. I will content myself with pointing out some, counselling you, at the same time, to procure the exact list of the best works which have appeared upon the distemper, published by Dr. J. G. Krunitz; in which we find mentioned not only the writers of whom I have already spoken, but a great number of others, of whom I can make mention only of the following.

In the mean time I return to the historical part of the disease, from what A. O. Gœlicke and J. O. Brucknerts have said of it in a dissertation, "De Lue Contagiosa Bovillam genus nunc de populante," Franc. et ad Viadrum, 10th February, 1730, and again published by A. Haller, in the "Disput. ad morborum histor. et Curacionem facientes," vol. V, 1758. Gœlicke is very precise in the description of the course which the distemper kept from 1710 up to 1717. He follows in this Kanold, a doctor of Breslau, who has proved that the contagion at first came from Tartary, by Russia into Poland; that from thence it spread out towards the North and to the South; that is to say to the north along Livonia, Courland, Prussia, Pomerania and Holstein, and had then penetrated by the Low Countries or Brabant into England. To the south, it went through Turkey, Hungary, Slavonia, Croatia, and from thence to Austria, Styria, Carnitha, Carniola and Bavaria, as well as a part of Italy, France and Spain. Afterwards it returned again to Germany, where, according to this celebrated

writer (page 715), it had not ceased to prevail in 1730, and even after still lingered in some places.

However the distemper appeared to be entirely extinct in the greater part of Europe, when after the severe winter of 1740 it broke out again.

In 1744 the mortality of the cattle was so great the States-General thought it necessary to consult the Medical faculty of Leyden, upon the means of warding off this terrible scourge. The advice of the faculty was printed in 1744 by the bookseller Luchtmans.

In 1745, the celebrated professors Dellaen, Ouwers and Van Velse gave, conjointly with Dr. Westerhof, a very correct dissertation upon the distemper and the diseases of cattle, which was published at the Hague.

It was in this way that men of great attainments were encouraged to give their observations upon this important subject; and afterwards appeared those of the learned M. Engelman, in the second part of the sixth volume, and in vol. VII, page 247 of the "Actes de la Société de Harlem."

In 1755, Messieurs Nozeman, Kool and Tak published their observations upon inoculation for the contagious disease of horned cattle, which deserve the greatest attention.

In 1758, the learned Grashuis brought out a very circumstantial opinion upon the same subject in the third volume, page 247, of the "Traité Choisis," published at Amsterdam by Houttuyn.

The aforesaid celebrated Professor Schwenke, wrote at the Hague essays upon the inoculation of cattle, which he appears to

have addressed to a friend in 1757; we find them in the Magazin de Brême.

Many persons of consideration, among whom we distinguish M. Binkhorst, Burgo-master of Hoorn, themselves made these trials, or furnished the necessary funds to those who wished to devote their talents to the public good.

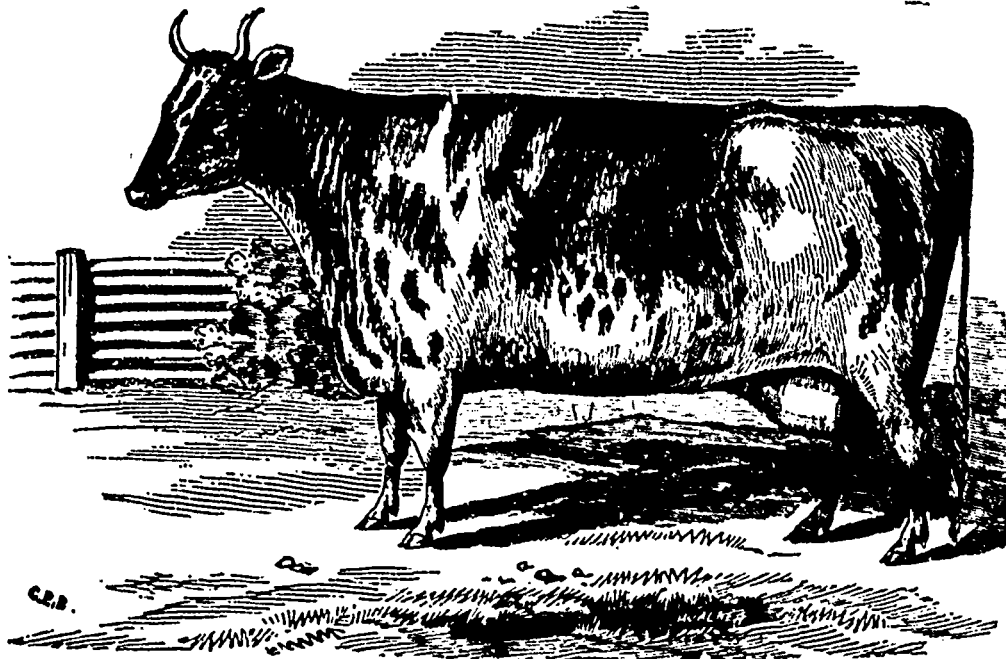
The contagion prevailed no less in Germany; which furnished to the celebrated Mauchart the opportunity of writing, in 1745, a dissertation entitled: "De Lue Vaccarum Tubingensi," which we also find in Haller, vol. V, No. 188.

The fine dissertation of M. A. Ens, "De morbo boum Ostervicensium pro peste non habendo," Halberstad 1746, deserves also to be read.

We must also take into account the essay which was published at Brunswick, in 1768, anonymously: "Versuch einer Erklaerung der Hornviesuche, nebst einige wahrnehmungen über die Einproplung derselben."

But I recommend to you especially the work which Dr. Lazard published at London, in 1757, in 8 vo.: "Essay on the nature, causes, and cure of the contagious distemper among the horned cattle;" also, "A Discourse on the usefulness of inoculation of the horned cattle, to prevent the contagious distemper," by D. P. Lazard, Philosophical Transactions, vol. L, page 11, where we also find the essays of the Bishop of York and of Surgeon Bewley.

I fear you are tired, by this long list of writers. It appears from these different efforts of so many clever men, that the disease



Ayrshire Cow "BLYTH," property of C. P. Blanchard, Hillside Farm, Truro, N. S. "Blyth" was imported in 1876, previous to which she was shown at Lintithgow, when a two year old in milk, and won first honors, competing against aged cows. She has since been exhibited at all our Provincial Shows and taken first prizes.

has sometimes diminished, and that in other times, it has broken out with new fury.

And should we not regard as a thing demonstrated, that the distemper, in the same way as all other epidemic diseases, and particularly the small pox, prevails at certain times with violence; whereas at others it appears to be absolutely extinct; although by accurate observations it would seem that we nevertheless always find here and there some animal which is infected with it? If this contagion is not as old as all the other diseases it has at least been known about two thousand years. It will undoubtedly abate by natural causes, as well as break out at other times with more violence. It is consequently our duty to employ all the means which the Supreme Being has furnished us in order to find efficacious remedies, of whatever kind they may be, which may make us easy as to the existence of our most valuable possessions.

I pass now to the description of the symptoms of the distemper, in order that you may better catch my ideas upon the causes and nature of this disease.

(To be continued.)

PROFESSOR CALDWELL'S ADDRESS ON PHOSPHATES.

Superphosphates are made by the action of oil of vitriol on the tricalcic phosphate, which is partially converted into the mono-calcic phosphate. The tri-calcic phosphate may be in the form of bones, or of bone-black, or of South Carolina phosphate. The product is the same in all cases, except that when bone, or bone black, is used, it contains some nitrogen.

Plain superphosphates are those that do not contain nitrogen. Nitrogen, in soluble forms of combination, such as ammoniac salts or nitrates, is generally estimated to be worth almost, if not quite, twice as much as soluble phosphoric acid; but the condition of the nitrogen, in superphosphates containing it, is very uncertain. Sometimes, doubtless, it is in the form of these soluble and valuable compounds, but oftener in the shape of dried animal refuse, or fish guano, where it is not worth over one-half more than soluble phosphoric acid, or about eighteen cents a pound.

Many enquiries have been made and many and various opinions expressed in regard to the home manufacture of superphosphate. It is argued in its favour that a purer article will be obtained at a lower cost, and that the farmer may be sure that he is not the victim of fraud and adulteration. Some few farmers have for many years made their own superphosphate, and they have much to say in favor of the practice. While I am willing to allow that there are a few among the many farmers who can execute this operation successfully and profitably, I must say that I can not recommend it in general. It is in the first place attended with some danger in the handling of the heavy carboys, or large glass vessels, in which the vitriol is received; one serious accident with such substance would sadly diminish the profits of many successful ventures in the manufacture. The acid is very

corrosive, and might make terrible havoc with any part of the body with which it should come in contact. In the second place, bone meal must be used in order to be sure of good results. It is not easy to reduce whole or simply broken bones by acid; and bone meal can be adulterated as well as the superphosphates, though perhaps not quite so easily. Hence one of the supposed advantages of home manufacture may be no advantage at all, for the product may contain no more superphosphate than an adulterated article of superphosphate from the regular manufacturer. In the third place, the manufacturer can get his raw materials, or at least a part of them, much cheaper than the former can, so that there is good reason to doubt, whether there is any profit in home manufacture, provided that there are reasonably fair facilities for getting a good article from responsible dealers. If you can get bones cheaply in your neighbourhood better reduce them by lime and ashes, or in the compost heap, than to resort to the use of oil of vitriol.

As to the best way to use superphosphate, it is not possible to lay down a set of rules that will answer for all conditions and places. It is unsafe to attempt to do this with any special fertilizer; but the statement given in the early part of the lecture as to the quantity of phosphoric acid required by various crops, certainly furnishes one important hint. It was there seen that the root crops require by far the largest quantity—one hundred and

thirty pounds, or more for both bulbs and tops, while any other ordinary crop needs less than fifty pounds. Phosphates have been used in England mostly on roots. The roots have been consumed for fodder on the farm; the quantity of farm-yard manure has therefore been increased, and the cereals have been manured with the farm-yard manure, instead of with the phosphate directly. I question, although I am not prepared to support my opinion with statistics, whether better results have been obtained with phosphates in any country than in England, and for the reason that they have largely pursued this sensible plan in their mode of using the manure—have used it to increase their stock of stable manure, by applying it to the fodder crops. A good illustration of this point comes to me very opportunely in that excellent agricultural monthly, the *Scientific Farmer*. In a lecture recently delivered by Mr. J. B. Lawes, of England, to whom farmers in all parts of the world owe a great deal for his admirable investigations in agriculture, he makes the following statements:—

"It is a somewhat remarkable circumstance that in almost every instance where we have used superphosphate alone upon a land kept continuously in one crop, the result has been of a very negative description. For instance, on permanent pasture a liberal annual manuring of superphosphate has not increased the hay more than one hundred weight per acre over unmanured. It is not that the superphosphate had produced good crops at first, and then the crops had fallen off, from the exhaustion of some other ingredient, the difference has been about the same from the first to the twenty-first crop. The increase in the barley does not show an increase of five bushels per acre over the unmanured crop, which would hardly pay for the manure. Even on the field where we grow permanent roots, and where you would say that the superphosphate would be the master of the situation, it is actually the fact that on the continuously manured land stable manure alone has, as a rule, given a larger weight of roots than the same manure with superphosphate added to it." He then goes on to show that it is in the rotation of several crops that the superphosphate comes into play to the best advantage, and he gives the results of some rotation experiments that have been going on now for thirty years. One such rotation consists of Swedes, barley, beans, and wheat, with the exception that twice in the course of thirty years clover has taken the place of the beans, with an interval of twenty-four years between the two clover crops. The bean crops were small, and but little larger with the phosphate than without manure. The Swedes are fed on the land, without any other food to the animals for the time being, so that all the manure is

produced on these roots. An unmanured plot, that is, receiving no superphosphate but receiving all the manure from the animals that fed off the roots, was carried along with the same rotation, and here are the figures for the eighth set of crops:—

	No Manure.	Superphosphate.
1873—Barley.....	23 bushels.	29 bushels.
1874—Clover Hay.....	1 ton 8 cwt.	3 tons 2 cwt.
1875—Wheat.....	19½ bushels.	31½ bushels.
1866-7—Swedes.....	1 ton.	11 tons.

The products are given, it will be seen, for one of the two rotations in which clover was grown instead of beans. The superphosphate was applied only every fourth year, and yet increased the crop of wheat by more than one-third, and the crop of barley by more than one-fourth, to say nothing of the remarkable increase in the crop of clover. This is certainly a good lesson in favour of the use of superphosphate in connection with root culture for fodder.—*Toronto Globe*.

GRIMES' GOLDEN PIPPIN.

In the spring of 1857, an enthusiastic pomological friend called on me, with the enquiry, "Did you see that article on Grimes' Golden Pippin in the January *Agriculturist*?" "No! I did not notice it particularly." "Well! let's have a look at it." Reference thereto assured us that Grimes' Golden Pippin was a most desirable variety, the tree a vigorous, thrifty grower, and an annual bearer, while the fruit was not only best in quality, but a long keeper, in season from December to March.

I agreed to send at once for a few scions, of which my friend was to have half, and mailed 50 cents to T. B. Marshall, Massillon, Ohio, who was then introducing G. G. Pippin to the public. The money was returned, "they were using all their scions for propagating, buy some trees." I was not then ready for trees, and sending the fifty once more, with a few words of explanation, was rewarded for my perseverance, with scions four inches long. Of these my friend got three. I divided my three into six pieces, gave two each to two friends, buried my two pieces in the ground for a few days, as they were a little dry, and then used them on stocks of different ages; both took root and made fine trees.

In the spring of 1869, with several thousand assorted apple, pear, and plum root grafts, from the F. R. Phoenix, of Bloomington, Illinois, I imported from Mr. Marshall 100 scions, 200 root grafts, and 100 two year old trees of G. G. Pippin, which were distributed over the County. The trees, where properly cared for, have made a uniform, strong growth, forming a remarkably symmetrical, round topped tree, recognizable anywhere in the orchard by one acquainted with it.

Within the last three years the trees are coming into bearing rapidly; the first barrel from the Carleton Club Farm in 1877, brought at auction \$5; last fall, 1878, the crop of this variety had increased to fifteen barrels, and brought at auction a higher price than any other apple in the market.

In the spring of 1871, our Club Farm manager, Mr. William Bustin, of Belleisle, Annapolis Co., left us to take charge of his place there, and took a few scions of G. S. Pippin with him. In October last he sent me a barrel of the fruit, which brought at auction \$3, nearly double the price the best Nova Scotian or American apples were selling at. It is, without exception, the most attractive barrel of apples I ever saw, the fruit of uniform, medium size, a clear, golden yellow, with a beautiful brilliant blush on many of the specimens, the perfume from it is exquisite, whilst the quality is not far behind the best American and Canadian apples.

I have the Snow from Montreal, some fifteen choice varieties from the Niagara District, Ontario, and the Newton Pippin from New York, but this barrel of Grimes' Golden Pippin from Annapolis bears the palm from all for beauty.

I would not recommend it for our Atlantic coast, i. e. out on the shore, but anywhere a few miles inland, and in all our best fruit counties, Grimes' Golden Pippin should be propagated as rapidly as possible. It has been exhibited at several of our Provincial Exhibitions as an off variety, but should be included among the best varieties for which special prizes are offered in the Provincial prize list. Its beauty and long keeping qualities especially adapt it as a variety for export.

Soon after getting it I sent scions to Cornwallis, Dr. C. C. Hamilton, Port Williams, R. W. Starr, Port Williams, (has trees ready for the orchard probably,) George V. Rand, Wolfville, William Bustin, Belleisle, Annapolis, or Charles E. Brown Yarmouth, for 25 cents to pay for trouble and postage, will no doubt send a liberal package of scions to any applicant.

I send you a few specimens of the apple for approval and endorsement, as this season there are few varieties in Nova Scotia in such perfect condition and of equal quality.

By the first steamer, I intend to send specimens to Mr. Charles Downing, to show the beautiful blush which none of the fruit books mention, as a characteristic of this fine apple, and which may be the peculiar endowment of the Belleisle sun or soil, or of the sunny season of 1878.

CHARLES E. BROWN.
Yarmouth, March 3rd, 1878.

[Additional remarks crowded out.]

PLEURO-PNEUMONIA.

THE cattle plague, which is creating so much anxiety throughout the United States, is a contagious fever, affecting cows chiefly, characterized by extensive exudations into the respiratory organs, and attended by a low typhus inflammation of the lungs, pleura, and bronchia. It has prevailed in Europe for ages, at times developing into wide-spread scourges, causing incalculable loss. It was imported into England in 1839, and again three years later; and it was estimated that within twenty-five years thereafter the losses by deaths alone in England had amounted to \$450,000,000. In 1858 the disease was carried to Australia by an English cow, and, spreading to the cattle ranges, almost depopulated them.

In 1843 an infected Dutch cow brought the disease to Brooklyn, where it has since lingered, slowly spreading among the cattle in King's and Queens counties. In 1847 several head of infected English cattle were imported into New Jersey, and, spreading among a herd of valuable cattle, made it necessary for them all to be slaughtered, the only certain method of stamping out the disease. In 1859 four infected cows were imported into Massachusetts from Holland; the plague spread rapidly, and was stamped out only by persistent effort, the State paying for over 1,000 slaughtered cattle. Since 1867 the disease has not been known there. Meantime the pest had invaded Eastern Pennsylvania, Delaware, and Maryland, where it has since prevailed in isolated localities. The absence of large herds of moving cattle in these districts, except for speedy slaughter, has prevented the disease from developing into a general plague.

The recent action of the British Council in forbidding the importation of American live cattle is likely to prove of inestimable benefit to this country, in forcibly calling attention to the grave risk that the presence of the disease on Long Island and elsewhere constantly entails. Fortunately the drift of the cattle traffic is eastward, and as yet there has been no propagating of the poison in the great cattle ranges of the West. Unless summarily arrested, however, the disease will surely reach those sources of our cattle supply, and occasion losses that can be estimated only in hundreds of millions of dollars.

The experience of all countries into which this disease has gained access, appears to prove that there is only one way of getting rid of it—namely, the immediate killing of all infected cattle, and the thorough disinfection of the premises in which they are found.

The disease is purely infectious, and is never found in regions where it has not gained a foothold by importation. Palliative measures have in every instance

failed to eradicate the disease, and are only justifiable, as in Australia, after the plague has reached dimensions utterly beyond the reach of any process of extermination.

Professor Law, of Cornell University, one of our best informed veterinary surgeons, most emphatically opposes every attempt to control the disease by quarantining the sick, or by the inoculation of the healthy. "We may quarantine the sick," he says, "but we cannot quarantine the air." To establish quarantine in the yards is simply to maintain prolific manufacturers of the poison, which is given off by the breath of the sick, and by their excretions, to such an extent that no watchfulness can insure against its dissemination. Besides, the expense of thorough quarantining operations would amount to more than the value of the infected animals whose lives might be saved thereby. Inoculation is still less to be tolerated at this stage of the pest.

The Professor says: "Germany, Holland, Belgium, France, and England, have been treating the victims of this plague for nearly half a century, but the result has only been the increase of disease and death. Our own infected States have been treating it for a third of a century, and to-day it exists over a wider area than ever before. Contrast this with the results in Massachusetts and Connecticut, where the disease has been repeatedly crushed out at small expense, and there can be no doubt as to which is the wisest course. As all the plagues are alike in the propagation of the poison in the bodies of the sick, I may be allowed to adduce the experience of two adjacent counties in Scotland when invaded by the rinderpest. Aberdeen raised a fund of £2,000, and though she suffered several successive invasions, she speedily crushed out the poison wherever it appeared by slaughtering the sick beasts and disinfecting the premises. The result was that little more than half the fund was wanted to reimburse the owners for their losses, and the splendid herds of the county were preserved. Forfar, on the other hand, set herself to cure the plague, with the result of a universal infection, the loss of many thousands of cattle, and the ruin of hundreds of farmers. Finally the malady was crushed out in the entire island by the method adopted by Aberdeen and other well advised counties at the outset."

And again, "Cattle have been inoculated by the tens of thousands in Belgium and Holland, and of all Europe these are the countries now most extensively infected. France, Prussia, Italy, Austria, and England have each practiced it on a large scale, and each remains a home of the plague. Australia has followed the practice, and is now and must continue an infected country. Our own infected States have inoculated, and the disease has sur-

vived and spread in spite of it, and even by its aid. Whatever country has definitively exterminated the plague, (Norway, Sweden, Denmark, Holstein, Mecklenburg, Switzerland, Massachusetts, and Connecticut), that country has prohibited inoculation and all other methods that prevail on the principle of preserving the sick, and has relied on the slaughter of the infected, and the thorough disinfection of their surroundings. So will it be with us. If any State adopts or allows any of these temporizing measures, that State will only repeat the experience of the past alike in the Old World and the New, will perpetuate the disease in the country, will entail great loss on its citizens, will keep up the need for constant watchfulness and great expense by the adjoining States for their own protection, and will indefinitely postpone the resumption of the foreign live stock trade, which, a few months ago, promised to be one of the most valuable branches of our international commerce."

We are persuaded that the position taken by Professor Law, and other similar-minded veterinary surgeons, is the only safe one. The disease can be stamped out now with comparatively small loss. If trifled with, and tolerated, it cannot but result in a great national calamity.—*Scientific American.*

CATTLE DISEASE ORDER.—The State Commissioner of New York, General Patrick, has promulgated an order addressed to "all owners of cattle and their employes, to all railway corporations, and to all captains or managers of boats whom it may concern," in which he prohibits the conveyance of milch cows and other store animals by railway from the counties of Kings and Queens into Suffolk, or westward or northward out of Rockland, Orange, Ulster, Sullivan and Delaware counties; or northward out of New York, Westchester, Putnam and Dutchess counties. All railroad companies are forbidden to receive or to convey milch cows in any of the directions named. The conveyance of such cattle by boat, barge or river craft from the counties named is forbidden, except when accompanied by a special permit bearing the signature of M. R. Patrick. Owners of cattle and captains of boats are forbidden, under penalty, to land, receive or convey such cattle.

Mr. BLANCHARD, Hillside Farm, Truro, has now twenty females and four males of pure Ayrshire blood. He has sold "Prince Bismarck," sixteen months old, to the Yarmouth Township Agricultural Society. His Bull Calf "Brutus," between eleven and twelve months old, measures five feet, and is a beauty.

PROFESSOR McEACHRAN DISCUSSES THE FINANCIAL ASPECT OF THE CATTLE PROHIBITION ORDER.

On the 14th inst. Dr. McEachran discussed the subject of the cattle trade of Canada and the United States as affected by present regulations, considered from a commercial point of view, before an audience of representative commercial men in the lecture-room of the Veterinary College, Montreal. Mr. Thomas Cramp occupied the chair. The action of the Minister of Agriculture in issuing the prohibition order, the speaker contended, placed the whole Dominion under an everlasting debt of gratitude to him and the Government which so nobly seconded his efforts in taking such a bold step for the public weal. We learn from the statistics collected for the census of 1871, that in the Provinces of Ontario, Quebec, New Brunswick and Nova Scotia, we had 836,743 horses, 2,604,290 cattle, 3,155,539 sheep, and 1,366,083 hogs, representing a money value equal to about \$133,866,567. It would be but fair to add one-fourth of these amounts to allow for the development of cattle breeding and the large number of animals in Manitoba and the North-West Territories which have been added within the last eight years. \$178,333,209 would be within the mark, he believed, as the value of our stock. Of this Canada does not lose two per cent. owing to their being no contagious diseases in this country; Great Britain, on the other hand, loses 50 per cent. directly and indirectly from this disease, and other Continental countries are equally as unfortunate. It is estimated the money lost in Britain from the foot and mouth disease amounted to thirteen millions sterling. After pointing out other instances of the great loss of wealth from cattle disease, the speaker contended that the Government would be blameable if it did not take measures to protect our cattle.

LAST SEASON'S CATTLE TRADE.

From Mr. C. H. Chandler, of this city, an authority on cattle statistics, the speaker quoted to show the extent of our export trade: From 11th May to 21st November, 1878, there were shipped as follows: Cattle, 18,655, at an export value of \$1,678,950; sheep, 41,250, at an export value of \$333,000; horses, 690, at an export value of \$82,200; hogs, 2,027, at an export value of \$26,375. Total, \$2,117,525. The amount paid for supplies was \$4,827; amount paid for shipping, \$35,730, representing a business of \$2,248,082, exclusive of funds paid to our railways and steamboats, and the trade was only beginning. Not only are the English and French markets open

to our cattle, but at this moment a shipment of 500 head is leaving Halifax for Germany. The agents for the German Company, Messrs. Glichen and Knock, arrived here a few weeks ago to arrange for a regular trade between Canada and Germany in cattle, poultry and grains, as well as in medium-sized horses. After some remarks on the history of the cattle quarantine in Canada against the "foot and mouth disease" and rinderpest, remarks were made by Messrs. W. W. Ogilvie, Masterman and Thomas Cramp, and a vote of thanks to the Professor was carried.—*Montreal Witness.*

MONTREAL vs. CHICAGO

AS A PLACE TO PURCHASE CATTLE FOR SHIPMENT TO EUROPE.

The *American Stockman* of 6th instant says:—Our readers will remember that certain German gentlemen came here last year and bought a number of cattle which were taken to Schleswig-Holstein and there ripened. These cattle were afterwards sold in the markets of the continent, English laws forbidding their sale, alive, in Great Britain. The profit thereon was not so great as the feeders hoped, perhaps, but there was nevertheless a profit, and there exists a disposition to try again. This time, however, our German friends have gone to Canada to buy, and are now in Montreal, whence they write that they have given orders for the purchase of five hundred cattle. They say that they were induced to go there to purchase, not by the belief that they could get cattle as cheap there as they could here, nor by a supposition that they could get better stock, but they went because expenses of handling the cattle would be so much less than in the markets of this country. In Montreal they are charged no yardage on their purchases, and have the privilege of buying feed wherever they choose at whatever price they can get it for. The road from Montreal to Portland will return to them as rebate \$18 of the \$38 per car freight charges, and in Portland privileges like those given in Montreal are secured.

We had hoped that this continental trade would be nursed and grow to something which would be considered of importance even to so vast an interest as the cattle trade of the West. Restrictions imposed by the English Privy Council upon the importation of American live cattle do not affect this new traffic, for the stock taken to Germany could not enter English markets alive. Still we do not lose the hope that Chicago will yet enjoy the benefits of this German demand for American cattle, for we do not believe that it will be easy, with all the advantages mentioned above, to buy cattle in

Canada in great enough numbers and of good enough style and quality to serve the purpose of German graziers. The rebates and privileges mentioned will amount to not much more, these buyers themselves estimate, than fifty cents per cental. It is not impossible that they may find themselves called upon to pay fully that amount more for the stock than it could be bought for here. We do not assert that this will be so, but that Canada can supply five hundred tidy, well-bred stock steers at short notice we are not ready to believe.

PHOSPHATES.

ADDRESS AT THE RECENT MEETING OF THE NEW YORK STATE GRANGE BY PROF. G. C. CALDWELL, OF CORNELL UNIVERSITY.

The quantities being given in all cases the number of parts of acid in 10,000 parts of soil; two soils contained four to five of the acid, twenty contained five to ten, eleven contained ten to twenty, and four contained from twenty to twenty-six of the acid; some exceptionally rich soils have been found to contain fifty to one hundred and fifty parts of phosphoric acid in 10,000 of soil; but the ordinary limits will be found to be two in 10,000 as the lowest, and twenty in 10,000 as the highest, and it will be safe to say that the average proportion is about ten of acid to 10,000 of soil. A quantity represented by two to twenty ten-thousands is but a small proportion; but when we come to consider how much this means in the soil of a whole acre, it does not appear that plants needing phosphates in their food will be so nearly starved as might at first thought seem to be the case. The mass of soil represented by the area of an acre taken to the depth of one foot would weigh about three hundred and fifty times ten thousand, or 3,500,000 pounds; therefore to estimate approximately the quantity of phosphoric acid in an acre of soil within easy reach of vegetation we have only to multiply the quantities that I have given for 10,000 parts by three hundred and fifty; two in 10,000 means seven hundred pounds to the acre, while twenty in 10,000 means seven hundred pounds to the acre; and the average of ten parts in 10,000 means the apparently abundant quantity of three thousand five hundred pounds to the acre.

Some of you may perhaps have heard the lecture which I recently delivered before the Elmira Farmers' Club on lime, and have noticed that I called special attention to the constancy of the occurrence of lime in plants. The statements that I made there, in regard to that point, hold good, as well in regard to phosphoric acid or the phosphates. The thousands of analyses that have been made of the ash of plants, or that part left behind when the plant is burned, show that phosphate is always present, no matter what may have been the conditions under which the plant grew, whether in water, or in marshes, or on dry land; whether in soil rich or poor in phosphates. We may take the plant in any stage of its growth, from the most immature to the ripest, or we may take any part of the plant, or any special organ, even down to the

petals or stamens of the flowers, and never fail to find phosphates.

In regard to the proportion of phosphoric acid in the crops that we ordinarily cultivate, no plant or part of a plant is so rich in phosphoric acids as the seeds of wheat and rye, where we find in the ash an average of forty-two per cent.; next to those come Indian corn, containing about forty-one per cent. of phosphoric acid in its ash, then barley with thirty-four per cent., oats with twenty-two per cent., potatoes with twenty, the sugar beet with fifteen, turnips thirteen, mangolds and clover eight per cent., and timothy with about seven per cent. But the proportion of phosphoric acid in the ash of these plants possesses less interest for us than the actual quantity of the acid required by an average crop. How much does a fair crop of wheat, barley, or Indian corn carry away from our soils in straw and grain, or a crop of clover or timothy hay, or of potatoes, mangolds, or turnips? And how much is exported from the farm in the crops ordinarily sold? The answer to this last question will tell us how much should be brought back to the farm, in the shape of purchased fodder, or else of purchased manure, to make good the draft upon the soil and to prevent it from losing its fertility.

	Average Bush.	Crop. Wt. lbs.	Pounds of Phosphoric Acid.
Wheat.			
Grain.....	25	1,500	12
Straw.....		2,500	6
Indian Corn.			
Grain.....	50	3,000	31
Stover.....		6,000	20
Potatoes.....	150	9,000	20
Turnips.....		40,000	42
Tops.....		75,000	99
Mangolds.....		40,000	31
Tops about the same as turnips.....			
Clover (two cuts).....		5,000	25
Timothy.....		3,000	14

From these figures it would appear that, in any case, whatever we may sell off the farm, the quantity of phosphoric acid removed will be very small in comparison with the stock in the soil, even if we start with only the average proportion of three thousand five hundred pounds per acre, or ten parts in ten thousand. A crop of turnips, which takes up a larger quantity of the acid per acre than any of the other crops mentioned in the above table, would carry off in the roots only forty-two pounds, or about one-ninetieth of the whole quantity; a crop of potatoes, only twenty pounds, one one-hundred-and-seventy-fifth of the whole; a crop of corn about one one-hundred-and-tenth, and a crop of wheat, only one three-hundredth. But in the best systems of farming all these products are not sold; the roots and hay, and in some cases the corn are fed to the stock, and nothing but wheat and other cereal grains, milk, or the products of its manufacture into butter and cheese, and meat, are sold, and in many cases potatoes also. But in all these products there is comparatively little phosphoric acid. With the acre's yield of wheat only twelve pounds of phosphoric acid leave the farm; and with the potatoes only twenty pounds. Sales of corn remove this acid from the farm almost three times as fast as sales of wheat, and one-third faster than the sale of potatoes.

Taking the annual yield of a cow to be two thousand five hundred pounds of milk, if it is

all sold, only about six pounds of phosphoric acid would be exported, and this quantity of acid would probably be taken from not less than two acres of land, required for the support of the cow. According to the estimate of Mr. Lawes, for every thousand pounds of live weight of beef animals raised on the farm, fattened and sold, about sixteen pounds only of phosphoric acid will be exported; this quantity, distributed through the whole number of years from the birth of the animal to its sale will amount to a very small draft per annum per acre—certainly not over two pounds. The meaning of all these figures is simply this, that if only wheat, milk, and fattened animals are sold off the farm, and if wheat does not come too often in the rotation, the stock of phosphoric acid in the soil is not drawn upon to an extent greater than from two to three pounds for each acre per year, or less than a hundredth of the average quantity in a good soil. This is slow exhaustion, but, after all, it is sure, and even such careful husbandry as this cannot be practised, if but for half a century, without making a serious inroad on the native stores of plant-food. On how many of our farms, however, is such careful husbandry practised—to say nothing of the reckless waste of manures?

In making these estimates I have assumed that everything that is not sold goes back to the farm again in manure. What quantities of corn and hay are carried from the country to the city—both of them crops that remove large quantities of phosphoric acid, fifteen, twenty-five, or thirty pounds per acre, instead of only two or three as in wheat, milk, and fat animals. In respect to the waste of manures, fortunately, phosphoric acid is not easily lost in this way. It is not volatile, and so it cannot escape into the atmosphere as the ammonia can; but if the manure pile is frequently drenched with water, as is only too often the case, the phosphate may be leached out and carried into the ground under the pile, far beyond the reach of the farmer's spade. In one instance, where an excavation was made under a manure pile from seventy head of cattle, it was found that the earth was coloured blue by phosphate of iron phosphoric acid that had been leached out of the pile, and it was estimated from the analysis of this product, that there were under the manure pile at least 6,000 pounds of phosphoric acid, worth at least five times as much as an equal quantity of phosphoric acid in the field, because soluble in water. The phosphoric acid in the field, especially of a soil that has been long under cultivation, is mostly insoluble; this that was found under the manure pile must have been soluble originally, or it would not have been leached out by the water that soaked throughout the manure.

If there were time for it I might show that lime and potash, ingredients of the food of plants, that are always present in the plant, and in the case of the latter especially, and in quite large and uniform proportions in some parts of the plant, are exported in much smaller quantities than the phosphoric acid, in the plants ordinarily sold. Phosphoric acid appears to be the ingredient of plant food above all others that we have been carrying off from the soils of our farms in the course of the fifty years or more that we have been cultivating them, and it is only within the last few years that we have given any thought to replacing the loss. In England, where soil has been under cultivation for a much longer period, they began to feel the

deficiency of phosphates many years ago, and we are now beginning to follow in their track. In Morton's Cyclopaedia of Agriculture we are told how the farmers of England began long ago to be discouraged. Their soils had been deteriorating for many years, under somewhat the same wasteful system of cultivation, evidently, that has been so largely followed in this country, especially in the west. A point was reached where, whatever system the farmer followed, his crops were steadily diminishing; in some places the condition of things was so bad that wheat was not included at all in the rotation. It was the introduction of bone manure, just at this point, that saved the agriculture of England, and entirely changed the aspect of affairs.

From the consideration of the relation between phosphate in the soil and the phosphoric acid in the crops that we allow to leave the farm, we pass naturally to the consideration of the important subject of phosphates as manures. I should, however, wear your patience all out, if I should attempt to consider all the forms in which these manures are offered to the farmer. I must therefore confine my attention to the most important one, superphosphate of lime. This superphosphate, about which so much is said now-a-days—what is it? Before I can answer this question satisfactorily, I must digress a little to explain a very interesting property of phosphoric acid, upon which the difference between a superphosphate and an ordinary mineral phosphate, or the phosphate in bones, is based.

In the early part of my lecture I made the statement that there are several phosphates of lime, containing with the same quantity of acid different quantities of the base. Three of these phosphates are very interesting, from an agricultural point of view. Starting with the one which I have already described as the most common, and the only one found in the rocks, and containing for every one hundred and forty-two parts of the acid one hundred and sixty-eight parts of lime, we can prepare from that, by suitable processes, another phosphate containing one-third less lime, or one hundred and twelve parts; and from that another can be obtained containing still another third less lime, or only fifty-six parts. The first phosphate, the starting-point, we may call, as already stated, the tri-calcic phosphate, the substance calcium being one of the constituents of lime. The second we may call di-calcic phosphate, and the third, mono-calcic phosphate. The second compound contains lime twice as much lime, or twice as much calcium, as the third or last mentioned one, and hence the term di-calcic, and the one first mentioned, contains three times as much lime or calcium as the third, and hence the term tri-calcic phosphate.

In examining the properties of these different phosphates we find a difference that has an important bearing in respect to their usefulness as fertilizers. The tri-calcic phosphate is quite insoluble in water, the mono-calcic phosphate is very soluble, and the di-calcic phosphate stands between the other two as to solubility. This is an important difference, because plant-food in the soil must first be dissolved before it can enter at the roots; and the more soluble a constituent of plant-food is in a fertilizer the more valuable it is, because a larger proportion of it becomes accessible to the plant during the season of growth. No constituent of the soil, or any fertilizer that is ever applied to the soil, is

absolutely insoluble and if time enough is allowed the whole of it may be taken into solution; but more than this is always required for remunerative plant-growth. There must be a greater rapidity of solution, so that the wheat crop can, during the growing season, easily find its eighteen pounds of phosphoric acid, or the Indian corn its fifty pounds or more, or the turnip crop its one hundred and forty or fifty pounds.

All three of the calcic phosphates which I have described are to be found, at least in nearly all cases, in our ordinary superphosphates. The tri-calcic phosphate, from its insolubility, is known as insoluble phosphate the mono-calcic phosphate as soluble phosphate, and the di-calcic salt as the reverted phosphate, because it is supposed to be produced by reversion of the mono-calcic or soluble phosphate back to the di-calcic as the superphosphate becomes old. In reports of analysis of phosphates, the terms soluble, reverted, and insoluble phosphoric acid are commonly used, instead of soluble, reverted, and insoluble phosphate. It is hardly necessary to add that the larger the proportion of soluble acid a superphosphate contains, the more valuable it is. In regard to the relative value of the three conditions of the acid, soluble, reverted, and insoluble, there is some variety of opinion among chemists, for the values are hard to fix with any degree of accuracy, but reverted acid is generally considered to be worth from two to three times, and soluble acid from three to four times, as much as the insoluble acid, such as we find it in mineral phosphates; and chemists are also generally agreed in giving to soluble acid the value of from twelve to twelve and a half cents per pound. My own opinion is, that it would be more correct to call insoluble acid worth only one-sixth as much as the soluble, or two cents a pound. Most of the experiments that have been performed with a view to utilize the ground mineral phosphate at once as a manure, without first converting it into superphosphate, or in other words, first converting at least a part of its insoluble acid into soluble acid, have yielded such unfavourable results as to justify us, it seems to me, in setting such a low estimate on the value of the insoluble acid in such phosphates. In bone meal the insoluble phosphate is worth more than in mineral phosphates—the South Carolina mineral, for instance—because it is accompanied by other substances that bring about its solution more readily. The bone meal will putrify, or decay wherever it is put, whether in the pile of rotting manure or in the field, and as it decays its phosphoric acid becomes soluble to a great extent, while the mineral phosphate suffers no such change.

*Bass River, Londonderry,
25th March, 1879.*

An Agricultural Society was organized in this place on the 23rd inst., called "The Bass River Agricultural Society." The following are the officers:—J. L. Fulton, Esq., *President*; R. D. Fulton, *Vice-President*; A. R. Fulton, *Secretary*; Robert Sterritt, *Treasurer*; J. Longworth, *Representative to Central Board*. 45 members to date, with good prospects of increase. We would be thankful for any advice or instruction you could give us.

Yours truly,

A. R. FULTON, *Sec'y B. R. Ag. Soc'y.*

QUANTITY OF SEEDS USUALLY SOWN TO THE ACRE.

	Broadcast. lbs.	Drilled. lbs.
Barley	100 to 150	80 to 120
Beans (Dwarf).....	.....	75 to 100
Beet.....	.....	74 to 6
Buckwheat.....	50 to 75	40 to 60
" (for soiling).....	75 to 100	.....
Carrot.....	.....	2 to 4
Clover.....	10 to 15	.....
Corn (for fodder).....	150 to 200	125 to 150
Flax.....	75 to 100	.....
Grasses,—		
Kentucky Blue....	25 to 30	.....
Lawn Grass.....	40 to 50	fine growth.
Orchard Grass.....	25 to 30	.....
Red Top.....	16 to 18	.....
Rye Grass.....	20 to 25	.....
Timothy.....	16 to 20	.....
Hemp.....	50 to 65	.....
Hungarian.....	30 to 40	.....
Indian Corn.....	.....	30 to 50
Mangel Wurtzel.....	.....	3 to 4
Millet.....	30 to 40	.....
Mustard.....	15 to 20	.....
Oats.....	75 to 100	60 to 70
Onion, for marketing bulbs.....	.....	7 to 10
" for dry bulbs.....	.....	4 to 6
Parsnip.....	.....	4 to 5
Peas.....	125 to 175	80 to 120
Potato (cut tubers).....	.....	500 to 650
Radish.....	.....	8 to 12
Rape.....	6 to 8	5 to 6
Rye (Fall).....	75 to 100	50 to 75
Sage.....	.....	7 to 10
Salsify.....	.....	6 to 8
Spinach.....	.....	9 to 12
Tares (Vetches).....	150 to 175	.....
Turnip.....	3 to 5	2 to 3
Wheat.....	100 to 150	80 to 100

In hills or beds.

Beans (pole or running) in hills.....	20 to 25 lbs.
Cabbage, in hills.....	1 to 1 lb.
" in beds to transplant.....	1 lb.
Corn, in hills.....	14 to 18 lbs.
Cucumber, in hills.....	1 1/2 to 2 lbs.
Melon, in hills.....	2 to 4 lbs.
Pumpkin, in hills.....	4 to 6 lbs.
Squash (running varieties) in hills.....	2 to 4 lbs.
" (bush varieties) in hills.....	4 to 6 lbs.
Tomato, for transplanting in beds.....	1 lb.

DISPOSAL OF A GIVEN QUANTITY OF SEEDS.

	Number Hills	Feet of Drill.
1 oz. Asparagus.....	.....	60
1 lb. Beans (dwarf).....	125	60
1 lb. " (pole).....	100	.....
1 oz. Beet.....	.....	50
1 oz. Carrot.....	.....	150
1 oz. Chickory.....	.....	75
1 lb. Corn.....	125	.....
1 oz. Cucumber.....	50	.....
1 oz. Endive.....	.....	125
1 oz. Leek.....	.....	100
1 oz. Melon.....	50	.....
1 oz. Okra (Gombo).....	.....	50
1 oz. Onion.....	.....	100
1 oz. Parsley.....	.....	150
1 oz. Parsnip.....	.....	175
1 lb. Peas.....	.....	60
1 oz. Pumpkin.....	25	.....
1 oz. Radish.....	.....	100
1 oz. Salsify.....	.....	80
1 oz. Spinach.....	.....	100
1 oz. Squash.....	30	.....
1 oz. Turnip.....	.....	150

From Seed Catalogue of W. Rennie, Toronto.

POTATOES will be largely planted hereabouts. The crop of last year was light, but the high price has made it fully as remunerative as usual, and wherever the crop was well cared for, it has paid better than any other. Some of the new varieties are heavy croppers, and those of equally good qualities promise to supersede Early Rose, which, for this locality, has had its day. Originally the Early Rose was one of the most prolific sorts, but it has become extremely variable both in yield and quality. I know farmers who last year did not get thirty bushels of marketable Early Rose per acre, while on adjoining land Wells' Seedling, which is every whit as good as Early Rose, and not distinguishable in appearance from it, yielded 150 to 175 bushels per acre. Late Rose is also very prolific, but its quality is variable, and on some soils it is hardly fit to be eaten.

Of course there is a risk in planting potatoes largely. A heavy yield all over the country, might repeat the experience of 1875, when potatoes were dug at 18 to 25 cents per bushel. But our old varieties have so far run out that a general success would be more surprising than a general failure. There is vastly more poor seed than good in the country today, and in the scarcity of potatoes at planting, much of this poor seed is sure to go into the ground. Poor seed was one cause of the general failure of the potato crop in 1878, and the evil is likely to be worse this year than last. It must be an exceptionally favorable season for potatoes that will bring through much of what will be planted the coming spring. Hence, while it is probable that many will lose money in potatoes this year, the time was never better for those who thoroughly understand potato-growing, and will give it the care and labor that this crop now, more than ever, requires. It is perhaps fortunate for skilful planters that the potato crop has been taken out of the list of crops which even the laziest and least skilful can grow. There never is and never can be very much profit in anything that everybody can do.

Munroe County, N. Y.

—Country Gentleman.

AN opinion, which we believe to be either intuitive or hereditary, exists in the minds of many intelligent men, namely, that a University training is necessary only for scientific, literary or professional men, and that it is folly for any one expecting to become "a hardy son of toil" to indulge in such an apparent luxury. We fail to see any reason why the latter class should not receive that excellent mental culture which is intended to inculcate such sound fundamental principles as are calculated to exalt the interests of a nation. Let us consider the necessity

of having such a training extended to the farming community. The prosperity of a country depends to a great extent on the educational and general intelligence which characterizes that country. As the farming community forms a very large fraction of the population, and if education is necessary to exalt a nation, it surely follows that this fraction should receive that education. It is also expedient that each citizen should have correct ideas regarding questions that concern his individual and civil interests, and further that he should be able to express these ideas intelligently. How infinitely better would it be if farmers, instead of providing immense property or storing up large legacies for their sons, would send them to a college such as Queen's where they might receive a thorough education, and thus place within their reach the best means of acquiring these things for themselves. The college session lasting, as it does, only during the winter months, affords another opportunity of accomplishing this object, for, not being actively engaged in farm-work, many young men, endowed with good natural abilities, are allowed to spend the winter days, and especially the long winter evenings, in comparative idleness. Would it not be better for them to harvest those golden moments by pursuing for a few years a regular course of study which would not only make superior farmers of them, but would fit them for managing efficiently their own local and municipal affairs! In this way farmers would have in their midst men thoroughly competent to represent their suffrages in the Legislative Assemblies of the land, without being driven to the humiliating resort of selecting as their representative a glib-tongued lawyer—from a place perhaps three or four hundred miles away—who, in many cases, cares little about the interests of the people who have elected him to that honourable position. Farmers, do not neglect the thorough training of your sons if you have a desire to further the moral and social interests of your country.—*Queen's College Journal.*

FERTILIZERS.

PURE High Grade Fertilizers, for the **SPRING CROPS.**
Analysis guaranteed. Warranted pure.

MANUFACTURED BY
ETWAN PHOSPHATE COMPANY,
Charleston, S. C.

200 to 250 pounds to the acre, for Wheat and Oats.
400 to 500 pounds to the acre, for Vegetables and Roots.
Price—\$5 50 per barrel, of 250 lbs. net.
A. M. JACK,
General Agent for Nova Scotia,
Halifax, N. S.

apl

ANALYSES OF ARTIFICIAL MANURES OF THE ETIWAN PHOSPHATE COY, OF CHARLESTON, S. C.,

BY PROF. GEORGE LAWSON, SECRETARY OF BOARD OF AGRICULTURE.

*Chemical Laboratory, Dalhousie College, }
Halifax, March 11th, 1879. }*

MR. A. M. JACK,

I have examined the cargo of Superphosphates, consisting of 736 barrels, sent to Halifax by the Etiwan Phosphate Company of Charleston, S. Carolina, per Schooner *Kohinoor*, and stored at Pickford & Black's Wharf, and find them to be well made, and in good dry condition. Samples, selected from the stock by myself, yielded, on analysis, the following results:—

1. CERES SUPERPHOSPHATE.

Moisture.....	16.61
Soluble Phosphoric Acid (anhydride).....	8.59
Equal to Bone Phosphate of Lime	18.61
Reduced and Insoluble Phosphoric Acid (anhydride).....	2.01
Equal to Bone Phosphate of Lime	4.35

2. ETIWAN POTASH COMPOUND.

Moisture.....	14.04
Soluble Phosphoric Acid (anhydride).....	11.93
Equal to Bone Phosphate of Lime	25.85
Reduced and Insoluble Phosphoric Acid (anhydride).....	3.60
Equal to Bone Phosphate of Lime	7.80

My analyses show that the Superphosphates of this cargo contain even higher percentages of Phosphates, and are drier, than the samples analyzed by the Georgia and Virginia State Analysts. There can, therefore, be no question of their genuine character and purity. I can recommend them with confidence to our farmers, to be applied at the rate of a barrel (250 lbs.) per acre to grain, and two barrels (500 lbs.) to root crops. I have ordered 3 tons for use on my own farm this spring. The only caution I would give is that, being so rich in soluble phosphate, these manures should be well mixed with the soil or made into a compost before being put into the seed drill.

GEORGE LAWSON,
Fellow of the Institute of Chemistry of Great Britain and Ireland.

Agent—A. M. JACK,
P. O. Box 356, Halifax, N. S.

MACKINLAY, RICHEY & CO.,

BREEDERS OF
BLACK Breasted and Brown Breasted Red GAME, Black HAMBURGS, Light and Dark BRAHMAS, Brown LEGHORNS, Red Pile Game BANTAMS, and PEKIN DUCKS.

AGENTS FOR
Todd Tonic Food,
Sulphur Medicated Nest Egg,
Surpex's Infallible Insect Powder.
AGENTS WANTED.
Send for circular. Address:
Lock Box 50,
Halifax, N. S.

feb1

1879. - SEEDS. - 1879.

BROWN & WEBB have completed their importations of SEEDS for the present season, and now offer to TRADERS, AGRICULTURAL SOCIETIES, and FARMERS generally, the largest and most extensive stock of SEEDS in the Maritime Provinces, at PRICES AS LOW as those of any reputable House in the Dominion.

CLOVER.

CANADIAN RED, TRUE VERMONT RED, WHITE DUTCH, ALSIKE.

TIMOTHY.

ENGLISH RYE GRASS, BROWN TOP.

TURNIP.

SWEDISH—in all the leading varieties, YELLOW AUREDEEN, WHITE GLOBE, RED TOP WHITE.

MANGEL-WURTZEL.

TRUE AMERICAN GROWN ONION SEEDS.

BLACK SEA WHEAT.

All of which have been selected with great care and will be found of such quality as will sustain the reputation for furnishing TRUE and RELIABLE SEEDS that this House has long enjoyed.

BROWN & WEBB,

Late Avery, Brown & Co.,
Corner of Duke and Hollis Streets,
HALIFAX, N. S.

Illustrated Descriptive Catalogues furnished FREE on application. apl 1

PICTOU POULTRY YARDS.

C. & A. MACDONALD, Pictou, N. S.

BREEDERS of Light and Dark Brahuas, Buff and Partridge Cochins, Brown and Black Leghorns, Black Breasted Red Game, and and B. B. R. Game Bantams, all from the best prize winning strains.

Our stock has taken since 1876, thirty-six prizes. Eggs for Hatching, \$2 to \$4 per dozen. Stock always for sale. Chicks after Oct. 1st, \$2, to \$10 per pair, \$3 to \$15 per trio. For full descriptive Circular and Price Lists, address:—

C. & A. MACDONALD,
P. O. Box 45, Pictou, N. S.

CHAS. D. MACDONALD,
apl ARTHUR C. MACDONALD

J. B. FRASER,

NORWOOD FARM,
Shubenacadie, Colchester Co.

BREEDER of First-class Short-Horn Cattle,

Shropshire Down Sheep,
Eblesmere Pigs.

All from Imported English Stock. The Cattle are of superior milching strains, and regular breeders.

Some first-class Bulls for sale.
March 1st, 1879. apl 1

THOROUGH-BRED

SHORT-HORN DURHAM STOCK FOR SALE.

ONE imported Bull, nearly 4 years old, \$200.

- One two year old Bull.
- One one year old Bull.
- One Bull Calf.
- One Cow, eight years old, and her calf, \$125.

Applications for any of the above, may be sent under cover to PROF. LAWSON, Secretary Agricultural Board, Halifax, N. S. jani

FOR SALE.

THE Subscriber offers for sale his **AYRSHIRE BULL**, "WILMOT," 15 months old. Certified pedigree No. 1927, Ayrshire Record. Ayrshire Breeders' Association of Sanguis, Mass., U. S. A. Sire "Sanguis" No. 1445, Ayrshire Record. Dam "Effie" No. 1103. This bull is pronounced by competent judges to be a very fine animal.

Societies wishing to purchase, will do well to communicate with the subscriber as to terms and price.

PARKER F. REAGH,
Prince Albert, Wilmot,
Annapolis Co., N. S.
ap11
Prince Albert, March 11, 1879.

FOR SALE.

THOROUGH-BRED DURHAM BULL
"DUKE OF COLCHESTER" Color white.
Age 2 years. First-class pedigree.

For price and other particulars apply to
GEORGE LAWSON,
Secretary Board Agriculture, Halifax,
Or at Truro to **ISRAEL LONGWORTH.**
March 17, 1879. ap11

ATTENTION FARMERS!

THE Pure High Grade **COMMERCIAL FERTILIZERS**, manufactured by

The Etiwan Phosphate Company
of **Charlestown, S. C.**

Will be offered for sale by me this winter and next spring.

These goods come to the Province after being inspected and analysed by the State authorities of South Carolina, and will be further inspected and analysed by Professor George Lawson, on arrival at Halifax, and every precaution will be taken to insure safety in purchasing, to the agriculturists of this Province.

These Manures are particularly adapted for Potatoes, Turnips, Mangles, Carrots, Parsnips, and other root crops, also for Vegetables, Wheat, and other grains.

For circulars, directions for use, and other particulars, apply to

A. M. JACK,
General Agent for Nova Scotia,
Pickford & Black's Wharf,
HALIFAX, N. S.

feb1

THOROUGH-BRED STOCK FOR SALE.

THE subscriber has for sale four **DURHAM** and two **AYRSHIRE BULLS**:

"**INDEPENDENCE**," No. 398 in the Nova Scotia Short Horn Register. Calved June 1st, 1877. Imported from Canada.

"**RYSDYK**," No. 381. Calved Nov. 8th, 1877.

"**SNOWBALL**," No. 382. Calved Dec. 7th, 1877.

"**SIR CHARLES**," No. 383. Calved March 21st, 1878.

AYRSHIRES:

"**WALTER THE 2ND**," No. 331. Calved March 20th, 1877.

"**TALBOT 3RD**," No. 333. Calved March 20th, 1878.

Bull Walter 2nd took first prize at the Provincial Exhibition at Truro in 1873.

Parties who wish to purchase, apply to

J. W. MARGESON,
Upper Church Street,
CORNWALLIS.

feb1

LUCYFIELD STOCK FARM.

Short Horn Durham Cattle,
AND AYRSHIRES.

Apply to **PROFESSOR LAWSON**, Halifax, or at Lucyfield Farm, within 2 miles of Beaver Bank Station, and 4½ miles from Bedford. decl

SPRING, 1879.**HALIFAX SEED STORE,**

192 Argyle Street, Halifax, N. S.

[ESTABLISHED 1866.]

ALFRED SAUNDERS,

Practical Seedsman, &c., &c.

FRUIT, VEGETABLE, AND GARDEN SEEDS
IN GREAT VARIETY.

Timothy, Orchard, Italian Rye, Red-Top and other Grasses. Also Red, White, Yellow and other Clovers.

Seed Wheat, Oats, Barley, Tares, &c., &c.
Seed Potatoes of all the best sorts in cultivation, at lowest market rates.

Two hundred varieties of Flower Seeds, comprising all the best sorts in cultivation.
12 Packages choice Flower Seeds, 50 cents free by mail.

12 Pkgs. Hardy Annual do., 25 cts. free by mail.
Gladiolus Roots for Spring planting, 30 varieties of the best sorts in cultivation, \$5.00; also singly, or by the dozen.

Your orders respectfully solicited.
Agricultural Societies liberally dealt with.
CATALOGUES on application. Terms CASH, or orders by Societies on the Treasurer of the Board of Agriculture. febl

FOR SALE.

A **SHORT-HORN DURHAM BULL**, purchased from the Saint Andrew's Agricultural Society, viz.: "PETER 2ND," Calved August 9th, 1874. Sire "Lord York," (imported from England),

Dam by "Gaspereau,"
gr. d. by "Favourite,"
g. g. gr. d. by "Young Favourite,"
g. g. g. gr. d. by "Young Favourite."

The above was imported from King's County about two years ago, has proved himself an excellent stock-getter, and very kind.

The attention of Agricultural Societies is directed to this sale.

Further information on application to
D. D. CHISHOLM,
Merchant.

Saint Andrew's, Antigonish Co., }
February 4th, 1879. } febl

HILLSIDE STOCK FARM.**AYRSHIRES.**

THE subscriber offers for sale two superior young **AYRSHIRE BULLS**, one year old, the get of "Bismarck." They are good size and handsome.

C. P. BLANCHARD,

jan1 Hillside Farm, Truro, N. S.

ELLESMERE BOARS FOR SALE.

FOUR Thorough-bred **Ellesmere Boars**, raised from Stock imported from England. They are five months old, and will be sold together or singly, for \$20 each.

Societies requiring Boars should apply at once.

COLONEL LAURIE,
Oakfield, Jo. Halifax, }
October 27th, 1878. } nov1

BROOKSIDE STOCK FARM.**AYRSHIRES.**

THE subscriber offers for sale a very fine **AYRSHIRE BULL**, twenty-one months old; imported from Scotland. He is of good size and handsome.

J. A. McCURDY,
Brookside Farm,
Onslow, N. S.

feb1

GROUND BONES! GROUND BONES!

A **LENGTHENED** experience in Europe and the United States has shown this to be the most valuable fertilizer for every crop.

During the past season **THE PROPRIETOR OF THE WELLINGTON TANNERY** has totally altered his machinery for preparing this valuable manure, and is now prepared to supply Agricultural Societies and the public generally with

FINE GROUND BONES

of a quality far superior to any that can be imported.

PRICE—Delivered at Wellington Station—

Fine Ground Bones : : : \$35.00 per ton;
: : : \$2.00 per cwt.

The machinery being now in thorough working order, orders will receive prompt attention and despatch.

As the supply of **BONES** in this Province obtainable for grinding is yet very limited, customers are requested to send forward their orders as early as possible, in order to ensure obtaining a supply for this year's crop.

Address:

MANAGER, WELLINGTON TANNERY,
Oakfield, Halifax County.

feb1

ALDERNEY BULL FOR SALE.

THE Subscriber has for sale a fine young Bull, seventeen months old, from a Cow formerly owned by William Cunard, Esq., of Halifax, and sold by him before he left the Province, to Wm. Stairs, Esq., and was sired by Lord Seafield, a thorough-bred Bull, owned by the Halifax Agricultural Society. This Bull is in colour a bright brindle, with a few white spots, with a mouse coloured nose, and the finest animal for raising butter stock in this part of the country.

ELIAS OALKINS,

feb Sackville, Co. Halifax, N. S.

THOROUGH-BRED FOWLS.

I **HEREBY** offer **FOR SALE** six trios of pure bred

PARTRIDGE COCHINS AND LIGHT BRAHMAS;

Bred from birds that have won *First Prizes* wherever shown.

If applied for at once, will be sold cheap, as my poultry houses are filled to their utmost capacity.

Fowls boxed and delivered at Railway Station, Halifax.

Address:—**THOMAS GOUDGE,**
Compton Avenue,
Halifax.

jan1

WANTED.

A **TWO** year old Short Horn Bull, thorough-bred. Parties having such, please send description and price to

C. J. McFARLANE,

feb Wallace, Cumberland Co., N. S.

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