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NOVA SCOTIA

JOURNAL OF AGRICULTURE

Published under direction of the Board of Agriculture of Nova Scotia.

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

VOL. IV.

HALIFAX, N. S., MAY—JUNE, 1881.

No. 16.

Halifax, June 15, 1881.

THE great event of the year is the Dominion Exhibition, which will be held at Halifax in September next. Committees are actively at work making all the necessary preparations, and the applications for information and entries already received show that competitors are taking time by the forelock.

We publish the Regulations for the Exhibition *in extenso*, on another page. If any one of our readers has not already received a Prize List and Entry Paper, he should send his address on a post card to Mr. W. McKerron, Sec'y., Dominion Exhibition, Halifax.

We publish, in the present number, several public documents that will be read with interest by our farmers, as they involve important changes in our Agricultural organization.

One Amendment of the Agricultural Act provides that in future the Annual Grant of \$4000 for Exhibitions shall be appropriated in alternate years for (1) Provincial and (2) District Exhibitions. Thus a Provincial Exhibition will be held only once in two years. In the alternate year when there is no such Provincial Exhibition there will be district Exhibitions, one in each District into which the Province is, or may in future, be divided. The present division is as follows:

District No. 1—Halifax and Lunenburg Counties.

Dist. No. 2—Kings, Annapolis, Queens.

Dist. No. 3—Digby, Shelburne, Yarmouth.

Dist. No. 4—Hants, Colchester, Cumberland.

Dist. No. 5—Pictou, Antigonish, Guysborough.

Dist. No. 6—Cape Breton, Richmond, Inverness, Victoria.

THE Agricultural Committee of the House of Assembly have recommended that the grant to Societies, instead of being diminished, be increased to \$3500, and that the working expenses of the Board be lessened by \$300; that information be obtained during recess with a view to re-adjustment of Agricultural Districts for the purpose of holding District Exhibitions; that the Prize Lists of Provincial Exhibitions be, in future, published not later than the month of February; that a fee of fifty cents be charged for each entry in the Herd Registry and twenty-five cents for each transfer; that a special grant of \$100 be given to Queens County; and that a bonus of 10 per cent on first cost be paid, under certain conditions, for the importation and keep of a Horse or Horses for breeding purposes in the Province.

We invite, in an especial manner, the attention of our readers to CLOVERDALE'S article on the *Great Agricultural Prospect*. A shrewd observer, of long experience in the Province, well acquainted in a thoroughly practical manner with its agricultural resources, he points out to our farmers exactly what is within their means, what they may reasonably expect to accomplish, and what results will naturally

follow the development of our grazing industry. Farming will become a good paying business, land will increase in value, money will become less exorbitant to farmers by reason of the greater security which the increased values of their farms will enable them to furnish, extensive improvements can be carried out, and the agricultural population will gradually grow into an independent, comfortable, well equipped yeomanry of comparatively rich land owners.

THE increase in the consumption of Artificial Fertilizers is, to a certain extent, a measure of the progress that a country is making in agricultural improvement. The Quebec Government, not satisfied with the personal exertions of their farmers in this direction, have bought 500 tons of "Göëmon Biphosphate," a phosphated kelp, containing (dry):

Organic matter	36.00
Nitrogen	1.93
Soluble Phosphoric acid ..	5.60
Insoluble do.	2.50
Alkaline Salts	1.90

This is to be divided among the Agricultural Societies, at \$26 per ton, and the price is to be retained from their annual government grants. The Council of Agriculture of Quebec have given effect to this arrangement, and have expressed to the Societies their wish that the fertilizer should be distributed to *all* members of societies, or as many as possible. Circulars explaining the best mode of using have been issued.

THIRD ANNUAL AGRICULTURAL, INDUSTRIAL, AND MECHANICAL EXHIBITION OF THE DOMINION OF CANADA,

TO BE HELD IN THE ROYAL EXHIBITION BUILDING AND GROUNDS (BETWEEN TOWER ROAD AND ROBIE STREET) CITY OF HALIFAX, N. S., FROM 21ST TO 30TH SEPTEMBER, 1881.

Under authority of the Dominion and Nova Scotia Parliaments, and under the immediate direction of the Central Board of Agriculture of Nova Scotia, and the Corporation of the City of Halifax. Cash prizes \$15,000.00. No charge for entry of Exhibits. Office of the Committee—The Speaker's Room, Province Building, Halifax, N.S.

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PROGRAMME.

The Exhibition will open on Wednesday, the 21st day of September, and continue open until 2 P. M. on Friday, the 30th September.

The Industrial and Mechanical Departments of the Exhibition will be open to the public on Thursday, the 22nd of September, at two o'clock in the afternoon, and will be on view from the opening to the close. The show of Horses

Cattle, Sheep, Pigs, Poultry, Agricultural and Dairy Products, Fruit and Flowers will take place during the second week, when all departments of the Exhibition will be in operation.

GENERAL RULES AND REGULATIONS.

Intending Exhibitors and Visitors are particularly requested to read carefully, and consider the following Rules and Regulations governing the Exhibition, which will be, in all cases, strictly enforced:

1. The Exhibition Grounds and Building will be opened on Tuesday, September 20th, at sunrise, and continue open during the day till sunset, for the reception and arrangement of Exhibition Articles. Exhibitors, on arrival, will immediately report themselves at the office to the Manager, who, with the assistance of the Committees of Management, will allot appropriate pens or spaces for their exhibits. This day, none but members of the General Committee, officials, exhibitors and necessary attendants, will be admitted. (Exhibitors of bulky articles requiring to be placed on the ground, or in the building during the previous week, will be permitted to do so on special application beforehand.) See Rule 18.

2. Live Animals, Fruit, Flowers, and perishable articles, will be received up to Tuesday morning, 27th September, at 9 o'clock; unavoidable delays to be dealt with at the discretion of the Committee, who, however, cannot undertake to do the work of the Judges on account of late arrivals.

3. The Exhibition Building will be opened to the public on Thursday, September 22nd, at 2 o'clock, p. m., and will be open each succeeding day to visitors, from 9 a. m. to 6 p. m. Admission, 25 cents each time on entering; children under twelve years of age, 10 cents. Military bands of music will be in attendance daily. The Grand Public opening will take place on Tuesday, 27th September, at 2 p. m., when all Departments of the Exhibition will be fully open. The cattle yards will be closed to the public every evening at sunset. The main building will remain open till 10 p. m.

4. The Judges in Manufactures, Arts, Implements, and Machinery, will meet at the Secretary's office on Thursday, 22nd September, at 9 a. m., and the Judges of Live Stock of all kinds, Fruit, Agricultural and Dairy Produce, will meet on Tuesday, September 27th, at 9 a. m., to obtain entry books, and proceed to award premiums. On completing their work, they will personally show their books to the Manager or Secretary, and will be furnished with the requisite prize-tickets, which it will be their duty to place carefully, and as soon as possible,

upon the various articles, before giving up their books and report.

5. The Judges, Members of Committee, and Members of the Press, will be furnished with badges.

6. Exhibits may be removed from the grounds on Friday afternoon, September 30th, at 3 o'clock, immediately after closing. The Treasurer will commence to premiums on the grounds at 9 o'clock, a. m., on Friday. Prizes not claimed within three months from the close of the Exhibition, will be forfeited.

7. Every intending competitor must transmit to the Secretary, not later than the dates mentioned below, an entry paper containing a correct list of the animals or articles which he intends to exhibit, together with certificate of pedigree in the case of thoroughbred stock, or else a reference to the registry number of any recognised Stock Register. Any competitor failing to transmit his entry paper at the proper time, will be excluded for competition. No fee is charged for the entry of animals or articles. In Class II, no animal will be accepted as thoroughbred, unless actually registered in a recognised Herd Book Register. Entry papers may be obtained on application to the Secretary of the Exhibition.

8. Horses, cattle, sheep, swine and poultry must be entered on or before Monday, September 5th, and the age of each animal should be stated in years and months, at the date of Exhibition; the precise date of birth to be given when necessary.

9. Plants and flowers, fruit, grain, roots, vegetables, and other field and garden products, agricultural implements, manufactures of all kinds, and articles not elsewhere enumerated, may be entered up to Tuesday, September 13th, one clear week preceding the Exhibition.

10. In order to prevent unnecessary labor and loss of time, exhibitors are particularly requested to *enter only such articles* as they intend to exhibit.

11. Exhibitors will please take notice that it is absolutely required that the entries be made at the dates above mentioned, in order to afford sufficient time to examine the entry papers, and to correspond with parties, when necessary, for the correction of errors and omissions; and no exception will be made to this rule, unless on payment of \$1.00 for each entry, and by special permission of the Committee.

12. Competitors failing to exhibit animals or articles which they have entered will forfeit a fee of 50c. for every such entry, to be deducted from their prize money, or paid by them.

13. Exhibitors of bulky articles requiring extensive accommodation must communicate with the Manager on or before

Monday, September 5th, stating what space they will require, in order that there may be time for the Committee to make the requisite arrangements.

14. All articles for exhibition must be on the grounds on Tuesday, September 20th, after which day none will be received, except live stock, agricultural, garden, and dairy produce, fruit, flowers, and other perishable articles, which will be received up to 9 o'clock on Tuesday morning, September 27th. All necessary erections, and bulky articles requiring to be put together on the grounds or in the buildings, must be finished, and all waste material and rubbish removed, not later than 12 o'clock, noon, on Saturday, September 17th, as no such work can be permitted during the Exhibition.

15. Exhibitors will, in every case, give the necessary personal attention to whatever they exhibit. Necessary Attendants upon live stock, and workmen actually required to attend to machinery, will be furnished with admission tickets with their names written upon them, which tickets will be good at the Exhibitor's gate only, during the Exhibition, such tickets to be obtained from the Secretary, by personal application, and on Certificate from the Chairman of the Department, or the Manager, that the services of the Attendant are necessary.

16. All articles for competition shall be the production or manufacture of the exhibitor; field produce must be the growth of 1881, except where otherwise specified; and all live stock must have been owned and kept in Canada by the exhibitor not less than three months prior to the exhibition.

17. All expenses incurred for the conveyance of articles or animals to and from Halifax, placing them in the exhibition, and maintaining them while there, shall be borne by the exhibitors, who must likewise undertake all risk of loss or damage. Articles must, in every case, be delivered and unpacked, free of expense to the Committee.

18. In class IX., and for all miscellaneous exhibits, similar to those embraced in this class, "delivery checks" will be furnished when such articles are given in charge of exhibition officials, and no such exhibits can be removed from the building unless these "delivery checks" are presented to those in charge of the department.

19. Arrangements have been made with the Customs Department for the admission of articles from foreign countries for exhibition free of duty, on giving the customary bond.

20. The entry tickets upon animals or articles will admit the person bringing them to the grounds for exhibition, along with such animals or articles, without the use of any other ticket. Afterwards

such persons must provide themselves with tickets.

21. When fewer than three competitors appear for any prize, and where the articles exhibited are not of superior merit, the judges shall have the discretionary power of awarding or withholding prizes, or reducing their values. No article can take two prizes, or be exhibited in two collections, unless the contrary is distinctly expressed in the prize list. In estimating the merits of live stock the judges are requested to take age into consideration, where animals of different ages are competing against each other.

22. No person shall be allowed to enter for exhibition more than one specimen (or required quantity) in any one section. This rule is not to apply to animals.

23. On the entry of each animal or article, a card will be furnished the exhibitor by the Secretary, specifying the class, the section, the number of the entry, and the name of the exhibitor, which card must remain attached to the animal or article during the exhibition. If removed previous to the close of the Exhibition the prize will be forfeited.

24. In all cases the right is reserved to reject entirely or accept conditionally any entry or application, and under no circumstance will articles which are offensive by their odor or appearance, or which are dangerous by reason of their combustible or explosive character, be admitted; and, if any such be introduced by an exhibitor through misapprehension or otherwise, they may be removed by order of the Committee.

25. Manufactured articles which have been awarded prizes at Exhibitions in former years, shall not be entered in competition for the prizes named in the prize list for this year, but shall be awarded diplomas, if, in the opinion of the Judges, such articles are superior to any others exhibited, and are deemed worthy of the same.

26. During the Exhibition, all vegetable products and manufactured articles shall be under the control of the Chairmen and Sub Committees of the respective departments, and of the Exhibition Manager, and all live stock shall be taken charge of by their owners, the officials giving all practical assistance in providing the necessary accommodations and food. Hay, straw, oats, and roots will be supplied on the grounds at reasonable prices, and there will be a free supply of water.

27. The regular times for watering horses, cattle, &c., during the Exhibition are between sunrise and 9 a. m.; between 1 and 2 o'clock; and after five o'clock, p. m. Exhibitors and attendants will

not be allowed to lead their animals to water, or to carry water over the grounds at any other times. Forage and other necessary supplies must be taken into the sheds before 9 o'clock in the morning, or between five and six o'clock in the afternoon. Carts will be sent round every morning before 9 o'clock to remove manure, &c. It is expected that all grooming and other work will be completed by 10 o'clock, a. m., and that attendants will thereafter remain with their horses and cattle, and be prepared to show them to visitors, and to give any necessary information that may be required by the Judges or the public.

28. Articles exposed for sale may have the prices affixed, and be sold by the owners, or by parties appointed by them for that purpose, but cannot be removed till the close of the Exhibition. No auctioneer will be allowed to sell animals or articles on the grounds, or in the building without the written permission of the Manager or Secretary of the Exhibition Committee, and the time and place of sale specified in such permission must be strictly adhered to.

29. Articles and animals sent for competition or exhibition shall not be removed from the exhibition rooms or grounds till after the close of the Exhibition, under forfeiture of any prizes or awards that may have been made to their respective exhibitors.

30. Any person who shall attempt to interfere with the Judges while in the discharge of their duties, or who shall attempt to influence their decisions by his presence or remarks, or who shall afterwards, within the limits of the Exhibition grounds, use any contemptuous or abusive language in consequence of any award made, shall forfeit his right to any premiums to which he might otherwise be entitled, and be otherwise dealt with as the Committee may determine.

31. Any exhibitor who may feel aggrieved in consequence of any irregularity is requested simply to draw the attention of the Manager to such, without entering into any discussion apt to cause hindrance or distraction. Should he not receive what he may consider sufficient dress on the spot, he must, nevertheless, abide by the decision given; but he may, at the close of the Exhibition, bring the matter before the Committee, by written statement, with a view to full enquiry.

32. No animal can be admitted within the enclosure that has not been previously entered in accordance with the Regulations 7 and 8, and animals of an inferior character, unworthy of a place in the Exhibition, will not be admitted under any circumstances.

33. Space will be provided for articles that may be forwarded for exhibition,

subject to approval of Committee, apart from such as are mentioned in the prize list. Awards of merit will be given for such exhibits, if deemed worthy; they must be entered on the Secretary's book in the manner prescribed for those that come within the prize list.

34. Exhibitors must supply themselves with proper fastenings for safely securing the animals in their stalls. All bulls must have nose rings.

35. No person shall be permitted, under any circumstances, to compete for prizes, as an exhibitor, in the same subclass in which he acts as a Judge, and any one so acting shall forfeit all awards that may be made to him at the Exhibition.

6. New and commodious erections are being provided upon the grounds for all Live Stock.

37. Favorable arrangements will be made with all the Railroad and Steamboat Companies for the conveyance of passengers and articles to and from the Exhibition at greatly reduced rates.

38. Any exhibitor infringing any of the Rules or Regulations shall forfeit all or any of the prizes that may have been awarded to him.

NOTICE.

Ample accommodation will be provided for Members of the Press, and all necessary information will be promptly furnished. Press Representatives are requested to make themselves known to the Manager or Secretary on arrival.

Any additional information will be furnished on application, by post or otherwise, to the Secretary, Province Building, Halifax, up to the 17th September, after that date at the office in the Exhibition Building.

Visitors may be assured of finding on the grounds everything necessary for the convenience of young and old during the entire day. An ample Restaurant and Lunch Room, managed by an experienced caterer, and under the supervision of the Committee as to prices and quality, will serve meals and refreshments from 8 a. m. till 9 p. m. daily. The Hotels of the City will adhere to their regular rates, and nothing will be wanting to ensure the comfort and contribute to the pleasure of visitors.

The following circular has been issued:

DOMINION EXHIBITION,
Halifax, N. S., June 6, 1880. }

SIR,—I have the honor to transmit to you herewith a copy of the Prize List and Regulations of the Dominion Exhibition to be held in the City of Halifax from 21st to 30th September, 1881. May I request that you will be pleased to make known the arrangements for the Exhibition among the inhabitants of

your district, and to exert your influence in inducing as many as possible to aid in promoting its success by taking part in it as exhibitors and visitors. I trust that you will especially give your aid in the department in which you are more immediately interested.

The Dominion Exhibition is under the patronage of His Excellency the Governor-General and other distinguished personages, and will be conducted by a Committee consisting of the Mayor and members of the City Council of Halifax, the Central Board of Agriculture of Nova Scotia, and gentlemen of prominence in the several industries. Cash prizes to the extent of fifteen thousand dollars will be awarded for horses and other live stock, machinery of all kinds, manufactures, forest, mining, farm and fishing products, fruits and flowers. There is no charge for entry of exhibits, nor for space.

The Committee are determined that, on their part, no effort nor resource at their disposal shall be spared to make this Exhibition a success, creditable to the city where it is to be held, and to the agriculturists, mechanics and manufacturers of the Dominion, who are to display the results of their labors. They trust to the hearty co-operation of every class of industrial producers throughout the Dominion. Halifax, the ocean terminus of the railway system of Canada, is easily reached, both by land and water, at all seasons of the year, and arrangements are being made whereby passenger and freight rates for the Exhibition will be greatly reduced, and every facility afforded to visitors. The city presents many attractions to strangers in its magnificent harbor, filled with shipping from all parts of the world; the Royal Dockyard and West India fleet; the Citadel and fortifications; the Public Gardens and the Park; the various manufactories; the Polo ground; the Academy of Music and Lyceum, and many other resources which will be made fully available to the entertainment of visitors during the Exhibition,—whilst the magnificent hill and lake and shore scenery of the Province, including the fertile land of Evangeline, is now easily accessible, being brought by rail within a few hours' ride of the city. Special attractions in the city and excursions to the surrounding country will be organized, opportunities afforded for Deep Sea Fishing by steam launches, and for Lobster Spearing by torch light on Bedford Basin. Gold Mines in full operation are within an hour's drive of the city, and Coal Mines within a few hours by rail.

Sub-Committees have been appointed for the purpose of securing the comfort of exhibitors and visitors. The hotels and boarding houses of the city will provide

ample accommodation at usual rates. Fodder, etc., will be sold on the grounds to exhibitors of live stock at lowest contract prices. There will be abundant supplies of water for both stock and machinery. Refreshment stalls will be established on the grounds, under strict rules, where meals can be obtained at all times, and, generally, everything that can be devised will be done to promote the convenience and comfort of visitors of all classes.

Intending exhibitors are invited to communicate without delay with Professor Lawson, the Manager. Prize Lists and Blank Entry Papers may be obtained on application to Mr. W. McKerron, Secretary.

I have the honor to be,

Your most obedient servant,
STEPHEN TOBIN, Mayor of Halifax,
Chairman of Committee.

AN ACT TO AMEND CHAPTER 37 REVISED STATUTES, OF THE ENCOURAGEMENT OF AGRICULTURE.

(Passed 14th April, 1881.)

Be it enacted by the Governor, Council and Assembly:

1. The Central Board of Agriculture shall be authorized to draw from the Provincial treasury every year the sum of Four Thousand Dollars for Agricultural and Industrial Exhibitions, to be held every year alternately in the following manner, namely (1) Agricultural and Industrial Exhibitions to be held in any County in the Province selected by the Central Board, and to be called Provincial Exhibitions. (2) Agricultural and Industrial Exhibitions to be held respectively in any one of the Counties of each District into which the Province is now, or hereafter may be, divided, selected by the Central Board, and to be called District Exhibitions. The said sum of Four Thousand Dollars shall be paid by the Central Board to any Agricultural Society or responsible body as a prize fund, every alternate year as above provided, for the purpose of the Provincial Exhibition, and every other year to similar Societies or Bodies within each Agricultural District as a prize fund for District Exhibitions respectively in proportion to the number of Counties embraced in such District. Such Exhibitions shall be carried out, and all the expenses thereof borne, by such Societies or Bodies, under such Rules as the Board may from time to time prescribe, and the Prize List for such Exhibitions shall be made up under the direction and subject to the approval of the Board and of the Governor in Council.

2. The Board shall be authorized to pay annually out of the money drawn from the Provincial treasury for the purposes of the chapter hereby amended,

such sum not exceeding in all Nine Hundred dollars, as they shall deem proper, for the salary or salaries of the Secretary and Treasurer of such Board.

3. Chapter 12 of the Acts of 1875 is hereby repealed.

4. So much of the Chapter hereby amended as is inconsistent with this Act is hereby repealed.

REPORT OF COMMITTEE ON AGRICULTURE.

Your Committee beg leave to submit the following report:—

Having met with the Central Board for joint consideration and exchange of opinions, we have discussed the interests of Agriculture, present and future, and the question of the reduction of the expenses of the Board so far as consistent with the interests. We have also examined and considered the Report and Financial Statement of the Central Board. Also, the feasibility of establishing a School or Chair of Agriculture; and the relative advantages of Provincial and District Exhibitions. Also the question of continuing the present grants to Societies.

As a result of our labors, we beg to make the following recommendations:—

That the salary of the Secretary of the Central Board be reduced from twelve hundred to nine hundred dollars.

That a grant of six thousand five hundred dollars be made to Agricultural Societies, and that the recommendation of last year to reduce the grant for each County to three hundred and fifty dollars be not agreed upon.

That four thousand dollars be granted for Exhibition purposes.

That seventeen hundred dollars be granted for the expenses of the Central Board.

We also recommend that while the Provincial Exhibitions continue under the same regulations as at present, to be held every second year, in the alternate years District Exhibitions be held in the several Districts into which the Province is divided for Agricultural purposes.

That during the recess the Government may collect, through the Board of Agriculture, such information as to the readjustment of these Districts as will enable the proposed District Exhibitions to be conducted with the greatest convenience and advantage.

That in future a fee of fifty cents be charged for each registration in the Nova Scotia Herd Book, and twenty-five cents for each transfer.

Also, that the Prize List of the Provincial Exhibitions be in future published not later than the month of February in the year in which the Exhibition is to be held.

Also, that the Government should collect information bearing on the proposal

to establish an Agricultural Department recommended in the Report of the Committee last year.

And, finally, that a Bill be introduced to carry into effect the recommendations of the Committee.

Also, a special grant of \$100 to Queen's County.

All of which is respectfully submitted.

W. M. BLAIR, *Chairman*,
C. W. SHAFFNER,
ANGUS MACGILLIVRAY,
NATHANIEL SPENCE,
L. S. FORD,
A. C. BELL,
WILLIAM C. BILL,
JOHN MORRISON,
ISIDORE LEBLANC.

ADDITIONAL REPORT OF THE COMMITTEE ON AGRICULTURE.

They further recommend that a bonus of 10 per cent. of the first cost be paid to any party who will import and keep in the Province of Nova Scotia, for breeding purposes, for at least five years, a horse or horses suitable for agricultural purposes.

Said bonus to be drawn from the Stock Farm Fund by the Board of Agriculture and paid to said parties on the recommendation of a committee appointed by said Board for the purpose of examining the quality of said horses. The Board shall also require an attested account of such first cost before paying the same.

The Norman Percheron horse preferred.

ANGUS MACGILLIVRAY,
ISIDORE LEBLANC,
C. W. SHAFFNER,
JOHN MORRISON,
WILLIAM C. BILL,
W. M. BLAIR,
NATHANIEL SPENCE,
L. S. FORD.

THE NOVA SCOTIA TILE DRAIN- AGE BILL.

(Ordered to be printed and distributed during recess.)

An Act respecting Investments in Tile Drainage Debentures.

1. This Act shall be cited as the Nova Scotia Tile Drainage Act.

2. The County Council of any County may pass bye-laws for borrowing for the purposes hereinafter mentioned, a sum of not less than two thousand dollars, and not exceeding ten thousand dollars, and for issuing therefor debentures of the County Council in sums of one hundred dollars each, payable within twenty years from the first day of August in the year in which the money is borrowed, as is hereinafter provided, and bearing interest at the rate of five per centum per annum,

and it shall not be necessary to submit such bye-laws to a vote of the electors of the County before the passing thereof. But no such bye-law shall be valid unless the same is passed at a meeting of the Council specially called for the purpose of considering the same, and not less than four weeks after a notice of the day appointed for such meeting has been published in some newspaper issued weekly or oftener, within the Township, or, if there is no such public newspaper, then in a public newspaper published nearest to the Township or in the County Town, which said notice shall be to the effect of Schedule D to this Act.

3. The debentures issued under any such bye-law may be issued and sold from time to time, as the County Council may require money for the purpose only of lending the same for tile drainage, as hereinafter provided.

4. Said debentures shall be drawn and made payable, as in the form Schedule E, and shall have Coupons attached, and each of such Coupons shall be for the sum of eight dollars, being as nearly as may be the sum required to meet the annual interest of the debenture and the annual sinking fund necessary for the repayment of the Debentures at the expiration of twenty years.

5. Such bye-laws may be in the form of Schedule A to this Act.

6. The County Council of any County proposing to borrow money under the provisions of this Act shall deposit with the Provincial Secretary of the Province, a copy of the bye-laws passed by them, with affidavit of the Warden and Clerk of the County, stating that the said bye-law had passed by the County Council, the date of passing the same, and that all necessary notices required by this Act had been duly given previous to the passing of said bye-law. And the Council may, at any time thereafter, ask for a loan on debentures of such sums as are required,—the advertisement asking for such loan on said debentures to be published for at least thirty days, in a newspaper published in the principal town of the County, and also in one or more newspapers published at Halifax, if no paper is published in the County,—the advertisement to be in the paper published nearest the county. The advertisement to state the actual amount required, and the number of applications for loan under the Act.

7. Any person being the owner in fee of land in the county, wishing to borrow money for the purpose of tile draining the said land, may make application to the County Council in the form of Schedule B to this Act.

8. On such application, the Council may issue debentures for such amount within the sum authorised by this Act,

and by bye-laws of the County Council, and as they may deem expedient and proper, but not exceeding the sum or sums applied for, and not exceeding seventy-five per cent. of the estimated cost of such tile drainage.

9. After any such investment shall be made, the debentures shall not be questioned, and shall be deemed to be valid to all intents and purposes.

10. The Council shall lend the money so borrowed for the purpose of tile drainage, only for the same term of twenty years, in sums of one or more hundreds of dollars (no fractional part of a hundred dollars to be loaned), and to persons only who are owners as aforesaid, but no part of the money so borrowed shall be loaned to any member of the Council, but any person having so borrowed any sum or sums from any Council, shall not thereby, and by reason thereof, be disqualified from being afterwards elected a member of such Council.

11. The Council shall not loan to any person borrowing money under this Act, a sum which shall require the levying of a greater annual rate for all purposes, inclusive of school rates, than three cents in the dollar upon the value of the lot or parcel of land proposed to be tile drained, in respect of which the money is borrowed, as ascertained by the last revised Assessment Rolls of the County, but, in no case shall more than the sum of one thousand dollars be loaned to one person.

12. The Council shall consider the applications in the order they are made, and shall loan the money to the persons whose applications shall have been approved of in the same order.

13. The Council borrowing money under this Act shall employ a competent person as Inspector of Tile Drainage, whose services and expenses shall be charged rateably upon the works carried on under his inspection, and shall be paid by the Council out of the money borrowed.

14. The Inspector shall, on the completion of any drainage works under his charge, report to the Council the number of rods of drain constructed on each lot or parcel of land, the cost per rod, and such other particulars as may be required by the Council, which report shall be entered in a book to be provided by the Council for that purpose, and the money shall not be advanced by the Council until such report of the due completion of the work has been so made.

15. The Council shall impose by bye-law (in the form of Schedule E), levy and collect for the term of twenty years, a special annual rate of eight dollars on each one hundred dollars loaned, over and above all other rates upon the land in respect of which the money is loaned, and such rate shall be collected

in the same manner as county or other special rates imposed are collected.

16. The owner of any lot or parcel of land in respect of which money had been borrowed for tile drainage under this Act, may at any time obtain a discharge of his indebtedness under this Act, by paying the County Treasurer the amount borrowed less the annual sinking fund levied and collected, with interest thereon at the rate of five per centum per annum, and, upon such payment being made to the said Treasurer, the Warden and Treasurer of the County shall pay the amount on account of indebtedness of the County issued under this Act, and, until the same can be paid, deposit the said amount in the name of the County in the Dominion Savings' Bank at interest.

17. Every County Council borrowing money under this Act shall, on or before the fifteenth day of January in each year, make a return to the Lieutenant Governor in Council, for the purpose of being laid before the Legislative Assembly, showing the amount of money expended in tile drainage, the number of rods of tile drainage constructed, the names of the persons borrowing, and the property upon which the money has been loaned, the names of the persons whose applications have been refused, the reason, in each case, of said refusal, and, during the year next preceeding the date of each return.

18. If the rate shall remain due and unpaid for one month after the same shall become due and payable, a fine of per cent. shall be added to the same, and the said fine, together with expenses of collecting, shall be chargeable upon the property, subject to such rate and collected in addition to amount of said rate.

19. Upon the loan of any money by the County Council to the owner of land under the Act, a certificate shall be filed and recorded in the Office of the Registrar of Deeds for said County, containing a description of the property on which the money is loaned; the amount loaned, terms and times of payment, showing amount annually payable, which certificate shall be signed by the Warden and Clerk of the County, and also by the person obtaining the loan, and upon such certificate being recorded the amount of such loan shall operate as and be a lien upon said land, described in said certificate, until the amount loaned shall be paid in full, when the same shall be discharged by a certificate of payment and release signed by the said Warden and Town Clerk.

20. If any Treasurer or Municipal Officer shall pay any sum out of the funds of the County contrary to the provisions hereinbefore named, he shall

be liable to the County for every sum so paid, as for money received by him from the County, and he shall, in addition thereto, incur a penalty of five hundred dollars, to be recovered with full costs of suit by any person who will sue for the same by action of debt or information in any of Her Majesty's Courts in this Province having jurisdiction, and in default of payment of the amount which the offender is condemned to pay within the period to be fixed by such court, such offender shall be imprisoned in the common goal of the county for the period of twelve months, unless he sooner pay the amount which he was condemned to pay, and costs.

21. Any Warden or Councillor wilfully omitting to see the foregoing provision carried into effect, shall also be personally and individually liable to the county for the full amount so in arrears and interest to be recovered with costs by the said county in any suit, as for money had or received, provided always that no assessment, levy or payment made under this section shall in anywise exonerate the persons or lands chargeable from liability to the Municipality.

22. Affidavits under this Act may be sworn before a Justice of the Peace, or before a Commissioner for taking affidavits in the Courts of this Province.

SCHEDULE "A."

(Section 5.)

FORM OF BYE-LAW.

A Bye-Law to raise the sum of dollars to aid in the construction of tile drains.

The County of pursuant to the provisions of an Act of the Legislature of Nova Scotia, passed in the year of Her Majesty's Reign, chapter , enacts as follows:—

1. That the Warden of the said County may, from time to time, subject to the provisions of this bye-law, borrow, on the credit of the Corporation of the said County, such sum of money, not exceeding in the whole dollars, as may be decided by the said Council, and may, in manner hereinafter provided, issue debentures of the said Corporation in sums of one hundred dollars each for the amount so borrowed, the said debentures to have coupons attached, as provided in the fourth section of the said Act.

2. That when the Council shall be of opinion that the application of any person or person who may be owners of land in the said municipality to borrow money for the purpose of constructing tile drains, should be granted in whole or in part, then the said Council may, by resolution, instruct the said Warden to issue debentures as aforesaid, and borrow such sum of money as does not

exceed the amount applied for, and may loan the same to the said applicant on the completion of said drainage works.

3. A special annual rate shall be imposed, levied and collected, over and above all other rates, upon the land in respect of which the said money shall be borrowed, sufficient for the payment of the interest and sinking fund, as provided in the said Act.

SCHEDULE "B."

(Section 7.)

To the Municipal Council of the County of I, A. B., owner of (if part state what part) lot situate in said County, hereby apply for a loan of \$, to assist in the construction of rods of tile drains, proposed depth of drain inches, proposed size of tile inches.

(Signed) A. B.

SCHEDULE "C."

(Section 4.)

\$100

Tile Drainage Debenture of the County of The Corporation of the County of hereby promise to pay to , or order, the sum of one hundred dollars of lawful money of Canada, and interest thereon at five per cent., in twenty equal instalments of eight dollars each, the first of such instalments to be paid on the day of , A. D. 188 , pursuant to bye-law No. , intituled a bye-law to raise the sum of dollars to aid in the construction of tile drains.

(Sgd) A. B. C. D.
Warden. Treasurer.

[SEAL OF CORPORATION.]

Coupon for twentieth annual instalment of Tile Drainage Debenture No. 1, issued under by-law No. 1 of the County of \$5.00, payable at on the day of A. D. 188 .	C. D. Treasurer.	Coupon for nineteenth annual instalment of Tile Drainage Debenture No. 1, issued under by-law No. 1, of the County of \$5.00, payable at on the day of A. D. 188 .	A. B. Warden. C. B. Treasurer.
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SCHEDULE "D."

(Section 2.)

NOTICE OF BY-LAW.

Take notice that a by-law for raising the sum of \$ for Tile Drainage under the provisions of "The Nova Scotia Tile Drainage Act," will be taken into consideration by the Municipal Council of the County of on the day of , A. D. 188 , at the hour of o'clock in the noon, at which time and place the members of the Council are hereby required to attend for the purpose aforesaid.

E. F.,
Clerk.

SCHEDULE "E"

(Section 15.)

BY-LAW IMPOSING A RATE.

By-law imposing a special Tile Drainage rate upon lot situate in _____ in the County of _____

Whereas, H. J., the owner of a lot situate in _____ in the County of _____, applied under the provisions of the "Act respecting the investment of public money in debentures issued for the construction of tile drains in the County Municipalities," for a loan to be made to him for the purpose of tile draining said land: And whereas, the Municipal Council has, upon his said application, loaned the said H. J. the sum of \$1,000 (or as the case may be) to be repaid with interest by means of the rate hereinafter imposed.—Be it therefore enacted by the said Municipal Council of the said County, that an annual rate of eighty dollars per annum (or as the case may require, namely, \$8.00 per every \$100 loaned) is hereby imposed upon the said land for a period of twenty years, such rate to be levied and collected at the same time and manner as ordinary taxes are levied and collected.

[For the Journal of Agriculture]

THE GREAT AGRICULTURAL PROSPECT.

THE new business of exporting to Europe newly killed or live meat, and the assurance we receive of its probably becoming a permanent business, is perhaps the most important step or movement of which the farmers in the Eastern Provinces have ever enjoyed the advantage. This is not alone from the present extent of the business, which is very considerable. The business is the first export cash business in which our farmers have had any considerable hand. It is general, and not confined to any particular part or parts of the country, like the apple or potato trade; it does not depend on barter or store pay, as has been the case to such a fatal extent with the trade in lumber, fish, plaster, pork or wool; or the coal trade, which has been hitherto of so little direct benefit to the farmer.

Perhaps only a few have begun to count up, much less realize what a difference in our advantage this meat trade—if there is nothing really to cause it in any way to cease—will be, first to the farmers, and thence to every one else. The great want of this country has hitherto been the lack of anything like an efficient currency, caused by the balance of trade existing so heavily against us. It is this that has caused every industry to droop and languish that depended on cash for existence. For instance, people would buy out of the shops boots and clothes at

a higher rate than they could be sold at the factories, but then they got them in exchange, and on credit, whereas neither exchange nor credit will do the factory people.

Again, adding lawyers' charges to the amount of interest received by the money lenders, we have been paying fully twice the rates we should on all mortgaged, bonded, or hypothecated property, as the constant scarcity of money kept up a constant distrust on both sides in any credit bargain.

The same scarcity of money has also caused such a great quantity of pork as has been raised in the provinces. The most of the farmers persist in the belief that "nothing pays like pork." Certainly, they had to raise pork to get a little cash, or rather pay a store bill, for pork could be exported, or sold to the fishermen; but, in relative return, pork never pays in this country. The reason is, this is essentially a grazing country, and cattle can exist at large for about half of the year; but pigs have to be fed nearly altogether in their pen. Every portion of the skim milk, or butter milk that we give to the hogs would return more if fed to either cows, calves, or any growing animals, as colts, right through the summer. (One point I wish to note here—pork is not fit to eat for any human being; and a very large portion of the diseases in this country, perhaps even more than in the case of rum and tobacco, are directly attributable to pork.)

[We are not responsible for the anti-pathies of our correspondents.—Ed.]

Surely, our farmers might now take a new lease of courage, and try a fresh start towards making some money. Certainly the gentlemen who have thought it wise to undertake the purchase of animals for exportation appear to have entered into the matter on a fully liberal and substantial scale. Let us endeavor to meet their efforts as fully as we can with an adequate amount of corresponding effort. We ought to be able, with due management and industry, to double or treble our present amount of meat production in as many years; and it were well to try to do this, if by this means we can secure a continuance of the business.

Let these of our young people who contemplate leaving the country consider the matter. Land will no doubt increase in value immediately, as farming is likely to become a good, paying business. Money will be more easily and cheaply got; so that it will pay to hire help in the improvement of lands,—dyking marshes, flooding intervals, draining swamps, clearing stony patches, cutting woody and brushy lots. Where we now have cross roads we must soon have villages; our present villages will soon be towns, and our towns cities; for the existence of all kinds of factories will no longer be

impossible, and there is nothing makes money like money itself.

We may also look for an immediate rise in the price of all kinds of fodder, or anything at all that can be raised on the farm. All the back pasture lots will be wanted, and ten times as many more; because steers will be wanted for the cattle feeders, and wethers for the butcher. No farmer need be nervous about having too much stock in the fall, and go killing his calves in the summer, because all these will be saleable any day in the year; and if any one chooses to hold on till spring, we are not likely to be cornered for feed, as we have the Intercolonial Railroad now, and millions of tons of meal can be brought along if required. At the same time hay will go up, and summer grazing as well, so that we may hope soon to live and farm in this country in something the same way as they do in other parts of the world. And now we should get into the way of raising more turnips. We shall begin to know the value of these when we come to find there is cash in them.

Much has been done the past few years in raising grain on new burnt land. There is a great profit in it. But the farmers have done only so much at it as they could do without hiring help, as the great money bugbear has caused this industry to be straitened as well as every other. For about sixteen years there have been no great fires in the woods of Nova Scotia; and woods that have grown up since the memory of man if now cut and burnt, result in many cases in a fair quantity of grain and grass. Much of this might now be done for the sake of pasture alone.

I am tempted here, though at the risk of making this article too long, to say something about the production of manures from native sources. I shall only mention something further about the use of fire as an agent for this purpose. A small amount of fire will refine a prodigious amount of earth, and pulverize a great quantity of stones. But it is a fact not generally thought of, that the fire should be under, and not, as generally, over the earth, rooty turf, stones, etc., to which it is applied. I have noticed that in one part of the Province, a number of farmers have got to making heaps, and thus producing a great quantity, not of inferior quality but of real good quality, excellent either for grass, grain, or turnips. The fact is, we have by analysis, in our common mixed soils, all the requisite elements of the best manures. But these soils are mostly formed from the older igneous and metamorphic rocks, and though by abrasion we have a large quantity of soil in result, the elements in this soil are comparatively insoluble. Certainly, if we burn a dense quantity of dry cut wood and brush over a piece of land,

some small portion of the top of the soil gets burned and a few of the stones pulverized, and these, with what ashes we have from the wood, make a manure that sometimes gives a number of crops. But by making "burnt piles" we get the soil reduced wholesale and effectually. Now, to those who do not care to make any particular effort to get manure in this way, still I would offer some information in regard to burning various kinds of rocks—ordinary field stone as good as any other. All manurial substances, especially the inorganic, are derived directly or indirectly from the different kinds of rocks. And this country contains all the necessary kinds. We hear a good deal about the benefits of lime and plaster; but Nova Scotia is nearly half covered, either in bed rock or boulders, with rocks that are, if anything, superior to lime or plaster as manures, when pulverised, and appear to be much more easily burnt. And perhaps half of the farmers need not go further than their own fields for these rocks. If they have any old decayed fencing, brushwood, stumps, windfalls, or other description of fuel, these are a first requisite; and for the rocks,—besides lime and plaster, we shall take conglomerate, well known by its appearance, and a reddish rock of which the Cobequid mountains are mainly composed, and the different kinds of gneissoid or granitic rocks of the Province, east, west and south. We may also include some of the sandstones, and the trap of Kings and Annapolis Counties. These all, though containing more or less of combined silica and alumina, are in large part composed of the alkalis, and of course are rich in phosphate and sulphate material. I may particularly mention that the iron vein that runs full length along the south side of the Cobequid mountains is contained in or associated with a heavy band of mineral fully better than lime alone, and far more easily soluble.

But time and space are limited, therefore I must close. I have but touched on a magnificent field of interest to our farmers; but hope before long to address them upon another branch of the same subject fully as interesting.

CLOVERDALE.

ST. ANDREW'S AGRICULTURAL SOCIETY.

In accordance with a resolution of the above Society, passed March 1st, 1880, notice of which appeared in the April No. of the JOURNAL, the committee thus appointed imported two thorough-bred Durham Bulls from Ontario, at a cost of about three hundred dollars. They arrived here about the 1st of May, in fine condition, and were sold by public

sale, to be kept for the benefit of the Society for three years. One of them, the "Marquis of Lorne," was purchased by our worthy Vice-President, for the district of Upper South River, and the other, the "Duke of Oxford," was purchased by Mr. Chisholm of Beatty. While writing on this subject it may not be too much to say that the Agricultural Society of St. Andrew's is doing good work, and that they now own four bulls that will compare favourably with any in the Province. It is to be hoped that the people of this district will manifest an earnest desire to improve their stock by giving a hearty support to our Society. The thanks of this Society are due to Mr. Thorpe of Fergus, Ontario, who, in connection with our enterprising agent, H. McDonnell, was instrumental in securing for us the celebrated stock referred to above.—*Com.*

The increased use of phosphoric acid in Nova Scotia in the various forms of bone dust, superphosphate and special fertilizers, renders it desirable that our Agriculturists should study carefully its nature, and the circumstances which increase or diminish its efficacy when applied to the soil. The following from the *London Agricultural Gazette* will be read with interest and profit:

Tricalcic phosphate is scarcely affected by pure cold water, and has no fixed degree of solubility in that liquid: a small part of the phosphoric acid is at first taken up by the water, the residual phosphate becoming gradually more basic and more insoluble. In water containing ammonia salts the phosphate is more readily dissolved, 1 part being taken up by 19,612 parts of water containing 1 per cent. of chloride of ammonium. In water saturated with carbonic acid gas the phosphate is much more soluble, 1 part dissolving in about 1789 parts of the liquid. This comparative ready solubility of phosphate of lime in water holding carbonic acid is, however, destroyed by the presence of carbonate of lime; in the presence of this substance the solubility fell to 1 in 45,915 parts of the liquid. These experiments being made on gelatinous, precipitated tricalcic phosphate, show the greatest degree of solubility of which this substance is capable.

As soon as we turn to phosphates sold in the market, we cease to be dealing with pure substances. The phosphates available for our use consist chiefly of phosphate of lime, but they often contain small quantities of other phosphates, and, in addition, more or less considerable quantities of substances which are not phosphates. Chemists have been apt to forget this mixed character of the natural phosphates, and to speak of them as if they had each a fixed degree of solubility; this, however, is not the case. When these natural mixtures are attacked by the water and carbonic acid of a soil, the ingredients of which they are composed are dissolved at different rates of speed, the most soluble ingredient being removed first. The experiments made with boneash strikingly illustrate this fact.

A sample of commercial boneash was analysed; a portion was then treated with successive quantities of water saturated with carbonic acid, each treatment lasting several days. The first extract contained phosphoric acid equal to 1 part of tricalcic phosphate in 1917 parts of water; in the second extract the solubility had fallen to 1 in 3110; and in the fifteenth was only 1 in 6943. The solubility even then had not quite ceased to fall. Experiments with another sample of boneash, in which the action was carried further, apparently showed that a permanent solubility of 1 in 6788 was finally reached after the more soluble matter had been removed.

It is quite evident from these results that a small part of the phosphoric acid in boneash exists in a form that is easily soluble, while the great bulk of the phosphate dissolves but slowly in water holding carbonic acid. The more soluble phosphate possibly exists as phosphate of magnesia, as the magnesia present was found to be chiefly removed in the earlier extracts. The principal phosphates of boneash appear from these experiments to have less than one-third the solubility shown by freshly precipitated phosphate of lime.

We have unfortunately no series of determinations showing the comparative solubility of the principal natural phosphates in water saturated with carbonic acid; such work carefully done would be of considerable value. Mr. C. P. Williams found that finely ground South Carolina phosphate dissolved at the rate of 1 part of phosphate of lime in 6544 parts of carbonic water. With finely ground bones the solubility was 1 in 5698; and with finely ground apatite 1 in 110,840. All experiments agree in regarding crystallised apatite as the most insoluble form of phosphate of lime. The phosphates of iron and aluminium are, when basic, almost completely insoluble in carbonic water. In the absence of an accurate series of experiments it is only possible to state generally that bones, boneash, phosphatic guanos, and South Carolina phosphate, probably rank among the most easily soluble of the undissolved phosphates at the farmer's disposal.

In speaking of the solubility of a phosphate it must not be forgotten that when distributed through a soil the phosphate may possibly be directly attacked by the roots of the crop, and taken up without any previous process of solution. The extent to which this may happen is probably very limited.

We will now glance briefly at the principles which should guide us if undissolved phosphates are employed as manure, reserving for another paper the discussion of the relative merits of dissolved and undissolved phosphates.

When a sparingly soluble substance is employed as a manure, it must, if it is intended to produce any marked effect, be applied—(1) in considerable quantity; (2) in very fine powder; and (3) great pains must be taken to obtain a thorough distribution of the manure throughout the soil. By proceeding in this way the manure is made to expose the greatest possible surface to the attack of the water of the soil and the roots of the crop, and the slowness of action resulting from its natural insolubility is as far as possible obviated. Mr. Ruffe has lately suggested that phosphates intended for use in an undissolved condition should be reduced to the condition of a "flour," passing through

a silk sieve of 180 threads to the inch. There can be no doubt but that this state is the one most favourable to their efficiency as manure. Bores are placed at some disadvantage from the fact that they cannot easily be reduced to this fine powder. On the other hand, however, their solution in the soil is much favoured by the decomposition of the animal matter which they contain.

What soils are most suited for the application of undissolved phosphates? We have seen that the natural solvent for phosphate of lime in a soil is the carbonic acid which the air and water of a soil always contain. This carbonic acid is most abundant in soils rich in humic matter, and its quantity is greatly increased by manuring the soil with farmyard manure, or with other decomposing carbonaceous matter. We should expect therefore that dark soils, rich in humic matter, would be those most suitable for applications of undissolved phosphates. We have seen also that carbonate of lime has a great effect in diminishing the solubility of a phosphate. We should conclude from this fact that on limestone and chalky soils undissolved phosphates would produce their smallest results.

The above conclusions are strikingly confirmed by some extensive trials of French coprolite made in France in 1857, the results of which were reported by M de Molon to the French Academy in 1858 (*Comptes Rendus*, vol. xlvii., p. 233.) French coprolite contains much more sand than Cambridge coprolite, and usually rather less than 50 per cent. of phosphate of lime. This coprolite was employed in fine powder, with and without animal manure. It was also used as superphosphate. The trials were conducted simultaneously in eighteen departments. More than 11,000 acres of land were treated with the coprolite manure, 2214 tons of coprolite being employed.

M. de Molon sums up the results of this extensive trial as follows:—1. On clay, schistous, granitic, and siliceous soils rich in organic matter, the coprolite may be used with advantage in the state of simple powder. 2. On the same soils, if poor in organic matter, especially when they have been long under cultivation, or have recently received a dressing of lime, the coprolite powder must be mixed with animal manure. 3. On limestone soils, especially chalk, the coprolite is applied with most advantage in the state of superphosphate.

Farmers who are desirous of trying the effect of powdered phosphates on their land, cannot do better than act on the experience here described. Of all soils, pasture should be the one most suited for the use of undissolved phosphates, grass land being always far richer in humus than arable soils. A dressing of 3 cwt. of finely ground bone-ash per acre, or 4 cwt. of South Carolina phosphate, applied in early spring, would probably be found effective wherever the soil stood in need of phosphatic manure.

On arable soil the general value of undissolved phosphates is much more questionable, and the farmer should certainly ascertain by careful comparative trials whether finely ground phosphates will yield a paying result on his fields before employing them on any considerable scale. Making powdered phosphate into a compost with farmyard manure, or even with vegetable refuse, some time before its application to the land is worth a trial. Or the powdered phosphate might be

applied as a dressing after the dung is spread on the land, and then both ploughed in together.

On chalky soils a few trials of Redonda phosphate would be of interest. The phosphate of aluminium, of which this cheap and almost useless phosphate is composed, might possibly be partly decomposed by the carbonate of lime in the soil, and a portion of the phosphoric acid brought into a condition suitable for plant food.

In dealing with all sparingly soluble manures the amount of rainfall will have considerable influence. In a dry season such manures will be almost without effect, while in a wet season they may exert a considerable influence. The character of the soil and season having such considerable influence on the effectiveness of undissolved phosphates, we must expect to find a great amount of contradiction in the results of field experiments carried out in different places, and in different seasons; and here, at least, we are not disappointed.—R. WARINGTON.

A LETTER of R. Lanciani of Rome, in the *London Athenæum*, gives an account of excavations just made of the theatre of Ostia, and, amongst other matters of great interest, a glimpse of the way in which the movement of grain was managed by the old Romans. It is found that the theatre had been rudely re-built in the fifth century, but the building materials as well as the decorative have been stolen from other monuments of the town. This last-named practice explains the magnificent results of the excavations. We have found, for instance, the walls of the corridor leading into the orchestra built with rows of marble pedestals, placed lengthwise, and joined together with iron bars. These pedestals, sixteen in all, once supported the statues of distinguished citizens in the Forum, and are inscribed with eulogiums of their merits and exploits. The importance of such records cannot be overrated. Most of the men on whom the honour of a statue had been conferred were Roman knights, and had distinguished themselves all over the Roman Empire, fulfilling important duties in the provincial administrations. One of them, Quintus Acilius Fuscus, is said to have been *procurator annona trium Augustorum nostrorum Ostiis*, the three Augusti being Severus, Caracalla, and Geta. After the murder of Geta his initials were erased from the pedestal, and the sigla AVGGG-XXX changed into AVGGNFC, the FC meaning *procurator*.

The Prefect of the Annona in Rome had representatives in every province of the empire, which sent the surplus of its harvest to the metropolis; hence we find "*procuratores annonæ*" in Southern France, in Spain, in Sicily, in Africa. It is well worth noticing, as a comment upon Lloyd's statistics of vessels reported as missing during the past year, that in ancient times grain was not shipped in

bulk. Ostia, being the seaport of Rome, and the focus of the bread-stuff trade of the world, was under the supervision of a special "*procurator annonæ Augusti*," whose duties were to certify the regularity of shipments and the good condition of cargoes, to store them in the government granaries at Ostia or else to forward them to town, and so on. Most certainly he did not enjoy a sinecure. Egyptian shipments alone exceeded the yearly amount of seven hundred million litres of grain; Sicily, Numidia, Africa propria, Cyrenaica, and Sardinia followed suit. The aggregate area of the port of Claudius and of the dock of Trajan amounted to 1,082,788 square metres, with four kilometres and a half of quays! I may add that under favourable circumstances vessels sailing from Ostia could reach Alexandria in eleven days, the Straits of Gibraltar in seven, the Straits of Messina, and sometimes even the coast of Epirus, in five, the coast of Spain in four, the coast of France in three, and Africa in less than two days.

On Monte Mario the hypogæum of a tomb was found, containing the beautiful inscribed pedestal of a lady who died at the age of 12 years 11 months and 7 days, Marcia Maccella, daughter of C. Minicius Fundanus, A. D. 107. "I feel deeply sad," writes Pliny, "for the loss of the younger daughter of our Fundanus, a charming, lovely girl, worthy not only of a longer life, but almost of immortality. Although not yet fourteen years old, she showed the quietness and the gravity of a matron with the suavity and modesty of a virgin. How sweet it was to see her embracing her father, welcoming her father's friends, loving her governess and her teachers! In the course of her sickness she confidently gave herself up to the care of physicians, and tried to keep up the spirits of her elder sister and of her father by fighting courageously against the violence of the malady. She was already betrothed to a young gentleman of her choice; the day of the wedding had already been settled; we had already received our invitations . . . and now, what a terrible change! I cannot tell you how sadly despondent I felt when I heard Fundanus himself ordering that all the money set aside for her *trousseau* and jewellery should be spent in the funeral ceremonies."

THE Nova Scotia Tile Drainage Bill, introduced by Colonel W. M. Blair, M.P.R. for Colchester, is published for public information. We presume it will come up for discussion in the House next winter.

RADISHES must be grown quickly or they will be tough, stringy, and bitter. If forced by a daily sprinkling of liquid manure they will be very brittle and tender.

NOVA SCOTIA REGISTER OF THOROUG-BRED STOCK.

Sanctioned by, and published under authority of, the Central Board of Agriculture of Nova Scotia.

SHORT-HORN DURHAM BULLS.

98.—GLENSMAN.

Roan. Calved 19th May, 1870. Stock Farm, Charlottetown, P. E. I. Sire Booth Kinsman 25658. Dam Rose Wreath by Windsor 14013, gr d Rose Garland by Baron 7813, g gr d Garland by Silkey Ladde 10947, —Damsel by Rouge 5012, —Strawberry by Shipton 2620, —Damsel by Danby 3550, —by Son of Gully Grange 1483, —by Son of Duke 225, —by Mulus 4470, —by Nader 4828, —by Ambro 746.

99.—YEO'S BULL.

Red, white star on forehead. Calved May 12th, 1873. Bred at Government Stock Farm, Falconwood, P. E. I. Bought by Hon. J. C. Pope, at stock sale, Holland Grove, October, 1873; re-purchased by Stock Farm Commissioner at public auction in 1875; sold at public auction in Prince County to Hon. John Yeo. Sire Glensman 98 (imp) Dam Rose Gwynne (imp) by Prince Gwynne 20547, gr d Rosette by Prince of Prussia 16752, g gr d Red Rose by Horatio 10335, —Maria by 3rd Duke of Northumberland 3637, —Modesty by Velocipede 5552, —Crocus by Sir Thomas 2636, —by Marske 418, —Laurestina by Comet 155, —Laura by Tom 652, —Cleasby Lady by Favourite 1033, —Lucinda by Hutton Bull 322, —Lucy by Barringham 56.

100.—GLENSMAN 2ND.

Bred by Hon. J. C. Pope. Owned by Government Stock Farm, P. E. I. Sire Glensman 98. Calved December 30th, 1863. Bred by Mr. John Clayder, of Littleborough, Essex, England. Dam Rose Gwynne (imp.) Sire Prince Gwynne 20547. Dam Rosette by Prince of Prussia 16752, gr d Red Rose by Horatio 10335, g gr d Maria by 3rd Duke Northumberland 3637, —Modesty by Velocipede 5552, —Crocus by Sir Thomas 2636, —by Marske 418, —Laurestina by Comet 155, —Laura by Tom 652, —Cleasby Lady by Favourite 1033, —Lucinda by Hutton's Bull 322, —Lucy by Barringham 56.

101.—PETER GRANT.

Red and white. Calved May 27th, 1879. Bred by John W. Margeson, Cornwallis, King's Co. Owned by King's County Ag. Society. Sire Independence 84. Dam Evangeline 40 by Roland 654 Ca., gr d Brunswick Belle by Brunswick 851 Ca., g gr d Peerless by Joe 371 Ca., —White Lilly by Wentworth 800 Ca., —Snowdrop by Wellington 792 Ca., 183 Am., —White Rose by Mayduke 452 Ca., 102 Am., —Young Lilly by Young Farmer 243 Ca., 62 Am., —Lilly by Warden 1563 Eng., —Beauty by Rockingham 569 Eng., —by Sir Harry 1444 Eng., —by Colonel 152 Eng., —by a Son of Hubback 319 Eng.

102.—MARQUIS OF LORNE.

Red with white on the face and some white spots. Calved Jan. 11th, 1879. Bred by Thomas B. Jacques, Church Street, Cornwallis. Owned by Stephen Daniels, Upper Falmouth. Sire Colchester King 29. Dam Peerless 1st 74 by Brunswick 64 N. B., gr d Nellie 42 by Lord York 39, g gr d Peerless by Joe 371 Ca., —White Lilly by Wentworth 800 Ca., —Snowdrop by Wellington 792 Ca., 183 Am., —White Rose by Mayduke 452 Ca., 102 Am., —Young Lilly by Young Farmer 243 Ca., 62 Am., —Lilly by Warden 1563 Eng., —Beauty by Rockingham 569 Eng., —by Sir Harry 1444 Eng., —by Colonel 152 Eng., —by a Son of Hubback 319 Eng.

103.—YOUNG COLCHESTER.

Red with white on forehead, some white on body. Calved Sept 21th, 1880. Bred and owned by Ross Chapman, Cornwallis, King's Co. Sire Colchester King 29. Dam Red Rose 67.

101.—YOUNG EBOR.

(Mark on horn I). Roan. Calved July 3rd, 1879. Bred by Mr. W. G. Garne, Broadmoor, Northleach, Gloucestershire. Imported by Central Board of Agriculture. Owned by Strait of Canso Agricultural Society. Sire Ebor 41499. Dam Lady Like by Ranger 35203, gr d Lady Day by Duke of York 23804, g gr d Village

Miss by Captain Cherry 31363, —Village Girl by Sheriff 18822, —Bonhill Lassie by Booth 14180, —Ophian by Lord Raglan 13246, —Maid of Aln 2nd by Crusade 7938, —Maid of Aln by Regent 2517, —Edith by Borderer 3191, —Eclipse by Eclipse 1949, —by Togston 5487, —by Bolingbroke 3184, —by Son of Midas 435, —by twin brother to Ben 660.

105.—LORD RANDOLPH.

(Mark on horn II). Roan. Calved October 19th, 1879. Bred by Mr. W. G. Garne, Broadmoor, Gloucestershire. Imported by Central Board of Agriculture. Owned by Antigoni Agricultural Society. Sire Sir Robert Frogmore 40719. Dam Ramunculus by Practical 38870, gr d Red Lass by Marksman 26814, g gr d Red Lady by Experience 23900, Red Bess by Economist 15977, Red Rose by Napier 13368, —Rosetta by Norval 9450, —Roseberry by Rob Roy 7531, —Roseblossom by Gazer 7030.

106.—LORD BRET.

(Mark on horn III). See vol. 26, p. 442, *English Herd Book*. Red and white roan. Calved September 13th, 1879. Bred by Mr. W. G. Garne, Broadmoor, Northleach, Gloucestershire. Imported by Central Board of Agriculture. Owned by Baddeck Agricultural Society. Sire Sir Robert Frogmore 40719. Dam Windsor Beauty by Lord Chief Justice 34507, gr d Windsor Butterfly by Royal Butterfly 20th 25007, g gr d Misdeeds by England's Glory 23889, —Peggy by British Prince 74197, —Miss Folly by Prince Alfred 13494, —Folly by Paris 7314, —Butterfly by Vauguard 5545, —Ladybird by Robin Hood 4970, —Millicent by Anticipation 750, —Folly by Emperor 1014, —by Young Windsor 660, —by Windsor 698.

107.—EARL OF SURREY.

(Mark on horn IV). Red and little white. Calved April 10th, 1879. Bred by Capt. Moir, the Manor House, Colley, Reigate. Imported by Central Board of Agriculture. Agricultural Society, Co. Annapolis. Sire Fugleman 36670. Dam Wild Eyes Gwynne by Boron Wild Eye 19290. Baron Wild Eyes is a son of Duke of Connaught, the highest priced bull in the world—4500 guineas, gr d Rebecca Gwynne by Knight of Distinguen 18158, g gr d Ruth Gwynne by Exquisite 14524, —Young Dowager Gwynne by St. Thomas 10777, —Dowager Gwynne by Prime Minister 2456, —White Moll Gwynne by Wallace 5686, —Dorothy Gwynne by Marmion 406, —Daphne Gwynne by Merlin 430, —Nell Gwynne by Layton 366, —Nell Gwynne by Phenomenon 491, —Mr. R. Colling's Princess by Favorite 252, &c.—See *Cotes's Herd Book*, vol. 1, p. 445.

108.—ROWLAND 43928 ENGLISH HERD BOOK.

(Mark on horn V). Roan. Calved September 18th, 1878. Bred by Col. R. Lloyd Lindsay, Lockinge Park, Wantage, Berkshire. Imported by Central Board of Agriculture. Owned by Onslow Agricultural Society. Sire Earl of Horton 11th 36588. Earl of Horton is a Kirkclevington bull. Dam Ronda by Rob Roy 29806, gr d Rosetta by Custa 21487, g gr d Rosette by Prince of Prussia 16752, —Red Rose by Horatio 10335, —Maria by 3rd Duke of Northumberland 3647, —Modesty by Velocipede 5552, —Crocus by Sir Thomas 2536, —by Marske 418, —Laurestina by Comet 155, —Laura by Tom 652, —Cleasby Lady by Favorite 1033, —Lucinda by Hutton's Bull 322, —Lucy by Barringham 56.

109.—CABUL 42882 ENGLISH HERD BOOK.

(Mark on horn VI). Roan. Calved November 14th, 1879. Bred by Col. R. Lloyd Lindsay, Lockinge Park, Wantage, Berkshire. Imported by Central Board of Agriculture. Owned by James Kitchen, River John, Co. Pictou. Sire Earl of Horton 11th 36588. Dam Clotilda Rock by Lord Rockville 34658, gr d Clotilda by Grand Duke of Kent 2nd 28759, g gr d Chall 13th by Second Earl of Waiton 19672, —Clarissa by Oxford Duke 78508, —Cecilia by Viceroy 13945, —Chaff by Duke of Cornwall 5947, —Challenge by Morpeth 7254, —Cleopatra by Helicon 2107, —Clarence by Henwood 2114, —Minna by Nestor 452, —Minerva by Harold 291, —Mary by Meteor 432, —Magdalena by Comet 155, —by Cupie 177.

110.—LORD LOVAT.

Red with a few white spots. Calved January 14th, 1881. Bred and owned by J. B. Fraser, Shubenacadie. Sire Lord Windsor 25. Dam Colchester Queen 39 by Baron Oxford 6th — Eng., gr d Cambridge Witch 11 by Royal Cambridge 25009 Eng., g gr d Oxford Witch by Imperial Oxford 15084 Eng., —Lancashire Witch by John

O'Gaunt 16322 Eng.,—Lady Warden by Lord Warden 7647 Eng.,—Belinda 2nd by Lion 9299 Eng.,—Belinda by Rebel 4882 Eng.,—Miss Foote by Coxcomb 928 Eng.,—Miss O'Neil by Minor 441 Eng.,—by Son of Phenomenon 491 Eng.,—by Traveller 655 Eng.,—by Colonel 152 Eng.,—by R. Colling's Son of Broken Horn 95 Eng.,—by Son of Hubback 319 Eng.

111.—GENERAL ROBERTS.

Roan. Calved February 24th, 1881. Bred and owned by J. B. Fraser, Shubenacadie. Sire Lord Windsor 25. Dam Rose Gwynne 4th 8 by Duke of Northumberland 21584 Eng., gr d Rose Gwynne 2nd by General Jackson 2nd 17954 Eng., g gr d Rose Gwynne by General Jackson 14694 Eng.,—Rosebud by Mungo 4359 Eng.,—Cowslip by Wallace 5585 Eng.,—by Tom Gwynne 5498 Eng.,—by Marmion 406 Eng.,—bred by Mr. Matthews of Durham.

112.—ENDYMION OF LORNDALE.

Red and white, white mark on forehead. Calved February 14th, 1881. Bred and owned by Israel Longworth, Lorndale Farm, Truro. Sire King Dodds 28. Dam Maid of Oxford 4th 5 by Lord Waterloo 2nd 26755 Eng., gr d Maid of Oxford 2nd by 7th Duke of York 17754 Eng., g gr d Maid of Oxford by 4th Duke of Oxford 11327 Eng.,—Fancy by Avalanche 12412 Eng.,—Caprice by Harold 10299 Eng.,—Juliet by Sol 8608 Eng.,—Kate by Leo 4208 Eng.,—Ada by Treasurer 5513 Eng.,—Lady Byron by Rupert 2580 Eng.,—Lady Noel by North Star 460 Eng.,—by Cripple 173 Eng.,—by Mirror 441 Eng.,—by Freeman 269 Eng.,—by Dandy 190 Eng.

113.—BELMONT CHIEF.

Dark red and white with star in forehead. Calved November 14th, 1879. Bred and owned by W. F. DesBarres, Guysborough. Sire St. Nicholas of Lucyfield 27. Dam Princess Lightburre 53 by Baron Lightburne 2nd 14, gr d Princess Mary 6 by Golden Duke 26266 Eng., g gr d Empress by Majestic 20264 Eng.,—Regina by Constantine 15318 Eng.,—Lucy Long by Duke of Lancaster 10929 Eng.,—Eliza by Gainford 2nd 6030 Eng.,—Princess by Wharton 2833 Eng.,—Countess by Count 1883 Eng.,—by Baronet 1686 Eng.,—by Young Rockingham 2549 Eng.,—by Wellington 2824 Eng.,—by Styford 103 Eng.,—by Lane Bull 358 Eng.,—by Bollingbroke 86 Eng.

114.—PRINCE IMPERIAL.

Red and white. Calved December 30th, 1878. Bred by W. G. Batters, Brancelton, Co. Brant, Ont. Owned by Minnie and Barrowsfield Agricultural Society. Sire Gladiator 5302 Ca. Dam Lady by Lord of the Valley 421 Ca. See *Canada Register*, vol. 5, Bulls, 1163 Ca.

115.—NOT NAMED.

Red and white. Calved January 15th, 1881. Imported in dam from England by Central Board of Agriculture. Owned by Anherst Agricultural Society, Co. Cumberland. Sire Burgundy 37926 Eng. Dam Roseleaf by Rockville 2nd 37356 Eng., gr d Rose of Poughley by Baron Booth 1st 27915, g gr d Redheart Rose by Artemus Ward, 23326,—Rynd Rose by A 1 15538,—Rosette by Royal 13636,—Ringlet by Lord George 9314,—Rosebud by Fitzhardinge 8073,—Red Rose by Augustus 6751,—Red Rose by Consul 1868,—Red Rose by Second Fairfax 8050,—Old Red Rose from the stock of the late Mr. Champion.

SHORT-HORN DURHAM COWS.

81.—LADY WALSINGHAM 2ND.

Red and white. Calved July, 1874. Bred by Hon. J. C. Pope, Charlottetown, P. E. I. Owned by James Kitchin, River John, Co. Pictou. Sire Yeoman's Bull 99. Dam Lady Walsingham by Lord Clarence 90, gr d Spot by Lord Walsingham's Orthodox 28th, g gr d Spangle by Guy 12880 Eng.,—Nancy by Young Pompey 13480 Eng.,—Cherry by Runtram's Bull,—Nancy by son of David 1917 Eng.,—Old Nancy,—Vesta,—Princess.

82.—LADY WALSINGHAM 3RD.

Red and white. Calved July 18th, 1879. Bred and owned by James Kitchin, River John, Co. Pictou. Sire Dufferin 92. Dam Lady Walsingham 2nd 81., gr d &c., as in preceding No. 81.

83.—LADY WALSINGHAM 4TH.

Red with white spots. Calved September 8th, 1880. Bred and owned by James Kitchin, River John, Co. Pictou. Sire Dufferin 92. Dam Lady Walsingham 2nd 81., gr d &c., as in No. 81.

84.—LILLY.

Red and a little white. Calved April 1st, 1871. Bred by W. W. Fawcett, Sackville, N. B. Owned by Edwin Chase, Cornwallis, King's Co. Sire Constance Duke 7753 Am. Dam Dairy Queen 49 by Oswald Cray 514 Ca., gr d Dairy Spot by Snowball 696 Ca., 3444 Am., g gr d Queen by Dallimore 400* Am.,—Fancy by Wellington 791 Ca.,—Donna Maria by Duke 175 Ca., 440 Am.,—Nancy *alias* Countess by Wellington 790 Ca., 1036 Am.,—Countess 1st by a son of Comet 155 Eng.,—Princess (imp) by Lancaster 360 Eng.,—Golden Pippin by North Star 459 Eng.,—by Favorite 252 Eng.,—by Favorite 252 Eng.,—by Broken Horn 95 Eng.,—bred by Mr. Best of Mansfield.

85.—ZILLA.

Red with a little white. Calved June 21st, 1880. Bred and owned by Edwin Chase, Cornwallis. Sire Colchester King 29. Dam Lilly 84, gr d &c., as in preceding No. 84.

86.—DUCHESS OF WARWICK 3RD.

(Mark on horn I). See vol. 23, p. 450, *English Herd Book*. Red. Calved June 30th, 1876. Bred by Mr. W. G. Garne, Broadmoor, Northleach, Gloucestershire. Imported by Central Board of Agriculture. Owned by E. Smith, Windsor. Sire Grand Duke of Geneva 2nd 31828. Dam Duchess of Warwick by Earl of Warwickshire 3rd 28524, gr d Butterfly's Duchess by Royal Butterfly 29th, 25007, g gr d Delicacy by the Druid 20748,—Destiny by Progression 18770,—Dance^d by Enterpaise 11443,—Blonde by Patriot 10595,—Bracelet by Son of Elevator 6969,—Blanche by No Mistake 8357,—Young Beauty by Young Consul 6893,—Old Beauty by Fairfax 1023,—Beauty by Speculation 1472.

87.—MERRY FACE.

(Mark on horn II). See vol. 25, p. 339. Roan. Calved January 28th, 1878. Bred by Mr. H. Bettridge, East Hanney, Wantage. Imported by Central Board of Agriculture. Owned by E. Seeman, Minnie, Co. Cumberland. Sire Rockville 2nd 37356. Dam Medora by Masterpiece 24561, gr d Miss Peel by Cynric 19542, g gr d Miss Ambler by Royal Oak 16660,—Miss Mitford by Bashaw 12449,—Mitford by Lord George 9314,—Manager Rose by Manager 8271,—Young Rose by Ruffler 7391,—Rose 2nd by Gazer 7030,—Old Rose by a bull of Mr. Champion's.

88.—ROSELEAF.

(Mark on horn III). See vol. 25, p. 340, *English Herd Book*. Red and little white. Calved February 20th, 1878. Bred by Mr. H. Bettridge, East Hanney, Wantage. Imported by Central Board of Agriculture. Owned by Professor Lawson, Lucyfield, Co. Halifax. Sire Rockville 2nd 37356. Dam Rose of Poughley by Baron Booth 1st 27815, gr d Redheart Rose by Artemus Ward 23326, g gr d Rynd Rose by A 1 15548,—Rosette by Royal 13636,—Ringlet by Lord George 9314,—Rosebud by Fitzhardinge 8073,—Red Rose by Augustus 6751,—Red Rose by Consul 1868,—Red Rose by Second Fairfax 8050,—Old Red Rose from the stock of the late Mr. Champion.

89.—EVANGELINE 2ND.

Red and white. Calved December 10th, 1880. Bred by Charles F. Beckwith, Cornwallis. Owned by C. F. Eaton, Cornwallis. Sire St. Nicholas of Lucyfield 27. Dam Evangeline 40 by Roland 654 Ca., gr d Brunswick Belle by Brunswick 831 Ca., g gr d Peerless by Joe 371 Ca.,—White Lily by Wentworth 800 Ca.,—Snowdrop by Wellington 792 Ca., 183 Am., &c., as under 41.

90.—MINNIE WARREN.

White and roan. Calved May 10th, 1878. Bred and owned by Thomas H. O'Brien, Cornwallis. Sire Benedict 77. Dam by Roland 8, gr d by Lobo Lad 1, g gr d by Yeoman 2.

91.—NOT NAMED.

Red and white. Calved January 6th, 1881. Imported in dam from England by Central Board of Agriculture. Owned by H. L. S. Baker, Yarmouth. Sire Burgundy 37626 Eng. Dam Merry

Face by Rockville 2nd 37356, gr d Melora by Masterpiece 14561, g gr d Miss Peel by Cynre 19512.—Miss Ambler by Royal Oak 16870.—Miss Mirford by Bashaw 12149.—Mirford by Lord George 9314.—Manager Rose by Manager 9271.—Young Rose by Raffle 7391.—Rose 2nd by Gazer 7030.—Old Rose by a bull of Mr. Champion's, Blyth.

92.—NOT NAMED.

Red and white. Calved January 30th, 1831. Imported in dam from England by the Central Board of Agriculture. Owned by C. F. Eaton, Cornwallis. Sire Sir Robert Frognore 49719. Dam Duchess of Warwick 3rd by Grand Duke of Geneva 2nd 31238 Eng., gr d Duches of Warwick by Earl of Warwickshire 3rd 26524, g gr d Butterfly's Duchess by Royal Butterfly 20th 25007.—D. heacy by the Druid 20948.—Destiny by Progression 18770.—Damsel by Enterprise 11443.—Blonde by Patriot 10595.—Bracelet by Son of Elevator 6969.—Blanche by No Mistake 8357.—Young Beauty by Young Consul 6893.—Old Beauty by Fairfax 1063.—Beautiful by Speculation 1472.

AYRSHIRE BULLS.

72.—CHIEF WAUBANOFF.

Dark red and white. Calved December 13th, 1878. Bred and owned by George Campbell, Pictou. Sire Second Laird of Lee Farm 1989 Ca. Dam Dutchy 3rd 1427 Ca. by Pride of Geneva 129 Ca., gr d Dutchy 439 Ca.—bred by Mr. R. Hamilton, Stonehouse, Scotland,—sired by Davy, owned in Scotland,—g gr d Dandy, owned in Scotland.

73.—COLONEL FIELDMORE OF FIELDMORE FARM.

White and red, white triangle in forehead. Calved March 27th, 1881. Bred and owned by D. H. Coffin, Upper Pereaux, King's Co. Sire Talbot 3rd 54. Dam Belle of Paradise 30 by Thrift 18, gr d Dorcas 29 by Glengarry, imp., out of Edina by Young Glengarry, g gr d Drusilla 1089 Am.

74.—ZULU CHIEF.

Red with white spots. Calved May 27th, 1879. Bred and owned by James E. Hart, Gaysborough. Sire Laird of Lee Farm 1227 Ca. Dam Spot of Lee Farm 2nd 1425 Ca.

75.—LORD NELSON.

Red and white. Calved June 12th, 1879. Bred by James E. Hart, Gaysborough. Owned by John H. Skinner, Gaysborough. Sire Second Laird of Lee Farm 1989 Ca. Dam May Day 1985 Ca.

76.—ENDYMION.

Brown, some white. Calved September 8th, 1880. Bred by C. P. Blanchard, Truro. Owned by Hugh McMonagle, Sussex, N. B. Sire Clyde, imp., 24. Dam Blyth, imp., 11, by Kelso, in Scotland, gr d Tosh, a Scotch cow.

77.—DUKE OF SUSSEX.

Red marked with white on forehead and sides. Calved March 8th, 1877. Bred by Hugh McMonagle, Sussex, King's Co., N. B. Owned by Clements Ag. Society, Co. Annapolis. Sire Selwyn 1449 A. C. A. H. B. Dam Red Plum 1777 do., gr d Nora 672 do., g gr d Ceres 2nd 301 do.

78.—HERMIT.

Red and white. Calved July, 1880. Bred and owned by Col. C. J. Stewart, Willowside, Amherst, Co. Cumberland. Sire Scott 64. Dam Olive 94 (imp. in dam from Scotland), by the Gentleman (Fleming, Strathaven), gr d The Nun, imp. from Scotland.

79.—BEACONSFIELD.

Brown and white. Calved April 16th, 1880. Bred and owned by Rev. A. McBean, Lower Stewiacke, Co. Colchester. Sire Lord Clyde 1901 Ca. Dam Bessie 71 by Senator,—by Reform 7.

80.—ABERDEEN.

Deep red, a large white mark on the forehead, white marks on both shoulders and both flanks, a white ring around the tail. Calved March 26th, 1876. Bred by Hugh McMonagle, Sussex Corner,

King's County, N. B. Owned by Government Stock Farm of P. E. Island. Sire Selwyn 622 Ca. Dam Red Plum 1676 A. & C.

81.—WALLACE.

White and red. Calved July, 1872. Bred by Thomas Guy, Oshawa, Ontario. Imported by Central Board of Agriculture. Sire and dam imported from Scotland.

82.—WILLIAM.

White and red. Calved June 7th, 1876. Bred and owned by Henry Burrell, Yarmouth. Sire Wallace 81. Dam Lilly 3rd 7 by Lord Dufferin 83, gr d Lilly 2nd by Eclipse 137 Ca., g gr d Scotch Lassie by Prince of Wales 305 Am.,—Spot by Rob Roy, imp., 135 Am.,—White Lilly by Dundee 3rd, imported by W. Simpson, Quebec.

83.—LORD DUFFERIN.

Bred by Thomas Guy, Oshawa, Ont. Imported by Central Board of Agriculture. Sire Lord Lisgar 693 Am.

84.—PRINCE CHARLIE.

Red, a little white on flanks. Calved 24th February, 1875. Bred by A. P. Ball, Stanstead, Prov. Quebec. Owned by Yarmouth Co. Agricultural Society. Sire Pride of Geneva 129 Ca. Dam Dutchy 439 Ca.

85.—PRINCE LEOPOLD.

White with red spots. Calved March 25th, 1881. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Prince William 23. Dam Effie 3rd 112 by Lord Dufferin 83, g, d Effie 2nd 111 by Jock 62 Ca., 413 Am., g gr d Effie 59 Ca. by Duke bred by Mr. Cuthbert, Montreal.—Beauty by Bruce, bred by Mr. J. Dodds, Montreal,—Effie imported by Mr. Dodds.

86.—PRINCE NAPOLEON.

Dark red, well filled with small white spots. Calved August 31st, 1879. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Prince Charlie, imp. from Canada, 84. Dam Flora Baker 113 by Lord Dufferin 83, gr d Effie 2nd 111 by Jock 62 Ca., 413 Am., g gr d Effie 59 Ca. by Duke (Cuthbert).—Beauty by Prince (Dodds),—Effie, imported by Mr. Dodds, Montreal.

87.—CAPTAIN JINKS.

Red and white. Calved August 23rd, 1880. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Prince Bismarck 23. Dam Flora Baker 113, &c., as in preceding No. 86.

88.—LORD DUFFERIN 2ND.

Red and white. Calved April 20th, 1880. Bred and owned by Henry Burrell, Sr., Yarmouth. Sire Prince Bismarck 23. Dam Lilly 5th 117 by Wallace 81, gr d Lilly 2nd 116 by Eclipse 137 Am., g gr d Scotch Lassie by Prince of Wales 305 Am., Spot by Rob Roy, imp., 135 Am.,—White Lilly by Dundee 3rd,—Quebec, imported by Mr. Simpson of Quebec.

AYRSHIRE COWS.

105.—MINERVA.

White and brown. Calved September 24th, 1880. Bred and owned by C. P. Blanchard, Truro. Sire Clyde 24. Dam Queen of Ayr 65.

106.—GALAXY.

White and brown. Calved September 1st, 1880. Bred and owned by C. P. Blanchard, Truro. Sire Clyde 24. Dam Lady Beatrice 32.

107.—MOLLY.

White and red, well marked. Calved May 19th, 1877. Bred by Hugh McMonagle, Sussex, King's Co., N. B. Owned by Clements Township Agricultural Society, Co. Annapolis. Sire Selwyn 1448 A. & C. Dam Martha 2827 A. A. C.

108.—THE ABBESS.

Red. Calved April, 1880. Bred and owned by Colonel C. J. Stewart, Willowside Amherst. Sire Scott 64. Dam Nun 93.

109.—LOUISE.

Brown and white. Calved November 16th, 1880. Bred and owned by Rev. A. McBean, Lower Stewiacke. Sire Lord Clyde 1301 Ca. Dam Torta by Micmac 26, gr d Miss Cuthbert.

110.—MAPLE LEAF.

White with red spots. Calved March, 1880. Bred and owned by James Kitchin, River John, Pictou Co. Sire Aberdeen 80. Dam Island Lass 45.

111.—EFFIE 2ND.

Red and white. Calved June, 1868. Bred by Thomas Guy, Oshawa, Ont. Imported by Central Board of Agriculture. Owned by G. W. Sanders, Hebron, Yarmouth. Sire Jock 62 Ca., 413 Am. Dam Effie 59 Ca. by Duke, bred by Mr. Cuthbert, Montreal, gr d Beauty by Bucee, bred by J. Dodds, Montreal, g gr d Effie, imp. by Mr. Dodds.

112.—EFFIE 3RD.

Red and white. Calved February 13th, 1876. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Lord Dufferin 83. Dam Effie 2nd 111, gr d &c., as in preceding No. 111.

113.—FLORA BAKER.

Red with a few white spots. Calved June 12th, 1877. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Lord Dufferin 83. Dam Effie 2nd 111.

114.—NELLIE.

Red and white. Calved 14th April, 1878. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire William 82. Dam Effie 2nd 112.

115.—LADY BLANCHE.

White and red on the sides of face and neck. Calved May 5th, 1879. Bred and owned by G. W. Sanders, Hebron, Yarmouth. Sire Wallace 81. Dam Effie 3rd 112.

116.—LILLY 2ND.

Mostly white with red spots. Calved May, 1871. Bred by Thos. Guy, Oshawa, Ont. Imported by Central Board of Agriculture. Owned by Henry Burrell, Sr. Yarmouth. Sire Eclipse 137 Am., grs Cuthbert, imported by Mr. Cuthbert, Montreal. Dam Scotch Lassie by Prince of Wales 305 Am., gr d Spot by Rob Roy (imp) 135 Am., g gr d White Lilly by Dundee 3rd, —Quebec, imported by Mr. Simpson of Quebec.

117.—LILLY 5TH.

Red and white. Calved March 27th, 1878. Bred and owned by Henry Burrell, Sr., Yarmouth. Sire Wallace 81. Dam Lilly 2nd 116, &c., as in preceding.

118.—LILLY 6TH.

Red and white. Calved April 23rd, 1880. Bred and owned by Henry Burrell, Sr., Yarmouth. Sire Wallace 81. Dam Lilly 2nd 116.

My idea of a guano island had always been that it was very rocky, and covered with a white substance resembling mortar, before the sand is mixed with it. I imagined, too, that it exhaled an odour differing somewhat from the orange-groves of Tahiti. Had I not been told that I was on a guano island I would not have known it from the surroundings. Instead of being rocky the soil was mellow and dark, and everywhere the vegetation was most luxuriant. The air was remarkably clear and pure. During a walk around the island I then learned that there are two kinds of guano; or rather, that of certain qualities which all guano possesses, some of these qualities predominate in that found in a given locality, while guano taken from islands differently located possesses in a much stronger degree some other essentials. Thus the guano of the islands off the coast of South America, exposed to the rays of a tropical sun, where the surface of the earth is never cooled, and where rain seldom falls, possesses the strongest ammoniacal properties. Not only the excretions of birds are deposited there, but the birds themselves come there to die; and eggs have frequently been taken out a little below the crusts which form over these deposits, that are also pure ammonia. The guano of these islands has a strong pungent odour, and is white and light brown in colour. But the guano of the islands of the Southern Pacific is made of decomposed coral, forming mostly phosphates of lime and magnesia. It is entirely inodorous, and of a dark brown colour, resembling well pulverized loam. It is believed that the birds, which in large numbers inhabit these islands, living as

they do, almost entirely on fish, deposit phosphoric acid on the coral, and also leave the bones of the fish, which they cannot eat. These decompose the coral, and thus form the phosphates which give to the guano its value. The guano is separated from the coral in the following manner:—There is quite a force of natives employed, who gather the earth in large heaps and then screen it in the same manner as fine coal is separated from coarse. The screens are about eight feet by three, and the iron gauze covering them is fine, allowing only the guano, or very fine portions of the earth, to pass through, and leaving the coral in the screens. The guano is then sacked, and shipped Hamburg whence it is reshipped to different parts of Europe.—*Exchange.*

The ponies get nothing to eat, except the scanty herbage by the wayside, and were much disposed to linger wherever they could find a few blades of grass. To any such temptation the poor animals were, however, not often exposed, and they joggled along with great perseverance, making up for little food with much drink at the numerous streams which they had to ford. Iceland ponies are generally of a light color, dun, pale chestnut, white, or piebald; under a rough exterior they hide many good qualities, and are as well adapted for the peculiar country which they inhabit as is the noble thorough-bred of Arabia. A vicious animal is almost unknown, and a dealer in ponies, who has passed more of them through his hands than anybody else in the business, assured me that he had not encountered more than one. The endurance of the little nags is

astonishing; they will keep up a steady jog for hours together, and will travel on through the long summer days of northern latitudes with no other sustenance than may be picked up during an hour's mid-day halt.—*Exchange.*

INDEX TO NEW NOVA SCOTIA REGISTER OF THOROUGH-BRED CATTLE.

SHORT HORN DURHAM BULLS.

1 Lobo Lad,	Jour. Ag. (May 1880), Vol. IV. p. 38		
2 Yeoman,	do. do.	do.	
3 *Sir William,	do. do.	do.	
4 Cato,	do. do.	do.	
5 Nobleman,	do. do.	do.	
6 Orion,	do. do.	do.	
7 Bell Duke Markham	do. do.	do.	
8 Roland,	do. do.	do.	
9 Duke of Carlwell,	do. do.	do.	
10 Sir Halbert,	do. do.	do.	
11 Grand Duke Remus	do. do.	do.	
12 Ontario Farmer,	do. do.	Vol. IV. p. 37	
13 Sir William,	do. do.	do.	
14 Baron Lightburne 2d	do. do.	do.	
15 Viscount Oxford,	do. do.	do.	
16 Gwynne of the Forest	do. do.	do.	
17 Kent Gwynne,	do. do.	do.	
18 Skiddaw,	do. do.	do.	
19 Captain Carwood,	do. do.	do.	
20 Fifth Duke of Lorne,	do. do.	do.	
21 Lord of Braemar,	do. do.	Vol. IV. p. 33	
22 Wetherby Star,	do. do.	do.	
23 Kingston,	do. do.	do.	
24 Morse,	do. do.	do.	
25 Lord Windsor,	do. do.	do.	
26 Favorite,	do. do.	do.	
27 St. Nicholas of Lucyfield,	do. do.	(July 1880), Vol. IV. p. 49	
28 King Duds,	do. do.	do.	
29 Colchester King,	do. do.	do.	
30 Alfonso,	do. do.	do.	
31 Snowstorm 2nd,	do. do.	do.	
32 Lucyfield Duke of Edinburgh,	do. do.	do.	
33 Zulu Chief,	do. do.	do.	
34 York,	do. do.	Vol. IV. p. 50	
35 Wellington,	do. do.	do.	
36 Gwynne of Lucyfield,	do. do.	do.	
37 Lord Lorne of Lucyfield,	do. do.	do.	
38 Prince of Lucyfield,	do. do.	do.	
39 Lord York,	do. do.	do.	
40 General Grant,	do. do.	do.	
41 Mara Duke,	do. do.	do.	
42 Duke of Greenwood,	do. do.	do.	
43 Oliver Twist,	do. do.	do.	
44 Royal George,	do. do.	do.	
45 Sir Roger Tichborne,	do. do.	do.	
46 William,	do. do.	do.	

47 Earl Godwin, <i>Jour. Ag.</i> (July, 1880), Vol. IV. p. 51	33 Highland Lassie, <i>Jour. Ag.</i> (July, 1880), Vol. IV. p. 54	45 Champion, <i>Jour. Ag.</i> (Oct. 1880), Vol. IV. p. 74
48 Marquis of Lorne, do. do. do.	34 Princess of Lucyleid, do. do. do.	46 Prince Imperial, do do do.
49 Royal Hope, do. do. do.	35 Fair Rosamond, do. do. do.	47 Francis, do do do.
50 Sovereign, do. do. do.	36 Eliza Stewart, do. (Aug. 1880), Vol. IV., p. 60	48 Mark Twain, do do do.
51 Athelstane 6th, do. do. do.	37 Daisy, do. do. do.	49 Prince William, do do do.
52 Reparry Prince, do. do. do.	38 Rose, do. do. do.	50 Persian Prince, do do do.
53 Young Aberdeen, do. do. do.	39 Colchester Queen, do. do. do.	51 Pompey, do do Vol. IV., p. 75
54 Yucan, do. do. do.	40 Evangeline, do. do. do.	52 Woodside, do do do.
55 *Countess, do. do. do.	41 Peerless, do. do. do.	53 Duke of Canuing, do do do.
56 Reform, do. do. do.	42 Nellie, do. do. do.	54 Talbot 3rd, do do do.
57 *Young Weatherby, do. do. do.	43 Snowflake, <i>Jour. Ag.</i> (Aug. 1880), Vol. IV. p. 60	55 Sir Albert, do do do.
58 Snowball, do. (Aug. 1880), Vol. IV., p. 60	44 Nely Gray, do. do. do.	56 Peter, do do do.
59 Agamemnon, do. do. do.	45 Princess Louise, do. do. do.	57 Joseph, do do do.
60 Earl of Dufferin, do. do. do.	46 Isabella, do. do. Vol. IV., p. 61	58 Lord Cornwallis, do do do.
61 Brigham Young, do. do. do.	47 Rose Gwynne 6th, do. do. do.	59 Sir John, do do do.
62 Bretwalda, do. (Sept. 1880), Vol. IV. p. 63	48 May Rose, do. do. do.	60 Sir Wallace, do do do.
63 Holo, do. do. do.	49 Dairy Queen, do. (Sept. 1880), Vol. IV. p. 70	61 Colchester, do do do.
64 Duke of Colchester, do. do. do.	50 Belle Cayton, do. do. do.	62 Rob Roy, do do do.
65 Prince Arthur, do. do. do.	51 Rose of the Valley, do. do. do.	63 Wagamatcook, do do do.
66 Prince Gwynne, do. do. Vol. IV. p. 63	52 Molly Bawn, do. do. do.	64 Scott, do do do.
67 Lord Beaconsfield, do. do. do.	53 Princess Lightburne, do. do. do.	65 Charley, do do do.
68 Cranwell, do. do. do.	54 Crania, do. do. do.	66 Von Moltke, do do do.
69 Gladstone, do. do. do.	55 Minerva, do. do. do.	67 Inverness, do do do.
70 Second Gwynne of the Forest, (Sept. 1880), Vol. IV. p. 63	56 Violet, do. do. do.	68 Zulu, do do do.
71 Prince of Wales, do. do. do.	57 Oxnard Princess of Lucyfield, do. do. do.	69 Bruce, do do do.
72 Valley Moughtan, do. do. do.	58 Lady Lightburne, do. do. do.	70 Dominion Champion, do do (Vol. IV. p. 83)
73 Basil, do. do. do.	59 Rose Hutton, do. do. Vol. IV. p. 71	71 Independence, do do do.
74 *Major How, do. do. do.	60 Laura, do. do. do.	72 Chief Waulbar-off, <i>Jour. Ag.</i> (June, 1881), Vol. IV. p. 145
75 Holo, do. do. do.	61 Violet 2nd, do. do. do.	73 Col. Fiedmore of Fuldmore Farm, do do do.
76 Grand Pre Duke, do. do. do.	62 Pomona, do. do. do.	74 Zulu Chief, do do do.
77 Benedict, do. do. do.	63 Duchess, do. do. do.	75 Lord Nelson, do do do.
78 Rose Duke, do. do. do.	64 Sir Spring Lass, do. do. do.	76 Endymion, do do do.
79 *Duke of the Valley, do. do. do.	65 Parity, do. do. do.	77 Duke of Sussex, do do do.
80 Royal George 2nd, do. do. do.	66 Red Rose, do. do. do.	78 Hermit, do do do.
81 Duke of Avon, do. do. Vol. IV. p. 70	67 Prin's Josephine 4th, do. do. do.	79 Beaconsfield, do do do.
82 Snowflake, do. do. do.	68 Princess Royal, do. do. do.	80 Aberdeen, do do do.
83 Snowball, do. (Oct. 1880), Vol. IV. p. 70	69 Evelyn, do. do. do.	81 Wallace, do do do.
84 Independence, do do do.	70 Lily, do. do. do.	82 William, do do do.
85 Zeno, do do do.	71 Miss Maud, do. (Oct. 1880), Vol. IV. p. 80	83 Lord Dufferin, do do do.
86 Merlin, do do do.	72 Esie Nor, do do do.	84 Prince Charles, do do do.
87 Sir Charles, do do do.	73 Peerless the First, do do do.	85 Prince Leopold, do do do.
88 Blumarck, do do do.	74 Duchess 2nd, do do do.	86 Prince Napoleon, do do do.
89 Fairrite, do do do.	75 Lady Dufferin, do do do.	87 Captain Jinks, do do do.
90 Lord Clarence, do do do.	76 Princess Louise, do do do.	88 Lord Dufferin 2nd, do do do.
91 Leopold, do do do.	77 Ora, do do do.	
92 Dufferin, do do do.	78 Elsie Vano, do do Vol. IV. p. 81	
93 Oxford Lad of Lorn-dale, do do do.	79 Red Lilly, do do do.	
94 Bela, do do do.	80 Lady Walsling-ham 2nd, <i>Jour. Ag.</i> (June, 1881), Vol. IV. p. 144	
95 Richmond, do do Vol. IV. p. 80	81 Lady Walsling-ham 3rd, do do do.	
96 Tom, do do do.	82 Lady Walsling-ham 3rd, do do do.	
97 Keunebeck Chief, do do do.	83 Lilly, do do do.	
98 Glenman, (June, 1881), Vol. IV. p. 143	84 Zilla, do do do.	
99 Yoo's Bull, do do do.	85 Duchess of Warwick, do do do.	
100 Glenman 2nd, do do do.	86 Merry Face, do do do.	
101 Peter Grant, do do do.	87 Rose, do do do.	
102 Marquis of Lorne, do do do.	88 Evangeline 2nd, do do do.	
103 Young Colchester, do do do.	89 Minnie Warren, do do do.	
104 Young Ebor, do do do.	90 Not named, do do do.	
105 Lord Randolph, do do do.	91 Not named, do do do.	
106 Lord Bred, do do do.	92 Not named, do do do.	
107 Earl of Surrey, do do do.		
108 Rowland 3228 Eng. H. U., do do do.		
109 Cabul 4288: E. H. B., do do do.		
110 Lord Lovat, do do do.		
111 General Roberts, do do Vol. IV. p. 144		
112 Endymion of Lorn-dale, do do do.		
113 Belmont Chief, do do do.		
114 Prince Imperial, do do do.		
115 Not named, do do do.		
SHORT HORN COWS AND HEIFERS.		
1 Beauty, <i>Jour. Ag.</i> (July 1880), Vol. IV. p. 51	1 Bruce, <i>Jour. Ag.</i> (June 1880), Vol. IV. p. 64	1 Miss Cuthbert, <i>Jour. Ag.</i> (June 1880), Vol. IV. p. 44
2 Caswood's Rose, do. do. do.	2 Boulardarie, do. do. do.	2 Josephine, do. do. do.
3 Lady Lucy, do. do. Vol. IV. p. 52	3 Sir George, do. do. do.	3 Nora C. F., do. do. do.
4 Rose, do. do. do.	4 Johnny, do. do. do.	4 Belle of Avondale, do. do. do.
5 Maid of Oxford 4th, do. do. do.	5 Prince of Wales, do. do. do.	5 Miss Strang, do. do. Vol. IV. p. 45
6 Princess Mary, do. do. do.	6 Young Pr. of Wales, do. do. do.	6 Daisy, do. do. do.
7 Daisy Dean, do. do. do.	7 Reform, do. do. do.	7 Lilly 3rd, do. do. do.
8 Rose Gwynne 4th, do. do. do.	8 Charlie, do. do. do.	8 Lilly 4th, do. do. do.
9 Polly Vaughan, do. do. do.	9 The Shah, do. do. do.	9 Lady Avon, do. do. do.
10 Fortune Teller, do. do. do.	10 Lord Clyde, do. do. do.	10 Merry Duchess, do. do. do.
11 Cambridge Witch, do. do. do.	11 Avon Water, do. do. do.	11 Blith, do. do. do.
12 Lady Mary, do. do. do.	12 Bismarck, do. do. do.	12 Pearl Drop, do. do. do.
13 Nellie York, do. do. do.	13 Prince Albert, do. (Aug. 1880), Vol. IV., p. 61	13 Cherry, do. do. do.
14 White Rose of Lucy-field, do. do. do.	14 Yakob Khan, do. do. do.	14 Park 4th, do. (Aug. 1880), Vol. IV. p. 62
15 Princess Harrington, do. do. do.	15 Sir George, do. do. do.	15 Merry Gipsy, do. do. do.
16 Lora, do. do. Vol. IV. p. 53	16 Young Royalty, do. do. do.	16 Dewdrop 2nd, do. do. do.
17 Lady Peerless, do. do. do.	17 King Humbert, do. do. do.	17 Sadie, do. do. do.
18 Princess Dolly Gwynne of Lucyfield, do. do. do.	18 Thrift, do. do. do.	18 Crocus 2nd, do. do. do.
19 Rose of Delhi, do. do. do.	19 Mars, do. do. do.	19 Daisy, do. do. do.
20 Blossom, do. do. do.	20 Leopold, do. do. do.	20 Crocus 3rd, do. do. do.
21 Molly, do. do. do.	21 Hero, do. do. Vol. IV., p. 62	21 Blossom, do. do. do.
22 Queen Caroline, do. do. do.	22 Lord Canning, do. do. do.	22 Spot, do. do. do.
23 Lady Moore, do. do. do.	23 Prince Bismarck, do. do. do.	23 Rose, do. do. do.
24 Princess, do. do. do.	24 Lord Clyde, do. do. do.	24 Buttercup, do. do. do.
25 Duchess 2nd, do. do. do.	25 Lord Russian, do. do. do.	25 Fawn, do. do. do.
26 Princess Louise of Lucyfield, do. do. do.	26 Minnie, <i>Jour. Ag.</i> (Oct. 1880), Vol. IV., p. 73	26 Grace, do. do. do.
27 Belle of Lorn-dale, do. do. do.	27 Kenelm, do. do. do.	27 Cowslip, do. do. do.
28 Laura, do. do. do.	28 Nicholas, do. do. do.	28 Lily, do. do. do.
29 Pearl Blossom, do. do. Vol. IV. p. 54	29 Wallace 3rd, do. do. do.	29 Dorcas, do. do. do.
30 Princess Adelaide, do. do. do.	30 St. George, do. do. do.	30 Belle of Paradise, do. do. do.
31 Princess Helena, do. do. do.	31 Oscar, do. do. Vol. IV., p. 74	31 Cuthbert Lassie, do. (Oct. 1880), Vol. IV., p. 83
32 Second White Rose of Lucyfield, do. do. do.	32 Albert, do. do. do.	32 Lady Beatrice, do. (Aug. 1880), Vol. IV., p. 62
	33 Young Bismarck, do. do. do.	33 Rowena, do. do. Vol. IV., p. 63
	34 Romeo, do. do. do.	34 Lady Cuthbert, do. do. do.
	35 Sir Hugh, do. do. do.	35 Primrose, <i>Jour. Ag.</i> (Oct. 1880), Vol. IV., p. 75
	36 Bellahill, do. do. do.	36 Lady Mary, do. do. do.
	37 Royal Charlie, do. do. do.	37 Braw Lass, do. do. Vol. IV. p. 70
	38 Marquis of Lorne, do. do. do.	38 Gypsey, do. do. do.
	39 Maribon, do. do. do.	39 Juliet, do. do. do.
	40 Hero, do. do. do.	40 Ruth, do. do. do.
	41 Mark Anthony, do. do. do.	41 Nora, do. do. do.
	42 Robin Hood, do. do. do.	42 Minnie, do. do. do.
	43 Julius Caesar, do. do. do.	43 Zulu, do. do. do.
	44 Ivaucoc, do. do. do.	44 Helless, do. do. do.
		45 Island Lass, do. do. do.
		46 Buttercup, do. do. do.
		47 Lady Cleinents, do. do. do.
		48 May Queen, do. do. do.
		49 Flora, do. do. do.
		50 Hebe, do. do. do.
		51 Lady Halifax, do. do. do.
		52 Evangeline, do. do. do.
		53 Blossom, do. do. do.
		54 Marie Bismarck, do. do. do.
		55 Alice Gray, do. do. do.
		56 Clarissa, do. do. do.
		57 Princess Alice, do. do. Vol. IV. p. 77
		58 Ophelia, do. do. do.
		59 Octavia, do. do. do.
		60 Juliet, do. do. do.
		61 Cleopatra, do. do. do.
		62 Primrose, do. do. do.

63 Rebecca,	<i>Jour. Ag.</i> (Oct. 1870), Vol. IV. p. 77
64 Little Dorrit,	do do do
65 Queen of Ayr,	do do do
66 Stella,	do do do
67 Dolly Varden,	do do do
68 Polly Perdue,	do do do
69 Rose,	do do do
70 Lady Franklin,	do do do
71 Bessie,	do do do
72 Torta,	do do do
73 Fairfield Beauty,	do do do
74 Miss Cecelia,	(Oct. 1880), Vol. IV. p. 77
75 Miss Ida,	do do do
76 Pinalore,	do do do
77 Daisy,	do do do
78 Myra,	do do do
79 Daisy the Second,	do do do
80 Cherry,	do do do
81 Flori,	do do do
82 Maid of Fern Hill,	do do do
83 Hortense,	do do do
84 Flora,	do do do
85 Mary Gray,	do do do
86 Alice Gray,	do do do
87 Hortens,	do do do
88 Lady Fairie,	do do do
89 Beauty,	do do do
90 Lady Ballindalloch,	do do do
91 Belle of Bellahill,	do do do
92 Rose of Bellahill,	do do do
93 The Nun,	do do do
94 Olive,	do do do
95 Spotted Lady,	do do do
96 Rosebud,	do do do
97 Dairy Duchess,	do do do
98 Daisy Duchess,	do do do
99 Gipsy 9th,	do do do
100 Shifty or St. Austead,	do do do
101 Belle of Brookside,	do do do
102 Mayflower,	do do do
103 Lady Windsor,	do do do
104 Lillydale,	do do do
105 Minerva,	(June, 1881), Vol. IV. p. 145
106 Gatoxy,	do do do
107 Molly,	do do do
108 The Abbess,	do do do
109 Louise,	do do do
110 Maple Leaf,	do do do
111 Etie 2nd,	do do do
112 Etie 3rd,	do do do
113 Flora Baker,	do do do
114 Nellie,	do do do
115 Lady Blanche,	do do do
116 Lilly 2nd,	do do do
117 Lilly 5th,	do do do
118 Lilly 6th,	do do do

JERSEY BULLS.

1 Pioneer,	<i>Jour. Ag.</i> (July 1880), Vol. IV. p. 64
2 Dick Swiveller 3rd,	do do do
3 Bruno,	do do do
4 Past Tyler,	do do do
5 Tyler,	do do do
6 Yarmouth,	do do do
7 Darling,	do do do
8 Plantagenet,	do do do
9 Prince of Lee Farm,	do do do
10 Knight of Lee Farm,	do do do
11 Aztinbar,	do do do
12 Bartizan,	do do do
13 Bon Hampton of Hillcrest,	do do do
14 Bilapaur,	do do do
15 The Sultan,	(Aug. 1880), Vol. IV. p. 61
16 Prince Imperial,	do do do
17 Ajax of Lornedale,	do do do
18 Lord Sealfield,	(Oct. 1880), Vol. IV. p. 81
19 Round Robin,	do do do
20 Gambetta French,	do do do
21 Eloper,	do do do
22 Comet 2nd,	do do do
23 Comet 3rd,	do do do
24 Bellerophon,	do do do
25 Eloper 2nd,	do do do
26 Lorne,	do do do
27 L'Etanger,	do do do
28 Prince of Springfield,	do do do
29 Springfield Boy,	do do do

JERSEY COWS AND HEIFERS.

1 Bramitza,	<i>Jour. Ag.</i> (July 1880), Vol. IV. p. 55
2 Nabritza,	do do do
3 Golden Doublet of Hillcrest,	do do do
4 Zabritza,	(Aug. 1880), Vol. IV. p. 61
5 Orrole of Hillcrest,	do do do
6 Maid of Orleans,	do do do
7 Mermaid of St. Lambert,	do do do
8 Cowslip of St. Lambert,	do do do
9 Sultana,	do do do
10 Little Buttercup,	do do do
11 Sealfield Belle,	(Oct. 1880), Vol. IV. p. 81
12 Heather Belle,	do do do
13 Bellatrix,	do do do
14 Donsel,	do do do
15 Florrie,	do do do
16 Lady Bonair	Vol. IV. p. 82
17 Bel Ayr	do do do

18 Zaldee of Lornedale Jr	<i>Ag</i> (Oct. 1880, Vol. IV. p. 82
19 Lady Sealfield,	do do do
20 Gazelle of Brooklyn,	do do do
21 Jersey Queen,	do do do
22 Nathalia,	do do do
23 Gypsy Queen,	do do do

DEVON COWS AND HEIFERS.

1 Primrose,	<i>Jour. Ag.</i> (Sept. 1880), Vol. IV. p. 66
2 Lady Pink,	do do do
3 Maid of Miller Hill,	do do do
4 Margaret,	do do do
5 Blossom,	do do do
6 Violet,	do do do
7 Buttercup,	do do do
8 Mayflower,	do do do
9 Lily,	do do do
10 Verbena,	do do do
11 Is Gra it,	do do do
12 Orange,	do do do
13 Kalnia,	do do do
14 Snowdrop,	do do do
15 Pansy,	do do do
16 Myrtle,	do do do
17 Margold,	(Sept. 1880), Vol. IV. p. 66
18 Poppy,	do do do
19 Moss Rose,	do do do
20 Larkspur,	do do do
21 Carnation,	do do do
22 Heartsease,	do do do
23 Duchess of Edinb'h,	do do do
24 Princess Victoria Adelaide,	do do do
25 Princess Alice,	do do do
26 Hawthorn,	do do do
27 May,	do do do
28 Peony,	do do do
29 Azalea,	do do do
30 Princess Beatrice,	do do do
31 Dahlia,	do do do
32 Princess Helena,	do do do
33 Cowslip,	do do do
34 Balsam,	do do do
35 Trillium,	do do do
36 Princess Louise,	do do do
37 Acacia,	do do do
38 Camella,	do do do
39 Princess Victoria 3rd,	do do do
40 Lady Barbara,	do do do
41 Princess Alexandra,	do do do
42 Forglove 2nd,	do do do

DEVON BULLS.

1 Prince Alex'r,	<i>Jour. Ag.</i> (Sept. 1880), Vol. IV. p. 68
2 Sir Charles Napier,	do do do
3 Curly Prince,	do do do
4 Sir F. Williams,	do do do
5 General Wolfe,	do do do
6 Lord Chelmsford 2nd,	do do do
7 Curly Prince 2nd,	do do do
8 Lord Keane,	do do do
9 Lord Clive,	do do do
10 Hartland 2nd,	(Oct. 1880) Vol. IV. p. 82
11 The President,	do do do
12 Havelock,	do do do

GUERNSEY BULLS.

1 Aul Jones,	<i>Jour. Ag.</i> , (Oct. 1880), Vol. IV. p. 82
2 Bonanza,	do do do
3 Gold Dust,	do do do
4 Prince Edward	do do do
5 Duke or Kent,	do do do
6 Prince Arthur,	do do do

GUERNSEY COWS AND HEIFERS.

1 Bertha,	<i>Jour. Ag.</i> (Oct. 1880.) Vol. IV. p. 82
2 Bertha 2nd,	do do do
3 Lady Bird,	do do do
4 Daisy,	do do do

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