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

VOL. IV.

HALIFAX, N. S., FEBRUARY, 1885.

No. 54.

An article will be found in another column containing a very full account of the discovery of the peculiar national plant of Switzerland, the Edelweiss, in Washington Territory. We hope to obtain authenticated details, and to be able to give further particulars in next number of the JOURNAL. The Scotch Mountain Forget-me-not, *Myosotis alpestris*, hitherto confined to Ben Lawers, has also been found during the past season in Caenlochan Glen, Forfarshire; but it has been ascertained that the seeds had been sown by some would-be improver of nature.

For the information of Stock Owners requiring registration of their animals in the N. S. Stock Registers, the following notices are re-printed from previous numbers of the JOURNAL:—

Owners of thoroughbred stock, on making application for registration of the same, are required to make declaration of the pedigree before a Justice of the Peace, and forward the same to the Secretary of the Central Board of Agriculture; if, on examination, it is found that the sire and dam of such stock are already registered in the New Nova Scotia Herd Register, the Secretary is authorized to register the same and forward a certificate to the owner, otherwise the application so made shall be submitted to the Board at their first meeting thereafter for further examination.

FORMS of Application for the Registration of Thoroughbred Stock in the New Register have been printed, and may be obtained on application to the Secretary

of the Board. Transfer Certificates have also been printed, and may be obtained in the same way. No application for registration or transfer can, under any circumstances, be received except upon the prescribed printed form. The Secretary's instructions are peremptory to return all applications not made on the proper forms. These forms being uniform in every way, will constitute the permanent record. From this explanation it will be obvious that letters, post cards, and such like documents, however full and explanatory they may be, cannot be received as entries in the New Register.

We have received the following circular:—

TRURO, Jan. 16th, 1885.

DEAR SIR,—It is the intention to have a Canadian Representation at the International Exhibition at Antwerp, commencing in May, 1885, and also at the Colonial and Indian Exhibition in London, in 1886.

The Government will defray the cost of freight in conveying Canadian Exhibits to Antwerp, and from Antwerp to London, and also of returning them to Canada, in the event of their not being sold.

All Exhibits for Antwerp should be ready for shipment not later than the first week in March next.

The scope of these Exhibitions will embrace either natural products or manufactured articles of all kinds.

If you intend to exhibit, an early reply will oblige, when "Application Forms" will be sent, and any information imparted that will be of assistance in the preparation and forwarding of your exhibit.

Please address

W. D. DIMOCK,

Agent for Antwerp and Colonial and Indian Exhibitions.

A CORRESPONDENT writes:—I hope the Halifax people are moving to have the Exhibition in the city this year. There would be a much larger exhibit in Halifax than Keatville, or in fact than any other part of the Province. All the provincial shows should be held in the city, but I hope before long we shall have an annual show which shall include the three Provinces.

MR. SIMON BEATTIE, Annan, has just despatched from Glasgow to Canada, via Boston, an extensive and valuable shipment of Clydesdale horses, &c., by the Allan Line steamer Carthaginian. The consignment comprises seventeen Clydesdale stallions and mares, and two Shetland ponies, purchased from the popular stud of Mr. A. McCowan of Newtonards. They include the black stallion "Roderick Dhu," by "Corsewall" (1420), winner of the silver medal, two first, and two second prizes at the Highland Society's shows, and of several honors at district shows. "Roderick Dhu" is half-brother to "The Douglas" (2060), both being out of Mr. Houston's prize mare "Bet" (1338). "The Douglas" was first

at Edinburgh and Dalbeattie and second at Ayr as a yearling; first at the York Royal show, second at Dumfries Union, and fourth at Ayr, as a two-year-old. We believe he cost Mr. McCowan £1,000. "Roderick Dhu"—which has only competed once in the show ring, and won the first prize—is a stylish horse with superior action and a grand appearance, standing over seventeen hands high. He has also a fine head and neck, a good back, and good pasterns and feet. Mr. McCowan has remarked that he has had many tempting offers for him at home, but he was desirous to let him go to Canada, where, if all goes well, he will no doubt give a good account of himself. The other three horses consist of "Cavalier," bred by Lord Arthur Cecil, and got by far famed "Macgregor," dam "Cerises" (1091), a promising bay colt of superior size and immense bone; also the bay colt bred by Messrs. Mitchell, Alloway, which is a large, stylish colt, well up forward, with clean, flat bone, and a wonderful mover. His dam was "Rosie" (593), by "Emperor" (277), one of the best bred horses in the stud book. Another one is "Morgan," a bay colt, bred by Mr. Morgan, of Clairlogie, from "Darling" (3810). He is a colt of great size and substance, of great bone, deep ribs, strong back and looks like making his mark as sire in any country. The two last-named colts are from "Corsewall" (1420.) Another famous horse is "The Border Chief" (3242), got by "Good Hope" (1679), a son of the renowned "Darnley" (222.) "The Border Chief" is a dark brown horse, with black legs, stands over 17 hands high, has a fine head, neck, shoulders, and back, ribs well sprung from his back, with plenty of clean, fat bones, good pasterns and feet, and a fine mover. He was purchased from Mr. J. Crawford, Brydechirk Mains, Annan, and has gained a number of first and second prizes, both as a yearling and a two-year-old. There were included in the consignment six horses from the stud of Mr. J. Drummond, Drumfurline, consisting of two, three, and four-year-olds, by such sires as "Baron Bullock," (1183), "Gold Dust" (1677), "Farmer's Fancy," (302), "Prince of Keir (1795), and others. The remaining stallions and mares were picked up from local breeders. Mr. Beattie informs us that this is his third shipment since August last, the stock sent numbering 36 stallions and mares, 26 cattle, and 106 sheep. He expresses the opinion that the Carthaginian is one of the most suitable ships for carrying stock he ever saw, having all the latest improvements, good height between decks, and effective ventilation. We may add that this is the second shipment from Newtonairs this winter. In November Mr. Beattie shipped 21 head

of Galloway cattle, consisting of a picked lot of ten young bulls, three cows, and eight heifers. They all landed safely, and are doing well across the water, where they are much admired. Galloway cattle are a popular class of stock now finding its way to the northwest, the bulls crossing well with other cattle. The females are good breeders and good nurses, and the ranchmen are buying them up at fair prices.

#### CENTRAL BOARD OF AGRICULTURE.

LEGISLATIVE COUNCIL CHAMBER,  
3rd February, 1885.

The Board met at 10 a. m., Major-General Laurie, President, in the Chair. Present, also, the Hon. Isidore LeBlanc, M. E. C., Arichat; David Matheson, Pictou; Israel Longworth, Truro; C. E. Brown, Yarmouth; Col. W. E. Starratt, Paradise; John McKeen, Mabou; Professor Lawson, Secretary.

The president addressed the meeting and brought under notice the several matters of business requiring attention on this occasion.

The Secretary was directed to apply to Mr. Jakeman, the Provincial Veterinary Surgeon, for his report of operations for the year, to be embodied in the annual report of the Board, now being printed.

Applications from new agricultural societies, organized previous to 1st July, 1885, were submitted.

Moved by C. E. Brown, seconded by D. Matheson, that the Hebron Society, County of Yarmouth, having been re-organized, be recognized as entitled to participate in the Legislative Grant for 1884.

Moved by Mr. Matheson, seconded by Mr. McKeen, and passed, that the Sherbrooke Agricultural Society, County of Guysboro, be recognized, and that the by-laws now submitted and examined be approved of and sanctioned.

Read memorial from C. E. Gregory, Antigonish, in reference to registration of Short Horns. On motion of Mr. Longworth, Messrs. Brown and Starratt were requested to act as a committee to examine and consider Mr. Gregory's memorial and applications, and to report to the Board.

The Board adjourned at 12.30.

2 p. m.—Business resumed. Same members present.

The Secretary submitted the annual reports, accounts, and attested returns of membership and paid-up subscriptions of the agricultural societies of the several counties of the Province. The careful examination of these documents, upon which the distribution of the Legislative Grant is based, occupied the Board during the rest of the day.

Applications for the Provincial Exhibition of 1885 will be received, as specified

in the circular issued by the Board, up to 1st March, and the consideration of this matter will be taken up at the March meeting.

Feb. 4th, 1885.

The Board met at 10 a. m. Present: Major-General Laurie, President; Hon. I. LeBlanc, I. Longworth, D. Matheson, John McKeen, C. E. Brown, Col. Starratt, and the Secretary.

Messrs. Brown and Starratt presented their report upon the memorial and applications for registration of Mr. Gregory. Mr. N. H. Meagher, Q. C., appeared before the Board as counsel for Mr. Gregory, and presented his case, showing the grounds upon which he sought registration for his animals.

The by-laws of the Granite Agricultural Society, of Shelburne County, were read, considered, approved of and sanctioned, with certain emendations. By-laws of the Alma Agricultural Society, Pictou County, were read. Moved by Mr. Matheson, seconded by Col. Starratt, and passed, that the by-laws be sanctioned. By-laws of the Wentworth Agricultural Society, Cumberland County, were read. Moved by Mr. Longworth, seconded by Mr. Brown, and passed, that these by-laws be sanctioned.

Moved by Hon. Mr. LeBlanc, seconded by Col. Starratt, and passed, that the application of the Wallace Agricultural Society, Cumberland County, be referred to the member for the District (Mr. Longworth), for enquiry, consideration and report.

The three committees into which the Board had been divided for the purpose of examining the annual reports, accounts and attested returns of societies, presented their reports, which were received and adopted, and the Secretary was directed to communicate with the officers of societies whose reports and returns were imperfect or otherwise unsatisfactory, and to require needed information and explanations before distribution of the annual grant.

A communication in reference to assistance for the erection of local exhibition buildings was submitted, to which the Secretary was directed to reply that the Board had never had money placed at its disposal for such purpose.

On motion of Col. Starratt, seconded by Mr. McKeen, Messrs. Longworth and Matheson were nominated a committee to audit the Treasurer's accounts for the past year.

The Board then adjourned.

Feb. 5th, 1885.

The Board met at 10 o'clock, all the members being present; Major-General Laurie presiding. Several applications were presented for premiums on horses and sheep imported by private individ-

nals. The Board, after fully considering the matter, agreed to make preliminary arrangements so as to bring up the subject for consideration at next meeting, and report their views to the Legislature. Certain applications for registration of Thoroughbred Stock were dealt with, the registry of some being authorized, and of others deferred for further information. The President, Hon. Mr. LeBlanc, and the Secretary were named as a committee to prepare a circular to breeders, requesting an expression of their views as to the propriety of raising the standard of requirement for registration in the Nova Scotia Herd Register.

During the present winter a large amount of attention has been given in the English papers to Nova Scotian Agriculture, particularly Fruit Growing, as the columns of the JOURNAL OF AGRICULTURE have testified. We are again called upon to quote an appreciative article published in the English *Canada Gazette* and in the *Gardeners' Chronicle*:

#### CANADIAN FRUIT.

From an interview with A. H. Johnson, of Wolfville, Nova Scotia, an active and prominent member of the Fruit Growers' Association, we learn that there are some splendid openings for settlers, both in Nova Scotia and New Brunswick, to enter into the cultivation of fruit for local and other markets. There is also a specially fine opening for experienced nurserymen, with a moderate capital, to open nurseries for supplying fruit trees in those provinces, nearly all trees now used requiring to be brought a long distance, and at a considerable expense and risk, by railway from Ontario or the United States nurseries.

The demand for the fruit products of those provinces far exceeds the supply, and is rapidly increasing as its quality becomes known. The climate is exceptionally well adapted for the growth of many varieties of fruit. It is generally admitted that the fruit grown in that locality, especially in the "Annapolis Valley," so-called, in Nova Scotia, has a finer flavour than any American Apple. This is to be in some measure accounted for by the dampness of the climate, by the absence of extreme heat, by the position of the lands protecting them from the damaging winds, and especially by the shorter summer season, of the northern latitude, ensuing more rapid maturing of the fruit.

The proximity of the fruit-growing portion of those provinces to the seaports of St. John and Halifax, which are open

all the year round, in addition to their direct and rapid communication with the largest consuming markets of the United States, as well as with this country, gives them exceptional facilities for this trade.

#### COST OF PRODUCTION.

Good improved Apple growing lands, well situated, can be purchased for 20 dols. (£1 to £6) per acre, and even less. In some cases, where they are situated off main roads, or where society is not so good, this price would include ordinary buildings. It of course rarely occurs that a whole farm would be adapted for fruit growing, but it is not advisable in that country to depend entirely upon fruit—the most successful mode being mixed farming, having only moderate sized orchards, where position and soil are best suited.

In preparing for a new orchard, and to do it full justice, it would cost about 12 dols. 50 cents, (say, £2 10s.) per acre. If the land, as in most cases it is, were under a proper state of cultivation, the cost would not be nearly so much. The cost of the trees, about fifty per acre, would be about 12 dols. 50 cents (£2 10s.) With the same preparation of the earth, it is customary to plant Plum trees between the Apple trees, without in any way interfering with them. These trees will cost 12 dols. 50 cents (£2 10s.) per acre. In the meantime, while waiting for the growth of the Apple and Plum trees to their bearing maturity, it is customary to use the land for what is known as "hoed crops," such as Indian corn (Maize), Potatoes, Peas, Beans, Carrots, Turnips, thus keeping the soil mellow, and the top-dressing used for these crops gives sufficient nourishment for the trees. These crops are generally sufficient to pay for all expenses of cultivation, except probably interest and taxes on the original outlay.

#### PLUMS.

The Plums will begin to bear fruit in about three years, and some in two years. Allowing a fair average product for the third year of, say, 25 bushels per acre, worth, say, 75 dols., these will then increase rapidly in their product, reaching, say, in the sixth or seventh year, about 1½ and even 2 bushels per tree, or about 225 dols. (£45) per acre. If carefully packed, boxed, and properly handled, even 50 per cent. better prices can be obtained.

#### APPLES.

The Apple trees will begin to bear to a considerable extent in from seven to ten years, in seven years many producing a half barrel, and in ten years a barrel per tree, say 50 barrels per acre at 2 dols.

(8s.) per barrel (a fair average price on the ground.) In about fifteen years their yield will increase to about 2 barrels per tree: at 2 dols. (8s.) this will give 200 dols. (say £40.) With these, as with the Plums, judicious picking, packing and selling will materially add to the price.

Windfalls and inferior grades of Apples can be used for evaporating, cider making, &c., and should pay for barrels, expense of gathering, &c. In making calculations it is well to remember that Apple trees produce more abundantly every alternate year, while an occasional loss of Plums by frost will have to be allowed for.

In most cases the Plum trees will last twenty years, being productive without interfering with the Apple trees.

#### SHIPMENT.

As regards the shipment of Apples, particularly for the English market, considerable experience and great judgment are required to do it successfully. At the present time many mistakes are being made, and much valuable fruit lost by shipping at improper seasons, also in sending fruit not suited to the market.

Shipments should be as follows:—First, Gravensteins, commencing from October; they should not be shipped later than November 1. Golden Ball, Fall Jannetting, Duchess, Oldenburgh (Russian Apple), Munson Sweets, Snow Apple (Fameuse), as well as the Emperor, may be included in this shipment, but their shipment is not advised unless the crop should be short in England.

No. 2 shipments from November 1 to December 1, should include Ribston Pippins, Blenheim Pippins (Blenheim Oranges), King of Tompkin's County (known as Kings), Spitzenburg, Blue Pearmain, Hubbardson's Nonsuch.

It is not wise to ship to London market after December 1 until about January 10, or so as to reach there about January 20, the market always being full for some time after the Christmas sale.

No. 3 shipments may be made from the middle of January, or say the 20th, to about February 15, and should mainly consist of Baldwin's, Rhode Island Greenings, and Golden Russets: Vandeveres, if shipped at all, should be included in this lot, but they are not liked in the London market, and their shipment is not advised. This variety is poor in quality, but splendid keepers, and would do for reshipment, country orders, &c.

No. 4 shipments, from February 20 as late as March, and even April, consist of the Nonpareil (Russett) and Northern Spy. These comprise the main varieties exported. Besides these there are a

number which have but limited shipment, such as the Baltimore Pippins, King of the Pippins, Twenty ounce Pippins, Calkin's Pippins, Westfield Seek-no-father, Pomme Grise, Cayuga Redstrouk, Pound Sweet, Yellow Belle-flour, &c.

The markets for Plums are mainly local, but large quantities are shipped to Boston, New York, &c. The leading varieties are the Nectarine, Washington, Imperial Gage, Red Gage, Yellow Gage, and Green Gage, Dunne's Purple, Prince of Wales, Bradshaw, Smith's Orleans, Black Damson, Magnum Bonum, several varieties of native Plums, including Blue Plums.

Other kinds of fruits grown include almost all varieties of Cherries—Black Heart, White Heart, common Kentish (red Cherry), Black Eagle, Black Tartarian, Yellow Tartarian, Yellow Spanish, and other varieties. Peaches, Quinces, Apricots, and Grapes, in great variety, grow in the open air, and without protection, as even wall fruit. Crab Apples of all varieties are plentiful. Strawberries, Raspberries, Blackberries, Blueberries, Wortleberries, high and low bush Cranberries, are abundant in both wild and cultivated states. These berries are now becoming a large article of export, both tinned and otherwise preserved, and especially in the shape of syrups. The wild varieties are acknowledged to produce the finest fruit syrups obtainable, and large shipments are now being made to the United States and the Western Provinces, as well as to this market.

A large establishment has also recently been constructed for evaporating these and other fruits, and is meeting with great success.

Under date, Liverpool, 3rd January, 1885, Green & Whineray reported:—

The weather this week has been very cold, and much against the sale of Apples, consequently the demand has been of a retail character, still, with light arrivals, holders of good fruit have been firm, and prime barrels of Baldwins have experienced a rise of 2/- per barrel. Inferior lots have shown very little improvement.

Large arrivals of Oranges, selling at very low prices has told somewhat against Apples, but the great drawback to the increased demand at higher prices, is the fact that a good many of the dealers are still holders of Apples purchased before Christmas, at 10/- to 11/-, and will not pay the advance so long as they have these to work upon.

The following quotations are for tight barrels:—

Baldwins, Boston	10s. 9d. to 11s. 6d.
" New York	12s. " 13s.
" Canadian	12s. 6d. 12s.

Rox Russets	9s. to 10s. 6d.
Golden Russets	12s. " 17s.
Newtown Pippins	9s. " 14s.
Greenings	9s. " 10s.
Spitz	9s. " 12s.
N. Spy	9s. " 13s.
Kings	15s. " 21s. 6d.
Slack Packed	8s. to 11s. 6d.
Slack and Wet	5s. " 6s. 8d.

Arrivals for the week are as follows:—

Norseman, @ Boston	3530
Britannic, " New York	1356
Oregon, " "	326
Nevada, " "	419
Sarmatian, " Halifax	20
Montreal, " Portland	946
City of Berlin, @ New York	917
Arizona, " "	180

Total arrivals for week... 7,694 barrels.  
to date... 351,437 "

Messrs. Green & Whineray, of Liverpool, report, 10th January, 1885:—

Arrivals of Apples still continuing light, last week's prices are fully maintained, the demand for Red Apples being very good; but Greenings, Tallman Sweets, &c., are neglected, and prime quality Newtown Pippins are selling at very low prices.

The following quotations are for tight barrels:—

Baldwins, Boston	11/- to 13/-
" New York	12/-
" Canadian	12/- " 13/6
Greenings	9/- " 11/-
Spitz	10/- " 12/-
Newtown Pippins	8/- " 14/-
Rox Russets	9/- " 10/-
Golden Russets	9/- " 15/-
N. Spy	9/- " 13/-
Tallman Sweets	7/- " 8/-
Slack packed	9/- to 11/-
Slack and wet	7/- " 9/-

Arrivals for the week are as follows:—

Cephalonia, @ Boston	1152
Missouri, " "	2671
Bavarian, " "	1501
Roman, " "	1185
City of Chicago, @ New York	51
Republic, " "	133
Arctania, " "	433
Parisian, " Montreal	1197

Total arrivals for week... 8,323 barrels.  
to date... 359,760 "

Messrs. Green & Whineray's report of 17th January, on the Apple Market at Liverpool:—

With a revival of trade after the holidays and scarce supply of Apples, prices are 1/- to 2/6 higher all round and in good demand. The advance being most noticeable in the better qualities.

English supplies being now exhausted, and Belgium and Germany having none to spare, with moderate arrivals we should see a good trade at full prices during the Spring.

The following quotations are for tight barrels:—

Baldwins, Boston	12/- to 14/6
" Canadian	13/6 " 16/6
" New York	14/ " 14/6
Greenings	11/- " 13/-
Rox Russets	10/- " 11/6
Newtown Pippins	18/- " 20/-
N. Spy	12/- " 18/6

Black Oxford	11/- to 12/4
Spitz	13/- " 14/-
Tallman Sweets	10/- " 11/-
Slack packed	11/- to 13/-
Slack and wet	8' " 10/-

Arrivals for the week are as follows:—

Iowa, @ Boston	2845
Venetian, " "	1231
Iberian, " "	2965
City of Richmond, @ New York	409
Celtic, " "	253
Alaska, " "	337
Brooklyn, " Portland	2227
Polynesian, " "	547

Total arrivals for week... 11,014 barrels.  
to date... 370,774 "

Messrs. Green & Whineray, of Liverpool, report under date, 24th January, that, with continued light arrivals, and a good demand for Apples, there is a steady advance in prices; from the first sale on Monday to the last one on Friday, prices were hardening all the time, and latest sales show an advance of 2/- to 2/6 per barrel.

Reports from Spain of damage to the Orange Crop, by a fall of snow, will create a good demand for Apples during the Spring.

The following quotations are for tight barrels:—

Baldwins, Boston	14/6 to 16/6
" Canadian	16/- " 17/6
Greenings	12/- " 15/-
Tallman Sweets	12/- " 13/-
Rox Russets	12/- " 15/-
Golden	15/- " 21/-
Pearmain	13/- " 15/-
Kings	20/- " 25/-

Arrivals for the week are as follows:—

Kansas, @ Boston	3329
Catalona, " "	1592
Bulgarian, " "	1192
Palestine, " "	1796
Ontario, " Portland	2453
Germanic, " New York	140
Bohnia, " "	123
City of Chester, " "	12
Aurania, " "	433
Helvetia, " "	58

Total arrivals for week... 11,128 barrels.  
to date... 381,902 "

7th February, 1885.

The demand for Apples this week has been very poor, owing to many of the purchases of last week having arrived at the interior towns in poor condition, and the trade have lost heavily on their purchases. The fruit ex Norseman and Virginian was nearly all more or less touched with frost, and we have to report a decline of 1/- to 2/6 per bbl. from the opening prices to the closing. We do not, however, alter our views with regard to the range of prices during the spring, which in the aggregate, we feel sure, will be satisfactory, reactions from top prices will take place, but we cannot see any reason for low prices. At the moment Maine Apples and Canadians are landing in the best condition, and are most popular.

The following quotations are for tight barrels :—

Baldwins, Boston	14/ to 17/
" Maine	16/ " 17/6
" New York	15/ " 16/6
" Canadian	16/ " 19/
Greenings	13/ " 16/6
Black Oxford	14/ " 15/
Newtowns	20/ " 25/
Rox Russets	12/ " 15/
Golden	17/ " 19/
" Canadian	22/ " 26/
N. Spy	13/ " 18/
Kings	20/ " 23/
Slack packed	12/ to 14/6
Slack and wet	9/ " 12/6

Arrivals for the week are as follows :—

	Barrels.
Wyoming, @ New York	812
Britannic, " "	2215
Sardinian, " Portland	3983
Norseman, " Boston	4850
Virginian, " "	2439
Samaria, " "	1414
Istrian, " "	2146

Total arrivals for week. 17,869 barrels.  
to date. 409,070 "

14th February, 1884.

We are unable to report any improvement in prices this week, as the condition of arrivals has, with few exceptions, been anything but satisfactory, most of the Apples from Boston and New York having been touched with frost, which has caused our dealers to operate with extreme caution, and many of them to withhold buying altogether, until the condition of the fruit shows an improvement.

Maine Apples have mostly landed in good condition, and as prime fruit is wanted, prices for good stock from Portland has not varied materially.

The following quotations are for tight barrels :—

Baldwins, Boston	14/ to 17/
" Maine	15/ " 17/
" New York	14/6 " 16/6
" Canadian	16/ " 18/
Greenings	12/ " 16/
Newtowns	20/ " 25/
Rox Russets	12/ " 15/
Golden	13/ " 16/
" Canadian	22/ " 25/
N. Spy	15/ " 18/
Slack packed	12/ to 14/9
Slack and wet	9/ " 12/

Arrivals for the week are as follows :—

	Barrels.
City of Chicago, @ New York	288
Republic	1251
Parisian, " Portland	2980
Missouri, " Boston	2823
Roman, " "	5386
Montreal, " Portland	3210
Indiana, " Philadelphia	58

Total arrivals for week. 18,996 barrels.  
to date. 428,066 "

At Auction Sale of Keeling & Hunt, London, February 6th, 1885, were sold :  
Nova Scotian Apples, ex York City :—

Vandevere	16/6
Greenings	14/

We are pleased to see that the matter of Agricultural Education is exciting a good deal of interest. There are so many ways in which useful Agricultural Education can be given, that it is well to think of them. One of the most successful methods in vogue in Britain is that of the Agricultural Examinations of the Royal Agricultural Society of England, and of the corresponding Society of Scotland. These Examinations for Certificates of Proficiency, and certain prizes, are open to all. The training to enable young men to go up to them may be obtained by reading, by attendance at Mechanics Institutions, or Schools, or Colleges, or in any other way. The following specimens of a few of the answers given at one of these examinations will indicate the nature of the preparation, and the utility of the system :

QUESTION—"What are the circumstances or characteristics on which the fertility of a soil depends; and what processes, annual or occasional, does the farmer adopt for its maintenance?"

ANSWERS BY CANDIDATES :

I.

"The first requisite of a fertile soil is that it contain every element of plant food. It is necessary that it should contain every one, as a crop will not grow in a soil which, though it may contain a superabundance of every other element, yet lacks one. Since crops rob the soil of these elements, the farmer, if he wants to keep up the fertility of his land, must return them in some shape or other. He does this in the form of manures. The mineral matters that must be returned to soils in this way are:—Potash, soda, magnesia, sulphur (teroxide), phosphorus (pentoxide), lime, silica, chlorine, ferric oxide, and alumina. Nitrogen and carbon (dioxide) must also be returned.—The second requisite is that the soil contain these elements in a soluble state—that is, in a state in which soils can assimilate them. It is here that the use of the bare fallow comes in. Land is fr used not so much to allow it to increase its store of mineral matter, as to give it time to allow the influences of the atmosphere and rain to act on the insoluble mineral matter, making it soluble, at the same time to allow it to assimilate nitrogen and carbon dioxide from the air. The bare fallow at the present time is restricted to wet and dirty pieces of land which are too wet to allow of much autumn cultivation,—the cultivation of root and forage crops, which are fed on the land by sheep, being used instead. Another plan to reduce the elements to a state fit for plant-food is in green-crop manuring, in which such crops as mustard, vetches, lupines, small turnips, &c., were allowed to grow, and were then ploughed in,

when they not only restored to the soil in a soluble form the mineral matters taken from it during growth, but also increased its store of nitrogen. This practice has gone out, the crops being fed off on the land instead of ploughed in. Lime is often applied to land to reduce the elements to a state fit for plant-food.—A third requisite is that nothing noxious to plant-growth must be in a soil. This can only be obtained by high cultivation, and the application of good manures, including lime.—The next requisite is freedom from weeds. This is obtained only by good cultivation—hoeing land well when under crops (in the spring for wheat and other cereals, about June to August for roots.) When the crop is taken off the land in August, the stubbles ought to be scarified to prevent weeds from growing. Paring and burning is also done with an idea to stop weeds; this process consists of raking the weeds together and burning them in heaps, and then spreading the ashes.—The fifth, and one of the most important requisites of a fertile soil is that its physical nature should be good. To obtain this, the farmer employs the ordinary annual farm operations—viz, ploughing, grubbing, cultivating, harrowing, rolling, &c. Of these nothing more need be said. The occasional means he uses are :—

(a) *Drainage* is perhaps the most important operation that is used for land. Its advantages, briefly put, are :—(1.) Opening up the land to the influence of the atmosphere, thereby allowing of the oxidation of noxious salts into salts good for plant growth. (2.) Allowing all the rainfall to pass through the land, taking with it warmth, nitric acid, ammonia, and carbon dioxide. (3.) Preventing stagnation of water on the surface, thereby lowering the temperature by surface evaporation, radiation, &c. (4.) Allowing more time for tillage operations, since the land does not get wet so soon in winter. (5.) By making land that is wet quickly dry, it promotes alternate contraction and expansion and so betters the tilth.—(b) *Mixing*.—A very good plan on light lands is to mix with it a large quantity of clay to give it a body. Chalk and marl are also used both to give body to light lands and to lighten heavy lands.—(c) *Clay burning*.—On heavy lands, in order to lighten them, burnt clay is spread over the land.—(d) *Warping*.—On poor soils near rivers of slow current, the water of the river is often allowed to flow over them by means of canals, sluices, &c., and to deposit the mud with which it is charged, and so a rich alluvial deposit of some 1 ft. or 18 in. deep is obtained.—(e) *Subsoil ploughing*.—When a light soil lies on a clay subsoil, or *vice versa*, it is a good plan to

plough up the subsoil to mix with the soil. The fertility of the soil also depends on its porosity."

## ii.

The several particulars in the character of a soil, by which its fertility is determined, are—the percentage of clay which it contains, the nature of its subsoil, the aspect of the land, its percentage of organic matter, whether it be drained or not, and the amount of available plant food it contains. If the soil is deficient in its percentage of clay, the farmer may occasionally cart clay on the soil, or, if the quantity of clay be too high, he may cart sand. If the soil has a gravelly subsoil, the farmer would improve it most by not ploughing deeply, so as not to stir it, and so produce a subsoil that would retain water. As to percentage of organic matter, if the soil is of a peaty nature, the application of lime, by destroying its acid, makes it into plant food; while, on the other hand, if it be deficient in organic matter, by the application of humus or compost, the fertility is improved. If a land be allowed to remain in a cold condition, owing to stagnant water, the fertility of that land is improved by drainage, and raising the temperature of the soil by admitting warm air and exposing the soil to the action of the atmosphere. The farmer can annually improve the available plant food in the soil by ploughing, harrowing, grubbing, autumn cultivation, and by fertilisers and manures, the ploughing, harrowing, and grubbing exposing the land to the air, so as to make up from it, in the absorption of gases, what has been taken away by the preceding crop, and by applying fertilisers and manures to raise the percentage of soluble plant food.

## iii.

The fertility of a soil is determined by—(1) the kind of substances in the soil, its chemical constituents; (2) by the state in which those constituents exist in the soil, viz., whether they are soluble or insoluble; (3) by the mechanical condition of the soil; (4) by the state of the soil in regard to the quantity of water it contains, and, after rain, whether it will allow this rain to pass quickly through it; (5) whether the soil be drained or not. These particulars are those by which we determine the character of a soil with regard to its fertility. To maintain the above all good, the farmer (1) manures the land with farmyard manure, and in certain cases with artificial and special manures to maintain in sufficient supply all the necessary constituents for plant-growth. (2.) He thoroughly cultivates the land, ploughing, scuffling, steam-cultivating, especially in the autumn, so that by exposing the land thoroughly to the action of the atmospheric agents, the

insoluble constituents may take a soluble form. (3.) He goes in for cultivation, for subsoil and trench-ploughing, for clay-burning, for paring and burning, for liming and mixing soils, all the above does the farmer do in certain cases to improve the soil both chemically and physically. The farmer also thoroughly drains his land, as, unless land is drained either naturally or artificially, no cultivated plant will thrive well in it.

## iv.

(1) A soil should contain every substance which the plant needs; (2) it should contain these substances in such a form that the plant may be able to make use of them; (3) it should be able to absorb moisture readily. The various tillage operations are all undertaken for the purpose of increasing or maintaining the standard of fertilisation. Thus ploughing, harrowing, clod-breaking, and similar operations, all open out and break up the soil, continually bringing fresh parts of it to the surface, to be acted on by the sun and air and water. These various influences all bring these substances which the plant requires into a more convenient form. Then the land is regularly manured to supply those materials which the plants have exhausted the land of. As to the third particular, drainage is the means by which the land is brought into a fit condition for water to easily pass through it, for stagnant water does great damage to the land—first, it makes it colder, for the heat which ought to be expended on the land is used up in evaporating the stagnant water.

We will now give imperfect answers to another question, which ought to have brought out a series of good replies, for it covers a very important bit of the theory and practice of agriculture.

QUESTION:—Why should the air of a dairy be clean and cool and dry? and what means are generally adopted for keeping it clean and cool and dry?

## i.

Milk being a very delicate and easily-tainted substance, if the air were in any way foul, the milk would very readily take up this foulness, and render the butter or cheese rank and unwholesome. The cleanliness of the air can be taken care of by having all utensils and the dairy itself clean; the cow, her stall, and the dairy-maid clean. Also that the dairy should be removed from all cess-pools, yards, and places whence the air might become fouled. It should be cool, because if too warm the milk will sooner become sour and unfit for butter-making and cheese-making. Also in summer the milk must be below a certain point of

coldness in order to be in a right state for the butter to be made. This coldness can be kept regular by either having the dairy below the surface of the ground or by having some tree to throw its shade on it all the day to protect the dairy from the glare of the sun. It should be dry, because if the air were wet the moisture would not let the cream rise on the milk so readily as in a dry atmosphere. The air can be kept dry by freeing the dairy from all superfluous water, that is, not letting the floor be all wet and sloppy. The dairy must be clean, but there is no need for the floor to be all in pools of water. Coolness can be made by having the floor of the dairy of stones or bricks, not of wood.

## ii.

The air of a dairy should be clean, because butter and milk are very delicate things, and are easily contaminated; and, if the air of the dairy were unclean, they would become spoilt, and so unfit for use. The air of a dairy may be kept clean by keeping the dairy itself and everything in it clean. The dairy-maid must be of cleanly habits, and, chiefly, the dairy should not be built anywhere near the dung-yard or manure of any kind that can in any way render the air in its proximity impure. The dairy should be cool because if it becomes too warm the milk turns sour, and so is not fit for use. Cheese raised beyond a certain temperature while it is being made, goes bad, and on that account the dairy must be kept cool. Cream also turns sour very quickly in a hot temperature. The dairy may be kept cool by having it built with a northern aspect, always having pure currents of air circulating in it, and keeping no fires or anything hot near it.

## iii.

Milk is a substance which is always ready for receiving and developing germs of decay which may be present in the air of a dairy. Hence the vital importance of cleanliness. For a good and efficient system of ventilation, under proper control, the cold air should be admitted to the floor of the dairy, on the floor line only; a funnel or pipe should be fixed in the centre of the roof, to allow the heated air to escape. An asphalted floor, slightly sloping, is best for purposes of cleanliness, and partly furnished with an outlet pipe to carry off the water. A good water supply is essential, to be used for either raising or lowering the temperature. When milk is set to cream, and exposed to foul or warm air, decomposition of a part of the albuminoids and fats takes place, lactic acid will be produced, and the milk will curdle; cream from this is mixed with curds and other strong products, and the quality of the butter is deteriorated.

## IV.

A dairy should always be built in a northerly situation, so as to keep it cool, and so dry. The dairy should be well ventilated, and have plenty of pure air, as far as possible from farm buildings, cess-pools, drains, and sinks, because disease and its germs can be easily communicated by milk and butter. Milk will be more likely to give up its cream, &c., in a dry place where there is a continual flow of air. Milk being prepared for butter is spread out in basins, so a large surface of the milk is thus exposed to the air, and so will be more ready to catch impurities in the air. All the appliances of a dairy, as churns and basins, should be kept constantly clean and bright, the floors well washed, and made of material—as tiles—not likely to hold dust, &c.

The preceding examination papers are taken from the *London Agricultural Gazette*, where they are published by a Judge as examples of good and bad answering. We reproduce them for a very different purpose,—to show what may be done, at very little expense, in a country where there is at present no answering at all, simply because there is no questioning,—where our farm boys are practically taught nothing so far as the science of agriculture is concerned. If our farmer's boys were all spending their winter evenings in thinking out questions such as those of the above papers, we should have more rapid improvements, better farmers, and more stirring enterprise in our agricultural districts.

Among recent losses of useful men in England may be specially noticed two scientific agriculturists who have done much by their laboratory work, their writings, and their public teaching. The first is Professor Voelker, whom we recollect as a young man thirty-five years ago, when he came to Edinburgh as assistant in the Chemical Laboratory, and whose name has since become so famous in connection with the Chemistry of Agriculture, and his work at Cirencester. The other is Professor Buckman, who also, for a period of between 14 and 15 years, held his appointment in the Royal Agricultural College at Cirencester with honor and success. His name will long be remembered, not only as an able instructor, but as the personal friend of many hundreds of worthy young fellows who are now scattered throughout the world, many holding distinguished positions. In 1859 Professor Buckman married the only daughter of the late John Savory, Esq., of London. In 1862 a very serious rupture took

place in the Royal Agricultural College, when Professor Buckman and three of his colleagues (Professors Voelker, Coleman, and Brown) severed themselves from the college. The handsome silver Grace Cup, then presented to Professor Buckman by the students of the college, has from that time occupied the position of honor on his table, and many a student of the college has had evidence of the high esteem with which he regarded their gift.

In October, 1862, Professor Buckman took a large farm at Bradford Abbas, Dorsetshire, and removed there with his wife and family. Those who had the privilege of knowing him during his early occupation of that farm regarded him as one of "the happiest of happy men." Surrounded there by every comfort, and possessing a brilliant and affectionate wife, with a young family of bright and happy children, his home circle was well nigh complete in happiness, and that happiness he and his wife made to overflow throughout the surrounding district. But a few days' illness, in Nov., 1865, severed him from his beloved wife, and cast a deep shadow over that home, from which he could never free himself, even if he ever desired to do so. From that time he became an altered man, and never rose to his former brilliancy and powers of mind. The every-day duties of life were regularly discharged, and the agricultural literature of the period has been enriched by many valuable contributions from his various researches, but the shadow remained. Those who had the pleasure of knowing the late Mrs. Buckman are not surprised at the enduring sorrow he felt. The cares and anxieties of a large farm severely taxed his powers of endurance during a long period of agricultural depression, but nothing could induce him to leave a scene so dear to him. In Bradford he had lived in the zenith of joy, and there on the 23rd of November, at the age of 70, he ended a useful life, amidst the deep grief of his children, and many to whom his memory must long be dear.

Hang up his harp, he'll wake no more,  
He sleeps the sleep of death.

We are indebted to a friend for the following clipping from a London morning paper:—

The report that the Edelweiss has been discovered in Western America will at once be pleasing and painful news to the Switzer. No plant of the High Alps is more prized than this tiny species of *Leontopodium*, or regarded either by the tourist or the mountaineer as more characteristic of the regions which, to the one, is a playground, and to the other a home. It has little to recommend it so

far as beauty is concerned. The dwarf Rhododendron is infinitely more attractive, and there are few species of saxifrage which could not be compared with it, greatly to the advantage of the fluffy looking Edelweiss. But the species is rare, and is never found until the collector reaches a height of several thousand feet. Its possession is, therefore a mark of a certain capacity to climb, and every holiday-maker in the Alps aims at returning with a sprig of Edelweiss in his guide book, or, if a trifle more audacious than usual, with the flower stuck in the band of his wideawake. The result is, that a lively trade in the plant has grown up. It is cultivated in quiet places for the tourist traffic, and it is collected by preparers of Alpine Herbaria in quantities large enough to supply all likely customers for their scientific wares. The latter are, indeed the plant's worst enemies. For, while the ordinary traveller is usually content with plucking a little bouquet, the commercial botanist must, in order to possess a complete specimen, dig it up by the root. Consequently, the Edelweiss is rapidly disappearing. Localities in which it formerly grew abundantly know it no more, and in others it is hard to get sight of a single plant; so that the time when it will be practically extinct as a wildling may be safely reckoned as not very far distant. Each year brings this undesirable conclusion nearer, for every Summer and Autumn the Alpine valleys and mountain sides are being covered with a greater and greater number of holiday-makers. Happily, however, the Swiss Cantons have taken both it and the Ibex under their protection, in the hope that the depredations on them may be reduced to comparatively small proportions. In England, the fern mania has had a similar effect on the rarer species—the Woodsias and other varieties being now extremely difficult to obtain in localities where twenty or twenty-five years ago they were quite plentiful. Some of the uncommon semi-Alpine plants for which Scotland and the Welsh hills were famous in botanical annals cannot much longer survive the constant raids made upon them by botanical lecturers with a troop of students at their heels, and, still worse, by the dealers in such commodities, who are doing their worst to exterminate, in their primeval haunts, some of the choicest members of the British flora.

If, however, the Edelweiss has actually been discovered in Washington Territory, the patriotic Swiss will experience a certain pang. No longer can he regard his favourite plant as the child of Helvetia alone. He must share it with another land, and henceforth feel as if some traveller had discovered the *Bonz des Vaches* in Central Africa, or as a patriotic High-



lander, should he hear that the bag-pipes were derived from a lightly-clad tribe on the foot hills of the Himalayas. If, however, the Swiss mountaineer must be vexed by the thought that even the Pied-delon is no longer his own especial flower, he may find consolation in the thought that its extermination is likely to be delayed for some time, at least, if the new home for the Alpine *Leontopodium* is at six thousand feet on the slopes of the "Tacoma Range." This locality is sufficiently vague. Indeed, there is no "Tacoma Range" known to geographers. No doubt, however, the place meant is Mount Rainier or Tacoma, one of the most prominent peaks of the Cascade Range, which runs through British Columbia, Washington Territory, and Oregon, at a distance of forty or fifty miles from the sea, until, in California, it is lost in the Sierra Nevada and the various spurs from that well-known group of mountains. Mount Rainier is the most elevated point in the Cascades, at least within the United States. Seen from the Nisqually Plains and the neighbouring shores of Puget Sound, its summit, covered with perpetual snow, is one of the most marked features in the wild landscape of the country in its vicinity. But, owing to the distance from any settlements, the dense forests which must be penetrated before it can be reached, the difficulty of obtaining supplies and people to carry them, the few Mountaineers in that region who would care to spend time and money for the sake of gratifying their curiosity or their vanity, and the immense glaciers which bar the way, its slopes, like those of Mount Hood, Mount Baker, and the numerous other peaks of the range, have been seldom attempted, and still more seldom explored. Lieutenant VON KANTZ made the journey half way up some twenty-two years ago, and was compelled to return, for the reason mentioned. But in the summer of 1870, Messrs. STEPHENS and VAN TRUMP reached the summit, and the Director of the Coast Survey completed our knowledge of this interesting mountain by his more scientific observations. Since that date there have evidently been other tourists at work, for the discovery of Edelweiss and other Alpine plants, such as the "mannertreu," on its flanks, or on some of the heights in its vicinity, are events which must be credited to the past Summer.

That the discovery in question has actually been made we have no reason to doubt, though for the present the announcement is not fortified with the

name of the collector who brought the precious flower from "the Tacoma Range," nor—what is quite as important—by the name of the botanist on whose authority the identification has been made. More than once before this the heather and other European species have been affirmed to grow on the Cascades. But when the specimens were submitted to scientific examination they were invariably found to be something very different. At the same time, though the plants common to the Old World and the New are not numerous, the list is gradually increasing, many which were at one time regarded as distinct having been settled to be only "geographical forms" or local varieties of each other. Until the European heather was discovered in Nova Scotia, this familiar plant was regarded as quite peculiar to the old Continent. But since that date it has been detected in several places in the Eastern States and in Canada. Alpine plants are so peculiar that the chances are all in favour of these denizens of the mountain summits of widely-separated regions being identical, or, if not, very closely allied. The Alps and the Pyrenees have many species in common, and a large proportion of these extend into Scandinavia and across the Arctic circle, from within the mystic bounds of which they probably came during the glacial period, being driven south by the progress of the ice, and then, after warmer times returned, left stranded on the mountain tops. One fourth of the Alpine species are found on the Altai range of Siberia, and many of the genera, and some of the species also, are common to the Alps and the Himalayas. It is, therefore, quite within reason that the Edelweiss should have found its way across Behring Strait, and down the Cascade range into Washington Territory. The tendency of modern research is to throw doubt on the existence of many of those hermit-like plants which are known as "discovered species." *Origanum Tournfortii* is still only known as the denizen of a single rock in the small Island of Amorgos. *Disa grandiflora* is confined to Table Mountain, and *Oxytropis campestris* is as yet, in Great Britain at least, limited to one spot in the Clova Mountains. But every year or two the range of species at one time regarded as equally "monomic" is extending, and, as the opinions of Naturalists regarding the distinctions between forms approximate more and more to the Darwinian standard, the number of "peculiar" forms is getting more and more cir-

cumscribed. Meantime, the reported discovery of the Edelweiss so far from its European home is extremely interesting from every point of view. The higher elevations of the Cascades and the Rocky Mountains—which geographically are of less interest than the more western range—are still, and must necessarily long remain, *terra incognita* to the Naturalist. If, however, the present discoveries are to be accepted as indisputable, the Botanists of the Geological survey of the Territories will not fail to work a mine so promising; though, before adopting the new "fact" into their repertory, our Biologists will be inclined to wait until the opinion of Professor ASA GRAY, or some other authority on the American flora has been pronounced.

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