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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., NOVEMBER, 1885.

No. 63.

A CIRCULAR has been addressed to the Secretaries of the several Agricultural Societies throughout the Province, notifying them of the business to be done at the Annual Meetings to be held on Tuesday 1st December. The Circular is reprinted on another page of this Journal.

At the Annual Meeting, Societies are required to Elect Officers and Directors for the year; and the Officers and Directors are required to present an Annual Report and Statement of Accounts, a copy of which is to be sent to the Secretary for Agriculture.

The Central Board having been abolished, it is not necessary to nominate persons for appointment thereto. The powers and duties of the Board now devolve upon the Governor-in-Council.

Special attention is called to the change in the Act in regard to Exhibitions. Provision is now made for County Exhibitions, to encourage which a sum of \$230 per annum may be granted to each County in those years in which a Provincial Exhibition is not held. District Exhibitions are abolished. The Governor-in-Council may, however, unite the grants of two or more Counties for one Exhibition, if a majority of the Agricultural Societies in each of such Counties so request.

It is desirable that the matter of County Exhibitions should be discussed as soon as possible, so that Societies may communicate with each other, and make arrangements for early publication of Prize Lists.

THE EDINBURGH APPLE AND PEAR CONGRESS OF 1885.

OF late years a new departure in Exhibitions has acquired favor, and is now attaining some importance in Britain,—the holding of Meetings or Congresses, as they are called, for special classes of products. One of these, the Apple and Pear Congress, to be held in Edinburgh this month, in connection with the Winter Show of the Caledonian Horticultural Society, is of special interest to a fruit-growing people.

Some of our readers may like to hear something of the Royal Caledonian Horticultural Society, as regards its antecedents and functions. It is an old institution, organized early in the present century, and was run on a parallel line with that of the Horticultural Society of London. The Caledonian Society organized an Experimental Garden, a deputation of its members visited the public and private gardens of Holland, France and Germany, and introduced to Scotland every variety of vegetable or fruit that they could find likely to prove useful to the country. One of these is the Gravenstein Apple, which was first seen by a member of this society on the Rhine, carried down the river in vessels in bulk. The society has for the last forty years or more held its regular Horticultural Exhibitions in Edinburgh; it has published a number of volumes of "Transactions," containing papers, some of great value as contributions to science, but many more of them useful, practical treatises on methods of

culture and garden management. The membership of the society, from its earliest days up to the present time, has always included the leading nobility and aristocracy of Scotland, but its affairs have been managed by practical scientific men, such as professors of the Edinburgh University, professional gardeners, nurserymen, florists, seedsman and amateur horticulturists.

The Apple and Pear Congress of 1885 is to be held under Royal Patronage, and to be managed by a committee consisting of the Marquis of Lothian, President, Sir James Gardiner, the Duke of Buccleuch and Queensberry, the Earls of Hopetoun, and Stair, Professor Dickson, and a number of practical gardeners, nurserymen, and amateur pomologists, and horticulturists. The "General Committee" embraces the names of nearly 300 of the leading professional gardeners of Scotland, England and Ireland. No doubt the Congress will be a success. The following is the Programme of Arrangements, which we reprint in full, not only for the useful information it contains, but in case it may be thought wise to organize such Congresses in our own Province:—

At a meeting of the Council of the Royal Caledonian Horticultural Society, held on the 14th August, 1885, it was resolved to hold a Special Exhibition and Conference on Apples and Pears, in connection with the Society's Winter Show, in the Waverley Market, Edinburgh, on the 25th and 26th November, 1885.

While collections of apples and pears are solicited from all parts, for comparison and instruction, the chief object of the conference is to utilize the favourable opportunity presented by the fine crop this year, for the purpose of gaining information about the apples and pears grown in Scotland, comparing their merits, and correcting their nomenclature. All fruit growers, especially in Scotland, are therefore invited to send as complete collections as possible of the apples and pears grown in their district; and, as the object is solely educational, there will be no competition and no prizes. It is not necessary that the fruit should be grown by the sender.

No limit will be put upon the number of kinds which any contributor may desire to send; but the number of each variety should be from *two to four*, according to circumstances. The Council are anxious to procure as complete representations as possible of the apples and pears grown in each district, and each variety should be *distinctly labelled, with the name or names under which it is grown in the locality*. It is also most desirable that each collection be accompanied by all the information possible about the climate, altitude, exposure, soil, stocks, method of cultivation, and other particulars, which will be of much value to the committee in drawing up their report. For this purpose forms will be supplied on application to the Secretary.

The specimens being strictly for examination and instruction, they must necessarily be at the disposal of the Council where required.

Intending exhibitors must give notice to the Secretary or Assistant Secretary, in writing, not later than *Monday, the 16th November*, stating the number of varieties to be exhibited, and the amount of space that will be required. Collections of fruit may be consigned to Mr. William Young, Assistant Secretary, 18 Waverley Market, Edinburgh, and delivered there on or before *Friday, 20th November*. The Council will pay the carriage of fruit and take all possible care of it, and will also see that it is properly staged for the inspection of the committee; but they will not be held responsible for any error, damage, or loss of any fruit consigned to them. Exhibitors staging their own fruit can do so on Tuesday, 24th November; and all must be staged and the hall cleared for the committee by 10 o'clock on the morning of Wednesday, 25th November.

Each exhibitor will receive free tickets of admission to the exhibition for himself and such number of assistants as the Council may deem necessary.

Our readers will no doubt desire to know to what extent advantage is being

taken of this excellent opportunity to visit to Kentville. We had not long made known our Nova Scotian fruit in a part of the British Islands to which it has hitherto been a stranger, and where great possibilities of sales and consumption exist.

The Provincial Government has forwarded to the Edinburgh Exhibition a collection, embracing as good specimens as could be obtained, of all our leading market apples, and of others likely to be of interest. The total collection numbers 118 varieties. The following is a list of them:—

King of the Pippins	Balley's Sweet
Fallowater	Ohio Nonpareil
Pewaukee	Malden's Blush
King of Tompkins	St. Lawrence
Canada Reinette	Munson Sweet
Pomme Gris	Autumn Pearmain
Am. Golden Russet	Drap d'Or
Ribeton	Reynard
Rhode Island Greening	Fameuse
Peck's Pleasant	Chebucto Beauty
Margaret's Pippin	Pudsey Rose
Hoxbury Russet	Dutch Codlin
Esopus Spitzenburg	Gravenstein
Cooper's Russet	Cayuga
Vandevere	Emperor
Cabaasha	Fall Jennetting
Baldwin	Bigelow
Nonpareil	Dutch Pearmain
Northern Spy	Black's Red
Blenheim	Morton's Red
Black Gilliflower	Fall Pippin
Minister	Franklyn's Golden Pippin
Mann	Hog Island Sweet
French Pippin	Harris
Colvert	Mother
Hutchings	Doney
Ben Davis	Iron
Herefordshire Pearmain	Greenshade
Jewett's Fine Red	McSweeney's Nonpareil
Hoary Morning	Fox Pippin
Harvey	Baker's Sweet
Keewick Codlin	Sweet Cat Head
Pound Sweet	Broadwall
Chipman	Washington Strawberry
English Golden Russet	Callin's Pippin
McLachy	Golden Ball
Hubbardston	Gravenstein of Waugh
Keain's Spitzenburg	Rhymes
Gloria Mundi	Bourman
Cat's Head	Lady Apple
Mc-mac Codlin	Golden Pippin
Willoughby	Hawthornden
Lycum	Hurbit
Grime's Golden	Willow Twig
Talman Sweet	Hunt's Russet
Holly	Blue Pearmain
Bottle Greening	Westfield Seek-no-farther
Cox Orange	Penn. Long Stem
Mammoth Russet	Yellow Newton Pippin
Bellflower	Queen Charlotte
Eng. Golden Pippin	Green Newton Pippin
Bishopbourne	Danvers Winter Sweet
Wagner	Rambo
Stark	Delaware
Byrnes Bellflower	Schaffer
Newark King	Golden Nonpareil
Pennock	Burbridge
Newtown Spitzenburg	Flat Pippin
Bucks Co. Greening	Gladys

Lists and information, in reply to enquiries, have likewise been sent to the Edinburgh Congress.

To the question, what is the best dessert apples for the respective months? the following reply has been given:—

August.—Early Harvest.
September.—Chenango Strawberry.
October.—Gravenstein.
November.—do.
December.—Ribeton Pippin.
January.—do.
February.—Bellefleur.
March.—Northern Spy.
April.—Golden Russet.
May.—Nonpareil.

What is the best culinary apple:—

August.—Red Astrachan.
September.—Gravenstein.
October.—do.
November.—do.
December.—King of Tompkin's County.
January.—Blenheim.
February.—Bellefleur.
March.—Baldwin.
April.—Fallawater.
May.—Ben Davis.

Best dessert pears for use in the following months, taking into account free and constant bearing, good size and good quality:—

August.—Clapp's Favourite.
September.—Bartlett.
October.—Souvenir du Congress.
November.—Beurre Hardy.
December.—Duchess d'Angouleme.

Twelve best and most profitable orchard apples:—Gravenstein, Ribeton, King of Tompkins, Blenheim, Golden Russet, Nonpareil, Northern Spy, Baldwin, Hubbardston, Fallawater, Ben Davis, Bellefleur.

Six best orchard pears:—Clapp's Favourite, Bartlett, Souvenir du Congress, Sutton's Great Britain, Beurre Hardy, Louise Boane de Jersey.

The three most profitable stewing pears:—Bartlett, Great Britain, Clapp's Favourite.

Pears on quince, or other dwarf stocks, have not, with few exceptions, proved profitable or successful in Nova Scotia.

We hope to be able to give a full account of the Edinburgh Congress, and to tell what was thought of the Nova Scotian collection, in next number of the JOURNAL OF AGRICULTURE. Meantime we ask our pomological readers to compare the lists given above with the admirable one of Mr. Brown published in the JOURNAL for December 1884, and to give us freely their criticisms.

ANY Society desiring to purchase imported Cotswold Rams or Shropshire Ewes may hear of some very desirable animals for sale, on applying to the Secretary for Agriculture.

On the grounds at the Kentville Provincial Exhibition, commencing in the last week of September and extending to the first week of October, we had the pleasure of meeting a gentleman whose patriotic efforts to promote agricultural improvement in our sister province have been long well-known in Nova Scotia.—Mr. JOHN LAGRE, of St. John. There was no more cheerful countenance at that exhibition, no more robust or healthy man of his age, so far as appearance went. He took a kindly interest in everything that transpired, and gave wise counsel to the judges when they were in difficulty. He was accompanied by his estimable lady. Both evidently enjoyed their

returned from the exhibition when we received the following card :

In loving remembrance of

JOHN MAGEE,

Aged 59 years.

St. John, N. B., October 12th, 1885.

"Watch, therefore, for ye know not what hour the Lord doth come."

GOVERNMENT OF NOVA SCOTIA.

OFFICE OF AGRICULTURE,

Halifax, 17th Nov., 1885.

To _____ Secretary of the
_____ Agricultural Society :

SIR,—I am directed to request that you will call the attention of the Board of Officers, and of the Members, of your Society to the provisions of the Acts for Encouragement of Agriculture, a copy of which will be sent to you. Strict compliance with these provisions is absolutely necessary on the part of Societies desirous of participating in the Annual Legislative Grant for Agriculture.

It will be observed that the Annual Meetings of Societies are required to be held on the first Tuesday of December in each year, when they shall elect a President, Vice-President, Secretary and Treasurer, and not more than five Directors. The day of meeting falls this year on Tuesday, 1st December.

The Officers and Directors, in addition to the ordinary duties of management, are required to present, at the Annual Meeting in December, a Report of the Proceedings of the Society during the year, in which shall be stated the names of all the members of the Society, the amount paid by each, the names of persons to whom premiums were awarded, with the name of the animal, article or thing in respect of which the same was granted, together with such remarks upon the Agriculture of the County as they may be enabled to offer, and a statement of the receipts and disbursements of the Society during the year,—which Report and Statement, if approved by the meeting, shall be entered in the journal of the Society, and a true copy thereof, certified by the President and Secretary to be correct, shall be sent to the Government, through the Secretary for Agriculture.

It is specially provided that an attested list of the members of the Society whose annual subscription fees have been paid, together with a certified statement of the year's accounts and Report as presented to the Annual Meeting, shall be forwarded by the President or Secretary of each Society to the Government, not later than the thirty-first day of December

in each year; and Societies failing to comply with these provisions shall forfeit their claim to any share of the Provincial allowance to Societies for the year then ended.

Blank forms for attested lists of membership and subscriptions paid for the year 1885, are forwarded to your address under a separate cover. Such Returns and Annual Reports and Accounts of Societies are now allowed to pass through the post office at book rates, viz. : 1 cent for a package under four ounces, if left open at both ends and not containing a letter. In all cases where papers are forwarded in this way a post card should be mailed separately, stating when and by whom they have been sent.

The Central Board of Agriculture having been abolished, it is not necessary for the officers of your Society to nominate a person for appointment thereto. All the powers, authorities and duties possessed by and imposed on the Board under the Acts for the Encouragement of Agriculture, are now conferred and imposed upon the Governor-in-Council, who is also empowered to make regulations for carrying out the purposes of the Act.

I am further directed to request that you will call the attention of the officers and members of your Society to the amendments of the Act in regard to County Exhibitions. The District Exhibitions having been abolished, and provision being made for holding the Provincial Exhibition hereafter once in three years, the Governor-in-Council may grant to each county a sum not exceeding two hundred and thirty dollars per annum, for the purpose of encouraging County Exhibitions in those years in which a Provincial Exhibition is not held. As there will be no Provincial Exhibition this year, it is necessary, in event of your Society considering an exhibition in your County desirable, that communication should be opened, without delay, with the other Societies in the County, and as soon as the joint action of the Societies of the County leads to a definite proposal for holding a County Exhibition, a joint application, stating the time, place, amounts of prizes proposed to be offered in the several classes, and any other important particulars, should be transmitted to me,—such joint application to be signed by the President or Secretary of the Society or Societies in the County proposing to undertake the management of the Exhibition.

The provisions of the Act in regard to County Exhibition are as follows:— "The County Society, where but one exists in a County, and the several Societies, where more than one are established therein, shall be requested to hold an annual show, for the exhibition of agricultural and horticultural produce,

farm stock and articles of domestic manufacture, at which prizes shall be granted for the best specimens produced, and such show shall be held at such times and places, and under such regulations, as the majority of the officers and directors of the several County Societies may determine."

Your earnest attention, and that of the officers and members of your Society, is solicited to the several statements and requirements of this Circular, in order to prevent disappointment to your Society, and to facilitate the successful working of our provincial agricultural organization.

I have the honor to be, Sir, your most obedient servant,

GEORGE LAWSON,

Secretary for Agriculture.

THE SCHOOL OF AGRICULTURE
IN CONNECTION WITH THE
PROVINCIAL NORMAL SCHOOL,
TRURO.

FIRST ANNUAL SESSION OPENED ON WEDNESDAY, NOVEMBER 4TH, 1885.

1. Instruction by lectures, experiments and laboratory practice will be given as follows :

(1.) To male teachers holding Academic or First-Class Licenses, (Grades A and B,) who wish to qualify themselves for conducting the special Agricultural Schools to be hereafter established under authority of the "Act to encourage Agricultural Education." The course of study to be pursued will include Chemistry, Botany, Zoology, Veterinary Science and Agriculture, (field, fruit, and garden crops, and live stock.) In general this course will extend over two annual Sessions of the Normal School, but teachers particularly well grounded in the subjects constituting its scientific basis, may, with proper application, complete it in a single session. By Act of the Legislature, the Council of Public Instruction is authorized to distribute annually a sum not exceeding \$250.00 as prizes, among the five teachers passing the best final examinations. The lectures delivered in the Normal School proper on Educational Science and Methods, will be open to the students of this department, and those who have not enjoyed a professional training will find it to their advantage to attend them.

(2.) To young farmers and others wishing to fit themselves for the successful prosecution of agriculture. Such persons can take either the entire regular course above indicated or a select course in special subjects, according to their ability or wishes. But it is to be especially noted that the successful pursuit of agricultural studies in general will require

as a ground work a good common school education, and that without such qualification no person need apply for admission.

2. All Students will be expected to conform to the established regulations of the Normal School in respect to conduct, lodging, etc.

3. Persons intending to apply for admission should notify the Principal of the Normal School at the earliest date possible. Inquiries respecting studies, etc., should be addressed to Prof. H. W. Smith, B. Sc., Truro.

LIST OF CATTLE REGISTERED IN
NOVA SCOTIA HERD BOOK
FROM SEPT. 28TH TO
NOV. 17TH, 1885.

Ayrshire Bulls	
109 Prince George	201 Dog II
200 Selwin	
Ayrshire Cows	
235 Juliette	240 Nettie
236 Julia	241 Pink
237 Bonny Lass	242 Bell
238 Pearl Drop	243 Maud
239 Minnie	
Jersey Bulls	
102 Poundmaker	103 General Gordon
Jersey Cows	
171 Mayflower	176 Lena of Maitland
172 Primrose	177 Florence of Draffan
173 Maggie Jane	178 Fannie
174 Florie	179 Bess of Elmsdale
175 Joan	180 Florence of Elmsdale
Devon Cows	
57 Daisy 4th	60 Moss Rose 3rd
58 Moss Rose 2nd	61 Red Rose
59 Jerpoint	

A CORRESPONDENT writes us as follows in regard to Fish Culture, but we fear his recommendations are not extensively applicable to this Province:—

MR. EDITOR,—I have thought for some time of writing a letter for your paper on "Fish Culture," but not being used to writing have put it off until now. If you think the following worth publishing, do so and oblige a reader.

Respectively yours,

W. BAIRD,
Pittsburgh, Pa.

I have a few thoughts to present to my fellow-farmers all over the country. I know the times are hard and we are all anxious to turn an honest penny. When wool is only 28 cts. and wheat at 80 or 90 we must look sharp to make both ends meet, and a free exchange of thought often does much to assist us. I feel that I owe all I have to ideas gleaned from different papers. I bought a farm near the city in 1881. Then it was thought that everything was at its lowest and times must brighten up. But expecting good times did not make my payments and I could not raise sheep, hogs or grain with any profit, so I was driven to look for something new. I struck on raising fish. I will say to start with that the government is doing all in its power to

advance fish culture and will give to and one, desiring to start in the fish business, from 12 to 20 "German carp" fish to breed from. This is a valuable field any one almost entirely unoccupied. One-eighth of an acre devoted to "German carp" will make a clear profit of \$800 at the very lowest estimate. I think I hear a host of my fellow-farmers say just as I did, "I would like the \$800, where can I get information regarding the fish business?" Write to the U. S. Fish Co., Columbus, Ohio, inclosing a plainly addressed envelope and you will receive free the information you desire. Will they tell me how to get the fish promised by the government to beginners? Yes, they will send you *blanks* to be filled out by which you can get the fish without cost. Is there any doubt of my making money in the fish business? No. Do you think the government would go to the expense of raising fish, shipping them to different parts of the U. S., and then giving them to her citizens without any pay, unless she was positive it was a profitable trade for her citizens to engage in? How large a pond must I have for a start and what will it cost? A pond 15 or 20 feet across will do for a start, and it will cost nothing but a little digging. There is no stream on my lot. What will I do for water. Carp do not require running water. They do better in still water even in swamps. They delight in mud. What sections of the U. S. is best for raising fish? Any part will do. Carp are such excellent fish that they command a good price and ready market everywhere. Will it not take a long time to get a start with the 20 fish offered by the government? No indeed. Each female carp lays from forty to fifty thousand eggs every year. They increase amazingly fast and will increase your dollars just as fast if attended to. What is the best season to make a fish pond? Right away. The government will send you fish between Nov. 1st and March 1st. Do you have to feed the fish in winter? No, they eat nothing during the cold months but lie in a dormant state, while sheep and cattle are eating their heads off. If the government would offer to send a fine pair of pigs to any one who asked for them, every farmer in the land would send in his name. Then why not get some fish when they cost you nothing, care for themselves and bring you more money than any kind of farm stock. I wish every paper in the land would urge this matter on their readers, as I know they would be conferring a lasting benefit.

W. B.

Lucyfield, 18th November.—The Short Horn Cow Second White Rose dropped a red-roan Heifer Calf, sired by Hon. A. C. Bell's Bull Rob Roy, 172.

We have been favoured by Mr. A. T. Drummond, Montreal, with an advance copy of his paper on "Forest Preservation in Canada" presented at the annual meeting at Boston of the American Forestry Congress:

Each of the Provinces comprising the Dominion of Canada, excepting Manitoba, has control of its own crown lands, and hence it is difficult to secure one uniform series of measures for the protection of the timber upon these crown lands. Circumstances are different in each Province. In British Columbia, the forests are largely yet untouched, excepting along the Pacific Coast, and there is thus the opportunity still there of carefully conserving the forests, so that they may be a continued source of revenue, instead of allowing fires and the lumberman's axe to have unrestricted sway among them. Between the Rocky Mountains and the boundaries of Ontario it is rather a question of how far forests are to be created, as the country is chiefly open prairie. In Ontario and Quebec, along the streams which fall into the Georgian Bay, and at the sources of the Ottawa, St. Maurice and other great rivers and their tributaries, there is still a considerable area of White and Red Pine, but the trees are of diminished size compared with the splendid trunks common on the Ottawa twenty years ago. The lumbermen are fast approaching the northern limits of the growth of these trees. In Ontario, the provincial finances are in good condition, and the Government there, can, if it will, readily curtail its revenues from timber and timber limits; in order to prevent waste of its crown lands, and to preserve them in condition to yield revenues to the Government and profit to the lumbermen who may work them in years in the future. In the Province of Quebec there is more difficulty in dealing with the question, as the Province has a very heavy funded debt, the interest of which, in addition to ordinary expenditure, has had to be provided for, and as a consequence every possible source of revenue has been made available to the utmost. New Brunswick has still some forests of Pine and Spruce, but the area is, compared with the Ontario and Quebec forests, relatively small, whilst Nova Scotia has, on the whole, but little timber of good merchantile size left, and has correspondently less interest in the question of forest preservation. The crown lands are under Dominion control only in Manitoba and the North-West Territories, and some steps have been taken to preserve what timber exists there.

As is well known, the system prevails in Canada of leasing from year to year large areas of crown lands under the

name of timber berths or timber limits, at an annual rental per square mile. Though the lease is from year to year, yet by custom it is understood that as long as the rent is paid, the lessee may continue in possession indefinitely until he has cut off all the timber he desires. Sometimes the holder is merely a speculator; at other times he is a lumberman, who is keeping the limits in reserve for future working, and thus, frequently, large unworked areas are tied up from year to year by parties who have a quasi right to continue this under the original lease. This makes it difficult to apply new regulations to limits already under lease. Sections of country not yet under lease—and considerable new tracts have in Ontario been rendered accessible by the Canadian Pacific Railway—are in a different position, and governments can readily lay down rules for their future working as timber limits.

Germany, France, Sweden and India have their forests cared for under more or less stringent regulations, and even the small Province of Cape Colony, in South Africa, has its Forestry Department, under Government control, and is doing a good work that should put us to shame. The forests there are being arranged for scientific working, the fundamental principle being, the conservator says, that the cutting shall not exceed the growth. Why should we in America with a splendid heritage, in the pine forests of Maine, Quebec, Ontario, Michigan and Wisconsin have been so prodigal and reckless, and have shown so little farsightedness, as to have gone on from year to year for half a century past allowing this heritage to be diminished gradually in value without even an attempt to prevent it! How often are we blind to the future? The Cape Colony Report for 1884 very well puts it that the policy should be pursued of setting our faces against forest destruction as "only as other moral evils are faced. Farther than this, with us here, each State and each Province has an interest in the action which its neighbouring State or Province takes or neglects to take on this question. Our great rivers have often their fountain heads, or the fountain heads of their tributaries, in one or more States or Provinces, and then course their way to the great lakes, or the sea, through other States or Provinces. Have not those whose lands along the route are watered by these rivers, the cities, towns and villages which are scattered along their banks, and the public which makes use of the steamboats and other craft which ply upon their surface, an undeniable interest in seeing that these waterways are not impaired by the burning or cutting away of the forests at these fountain heads?

It is the province of every State to legislate for itself, or to withhold legislation, but in this case, the neighbouring States have a clear right to ask that their waterways and water supplies shall not be impaired or cut off by its neglect to provide proper legislation or proper oversight.

The remedial measures which I would suggest with a view to the preservation and renewal of our forests are in some respects equally applicable to the United States and to Canada.

The leases of timber areas I would restrict to definite periods of five or at most seven years, and when the lease expired, the particular area covered by it should have a rest of say twenty-five years, to allow of the young trees attaining merchantable value. The effect of this would be to largely check speculation in timber limits, and would give ample time to *bona fide* lumbermen to get out all large sized timber. It should be incumbent on each lessee to show his *bona fides* by erecting a mill within a given time either at or convenient to the limits, unless he has a special permit to work the limits for square timber.

The timber limits themselves should be restricted in size to about fifty square miles. This is now done in Manitoba by the Dominion Government. The parceling out of the timber country into definite, limited areas would enable each Government to more systematically carry out the system of alternate leases and rests for the forests.

The production of square timber should be discouraged, on account of the great waste of material in forming the square log, and because of the additional food for forest fires which this waste material creates.

The cutting on crown lands of trees under twelve inches at the stump should be punishable by a heavy fine, which would be easily collectable at the mills when the drives of logs come down after the spring freshets. This would have the effect of preserving the younger trees until they attained a merchantable size.

The starting of forest fires should be made criminal. Nineteen-twentieths of the forest fires are preventable. There is no reason why camp fires should not be put out, and the knowledge that to allow them to spread was punished by imprisonment, would quickly make camp parties careful, more especially if every member of each party were made responsible.

Not only in the forests which have been cut off by the lumbermen, but wherever fires have swept through areas of crown lands not specially suitable or available for settlement, resowing or replanting should take place. Where

burned areas are left to themselves, trees of a less desirable kind almost invariably spring up. How to effect this resowing and replanting economically is a question of some importance. It can be done in part by the forest rangers hereafter referred to, but, I think, that as a condition of every lease of timber limits, it should be made incumbent on the lessee either to pay a given sum per square mile of territory included in his lease towards the expenses of the Forestry Department of the Government, or that he should actually plant and care for a young tree for every trunk he fells. This would not be an expensive proceeding. It would involve the cultivation of one or perhaps two acres as a forest nursery, and the subsequent setting out of the young trees, and to this might be added the duty of collecting and sowing through the forest, of seeds of desirable kinds of trees. When it is remembered that each forester in Cape Colony is expected, without assistance, to annually raise 40,000 young trees, and that his duties involve the transplanting of these to the burned and other districts within his section, it will be observed that the task thus proposed to be imposed on the American lumberman is not formidable.

Lastly, each Government, in the case of Provinces still possessing forest areas of importance, should organize a Forestry Department in connection with the management of its crown lands. The objects of the Department would be:

First. The general preservation of the forests from fires, and from deterioration by improper working.

Second. The replanting of the crown forests where burned or exhausted.

Third. The encouragement of tree-planting by land owners generally, and the dissemination of information about trees and tree culture.

There should be a Superintendent of Woods and Forests, whose duties should be organization, general supervision and frequent inspection. Under him would be forest rangers or foresters, who would have given districts in which they would reside, and for the oversight of which they would be responsible:—their duties being to prevent encroachment by lumbermen on released crown lands; to see that small trees were not cut, to investigate the cause of every fire happening within their districts, and punish the guilty parties, for which purpose they should have certain magisterial powers; to raise in a small plantation young trees for replanting the burned districts; and to collect and sow the seeds of desirable kinds of trees. Each forester would probably require the aid of an assistant. The administration of the department need not be expensive, and whilst the

expense could be readily met by a small tax per square mile of timber limits under lease, or per thousand feet of lumber sawn, or cubic feet of square timber produced, the saving annually of timber trees from forest fires would alone pay the cost of the department for many years.

MONTREAL, Oct., 1885.

At different times we have called the attention of our readers to the great importance of Mangels for winter feed, and have described fully the method of management. Mangels give a large yield of roots for cellar storage, and also a good supply of tops suitable for conversion into ensilage. They can be kept perfectly sound and plump over winter and summer, from one fall till the crop of the following year is ready. In the present month's number of the *Journal of Agriculture*, published for the department of agriculture for the Province of Quebec, we find an exhaustive article on Mangel Culture, containing excellent advice,—from which we extract the following:—

Preparation of the land.—The deeper the cultivation, the greater the crop, is an axiom in mangel growing, as well as in growing all kinds of roots. By this, I do not mean that in heavy land a large mass of raw clay should be turned up in spring, involving all sorts of botheration in cross-ploughing, grubbing, harrowing, and rolling, until half the summer is over. This would defer the sowing of the crop till all chance of an abundant yield was over. Still, the great aim of the root-grower should be the attainment by degree of a good depth of well worked soil, and he never should be satisfied until he has secured a furrow of a least nine inches deep.

The treatment of heavy land, as it is usually met with here, should be carried on in some such way as this:—

The last crop has, of course, been grain of some sort—the concluding one of the rotation—and, therefore, if there is any couch-grass, or other root-weed, in the land, it must be got rid of. This is, in my part of England, the very strongest feature in our system of farming. The moment the grain-crop is carried—sometimes, even, as soon as the shocks are set up—the cultivator is worked up and down the ridges and across them; the harrow and roller pulverize the broken surface, and the horse-rake drags the grass, etc., into rows. The rubbish is then either burned or, preferably, carted way to the corner of the field, to form the foundation of a mixen for the coming root-crop. With our best farmers, the cultivation is so perfect that this part of the preparation is rarely required, for the very commendable practice of ferking out

couch grass in the stubbles directly after harvest is fast increasing. The cost is trifling, and the cure is perfect. A little knot of couch-grass, if pounced upon as soon as the crop is off, is easily removed from the soil by a fork; but if it be raised by a grubber, and torn to pieces by the harrow, it may be carried over half an acre, and will become difficult to collect. Still, in this province, where skilled farm-labour is so scarce and so dear, the grubber will be found the cheaper if not the more accurately effective implement; the sun is often very scorching in its effects during August and September, and I have often observed that grass and other root-weeds have been so completely desiccated by a couple of days exposure to the air during those months, that all fear of their growing again was at an end.

The root-weeds having thus been all got rid of, the next operation is the winter furrow. When land has been fairly treated, and is not an absolute stranger to the dung cart, the depth of this ploughing may be given just as deep as your horses can draw the plough. I should not like, as a rule, to bring up more than one or, at most, two inches of raw soil from the bottom of the old furrow; but we must not forget the enormous pulverizing effect of our Canadian frost on a well laid furrow slice, and the descent of some portion of the former manurings into the subsoil will have tempered its acerbity so as to render it less hostile to the interpenetration of the filamentous roots of the future root-crop, particularly in connection with heavy dressing, which *must* be given if you expect a remunerative crop of mangels. In truth, if I was to lay down so dangerous a thing as a law for ploughing, it would be: always plough deep for roots before winter, but never go below the old furrow for grain or pulse.

On *very* heavy land, not subject to spring flooding, I am inclined to think that the easiest plan for growing mangels is to plough down the dung in the autumn, and to sow the seed in the spring on the flat surface of the stale furrow. I have tried this, and found it answer well. It simplifies matters extremely, and does away with half the work at the busiest season of the year. The only objection I see to its practice is the difficulty of finding enough manure at the time of preparation. This might be avoided in the neighbourhood of towns or large villages, but in a "far-removed place" I do not see any way of getting over it except by keeping the manure of the previous winter in a flattened heap, covered over with fifteen or twenty inches of earth.

I saw many years ago, at Batleigh, in Somersetshire, England, a very wonder-

ful crop of mangels grown on the sternest, stiffest yellow clay on the lias formation. As far as I recollect, the process carried out by Mr. Gray, the steward of the Hon. and Rev. Neville Grenville, was as follows: the land was cleaned in September, and ploughed ten inches deep immediately afterwards; grubbing and harrowing then reduced the land to a state which admitted of its being set up in drills by the plough at twenty-seven inches apart; twenty tons of dung were spread to the acre, and covered by splitting the drills as usual, and the land lay in this state till the following spring. As there was an open furrow between each drill and its neighbour, no water could well lodge on the piece, and so when the next season opened, the soil was found thoroughly dry and well pulverized. In April, a good many seed-weeds, such as *cauluck* (wild mustard), chickweed, and other annuals, had sprouted; these were destroyed by the harrows with one *tine* along the drills, which were set up again in good shape with the double-mould-board plough, care being taken in performing this operation not to touch the land till it was thoroughly dry, and not to put any of the rawer soil on top of the drills. All was now ready for planting, which was done in a peculiar fashion invented by Mr. Gray himself: a light roller was passed along the drills to flatten them a little; a man with a largish dibble made holes every foot down to the dung, into which a boy poured about half a pint of mixed manure, and a girl, following last of all, covered the manure with a handful of earth, dropped three or four seeds on the spot, and covered them with about half-an-inch of mould. The roller completed the job. The mixed manure was composed of superphosphate, guano, and fine gardenearth; but with our better knowledge nowadays we should leave out the superphosphate. The crop over the twenty acres thus treated was thirty-seven tons to the acre of sound roots, with about six tons of tops, which were ploughed in then, but now would be put into a silo.

Mr. Drummond, of Petite Cote, Montreal, dibbles in all his mangel seed, but without the extra manure in the holes. I need not say he grows good crops, but in my opinion he sows too many seeds in a hole, as the last time I saw his crop the plants, which were about fit to hoe, looked crowded and twisted together, and the boys in singling them must have been very careful if they did not leave gaps. Each grain of fresh mangel seed contains at least two and sometimes four germs; hence, three or four grains in a hole would be sufficient. For my part, I prefer, I must confess, a continuous row to a crop of fixed intervals.

When sowing in spring on flat-work, where the dung was ploughed down in autumn, all that is necessary is to harrow well until all the annual weeds are destroyed, and then sow in the seed at two feet apart with Matihow's or the Planet, jr., seed drill. In following out the system, I beg to recommend the cultivators of heavy land not to make their ridges too wide; two feet would be quite enough, and this width would give four rows of mangels to the ridge, as the outside rows should be one foot from the open furrows, leaving the crop two feet apart from one end of the field to the other. The greatest care should be taking in drawing plenty of cross water-furrows—grips in Scotland—to prevent any work in spring, particularly when the field lies on a slope.

Spring preparation.—This is, of course, the usual way of getting in mangle seed, the land rarely being got thoroughly clean in the autumn, and dung enough being hard to be come by at that season. Cross-ploughing the winter furrow or grubbing it is optional; I prefer harrowing along and across first, then cross-ploughing, and the grubber last of all; then, if your land is in decent condition, it should require no further implement than the harrow, and perhaps the roller, to put it in a proper state for drilling up. The cross-ploughing should be of the same depth as the winter-furrow, and the plough will go all the more steadily if it takes up half an inch of the subsoil; more would be dangerous. This will bring any root-weeds, that may have escaped in the autumn cleaning, up to the top, when they can be collected and disposed of in the easiest fashion. If turned up with raw manure, the heating will destroy all power of vegetation, except perhaps in the case of docks, which are dangerous enemies; in fact, as an old Aberdeenshire ploughman told me once: "If you lay a *dockan* on a *slate stene* for three months, he's na' muckle to lippen to even then," which, being interpreted, means: If you lay a dock on a slate for three months, he'd just as soon grow again as not; which is not very far from the truth.

The land is now ready to be set up in drills, but we must not forget the preparation of the seed. I always steep mangel and carrot seed, as thus: tie the seed up in a bag, soak it in water for twenty-four hours, hang the bag up to drain, keep it in a warmish place till the white germ is chipped, and then dry it up with plaster, sand, or charcoal in powder. The quantity of seed required is about four pounds per acre. Nothing is gained by sowing the absurd quantities recommended by some American writers: there is no fly or beetle to eat the young plant, as in the case with swedes

and turnips. Messrs. Crozier and Henderson, in "How the Farm pays," a book only recently (1884) published, say: About six to eight pounds of seed are used to the acre, sown with seed-drill. If sown by hand, fully double that quantity will be required." How men like Messrs. Crozier and Henderson, who have been occupied in farming and market-gardening for years, can talk such absurd nonsense passes my comprehension altogether. Fancy, sixteen pounds of mangel seed to the acre!

The steeped seed cannot be sown by the seed-drill; the manner of treating it will be seen further on.

Manures for mangels.—And we must by no means ignore the fact that mangels are of all root-crops the most dainty in the choice of food. If there is anything certain in the principles of sound farming it is: that mangels demand nitrogen in a freely accessible form. We are not growing sugar-beets for the factory; what we want is a large crop of bulky roots, the bigger the better, though, no doubt, the moderate-sized root is analytically preferable. Now, M. Ville, in his marvellous book on chemical manures, gives the following formula for beets:

	lbs. per acre.
Superphosphate of lime.....	352
Chloride of potash.....	176
Sulphate of ammonia.....	176
Nitrate of soda.....	308
Sulphate of lime (plaster).....	132
	1,144

This, of course, without farmyard dung. The cost would be, in this country, at least twenty-one dollars. According to my experience, superphosphate has hardly any effect on mangels; potash is only wanted on thoroughly exhausted light soils; and a moderate dose of sulphate of ammonia, with a good but not extravagant dressing of dung, will produce the largest possible crop of mangels. Somewhere about the year 1845, Mr. Pusey, then President of the R. A. S. of England, tried experiments in mangel-growing, on land which, two years before, was said to be incapable of producing even white turnips. I remember the district well; the soil was a peaty sand, on a sort of moor-band subsoil, below which the plant-roots could not penetrate. The manures were used in the following proportions:

- No. 1.... Fourteen tons of dung.
- No. 2.... Twenty-eight tons of dung.
- No. 3.... Three cwt. Peruvian guano—(17. of ammonia).
- No. 4.... Fourteen tons of dung and three cwt. of Peruvian guano.

The yield of mangels—long-red—produced respectively from these four different dressings, was, per acre:

No. 1.....	18 tons.
No. 2.....	21 "
No. 3.....	17 "
No. 4.....	33 "

We left the land ready for drilling up, and the question now arises, at what

distance apart shall we draw our drills. There is nothing gained in wide drills: all that is necessary is to make the intervals wide enough to allow the horse in the horseshoe to walk comfortably without treading on the plants. Twenty-six inches is my favorite distance, and it will be sufficient to let plenty of light and air into the growing crop. An immense number of acres may be seen wasted every year, taking the province as a whole—thirty-six inch drills for roots, and even for Early-rose potatoes, are not uncommon, by which extravagance one-third of the whole ground is left unplanted. It does not seem any great loss, until we look at it on a large scale. Such potatoes as the Champions do demand great space on account of their luxuriant tops—I have seen them four feet long—, but ordinary sorts, and all root crops, will produce as much as they can yield at twenty-six inches. Having made the drills, the dung should be carefully spread; and here I may mention that some even of our best farmers manage this part of the business uneconomically. A heap of dung to be divided among five rows will cost more to spread than if it were divided among three rows. The Scotch excel in this.

The foreman starts the horse up the middle of the first three drills, and pulls out the dung in sufficient quantity into the drill in which the horse walks, without stopping the horse at all. A woman goes up one of the *wheel-drills* (to avoid treading the dung into the ground and making it troublesome to spread) and gives a fork full of manure to all three drills, which fork-fulls are equally shaken about and spread by three women who follow, one in each drill. Unfortunately, in this country we have no field workers to speak of, so we must be content with one man spreading the three drills, which he will do much more accurately with, much greater ease, and in much less time per acre, than if he were to attempt to meddle with five or more drills at once.

The dung being all spread, as we probably have no manure drill, if we use sulphate of ammonia, or any other artificial compound, the best plan we can adopt is to sow it over the dung. Splitting the drills with the double-mould board plough makes all safe. (1.)

Sowing the seed.—This operation will vary, according to the state in which our seed is: wet or dry. If dry, it should be *very dry*, as the best machines as we find them here won't sow if the seed is slightly damp. I remember once starting to sow Belgian carrots, and, fortunately, finding out before I had gone over the first three rows that the seed-drill—a

(1) Number of yards along a drill, manured with one pound of any manure, equal to 112 lbs. per acre, at 27 inches apart = 57.

very good one too—was completely choked. Mangel seed is freer from dust than carrot seed, but it is mighty apt to clog if the hole in the seed-box is not quite free from stones, sticks, bits of straw, &c. In all sowings with American seed-drills, I should open the seed-distributor a hole or even two above the one indicated on the index, for they are all made to sow too small quantities.

The roller having been passed over the drills, the sower may be started, and great care should be taken that the rut into which the seed falls is of the same depth all over the field. Few things are more annoying to the hoer than to find an irregular braird of mangels or of turnips. After sowing, I always roll again, and on light land I use the heaviest roller I can get. Last year, I trod all my mangel in after the second rolling, walking on the flattened surface of the drills—in mocassins; heeled boots would bury some seeds deeper than the others—and a perfect plant was the result, in fact, with only three pounds of seed to the acre, there was not a vacant spot two inches wide all over the piece.

But for steeped seed, another plan must be adopted. Roll as before, and with the seed drill, deprived of the back coverers, make a shallow rut not more than $\frac{1}{2}$ of an inch deep. The corner of a hoe will do as well, but you will find it easier to keep the rut straight with the machine, and this, when we get on a little farther, you will find to be a matter of importance. The seed, mixed, as I advised above, with some dry material, is to be sown by hand in the rut and carefully covered with a wide-toothed rake. Rolling and treading if you choose, should follow as usual.

The steeped seed will probably begin to show itself in about ten days from the time of sowing—sooner or later according to the season—and the moment the lines of plant can be traced, set the horse-hoe to work. It is for this reason that I laid so much stress upon straight rows, for, if the rows are truly drawn, the horse-hoe can pass along between the drills without damage to the plant even if, here and there, there may be a yard or two of seeds not yet up. Early horse-hoeing is of the very greatest importance: so great is it in my opinion, that in the case of parsnips, which love to linger in the ground, my custom is to mix with the seed half a pound per acre of rape-seed, which, sprouting rapidly, enables the horse-hoe to get to work on the fifth or sixth day.

If your horse-shoe is properly constructed, i.e., with curved side-hoes, it will, at the second time of going over, cut or pare away the sides of the raised drills, leaving only a narrow lit of two or three inches wide for the hand-hoe to

look after. A horse hoe can be made anywhere for about four dollars, and, where there are no stones, is a perfect machine. No drill-grubber can do the work properly until the tool has pared down the sides of the drill; then, the grubbers are useful enough, though I don't see the good of having two implements when one will answer every useful purpose.

Hand-hoeing Mangels.—Mr. Stephens, in his "Book of the Farm" objects to the deep hoeing of root crops on the drill on account of the danger that the manure will be thereby disturbed in its position; so much the better, say I, for the more intimately the dung is mixed with the soil, the more readily does it yield up its fertilizing juices to the plants. Dung is only spread in drills for economy's sake, and to start the germ of the seed into life. Last year, I was surprised to see the roots of white turnips running across twenty-six inch drills, and, not contented with meeting in the middle, invading each other's territory. Some of the roots were as thick as a goose-quill. The cause was plain: the horse-hoe had pulverized the central spaces, the hand-hoe had pulled down the drills, and the turnips found themselves floating, so to speak, on a sea of mingled food and moisture, which gave them unlimited scope for searching for anything they might covet. Now if this is true of white turnips, it is ten times more true of mangels. The greatest possible crop of this root cannot be grown unless the drills are pulled down to the dung, and the growing plants left so naked as to make an unaccustomed observer think that they must perish of inanition. Don't be afraid, however queer they may look. In twenty-four hours they will revive, and all the exposed part of the root will become converted into sound cattle food. The deeper you hoe, and the more thoroughly bare you leave the plants, the bigger and the more nutritious will be the crop. Keep the horse-hoe going once a week until the leaves of the mangels are in danger of being injured by the horse; never pull the leaves, as some do, until the crop is ready for harvesting; and, when ready, let the roots remain in heaps, exposed during the day but covered at night, until the outsides are pretty dry. The tops should be wrung off, not cut, as the knife is apt to cause bleeding, which impoverishes the roots.

Time of Sowing.—In this country mangels cannot be sown too early,—there is no fear of their going to seed,—the first week in May, if the soil be in a proper state, will do very well. After the middle of that month, I should prefer growing swedes. Practically speaking, it is as easy to grow twenty-five tons of mangels as eighteen tons of swedes,

and I would as soon have a ton of one as a ton of the other; wherefore I am surprised that so few mangels are grown in this province. The solution of the mystery is, I suspect, this: all the good farming of the country has been learned from Scotch agriculturists; the Scotch, except in some few districts, have not been in the habit of growing mangels; hence, their apprentices have never learned the art.

Liverpool, England, Nov. 2.

Market for American Apples low on account of heavy arrivals. Baldwins, 9s. 6d. to 11s.; Greenings, 9s. to 9s. 9d. Seeks, 9s.; Golden Russets and Spys, 9s. to 10s.; Newton Pippins, 13s. to 31s. In Glasgow: Baldwins, 11s. to 12s.; Greenings, 10s. to 12s. Spys, 10s. to 11s.

Nov. 4.—Improved demand, prices sixpence to shilling higher, except Greenings.

The above particulars are from a cable from Houghton & Co., of Liverpool, to "Cultivator and Country Gentleman."

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