

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

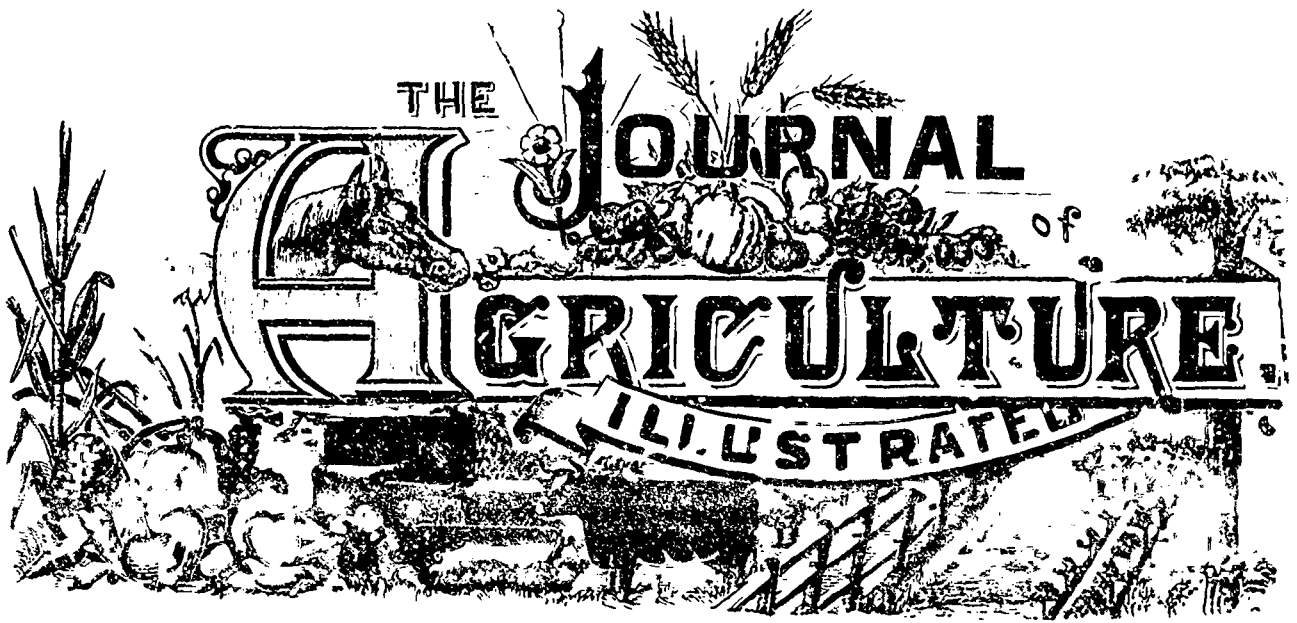
Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
								✓			



Published for the Department of Agriculture for the Province of Quebec, (official part) by
EUSEBE SENECAI & FILS, 20, St. Vincent St. Montreal.

Vol. XIV No. 6

MONTREAL, JUNE 1892

\$1.00 per annum, in advance

NOTICE.—The subscription to the *Illustrated Journal of Agriculture*, for members of Agricultural and Horticultural Societies, as well as of Farmers Clubs, in the province of Quebec, is 30c annually, provided such subscription be forwarded through the secretaries of such societies. — **EDITORIAL MATTER.** All editorial matter should be addressed to A. R. Jenner Fust, No. 4 Lincoln Avenue, Dorchester Street West, Montreal—or to Ed. A. Barnard, Director of the *Journals of Agriculture, &c.*, Quebec.

OFFICIAL PART.

Table of Contents.

<i>The Haras National</i>	81
<i>Notice—Herd-Books</i>	81
<i>Agricultural Clubs—Important Notice</i>	82
<i>Important Notice</i>	82
<i>Beet Sugar Production in Canada</i> —Barnard on the ; dates of production per ton of beets, percentage of in the world; sugar bounties, the beet in Canada, duties, &c prices.....	82
<i>The beet sugar industry</i> , Nagant on : cost of manufacture compared, importance of in Canada, French opinions, value of the pulp, resolution of the Inter ag. congress, 1889.....	84
<i>Gardeners and Florists' Club</i> , the.....	86
<i>Ensilage and Stockfeeders' Ass.</i> , meeting of the, Charette on silage corn; Robertson on bad farming; Dawes on feeding silage, how to prepare and harvest corn, Barnard on milk-rations and clover; Tylec on building siloes, MacPherson on cost of rearing steers, Beaubien on wetting silage-corn;.....	86
<i>Seasons for tree-pruning</i> , Moore on the : French opinions; proper time, movements of the sap.....	88
<i>Potatoes</i> , W Hale on yield of in U. S. and Canada, Champions, method of cultivation.....	89
<i>Percheron stallion</i>	90
<i>Extraordinary potatoes</i>	90
<i>Choice seed for sale</i>	90
<i>Guernsey bull</i>	90
<i>Canadian ponies and Percherons</i> , Barnard and Couture on.....	90
<i>Correspondence</i> .—Ness on horses, Vasey on sulph. am and ni so; Stockwell on trees.....	91
<i>Nitrogen and Phosphoric acid</i> , Wagner on cheap sources of.....	92
<i>The Percheron in Canada</i> Auzias Turenne on, Harris' opinion, La Perche horses; J. X. Perrault's importations;.....	94

<i>Dairymen's Ass cheese-school</i>	95
<i>Notice to old members of the D Ass</i>	95
<i>Cheese-making</i> .—Macfarlane on : advice for the month of May.....	99
<i>Owl Engravings—Percheron Stallion</i>	89
<i>Guernsey bull</i>	85

The Haras National.—M. Auzias-Turenne requests me to state in this number of the *Journal* that the Haras National has some Clydesdale and Breton stallions as well as Normans and Percherons. M. Turenne is good enough to pay me the compliment of asking to be allowed to send my article on potatoes to the Société des Agriculteurs de France. Had I known such an honour awaited it, I would have dealt with the subject more fully.

Notice—Herd-books.

Dr. Couture, 49 rue des Jardins, Québec, is the secretary of the herd-books and stud book of Canadian cattle and horses, and of the swine and sheep registers recently opened by the Council of agriculture.

In future, all requests for registry in the above books as well as all letters, documents, &c., connected with them, should be addressed to him.

All letters requiring an answer must contain a 3-cent stamp.

ED. A. BARNARD,

Sec. Coun. Agriculture,
Director of the *Journals of Agriculture*.

Agricultural Clubs.—Important Notice.

The agricultural clubs already in existence and those shortly to be instituted, are requested to apply to the secretary of the Department of agriculture, who will forward to them, gratuitously, for the use of their members, certain pamphlets on agriculture, and all the information on that subject that the department is able to afford them.

H. G. JOLY DE LOBINIÈRE,
Pres. Council of Agriculture.

IMPORTANT NOTICE.

The tour of inspection of Canadian cattle, for the purpose of making entries in the stud-book, will take place in July. Those who have animals for entry are requested to send their names and addresses to the undersigned before the first day of July *prox*, if they wish their stock to be inspected this year.

(Signed) J. A. COUVRE, D. M. V.
49 rue des Jardins Quebec.

Beet-Sugar Production in Canada

The question of the possible production of beet-sugar in Canada is one of no ordinary importance. It is more than an agricultural problem. In fact, it should be considered as of national import. Therefore, it fully deserves the attention of every public spirited man in Canada.

As far back as 1870, the undersigned was honored by the Quebec Government with an official mission to Europe, in order to study and report upon this question, in its various aspects. (1) Later on, in 1872, the Federal Government requested him to return to Europe and to report, specially, on the matter. (2) Ever since, he has carefully noted events in America relating to the production of beet-sugar, but at no time had he, nor has he now, any pecuniary interest whatever in the various schemes and undertakings which have been mooted on the subject. Under these circumstances, and after a careful, disinterested consideration of the matter, he begs leave to call attention to the following, his conclusions, which he respectfully submits, with the hope that they may be accepted by every careful, impartial student. Every statement made herein is corroborated by official evidence and can be proved to be exact.

1.—The production of beet sugar, as a successful industry, dates back to about 1820 only. In Germany—the leading beet sugar producing country in the world,—some 1500 tons of beet sugar were produced in 1836-37, giving a return of $3\frac{1}{2}$ % of raw sugar, per ton of beets. In 1889-90, the production in Germany amounted to 1,264,607 and in Austria, 787,989 making a total of 2,052,396 of tons of sugar for Germany and Austria alone. Until 1840, beet sugar was not taxed. On the contrary, it had been fostered, at considerable expense, in various countries, as an abstruse, difficult scientific problem, but of great national import. And so it finally proved, for 10 years later, in 1850, it already gave a return to the International State's Revenue, of over a million of dollars annually. Again, sixteen years later, in 1866-67, it gave that State an annual revenue of nearly nine millions of dollars (\$8,874,724.00). In the mean time, the consumption of sugar in Germany had increased nearly 300 per cent viz: from

3.99 lbs. per head per annum, to 10.69 (1). And yet the processes of manufacture are still far from perfect, and improving from year to year.

The average production of raw sugar per ton of beets did not exceed over 7 per cent up to 1880, whilst now it is about 12 per cent, with still a large possible margin, of fully 40 per cent, left for improvement (2). Improved varieties of beets are now grown on a large scale, containing an average of 18 % of pure sugar, which leaves a possible improvement of from 40 to 50 % in the sugar to be extracted from beets in a near future.

2.—Until beet sugar became a commercial commodity, cane sugar had been a golden monopoly, in the hands of the wealthiest merchants, shippers and refiners all over the world. It remained, for a long time, an expensive luxury which the rich alone could afford. It will therefore be apparent what a revolution has been created in the sugar trade, through beet-sugar production alone. But beet-sugar producers had to fight their way up, step by step, against terrible odds. They have been winners all over Continental Europe. As to Great Britain, it has given beet sugar producers the best market in the world. Northern America, including Canada, cannot hope to win such laurels without an effort, and therefore it behoves our future beet-sugar producers and their numerous friends to do their best in order to obtain a prompt and a fair hearing.

3.—It is now admitted that fully 70 per cent of the total production of sugar in the world is beet-sugar. (3) It must equally be admitted that, through beet-sugar production, even the poorest in the land can enjoy its sweets in plenty. This is a fair showing for an industry, working against such odds as it had to contend with. And it is yet in its infancy as a business, since it has been, so to speak, built up within 70 years.

4.—Through selection and proper cultivation, beets can now be produced on common farm lands of equal richness in pure sugar as the best of sugar cane, in its most favorable habitat. The processes of beet-sugar production are still constantly improving, such improvements amounting often to a complete transformation in the system of manufacture and a total change of machinery. The cost of manufacturing is being lowered from year to year, and yet the annual production, on the continent of Europe alone, amounted to the enormous quantity of 3,619,678 tons of beet-sugar in 1890, and has again increased considerably since (4). Wherefore, it has been truly said that the sugar-beet is as much the natural sugar producer of the North, as Canada or Prussia, as cane-sugar is the principal blessing and wealth producing power of the sunny South.

5.—Beet-sugar production is entirely, the output, the scientific application, (so to speak), the child of Agricultural Chemistry, a science still at its *début*, still as it were, groping in the dark, still fostered by all wise and progressive governments, that of Canada, of course, included. It may be safely assumed that as much progress can be made in the future in the improvement of the sugar-beet as the most

(1) See Agricultural Report, Washington (Walkhoff), 1868, page 161.

(2) See Prof. Saunders' Report, page 9.

(3) See Prof. Saunders' Report, page 34.

(4) To move this amount of sugar would require a fleet of 3619 ships of 1000 tons capacity, and this in order to carry the product of one year's crop of beet sugar alone.

(1) See Quebec Departmental Reports Agri &c., 1871 to 1884.

(2) See Report Agriculture, Ottawa, No. 21, year 1872.

sanguino can expect from the sugar-cane, and for its manufacture into sugar.

6.—Much has been said about sugar bounties. It must not be forgotten that such bounties, as were at first necessary in order to encourage beet-sugar production, have entirely ceased in France, Germany, Austria, Russia and Belgium, nearly half a century ago. Beet-sugar production, as far as local consumption goes, is, now a days, not only self sustaining, in all countries of Europe where established, but it is highly taxed, and produces an enormous internal revenue, in each of the above mentioned States. The duties on foreign sugars are about the same as the excise charges on home-made sugar. The protection on the latter being small indeed. The bounties now existing are indirect only. They are maintained in some of the producing countries, but only as an inducement to foreign exportation of beet-sugar. This unanimous effort, on the part of such States, to extend their foreign trade in this commodity, merely proves how favorable beet-sugar production has been to agricultural pursuits generally, to a number of industries connected with this trade and thereby to the general prosperity of the country. Otherwise, such bounties would never be tolerated—much less willingly maintained—in any of these countries, by the millions of people having to bear such taxation. But it must be here stated that such sugar bounties, which were at first an indispensable protection in order to give life and maintenance to the new industry of exporting sugar, have been decreasing of late in a proportion terrific to beet sugar makers; and yet it is shown that within the last five years of which we have an official record (1885 to 1890), beet-sugar production has increased fully 74 per cent: and according to the latest information (1), the quantity of sugar exported in 1891, after fully supplying the wants of the people, have been

for Germany.....	544,896 tons.
“ Austria Hungary.....	335,000 “
“ France.....	310,148 “
Making a total exportation of	—————
beet-sugar above what was	
needed by the people.....	\$1,190,044 “

7.—The improved modes of cultivation needed to secure full crops of rich beets at the lowest cost, viz: thorough under-drainage, subsoil ploughing, ample fertilization—in fact, thorough practice with science in farming,—have had such an influence on the general increase of crops and the general welfare of the various continental countries above named, that the rent and value of beet producing lands have increased ten-fold. It is a well ascertained fact that the land on which sugar-beets are produced has increased in crops from two to four-fold, as soon as the beets were cultivated in a regular and intelligent rotation.

This revolution in agricultural pursuits has made the beet-sugar producing countries richer in a degree which has tripled the States' revenues both internal and from duties on the numberless commodities which as statesmen know are in demand in proportion to the prosperity of the country.

Let us now see how these results may apply to Canada in a near future if the new industry be fully fostered.

A.—Sugar-beets have now been produced in the province of Quebec for the last twenty years. Several samples of average beets have been carefully analysed in Europe as well as in Canada for several years in succession and found to be of the very best. For the last two years, a company directed by competent men have manufactured beet sugar on a large scale. The results have been so favorable that all that need now be asked of the Federal Government is a fair amount of protec-

tion, neither more nor less than that offered to every kind of industry in the land. If protection is truly the policy of Canada as a sure mode of securing remunerative employment for its people, thereby keeping them in the country and enabling them to bear their share of public expenditure, on what principle, may I ask, could this protection be refused, when it is shown that no industry could benefit agriculture and the country at large in such a degree? Here, I beg to quote one of the highest authorities in the world on this question of beet-sugar as a source of national wealth.

L. Walkhoff, the classic German author whose treaty on beet-sugar has been translated into several languages of Europe, and one of the pioneers of this industry in Russia, in an official letter addressed to the Department of Agriculture, at Quebec, in November 1877, makes the following statement:

“The introduction of the beet-sugar industry into your country promises to be more profitable than would be the discovery of the most precious mines.”

This favorable appreciation was given after full consideration of the experimental official results obtained and published by the Department of Agriculture at Quebec. (1)

As to the benefits accruing to the State from the improvement of the soil after beet cultivation, from the enormous quantity of coal used for evaporation of the juice, and from the numerous industries which are dependent on beet-sugar production, every statesman on the continent of Europe seems to admit them unrestrictedly.

B.—The quantity of sugar, including syrups etc, imported into Canada, in 1889-90, was valued for duty purposes at \$6,859,000. This is the invoice value only. To this amount must be added at least 20 per cent for commissions, freight, insurance, etc, making the total cost of all sugars etc, imported that year

.....	\$8,231,528
Duties.....	\$4,869,040
C. a total cost for sugar consumed that	—————
year of at least.....	\$13,100,568

Duties having been nearly abolished in Canada, consumption will now increase immensely, making the total value of sugar consumed about the same as before. It can therefore be safely argued that if the proposed industry be fostered, Canada can be made to produce at least thirteen million dollars worth of beet-sugar, for its own consumption, making Canada the richer by all this sum, kept at home instead of exporting it to pay for imported sugar. This change in agricultural pursuits would necessarily bring on an improvement in all our crops, to a much larger amount than that of the sugar produced. In fact it cannot be gainsaid that, through the improvement brought about in connection with this culture, the crops which follow are more than doubled during the whole rotation of about five years which follows. We should thus create an amount of wealth of fully double the value of the sugar crop, and all this wealth would permeate all other industries to an extraordinary degree.

C.—It has been said in Canada that beet pulp has little or no value. (2). This statement evidently has not been sufficiently verified. It is admitted on all hands, by those who know the subject, that beet pulp, common straw, and a small proportion of cake or grain, will fatten to perfection all kinds of stock, or produce milk in abundance. This is the universal verdict of all beet-sugar countries. The results obtained at Farnham this year are a further confirmation of this fact which the undersigned has ascertained with his own eyes.

(1) See Report of the Department of Agriculture, Quebec, 1878, page 26.

(2) See professor Saunders' report, page 46.

(1) See Light's report (La Sucrerie indigène, 1892, page 253).

D.—Respecting the price offered for beets, by beet-sugar makers in Canada, and the price paid for the same in Europe, it is an undoubted fact that farmers, at least in this province, are quite willing to produce beets in large quantities for the price offered. As to European prices, and particularly so in Germany, it is well known that the enormous profits made by such concerns are shared with most of the farmers interested, who are, in fact, either sole owners, or at least the largest share holders in the beet sugar factories.

These farming share owners agree in advance to grow at least 60 per cent of all the beets to be worked. These same wealthy farmers again grow a large part of the surplus annually needed. For such share owners, who are generally paid according to the richness of their beets in sugar, the set price of beets is really immaterial, for what they lose on the true value of beets, they more than make up in their share of the net profits of the factory. This principle, of interesting the beet producing farmers in the success of this industry, is everywhere recognized as the true factor of increased production and wealth. Where it is not followed, the beet producers become the antagonists of the manufacturer; their disagreements are constant, and the industry greatly suffers thereby. As to the net profits of well managed beet-sugar factories say in Germany and Austria, it is an open secret that they very often reach the enormous amount of 60 and 70 per cent, and sometimes even more, per annum, when all is told.

As to the numerous failures of similar industries in America, it can be easily proved that, in every case, want of experience in this art has been the principal cause, and also want of the necessary capital to secure final success.

A good deal more might usefully be said on the subject of beet sugar production in Canada. However, the undersigned respectfully submits the above as his conclusions, after a long and careful study of the subject. He trusts that his arguments may be read with care by our Canadian statesmen before dealing decisively with a subject which he again begs leave to call of the highest national import, and which must necessarily bring on a very great improvement in our agricultural pursuits generally.

Respectfully submitted,

ED. A. BARNARD,

Secretary to the Council of Agriculture and
Director of the *Journal of Agriculture*.

Quebec, April 18th, 1892.

The Beet-Sugar Industry.

MR. ED. A. BARNARD,

Director of the *Journals of Agriculture*.

Dear Sir,

You ask me to give you the opinions of some of the competent authorities on the subject of the sugar-industry, as to the advantages offered by the manufacture of beet-sugar, both from the agricultural point of view, and from that of the general prosperity of the country.

You also ask me to draw a comparison between the industries of the refining and of the manufacture of sugar, in order to enable you to judge of the real profits that the Canadian population may be in a position to derive from the one or the other of these industries.

In reply to your second request, I offer here some figures, as nearly exact as possible, which I am fortunate enough to be able to communicate to you :

WORKING OF THE REFINERY IN CANADA :

- a.—Common raw-sugar, at 96° of polarisation (that usually employed), imported from Germany, Austria, Cuba, the Philippine islands, &c., price landed at Montreal 3 cts. to 3½ the lb. 3 to 3½ cts. the lb.
- b.—Refined white Canadian sugar, wholesale—average price of the year. . . . 4½ “
(100 lbs. raw sugar yields 90 lb. of refined.)
- c.—Cost of refining 100 lbs. \$0.50

This is the maximum cost. It represents :

Labour	17 to 18 cts.
Fuel, animal black, &c., about	13 “
Barrels	12 “
Expenses	7 to 8 “
<hr/>	
Total	50 cts.

MANUFACTURE OF BEET-SUGAR IN CANADA :

- a.—Beets, per ton, at the received yield of 10 % of sugar, or 200 lbs. per ton of beets :
Value of a ton of beets \$4.50
Average of freight, expenses &c. 50

Total \$5.00
- b.—Cost of manufacture, at the usual rate (*marche normale*) on a large scale, about \$3.00 per ton of beets.

It may be admitted that the sugar and the bounty given by the Dominion government represent 5 cents a pound for ordinary sugar at 96° to 98° of polarisation. This would give the manufacturers \$2.00 profit per ton of beets, without reckoning the molasses and the pulp, but for all these figures a pre-supposed *marche normale* must be taken.

In order to facilitate the comparison between the two industries, let us apply these figures to a ton of refined sugar and a ton of sugar made in Canada :

BY THE REFINER, there is expended in Canada in the production of a ton of refined sugar \$0.50 × 20—\$10.00

Observe that the refiner is protected by 80 cts per 100 lbs., the duty on all imported refined sugar. His profit (at a yield of 90 %) is at present about \$10 to \$11 a ton.

BY THE BEET-SUGAR FACTORY, there is expended in Canada in the production of a ton of sugar :

Purchase of ten tons of Canadian beets, paid to the grower, at \$4.50 the ton	45.00
Cost of manufacture, comprising the freight, labour, fuel, &c., equal to \$3.50 per ton of beets, or for 10 tons, yielding a ton of sugar	35.00
<hr/>	
Total	\$80.00

Thus, in brief, while the refiner only expends \$10.00 on each ton of sugar, the manufacturer who turns out a ton of beet-sugar expends in the country the considerable sum of \$80.00.

As to the importance to which the beet-sugar industry may aspire, and the need which consequently exists of helping the establishment of this manufacture as well its full development: wherever it is possible, what can we adduce more convincing than the following words addressed, in 1884, in the Chamber of Deputies at Paris, by M. Méline, the Minister of Agriculture :

"What part of the wealth of France is represented by the sugar-beet? 245 million francs (\$49,000,000). The vast interest of coal-mining is only equal to 241,000,000 francs; iron and sheet-iron, to 222,000,000.

"The sugar industry employs 65,000 factory-men, 110,000 field-labourers, total 175,000 workmen. It employs 71,000 horse-power, while the spinning and weaving industries only employ 31,000. The 100,000 bullocks it feeds produce 60 million pounds of meat, and afford manure for 250,000 acres.

"Hence, I conclude that there is not in France any industry that occupies a more considerable position.

This conclusion, exact as regards France, would be equally exact as regards Canada in proportion to the sugar there made and consumed, and the more so, seeing that the consumption of sugar here is, in proportion to the population, three times what it is in France.

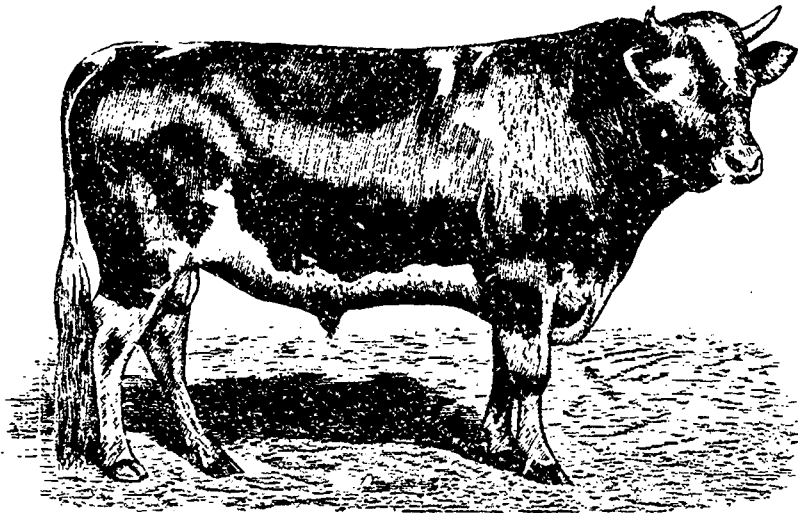
Here are some more extracts that seem interesting to me. They are taken from the official report of the International Congress of Agriculture held at Paris in 1889, under the presidency of M. Jules Méline, president of the Chambers of Deputies (1).

"Besides, the extraction of the sugar being carried on during winter, the season when agricultural labour is at a stand-still, it affords an opportunity for great manufacturing activity, which has the effect of employing a great portion of the working-class (1).

"Again, in the manufacture of sugar, the greater part of the nutritive matter of the beet is left in the pulp, which is valuable for feeding and fattening cattle. Other residue there is that serves for manure.

It may therefore be asserted that, in all countries whither beet-culture has travelled, the development of this crop has had as its immediate consequence the development of agricultural prosperity in its every form.

"It is for all the reasons which have just been explained that, in those countries when the nature of the soil admits of the cultivation of the beet, special legislative measures have been taken to favour the development of the sugar-industry, and to enable it, not only to provide for the demands of interior consumption, but to claim its share of the export-trade." We see here that the unanimous opinion of specialists is that the sugar-industry, when once established, can stand



FIRST-PRIZE GUERNSEY BULL AT ALBANY FAIR, 1891.

In this congress, in speaking of the sugar-industry, great stress was laid upon several points on which you have touched in your reply to the report of Mr. Saunders.

In a very elaborate way in the congress, M. Emile Boire, manager-director of the sugar-company of Bourbon, Puy du Dôme, spoke as follows (pp. 532, et seq):

"The extraction of sugar from the cane and from the beet has given rise to two great rival industries which vie with each other for supremacy in the market. In this contest, the beet-industry, which is of recent origin, has gained marvellous success. It has hardly been 50 years in existence; and now - 1889 - it furnishes half the consumption of the world (2).

"Such a considerable increase, during the last few years, has had as a consequence a corresponding increase in the cultivation of the beet-rop, to the great benefit of agricultural prosperity

(1) This international congress which was held at Paris the 4th to the 11th July, 1889, brought together more than 1,400 members from all parts of the world. The speakers and lecturers were chiefly distinguished men who have made their mark as savans, manufacturers, economists, agronomes, &c.

(2) At present, (1892), the production of beet-sugar is about $\frac{1}{2}$ of the world's consumption.

alone, and even contend successfully against foreign competition.

In its general session of July 9th, 1889, the congress unanimously passed the following resolution proposed by M. E. Boire (2).

That the fiscal laws which favour the development of the sugar-industry must be maintained.

Allow me, Sir, to draw your attention to a point which to me looks important.

Some people seem to think that, considering the enormous consumption of sugar annually imported into Canada, the government of the Dominion would be assuming too heavy a burden were it to promise a bounty or a sugar made in the country, a sugar destined, perhaps, to supply the whole consumptive demands of the people. I do not believe that the bounty sought for the sugar-industry of Canada can ever be

(1) Thanks to our climate being so favourable to the preservation of the beet, the manufacturing season in Canada is twice as long as it is in France; thus each factory can double its production of sugar.

(2) See the report of the international agricultural congress of 1889, p. 653.

come very burdensome to the treasury, and for these reasons :

1. For several years, the home manufacture, in spite of all the progress that may be hoped for, can only produce a small portion of the sugar wanted for consumption, and the bounties to be paid by the government will make, in consequence, but light demands on the public chest, while remaining very important to the makers of sugar and to the growers of the beet-crop.

2. What is sought is an encouragement sufficient to allow the sugar-industry to establish itself in Canada on a firm footing, to overcome the *first difficulties* (numerous and often very costly) which, in every country in which it has taken root, have always accompanied its first steps; once well established, in this country, after a few years, we shall find (as has already been found in other countries) that this industry is endowed with a marvellous vitality, and that trusting to its own sole strength it will be able to stand alone.

In the words of a respected writer on manufactures, I will conclude by saying: May our legislators impress this truth upon themselves, and be convinced that the sugar-industry, the offspring of agriculture and science, is one of the most powerful manifestation of the labour of a people.

Truly yours,

H. NAGANT,

Chemical Engineer, Asst. editor of the
Journal d'Agriculture.

Quebec, 6th May, 1892.

(From the French.)

The Gardeners' and Florists' Club.

A very pretty exhibition of flowers was held, at the Wind-or Hall, Montreal, on the 13th and 14th of April. Not very extensive, but satisfactory enough, inasmuch as it showed what can be done in this country, in spite of its rigorous climate, by the exercise of patience, industry, and skill.

Both professionals and amateurs exhibited; and of the two, I am bound to say that the gardeners of private persons had rather "the pull" over those who grow for sale. This is not to be wondered at, as the latter have to make ready their flowers and get rid of them to their customers as soon as possible to secure the profit of the "nimble sixpence", while the amateurs can keep their stock as long as they please, and fit the plants for exhibition as it suits them.

Of the objects that caught my eye, I note chiefly the following:

Deutzia gracilis.....	McGill Coll.—Copland, gardener;
Azalias.....	Lord Mout Stephen—Stanford, gardener.
Cineraria	Murray, Florist ;
Roses	Bennett, Bland, gardener ;
"	M. Kenna—Florist ;
Stove-plants, group of ...	do do
Spirea	Bennett—Bland, gardener ;
Palms.....	Wiltshire, Florist ;
Calladium and group of	
stove-plants.....	Wiltshire, Florist ;
Hyacinths.....	MacDougall—Ward, gardener ;
"	Bennett—Bland, gardener ;
Carnations.....	Girdwood—Florist ;
Roses in general.....	

There were two or three rhododendons (I do know what the real plural is), one very pretty variegated one, but these do best in a mass, and lose half their value when shown as single specimens.

A *Daphne*, the first I had seen for many a long year, was taken by a companion at first for a *laurustinus*, which it rather resembles, barring that the leaves of the latter are pointed. A long leggy shrub, very bare of foliage below and not worth the pains of cultivation.

Mr. McKenna was good enough to inform me that the shrubby azalias I have been admiring so ardently all the latter winter, are imported from Holland. One of his was quite perfect; plenty of foliage as well as lots of bloom.

The Hyacinths were rather leggy, but the season for them was nearly over.

Mr. McKenna is experimenting on a few plants of pine-apples. I hope he may succeed, but the wild fruit imported does not look to me like a sort to do well in a stove. The "Queen-Pine," whose fruit rarely exceeds 3 lbs., or, at most 5½ lbs., is the best as well as the easiest kind to grow. We had three pine-houses, in England, and never grew any other sort, though I believe the "Black Antigua," a much larger fruit, does well, though it is far inferior to the Queen-pine in flavour.

Mr. McKenna has tried mixtures of lawn-grasses, but find they will not stand the winter. After failing with them, he sowed, 3 years ago, timothy-seed, which, of course, took well, and is now dying out, the native grasses taking its place with every prospect of success.

What splendid roses! Campbell's shop, on Beaver-hall Hill, was a rare sight on Holy-Taur-day!

Meeting of the Ensilage and Economic Stock-feeders Association of Canada.

The meeting of this association was held in the Star building, St. James' Street, Montreal, on the 17th and 18th March last, and was well attended. Messrs. James Drummond, Thos. Irving, Ness, S. Fisher, Reaburn, Dawe, Barnard, Chas. Tylee, and many others of the leading farmers of the country were present, as well as the Hon. Louis Beaubien, Commissioner of Agriculture.

PROF ROBERTSON was in favour of this new association. He showed, among other things that farmers should know why they gave certain foods to their cattle. In selling a half-fatted ox, they parted with a greater portion of solids than when they sold a ripe beast, and also got a higher price per pound than for the other.

M. Charette, read a paper on growing corn for ensilage, Mr. Garth, one on ensiling maize; Mr. Chas. Tylee, one on "the construction of the silo;" and Mr. Barnard, one on other products grown for ensilage, such as clover, &c.

The Hon. Louis Beaubien, addressed the meeting saying that he was heart and soul interested in the ensilage question, and expressed his determination of doing all in his power to have a silo erected in every parish in this province, convinced, as he was from personal experience, that their adoption meant much for the province. It was the duty of all those who had siloes to inform their neighbors of their great benefit. The honorable gentleman's speech was earnestly listened to throughout, and the applause at the end testified to its hearers' appreciation.

THE EVENING SESSION.

At the evening session, Professor Robertson talked about the "Relation of Agriculture to Progress in the Development of Canada." He did not lecture upon it. He talked, one might say, individually to every man in the hall. His keynote was "think", and in driving it home he did not hesitate to say some very unpleasant, but none the less truthful, things. He opened by pitching into the people of Montreal for not taking a more active interest in the farmers' welfare,

when they had so much influence that they might profitably use, remembering that the advancement of the farmer in the natural course of events meant their own welfare. The climate of Canada was better for agricultural pursuits than that of England or the United States. The great trouble was that they had

THE MOST SHIFTLESS LOT OF FARMERS

on the face of the globe, and he thought that this was brought about not by any want of natural qualifications in the farmers, but by the easy condition in which these good qualities of the land placed the farmer. If their lot were only a bit harder he considered that their lot would be better. They had 25,000,000 acres of land which were being farmed in Canada, and of these 16,500,000 were under direct cultivation. He estimated that if the poor farmers of Canada were only as good as the average farmer, their grain product would be worth \$80,000,000 more. His purpose in his address was to show them that Canada was primarily and essentially an agricultural country, and that the chief duty of her legislators was to instruct the farmers. In his tour of the country he mentioned the Saguenay district, where, two or three years ago, the farmers, who rely to a great extent upon the money obtained from their dairies, were receiving a cent and a half per pound less for their cheese than the outside farmers. An instructor was sent down, and last year they received just the same price for their products. There had been a great improvement in the methods of the farmers in the Eastern Townships. Perhaps these improvements had not increased the price of the products, but this was accounted for by the natural downward tendency of the agricultural markets the world over. The superior condition of some of the farmers in Western Ontario is attributable to the fact that they had for years been doing their own thinking.

ENGLAND GETS THE BENEFIT.

The English farmer got more per acre for his labor because he is a better farmer. The men who had been educated in the universities and who had learned to think were responsible for this. (1) Canada wanted a large capital of intelligence. They had a better chance than the people of any other country, but they wanted to believe more in their country. The relations of agriculture to the commercial interests had changed materially of late in Canada. The man who persisted in thinking that he had lost control of the market was of no use to himself or to any one else. They wanted to control the cost of their productions and save at the right end of the market. They were not shipping the right products. If they sold a ton of hay for \$10 they sold sixty-seven times more energy out of their land than they did when they sold a ton of butter for \$500. They wanted to sell animals and animal products. There was no wonder that the people of England were growing rich when the people of other countries persisted in shipping them the very things that they should keep for themselves. Canada's home market took three times as much as she exported. He showed in a few words that in cheese Canada's trade with England was susceptible of great development, and that her comparative insignificant butter-trade should be capable of similar development.

Mr. Dawes, of Lachine, spoke of "the best way of feeding silage." Care to be taken that the surface of the silage did not get spoiled. Silage was mixed, on his farm, with chaffed hay or straw and ground grain the day before being used. His silage cost \$1.00 a ton, including all labour connected with preparing the soil, cultivating the crop, while growing, cutting the maize, chaffing it, and putting it into the silo. (How about the very heavy dressings of manure?)

(1) This is news to me.

In the discussion which followed, Mr. Fisher stated that good crops of corn could be grown on a clover sod with two or three hundred weight of superphosphate per acre. Sweet corn sometimes gives the best product. A kind of corn which has been grown at Sorel for many years gives a wonderfully large return.

If the soil is heavy it would be best to plough down the clover sod in the autumn, but if the soil is light it should be ploughed early in the spring. Afterwards, just before planting, harrow the soil to kill the weeds.

Mr. T. A. Trenholm said that it was best to plough the sod down just before planting and the grass and weeds would heat and give the corn a quick start. Mr. D. R. Robertson, of Howick, said he ploughs his land deeply in the fall, part of this land he re-ploughs again in the spring, and to part of it he merely gives a shallow cultivation, and this latter produces much the best crop.

Mr. D. L. MacPherson, of Lancaster, corroborated what had been said by Mr. Robertson. He said that what was wanted was more stable manure, for there was no comparison with the small product derived from the use of superphosphates alone. "I plough the land deep in the fall and top-dress the land in the winter with stable manure and then cultivate the land just before seeding time."

The Hon. Mr. Beaubien said that the first thing one wants to know was the proper kind of seed to use, as some of the large corn now sown would not become mature until January, if the season was long enough. Again, it was necessary to water the ensilage in order to make it heat in time to prevent its souring in the silo.

Prof. Robertson said that if corn was too dry when put into the silo it would not be good, but if there was not less than 65 per cent of water in it, it will make good sweet ensilage. If the corn is cut twenty-four hours before putting into the silo, it develops a peculiar and pleasant aroma that improves its eating qualities.

Mr. A. E. Garth then read a paper on "Preparing corn and putting it into the silo." This was followed by a good deal of discussion about the best mode of cutting the corn in the field, and drawing it to the cutter. Several advocated the use of a wagon, with a rack made specially for the convenient loading of the corn, while the Hon. Mr. Beaubien and others thought a common Scotch cart was about the most convenient mode of conveyance, as it especially excelled in the readiness with which it could be unloaded. He also referred to the necessity of wetting the ensilage when being put into the silo, when the corn was nearly matured, but the other speakers thought this wetting unnecessary. It afterwards transpired that Mr. Beaubien's corn had been badly frosted some time before it was cut, and the leaves had become so dry that they required wetting in order to develop sufficient heat in the silo to prevent the ensilage from becoming sour.

Mr. C. D. Tyler then read a paper on "The construction of the silo," advocating a cheap wooden building, lined inside with tar paper and matched lumber; yet rough lumber could be used with advantage. This lumber should get a heavy coat of petroleum to preserve it from rotting. Mr. D. L. MacPherson said that wooden siloes were, on the whole,

NEARLY AS COSTLY AS STONE SILOES,

as the former decay so rapidly as to require renewing in a few years. This decay was caused by dampness and could be prevented in some measure by admitting a current of fresh air through the silo as soon as it was emptied, so that it would be quite dry throughout the warm weather and thus be less liable to decay. He advocated the removal of a board from the wall of the silo close to the bottom, or sufficient air

might be admitted by boring a number of auger-holes, which could be easily plugged up when the corn was ready to be put into the silo. The farmers have lately been.

ON THE DOWN GRADE

so far as prosperity was concerned. Mortgages have been increasing, and the soil has been deteriorating. Farmers should know much more accurately than most of them do the actual cost of the production of their various crops, in order to follow the line which will prove the most profitable.

In every product sold off the farm there is sold a certain amount of capital in the form of the valuable ingredients of the soil. An acre of hay, say two tons, removes \$10 worth of the fertility of the soil, and \$5 worth of labor, and if the hay is sold for about \$8 per ton the farmer will have only \$1 to pay interest on the first cost of the land. If these two tons of hay are sold in the form of milk or beef, the profit will be about \$5 per acre, but if the acre is planted in corn for ensilage and a sufficient quantity of meal purchased to make the proper ration for fattening cattle, it will produce a profit of forty dollars per acre and leave the land in a much better condition for producing future crops. In his own experience he had bought 120 acres of run-out land at forty dollars per acre, and in four years this land has, through the means of corn ensilage and purchased meal fed to live stock, increased to \$100 per acre in value. Four years ago this lot of land was worked without any profit, now it yields about \$1,000 profit annually.

At the close of the address, Mr. McPherson got a good deal of "heckling," especially about one of his statements that a good two-year-old steer could be raised at a cost of only \$15. His rotation of crops was two crops of corn, one crop of grain sowed down with clover, which was pastured the following summer, and then the land was ploughed up for another crop of corn. (1) A run out farm could be fertilized most speedily and at less cost by the use of ensilage and purchased meal than by any other means.

IT DID NOT PAY

to feed ensilage even to dry cattle without some meal and a farmer could buy it cheaper than he could grow it. A ton of cotton-seed meal, costing \$28, left more than \$14 worth of fertilizing material in the manure. There is nothing equal to sweet corn for the production of milk in the fall or early winter.

Mr. Barnard then gave an address, illustrated by colored charts, showing the quantity of nutriment required by a thousand pound cow for a maintenance ration, and the very small addition required to make it a good milk-producing ration. A dry cow required about three-fourths as much food as she would if giving 30 pounds of milk daily, and the difference was very small between the ration required for a cow giving 10 pounds and one giving 30 pounds daily. A dry cow kept in a stable at a temperature of 32° would require twice the quantity of food in her maintenance ration than when the temperature was 68°. He then showed the necessity of feeding a well balanced ration, where the flesh-forming food and the heat-forming food were given in the right proportion. If you give too much heat-forming material, you damage the beast. Mr. A. G. McBean gave a short address complimenting the managers on the success of the convention. It would be of great benefit for the business men of Montreal to become better acquainted with the facts brought out at this convention, and as Saturday afternoon was the only spare time the business men had at this season of the year, he

would suggest to the Board of Trade that they invite Prof. Robertson and some of the others to come and repeat the statements and demonstrations before the Board.

Season for Tree pruning.

The theories with regard to this important part of arboriculture have been studied and explained by able practitioners as to the best methods to perform it to insure the future healthy condition of the tree.

But sufficient consequence as to results is not attached to the season at which pruning should be done.

Décaze in his admirable work translated by Prof. Sargeant states that "A tree can be pruned at any time of the year and the best is that when it can be done the cheapest and is the most convenient."

While attaching, and justly, great importance to the method of making necessary amputations, he attaches none whatever to the season at which this should be performed and which is certainly of equal if not paramount importance.

It is singular too that this statement is contradicted in another page—where it is admitted that "when pruning is done in the autumn, sudden and severe frosts are dangerous, and have a tendency to induce decay in freshly made wounds." In the winter the days are too short and stormy" and "In the spring there is danger of too free a flow of sap."

He also objects to summer pruning on the ground that the leaves will interfere with the progress of the workman—but this appears to be a futile objection because they will not be sufficiently developed to do this to any great extent if the operation is performed at the proper time.

Another objection is, that there might be danger of other trees in the neighbourhood of those operated upon being injured, but this could only be the result of carelessness, and damages thus caused would, if the season were right, be cured at once. So far from its being immaterial as to when trees should be pruned, I opine that is of the utmost consequence that it should be done at a certain period of growth.

There is a well established axiom, that a continual struggle is going on between growth and decay, one of which will eventually gain the mastery.

Thus, when a surgical operation is to be performed, the patient is prepared so that he may be in as healthy and vigorous condition as possible—vitality being necessary to a speedy and complete treating of the wound.

Reasoning by analogy, a tree is in the most perfect state of vitality when its sap is in the process of elaboration and assimilation, and then it will be in the best condition to produce the new tissue required to cover and heal the cut which may have been made. It is a well established fact that sap has a double action, mounting from the roots in a thin liquid, through every ramification of the tree to the leaves, where it is elaborated, and these having preserved and decomposed the carbonic acid, the sap descends again in a changed condition, and is deposited year after year in the successive concentric layers which form the bulk of the tree.

If that be so, the sap cannot be said to descend to the roots, but to have been used up in its progress thereto, to fabricate the body of the tree. Now, it is easy to understand that important amputations are the least likely to produce decay while this process is in progress, because the material required to heal them will be produced at once.

The practical results obtained by actual experiments fully maintain the correctness of this theory.

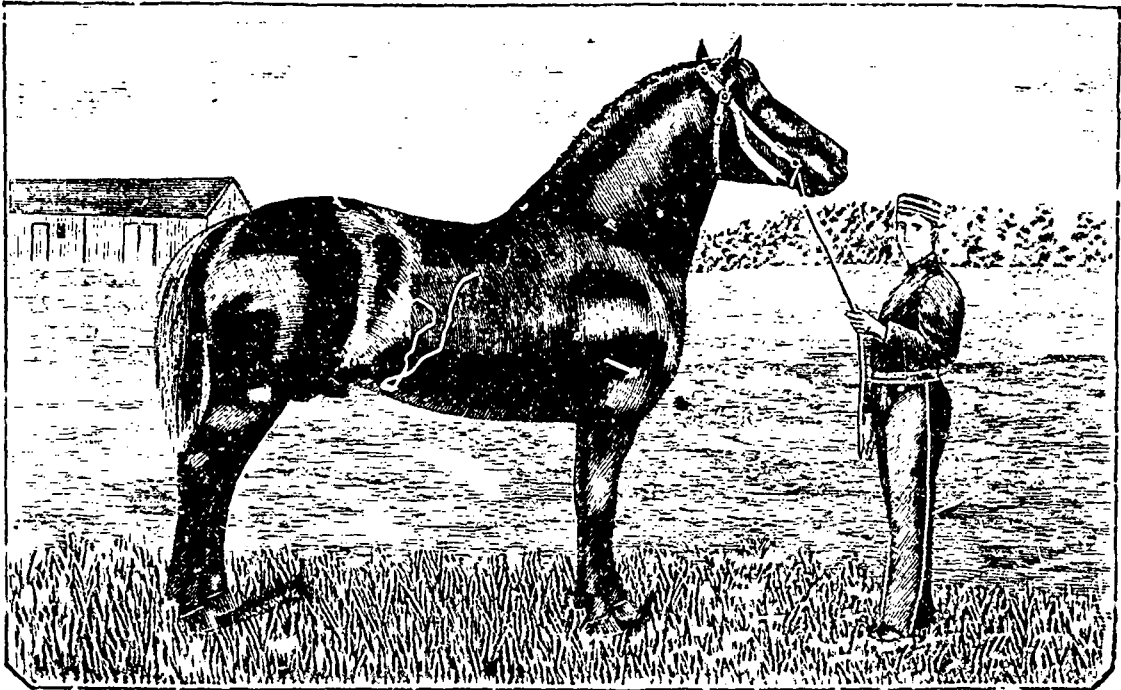
A number of fruit and of ornamental trees pruned in the first week in July 1889 were partly healed of their wounds

(1) Clover every fourth year is a hazardous piece of business.

in ten days, and by the middle of August, cuts two to three inches in diameter were completely covered with new bark. Now, if these trees had been pruned in the autumn, after the elaborated sap had performed its annual functions, the wound could not have been healed and would have been affected by cold and decay, head of growth that should have had the first chance—and the trees being dormant would have no latent force to repel this decay which always commences immediately after all severing of parts when unduly exposed to cold whether in plants or animals.

If the pruning were done at the proper time any application (even coal tar which is no doubt the least injurious to vegetation) to prevent decay would be avoided, as the course of the natural development of the tree would also form the protective covering of the wound, and all applications are more likely to impede than to accelerate the new formation of bark.

such below what our American cousins are doing in this line with commercial fertilizers that one cannot help feeling that further trials of this sort should be encouraged as an incentive to better results generally. For, when we consider that the average yield of potatoes in the United States and Canada is about 80 bushels an acre, or 240 bushels less than the average of the total yields in the contest mentioned, or 500 bushels an acre less than the average yield of the best six in the contest in the United States in 1889, and, when it is known that at this low average of 80 bushels an acre the yield in the United States alone was not far short of 230,000,000 bushels in 1891, some idea of the importance of increasing the average yield per acre throughout the country may be formed. Mr. Tylee, in a late issue of your paper asks, "what is the cost of growing a bushel of potatoes?" At 80 bushels an acre it certainly is more than they are worth or, what is the same thing, more than they will sell for, and at a moderate estimate



A DISTINGUISHED PERCHERON STALLION, TONGLEUR 7513.

In studying the mechanism of a tree, the above facts as to the use it makes of the aliments with which nature has provided it wherewith to perpetuate its growth are easily observable, and are infallible guides as to that *season* of its annual development when any artificial changes in its formation or character may be effected surely and safely; a matter of even greater importance than the *manner* of producing such changes.

GEORGE MOORE.

TO THE EDITOR OF THE *Family Herald* AND
WEEKLY *Star* :

As before mentioned, prizes to the amount of \$200.00 were offered last year by a chemical fertilizer company for the largest yield on an acre of any kind of marketable potato, grown solely with their fertilizers, and although I was fortunate enough to turn out the largest crop on any acre either in the province of Quebec or Ontario with a yield of 438½ bu hels, this, as well as the average of all the competitors, was so

the 80 bushels are grown at a loss of from \$10.00 to \$20.00 an acre. Mr. Terry, the renowned potato grower of Ohio, who follows the rotation of clover, wheat and potatoes, with very little manure, is seldom satisfied with less than an average yield from his 24 or 36 acres of 250 bushels an acre, his success being principally due to a thorough, though inexpensive mode of cultivation, costing him somewhere in the neighbourhood of \$36 00 an acre. My acre certainly cost me more, and from an accurate account of all the outlay connected with growing this particular acre, had it yielded but the average 80 bushels, I should have been far more than \$20.00 out of pocket.

The field chosen was a sandy loam overlying a gravelly subsoil, and had been seeded to clover with barley in 1890. This thin clover sod was top dressed with 900 lbs. of superphosphate, well worked in with a disc harrow and deeply ploughed down, when 900 lbs. more of the superphosphate was sown broadcast and again disc-harrowed both ways, finishing with an ordinary iron harrow. The furrows were opened 5 inches deep with a double mould-board plough and

30 inches apart; the seed, out to two or more eyes, was dropped 12 inches apart in the rows, taking 20 bushels of seed to the acre. This covering was done with the same plough, and a light roller followed in a few days; two rakings with a Breed's weeder was all the harrowing the drills received, though they had to be once handhoed, as the sod was sprouting in places, and between the rows, a Planet-Junior horse cultivator was twice used, besides two light earthings up, with the same implement, as the tubers were bursting through the ground. This effectually checked any small weeds and prevented the potatoes from being sun-burned. Paris green in solution was twice applied, and as the weather was showery, the vines were twice gone over with pans and whisks, gathering the bugs where the poison had been washed off. Three errors were made which I can now see very materially reduced the yield. Many of the sets were planted 20 inches apart instead of 12; the cultivation late in the season was too close to the rows; and we cut the vines off as soon as the rust appeared. This last was a serious loss and did no good whatever in checking the rot. The variety grown is, as far as I can find out, the "Scotch Champion," an enormous yielder (in many rows I weighed the crop and found they were yielding at the rate of 726 bushels an acre, or one pound to the square foot), practically free from rot; perfectly so in the bins and less liable to sprout in the cellar than any variety I ever grew. As compared with the "Early Rose" grown on the same ground, the result at present is rather more than two to one in favor of the "Scotch Champion."

Sherbrooke, Que.

W. A. HALE.

We give this week a portrait of one of the grandest Percheron stallions ever brought to this country—Tongleur 7513 (11596). He won this year first prize in the aged class, sweepstakes as best Percheron stallion of any age, and gold medal as sire shown with get, at Syracuse; first prize at Rochester; first prize, and special prize for size shown with get, both at Elmira and at Trenton, N. J. Tongleur is black in color, 16.1 high, and weighs now about 1800 lbs. He was foaled Feb. 15, 1884; sire Waterloo (2335), dam Poule (11595). He was a government approved and prize horse in France, and was imported in 1887 by his present owner, Mr. John W. Akin, Scipio, N. Y.

The portrait was drawn and engraved for us by John W. Hills, Delaware, O., from photograph taken on the State fair grounds by I. U. Doust, 130 E. Genesee St., Syracuse.

Country Gentleman.

Extraordinary Potatoes.

A priest, a great lover of agriculture, has brought us a sample of potatoes, of its own growing, the sets of which cost him \$4.00 a bushel. These potatoes are excellent in every respect. We have had some of them cooked and can testify that they are of the finest quality. Their shape is perfect. In fact this new variety, which will be designated in future as *Syndicate No. 1*, may be considered from all points of view as a most valuable acquisition.

This variety yielded 400 bushels an *arpent*, on two arpents planted, and without any unusual cost of cultivation. We are convinced that in a good potato-year, this yield may be increased by taking every possible care.

In order to increase the diffusion of this excellent variety, we have made the necessary arrangements for its distribution at a dollar a bushel, sack included, delivered at Quebec. Our correspondent will address them properly, and put them on the cars or steam-boats going to Quebec, without additional charge. Orders may be addressed to us, *with the price by post-office—or registered letter*, and we will take up in ourselves to see to their despatch.

Orders will be executed as soon as navigation opens; but we advise those of our readers who wish to try this new variety to give their orders as soon as possible, since the quantity for sale is not large. First come, first served.

(From the French).

ED. A. BARNARD.

Choice seed for sale.

We request our correspondents who have choice seed for sale—of any description—to have the kindness to send us samples; and to give us all necessary explanations about them, in order that we may give our readers due notice of where they are to be obtained.

(From the French).

ED. A. BARNARD.

We are happy to be able to give the portrait (specially engraved for us, as usual, from photograph) of the grand imported Guernsey bull Midas 2003, winner of first prize in his class, and head of the first prize herd, at the Albany fair of 1891, to say nothing of earlier victories, notable among which is his capturing the sweepstakes award as best Guernsey bull of any age at the great Buffalo show of 1889. He has a large, well rounded body, with perfectly straight back, broad loins, and magnificent head and eyes; is orange fawn in color, skin rich deep yellow. He was dropped in January, 1888; sire, Mark Antony (R. G. A. S. 386 P. S.); dam, Bella Luce 2nd (3655). He has a long line of prize-winning ancestors on both sides. Only a few of his heifer calves are old enough to milk, but all his get show such uniform build and markings of the strongest Guernsey points that his owner, Vice-President Morton, has felt fully justified in placing him at the head of his Eilerslie herd, Rhinecliff, N. Y., the largest herd of the breed in the world.—*Country Gentleman*.

Canadian Ponies and Percherons

TO DR. COUTURE, D. V. S., Quebec.

Dear Sir,—I wish to draw your especial attention to an article on the Canadian pony in the "Canadian Live Stock Journal" for February last. In this it is stated that the horses sent hither from France, in 1685, were *probably* of La Perche origin. Hence, the writer concludes that our old Canadian horses were Percherons, and if they are now small, it is because they have degenerated through the effects of the climate, &c.

It is now forty years since I began to interest myself in this question. I, from the very beginning, sought information from old men in the neighbourhood of Three-Rivers and Montreal, from men who both loved and bred Canadian horses. None of them knew of any other Canadian horses than small ones, weighing, at most, from 800 lbs. to 1000 lbs.

Is it likely that the authorities in France, at the time of the above importation, knowing, as they did, the horrible state of our roads, both summer and winter, and especially the depth of snow at the latter season, would have sent us great Percherons? I fancy, besides, I perceive that, between the bony structure of the Percheron and that of our old Canadian breed, such differences subsist, as would make it impossible to admit of an origin common to both races.

I know, personally, that wood-dealers with whom I have been acquainted—principally Scotchmen—have always preferred the Canadian horse for carting logs in the rough (*plus à la souche*). They always told me that genuine Canadians, weighing from 900 lbs. to 1000 lbs., did a much better day's work in the snow than the best horses of the different breeds of the country, including the Percherons. This is, besides, my own experience, after having owned, and especially seen,

a great number of the descendants of the Percherons imported by M. F. X. Perrault and mentioned in the above quoted article.

I know that you have made a deep study of this question of the Canadian horse, and I hope you will not refuse to assist in the elucidation of the problems raised in the article I have pointed out to you.

Yours truly,
(Signed) ED. A. BARNARD.
(From the French.)

To MR. ED. A. BARNARD, Quebec.

Dear Sir,—I am very much obliged to you for drawing my attention to the article in the "Canadian Live-stock Journal," of February last, on the Canadian pony.

In this article, M. Turenne says that our Canadian horse is a degenerate Percheron. This theory I have already refuted in the *Journal d'agriculture* of Sept. 1891, and I think it proper to repeat that article here in an abridged form.

1. There are no historical documents to prove that the horses sent to Canada in 1685 were Percherons, so that this claim is, from an historical point of view, unfounded.

2. From the point of view of the hippologist, that is, on comparing the Percheron and the Canadian with one another, it is still impossible to say that they both are shoots from a common stock. For, the Percheron's head is long and heavy, the head of the Canadian is short and light; the face of the Percheron is Roman-nosed, that of the Canadian is either flat or hollowed out; the Percheron's withers are thick, but moderately high, those of the Canadian thick and low; the Percheron is long in the loin, the Canadian very short; the croap of the Percheron is straight, or slightly inclined, the Canadian's is drooping (*goose-rumped*). The jowl of the Percheron is not wider, in proportion, than any other part of his head, while that of the Canadian is disproportionately wide and deep.

What experienced, unprejudiced horseman is there, who, after a calm, attentive, exhaustive examination of these two horses, would say that there is any appearance of relationship between them? There is not one!

3. There is only one, sole way to arrive at the origin of any race—it can only be done by *craniology*, that is, by the study of the *crane*, or skull, or of the head, if that is preferred.

Now the head of the Percheron is no more like the head of the Canadian than the head of the negro is like the head of the white man.

You may go on infusing the blood of the foreigner into the negro race for a long time, but it will always preserve its typical characteristics, until, a vast period of time having elapsed, the foreign race shall have completely and absolutely taken possession of the negro race.

History does not show that the Canadian horse is of a Percheron origin;

Hippology teaches just the contrary;

Zootechny proves, beyond all doubt, that it cannot be. (1)

It is of importance that this question of the Percheron origin of the Canadian be decided once for all.

Monsieur Turenne says, and writes, that the Canadian horse is a degenerated Percheron, we hold that he is wrong.

I go further; I say there is not the slightest community of origin between the two races.

Why should not we submit the case to Samson, the greatest anthropologist of the age?

(1) On the coast of Cape Breton, there are ponies, about 12½ hands high, possessing all the characteristics of the Canadian horse. Are these degenerated Percherons?

We might send him the head of a Canadian horse, and if this *savant* gives a decision in M. Turenne's favour, I will pay all the expenses that have been incurred. If the decision is in my favour, M. Turenne will have to give in.

I hope M. Turenne will not object to this proposal. Still, as the question is one of public interest, I do not see any reason why the Department of Agriculture should not take upon itself the duty of resolving it; and if M. Turenne would exercise his influence with the authorities, I am certain the thing could be done.

But, anyhow, I maintain my proposition.

(Signed) J. A. COUTURE, D. M. V.
(From the French.)

CORRESPONDENCE.

Howick May 15th, 1892.

EDITOR *Journal of Agriculture*.

Dear Sir,—Although being a constant reader of your valuable Journal, which is ever increasing in importance to the farmers of this Province, I have never undertaken to write or criticise anything that appeared therein. As you are doubtless aware, I am largely interested in the improvement of our stock of horses in Canada. In reading over the comments on M. Turenne's article by M. Bouthillier, he speaks of the Canadian horse of forty years ago as a very hardy and sound constitution, and that those of to day are the reverse. I also agree with his farmer, that there are a great many unsound horses *around cities*: but, for about twelve or twenty miles around Montreal, or any large city, horses are worked very hard. As a rule, the farmers are generally market-gardeners, drawing manure, and depending more on green crops and milk than on raising colts. If they do breed, as a rule they keep colts in the stable a great part of the year, feeding them high without proper exercise, while they are growing fast, and at the age of two, or two and half, they are stook in to do the work of an aged horse, because they look so big and able, and often are ruined before being properly broken. Whereas, forty or fifty years ago, the colts were allowed to run almost wild until they were three or four years old, and never high-fed; consequently, being more stunted in growth, the muscles were apt to be firmer, and when broken the colts were hardier. As I am a strong advocate for the Clydesdale as a draught horse, I may not be expected to say a good word for any other breed, but without giving a decided opinion on any one particular breed, allow me to say I do not care what breed you call them if they have the necessary qualification of the model draught-horse. With regard to the district of Beauharnois, it is second to none in Canada for a good type of the *pony-made draught-horse*. About thirty years ago I imported a Clydesdale and used him on small Canadian mares, and to day you will find a great deal of the Canadian-build in the draught-horse here. M. Bouthillier was in error when he said the Haras had nothing but Percheron and Norman; they have in addition, Bretons and some of the best Clydes to be obtained in Scotland. I think it would be a great mistake to introduce smaller sires than some used in the Haras at present. There is no doubt the Haras will do a good work if properly supported by our intelligent farmers, I am also pleased to see gentlemen like M. Bouthillier criticise freely this very important question: it will be the means of bringing about a great amount of good.

Hoping I have not trespassed on your valuable space and that you can insert this in next issue. I am Yours truly,

ROBERT NESS.

Montreal, May 18th 1892.

ARTHUR R. JENNER FUST, ESQ.,
4 Lincoln Avenue, City.

Dear Sir,—My price for sulphate of ammonia in small lots, say 10 barrels of 300 lbs. each, is 3 cents per lb.; 1 or 2 barrel lots 3½ cents; car loads 2¾ cents; all at Montreal. Thanks for enquiry. Yours faithfully, T. E. VASEY.

Mr. Vasey's sulphate of ammonia contains, according to his statement last year, 20.5% of nitrogen, therefore that constituent, at the price quoted, costs 16 cents a pound. Mr. Evans quotes nitrate of soda 25 cents per 100 lbs less than Mr. Vasey charges for sulphate of ammonia: nitrate of soda contains at most 16% of nitrogen, which in that form costs 19 cents a lb., nearly. A R J. F.

Council of Agriculture of this province would appoint an inspector of horticulture to inspect and report, in your Journal, all the nurseries that sell goods in this province.

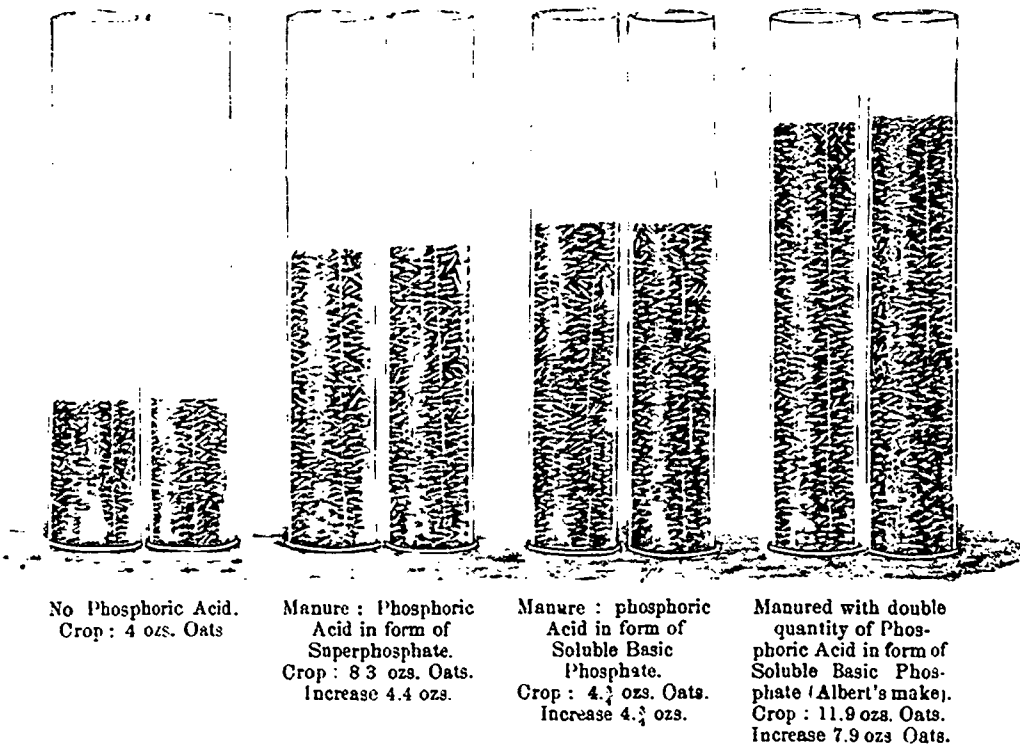
Thousands upon thousands of dollars are annually actually thrown away by our farmers on this stock from the U. S., whereas, hardy northern grown nursery stock is to be had that will stand our northern climate at much less price than that from the U. S. Yours truly, J. C. STOCKWELL.

How are Nitrogen and Phosphoric Acid to be Obtained in the Cheapest Way?

IV.

The following is the conclusion of the translation of a lecture on the above subject recently delivered by Professor

PLATE IX.—PHOSPHORIC ACID MANURING WITH OATS ON CLAY SOIL. YIELD OF THE CROP.



ARTHUR R. JENNER FUST, ESQ.

Dear Sir,—I am obliged by yours of yesterday informing me that you proposed inserting in the Journal my prices for sulphate of ammonia. I guarantee 25% of ammonia, and it always tests higher. This is, as you know, equivalent to 20.6% of Nitrogen, and shows that my product is nearly absolutely pure. Nitrate of Soda is more impure, and more than 15.65% of nitrogen cannot be reckoned on, so that, as you intimate, the demand for nitrate of soda is probably based on a misconception. Of course at the same price sulphate of ammonia is 24 cents in the dollar cheaper than nitrate of soda. With thanks, I remain yours faithfully, T. E. VASEY.

Danville, Quebec, May 6th, 1892.

A. R. JENNER FUST, ESQ.

Dear Sir,—The article in the May number of *Journal of Agriculture*, by Geo. Moore hits the nail on the head. I, as one of the most northern nurserymen, should be pleased if the

Paul Wagner, Ph. D, Director of the Agricultural Research Station, Darmstadt :—

The yields of grain shown here (Plate IX) demonstrate that one part of phosphoric acid as soluble basic phosphate on the clay soil has even had a somewhat better effect than one part of phosphoric acid in superphosphate, since manuring.

With one gram of phosphoric acid in superphosphate gave.....	Oat Grain. grams oz.
With one gram of phosphoric acid as soluble basic phosphate gave.....	239 8.3
	251 8¾

Therefore on the soil used in the experiments, the soluble basic phosphate furnished the oat plant with a form of phosphoric acid, just as beneficial, just as quick acting, and perhaps even somewhat more favourable than the superphosphate. The result leads to the question, whether the action of phosphoric acid in the soluble basic phosphate on oats would

which we must endeavour to raise to the highest possible magnitude the yield of the soil, as well as the clear profit obtainable by cultivating fields or meadows. My observations on this question are crowded out.

A. R. J. F.

The Percheron in Canada.

BY R. AUZIAS TURENNE M. S. D. A. D. F., MANAGER OF THE HARAS NATIONAL, MONTREAL.

Dr. E. Harris, of Mooretown, N. J., in the *Farmer's Cabinet*, 1842, states: "An inspection of the Percheron will convince any one that this race is the origin of the Canadian pony, about the valuable properties of which little need be

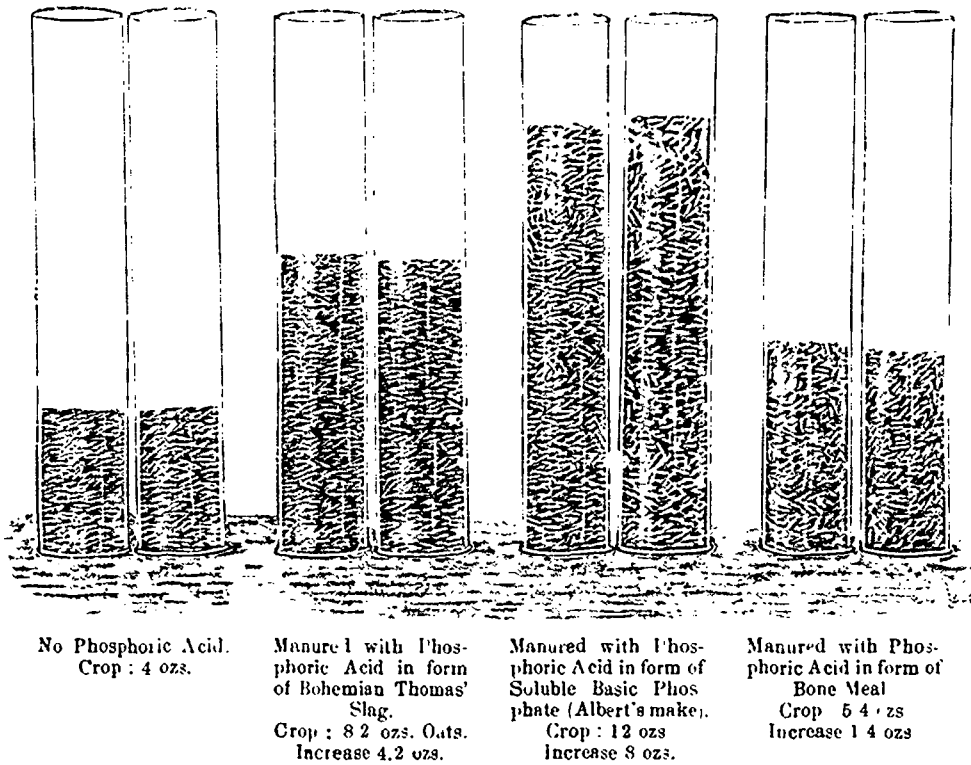
lish will produce a stock of horses invaluable, as combining all properties that are required for quick draught on the road or the farm."

This article is replete with interest, especially for Canadian breeders. We fully agree with the author, and have come to the same conclusions about the Canadian breed.

The carelessness of the breeders generally, the influence of a northern climate, after a succession of generations, has given us the tough, shaggy pony of Canada. If we would not have in course of time a race as diminutive as the Shetland ponies, we must counteract such causes, such carelessness, and this the Haras National is bound to do.

The "French Canuck" resembles the Percheron in form and in many of its characteristics, and may claim close con-

TABLE XIII.—PHOSPHORIC ACID MANURING ON CLAY SOIL. YIELD OF THE CROP.



said, as they are well known and highly prized in this section of the country, and still more to the north, where they have undoubtedly given stamina and character to the horses of Vermont, New Hampshire, and the northern section of New York, which makes them so highly valued all over the Union as road horses; while it is a remarkable fact that in those States where the attention of breeders has been exclusively devoted to the English race horse, the carriage horse and stage horse is almost universally supplied from the north. It remains, therefore, for breeders to determine whether it is not better to resort to the full sized Percherons to cross with our light and already too highly bred mares than to use the degenerated Canadians (degenerated in size only, through the rigor of the climate, for it must be admitted that the little animal retains all the spirit and nerve of his ancestors, and lacks strength only in proportion to its size). My own opinion is that a due proportion of French blood mixed with the Eng-

sanguinity. The Percheron, Clement 32172, of the Haras National, now at Indian Head, Assa. (season of 1891), has been often mistaken for a Canadian sire. On July 16, 1885, twelve mares and two stallions, sent to Canada by the King of France, were unloaded at Quebec from the boat, "St Jean Baptiste." After many investigations at the Ministère du Commerce et des Colonies, Paris, France, I found out at last that these horses were bought in Normandy; and as the majority of the first pioneers came from La Perche, in Normandy, it is highly probable that those Norman horses were bred in the Perche.

Those horses—the first importation in America for breeding purposes—won a great fame among the red warriors, quite delighted at seeing what they called the "cariboes de France" so gentle and apt to labor.

The mares were given to MM. de Talon, de Chambly, de Sorel, de Contre-Cœur, de St.-Ours, de Varennes, de la

Chesnaye, de Ropentigny, de Le Bert, on the following terms: On the third year, a yearling was to be given to the king, or a hundred "livres"; if through any carelessness of the proprietor a mare died before the third year, a penalty of 350 livres was to be paid to the king.

The two stallions were given to M. de Chambly, and the king paid him twenty livres annually for their keeping.

Thus was established the first Haras in America.

In 1826, or 1827, J. McNitt, of Washington, N. Y., purchased, near Montreal, a gray horse known as European Norman, imported from Le Havre to Quebec in 1816.

His son, the Morse's Horse, a gray, foaled in 1834, dam Beck, by Halls Hambletonian, son of Bishop's Hambletonian, gr. dam by Peacock, blood unknown, was the sire of Alexander Norman, the founder of the Norman family. It is highly probable that European Norman was a Percheron.

From this family have sprung the Blackwoods and the wonderful trotter Lula, May queen. He was extensively patronized in Washington and surrounding counties. It is not at all unlikely that many of the so-called Gray-Messenger mares that come from that region were of his get, for Elliot, Old Copper-bottom, Columbus, and Royal George, have Canadian sires as ancestors.

In 1867, J. X. Perrault, Esq., of Montreal (to whom we are indebted for interesting notes about the first horses brought to Quebec), imported some Percheron stallions, which have bred superior colts in Verchères and L'Assomption. Many a gray team sprung from them can be seen in the streets of Montreal. But people wished too rapid results; and as proceeding too fast is a greater error than stopping by the way, they reduced to very little the results of several years of success.

Still, when the merits of their descendants have been so thoroughly tested, our farmers bitterly regret not having retained them in their counties. Their progeny have been really remarkable: large, strong, active, and selling at figures rarely under \$150 or \$200; and it is that past experience of our province which has induced and justified the Haras in renewing such breeding.

**Dairymen's Association of the Province of Quebec
Practical school for cheese-making.**

The Dairymen's Association informs the public that a change has been made this year in the manner of holding the practical school of cheese making.

Up to the present time, this school was held in one permanent place throughout the year. This year, on the contrary, it will change places every week in accordance with the programme we give below. Some changes may, perhaps be made in this arrangement, but if so, notice will be given in the Journal.

The association trusts that a great deal of good will be done by this "Flying school." An opportunity will be afforded the makers in the different parts of the province of receiving practical instruction of great value, and of keeping themselves informed on the last improvements in cheese and butter-making.

M. Saül Côté is appointed director of the school. The Inspector-general of the syndicates, who will probably be Mr. Peter Macfarlane, of Huntingdon, will assist in the work as often as his other duties will allow him.

The inspectors who shall have syndicates of cheese-factories under their charge are to attend at St. Hugues de Bagot towards the 20th of April to receive their instructions for the work of the coming season.

The movements of the school will be as follows:

PLACES WHERE THE SCHOOL OF THE DAIRYMEN'S ASSOCIATION'S WILL BE HELD DURING THE SEASON 1892

MONTH.	DATE	PLACES.	FACILITY OF
April	20 to 30	St-Hugues de Bagot.	L. T. Brodeur.
May	2 to 7	La Baie du Fevre.	Louis J. Lemire.
"	9 to 14	Comté de Berthier.	Louis Denis.
"	16 to 21	St-Charles, Rivière Richelieu.	B. Beauchamp, M. P. P.
"	23 to 28	St-Hermas, Deux-Montagnes.	N. E. Clément.
June	30 to "	Ste-Anne de la Poudre.	M. Lefrançois.
"	6 to 1	Chambord, Lac St-Jean.	Wilfrid Côté.
"	13 to 18	Bagotville, Chicoutimi.	Chas. Martel.
"	20 to 25	Baie St-Paul, Charlevoix.	Frs. Gendron.
"	27 to 2 July	Ste-Anne Lapocaturère, Kamouraska.	Jos. Lambert.
July	4 to 9	St-Joseph de Beauce.	F. de Guise.
"	11 to 16	Somerset, Mégantic.	M. Méthot.
"	18 to 23	Warwick, Arthabaska.	Chas. Wilkins.
"	25 to 30	Barston, Stanstead.	Jos. Vadnaus.
August	1 to 6	Lawrenceville, Shefford.	Jos. Lemonde.
"	8 to 13	St-Liboire, Bagot.	Elite Bourbeau.
"	15 to 20	L'Ange-Gardeien, Rouville.	

Notice will be given in July of the places where the school is to be held after August 20th.

If any district finds itself neglected, notice should be given to the secretary of the association.

J. DE L. TACHÉ.

Secretary-Treasurer S. I. L.

Quebec, 6 April, 1892.

(From the French.)

Notice to the Old Members of the Association.

It is for your interest to subscribe *at once* to the association in order to receive regularly the *Journal of Agriculture*, which will be this year the recognised organ of the association, and which will contain, every month, advice on manufacturing dairy-produce for the ensuing month.

If you postpone the payment of your subscription, you will lose some of the advantages the association has to offer you.

J. DE L. TACHÉ.

Secretary-Treasurer S. I. L.

April, 1892.

CHEESE-MAKING.

ADVICE FOR THE MONTH OF MAY.

1. Distrust milk with a bad smell. The cows on leaving their winter quarters eat anything they can pick up. You had better refuse any bad-smelling milk, and advise the patron supplying it to mind what he is about.

2. Warm the milk up to from 84° F. to 88° F. To know if your milk is ready for the rennet,—as soon as it has reached the above temperature (84° to 88°), put 8 oz. of it into a large cup with a spoonful of extract of rennet, and note the time it takes to curdle. If it curdles in 15 or 18 seconds, it is fit to receive the rennet. If it takes more than 18 seconds, wait a little, to allow it to grow staler (*qu'il avance*): it is better to keep back the addition of the rennet at this time, to avoid being obliged, later on, to gain the requisite degree of acidity in the curd by keeping it longer in the whey. Use enough rennet to make the curd come in 20 minutes.

3. Cut the curd carefully, as soon as possible: use the horizontal—bladed knife lengthwise of the vat; wait till the whey rises a little in the vat, and then, with the perpendicular-bladed knife, cut the curd across first and then lengthwise. These three cuttings ought to be enough, generally speaking; but if the milk is rather too stale, a fourth cutting may be useful.

4. The cutting finished, stir lightly and separate carefully any pieces of curd that may be sticking to the sides or the bottom of the vat.

5. Warm up very gradually at first, and then faster, so as to attain a temperature of 90° to 100° in from 40 to 45 minutes. Stir continually.

6. The warming up being completed, keep on stirring, and draw off the whey until the curd "crops out." When the curd gives threads to the hot iron of $\frac{1}{8}$ to $\frac{1}{4}$ of an inch, draw off the rest of the milk. If you then find the curd too soft, make it firmer by giving it a dry-stirring until it is freed from any superfluity of whey.

7. Gather the curd up to the sides of the vat, but so as to allow the whey to escape.

8. Keep the curd as warm as possible: it should not fall below 94°. As soon as it is firm (*pris*), cut it into blocks, which must be turned every half-hour, pile it two blocks high, when you have turned it twice. When the curd begins to stretch (*s'étirer*) or tear, grind it.

9. This done, stir carefully until the surface of the blocks begin to harden or, so to speak, to cicatrise. (1) Fifteen minutes of stirring generally effects this, and the curd is then fit for salting.

10. In the beginning of May take $1\frac{1}{2}$ lb. of salt to 1,000 lbs. of milk; increase by $1\frac{1}{2}$ oz. daily till you reach 2 lbs. to the 1,000 lbs. at the end of May.

11. Stir the salt well into the curd, and as soon as it is all absorbed, which will take from 15 to 20 minutes, put into the moulds at a temperature of about 85°.

12. Use very clean hot water to damp the press—cloths—there is nothing like this to give a good look to the cheese.

13. At first press slowly, and in 40 or 45 minutes undo the cloths to see if the cheese is pressing equally all over. Make your cheeses as nearly 70 lbs. to 75 lbs. as your moulds will let you.

14. Leave the cheese at least 20 hours in press; turn it every day in the cheese-room. If you do not leave the cloths on the sides of the cheese, grease the cheese every day with warm whey butter, and rub them well.

(1) *cicatrise* to heal up as a scar does.

15. Take pains to keep up a temperature of not less than 65° in the cheese room. your cheese will be all the better for it, and above all things, do not let it freeze there.

16. Never sell your cheese when too new; none must leave the factory until it is at least a week old. Take care of your reputation, which will certainly suffer if you neglect this rule.

17. Give good weight to the purchaser. Trim your boxes to a level with the tops of the cheese, mark the weight with a good stamp, and put on the trade-mark of the factory.

PETER MAOFARLANE,
Inspector-General.

Huntingdon, April 6th, 1892.

(From the French.)

NON-OFFICIAL PART.

A Narrow Escape.

"I would probably have been in my grave to-day had it not been for Dr. Fowler's Extract of Wild Strawberry. For two years I suffered from bowel complaint and became very weak and thin, but after using half a bottle of the Extract I was completely cured and have since had no return of the complaint."—Miss Hilton, 34 Huntley St., Toronto.

Don't you forget it.

"I will never forget that Dr. Fowler's Extract of Wild Strawberry saved my life. Five years ago I had a terrible attack of summer complaint and was given up by the doctor and my parents. A friend advised Fowler's Strawberry and at the second dose I was relieved and soon was well as ever."—Maggie McGillivry, Falkenburg, Ont.

THE NATIONAL HARAS COMPANY

UNDER AGREEMENT WITH THE PROVINCE OF QUEBEC TO PROVIDE
AGRICULTURAL SOCIETIES WITH STALLIONS.

NORMAN, PERCHERON, BRETON AND CLYDESDALE STALLIONS

PROFITABLE TERMS.

25 Prizes and Diplomas for 1890 and
1891 in the Provinces of Quebec
and Ontario.

Stables at Outremont, near Montreal. Offices: 30 St James St, Montréal.

R. AUZIAS-TURENNE, Director.

Baron E. de M. GRANCEY, Vice-President,
5 Friedland Avenue, Paris.

Several Seasons

"For several seasons I have used Dr. Fowler's Extract of Wild Strawberry and find that it makes a perfect cure even of the severest attacks of summer complaint and diarrhoea. It is as precious as gold."—Mrs. F. C. Winger, Fonthill, Ont.