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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., JANUARY, 1885.

No. 53.

SPECIAL NOTICE TO SECRETARIES OF AGRICULTURAL SOCIETIES.

Ten Copies of this Journal are sent, Postage Prepaid, to every Agricultural Society in the Province, in payment of which a reduced charge of \$4. is deducted annually from each Society's Grant. Societies requiring their copies addressed separately to individual Members will be charged \$5. Any greater number of Copies to one address may be obtained at the reduced rate. The Annual Subscription for a Single Copy is Fifty Cents, payable strictly in advance. Subscribers wishing to have the "Journal" mailed regularly should send their address, accompanied by fifty cents, to A. & W. Mackinlay, Halifax.

ATTESTED returns of subscriptions of members paid for year 1884 have been received from the following societies:—

Co. Annapolis—Clarence, Clements, Paradise, Bridgetown, Eastern, Laurie, Nictaux.

Co. Antigonish—St. Andrews, North Grant, Antigonish, Bayfield.

Co. Cape Breton—Christmas Island, East Bay, North Sydney, Sydney Mines, Boulardarie, Sydney.

Co. Colchester—Balmoral, Earltown, Londonderry, Tutamagouche, Onslow, Brookfield, Lower Stewiacke, Shubenacadie, Waugh's River, Bass River, Sterling.

Co. Cumberland—Parrsboro', Mapleton, Amherst, Athol, Wallace, Polling District Three, Minudie, Middleboro', Wentworth, Malagash.

Co. Digby—Central, Hillsborough, Weymouth.

Co. Guysborough—Guysborough, Sherbrooke, Milford Haven, New Town.

Co. Halifax—County, Upper Musquodoboit, Lower Musquodoboit.

Co. Hunts—Newport, Falmouth, Progress, Union, Windsor.

Co. Inverness—Strathlorne, Strait of Canso, River Dennis, Le Moine, Whycocomagh, N. E. Margaree.

Co. Kings—Union, Aylesford, Tremont, Kings, West Cornwallis, Central.

Co. Lunenburg—Centreville, Chester, Lunenburg, Mahone Bay, Bridgewater.

Co. Pictou—Pictou, Pine Tree, River John, New Glasgow, Millbrook.

Co. Queens—North Queen's, Kempt, Liverpool, Brookfield.

Co. Richmond—Lennox.

Co. Shelburne—Shelburne, Barrington, Granite, West Passage.

Co. Victoria—Baddeck Valley, Middle River, St. Ann's, Baddeck.

Co. Yarmouth—County, Hebron (Yarmouth Township).

MESSRS. GREEN & WHINERAY'S Liverpool circular of 20th December, includes only 12 barrels of Nova Scotia apples per "Peruvian." There were 5366 barrels per "Toronto" from Montreal, and about 28,000 from the United States,—the total arrivals for the week at Liverpool being 33,891 barrels, and the total arrivals there for the season 331,685 barrels.

ANNUAL Reports for 1884 have been received from the following Agricultural Societies:—

Co. ANNAPOLIS:

Eastern Annapolis Ag. Soc.

Laurie Ag. Soc.

Nictaux Ag. Soc.

Clarence Ag. Soc.

Clements Ag. Soc.

Paradise Ag. Soc.

Bridgetown Ag. Soc.

Co. ANTIGONISH:

Bayfield Ag. Soc.

St. Andrew's Ag. Soc.

North Grant Ag. Soc.

Antigonish Ag. Soc.

Co. CAPE BRETON:

Sydney Mines and Little Bras d'Or Ag. Soc.

Christmas Island Ag. Soc.

North Sydney Ag. Soc.

East Bay Ag. Soc.

Sydney Ag. Soc.

Co. COLCHESTER:

Sterling Ag. Soc.

Bass River Ag. Soc.

Londonderry Ag. Soc.

- Tatamagouche Ag. Soc.
Brookfield Ag. Soc.
Waugh's River Ag. Soc.
Earlton Ag. Soc.
Shubenacadie Ag. Soc.
Onslow Ag. Soc.
- Co. CUMBERLAND:
Parrsboro' Ag. Soc.
Middleboro' Ag. Soc.
Minudie and Barronsfield Ag. Soc.
Ag. Soc. of Polling District No. 3
Athole Ag. Soc.
Mapleton Ag. Soc.
Amherst Ag. Soc.
Malgash Ag. Soc.
- Co. DIGBY:
Digby Northern Ag. Soc.
Hillsburgh Ag. Soc.
Weymouth Ag. Soc.
Digby Central Ag. Soc.
- Co. GUYSBOROUGH:
Guysborough Ag. Soc.
New Town Ag. Soc.
Milford Haven Ag. Soc.
Sherbrooke Ag. Soc.
- Co. HALIFAX:
Halifax County Ag. Soc.
Upper Musquodoboit Ag. Soc.
Dartmouth Ag. Soc.
Lower Musquodoboit Ag. Soc.
- Co. HANTS:
Falmouth Ag. Soc.
Union Ag. Soc.
Windsor Ag. Soc.
Progress Ag. Soc.
- Co. INVERNESS:
Whycocomagh Ag. Soc.
N. E. Margaree Ag. Soc.
Strathlorne Ag. Soc.
Le Moine Ag. Soc.
River Dennis Ag. Soc.
Strait of Canso Ag. Soc.
- Co. KING'S:
King's County Central Ag. Soc.
Tremont Ag. Soc.
Aylesford Ag. Soc.
Union Ag. Soc.
West Cornwallis Ag. Soc.
- Co. LUNENBURG:
Bridgewater Ag. Soc.
Mahone Bay Ag. Soc.
Lunenburg Ag. Soc.
Chester Ag. Soc.
Centreville Ag. Soc.
- Co. PICTOU:
Balmoral Ag. Soc.
Millbrook Ag. Soc.
Pictou Ag. Soc.
New Glasgow Ag. Soc.
River John Ag. Soc.
Pine Tree Ag. Soc.
- Co. QUEEN'S:
Kempt Ag. Soc.
North Queen's Ag. Soc.
Liverpool Ag. Soc.
Mutual Benefit Ag. Soc. (No account of proceedings at annual meeting)

- Co. RICHMOND:
Lennox Ag. Soc.
- Co. SHELburnE:
Shelburne Ag. Soc.
Barrington West Passage Ag. Soc.
- Co. VICTORIA:
Baddeck Ag. Soc.
St. Ann's Ag. Soc.
Middle River Ag. Soc.
Baddeck Valley Ag. Soc.
- Co. YARMOUTH:
Hebron Ag. Soc.
Yarmouth County Ag. Soc.

DEPARTMENT OF AGRICULTURE,

Ottawa, Can., 5 Jan., 1885.

SIR,—The Minister of Agriculture desires me to inform you, in reply to your letter of the 15th ultimo, that no decision has yet been arrived at with reference to a Dominion grant in aid to give one of the Provincial Exhibitions a Dominion character in 1885. It is the intention of the Minister to consult his colleagues on the subject; and until that is done he cannot cause a definite answer to be furnished to the questions in your letter. I have the honor to be, Sir,

Your obedient servant,
J. LOWE, Sec'y Dept Agric.

GEORGE LAWSON, Esq.,
Sec'y Gen. B'd Agric., Halifax, N.S.

DELEGATES from the Agricultural Societies of Kings County, and others interested in industrial pursuits, met on 5th January in Kentville, and, after organizing by appointing a chairman and secretary, passed, among other motions, the following:—

Resolved, That this meeting proceed to appoint a Committee, who shall be the "responsible body," to make application to the Central Board of Agriculture for the holding of the Provincial Exhibition of 1885 in Kentville, and for the transaction of all matters of business connected therewith.

On motion two representatives from each of the Agricultural Societies were chosen as follows:—

- Kings Co. Ag. Soc'y—Henry Chipman, M. D., Captain Tuzo.
Union Ag. Soc'y—Enoch L. Collins, John E. Starr.
Central Ag. Soc'y—Edward M. Jordan, Charles Strong.
West Cornwallis Ag. Soc'y—T. H. Parker, H. J. Chute.
Aylesford Ag. Soc'y—Charles Taylor, Jas. Patterson, Jr.
Farmers Ag. Soc'y—Leander Rand, Amos B. North.
Tremont Ag. Soc'y—the President and Secretary.
Fruit Growers' Association—Rev. Mr. Hart, Robert W. Starr.

The Members of the Municipal Council, 16 in number, were then appointed, and the following persons additional, viz.:—Thomas E. Smith, Caleb R. Bill, J. A. Woodworth, William Eaton, and D. B. Newcomb—in all 37.

It was further unanimously *Resolved* That the Secretary of the present meeting be authorized and instructed to apply on our behalf to the Central Board of Agriculture for the placing of the Provincial Exhibition of 1885 in Kentville.

An official communication, embracing the proposals of the Committee, has been received by the Secretary of the Central Board, and will be submitted at an early meeting.

We have received several communications in relation to Laval's Cream Separator. It is now being advertised in England. In the prospectus reference is made to the enormous imports of butter from the continent as being profitable to the exporters, owing to this and other labor-saving contrivances. There can be no doubt of its utility. Set the machine going as soon as milking begins, and the whole of the cream is ready for the churn soon after milking ends; while the skim-milk is available, sweet and fresh, for calves or cheese, 36 hours earlier than it otherwise would be.

In addition to the Nominations by Officers of Agricultural Societies of Representatives to the Central Board, published in last month's JOURNAL, the following have been subsequently received:—

District No. 1.
Bridgewater Ag. Soc.—Major-General Lauric.
Mahone Bay do do
Centreville do do

District No. 2.
Nictaux Ag. Soc.—Col. W. E. Starratt.
E. Annapolis Ag. Soc.— do

District No. 4.
Windsor Ag. Soc.—Allen Haley, M.P.P.
Shubenacadie Ag. Soc.—Robert Putnam.
Falmouth Ag. Soc.—I. Longworth.
Onslow Ag. Soc.— do
Wentworth Ag. Soc.— do
Amherst Ag. Soc.—G. W. Forrest.
Athol do do

District No. 5.
Antigonish Ag. Soc.—C. B. Whidden.

District No. 6.
Christmas Island Ag. Soc.—John McKeen.
River Dennis do do
Baddeck Valley do do

KNEELING & HUNT's auction sale of Fruit in London, on 16th December, included 3479 barrels of Nova Scotian apples, ex "Caledonia," and 131 barrels American and Canadian apples ex "City of Chester."

This attention of our farmers has been repeatedly called to what must be regarded as one of the great industries of Prince Edward Island,—the Rearing of Horses. The farmers of Nova Scotia and New Brunswick are nearer the markets than those of Prince Edward Island, and yet the Islanders realize comparative wealth in this department of agriculture, whilst the Mainlanders do not find it sufficiently profitable to be earnestly entered upon. The reason of this is not far to seek. Whilst the Government Stock Farm in Prince Edward Island tends, apparently, to keep down the local price of thoroughbred cattle, yet, in the case of horses, matters are so wisely managed as to greatly encourage the horse industry. The Government spares no pains nor expense in securing the very best stallions suitable for the purposes of the horse raiser; the animals are placed at the service of the farmers, and every farmer in the Island who has a few mares has it in his power to raise, without more expense than their feed, a few colts every year of a superior class. Our Nova Scotian farmers have not this opportunity. It is true that we have not been without good entire horses in the Province of late years, but the fees charged in some cases have necessarily been higher than farmers "felt like" giving. The efforts of the Government to introduce horses at different times did not meet with great encouragement, chiefly perhaps because they were not pursued with sufficient pertinacity and system to overshadow the prejudices arising from personal interests. The ostensible reasons were, usually, that the horses imported were poor, badly chosen, and not fitted for the country,—things all easily said and easily believed of a Government nag. What is really wanted to put horse raising on the platform of a lucrative industry in this Province is some system, such as that of Prince Edward Island, whereby all our farmers throughout the whole Province may have the services, at a moderate charge, of first-class stallions suitable for raising horses for the United States, New Brunswick and Nova Scotian markets. In Prince Edward Island the Government and Legislature are liberal to agriculture, because the Government and Legislature no doubt consist of the wisest and best and most active and patriotic men of the Island, and they see that in promoting agriculture they are doing the greatest good that they possibly can to their country in enabling the people to live in comfort and happiness, to pay their taxes, and to discharge faithfully the various duties required of them as citizens. Surely the members of our Nova Scotia Government and Legislature are not less wise nor less patriotic than those of the Island; nor do we know of any reason why they should be

less liberal in any measure calculated to enrich the country. But it would be useless to propose any scheme or to vote any money, or authorize any expenditure, before light can be seen as to what good will be realized. The farmers themselves must take the initiative, and we would suggest to the ninety agricultural societies throughout the Province that meet from time to time in the winter, that they could not devote an evening to a more useful purpose than the consideration and discussion of the horse question, and the preparation of a resolution as to what plan they think might be adopted to place our farmers on a level with those of P. E. Island. The talk will do no harm and may set our Legislators a-thinking as to whether it might not be prudent for us, with all our riches in mines and orchards, and tons of shipping, to take a horse lesson even from the smallest Province.

These remarks have been suggested by the following article in a *Charlottetown* paper:—

During the past season the export of horses from Prince Edward Island has been large. The chief buyers have been Maine and Massachusetts, where the bulk of our horse export has been sent. Dealers have paid fair prices, and selected from our best and heaviest stock; but, notwithstanding this and the steady export which has been carried on for years past, there are still in this Province as many good horses as ever there have been. A well-known dealer informs us that 'the old ones, fit for shipping, have been pretty well weeded out, but there are now as many desirable horses rising six, and fit for shipment, as will supply the largest demand of next spring and summer.' Then there are a large number of splendid drivers and useful farm horses which will next season be replaced by the 'younger growth,' and the old ones will be offered to the trade. Thus it will be seen that dealers need have no fear of clearing our island of its horses. Since the first of April 312 horses have been shipped from Charlottetown to the United States. The value of these animals is estimated at \$32,243. A large number have also been shipped via Summerside, to the neighboring Republic, while the Provinces, Newfoundland and the West Indies, have been large buyers of island stock. This shows that horse-breeding is among our leading farm industries. That our farmers should in the future, as they have in the past, give strict attention to this particular branch of industry is desirable, first for their own benefit, and second to uphold the good name the Province has abroad for the superiority of horses. A list of shippers of horses from the city may be of interest:—

	NO.	VALUE.
Keegan & Farrar.....	118	\$9,933
W. S. McKie.....	46	5,390
A. W. Dwyer.....	22	3,632
Chas. Trask.....	21	1,719
Albert A. Cushing.....	16	1,655
Augus McMillan.....	14	1,655
P. Harkins.....	15	1,503
Oliver Mason.....	13	1,017
Nell Hanson.....	11	1,223
W. J. McLauchlan.....	9	832
P. Dunphy.....	7	690
F. W. Mason.....	5	490
David Gage.....	4	460
H. E. King.....	4	275
E. H. Sprague.....	3	450
Sundry parties.....	12	1,310
	312	\$32,243

We have been favored by the Loyal Cream Separator Co., of 32 Park Row, New York, with advance sheets of the Report of the Judges on Cream Separators at the late London Dairy Fair, to be published in the *London Agricultural Gazette*. It will prove of great interest to every butter-maker in our country, as it answers every question with regard to this new system.

CREAM SEPARATORS.

In reporting upon the separators first, they do so, feeling that that class possesses more interest to dairy farmers than any other class of dairy utensils, and being undoubtedly the dairy implement of the future.

In considering the points that were necessary to be taken into account in testing the machines, the judges had to look at what was possible to be done in the time at their disposal, which was necessarily limited to the days of the show; and they thought—rightly or wrongly—that the Council did not require them to enter into a full scientific test so much as the more practical one of saying which machine they considered best adapted for use by farmers for the production of cream of good quality; and to this end the judges drew up a list of points, which they considered the most important to test the machines, and, moreover, they took the somewhat unusual course of giving a copy of the requirements to each exhibitor, so that they might be able to work their machines to the best advantage in exhibiting these points.

The points were as follows:

1. Construction (embracing simplicity of design, facility of cleaning, emptying and oiling.)
2. Analysis of skim-milk.
3. Analysis of cream.
4. Quality of cream.
5. Temperature at which the milk was separated.
6. The time taken in separating a given quantity.
7. The quantity of milk required to work the separator.

8. The cost of the separator, including the intermediate motion.
9. The cost of fixing.
10. The revolutions.
11. The safety.
12. The convenience of delivery of the skim-milk and cream to a higher or lower level.
13. The adaptability for horse-power.
14. The intermediate motion, embracing simplicity of construction, readiness of throwing in and out of gear, and any arrangement for neutralizing the effect on the speed, by the stoppage of the horse.
15. The power required to work each machine.

As regards the last point, the judges were informed the Council did not desire the machines to be tested on this point.

They further wished to test the weight of skim-milk and cream, but were prevented by the absence of the steward.

MACHINES COMPETING.

There were four machines competing, three of them being Danish, exhibited by the Aylesbury Dairy Company—these were exactly similar in design, and, in fact, were three different sizes of the same machine—and De Laval's, exhibited by D. Hald & Co.

For convenience it will be better to distinguish the three Danish machines as A, B and C; A being the largest machine, B the medium-sized, and C the smallest.

BRIEF POINT.

1. Taking the points deemed most essential by the judges in rotation, we have, first, construction. It is not deemed necessary to give any illustration of the two separators, as they are most probably familiar to all those interested. It certainly seemed that in the detail of point indicated, viz.: simplicity of design, facility of cleaning, emptying and oiling, the advantages were all on the side of the De Laval. On the judges requiring this machine to be emptied, the drum was simply lifted out of its bearings and turned upside down by one man, the contents being emptied into a bucket, this occupying a very few minutes. In the B Danish, the milk had first to be removed by a siphon, and then it seemed to require two or three men to undo the several screws and adjustments, and to lift the drum from its place. A hole was provided in the base of the drum, into which a conical plug was driven; this plug had to be knocked out with a hammer before the milk left in the drum, after the siphon had extracted all it could do, could be run out. There seemed to be great difficulty in getting at this plug, to knock it out, when the drum was in its place, and it seemed to be at best a clumsy contrivance. These remarks apply to all the four Danish machines, which were of similar construction.

SECOND POINT.

2, etc. Before considering the next point of analysis it will be convenient to state the course of proceeding; 400 pounds of whole milk was ordered to be weighed out to each machine, the milk being first mixed in a large tank provided for the purpose to ensure equality of sample. The judges wished to try them all simultaneously, but unfortunately, only the quantity was weighed out for two of the machines—the De Laval and the B Danish—on the first day. The A Danish and the C Danish not having their milk weighed out till the next day was unfortunate, as it somewhat altered the conditions of the contest; but in the absence of the steward it was impossible to rectify the error. The temperature of the whole milk in the large tank showed 56 deg. The following table will bring concisely together the different points in connection with each machine which were considered important. It is not thought necessary to give the different totals of the complete analysis, as only the item "butter fat" is important. The effect of the action of the separator on the "solids not fat," or cheese-making matters, in milk is a point that has not been tested, though it is, undoubtedly, an important one, as certain curious facts in connection with them have been observed:

Name and machine.	Butter-fat in whole milk supplied.	Butter-fat in skim-milk of the Separator.	Butter-fat in cream of the Separator.	Temperature at which the milk was separated.		Time in separating 400 lbs.	Quantity of milk required to work Separator.	Cost.	Revolutions attached per	
				Deg.	Min.				minute.	per minute.
De Laval's	4.32	.07 47.58	62	40	12.25	37	6234	6000		
B Danish.	4.32	.18 15.05	88	42	30.75	41	2800	3600		
A Danish.	3.60	.32 20.42	62	32	128.75	73	1000	2000		
C Danish.	3.60	1.02 33.12	74	08	5.25	26	3400	3600		

It will be observed that the butter fats in the whole milk supplied showed an excellent quality of milk, and as the most important point of a separator is to separate the cream from the skim-milk, the analysis of the skim-milk and of the cream must be compared to see what quantity of fat is left in the skim-milk and what quantity of skim-milk is left in the cream, and it will be noticed that, though the De Laval left a somewhat large percentage of fat in the skim-milk, it left little or no skim milk in the cream, the cream from this machine being far above the standard of ordinary cream.

The B Danish, though showing only an average percentage of fat in the skim-milk, showed a remarkable result in the cream, being considerably below the standard of ordinary cream; and the

*By an error of the steward, 600 lbs. was weighed out to this machine.

explanation of this is that a large percentage of skim-milk passed into the cream, probably about 50 per cent. of the whole milk supplied to it. In plain language, this machine absolutely failed to carry out the very first element in a separator, viz.: to separate the skim-milk from the cream, and, for the purposes of butter-making, it would have been cheaper to have churned the whole milk, instead of having the expense of separating.

The A Danish, showing rather above the standard of fat left in the skim-milk—though not so high as the De Laval in the cream—there is still a large percentage of skim-milk, leaving the cream of poor quality.

The C Danish, being the smallest of the Danish machines, and looking like a toy beside the leviathan A machine, shows a very large percentage of fat in the skim-milk (about $2\frac{1}{2}$ times as much as the De Laval); and, though the cream is better in this than in either of the other Danish machines, it must still be declared poor, considering the quality of the whole milk separated, and, like A and B machines, shows skim milk mixed with the cream. From what has been said about the mixture of skim-milk with the cream in the Danish machines, it will be apparent that the quality of the cream, as it ran from these separators, was decidedly inferior. This point had the special attention of the judges, as it is an important one where the sale of cream is an object. The machines were tried as to their capability of producing thick or thin cream at pleasure; and, whilst the De Laval proved itself capable of doing this, the Danish proved themselves incapable of doing it; in fact, the operator tried to produce thick cream at the request of the judges, but failed.

TEMPERATURE.

5. The next point was the temperature at which the milk was separated. This is a very important one, as upon the lowness of the temperature at which the milk is separated depends the keeping quality of the skim-milk and of the cream; and, where the sale of the skim-milk and cream is an important item, the lowness of temperature in separating is a *sine qua non*, as, where the milk is separated at a high temperature (as was done in the B and C Danish), the skim-milk and cream will be liable to go sour very quickly.

The De Laval and the A Danish separated the milk at the low temperature of 62 deg., but the B and C Danish separated at the high temperature of 88 deg. and 74 deg. respectively. It is claimed that these Danish machines can separate at 40 deg. If so, then why was it necessary to separate at the high tem-

perature they did? and how was it that at these temperatures they turned out such inferior work, as it is a well-known fact that separators do their work more completely under a high than under a low temperature?

TIME.

6. As regards the next point—the time taken in separating—the judges preferred, under the circumstances, to have a given quantity passed through the separators, instead of separating by time. The objection urged against this is, that whilst it is the *specialite* of one machine to show the best results in a short working, the other only does it in a long working. But surely this reasoning is false. The machine that gets quickest into its working is the best for farmers.

7 The seventh point—the quantity of milk required to work each separator—is practically not of so much importance, because each separator, whatever its size, works out the last contents by using skim-milk to finish with. But the judges thought it necessary to weigh the last contents for information, and to see how easily the drum could be emptied if it was found necessary to do so.

8. As regards the eighth point—the cost—having regard to the quality of the work done, the De Laval was the cheapest, or rather the most worth the money; and as regards the cost of fixing them, there seemed little to choose between them. All machines traveling at a high rate of speed require a firm foundation, and it is very false economy to pinch the expense in this particular.

9. The ninth point—revolution—there seems, so far as experience has gone, no practical evil resulting from the high speed at which the De Laval machine rotates, and we are rather inclined to regard the difference in speed between De Laval and the Danish as more apparent than real, depending upon the size of the drum. But this is a question more for mechanical engineers to solve. But, with this high speed, comes the question of safety, and all the machines were made strong enough for the work they had to perform.

The Danish exhibited a contrivance for raising the skim-milk to a higher level, and succeeded in lifting it 9 feet 2 inches, and it probably would have been able to have lifted it higher had pipes been prepared for that purpose. It is simply the elongation of the pipes that conveys the skim-milk from the separator drum. This power of raising the milk would be very useful in factories where large bodies of milk are in daily passage, but what effect the weight of such a column of milk would have upon the separating power of the machine there was no time or opportunity for testing.

This raising the milk seemed to be applicable to all the Danish machines, and was a point in their favor.

POWER.

10, etc. On the question of the adaptability for working by horse-power, it was not thought necessary to test the machines, as the Council did not desire that the power required to work each machine should be noticed; and there is no doubt that all the machines are suitable for working by horse-power, as, at the Royal Agricultural Show at Shrewsbury this year, both the De Laval and the Danish were worked by horse-power satisfactorily, and the judges therefore confined their attention to examining the intermediate motion, with a view to seeing what arrangement was made for counteracting the effect of the uneven paces of the horse. In the De Laval this was met by the arrangement of two friction pulleys, which worked together or independently, according to circumstances, and seemed to answer the purpose. In the Danish there was a simple clutch action on the shafting, which also answered perfectly the object desired.

THE DE LAVAL BEST.

In summing up the results of these remarks, it will be noticed that, though the De Laval and the Danish machines are on an equality as regards some of the minor points, in regard to the essential points of construction, separation, temperature and quality of cream, and analysis of cream, the De Laval was far ahead of its opponents, and quite deserved the gold medal given by the Council. The power of raising the skim milk after separation to a higher level seemed to entitle the large Danish to a second prize, but the failure to separate the milk satisfactorily debarred the other Danish machines from any further recognition.

The excellent paper on the American Flora, read by Professor Asa Gray in the Biological Section of the British Association for Advancement of Science at Montreal, has been printed *in extenso* in the *American Journal of Science*, so that we are now able to give our readers the benefit of it. It will be regarded as a treat by everyone who takes the slightest interest in plants and their ways:—

“When the British Association, with much painstaking, honors and gratifies the cultivators of science on this side of the ocean by meeting on American soil, it is but seemly that a corresponding member for the third of a century should endeavor to manifest his interest in the occasion and to render some service, if he can, to his fellow-naturalists in Section

D. I would attempt to do so by pointing out, in a general way, some of the characteristic features of the vegetation of the country which they have come to visit,—a country of “magnificent distances,” but of which some vistas may be had by those who can use the facilities which are offered for enjoying them. Even to those who cannot command the time for distant excursions, and to some who may know little or nothing of botany, the sketch which I offer may not be altogether uninteresting. But I naturally address myself to the botanists of the Association, to those who, having crossed the wide Atlantic, are now invited to proceed westward over an almost equal breadth of land; some, indeed, have already journeyed to the Pacific coast, and have returned; and not a few, it is hoped, may accept the invitation to Philadelphia, where a warm welcome awaits them—warmth of hospitality, rather than of summer temperature, let us hope; but Philadelphia is proverbial for both. There opportunities may be afforded for a passing acquaintance with the botany of the Atlantic border of the United States, in company with the botanists of the American Association, who are expected to muster in full force.

What may be asked of me, then, is to portray certain outlines of the vegetation of the United States and the Canadian Dominion, as contrasted with that of Europe; perhaps also to touch upon the actual causes or interior conditions to which much of the actual differences between the two floras may be ascribed. For, indeed, however interesting or curious the facts of the case may be in themselves, they become far more instructive when we attain to some clear conception of the dependant relation of the present vegetation to a preceding state of things out of which it has come.

“As to the Atlantic border on which we stand, probably the first impression made upon the botanist or other observer coming from Great Britain to New England or Canadian shores, will be the similarity of what he here finds with what he left behind. Among the trees the White Birch and the Chestnut will be identified, if not as exactly the same, yet with only slight differences—differences which may be said to be no more essential or profound than those in accent and intonation between the British speech and that of the “Americans.” The differences between the Berches and Larches of the two countries are a little more accentuated; and still more those of the Hornbeams, Elms, and the nearest resembling Oaks. And so of several other trees. Only as you proceed westward and southward will the differences overpower the similarities, which still are met with.

"In the fields and along open roads the likeness seems to be greater. But much of this likeness is the unconscious work of man, rather than of Nature, the reason of which is not far to seek. This was a region of forest, upon which the aborigines, although they here and there opened patches of land for cultivation, had made no permanent encroachment. Not very much of the herbaceous or other low undergrowth of this forest could bear exposure to the fervid summer's sun; and the change was too abrupt for adaptive modification. The plains and prairies of the great Mississippi Valley were then too remote for their vegetation to compete for the vacancy which was made here when forest was changed to grain-fields and then to meadow and pasture. And so the vacancy came to be filled in a notable measure by agrestial plants from Europe, the seeds of which came in seed-grain, in the coats and fleece and in the imported fodder of cattle and sheep, and in the various but not always apparent ways in which agricultural and commercial people unwittingly convey the plants and animals of one country to another. So, while an agricultural people displaced the aborigines which the forest sheltered and nourished, the herbs, purposely or accidentally brought with them, took possession of the clearings, and prevailed more or less over the native and rightful heirs to the soil,—not enough to supplant them, indeed, but enough to impart a certain adventitious Old World aspect to the fields and other open grounds, as well as to the precincts of habitations. In spring-time you would have seen the fields of this district yellow with European Buttercups and Dandelions, then whitened with the Ox-eye Daisy, and at mid-summer brightened by the cerulean blue of Chicory. I can hardly name any native herbs which in the fields and at the season can vie with these intruders in floral show. The common Barberry of the Old World is an early denizen of New England. The tall Mullein, of a wholly alien race, shoots up in every pasture and new clearing, accompanied by the common Thistle, while another imported Thistle, called in the States "the Canada Thistle," has become a veritable nuisance, at which much legislation has been leveled in vain.

"According to tradition the wayside Plantain was called by the American Indian "White-Man's foot," from its springing up wherever that foot had been printed. But there is some reason for suspecting that the Indians' ancestors brought it to this continent. Moreover there is another reason for surmising that this long-accepted tradition is fictitious. For there was already in the country a native Plantain, so like *Plantago major*

that the botanists have only of late distinguished it. (I acknowledge my share in the oversight.) Possibly, although the botanists were at fault, the aborigines may have known the difference. The cows are said to know it. For a brother botanist of long experience tells me that, where the two grow together, cows freely feed upon the undoubtedly native species, and leave the naturalized one untouched.

"It has been maintained that the ruderal and agrestial Old World plants and weeds of cultivation displace the indigenous ones of newly-settled countries in virtue of a strength which they have developed through survival in the struggle of ages, under the severe competition incident to their former migrations. And it does seem that most of the pertinent weeds of the Old World which have been given to us may not be indigenous even to Europe, at least to Western Europe, but belong to campestre or wooded regions farther east; and that, following the movements of pastoral and agricultural people, they may have played somewhat the same part in the once forest-clad Western Europe that they have been playing here. But it is unnecessary to build much upon the possibly fallacious idea of increased strength gained by competition. Opportunity may count for more than exceptional vigor; and the cases in which foreign plants have shown such superiority are mainly those in which a forest-destroying people have brought upon newly-bared soil the seeds of an open-ground vegetation.

"The one marked exception that I know of, the case of recent and abundant influx of this class of Old World plants into a naturally treeless region, supports the same conclusion. Our associate, Mr. John Ball, has recently called attention to it. The pampas of Southeastern South America beyond the Rio Colorado, lying between the same parallels of latitude in the South as Montreal and Philadelphia in the North, and with climate and probably soils fit to sustain a varied vegetation, and even a fair proportion of forest, are not only treeless, but excessively poor in their herbaceous flora. The district has had no trees since its recent elevation from the sea. As Mr. Darwin long ago intimated: "Trees are absent not because they cannot grow and thrive, but because the only country from which they could have been derived—tropical and sub-tropical South America—could not supply species to suit the soil and climate." And as to the herbaceous and frutescent species, to continue the extract from Mr. Ball's instructive paper recently published in the Linnæan Society's Journal, "in a district raised from the sea during the latest geological

period, and bounded on the west by a great mountain range mainly clothed with an alpino flora requiring the protection of snow in winter, and on the north by a warm-temperate region whose flora is mainly of modified sub-tropical origin—the only plants that could occupy the newly-formed region were the comparatively few which, though developed under very different conditions, were sufficiently tolerant of change to adapt themselves to the new environment. The flora is poor, not because the land cannot support a richer one, but because the only regions from which a large population could be derived are inhabited by races unfit for emigration."

"Singularity enough, this deficiency of herbaceous plants is being supplied from Europe, and the incomers are spreading with great rapidity; for lack of other forest material even apple-trees are running wild and forming extensive groves. Men and cattle are, as usual, the agents of dissemination. But colonizing plants are filling, in this instance, a vacancy which was left by nature, while ours was made by man. We may agree with Mr. Ball in the opinion that the rapidity with which the intrusive plants have spread in this part of South America "is to be accounted for, less by any special fitness of the immigrant species, than by the fact that the ground is to a great extent unoccupied."

"The principle applies here also; and in general, that it is to opportunity rather than specially acquired vigor that has given Old-World weeds an advantage may be inferred from the behavior of our weeds indigenous to the country, the plants of the unwooded districts—prairies or savannas west and south.—which, now that the way is open, are coming in one by one into these eastern parts, extending their area continually, and holding their ground quite as pertinaciously as the immigrant denizens. Almost every year gives new examples of the immigration of campestre western plants into the Eastern States. They are well up to the spirit of the age; they travel by railway. The seeds are transported, some in the coats of cattle and sheep on the way to market, others in the feed which supports them on the journey, and many in a way which you might not suspect, until you consider that these great roads run east and west, that the prevalent winds are from the west, that a freight-train left unguarded was not long ago blown on for more than one hundred miles before it could be stopped, not altogether on down grades, and that the bared and mostly unkept borders of these railways form capital seed-beds and nursery grounds for such plants.

"Returning now from this side-issue, let me advert to another and, I judge, a

very pleasant experience which the botanist and the cultivator may have on first visiting the American shores. At almost every step he comes upon old acquaintances, upon shrubs and trees and flowering herbs, mostly peculiar to this country, but with which he is familiar in the grounds and gardens of his home. Great Britain is especially hospitable to American trees and shrubs. There those best of the eastern and western side of our continent flourish side by side. Here they almost wholly refuse such association. But the most familiar and longest-established representatives of our flora (certain western annuals excepted) were drawn from the Atlantic coast. Among them are the Virginia Creeper or Ampelopsis, almost as commonly grown in Europe as here, and which, I think, displays its autumnal crimson as brightly there as along the borders of its native woods, where you will everywhere meet with it; the Red and Sugar Maples, which give the notable autumnal glow to our northern woods, but rarely make much show in Europe, perhaps for lack of sharp contrast between summer and autumn; the ornamental Ericaceous shrubs, Kalmias, Azaleas, Rhododendrons, and the like, specially called American plants in England, although all the Rhododendrons of the finer sort are half Asiatic, the hardy American species having been crossed and recrossed with more elegant but tender Indian species.

"As to flowering herbs, somewhat of the delight with which an American first gathers wild Primroses and Cowslips and Foxgloves and Daisies in Europe, may be enjoyed by the European botanist when he comes upon our Trilliums and Saugunaria, Cyprigediums and Dodecatheon, our species of Phlox, Coreopsis, etc., so familiar in his gardens; or, when, crossing the continent, he comes upon large tracts of ground yellow with Eschscholtzia or blue with Nemophilus. But with a sentimental difference; in that Primroses, Daisies, and Heaths, like nightingales and larks, are inwrought into our common literature and poetry, whereas our native flowers and birds, if not altogether unsung, have attained at the most to only local celebrity."

(To be continued.)

GREEN & WHINERAY, Liverpool, send us circular under date 27th December, as follows, in reference to their Apple sales:

Our sales have been much interfered with this week owing to Xmas holiday, and consequently auctions have only been held on Monday and Tuesday, the result of this has been very disappointing. The trade bought largely last week in anticipation of a Xmas demand. Sales in

inland towns have been unsatisfactory, dealers being left with large stocks on hand. Consequently attendances at auction have been poor, and with large quantities of fruit offering and few buyers, the results have been very low prices, as the fruit, owing to its tender condition, had to be sold.

The following quotations are for tight barrels:—

Baldwins, Boston	10s. to 11s. 6d.
" New York	9s. " 12s.
" Canadian	11s. " 12s.
Greenings	10s. " 10s. 6d.
N Spy	8s. " 11s.
Newton Pippins, Prime	14s. " 16s.
" Ordinary	9s. " 11s.
" Common	7s. " 8s.
Rox Russets	10s. " 12s.
Golden Russets	11s. " 12s.
Slack Packed	7s. 6d. to 10s.
Slack and Wet	5s. 6d. " 7s.

Arrivals for the week are as follows:—

	BARRELS.
Boston, ex Borderer	4,956
" ex Virginian	650
" ex Pavonia	1,471
New York, ex Adriatic	1,777
Halifax, ex Sardinian	3,254
Total arrivals for Week	12,103
" to Date	343,743

It may surprise some of our readers to hear of an "Ensilage Exhibition," but English agriculturists are so thoroughly practical that wherever there is a chance to promote agricultural industry something in the shape of an exhibition, or lecture, or meeting, or dinner, or display of some kind, is got up to arrest the attention of the public. The results of the ensilage exhibits in London are thus given by the editor of the *Agricultural Gazette*:—

"Never has there been a more perfect illustration of what may be called a new industry than the series of samples, generally over one cubic foot each, which have been exhibited in Museum Street during the past week. About one half of all the known silos in the kingdom have sent of their contents; and, thanks to the enthusiasm of Mr. Kains-Jackson, and the liberality of the proprietors of *The Field*, of Mr. W. J. Haine, M. P., Messrs. Carter, the Dairy Supply Company, and others, a really complete illustration has been given of the results of the new process, as we may call it, of "saving" succulent food for the live stock of the farm. Green corn, rye, rye-grass, trifolium, peas, tares, maize, &c., chopped and unchopped, are all exhibited in blocks or boxes; and after five or six months' pressure in a silo, they have come out not only edible and acceptable, but wholesome and attractive food. The judges of the large series of specimens had them arranged in two series, for the number received was so large that, after the first instalment had been dealt with, another set of prizes were allotted to late comers. They competed in six classes,

allotted respectively to (1) unchaffed grass ensilage; (2) unchaffed clover and rye-grass ensilage; (3) chaffed maize ensilage, of which six specimens appeared; (4) chaffed oats, rye, or other corn ensilage; (5) trifolium, tares, and other soft-leaved plant ensilage; and (6) mixed substances used as ensilage, chaffed or unchaffed. Whatever added value is given to a prize list by publication is well deserved in this case, for the competition has been very large indeed, and the competitors have responded heartily to Mr. Kains-Jackson's public spirit. The catalogue, which has been published, gives a good deal of useful information. The date of cutting and ensiling, the mode and quantity of weighting, and the date of opening the silo, are stated with reference to each silo, and the estimated cost of "making" per ton is also given. This varies from 1s. 6d., in the case of Mr. G. Broderick of Richmond, Yorkshire, to 10s. and 15s. in other cases. How these discrepancies have arisen does not appear, but they are probably due to the charge of the silo itself appearing in the costly cases and not being included in the others. The samples were many of them sweet and hay-like, both in appearance and smell; in others they were strongly aromatic; and in a few mouldy and offensive. The champion prize goes to Mr. Swan of Stonefield, Lincoln, for a sample in the sixth of the above-named classes—"mixed substances as ensilage, chaffed or unchaffed." The crop was cut on June 10th, &c., and ensiled at once. It was compressed by four layers of bricks. The silo was opened on October 13th, and the silage cost 20s. a ton, "including rent." It is very sweet and good. Mr. Fry's samples of clover and of unchaffed clover and rye-grass, prepared on his plan of first allowing the contents of the silo to heat before submitting them to pressure, were very satisfactory. A sample, sent too late for competition, of chaffed oats, clover, and grass, on which the pressure had been given by Stock's patent screw press, was also remarkably good. The Dairy Supply Company have done a great public service by giving accommodation to this display at some little risk to themselves, for the aroma of the silo is not the most desirable thing to meet as you enter a milk shop."

The official Prize List follows, but would not be of interest to our readers.

"UMBOSHI" is not one of the delicacies in common use in Nova Scotia. Why should we not use Umboshi? Umboshi is not used by anybody except the Japs, and their Commissioners at the Health Exhibition in London thus instruct the world how to make it: Umboshi is simply salted and dried plums.

The plums are put into a tub and salt added, after ten days they are turned over when the same process is gone through. After the plums are kept in the brine thirty days, they are arranged on straw mats and exposed to the sun for seven days. A native plant (*Perilla arguta*) is dipped into the plum brine juice, which is exposed to the sun again for several days. The color changes to a beautiful red. Exposure to the open air for two nights removes the sourness, and a very delicious flavor is produced. Preserved in an earthen jar and closely sealed with a thick paper cover, this preparation will keep for over ten years. The taste remains unchanged, even to the palates of those suffering from high fever, or of those whose sense of taste has been impaired.

In Japan it is kept in almost every house as a home remedy. The process for making it appears to be simple enough, the great difficulty seems to be the introduction of "Umiboshi" as a household word among people who don't know the Japanese language. Those who prefer, may call it Plum Krout.

ONE of the questions that has exercised farmers all over the world of late years has been: In what form may milk be most profitably sold? As cheese, or butter, or pork, or fat calves, or store stock, or condensed milk, or simply as "Milk"? The general conclusion arrived at is, that milk, pure and simple, is the most profitable form in which milk can be sold. But there are practical difficulties in getting such a perishable article to market. Thirty years ago the English Railway Companies came to the rescue, and conferred a national benefit by running special milk trains; they have profited largely by their far-seeing benevolence. Is it too much to expect that our railways can be induced to do some thing more than is now being done to develop a milk trade, and that some infinitesimal proportion of the ton of shipping which every man, woman and child owns, may not be used in carrying the healthy produce of our rich Nova Scotian pastures to the great cities of the American continent. We are apt to credit the Dutch people with being slow, but we do not disclaim to profit by their example, and we have profited largely. Most of the garden and field tools used the world over were invented by the Dutch; we owe to them originally our European small fruits and garden vegetables; the Dutch cattle are now coming forward as dairy stock; Dutch cheese has been a staple commodity time out of mind. And now, we Nova Scotians, like the rest of the world, are to have a Dutch example in milk commerce set before us that will be well worthy of imitation. A

meeting of nearly a hundred farmers and persons engaged in industrial pursuits has been held at Hoorn, in the province of North Holland, to discuss the project of Messrs. Scheuer, from Amsterdam, and others, for the establishment of a London Dairy Supply Association. The intention is to build four snips of 720 tons each, which will convey daily 100,000 litres of fresh Dutch milk to Harwich from Amsterdam, whither it would be taken in ice-waggons of the Dutch Railway Company, and ice would be also employed in the carriage from Harwich to London. The *Société Anonyme* would have a capital of 1,700,000 guilders, and its promoters urge that if only 100,000 litres of milk could be sold in London at the price of 2½d. per litre there would be a revenue of 412,500 guilders per annum, or 24 per cent. upon the capital. The milk would be despatched without mixture of water, by special trains, and sold to a certain number of agents in London, who would sell it in smaller quantities at far lower prices than are at present charged. The enterprise appears likely to be carried out.

THE *Agricultural Gazette* reports that at last meeting of the London Society of Arts Mr. A. Jurgens discussed and described the manufacture of butterine, declared the necessity of the article to supply a growing demand, and praised it as both cheaper and as keeping longer sweet than butter. "From our factories," he says, "we send an average of 150 tons per week of oleomargarine butter to England." Fifteen million of dollars worth was exported from Holland alone last year, and the trade is growing.

It is evident that in Nova Scotia we are as far behind the Dutch in the oleomargarine business as we are in the milk trade.

AMONG the cheerful signs of coming Christmas time, the observing Halifax citizen observes the life and activity at the several meat markets, and the beaming countenances of the farmers from the country, who benevolently bring in the plump geese and turkeys, the stalled ox, and the fat-encased black-faced wether. We observe by the English papers that this old custom of the country people providing good Christmas cheer for the hungry citizens of towns is not confined to the farmers of our own province, but is even participated in by right Royal personages. The Queen's Christmas fat stock was sold at Prince Consort's Shaw Farm, Windsor, by Messrs. Buckland & Sons. The stock consisted of 50 Hereford and Devon bullocks, 500 Wether Down and Cheviot sheep, and 190 bacon hogs and porkers. The Duke of Connaught had 11 fine

beasts included in the sale. There was a large company present from all parts of the kingdom, but the prices realized were not as high as in former years. The Queen and Princess Beatrice drove from the Castle, and visited the stock previous to the sale. The Royal baron of beef which graced her Majesty's table on Christmas day was cut from a prime Shorthorn, bred and fed by Her Majesty at Prince Consort's Shaw Farm, Windsor. The joint weighed upwards of 300 lbs., was roasted at the Castle, and forwarded to Osborne.

THE Royal Agricultural Society of England numbers 9,024 members at the present time. The Shrewsbury show added \$7,500 to the society's surplus this year. A Poultry Show is to be held at Preston. The President, Sir Massey Lopes, offers valuable prizes for the best silo. Forty candidates appeared in competition for the society's scholarships, to be decided by competitive examination in Scientific Agriculture, — of whom fifteen were successful. Pity we cannot have agricultural scholarships in Nova Scotia, and prizes for siloes, and for dairy-maids, male or female, as the Royal Society of England has, and a hundred other things.

Advertisements.

Resolution of Provincial Board of Agriculture, 3rd March, 1882.

"No advertisements, except official notices from recognized Agricultural Societies, shall be inserted in the JOURNAL OF AGRICULTURE in future, unless PREPAID at rate of 50 cents each insertion for advertisements not exceeding ten lines, and five cents for each additional line."

\$2,000 CASH PRIZES

Are offered to the various Agricultural Societies of New Brunswick, Nova Scotia, and Prince Edward Island; also, prizes to all Farmers in New Brunswick, for the

Best Yield of Roots, &c., Next Year.

Entries to be made by the 15th January, 1885.

For further particulars apply, by letter, to the SECRETARY, Canada's Chemical Manure and Fertilizer Company, Rothesay, New Brunswick.

By Earlton Agricultural Society, a Thorough Bred Short Horn Durham Bull.

JOHN ROSS, President.
ALEX. S. ROSS, Secretary.

WANTED TO PURCHASE.

BY the Mahone Bay Agricultural Society, on or about the 15th April, A Thorough bred Short-horn Durham Bull, age about 12 months. Parties having bulls for sale please name price.

E. B. HYSOON, President.
E. KEDDY, Secretary.

Mahone Bay, Lunenburg Co., Jan. 1, 1885.

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Grade Dorsetshire Down Ram Lambs, ready for service;

ONE THOROUGH BRED DITTO;

Also, young Berkshire Pigs.

ARTHUR F. GURNEY,
Wick House, near Turo.

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