

state of breeding horses in the province of Quebec.

After a few words on the history of the French-Canadian horses, concerning which we know positively nothing except that they came from Normandy, at a time when three breeds were then in vogue there; the Percheron, the predominant one, the Augeron, and the Merlerault-Cotentin; the author proceeds to say that the Canadian mares have been subjected to crossings of "even a detestable kind," leading to their degeneration, by the use of Percheron and Anglo-Norman stallions.

"Degeneration", yes, the word is there. As for telling us why three-fourths of the province are to limit themselves, according to him, to the production of the cob for local use, that he describes to us, and to leave to the other fourth, as in Ontario, the "degenerative process" that produces "the horse fit for the market, the author does nothing of the sort. He clearly belongs to the school, becoming less numerous every day, according to which our habits are not to try to breed horses for sale on the great Montreal market which supplies itself from Ontario or for that of the Northern States—that gets part of its horses from the Eastern Townships—but are bound to confine themselves to the breeding of good little horses for country use.

An error that would be costly and ought not to be allowed in these times when one has just seen such splendid exhibitions of horses at Toronto, and, again, at New-York, to say nothing about the five or six hundred picked specimens at the Montreal show! True, for our winter roads in the North, we ought to try to produce the Canadian "Morgan," on the St-Lawrence, for instance, the most useful of all our rural luxuries; but, just as we export our butter and cheese, so we ought to try to breed the style of animal now in demand, even in this bitter crisis; I mean the powerful draught horse with pace enough in his trot, and the high-stepping carriage-horse. These two styles, we are, partially, on the eve of producing through our Percherons and Normans, just as, in the Eastern-Townships, now almost the only exporting district, they began with the Clydes and a few Hambletonians. Do you need a proof of this? In spite of the loose (1) product of a first cross, look at the seals got by Brillant Blue and Clément, now stationed at Montreal and l'Assomption, or Holophrone and Maltôt, now at Montreal and Howick.

After an insinuation that the Percherons "are often of Belgian origin"! an allegation that was refuted so long ago as to be unworthy of our notice, the author at last speaks of the Belgian market—revived in part by the Ardennais horse. Now, the present Ardennais was bred by a double cross "métissage à deux" (some Anglo-Normans, among others, being used); which plan has been praised in our province for the last five years; the first results having been inferior, the second better, and the last remarkably good. And this is precisely what we wish to do in Quebec.

I shall not talk about the importation of Belgian horses; they have been tried in the States, and that point is settled. I will only add, that, written probably in a hurry, the chapter on horses in Canada puts forward sensible

(1) "Décousu," here translated "loose-products," we take to mean that the progeny of the cross has nothing defined about it. It means, literally, "unsewn, unripped."—Ed.

reflections on the peculiar breeding of the ranches, but concludes by entirely forgetting our Quebec breeders by the side of those of Ontario; though, indeed, we are not without breeders, only to mention one whose knowledge of the science of breeding is only equalled by his modesty, M. O. F. Bouthillier, of Ste-Thérèse.

In brief, we can recommend, after personal experience and specially after the experience of others, the following system of crossing to our breeders of horses, with an assurance of unexpected success, if they will first take into account the leading characteristics of their brood mares, and not make the following gradations an "absolute" rule. Be, therefore, prudent, and judge of the relationships (devinez les affinités).

A PERCHERON CROSS

1st generation: Canadian mare and pure Percheron stallion; result, say, a filly-foal 1 x 0.2 0.50.

2nd generation: This filly put to a half-bred Percheron of the country: result, say, a filly-foal 0.50 x 0.50-2 0.50.

3rd generation: This filly put to an English thoroughbred, if she shows hereditary signs of her dam: result, say, a filly-foal 0.50 x 1-2 0.75.

4th generation: This filly put to a ¾ or ½ Percheron of the country: probable result, say, a stallion, sire of a settled breed, a fast-trotting draught-horse.

ANGLO-NORMAN CROSS

1st generation: Canadian mare, Anglo-Norman sire: result, say, a filly 1x0.2 0.50.

2nd generation: This filly, with a ¾ Anglo-Norman of the country: result, a filly 0.50 x 0.75 20.625.

3rd generation: This filly, with a pure Pilot-trotter, or a thoroughbred, (English stud-book, Ed.) result a filly 0.625x1-2 0.812

4th generation: This filly, with a ½ Anglo-Norman of the country: result, a "stock" stallion, able to beget showy, powerful and fast carriage-horses.

This is the style to give us reputation and wealth, two divinities that do not always run together: and these results, l'Assomption, Terrebonne, and Hochelaga, with their Percherons, one of which, Clément, is like a big Canadian; and Châteauvauy, Chicoutimi, Terrebonne, Lac St-Jean, and Montreal, with their Normans; all these counties can, indeed they cannot fail to, obtain with time, patience, and above all, with perseverance.

R. AUZIAS TURENNE.

Montreal, March 10th, 1896.
(From the French)

Notes by the Way.

HOPS.—The ex-Bishop of Dunedin, at present Vicar of Preston, a village in the neighbourhood of some of the finest hop-gardens in East-Kent, England, sends us the following notes on the modern way of treating that plant:

"I read with much interest the Agricultural paper that reaches me from time to time especially the little references to the Editor's Kentish experiences. Your paper on Hop cultivation is hardly up to date. The best growers in East-Kent have taken to the wire and string plan. A new plantation of 7 acres has first been arranged on this plan, between the vicarage and the church, at a cost of 400 pounds. It is to be hoped the farmer will see his money back again. But the price of hops is at present ruinously low. We have had a marvellous winter,

i. e., none at all! Everything is abnormally forward, except the cherry trees, pease and plums which are not more advanced than in 1894."

It will be a long time, with poles as cheap as they are in Canada, before our hop-growers are obliged to resort to such a costly way of treating their hops: \$275.00 an acre!

WIREWORMS.—Did any one ever see the young grain plants on a "head and" eaten by the wireworm? No, not even when the rest of the field is scourged by these beasts, the head lands invariably escape. Why? because the pressure of the horses' feet in turning, when harrows and rollers are at work, prevent the wretch from travelling. Crushed rape-cake—not ground into meal, but broken to the size of a hazel-nut—has answered well. The pests gorge themselves and die from repletion: but there is no to be had here. "Rape-cake" is a good manure, so its application is, at any rate, not wasted; but we always found, in England, that a couple of rollings, with Crosskill's clod-crusher, or Cambridge's wheel-roller, stopped the wireworm's ravages better than anything.

ANALYSIS OF SOILS.—We have always held that any analysis of a soil, except by tests of the influence of manurial matters of different kinds upon it, after the practice of Mr. Georges Ville, was not likely to yield any valuable results. Professor Johnson of the Connecticut Experiment-Station confirms me in my opinion.

"Two samples", says he, "were sent to the Station for analysis; one taken from different parts of a 25 acre meadow, the other from a 4 acre lot; to ascertain what fertilisers would be the best for them. The former consists of black, moist earth, a foot deep, with some blue-clay below, on a gravel-bed. The question asked was: Why does not grass grow well on this soil? An analysis showed the presence of all the elements of plant-food, in sufficient quantities, and in as large a percentage as in some of the best wheat-soils of Illinois. Unfortunately, the analysis gave little information respecting the state of availability of the substances found, and gave no clue to the course of treatment for improving it."

As to the 4 acre lot, Prof. Johnson says that, after analysing the soil as represented by the sample, he can find in the figures no satisfactory explanation of its poverty. Everything required by crops is there. Some very rich Western soils are no richer in potash. We have no satisfactory means of learning the availability of the substances present.

FOOD AND FAT IN MILK.—Sir John Lawes, who is supposed to know as much about milk as most people, feeds his 30 shorthorn cows as follows: decorticated cotton-cake 4 lbs.; bran, 3½ lbs.; hay, straw, and chaff, 14 lbs.; mangels, 80 lbs. Average yield of milk per day, 30 lbs.; and then comes the following emphatic statements: There can be no doubt that if the cotton-cake were stopped, the milk would fall off in both quantity and quality; I think you might produce a genuine very poor milk.

Dr Augustus Voelcker, now no more in this world, said in a reply to a question: In my judgment, it is the poverty of the food, rather than the excess of water you mention that the cows drank, that caused the milk of cows fed upon such food to become watery.

BREWERS' GRAINS.—Sixty-odd years ago, one of the great brewers at Burton, tried to make silage of brewers' grains. He filled twenty butts, 108 gallons each, with grains, hot out of the mash-tub, well trodden in by men, a sprinkling of salt every few inches a layer of spent hops over the grains, and a-top of all, a layer of moistened clay. At the end of twelve months, the butts were opened, and the grains were found to be as sweet as when they were "ensiled": for it was ensilement and nothing else, though the term was unknown then.

MANURE VALUE OF FOODS.—All calculations of the money value of the manure derived from the food given to cattle are based on the market values of nitrogen, phosphoric acid and potash. But it is very remarkable that the fact that only about half the manurial constituents of the food consumed is available to crops should have been commonly ignored in reports on feeding experiments. What is the use, too, of quoting the table of manurial value of Lawes and Gilbert, published some years ago, as if it were still authoritative, whereas, owing to the fall in the price of manures, the values given in that table are much too high. Sulphate of ammonia that in 1886 sold in Liverpool for £10. 10s. 0d., can now be bought for £8. 0s. 0d., (\$50.00—\$39.00) the ton of 2240 lbs.) Superphosphate that in the above year fetched £2. 13s. 6d., is now worth only £2. 0s. 0d. A fall, in the one case of 18 p. c., and in the other of 25 p. c.

Again, no one, we hope, supposes that a potential pound of nitrogen, or of phosphoric acid, is worth as much in farmyard dung as it is in sulphate of ammonia, nitrate of potash, or superphosphate; for MM. Lawes and Gilbert, in 1886, specifically stated in their table that all these calculated figures should be "halved", if the actual money value of the manure is in question. The object of this reduction is to cover two depreciating facts: first, the losses occurring to the manure before it reaches the land; and second, the best availability of farmyard manure to plants as compared with the artificial manures on the basis of which it is valued.

The nitrogen in farmyard manure is only partially available. Wagner, the great German experimenter, found that 50 lbs. of nitrogen in sulphate of ammonia, or 45 lbs. in nitrate of soda, produced the same effect on a crop as 100 lbs. of nitrogen in farmyard manure.

And yet some theorists try to make out that the money value of the manurial constituents of, say, cotton-cake, is even rather more than the market price of the cake itself!

RAPE.—Mr. Moore, of Moore's Station, writes us word that he intends to try a piece of rape for his sheep. Well, if he tries it properly, he will thank us for our advice. Sown about the 15th May, it should be fit for feeding off by about the 10th July.

LUCERNE.—The growth of this plant is already very astonishing. On the Seminary farm, a small "lisière", or border, of it, on the roughest piece of land, not half seed enough sown, in 1895, encumbered with stones, and unmanured, has made the following progress in 7 days. April 23rd, it measured 2 inches in height; April 27th, 4½ inches, and, to-day, April 30th, 8½ inches (1

(1) And on May 15th, 29 inches, and was fit to mow for green-meat.—Ed.