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THE ILLUSTRATED JOURNAL OF AGRICULTURE

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MONTREAL, JULY 1879.

No. 3.

AGRICULTURE.

WHAT IT IS IN THE PROVINCE OF QUEBEC.

The art of Agriculture may be thus defined: to make the earth produce, without exhaustion, the greatest possible net revenue. In order to arrive at this result it is necessary: 1st. To remove everything that may hinder cultivation—such as trees, roots, brushwood, stones, &c. 2nd. To free the soil from any excess of water which might prove injurious to the growing crop. 3rd. To pulverise the ground so that the seed may be properly covered, and that the roots may easily find the food necessary to their proper development. 4th. To enrich the soil, by restoring to it the fertilising matters which the harvests have removed, and by adding to it that which may be wanting for the fit nourishment of the plants intended to be sown. 5th. To destroy, as much as possible, all weeds. 6th. To sow, under the most favourable conditions, the best seed of the best sorts of the different farm crops; and, lastly; to make the best use of the crops, when they are grown, whether by selling them in their natural state, or by transforming them into other shapes, equally the production of agriculture, but of greater value.

This short description, universal in its application, will help us to establish more clearly, and more surely, the doctrines of the art of agriculture in Canada. It will also help us to find out the means we ought to take to improve the cultivation of our country.

During the last fifty years, an emphatically notable progress has been made in our art. By means of hollow channels placed three or four feet below the surface, *drainage* has succeeded in removing from the soil all the superabundant water retained at that depth and, by that means alone, the yield has been, in many places doubled, and, in some places, trebled; the land, at the same time, being more easily worked, and the expense of cultivating it lessened. By drainage, soils of a wet and compact nature become friable, lighter, and susceptible of cultivation even in damp seasons. The subsoil, instead of remaining cold and wet, and as impermeable to the roots of the plants as a rock; after drainage, is found to be dry, manageable, and easily pulverised; besides, the water, in leaving the soil, forms various interstices through which penetrate the air, the rain, the dew, the heat, and all the different fertilising matters they bring in their train. The subsoil, thus rendered spongy, so to speak, retains its proper degree of humidity ready to restore moisture to the surface when it is required. The entire mass of soil above the drains thus becomes an immense laboratory, where the food necessary for the proper sustenance of the crop is chemically prepared, and the drainage, moreover, by freeing the land from excess of water at all times, winter as well as summer, allows the warmth of the air to penetrate the ground from the beginning of the spring, instead of compelling the earliest powers of the re-invigorated Sun to expend their force in drying up the superfluous moisture, producing

thereby, through their evaporative influence, intense cold, instead of genial heat. Thus the concentrated warmth of the subsoil during summer remains, like a balance at a Bank, liable to the cheques of autumn, and the seasons are, in this way, made longer by several weeks; in itself an incalculable benefit in our climate.

As a sequel to drainage comes subsoil ploughing, which doubles the depth of the root-pasture, and increases, in many ways, the productive powers of the upper soil.

As to the modern improvements in the breeds and races of domestic animals they are positively astounding. Beef, mutton, pork, and wool, are all grown more easily, in a shorter time, and with greater economy of food. Science, too, has given herself of late years to the study of practical agricultural questions, and to her, as we have observed before, are due our thanks for the discovery of artificial manures, and for improvements in the system of feeding animals by which the time and expense devoted to their preparation for market are reduced. Nor are the products of the Dairy, less indebted to the labours of scientific men than the larger implements of the modern farm; by them the work of our Sisters has been sensibly alleviated, by the largely employed churns of improved construction; what we should have done without the new implements, in the scarcity of labour prevalent in the past few years, is known to no one.

Canada has not been slow to seize upon these advantages. She possesses a fair number of farmers who avail themselves of them. The Cochranes, the Beattys, the Snells, and others, have distinguished themselves, as breeders, in Europe and in the United States. The finest specimens of Shorthorns have been produced in our Province. Mr. Cochrane, as may be seen in the European newspapers, has lately sold in England, by auction, a heifer, six months old, for the almost incredible sum of \$21,525.

Canadian bred horses, too, enjoy no mean repute, and many of them have been exported to Europe. They are so favourably looked upon there that we may fairly expect a large and profitable trade in these animals will be done in future.

During the last two years, the exportation of live stock has assumed gigantic proportions; and this, being clearly a profitable business, must lead to a great increase in the breeding and rearing of such animals; but, in spite of the spirited efforts of some few of our countrymen whose herds are not unworthy rivals of their English cousins, we have still much to learn, and still more to unlearn, before we can expect to reap our full harvest of profit from the exportation of our homebred animals. Not less extraordinary has been the increased quantity of Canadian cheese sent abroad. This article, always in demand, deserves all the attention of the farmer; but, like our butter, its manufacture still leaves much to be desired. As for the last named product of the dairy, it can hardly be satisfactory to know that, in the English market, the butters of Normandy, Sweden and Den

mark fetch, commonly, twice the price of Canadian butters. Do you ask what is the reason? The answer is plain—the northern nations of Europe take the greatest possible pains in preparing their produce for market; whilst, on the other hand, Canadians seem to be shamefully careless about theirs. In the different provinces of the Dominion, especially in Ontario, may be seen many well cultivated farms which would bear comparison with those of any other country, and which are frequently cited as models by the leading agricultural journals of the United States.

In the Province of Quebec a great improvement has been observed during the last few years. In many a parish may be pointed out farmers who display a laudable ambition in ameliorating their cultivation, and in improving upon the practice of their neighbours. Even among the, comparatively, well to do, men may be seen who have earned all they possess by their own industry, and their strict economy, examples followed, in no few instances, by the general mass of their friends, and by the surrounding farmers.

Sad as it is, truth demands that we should acknowledge that these men are not numerous. The greater part of the French-canadians have not yet entered upon the road of progress; the larger part of our soil produces not one third of its ancient returns; many a family is growing poorer and poorer, and, without a complete change in the system of cultivation, will be reduced to the dire necessity of surrendering to others the property that their ancestors bequeathed to them after having lived upon it in the enjoyment of all the necessaries of life from generation to generation.

It is easy to prove that, formerly, our land yielded from 25 to 40 bushels of wheat per acre. To day, the average is about 9 bushels; where the old fashion of growing wheat every second year without manure obtains, the yield is from 4 to 5 bushels—take the long settled parishes of the Saguenay, for instance—and all other crops have diminished in a most lamentable degree.

Why should this be? We do not hesitate to affirm that the cause lies in the almost general ignorance, or forgetfulness, of the elementary principles of the art of agriculture among the French-canadian population. Not that they are wanting in intelligence—no people excel them in practical good sense, in sound judgment, or in intellectual power, but, unfortunately, our rural population has never had a chance to acquire the true principles of the art of which we are treating, and it never will have the chance without a great and serious effort on the part of those whose duty it is to enlighten them.

Our ancestors were, for the most part, artisans, soldiers and sailors. To induce them to apply themselves to the cultivation of the soil great temptations, on the part of the authorities, were needed. To attach them more firmly to their farms laws were passed which prevented, as much as possible, any change in the ownership of the land, and retained, almost forcibly, the colonists in the country. No where do we read in history of any attempts made by individuals to improve the cultivation of the soil—it is to Louis XIV, and to Colbert, that all the ameliorations that were made are due, and, after their time, all these ameliorations becoming the business of no one were utterly lost sight of. (1)

The produce of the soil, after its first clearing, exceeded the dreams of avarice. The riches accumulated in the land since the creation sufficed for the wants of a luxuriant vegetation during several successive years; and, when the years of diminished yield, from 1830 to 1850, made their appearance, the

(1) It was to Louis XIV, that the early colonists owed the possession of the Canadian horse. Many fine animals were sent here from France, by Colbert, and sold to the best farmers on very easy terms. See "Histoire de la Colonie Française en Canada," by the Abbé Taillon.

farmers were more inclined to attribute them to atmospheric influence, or to unknown causes, than to believe that the gradual impoverishment of the soil had, as it always will, worked its dire revenge on their unhappy heads. Aye, even now, many a man imagines that the severity of the climate is the cause of his diminished crops; forgetting that the climate is the same that it was 200 years ago, but that two centuries of cultivation, without manure and without care have necessarily impoverished the land.

Unfortunately few people think of this; few cultivators practice the elementary principles of which we spoke at the beginning of this chapter. It is a sad, but a true confession to make—in the majority of our parishes, there is hardly one farm that has been manured from one end to the other since its original clearing.

Brushwood or stones are seen on every side covering part of the land in cultivation. The water furrowing is conducted in a manner that leaves much to be desired; as a general rule, no earnest effort has been made to clear away the weeds; the proper working of the land is neglected; the ploughing done carelessly and in haste; whilst the harrowing is a mere scratching of the surface, and cross ploughing, so useful in pulverising and cleaning the land, is almost unknown. So great is the quantity of ground ploughed, and so hastily is it done, that no one dreams of the possibility of working some few pieces a second time during the same year.

The Scarifier (grubber) and the Clod-crusher are unknown; the choice of good seed is the exception; for, ordinarily, any thin grain, even if it be mixed with rubbish of all sorts, is thought good enough. A few wretched beasts, fed solely on straw during the winter, are, usually, the only purveyors of manure; and much of the miserable droppings of these starved creatures is wasted in various ways. It is true, butter is made, but made with so little care, and the cows are so poor and weak, that it is rarely of the best quality, and the price corresponds with its badness. For one tub of good quality, fifty very inferior may be found at every market. Why should our Norman cousins sell their butter in England for twice the price we can get there for ours? Moreover, throughout the Province of Quebec, without paying the slightest attention to differences of soil, of climate, of demand, the farming is conducted in the same way, and the same grain is universally grown, at the risk of swamping the markets by too abundant a supply. Seldom is an attempt made to transform the product of the farm into meat, butter or cheese of the best quality which would suit the European markets. Thus, thus it is that our people are impoverishing their land, are impoverishing themselves.

Since the expiration of the Reciprocity treaty with the United States, it must be confessed that our markets are easily over-supplied, and that the distress of our farmers is in no slight measure due to the failure of our national industries. But these last named misfortunes have only aggravated an already critical state of things the principal cause of which, I repeat, lies in the almost universal ignorance among our French-canadian population of the elementary principles of a sound and profitable system of agriculture.

Subjoined is a dark and disagreeable picture, a picture doleful to the mind of any true lover of his country, but a picture whose truthfulness it would be difficult to find any one hardy enough to dispute.

Table of the production (average) of wheat per acre of different countries—in bushels of 64 lbs.

England,	29 bushels.
Prussia (Pomerania alone),	26 "
Belgium,	24 "
Holland,	19 "
France,	16½ "

United States,	11 bushels.	
Canada,	10 $\frac{1}{2}$ "	} According to the returns of 1871.
" Nova Scotia,	11 $\frac{1}{2}$ "	
" New Brunswick,	10 $\frac{1}{2}$ "	
" Ontario,	10 $\frac{1}{2}$ "	
" Quebec !!	8 $\frac{1}{2}$ "	

Canadian Beet Sugar Factory.

We have, on many occasions, written strongly in favor of the introduction of the beet-sugar industry into Canada. After ten years' careful study of the subject, both here, and in Europe, we are of opinion that no enterprise can offer in our country a larger moneyed return for the capital invested, and a greater agricultural improvement. Hundreds of experiments in sugar beet culture have been made under our supervision, in various parts of the Province, for several years back. They have undoubtedly proved that the best sugar beets will mature here every year, and that, with the same amount of care, a larger crop can be secured than in the most favored European countries. This is partly accounted for by our especially favorable fall weather, which causes the beets to mature with certainty, and brings out a larger percentage of sugar in the root than can be obtained in Europe.

The very heavy duties on imported sugar in Canada, which amount on an average to 55 % of the original cost price, would secure to the Canadian manufacturer an amount of protection nearly double that allowed to the most favoured articles of Canadian manufacture.

This protection, added to the cost of importation, brings the selling price of sugar here to about double what it is in France, Germany, or Austria; whilst the cost of production, taking every thing into account, should not be much more, if any. We insist on this point, that with the best machinery and able sugar makers, beet sugar need not cost any more to manufacture in Canada, than in Europe. Here, lands, horse labour also, and even fuel are a great deal cheaper.

Manual labour alone is somewhat higher, but this would not be sufficient to counter balance the great advantages we possess, the principal of which lies in the fact that, through our long winters, we are enabled to manufacture fully as long again as they can in Europe, so that the same manufactory, in Europe, which would work for one hundred days, would, were it erected here, exactly double its production.

There is, therefore, a sure profit, and an immense one, in store for those who will have the courage to enter boldly, but systematically, on this new enterprise.

The great drawback here, and, in fact, the only reason which has prevented the erection of a factory so far, is the large capital required to start this industry, according to modern views. In fact, for some time to come, and until we have acquired in Canada the necessary experience in all the various departments of this complicated industry, and until machinery can be made here equal to what is made in Europe, we must command, in America, to obtain success, fully double the capital required by similar establishments in Europe. We have all along stated that, supposing most of the beets to be supplied by the farmers, the first beet sugar establishment here should have a capital of \$200,000, in order to be prepared to meet every emergency.

Within the last few years, a great deal has been said respecting beet-sugar establishments which were not to cost over \$25,000.

To the many who consulted us on this question, we invariably answered that, this amount appeared to us ridiculously inadequate. We are glad to find that the promoter of these cheap factories in America, Mr. Ernest Th. Gennert, Portland, State of Maine, writes, from California, to the *American Cultivator*, stating that he is now engaged to erect

a first class factory in that State, to work 60 tons of beets daily, which will cost, complete \$150,000. As this is just about half the size of the average factories now recommended in Europe, for the economical production of sugar, it shows that our estimate of \$200,000 is a fair one.

There is, at the present time, a considerable stir, in Canada, respecting this industry. Let us hope the day is not far distant when a first class factory will be started. Let it be remembered that we have in the Dominion a market for sugar amounting to \$10,000,000 annually. To manufacture all this would require from thirty to sixty large factories. There is therefore no danger of overcrowding, for many years to come, at least. In an official document, published in 1878, by the Federal Government, we stated that the profits to be expected from this industry, at present prices, should not be less than from 40 to 60 %, annually, on the capital invested, provided the factories work as they should, and with ordinarily careful management.

Why then should so much Canadian capital be seeking investment in Canada at the present moment, where such a munificent return can be safely secured, and an improvement brought to our agriculture which would certainly double the production, and the profits, of all the land devoted to beet sugar cultivation.

Milk, butter and cheese records.

That careful breeding, from well selected thoroughbred animals, is necessary to secure in the progeny a continuation of the best results need not be discussed. The extremely high prices regularly obtained at auction for some of the most renowned short horn families show that, for Durhams, at least, breeders are agreed to what constitutes excellency in the production of beef. It strikes us, however, that in the production of butter and cheese, we have not arrived at any thing like the settled points which tend to assign the highest value to any one family, or, even, to any given set of points. In fact, between breeders, it is yet a controverted point whether the Jersey, or the Ayrshire is the better and more economical producer of butter.

Of late years several breeders, of Jerseys and of Ayrshires, have kept and published records of the milk and butter given by the whole or by a portion only of their respective herds. This is an excellent move, and a useful one as a point of comparison. But, to judge of the real merits of a cow, or of a breed, it is not sufficient to know that a large quantity of butter, or of cheese, is produced; we should also ascertain, as nearly as possible, what proportion of a given kind of food has been consumed to the lb of butter or cheese produced.

However desirable, it is not to be expected that breeders will go to the trouble of solving these intricate points of comparison between breeds. But no breeder worthy of the name should be without a careful record of all the milk, and even butter, produced by each of the cows he breeds from in his herd. This is in fact the only sure test of the value of milk producing breeds, and had these records been kept for half a century, with the same care that the gain in flesh in a given time has been recorded for the short horns, we should now know to a certainty what herds to breed from when milk, butter or cheese are the special objects, and such herds would command the highest prices.

Respecting the comparison between breeds, relating to the largest quantity of cheese or butter produced by a given quantity of food, without loss of flesh to the animal, we are not aware of any set of experiments having been made so far for any length of time. It is very desirable that such experiments should be carefully made and we see none better qualified to do this than the experimental stations connected with agricultural associations, colleges, &c.

It would also be very desirable to have some organization, by which the trustworthiness of the milk records published from time to time might be tested. We should be glad to see some of our confrères of the agricultural press take up these various subjects in earnest.—In the mean time, we hope breeders of Ayrshire or of Jersey stock in this Province will keep a careful record of the milk and butter produced by each of their cows. Should such records be sent to this journal we would do our best to ascertain, by personal visits to the farm, or otherwise, that such are thoroughly to be depended upon.

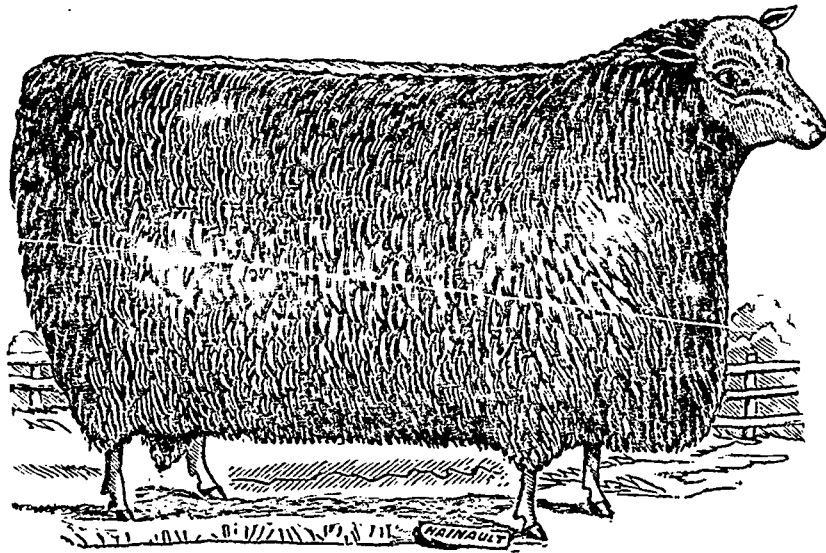
We give this month engravings of the several animals from "The fourth annual report of the Ontario School of Agriculture for 1878;" a review of which we hope to offer to our readers in the August number.

How the French Peasants Live.

Having been born, and bred, a thoroughly prejudiced Englishman, I naturally supposed, for a long time, that our

system of cultivation, and the laws regulating the occupation of the land, were the best in the world. It has taken many years, and many a long journey to make me change my opinion. Much as I reverence the slightest hint that fell from the lips of the illustrious philosopher John Stuart Mill, I could not go with him in his views as to the relative merits of the *grande* and the *petite culture*. It was enough for my shortsighted mind that the average crop of England far exceeded that of France; that the general run of French bullocks rarely weighed more than two thirds of the weight of English bullocks; and, consequently, I came to the conclusion that the cultivation of the one country must be very much better than the cultivation of the other.

Much thought, and much enquiry, however, have caused me to change my mind; tho' it is certain that, fifty years ago, there was great room for improvement in the farming of the peasantry of France, and other European countries. But, of late years the almost entire disappearance of the Feudal Tenures; the additional feeling of security, particularly as regards landed property, which has sprung up since



1. Border Leicester Ram.

the Code Napoleon was established, and the improved systems of education which have opened the gate of knowledge to the working man and his children, all these things have combined to change the lazy, hopeless peasant of the past into the active, self-reliant man of the present, who no longer dreads the extortionate tyranny of his lord, and the worse, because subordinate, tyranny of his lord's agent; but, exempt from anxiety, except as regards the weather; perfectly master of his own time and labour, free, and feeling himself to be free, the Serf of the Bourbons with his downcast look, and his malevolent scowl, his brutish appetite, and his sulky temper, has gradually become what we now see him; and his land, instead of producing briars for wheat, and thistles for barley, as in the days of *Arthur Young* and his *Tours*, may boast, without exaggeration, of being as well cultivated, and as thoroughly made the best of, as even the Lothians, in Scotland, or the eastern counties of England.

Many men, doubtless, had some floating ideas about a coming change before the great revolution broke out; but no one spoke so clearly of it as this plain Suffolk farmer. He drew his deductions from what he saw, not from what he heard. It may be interesting to some of my readers to learn, from a perfectly unprejudiced eye-witness, what kind of people

the modern French peasants are, and what kind of a life they lead; and, in this belief, I beg to lay before them a résumé of an article which appeared in "The Fortnightly Review" for the months of November and December, 1878.

According to his own account, Mr. Barham Zincke, an English gentleman, (prejudiced, of course,) having long entertained the same sort of opinions that I have previously confessed to as being mine, took it into his head to pay a visit to the Limagne of Auvergne for the purpose of seeing for himself if the change in the life and habits of the French peasantry was as great as it was reported to be. Mr. Zincke chose the Limagne for his observations because he had learned from the French statist, Dureau de la Malle, that the peasant proprietorship had been more thoroughly worked out there than in any part of France. It is a vast plain covered with the detritus of the volcanoes which formerly surrounded it, and were ground down by the action of the glacier which, originating in the upper valley of the Allier, was joined by lateral glaciers from the Puy de Dôme range, and, passing over the whole plain, covered it deeply with the remains it had swept along in its slow, but relentless course. The soil, therefore, is various in quality, good, bad, and indifferent.

The Romans occupied this district for many years. Gergovia, "on a very high hill," as Casar describes it, being the scene of the last struggle of the Gauls for liberty against their brutal enemies. The Romans were followed by two barbarians of Germany who introduced the feudal system which was more firmly established here than in any district of France. The Grand Seigneurs became so strong, in process of time, that they set the crown and the law at defiance, until Louis XIV captured and executed at Clermont the worst of these tyrants, and destroyed their castles, the remains of which may be seen to this day.

"The whole of the land is now in the peasants' hands. Universal social, and economic equality has taken the place of the enormous inequalities of the foregoing period. Universal industry has superseded predominant idleness and crushing serfdom. Perfect order, signal honesty, and general kindness of manner are conspicuous on the scene where once reigned disorder, violence, rapine, and oppression. Law is now supreme; and every man receives for himself the fruit of his day's toil."

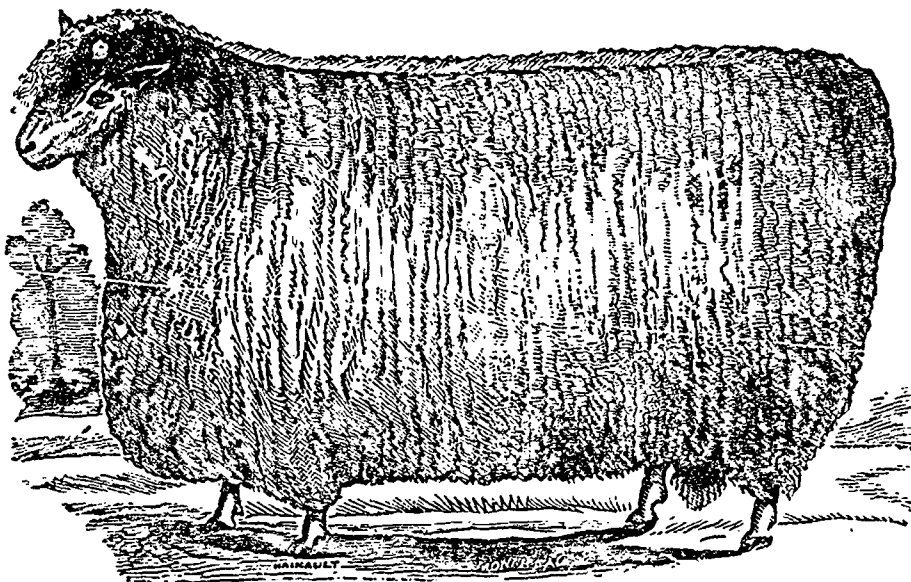
In the beginning of September, M. Zincke is fortunate enough to find lodgings, at a price which it pleases him to call Brenat, in the house of a certain Hilaire Girard. N.B. if my good fortune should ever lead me to France again, I shall certainly try to find out M. Girard; for more delightful

people than he and his family, as described by the traveller, it would be rare to see.

"Madame was tall, and of more massive frame than most men; very sunburnt, but with features that were very far from being coarse; indeed, had they not been cast in so large a mould, you might have said that they were finely cut."

The son, Maurice, was "dressed like a young gentleman," and, on the arrival of the stranger, was busily engaged in learning his lesson for the next day—a passage of Sophocles in the original Greek. He attended the seminary at Clermont, but, in spite of his dress and his Greek, he was not proud, for, seeing an ancient dame, in a weather-beaten gown, spreading hay, he ran up to her, and, kissing her on both cheeks, exclaimed to Mr. Zincke, "That is my grandmother." This young man, aged 15, played the flute; also he played at piquet, and, generally speaking, was a perfectly well-bred, amiable lad, very obedient to his parents, and delightfully gallant to his numerous *cousines*, who appear to have been very charming young women. He was intended for one of the professions; and, as his education cost his father some \$200 a year, I hope he will make good use of his opportunities.

The supper, by this time was ready—cooked and served by Madame's own hands—it must have been rather nice. Soup *Julienne*; i. e. clear gravy soup with a few sliced vegetables



2. Cotswold Ram.

mutton cutlets; *blanquette* of veal—a sort of etherealised hash; haricots (beans) with savoury sauce; and fried potatoes! Dessert, grapes and peaches, grown by Girard himself, and two sorts of wine—one sort ten years old.

At this meal the master of the house was present. I hope he enjoyed it after having been mowing his second hay crop from 4 o'clock, A.M. Hilaire was about five feet eight inches in height, stout, and very broad-shouldered. A pleasant companion, evidently, for our Englishman sat up chatting with him till half-past nine.

"He had begun life without anything. By hard work, from which he had never allowed himself to be diverted either for pleasure or for politics, he had by little and little become the owner of six *hectares*, between fourteen and fifteen acres. He and his Amazon wife do themselves all the work of their farm with the exception of some hired labour at harvest, and of their being sometimes helped by her old father and mother;

who, however, have their own land to cultivate. He was himself well off now, as were most of his neighbours. If they were not it was their own fault, unless they had bad health."

In the village, the population of which is given as about 1400, was a large sugar factory and distillery—the establishment cost about \$5,000,000—covering many acres. The duty on the products of this business amounted to more than \$600,000, a year.—Are we never going to grow our own sugar? Not only France and Belgium, but northern Germany, and even Russia work up their own beets. It is well known that wherever sugar is made, more cattle are kept, and more wheat is grown. In France, the culture of the sugar-beet is a considerable element in the prosperity of the peasantry, and so would it be here in Canada if we would only believe the evidence of those whom experience has made capable of judging.

On their return from the village, Mr. Zincke and his

friend Maurice found that the priest had been invited to supper. He accepted the invitation, and my readers will agree with me in thinking he was right, for,

"We sat down at seven. Madame triumphed in the *menu*: the peasants' bread soup, fried potatoes, *blanquette* of chicken; beefsteaks, a savoury meat pie; one of Madame's capons," (is the art of 'caponizing' lost in Canada?) "which she had brought to show me in the morning, being proud of its weight, salad, haricots, pastry from Clermont, three kinds of wine—all of Hilaire's own making, and a dessert of grapes, peaches, and little cakes."

Oh! decidedly the priest was right to come. And the conversation, too, seems to have been on a par with the supper. The only thing that was wanting was the constant presence of Madame;

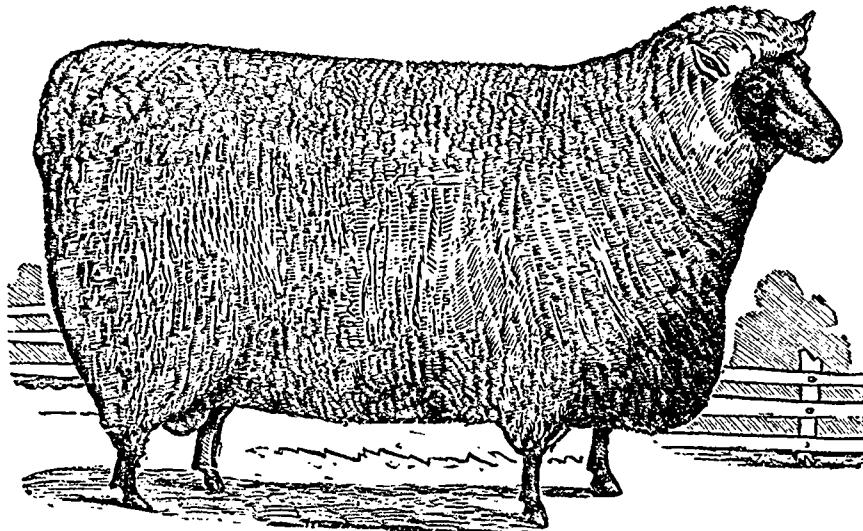
"She alone was silent and preoccupied. As every dish, even the vegetables, came to table separately and required a change of plates, she had much to do in going up and down stairs to and from the kitchen. I thought her better worth looking at than anything I had seen at the great Paris Exhibition. She had been up at four A.M., had gone to early service at the church at five, had done all the washing, clean-

ing, cooking, and all the work of every kind for the family; if for a moment her attention had not been wanting at the fire, and she had nothing else to do, her knitting had been in her hands. After twelve o'clock dinner, she had gone to the field to load up wheat, and had then come home to cook the supper. If Madame could be exhibited in England, it would be a sight that would surprise many of us, so broad-shouldered, so clean-limbed, so active, so sunburnt, so well-featured, so good natured, and so self possessed, and the work she does in the day should be exhibited with her."

The politics of this happy family were of the usual French character: the husband was, theoretically, a republican; the wife, probably for ecclesiastical reasons, an imperialist. But, according to Hilaire's views, there are republics and republics; as may be gathered from what follows;

"So long as society is divided into a rich class and a poor class, some of the latter having nothing at all—he was thinking of the great cities—republics will require a more general diffusion of virtue than is to be found at present."

In all his thoughts, Hilaire seems to have regarded virtue as the first requirement of a government, and of society in general, probably because he was a hard working peasant, and



3. Oxford Down Ram.

had something to lose. He did not complain of the amount of taxation he had to pay for his six hectares, viz. \$30 a year, nor of the wine tax of six cents a bottle. His religious opinions seem to have been what may be termed 'eclectic,' for he loved and revered the good Abbé who acted as *Vicaire*, as well as the old *Cure* who had been long superannuated; he was a most effective member of the choir, but his principal ideas seem to have been that, "virtue was only to be found among peasants," and that, "if a man did his duty, there was no reason why he should be afraid of God or of death."

As on these farms the wages of labour, the profits of cultivation, and the rent of the land, are all in the same hands, and are all spent on the spot, the population is very dense. The amount of traffic at the railway station was surprising, and all this was, almost entirely, local traffic. The surplus of the great amount of produce, extracted from the land by this dense agricultural population, is exchanged at Clermont for manufactured goods, and there maintains a correspondingly large number of people engaged in business. If all France is in the hands of men and women like the peasants

of Brenat, we need no longer wonder at the ease with which she paid off the terrible indemnity exacted by the Germans.

When the wheat had been all carried home, Hilaire began to break up his stubbles a few inches deep. This was to be followed by a deep ploughing of eighteen inches, with six bullocks, sometimes with eight. As no farmer keeps so many animals at a time, they unite their teams and plough each others land by turns. On the farm were to be seen growing wheat, beets, lucerne, and potatoes. The value of these crops is about the same, but the wheat generally is worth less than any of the other three. The lucerne is cut four times, and is kept, not very, but perfectly, clean.

"The beet will sell this year for \$100 an acre. The cost of cultivation for it had been about \$20 an acre. Wheat, with their careful cultivation, on the good soil of Brenat, yields on an average four quarters (32 bushels), or perhaps four and a half (36 bushels), to the acre."

The vineyard was on a small eminence some hundred feet high on the edge of the plain. Part of it was formerly broken rock without any soil, but the necessary earth had been carried there *in baskets* from the lower lands.

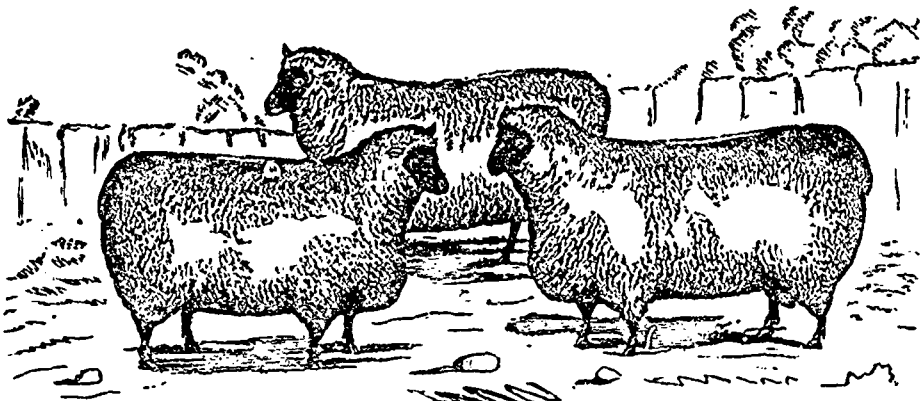
And now let us see what these fourteen acres and a half return to the cultivator, premising that, in the neighbourhood of Brenat, land sells for about \$500 an acre; and we take Mr. Zinke's own statement, in preference to making a précis of it.

"Maurice told me that his father's produce of all kinds last year sold for more than \$800. As he pays no rent for his house, and has not to pay for his wine, with their economical habits and their great skill in making much out of little, \$300 would maintain the family. The savings would thus amount to \$500 a year. From what Hilaire himself told me of the amount and market price of his produce I think Maurice's figures are below the mark. To justify the \$200 a year that Maurice is now costing his father for clothing, books, and schooling at the Clermont seminary, the good man's savings must be considerable; but it is easy to see that savings at the rate of \$500 a year, invested in Government funds, must soon make a peasant feel himself a prosperous man. France has more than five million fund holders."

What a change in the last fifty years! Then, the peasant ate black barley bread, and sometimes they had not their fill

of that. Now, they all eat wheaten bread, cheese, meat, and plenty of vegetables. They are very prosperous, and the land has doubled in value. In fact France is twice as rich as she was formerly, and this increase of wealth which, to say the least of it, must help to keep the country quiet, is due, principally, if not entirely, to the industry, the economy, and the morality of her peasantry.

But I must hurry on, for space would fail me were I to attempt to describe the fair at Mauzat where the ladies—all peasants—wore one invariable costume—black silk. The bill of fare of the dinner which, after the day's amusements were over, was set before our friends, (that sensible Abbé was there again) was too appetising to be left out: Julienné soup, melon, roast goose, veal outlets, ragout of rabbit, cheese, grapes, peaches, a cake, and three kinds of wine. No wonder the brave Hilaire and his son sang all the way going home! On their arrival at Brenat, a little before ten o'clock, they found Madame seated in front of her house with some of the neighbours, and could only thank her for the supper she had prepared for them. Can we be astonished if, on the next day when Mr. Zinke took his departure for Paris, and Hilaire



Southdown Ewes and Ram.

expressed a hope, on behalf of his friends and himself, that he might revisit Brenat, his reply was; "I, too, hope that the future has that happiness in store for me."

Let us now see what conclusions the traveller arrives at as the result of his inquiries.

These good people were true and genuine peasants. Hilaire had never been away from home, had never even been in the army. He had begun life without anything save his thews and sinews, and with these, and with the aid of his good wife, he had acquired the fourteen acres he owned.

The average size of properties at Brenat appeared to be about five acres; and the general opinion was that on five acres a family could live fairly well.

Their food was wholesome and well cooked—several kinds of soup, several kinds of savoury vegetables, tender ragouts of meat, poultry, eggs, pork, cheese, and milk, varied their repasts from day to day. Industry gained them their property; their property when gained taught them great and sound lessons in morality; for, bringing with it the sense of self respect it taught than to respect others. Their politeness, their good humour, their sense of justice, their honesty, all flow from this source. Why are the unfenced vineyards and orchards never interfered with by casual passers-by? Because no one, where almost every one has property, is dishonest in such matters. Property has engendered an instinct of honesty. It has taught men to do to others as they would be done by.

Another lesson, a lesson which may well be commended to our Canadian agricultural population, is that a small quantity

of land well cultivated is far more profitable than a larger space only superficially treated. I should like to know how many men in this province, French-Canadians or others, save as much off one hundred, or one hundred and fifty acres, as our friend Hilaire Girard saves off his fourteen. Still, as a general rule, they must have the same sense of property in their land—where it is not mortgaged, that is to say—but some how or other the effect of this sense is not the same. A reason for this must exist, and in my mind it resides in the fact that the majority of our farmers have never had an opportunity of seeing good cultivation. No doubt, too, the conversion of the beet crop into sugar is a mighty aid to the French peasant however small his occupation may be. It is no light matter to have on one's farm, an acre or two that will bring in from \$80 to \$160 a year. We can't very well rival the Frenchman in his vineyard, but there is no earthly reason why every farmer should not grow his own cider. Melons, too, should be on all our tables; and grapes are not half as much trouble to grow as people fancy. I can conceive few things more profitable than a good crop of tobacco, and the English are ready to take any amount of meat, butter, and cheese, if the quality is good, at remunerative prices. To hear some people talk one would fancy our province was a newly settled country! It is not. It is two hundred years old, and the wheat crop, on an average, is the worst in the world. Other crops the same. The soil is not in fault, nor the climate, for the same soil and the same climate once, and not so very long ago either, produced from 30 to 40 bushels

of wheat per acre, and other things in proportion. Cannot this happy state of things be restored?

ARTHUR R. JENNER FUST.

VETERINARY DEPARTMENT.

Under the direction of D. McEachran, F. R. C. V. S., Principal of the Montreal Veterinary College, and Inspector of Stock for the Canadian Government.

Pleuro-Pneumonia.

The great interest manifested by both the Canadian and American people in this subject on account of the very serious effect its existence in the United States has on the trade of both countries, induces us to reproduce an article by Prof. Law, in the June number of the *Live Stock Journal*, in which he fully establishes beyond a doubt the contagious nature of the disease.

That the interruption to our trade is a very serious loss cannot be overlooked, yet, when the facts are considered that contagious disease in cattle exists in the United States, and that, as the English law now stands, that country must be placed on the scheduled list, nothing was left for our government but to prohibit the entry of American cattle, or to allow Canada to be scheduled also.

The question thus presented itself to the Government; is it better to run the very serious risk of introducing cattle disease into our hitherto healthy country, and have our cattle slaughtered at the port of entry, or to protect our agriculturists at the risk of interfering in some measure with our carrying trade? The wisdom of the Government, in adopting the course they have, will become more apparent when we consider the rapid development of our country. It is true that hitherto the inducements for breeding large numbers of cattle were few. Now, however, the opening up of our Great North West territory, which will speedily become great cattle rans, and the increased attention to stock raising which our farmers are now induced to give, will enable us, in a few years, to export ten times as many cattle as we do now, and every successive year will see an increase in our production of live stock.

We have no intention of entering into the discussion raised by Professor Williams, of Edinburgh, and re-echoed on this side of the Atlantic, by Mr. Smith, of Toronto; public opinion, and authenticated facts, have long ago proved that the former has made a gross blunder, and has seriously shaken the confidence of the profession and the public in one whom they were inclined to look up to as an authority: and his follower has convinced the public that he has no independent opinion of his own, that he has presumed, in the face of the most unmistakable evidence to theorise on a matter of the utmost public importance, on which he had no possible opportunity of being capable of forming a correct opinion, he never having even taken the trouble to see for himself whether it was, or was not, the contagious Lung-plague of Europe. Not only so, but we believe he has never had any experience of the disease since he entered the profession; yet, simply because Prof. Williams disagrees with the whole profession in Britain on a question which he is not competent to judge, never having seen the disease in America, Mr. Smith, merely to gain some notoriety, and to please a few interested parties, thinks fit to disparage the opinions of all the leading members of the profession in America, and thereby create and keep up a feeling of dissatisfaction between those more immediately interested. If his opinion had any weight, which it fortunately has not, it would weaken the efforts of those who study the interests of the United States by endeavouring to bring about measures for the extermination of the disease by stamping it out.

It is much to be regretted that the United States authorities are not using due diligence in following up the disease.

The inevitable consequence must be that the disease will spread, (in fact we are credibly informed that it is spreading) and, even now, it occupies a much greater area than it did six months ago.

Since the opening of navigation about 7000 head of cattle have been shipped from Canada; most of them distillery fed. Will the obstructionists inform us why distillery fed cattle from Canada should be free from disease, should stand the voyage, and be landed in a healthy state, any more than distillery fed cattle from the United States? Or why distillery fed cattle from the west should be healthy, while those from the infected districts in the Eastern States are diseased, if it be not because the latter are exposed to contagion from which the former are free?

Why has Pleuro-pneumonia not been found in Canadian Cattle by the inspectors at British Ports, if it be not because no such contagion exists here? The Canadian people accept the opinions of the obstructionists at their proper value, they have confidence in the unbiased opinions of Professors Walley and McCall, and Inspectors Brown and Duguid, supported by the opinions of the ablest men in the profession in England, and of Professors Law and Liantard; and of Mess. Gudsden, Mincher, Bushman, McLean, Lockhart, and others, in the United States, in confirmation of the report of Professor McEachran, the Inspector for the Canadian Government, a whose report on the disease in January last confirmed the statements as to its prevalence repeatedly made by the Commissioner of Agriculture to Congress, and the published reports in the *Live Stock Journal*, and other leading Agricultural Papers. This evidence is but a fulfilment of the predictions of Professor Gamgee in his report on 'The Lung Plague,' published by the United States Government, in 1871, and his lecture before the Vermont Dairyman's Association. What Gamgee reported then, is equally true now, except that the disease is now more widely spread.

"That the Lung Plague in cattle exists on Long Island, where it has prevailed for many years; that it is not uncommon in New Jersey; has at various times appeared in New York State; continues to be very prevalent in several counties of Pennsylvania, especially in Delaware and Bucks; has injured the farmers of Maryland, the dairymen around Washington D. C. and has penetrated into Virginia."

Had the following sensible admonition been acted upon, we should not have seen such a deplorable fulfilment of the prediction it contains. Professor Gamgee, in his report, says: "Of all the cattle diseases Pleuro-Pneumonia is, in the long run, the most destructive, because the most insidious, and the least likely to rouse people to united action for its effectual suppression. To ignore its presence is, however, to insure that the cattle mortality of America, like that of England, will be at least doubled in a few years. Rational means, energetic action, and earnest co-operation between the different states and the central government, may, with a moderate expenditure now, save many millions annually in the not distant future."

Unfortunately obstructionists such as Williams and Smith who, without endeavouring to find out the truth, merely advance a theory to please those whose pocket are immediately affected and thus lead to the continuance of the most destructive Plague in animals by inducing apathy in stamping it out, will find followers. No doubt the gentlemen referred to have, in a measure, gained notoriety by these theories, but it is a notoriety which may prove of questionable utility to them.

Bovine Lung Fever.

PLEURO-PNEUMONIA CONTAGIOSA.

"With some writers among us there appears to be a peculiar and inexplicable dread connected with this disease. If this were a genuine dread of the disease itself, accompanied by an

earnest desire to rid the country of it at all hazards, it would be laudable. But it is not really the disease which is dreaded, so much as the knowledge on the part of our customers of the presence of the plague in our midst. The plague itself! why that is an exceedingly small matter. I know that that existed in Massachusetts in 1858 and 1860, and was killed out by the energetic action of that State, at a cost of \$68,060. I know that since that time it has been repeatedly carried from New York City into Connecticut, where it has been again extirpated by the action of the State Commissioners. I know that the Massachusetts Board of Cattle Commissioners visited the Skillman stable Brooklin, in 1862, and "found some sick with the acute disease"; and killed one in the last stage of the illness, the examination of which "showed a typical case of the same malady which existed in Massachusetts." I know that the Commissioners reported that

"If New York, New Jersey, and Pennsylvania would adopt similar measures to those in this State (Massachusetts), it would be one of the most effective modes of securing the whole community against this disease, which, if allowed to remain, would endanger the best stock in the country, and greatly deteriorate the most substantial food of the people."

I know that the importation of the plague into Massachusetts in 1858 was made in the persons of the Holstein cows imported by Mr. Chenery, of Belmont. I know, further, that the first importation into Brooklyn, in 1843, was by a Dutch cow landed near South Ferry and taken into a stable near the foot of Joralemon Street. Many still live who can relate all the circumstances of the boasted milking qualities of the imported cow; of her early death; of the infection of the herd with which she had stood; of the extension of the disease to a distillery stable across the street, and thence, by the sale of cows, all over Brooklyn. From that time to the present, it has prevailed constantly in Brooklyn, having been kept up by the continual changes among dairy stock, and by the mingling of different herds in summer, on the open commons around the city. The ancestry of this disease, in Brooklyn, can be as satisfactorily traced as that of any family in the English peerage, or that of any crowned house of Europe. The Yankee is no more surely the descendant of the original Puritan than is the lung plague of Brooklyn the descendant of the *Lungenseuche* of Germany.

But this is not what troubles us. The pestilence may devastate the stables of the New York and Long Island dairies at its own sweet will; it may spread over the State of New Jersey until the inspectors allege that in many counties no less than 20 per cent. are infected; it may ravage Eastern Pennsylvania, Delaware, Maryland, and Virginia, and may invade the District of Columbia itself—all this and much more may befall us; we may remain month after month, and year after year in the most imminent danger of having the affection carried out to our Western plains, whence we could never eradicate it—this concerns us but little; but that England should for a moment suppose that we harbor such a disease, is a scandal and an outrage, and must be repudiated and denied with all possible vehemence. Our own veterinarians, who have studied the disease both here and in Europe, and who have acquainted themselves with its history on both continents, are to be silenced, that we may listen complacently to those who sit composedly at a respectful distance—at Toronto (Canada) and Edinburgh (Scotland)—and without personal examination of history, progress, symptoms, or lesions, pronounce oracularly that we "are not dealing with the contagious pleuro-pneumonia of Europe." This action is altogether too much like that of the hunted ostrich, which buries her head in the sand in the vain hope of warding off her fast-advancing fate.

I still cling to the hope that this plague has not penetrated

the West—a hope supported by the entire absence of any contagious lung disease in Western cattle stopped fifty miles west of New-York, as also by their constant soundness on their arrival at our Eastern stock yards, and until they have been long enough there to develop the disease. But I do not contradict the conclusions of Professors Brown and Deguid, and of the Principals of the Edinburgh and Glasgow Veterinary Colleges, when they state that they found contagious pleuro pneumonia among imported American stock. It is time enough to pronounce upon a disease when one has personally investigated it. Any reasonable man will admit that it is not impossible that there may be one or several centres of the lung plague in our Western States, or in Canada, whence some of the exported cattle were drawn. With the disease existing on our Eastern seaboard for thirty-six years, and affecting at different times, to my certain knowledge, high class herds from which cattle were likely to be drafted for transport westward, it seems almost miraculous that it should not sooner have gained the Western States and spread widely. But besides this there are various ways by which the "Ontario" cattle may have been infected. We have no assurance that this disease does not exist in Canada. A few years ago the *aphous fever*, incomparably less insidious and less dangerous than the lung plague, was exported from Great Britain to Canada, whence it spread widely over New York and New England. The importation and secret existence of the lung fever is a thousand-fold more probable.

But these are not the only possible channels for infection of the exported cattle. Who can assure us that infected cattle never entered the stock yards at Portland, Me.? Since the commencement of our work in New York, we have had cattle sent to Maine under *permit*. Did such an occurrence never take place before, and without any professional vigilance and control? Again, who can assure us that the "Ontario" never on any previous occasion carried cattle from any other port which infection was likely to reach? Who can demonstrate that the barge that carried the cattle to the Ontario had not become similarly infected? Who can certify that neither of these vessels ever carried infected hides or other animal products to or from England or elsewhere? Who can tell whether the cars used for the transport of the cattle had ever carried infected cattle or hides? Who can deny that the attendants on these cattle in transit may have carried infection in their clothes?

Many American writers seem to lose sight of the fact that if it were established that the cattle on board the Ontario and Brazilian suffered from lung fever, it is far from being proved that this disease exists in our Western States. It would be ample ground, it is true, for a searching investigation through our Western herds, but no proof at all that these herds were really infected. But to return to the infected districts in the East. Any one who will consider for a moment, must see that the opinions of Professors Williams and Smith, as to the nature of a disease they have never seen, and the descriptions of which have come to them only through newspaper paragraphs, are not worth the paper they are written upon. It must be evident to all that men who will found their opinions on such a slender basis are very unfit objects of public confidence. Seeing Prof. Smith is no further off than Toronto, and that he is so deeply interested in this disease, why did he not come to New York in person and satisfy himself as to the true nature of the malady, rather than hug his ignorance and publish an implied censure on the veterinary authority of New York, whose ability I do not for a moment believe that he doubts. By paying attention to what has been already published by the New York authorities, he could have ascertained the truth; but he has chosen to persistently shut his eyes and call for an experimental

transmission of the disease by cohabitation, as if that were not seen and demonstrated every day, and on a larger scale a thousand-fold than could be done in a few experimental animals under the eye of an expert.

JAMES LAW.

Pear, Cherry, and Plum Culture.

The late James H. Springle, in the report of the Montreal Horticultural Society, for the year 1876, gives the most interesting essay on the subject of Pear Culture in Quebec. So practical and exhaustive is this paper that we cannot do better than make a few extracts from it.

Enquiring into the reasons why the Pear tree of this region is so much shorter lived at present than it was in the days of the old French régime, Mr. Springle says: "It is well known that the early French colonists planted a great many pear trees which were evidently well suited for the climate, for they grew to a great size, produced an abundance of fruit, and lived as long as such trees do in parts of the world considered to be the natural home of the tree. An impression prevails that in consequence of the settlement and clearing of the country and the disappearance of its forests, a change of climate has taken place which is unfavourable to the growth of varieties of fruit which formerly flourished here in great abundance. But these suggestions, although important, are insufficient to account for so complete a failure as Pear growing in Quebec has proved to be. Within the last forty years, at least twenty-five thousand trees have been planted on the Island of Montreal alone, and I am confident I am within the truth in stating that there are not five per cent. of those trees now living, and not two per cent. of them in a healthy condition." Mr. Springle goes on to relate his own experience with both new and old varieties, and gives, as the result of it the opinion that the principal causes of failure have been, first the forcing of the young trees in the nursery, and second the use of manures to stimulate the growth of the tree; thus, preventing the new wood from ripening sufficiently to endure the severe winters of our climate.

The best situation for a Pear orchard is upon a southern, or south-eastern gentle slope at the base of a mountain, where shelter against cold winds, if none exist from neighbouring woodland, should be provided by planting a close border of ever greens as we have already recommended for an apple orchard in a previous number of this journal.

Mr. Springle recommends that the trees be planted much more closely together than is customary, not more than ten feet apart, on account of their sheltering each other in winter. Any well drained and cultivated soil, except gravel, will answer, and the ground should be spade trenched all over, instead of merely digging holes for the trees as we advised for the apple.

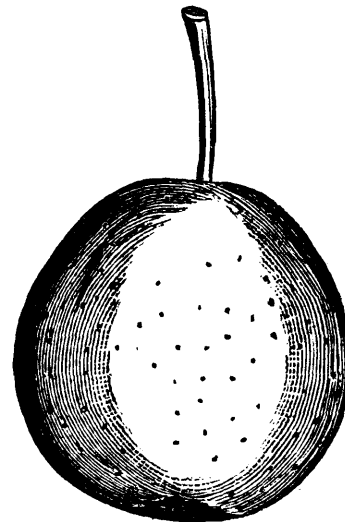
The trees should be procured in the fall, choosing those which are not less than seven years old, and which have never been forced in the nursery; have them heeled in for the winter and well covered with good surface soil. The transplanting of trees of this age has a tendency to cause early fruiting which checks a too vigorous growth in the tree, thus ensuring the ripening of the young wood and fitting the tree to endure our severe winters without injury. After the tree comes into bearing, a light top-dressing of lime, wood ashes, and ground bones mixed together, should be given before the snow comes in the fall.

Mr. Springle concludes his paper as follows: "In a word, successful pear growing, in this northern part of the Dominion, requires clean and early culture, so as to start the tree into growth, and have the wood matured as early in the season as possible, in ground sufficiently good to grow a moderate crop of potatoes. No manure (except as top dressing), pinch-

ing off the ends of all the rampant growing shoots, so as to equalise the growth as much as possible, and bring the trees early into bearing. I believe such culture as this will be good for the pear tree anywhere, but in this climate it is a matter of life or death."

The following varieties we name in order of ripening, and can especially recommend for general planting.

Doyenne d'Été.—The earliest good pear: small size, roundish.—Fruit grows in clusters, slightly russeted.—Colour: yellow, with red cheek: stem long, fleshy next the fruit. Ripens from 1st to 15th August. Does well on Quince, but, for this climate, is better on Pear stock.



Doyenne d'été.

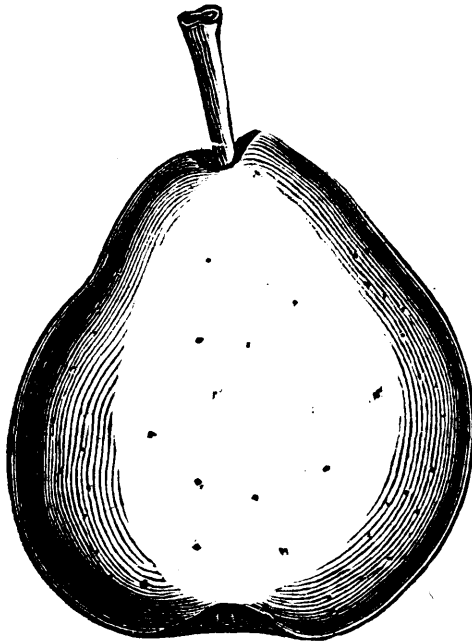
Flemish Beauty.—This is undoubtedly the finest pear known for this climate. Size: very large; form: varying from regular pyriform to roundish obovate. Colour: pale yellow with crimson blush, and often partially covered with cinnamon russet. Quality: Melting, delicate flesh, which, though delicious, has the reputation of not keeping very long. It may, with a little care in handling, be kept in first rate condition from its time of ripening in September, to the end of October.

White Doyenne (or New York Virgalien).—This splendid old pear, which used to be brought in boatloads to the New York markets, is now scarcely to be seen there, the tree having failed, from some unknown cause, along the Atlantic coast. The tree, though not quite so hardy as *Flemish Beauty*, will stand the climate well if cultivated as recommended by Mr. Springle. The fruit is of medium size, and of the finest quality. Form: short pyriform, to roundish obovate. Colour bright yellow with blotches and stripes of crimson. Ripens middle of October and keeps well. This is one of the very few varieties which in this climate do well on the quince stock.

Napoleon.—One of the finest pears in existence and succeeds well in this climate. Fruit: Medium to large size, smooth, clear, light yellow. Shape: Regular pyriform. Flesh: Very melting, high flavoured, and the most juicy of all pears. Ripens, November.

Lawrence.—This pear is unexcelled as an early winter sort. It originated at Flushing, Long Island. It is full medium size; pyriform in shape. Colour: Clear, uniform, light yellow. Flesh: Melting, buttery, juicy and aromatic. Ripens in December and January.

Easter Beurree.—This is considered by many the finest late winter pear grown. Although not succeeding well in the United States, the tree seems (in the region about Montreal)



Laurence.

to be hardy, its fruit well shaped, and no difficulty is experienced in ripening it. The fruit varies in shape from obovate, to pyriform. Colour: Dull yellow, with sometimes a light crimson blush. Flesh: White, melting, buttery, juicy, and rich. The fruit ripens from February to April, and has been kept till June.

CHERRIES.

The cherry is a hardy tree and usually fruits well in this climate, several of the commoner sorts being grown almost without cultivation. Every farm should have trees enough to refresh the souls of, at least, the boys and birds.

Out of the one hundred and eighty-seven varieties of Cherries which Downing enumerates as cultivated in America, the Late Kentish, or seedlings of it, and seedlings of the English Morella type, are the kinds most grown. On the shores of Annapolis Basin there are many large Cherry orchards, principally of the Black Heart family. The Early Richmond is unsurpassed in hardiness and fruitfulness and is probably the most profitable sort grown. The Early Purple Guigne, Black Tartarian, Elton. Black Heart, Governor Wood and May Duke (Médoc) are perhaps the best varieties for cultivation in Quebec. (1)

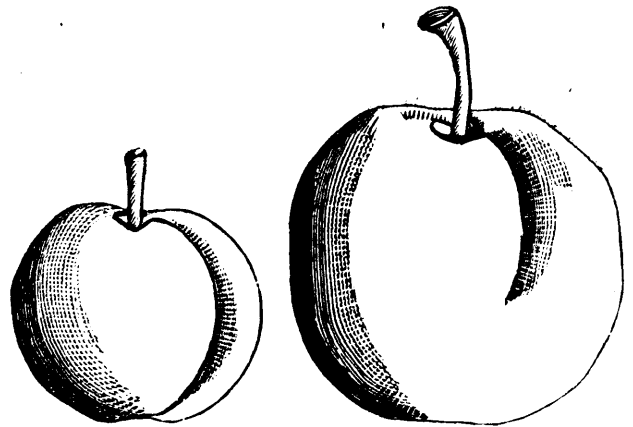
PLUMS.

Mr. Saunders, of London, tells us that nearly all the different cultivated varieties of plums spring originally from the sloe. The finer sorts are nearly all of comparatively recent origin; most of the American varieties having been produced within the last fifty years, but some few of the best European

(1) The common Flemish cherry, enormous crops of which are grown in Kent, England, for the London market, and which resembles the Kentish cherry, ought to be tried here. It is very hardy, and requires only to be left alone.

A. R. J. F.

sorts date back much further than that. The *Green Gage* for example, was brought into notice some time during the last century. An English (1) family of the name of Gage obtained a number of trees from the Monks of la Grande Chartreuse, near Paris, France; and among them a tree of this plum, which having lost its name, was called by the gardener "*Green Gage*."



Green Gage.

Washington.

Corse's Dictator, and *Corse's Admiral*, raised by the late Mr. Corse, in Griffintown, are as reliable for this region as any varieties we can name, but most of the slow growing kinds will do well if cultivated in the manner recommended for the Pear tree. We may mention besides these, the *Green*, *Blue*, *Red*, *Yellow* and *Imperial Gages*; *Corse's Nota Bene*; *Guthrie's Merit*, and *Washington*. This last named variety originated about fifty years ago on Delany's farm, east of the Bowery, New York, and is a large yellowish green plum, often with a pale red blush. Flesh firm, sweet, rich, and free from the pointed stone. Ripens in August.

The two enemies of the plum culturist are the *Curculio*, or *Constrachelus nenuphar*, and the disease known as *Black Knot* which, in some seasons, is very troublesome. The only remedy for the latter is said, by some, to be to cut it off and burn it as soon as it appears.

There has been much discussion regarding the origin of this disease, Mr. Downing asserting that, *Black-knot* prevails where *Curculio* is unknown, and Mr. Springle that, *Black-knot* is caused by the *Curculio* alone. If the plum trees are grown slowly, in clay soil if possible, away from other trees, and have the entire surface of the ground rolled hard; then, besides jarring the trees, gathering the fruit which falls, or turning in pigs, Mr. Springle says he has gathered from four to five hundred of these insects in one morning by laying strips of cloth, or canvas, on the ground, or by slightly raising the ends of bricks, under which the insects will creep for shelter during the night and may be caught early in the morning.

One other variety of plum we had nearly forgotten to mention, notwithstanding the fact that it is probably the most prolific and profitable variety grown. This is the *Lombard*, a seedling raised by Judge Platt, of Whitesborough, near New York.

Cultivation of small fruits.

We have received from A. M. Purdy, of Palmyra, N. Y., a very instructive 20-page pamphlet, telling how to grow small fruits successfully, describing sorts, &c, &c. He sends

(1) Irish? The family made, and lost, its fortune in the South Sea speculation.

it free to all applicants, as also a specimen copy of his monthly paper on fruits and flowers.

The following extracts will no doubt prove interesting.

RASPBERRIES.

This delicious, indispensable and very useful fruit follows immediately after Strawberries—in fact, the earlier sorts, such as Davison's Thornless, Highland Hardy, and Doolittle, commence ripening before the late sorts of strawberries—such as the Green Prolific, Jucunda, and Golden Queen—are gone, thus keeping up the succession of fruits. The raspberry is not only a delicious fruit for the table, but is one of the finest for jelly, canning, preserving, &c., besides being a very profitable market fruit—the expense of growing, one year after another, being no more than the same amount of corn, while the profits will average \$200 yearly with ordinary cultivation, while if extra care and cultivation is given, double that amount can be obtained. From two to four dozen of the different sorts will supply an ordinary family, while that number of the "ever-bearing" sorts will supply the table from the time blackberries are gone until the ground freezes.

CULTIVATION.

There are different methods of cultivation, some using stakes. This we consider an expensive and useless practice, unless it be for garden planting, where very close planting is carried out, and it is undesirable to have a spreading bush. Many persons are deterred from setting this one of the most profitable and easy grown fruits, from reading articles and books, wherein the necessity of stakes is laid down. Now, we affirm that if the Raspberry is trimmed, and grown properly there is no need whatever of their use. The great fault with most growers is, that they allow the main stalk to grow to its full height, or at least much longer than it should and even if they do trim them, it is not done until the following Winter and Spring. The true way is to trim them while growing. By so doing and checking the tops, the roots become larger, and the tops branch out more. It is sometimes advisable, in GARDEN CULTURE, where the bushes have but little room, to tie them up close to stakes, or place two stakes, one on each side of the hill, and nail a hoop between them, training the bush through the hoop. Or they can be set along in a row, or by the fence, and posts three feet high set along side of them, with a strip nailed on top of the posts, and also about two feet from the ground, or by setting the roots two or three feet apart, and never allowing them to grow over three feet in height and two feet wide, they form a perfect hedge; and on account of such close pruning, they will be literally loaded with the largest size fruit, and growing thus they will be a support to each other, and the strongest winds cannot damage them.

How many farmers might load their tables with this delicious fruit, even if they do nothing more than set fifty or one hundred plants in their fence corners, mulch them well and each winter cut out the old bearing wood, or what would be still better and cost them but little trouble, have a few rows set out near the house, in a lot set apart for potatoes, cabbage, &c.—all to be worked out by a horse, as shown in our 25 cent SMALL FRUIT INSTRUCTOR.

MULCHING.

Nothing contributes more to a large crop of fruit than a liberal supply of some coarse material being put close around the bush, that is on the space that cannot be reached with the cultivator. Some advocate mulching the entire surface, but we object to this, first, because it is too laborious, and takes too much mulching material, and is too expensive; and secondly, we believe a constant and thorough cultivation and stirring up of the soil with the hoe or cultivator is the best

mulch land can have. Leaf and woods mould, sorgum, bagassa, corn-stalks, straw, hay, chip-dirt, ashes, rotted sawdust, or tanbark are all good mulching materials for raspberries or blackberries.

SET PLANTS three feet apart in the row, and rows six feet apart, although four feet apart will do for the reds.

Our TWENTY-FIVE CENT SMALL FRUIT INSTRUCTOR, gives full directions for setting, growing, &c., with drawings to illustrate.

Tomatoes.

A common mistake in the cultivation of this plant is to imagine that it requires an enormous space to perfect its growth in. Of course, if it is allowed to wander at its own sweet will, it will occupy a great deal of ground. But this is not at all the best way to get ripe fruit, tho', any amount of leaves, stalks, and green tomatoes, may be produced by it. Please give the following plan a fair trial. Set the plants in rows two feet apart, and fifteen inches between the plants in the row.

When the first bunch of buds has fairly made its appearance nip off the whole of the shoots growing between the stem and branches, but allow the main stem to grow on until four, or at most five, bunches of buds are formed. Then, the plant being, probably, about three feet high, pinch off the main stem, about three inches from the highest bunch, and continue to nip off the shoots, as before, as fast as they make their appearance; just as in the culture of Tobacco.

If this is properly done, the greatest amount of ripe fruit that the climate is capable of producing will be secured. Stakes, about four feet long, will be required to tie the plants to. They should be driven firmly into the ground and the stem should not be too tightly bound. I have practiced this mode of growing tomatoes for twelve years, and have never failed to obtain an early crop of well matured fruit. Keep the ground well stirred and mulch with half-rotted dung. Lots of liquid manure.—A. R. J. F.

In Mr. Cochois' article on "Melon Growing" an error occurs; see p. 30, instead of "often the seed leaves, or cotyledons appear," it should read "often the eyes of the seed leaves, &c."—ED.

Meeting of the American Pomological Society, at Rochester, N.Y.

The Western New York Horticultural Society having invited the American Pomological Society to hold its next meeting at Rochester, New York, the undersigned give notice that the Seventeenth Session of this National Association will be held in that city, commencing Wednesday, September Seventeenth, 1879, at 10 o'clock, A. M., and continuing for three days.

The city of Rochester has kindly granted the use of the Common Council Chamber for the meetings of the Society. The exhibition of fruit will be on the grounds of the Western New York Agricultural Society, in connection with the Annual Exhibition of that Society, and it is intended to make this one of the greatest exhibitions of fruit ever seen on any similar occasion.

All Horticultural, Pomological, Agricultural, and other kindred Associations in the United States and British Provinces, are invited to send delegations as large as they may deem expedient; and all persons interested in the cultivation of fruits are invited to be present, and to take seats in the Convention.

It is earnestly hoped that there will be a full attendance of delegates from all quarters of our country, thereby stimulating more extensive cultivation by the concentrated informa-

tion and experience of cultivators, and aiding the Society in perfecting its Catalogue of Fruits. This Catalogue includes fifty States and Territories, most of whose catalogues have their columns filled with a great amount of information as to the fruit adapted for culture in the respective locations. Many of these are yet incomplete; and it is the object of the Society, from year to year, to fill the blanks, and bring its Catalogue nearer to perfection. To accomplish this object as fully as possible, the Chairman of the General Fruit Committee, P. Barry, Esq., Rochester, N.Y., will send out the usual circulars of inquiry; and it is desirable that these inquiries should be answered at an early day. The various State and Local Committees are urged to respond to the circulars as soon as practicable.

The coming session will derive a special interest from being held in the midst of one of the great fruit-growing regions of the country, and in a district unequalled in the world for the extent of the nursery interest, in the propagation of fruit and other trees. It is believed that the city of Rochester is more easily accessible to a larger number of persons interested in the objects of the Society than any other city in the United States, and a full attendance and an interesting session is therefore anticipated. When we consider the importance of fruit culture in North America, its progress during the last thirty years under the beneficent action of this Society, its moral, social, and sanitary influence, and the increasing demand for its products both in this country and Europe rendering it a source of national wealth, we feel justified in urging the attendance of all who are interested in the welfare of our country and the development of its wonderful resources, in this branch of industry. It is desired, in this connection, that the Vice-Presidents of the several States, Territories, and Provinces, who have not already done so, should (following the plan commenced last year) furnish or procure, as far as possible, short historical sketches of the rise and progress of fruit culture in their respective districts, from their settlement up to the present time, to the end that the forthcoming report may, in connection with the last, give a complete view of the pomological history of the various parts of the country. State and local Horticultural Societies are respectfully requested to co operate and aid in this work.

Arrangements will be made with hotels, and, as far as possible, with the various railroad lines terminating in Rochester, for a reduction of fare. Notice will be given if any concessions are obtained. Wherever possible, it would be best that such arrangements should be made by the delegations with roads in their localities, as rates made by Rochester roads will apply only to their lines.

Members, delegates and societies are requested to contribute collections of the fruits of their respective districts, and to communicate, in regard to them, whatever may aid in promoting the objects of the Society and the science of American Pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered may be submitted to the meeting as early as practicable. A limited number of Wilder Medals will be awarded to objects of special merit.

Packages of fruits, with the names of the contributors, may be addressed as follows: "American Pomological Society, care of James H. Kelly, Esq., President of the Western New York Agricultural Society, Rochester, N.Y." Freight and express charges should be prepaid.

All persons desirous of becoming members can remit the fee to Thomas P. James, Esq., Treasurer, Cambridge, Mass. Life-membership, twenty dollars; Biennial, four dollars. Life-members will be supplied with back members of the Proceedings of the Society as far as possible.

The Secretary, for the purpose of securing a more complete statement of facts, solicits copies of all publications relating to Fruit and Fruit-growing in all the States, Territories, and Provinces of North America.

MARSHALL P. WILDER,¹
President, Boston, Mass.
ROBERT MANNING,
Acting Secretary, Salem, Mass.

Programme of Business.

(SUBJECT TO REVISION BY THE MEETING.)—HOURS OF MEETING.

Wednesday, 10 o'clock in the morning, and 3 o'clock in the afternoon.—Thursday, 9 o'clock in the morning, and 3 o'clock in the afternoon.—Friday, 9 o'clock in the morning, and 3 o'clock in the afternoon.

Rules for Speaking Five minutes, and no person to speak more than twice on the same subject, without leave.

Wednesday, 10 A. M. Introductory Exercises; Appointment of Committees,—viz, on Credentials, and on Nomination of Officers, on Record of Fruits exhibited, on Award of the Wilder Medal.

3 P. M. President's Address; Reports of Committee on Credentials and on Nomination of Officers; Election of Officers; Reception of Treasurer's Report, Appointment of place for the next meeting of the Society.

Thursday, 9 A. M. Reports of Standing Committees; Discussion of the Value of Fruits enumerated in the Catalogue, as indicated by stars, to be called by the Secretary in alphabetical order, as follows: Apples, Pears, Grapes, &c. At the close of each division, statements relative to new varieties will be received. 3 P. M. Continuation of the morning session.

Friday, 9 A. M. Reports of Committees on Fruits exhibited; Reception of Essays and Historical Sketches by Vice-Presidents and others; Continuation of Discussion on Values of Fruits, as per Catalogue; and Introduction of Names of New Varieties. 8 P. M. Completion of Discussion, Resolutions, &c; Adjournment.

Essays.

Invitations have been extended to the following named gentlemen to prepare papers on subjects pertaining to the work of the Society, which, it is believed, will add interest to the meeting and value to the Proceedings:—Professor George L. Goodale, Harvard University, Cambridge, Mass.—William Saunders, Esq., Washington, D. C., on Experiments in Fruit Culture.—Professor William J. Beal, Agricultural College, Lansing, Mich., on "Distinguishing Varieties of Apples by the flowers."—Dr. John A. Warder, President Ohio Horticultural Society, North Bend, Ohio.—Rev. Robert Burnet, President Ontario Fruit Grower's Association, Hamilton, Ontario.—Professor William R. Lazenby, Cornell University, Ithaca, N. Y.—P. J. Berckmans, Esq., Augusta, Ga.—Isidor Bush, Esq., Bushberg, Mo., on Grape Rot in America.—P. T. Quinn, Esq., Newark, N. J., on Fruits in New Jersey.—William C. Barry, Esq., Rochester, N. Y.—Thomas Meehan, Esq., Germantown, Pa., will give an Address on the Sexes of Flowers in Relation to the Fruitfulness of Orchards, and New Varieties.

We should be happy to hear that the Montreal Pomological Society, for the Province of Quebec, is to be represented at Rochester, and that its Exhibition is to be held at such a time as will allow our fruit to be exhibited both at Montreal and at Rochester.

Beans.

The price of beans has got down so low that not a few who have been in the habit of growing them will this year put in potatoes instead. We think they will miss it, as the people who continually shift their crop generally do. Beans require the same soil and manure as potatoes, both being what are called "potash crops," and doing best on rather light soils. With an average crop of either the proportion will be about one bushel of beans to eight bushels of potatoes; that is, land that will bring one hundred and sixty bushels of potatoes will yield twenty bushels of beans. But there is no difficulty in putting the crop up to thirty bushels,

and even more in a good season when the land is right, and proper cultivation is given. There is something in the seed, too. Some kinds are much more productive, freer from spot and rust, and ripen much earlier and even more than other kinds. A writer, evidently of experience, says on this subject, in a late issue of the *American Cultivator*:

Custom and habit seem to hold the sway as regards the variety of beans used in any particular locality. Thus the pea bean has always been the most popular variety in Boston and vicinity, the marrow bean in Providence, R. I., and Fall River, and the medium bean in New-York. Marrows are principally in demand in New York city for foreign shipment, and that city monopolizes the bulk of the export trade in beans. Western New-York farmers raise mainly the medium and marrow varieties, though they are devoting increased areas to pea beans. Most of our Northern farmers raise pea beans almost exclusively. The receipts from Maine are usually yellow-eyes, though Maine buys far larger quantities of beans in Boston market than she produces within her own territory. Yellow-eyes would be more extensively consumed in this market, particularly of the improved variety, if a more uniform supply could be depended upon. Hotels and eating houses find the yellow-eye to be clean, meaty, and rich, giving excellent satisfaction to their patrons. At present yellow-eyes are outselling mediums by fifty to sixty cents per bushel, and sometimes the difference in favor of the former variety is even greater than now."

We raise considerable crops of beans, as the most convenient thing we can plant among our fruit trees in nursery and orchard. For several years we grew the marrow and pea varieties, both of which, though productive and saleable, have objectionable points. They both ripen so unevenly that it is necessary to stack them in the field to dry before being threshed. The pea bean is quite liable to rust and spot, and the marrow to split under the flail. For all these reasons, (besides the trouble of stacking), they require hand picking to prepare them for market. For the last six years we have shifted to a yellow-eyed variety—not the old-fashioned long, flattish yellow-eye, but a sort procured from Maine that is as plump and glossy as a marrow. It is known as the Oxford Yellow-eye, and has proved a great acquisition to us. It is early, hardy, very productive, and entirely free from rust or spot. It does not vine, and the pods all ripen together, so that all we have to do is to pull them, sun them a day or two on the hill, draw them in and thresh them. They are so even and perfect that they need no hand picking, but are ready for market as they come from the fan. They do not split in threshing, so that there is no loss in that way, while the marrow, with the greatest care, will have a quart of split beans to a bushel. This is doubtless the improved variety mentioned by the writer in the *Cultivator*, and there has never been enough of them in the Boston market to one-tenth part supply the demand. The result is that they readily outsell the marrows and peas from twenty-five to fifty cents a bushel. As a yielder they are remarkable. We get from twenty to thirty bushels to the acre planted among nursery trees and occupying not more than half the land. The trees stand in rows four feet apart, and the beans are planted between the rows after the first hoeing. There is no better variety for the table, as the preference of the Boston hotels and eating-houses indicates. We consider getting hold of these beans when we did worth many hundred dollars to us.—*Vermont Watchman*.

The Farmer's Garden.

"The garden is not a luxury only, but a necessity to the farmer who wishes to have an attractive and healthful bill of fare; and it seems very strange, indeed, why it is so badly neglected by many farmers. One reason, however, I think is, that it is usually in some corner near the house, and so small, and planted in such a manner, that all the labor of weeding and hoeing has to be done by the hand. Now, I believe in a large garden and in planting the rows the whole length, leaving space enough between the rows to work a cultivator. By this method most of the work can be done by the horse, and in such a garden it is a pleasure to work, while in the old-fashioned one of one or two rods square, it is a back-aching, disagreeable job, and no wonder it is left to grow up to weeds. The location of the garden is of great importance. I prefer a gentle slope to the east or south, so that the young plants may receive the sun early in the morning. It should not be very steep, for if it is, much damage will be done by the rains of Summer; and it should also be protected from the north and

west winds by a high fence, or evergreens set along the border. Many people never know the luxury of a good vegetable garden. They live from youth to old age without learning how to manage one. They never taste the best products except at the tables of others. People are too apt to forget to plant a succession of vegetables. The soil must be rich, the land well cultivated every week or oftener. We need not here repeat the special directions for the time of sowing and the treatment of each vegetable. Every seed catalogue gives these directions; and a catalogue can be had for a postal card. Plants which thrive only in warm weather must not be put out too early. Wait till the sun comes out hot. Tomatoes, squashes, sweet potatoes, corn, egg plants, will grow then as if by magic."—*Rural New-Yorker*.

The Apple Tree Borer.

Rev. J. C. Wilder, of Charlotte, writing to T. H. Hoskins the Agricultural Editor of the *Vermont Watchman*, says: "I read the articles in your department with a great deal of interest and regard them as more reliable than anything else I get hold of. According to my experience he that increaseth fruit trees increaseth sorrow, the pestiferous insects bother me so. The borers trouble me the worst. I have seen it stated in some agricultural paper that Chloride of lime scattered round the trees will keep the pests away. What do you think about it? Or do you know of any better method than the old one of knife and wire?"

REPLY BY THE EDITOR.—When the borer is once in the tree we know no cure but the knife and wire, and prefer the knife. But there are various way of keeping the insect out. Chloride of lime might keep the beetle from depositing her eggs, but it is costly and must be frequently renewed, as the chlorine gas rapidly escapes from the lime. The best treatment (preventive) of the borer is to keep all weeds and sprouts away from the immediate vicinity of the trunk of the tree, and mound up around it, six or eight inches high, a quantity of leached or hard coal ashes. Another preventive is (weeds and sprouts to be kept off as before) to rub round the trunk of the tree for a foot from the ground, some hard or soft soap, preferably the former. The beetle lays its eggs in May or June, always on the soft bark near the juncture of the roots and trunk. If this can be covered, or rendered offensive to the female beetle, no eggs will be deposited, and consequently no borers will enter the tree. We think tarred paper might also be used, and perhaps prove the cheaper. The lower edge of the paper should be covered with earth. Some have recommended a muslin bag containing a piece of soap to be tied in the forks of the main branches of the tree, so that the rains would wash the soap down over the trunk. A lazy man's invention probably, that would not work in a dry season.—*Vermont Watchman*.

The use of the skimmer in the cheese factory, which we understand many will continue during the coming season, has already cost the dairy public dearly, and more than was ever got out of it by the temporary advantage, given at first, because of the lack of buyers and dealers. Even those who profited by this advantage have parted with their former gains in their later losses, and failures in business have occurred among those most heavily engaged in the use of the skimmer, while as a rule those who have made honest, whole-milk cheese are in a sound financial condition. Perhaps another season's disastrous experience is necessary to wipe out the folly of making both butter and cheese from the same milk. Some people are slow to learn from experience, and are prone to lay their misfortunes to anything but the true cause. But, in the end, justice will be vindicated and put her brand of disapprobation so deeply and plainly on every swindling practice, that even a blind man can decipher it.—*American Dairyman*.

Oleomargarine is an abomination and a swindle so enormous and dangerous that there are not words in the English language sufficiently strong to properly characterize it. It is not only a cheat which has justly called for special legislation to protect the consumers of butter, but it is a possible fruitful and frightful source of disease, which ought to

set the public as strongly on their guard against it as they would be against the probable introduction of the Russian plague. All kinds of animal food are dangerous enough at their best, but when added to these dangers are those of introducing not only the germs of the tapeworm, trichina, and other parasites known to infest uncooked animal food, but also the poisons fatal and horrible, which are generated by the process of putrefaction, the preservation of the public health demands the prohibition of the manufacture of oleo-margarine, or of any similar compound, making its production a misdemeanor at all times, and a capital offence where fatal consequences are traced to its use.—*Am. Dairyman.*

Hop Culture.

In answer to an enquiry contained in the April number of the *Journal d'Agriculture* Mr. A. R. Jenner Fust has kindly sent us the following interesting paper:

DEAR SIR.—I send you a few notes on Hops. As I was born and brought up in the midst of the Hop district in Kent I may be supposed to know some thing about the cultivation of that fascinating but hazardous crop.

The only authority is "Lance's Hop Farmer." I don't know the Publisher, but a letter to "Mr. Jenkins, Secretary to the Royal Ag. Soc., Bouver square, London," would, doubtless, meet with a reply containing the necessary information.

Mr. Alderman Procter, McGill St. Montreal, buys largely of good Hops every year; but if they are dried in any way except in a regular kiln, technically 'oast' (quasi toast), and are not well and tightly trod into the bags, they will be *unsaleable* at any price.

The crop is most variable, from *nothing* to 1200 lbs per acre; worth, during the last two years, from 8c. to 10c. per pound. In fact Hop-growing is pure gambling, and only pays when, by some chance or other, the crop fails in other countries and succeeds here; as in 1868 when they sold for 50c. per lb.

Again the greedy wretch is sure, sooner or later, to absorb the whole of the manure of the Farm. The usual dressing in *England* is, yearly, 40 double loads of dung, spread over the whole acre, and 120 bushels of sprats (fish) put into the *hills* in the summer.

The exposure should be to the North, rather than to the South, to avoid the extremest of temperature, and on a slope. Bottom lands near rivers are, almost always, subject to blight. Shelter from the prevailing winds should be attended to.

The *hills* should be arranged in the "Quincunx" form, as in that way, there will be three paths for the horse-hoe instead of two. This implement should be kept at work all through the summer, as the more the ground in the 'alleys' is pulverised the more will the roots wander in search of food. The hills must be kept *clean* by hand-hoeing. The "Quincunx" fashion gives, at 6½ feet between the hills, 1194 against 1031 in the square.

Plants can be cuttings, placed 5 to a hill, to allow for failures, or, what is far better, "bedded sets;" that is to say, cuttings set out in a nursery bed a year before they are permanently transplanted. The latter will give a small crop the first season with very short poles—say six feet.

As Hops are dioecious every 12th hill should be set with the *male plant*—proof? The cones are always heaviest in the immediate neighbourhood of the male hills.

Useless to attempt to grow Hops without great attention. In fact there is not a day, from May to September, in which there is not something to be done in the garden.

Ellis of Barming who cultivated 300 acres of hops, for 35 years, died a bankrupt. Example to be avoided. A drying kiln, or Hop oast does not cost much. At Compton, or Lennoxville they may be seen in operation. I suppose, as long as Brewers are fools enough to prefer rankness to delicacy, sulphur will be used to disguise the colour of the Hops. I should never use it myself. In fact the best sample of Hops I ever saw grown in Canada was refused by every *practical* man as too brown—afraid they would darken the finer Ales! Bah! Sulphur only disguises the colour and hides the blemishes. Poles, as to length, should be suited to the sort of Hop grown, and for this reason; viz., if the poles are too long, the hop will keep on running, instead of turning down and coming into "Burr" i. e. flower.

As to heat in drying; a Thermometer thrust through the Hops and resting on the pierced floor (Hair cloth or haggling) should never indicate more than 120° F. Hops are sufficiently dried when the 'strig' (stalk) will break.

Sorts of Hops.—first and best, 'Golding's'—inventor's name R. Golding, of Maidstone.

These require 18 to 21 feet poles. Awful devourers of dung. Very delicate and sensitive to easterly winds.

Flemish—coarse, but very productive—14 and 16 feet poles.

Goldgate's, good—14 ft poles—latest sort in ripening.

Jones—productive—and 12 feet will do for the poles.

3 poles to the hill are, 1194 hills, equal to 3582 per Imperial acre.

Probable average yield, in this country, 700 lbs; which, at say 12c= \$84.00, but this is certainly *over* the mark.

Woolen rags, or waste from the cloth mills, are very good manures for this crop.

In conclusion I should recommend no one to meddle with Hop-growing, without passing at least one season in or near a Hop-garden; it is not a thing to be learned by study at home.

ARTHUR R. JENNER FUST.

Dear Sir.—As the Cheese season is about opening we think it would be advisable and timely if you would call the attention of the farmers to the good resolutions they have made during the winter, and enforce upon them the necessity of selling their goods when they are fit for market. You are no doubt aware that the Cheese market has opened very low, and that the make, up to the 15th May, was much smaller than last season; but, after this date, our information leads us to believe that the make will be quite as large as last season, unless some unforeseen event occurs to stop the flow of milk.

The farmers must face the facts as they are and meet the market. There is no prospect of things immediately improving, and they should be urged to sell when their goods are fresh and in a state to command the highest market price. The finest quality of Cheese is now selling at 7 to 7½c. on this market, and poorer qualities at from 3 to 6c.; finest factory made Butter 17½ to 18c. and dairy packed 10c. to 14c. There is a fair export enquiry at these rates.

Yours Truly,

A. A. AYER & CO.

Lucerne of the Province of Quebec.

Dear Sir.—We began cutting Lucerne on Monday last; it is now two feet, to two and a half high, and, up to Monday we have had no rain for four weeks. Last year, I cut it the *second* time on the 21st of June. We get four crops during the season. I fed five horses, two Bulls, and some calves with it for four months. The recent rains are doing much good.

5 June 1879.

R. H. STEPHENS.

Bee-Keeping.

In the beginning of July the first swarms will have almost all flown, and none but after-swarms will remain. As the latter left alone give but little profit, one of two things must be done: they must either be returned to the main swarm, or they should be united to other secondary swarms. Two of these being as strong as a main swarm. In the former case, secure the after-swarm and unite them the following morning by shaking out the bees in front of the main swarm, they will all enter without difficulty. When two after-swarms are to be united it may be done at once, if both swarms came out the same day. If not, it will be necessary to smoke the bees slightly and then to empty the new swarm into the hive of the older one. The smoke, by making all the bees smell alike, will make them unite without difficulty. In order to succeed in these various operations, a small instrument, called a *smoker*, is of great advantage. It is composed of three parts, viz: a tube in which the fuel is placed, the conductor and the bellows. Once lighted, it can be used for several hours, and it throws a very dense smoke. With this instrument, the bees can be entirely mastered; it is of incontestable benefit, Foundation, and it saves the bee-keeper a great deal of trouble.

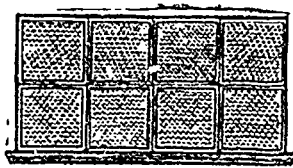
As soon as the swarms are united, it is necessary to concentrate all their efforts towards securing honey. In order to obtain this result bees should not be allowed to lie idle, or to cluster. Should this happen in any swarm, one may be sure the hive is too small for its population or that the frames are quite full. In such a case, boxes should be added for the bees to fill and the hive ventilated, either by opening the ventilator, where there is one, or by raising it from the front, or by making openings into it. Should the bees cluster, it is advisable to sprinkle a little honey or syrup over them, which they will at once absorb and carry into the hive, after which they will go



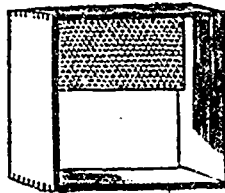
Knife for uncapping.

to work again, but the above described remedies must also be applied.

The honey is generally collected in boxes, more or less large. To secure success it seems to us essential that the boxes be placed on the hive in two tiers, so that as soon as the lower tier is being filled, it may be raised and empty boxes placed under it, so that the bees may be forced to fill up the lower boxes as well as those already begun. The movable hive secures the same object by the superposition of sections.



Frame filled with sections.



A section.

One of the most modern inventions, and one which causes a complete revolution in bee-culture, consists in artificial combs or what the Americans call *foundation*. It consists of a thin sheet of wax on which are deeply stamped the exact form of the cells in the comb. This foundation is placed at

the top of the boxes and frames in the direction which the bees follow in their work. Nothing can do better as an encouragement for them set to work immediately. As soon as one of the boxes or frames with foundation has been placed, the bees ascend at once into it and set to work. Their labour is the more fruitful that they have not to produce any wax in order to store the honey. As the base of the cells is thick, they thin it out and extend the sides; this work is done with an extraordinary activity. If it be remembered that, according to the best authority, bees have to consume 20 lbs of honey to produce 1 lb of wax, the advantage of the above described discovery fully appears and fills the true apiarist with admiration. It is best to cap all the empty

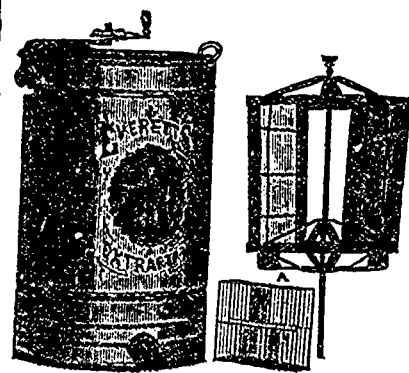


Vail.

boxes and frames with foundation before putting them into the hive in order to induce the bees to enter them sooner. As soon as the boxes are filled do not allow them to remain on the hive,

the combs would discolour. They should be removed at once and be replaced by empty ones.

For such as prefer to extract liquid honey without breaking the combs, we here represent the *Extractor*. After uncapping the combs with the knife specially adapted to this operation, they are put into the extractor, the handle is turned, and the honey is removed without breaking the most delicate combs.



Extractor.

As soon as the boxes are filled do not allow them to remain on the hive, the combs would discolour. They should be removed at once and be replaced by empty ones.

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