

seot, and leaves its abode by raising one of extremities of its prison which it breaks through without much effort.

The fly then takes its flight through the air, in search of the other sex, and after fecundation, deposits its eggs in the place where the larvæ which will be hatched from them can find suitable food within their reach. And so the process continues.

It is generally thought that the little flies one sees in summer so often are the offspring of the larger kind, which the former equal in size when they have attained their complete development. This is a mistake, for flies, like every other insect that undergoes a complete metamorphosis, when hatched have attained their full size, and grow no more. The larvæ—he they worms or caterpillars—of all these insects increase in size; nevertheless, this increase does not come to them insensibly, as with other animals, but suddenly, by fits and starts. The larva, under the form of worm or caterpillar, eats voraciously and, consequently, the bulk of its body increases rapidly. But viewed from without, its volume appears to be the same, for the tough skin that covers it does not easily dilate. Suddenly, the skin splits open, and displays the new larva much larger than it was before, and it continues to eat and grow until it sloughs off its skin once more. The larvæ generally go through three or four sloughings, increasing in volume at each change of skin. When arrived at the last period, they pass into the *nympha* state, either spinning themselves a cocoon or enclosing themselves in a sort of egg or *chrysalis*, whence, after a shorter or longer time, they emerge in a perfect state, with their wings and all complete.

Insects in general are only destructive when in the larva-state. And so it is with several of the *Bombyx* species, which when fully grown do not eat at all: some of them have not even a mouth to eat with. Their perfect state seems to be intended to insure the reproduction of the species by favouring the coition of the sexes.

Still, with insects which undergo the complete metamorphoses, like the *hemipteræ* or bugs, the *orthopteræ*, grasshoppers, crickets, &c., it is very different. These insects begin their ravages the moment they are hatched, and continue them until they die.

It would be an easy task to teach the students of our agricultural schools to distinguish insects according to their orders, and afterwards to know what they have to fear from their larvæ.

If time would allow, I would show you, even here, how every intelligent person who desires to understand what he sees, may know, at first sight, what he has to fear from any insect he meets with, and consequently, what means he should adopt to contend with it successfully.

Since the meetings you hold every year aim particularly at the regeneration of agriculture by means of the dairy-industry, I will here submit my views on certain points which are paralysing the progress which we all have in view. My ideas are far from infallible, and are all open to discussion; but they, it will be allowed, proceed from a somewhat practical man, who has observed and studied much, and who, besides, is doing his best for the prosperity of our common country in seeking to regenerate its agriculture, ruined by an exploded, and blameable routine.

And, to start with, I must tell you that I am opposed to the Council of Agriculture, to the commissioners of Agriculture, and to the inspectors of standing crops, because I perceive too much political jobbery in all this; jobbery which seems to have no other end but the advantage of those to whom good luck has given a position in these dramas.

The Council of Agriculture seems to me to be a fifth wheel added to coach, and which far from increasing the rapidity of its movement, greatly interferes with its action. The govern-

ment has an excellent means of getting information on agriculture through special committees of the house. I should, therefore, prefer to the council a commissioner thoroughly up to his work, with sufficient clerks to do the work properly. This would do much more good than the council.

I may say the same about the commissions of agriculture which are another form of jobbery, in which the favouritism of political parties peeps through to the neglect of men who possess real capacity as agricultural advisers.

The same may be said of the inspection of standing crops, a costly business, whence no benefit has ever been derived except to those who won the prizes, generally men whose wealth enables them to do better than those who do not possess the same resources.

In 1854, being then curé of St. Joachim, in the county of Beauré, I was invited to organise an agricultural association as there was nothing of the sort there. I drew up the programme in such a way that the prizes fell to the greatest produce per arpent. The first year, the prizes were awarded as follows: Harvested from an arpent: wheat, 19 bushels; oats, 45; pease, 18; hay, 377 bundles, &c. On all sides was heard the cry: "Wait a little! See if I won't beat that next year. I'll take an arpent for wheat, one for pease, and another for oats, and give them special preparation." So the second year, the winning arpents were: 1st. wheat, 34 bushels; 2nd, 23; oats, 65; pease, 23; hay, 400 bundles, &c. (1) Was not this real progress and within the grasp of all, since only an arpent of each crop was taken? And the piece that produced 34 bushels the arpent, would it not remember the treatment it received for 5 or 6 years? If each farmer would undertake the improvement of only 3 or 4 arpents of his land yearly, would not that be a real and promising sign of progress?

As for the agricultural schools, I do not wish to hurt anybody's feelings here, but permit me to say, I do not think they have done their duty.

Some years ago, I advised the Department to present to each subscriber to the *Journal d'agriculture*, which, being said in passing, is admirably conducted and very useful, a plan of each farm-schools, explaining thoroughly the situation, the nature of the soil, and so on, of each field; and to relate every succeeding month the work done on it, the *brairding* of the seed, the harvesting of the crop, any accidents that may occur, &c. In this way, every subscriber would be able to follow, at home, the operations conducted on a model-farm, and to assure himself of their successful issue. But it was not thought advisable to do this. Fear of making public a compromising want of success was probably the cause.

Why is not botany taught in these schools, as well as the *grafting and pruning of trees*, and a knowledge of destructive and useful insects? These are points which are not to be neglected in agriculture, especially when the object aimed at is to form model-farmers.

An experimental farm has just been established at Ottawa, but in this, as in many other things, the French-Canadians seem to have been forgotten.

You will kindly observe, gentlemen, that I have only glanced at the above ideas, without allowing myself time to develop them properly. I am well aware that they will not meet with the assent of all my hearers, but no one, I think will doubt the purity of my desire to accelerate to the progress and develop the resources of our fine and wealthy country, a land of which we have every right to be proud, and which cannot increase and prosper save through the improvement of its agriculture.

(From the French.)

(1) This proves nothing, as the difference of seasons might account for the difference of yield.
A. R. J. F.