INSECT LIFE.

Dr. BETHUNE then gave an address, of which the following is an abstract :

Mr. CHAIRMAN LADIES AND GENTLEMEN,—I have been very much pleased that a horticultural society has again been formed in this town. When it was proposed to me to take part in this, the first annual meeting of the Port Hope Horticultural Society, I was at a loss to know what to bring before you, unless it were my favorite subject, that of insects.

Every person knows that there is a great variety of insects. Probably you are not aware that the insects more than equal all the animals that inhabit the earth both in number and bulk. We must not, of course, include the fishes of the ocean, as we do not know their numbers, but confine ourselves to the inhabitants of the earth. The insects, then, more than equal all the other animals of creation. Just one instance of their numbers: A writer says that he observed a flight of locusts crossing the Red Sea and covering two thousand square miles. He calculated that the locusts would weigh about one-sixteenth of an ounce each, and computed that they would weigh altogether forty-thousand millions of tons. It seems incredible.

What I thought of doing to-night was not so much to entertain as to instruct. This is only the first meeting of the Port Hope Horticultural Society, and I may perhaps be called upon to give you further information at some future time so will confine myself to-night to some remarks upon insects.

The first question that rises in the mind is, what is an insect? I suppose everyone thinks they know what constitutes an insect. Some will tell you that a spider is an insect, but it is not. They are first cousins of insects, but they do not belong to that class themselves, though they are very near relatives. Take thousand legged worms; they are closely allied to insects, but they are not insects themselves.

Well, an answer to the question as to what constitutes an insect, is, of course, its structure. We find that these creatures are all built on a certain plan; there is a plan upon which the great Creator has chosen to work. In their formation we find the body divided into three distinct parts. The first division is the head, the second is the thorax, and the third the abdomen. The head contains the mouth; the thorax, the legs and wings, and the abdomen the breathing apparatus and other internal organs.

What may surprise some is that the breathing apparatus is contained in the abdomen, the third part of the body. Some people try to kill an insect by closing its mouth, but it does not affect it at all. They dip its head into oil, but, beyond inconveniencing it a little, it does it no harm. The reason is plain to be seen—they do not subject the right part of the insect to the oil.

You will notice on these diagrams (pointing to some on the wall) that there appear feelers on most of them, especially on the butterfly. These are called antennæ, and they are organs of sensation of the insect. You will notice that in an insect there will always be found a pair of antennæ.

In their perfect state insects always have at least one pair, but mostly two pairs of wings. Those that have only one pair, have rudiments of a second pair. The flies are the only ones that are destitute of two pairs.

Then the next distinction is that they all have six legs in the perfect state—I am speaking of the winged state. In this stage all insects have six legs—never more or less—except in the case of some butterflies, which have only four. If you find one with six legs, then you know that it is an insect.

I just said that I was referring to the perfect state, but there are others as well. You will see by these diagrams that there are different stages. All insects go through four stages to a greater or less extent.

The egg is the first state. Insects begin life, like all living creatures, as an egg. The egg is laid and from the egg is produced a little caterpillar, grub or maggot. The caterpillar grows very rapidly and goes on eating during its existence. It afterwards