

TOM. There are lots of lumps on the backs of our cows; they call them *warbles*. They will be bigger in the spring; and sometimes they can squeeze big, ugly, soft grubs out of them. Are they caused by this gad-fly?

T. They are the larval stage of the gad-fly.

JIM. And there are holes in some of the hides coming to the tannery caused by the warbles.

T. Yes. And it is provoking to think that these flies specially hanker after and torment the most vigorous of the herd.

SCHOLAR. How can the larvæ get out of the warbles?

T. By June or July, when they are full grown, they enlarge the opening through the hide of the animal by constant gentle pressure, until at last they come out backwards and roll down to the ground. The skin of the larva then hardens, turns black, and changes into a kind of cocoon. This is the pupa stage in which it remains for about one month. The imago or perfect fly then breaks forth from out of its cocoon, as is shown in our cut to the left of the ovipositor.

SCHOLAR. Why is it called a bot-fly?

T. The word "bot" was probably the same as the original of our word "bite." There is one kind of these larvæ found clinging to the stomach of the horse, appearing as if *biting* its coat. There is one also which is destructive to sheep. The larvæ *bites* its way into the brain. In some parts of England there are people who yet say, "*they botte*" for "they bit." The bots, then, were grubs which appeared to live by *biting* living animals.

SCHOLAR. And why are they called gad-flies?

T. "Gad" is the old Anglo-Saxon word which meant a sharp point. For instance, an arrow point, a lance point, a sting, used to be called by the earliest Englishmen a "gad." "Goad" is the modern form of the word, and is the name of a sharp pointed stick used to drive oxen even yet by some people who should be more humane. A gad-fly was a "goad-fly"—a pricking or stinging fly. Some of these flies have also been called *Breeze* flies, from a very old word descriptive of the buzzing sound made by them.

In order to make our lessons connected, our next shall be on the gad-fly of the horse and of the sheep. We generally find the greatest scientific interest in what also involves the most important industrial consequences.

THE Maritime Province Experimental Farm has been located at Nappan, near Amherst, and will consist of 360 acres of fine land.

AMONG THE CONSTELLATIONS.

No. V.—ORION.

"Seek him that maketh the seven stars and Orion, and turneth the shadow of death into the morning, and maketh the day dark with night; that calleth for the waters of the sea, and poureth them out upon the face of the earth; the Lord is his name."—AMOS v. viii.

"Which maketh the Bear, Orion and the Pleiades."—JON ix. 9.

"Canst thou bind the cluster of the Pleiades or loose the bands of Orion?"—JOB xxxviii. 31.

Well up in the southern sky during January nights is this most picturesque and most anciently named of all the constellations. As it swings slowly from the eastern to the western horizon, its position is also one of the most conspicuous. It reigns over our snow clad nights. Pope in his *Winter*, lines 85-87, does it too scant justice for our Canadian sky when he sings:

"But see, Orion sheds unwholesome dews;
Arise, the Pines a noxious shade diffuse;
Sharp Boreas blows, and Nature feels decay."

Four stars, forming a large, slightly oblique X with a belt of three stars across its centre, distinctly outline the constellation. The eastern upper star is Alpha, or *Betelgeuse* of the first magnitude; the western, Gamma or *Bellatrix* of the second magnitude. The western lower star is Beta or *Rigel* of the first magnitude; the eastern, Kappa of the second magnitude. *Betelgeuse* and *Bellatrix* are respectively near the right and left shoulders of Orion, and Kappa and *Rigel* mark approximately the position of the right and left foot.

The three stars in the centre indicating Orion's belt, are of the second magnitude and are named, beginning with the highest, as follows: Delta, Epsilon and Zeta. They are often called the "yard stick" in Canada. They have also received the names of Jacob's Staff, the Golden Yard of the Seaman, and the Three Kings of the Soothsayers.

Orion can be seen all over the world. Mythology speaks of him as a mighty hunter, and some go so far as to say that he represents Nimrod. Modern hero worship has more than once attempted to change this name. In England it was proposed to change it to Nelson. In 1807 the University of Leipsic actually resolved that all the stars forming the belt and sword of Orion should henceforth be known only by the name of Napoleon.

The sword of Orion is represented by three faint stars, of the fourth magnitude; hanging down below the middle of the belt. The central one of these, Theta, is in one of the finest nebulae of the heavens,