

imbedded in it the larva of the above species. By means of a hot iron I separated a cube of ice with the inclosed larva, and took it to my office. The caterpillar was entirely and solidly inclosed by the ice; no air-spaces could be detected among the hair. How long the caterpillar had been inclosed I could not say. Left the cube of ice in front of my window, where the temperature sunk for two days to  $11^{\circ}$  below zero. Later the weather moderated, and during the day a little ice would melt near the caterpillar, but never exposing it to the air. After being inclosed for fourteen days, I carefully melted the ice and removed the caterpillar to a piece of blotting paper. In less than thirty minutes the larva was crawling about, not injured in the least. Yet, to escape further experimentation, it has shown good sense and spun up, and transformed into a pupa, healthy to all appearances."

SAW-FLY BORER IN WHEAT.—Prof. J. H. Comstock, Entomologist, Cornell University, Ithaca, N. Y., describes a new saw-fly working in wheat, known as *Cephus pygmaeus*, order Hymenoptera, of the family Tenthredinidae as follows

An insect destructive to wheat, but previously unknown in this country, has appeared in considerable numbers on the Cornell University farm. I do not know of its occurrence anywhere else in this State; but as it is extremely abundant here, it is doubtless spread over a considerable area. It was first observed in this locality two years ago by one of our students, the late Mr. S. H. Crossman while making an investigation of wheat insects. Mr. Crossman's studies, however, were sadly terminated before he had carried his investigations of this species very far; and it has fallen to me to continue the work begun by him.

On examining the stalks of wheat at harvest time by splitting them throughout their length, it was found that some of them had been tunnelled by an insect larva. This larva had eaten a passage through each of the joints so that it could pass freely from one end of the cavity of the straw to the other. In addition to tunnelling the joints they had also fed more or less on the inner surface of the straw between the joints; and, scattered throughout the entire length of the cavity of the straw, except the smaller part near the head, were to be seen yellowish particles, the excrement of the insect.

If infested straws be examined a week or ten days before the ripening of the wheat, the cause of this injury can be found at work within them. It is at that time a yellowish, milky-white worm, varying in size from 1-5 inch (5 mm.) to  $\frac{1}{2}$  inch (12 mm.) in length. The smaller ones may not have bored through a single joint; while the larger ones will have tunnelled all of them, except, perhaps, the one next to the ground.

As the grain becomes ripe the larva works its way towards the ground, and at the time of the harvest the greater number of them have penetrated to the root. Here in the lowest part of the cavity of the straw they make preparations for passing the winter, and even for their escape from the straw the following year. This last is done by cutting the straw circularly on the inside, nearly severing it a short distance, varying from one-half inch to one inch from the ground. If the wheat were growing wild, the winter winds would cause the stalk to break off at this point, and thus the insect after it had reached the adult stage in the following year could easily escape; while but for this cut, it would be very liable to be imprisoned within the straw. But under ordinary circumstances the straw is cut by the reaper before it is broken off at this point, and consequently that breaking off does not occur. If, however, there is a strong wind just before the harvest and after the straws have been cut in this manner by the insects, they