

experiments were tried upon the caterpillars of *Larix Rossii*, a very abundant species in Boothia Felix, and, doubtless, all through the arctic regions of this continent. The account (page lxxi.) is as follows :

"About thirty of the caterpillars were put into a box in the middle of September, and after being exposed to the severe winter temperature of the next three months, they were brought into a warm cabin, where, in less than two hours, every one of them returned to life, and continued for a whole day walking about. They were again exposed to the air at a temperature of about 40° below zero, and became immediately hard frozen ; in this state they remained a week, and on being brought again into the cabin, only twenty-three came to life. These were at the end of four hours put out once more into the air, and again hard frozen ; after another week they were brought in, when only eleven were restored to life. A fourth time they were exposed to the winter temperature, and only two returned to life on being again brought into the cabin. These two survived the winter, and in May an imperfect *Larix* was produced from one, and six flies from the other."

That a caterpillar infested with parasites should have been able to survive such severe treatment and spin its cocoon is most remarkable, and it is not to be wondered at that alternate freezing and thawing should have been disastrous to the majority of those experimented upon.

Many other similar accounts doubtless exist, but I think that the records which I have thus brought together are sufficient to prove that actual freezing is not necessarily fatal to insects, and that Mr. Bean had no sufficient warrant for the statement quoted at the beginning of this article.

Mr. DEARNESS was of the opinion that it was clearly the thawing not the freezing of plants which caused the injury.

Mr. FLETCHER asked him whether he did not think that the rupturing of cells and tissues by the crystallization and expansion of the contained liquids was the chief injury.

Mr. DEARNESS thought not, because if care were taken in thawing out frozen plants slowly many of them would sustain little injury. He recounted the experience of a friend who had endeavoured to get very early potatoes by planting them before the usual time. After they were well above the ground a severe frost occurred. He went out very early in the morning and watered a part of them with cold water ; these were all killed, whilst others under a fence were uninjured. He accounted for this from the fact that at the time he watered the plants the temperature of the air was below the freezing point, and as soon as the water fell upon the plants they were temporarily thawed out and then froze up again, and were scorched by the sun as soon as it fell upon them. Geranium slips, he said, could be buried beneath the surface of the ground and would receive no injury if the thawing were gradual.

Prof. BOWMAN thought that insects were better able to withstand freezing in some stages of their growth than in others. Dallinger had found in his investigations of bacteria, that a kind of bacterium which could, at a certain stage of its development, withstand the effect of boiling water, would at others be easily destroyed. He thought that the woolly covering of plants and insects, as well as the cocoons of the latter, were intended to protect them from the effects of too rapid changes of temperature.

Mr. HARRINGTON gave a most interesting account of a trip to Japan, which he illustrated with a number of beautiful and remarkable specimens.

Mr. Fletcher gave a very interesting account of a visit he made in August last to Mr. W. H. Edwards, the celebrated author of the great work on "The Butterflies of North America," who lives at Coalburgh, in West Virginia. He was especially interested in the methods of breeding butterflies through all their stages from the egg to the imago. Among many valuable points that he referred to, there may be mentioned that when eggs are placed in a glass bottle preparatory to hatching, it is best to use a tight plug of cotton batting rather than a cork ; when the insects hatch out they usually do not require any food for twenty-four hours ; it is best to have a plant of the required kind growing in a