

the Germans have given this insect the name of gardener. The larvæ of the caterpillar destroy in the middle and southern parts of Sweden the roots of tree plants, and especially is this true of those in nurseries.

Among moths there are many which are injurious, such as the pine moth (*Gastropascha pini*), the black arches, nun or spruce moth (*Liparis monacha*), pale beauty (*Trachea pini-perda*), the geometrical moth, bordered white moth or span worm (*Fidonia pinaria*), the larch mining moth (*Tinea laricina*), the pine-shoot tortrix or twig twist - (*Tortrix buoliana*), the green oak tortrix or oak-leaf roller (*T. viridana*), etc. Among these the nun or spruce moth has advanced, devastating in southern Sweden, principally in Södermanland and Östergötland, where elaborate means have been employed for their extermination. The work has been chiefly confined to whitewashing the trunks of trees, this procedure preventing the larvæ from infesting healthy trees. Besides, in districts small trees have been felled and the branches trimmed off, both to prevent the larvæ from spreading and to deprive them of food.

Too numerous game can also be harmful to the forest economy. Sweden's most noble wild animal, the elk, causes in certain parts of the country noticeable damage to young pines whose cones and shoots furnish a part of his food. The roe deer causes injury to the plants of the spruce, and especially to those of the silver spruce. From the forester's point of view it would be well to reduce the number of these animals more than the hunter in the interests of hunting will admit. Even grazing cattle, and foremost among them the goat, become in places where propagation is in progress really injurious, especially if the pastures are not confined within certain limits.

To the forest's foes belong also a large number of parasitic fungi, which appear chiefly on the trees, blossoms, leaves, cones, bark, or else in the wood.

To the first group belong *Lophodermium Pinastri*, which in nurseries cause much damage to two-year or older pine plants, fungi, *Chrysomyxa abietis* on the spruce, etc.

To the latter group of fungi, which produce decay, may be named the *Polyporus pini*, *P. annosus*, *P. pinicola*, *P. borealis*, all common on our coniferous trees. Against the parasitic