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June 16.

### THE CATERPILLAR ATTACK ON FRUIT TREES.

A GOOD deal has been heard recently about the caterpillar plague on fruit trees. There has undoubtedly been an abnormal attack in many parts of the country, and much damage has been done. In some parts of Kent, Sussex, Herefordshire, and Worcestershire orchards have been denuded of their foliage, and many more partially damaged. In many instances not only has this year's promising crop gone, but the trees have had a serious setback for next season. Apples and cherries have suffered most, but in a few districts plums have been badly invaded; currants also have suffered. In some districts visited much of the fruit was only slightly affected; some orchards well cared for, not at all; whilst others were as bare as in midwinter, and a fresh set of leaves was already appearing.

Most of the harm has been done by the Winter Moth (*Cheimatobia brumata*). In company with it has been a fair sprinkling of the Mottled Umber (*Hybernia defoliaria*) larvæ. Another "Looper" larva has done much harm in parts of Herefordshire, the Pale Brindle Beauty (*Phigalia pilosaria*), and also in Kent and at one locality in Sussex; it is usually worst in plantations near oakwoods. Comparatively few March Moth (*Anisopteryx aescularia*) have occurred. All those mentioned have either apterous or nearly apterous females, and are incapable of flight. A few are, however, carried by the males in *copula*. From several localities in Kent and Sussex numbers of Clouded Drab Moth (*Taeniocampa instabilis*) have been received; this insect appears to be becoming more harmful to fruit in the south of England.

The main damage done has clearly been due to the insects mentioned, by far the greater part by the Winter Moth, the Pale Brindle Beauty having been very harmful in a few localities only. These caterpillars have now done most of their work, but the fruit-grower is still being harassed to some extent by the Lackey Moth (*Clissiocampa neustria*) and the Little Ermine (*Hyponomeuta padella*). How far these attacks will develop it is impossible to say.

The amount of loss has been due very largely to the serious lack of labour. Many plantations have been improperly cultivated or from lack of labour, not cultivated at all. It has too often been quite impossible to spray the trees, and even

last year there were not sufficient men on many farms effectually to grease-band them. For Winter Moth and its allies two methods of treatment meet with complete success, if properly carried out, which can only be with the necessary supply of skilled labour. The first is grease-banding; the second, spraying with arsenate of lead, where the former cannot be done, as on bush trees or where such pests as the Clouded Drab Moth occur. If grease-banding on standards and half-standards is to be of any use, the bands must remain sticky from October to April, and the bands must be complete, not, as the writer has seen this year, with many breaks in them. If arsenate of lead spraying is done, then, it must be carried out at the proper time and thoroughly. Many growers have sprayed when they found the blossom trusses going and the leaves fast disappearing. This is too late, for the damage is done, the caterpillar working most rapidly towards the close of its life. Apples should be sprayed as soon as the buds are well open, and may have to be sprayed again when the blossom trusses begin to expand. One good spraying as soon as the young "Looper" larvæ are seen will save the crop, whilst to spray when all the damage is done is waste of time and money.

Most of the loss this season to apples and other fruit could, and doubtless would, have been saved had proper provision been made for the necessary skilled labour.

One other point is worth mentioning, namely, that during the winter in many districts there was a great mortality amongst sparrows. The sparrow, especially when nesting, devours Winter Moth larvæ and undoubtedly helps to keep them in check, which, however, will not make up for its many evil habits. FRED. V. THEOBALD.

### PROF. T. MCKENNY HUGHES, F.R.S.

THOMAS MCKENNY HUGHES, Woodwardian professor of geology in the University of Cambridge, died at Cambridge on June 9, in his eighty-fifth year.

Hughes was born at Aberystwyth, and was the son of the Rev. Joshua Hughes (afterwards Bishop of St. Asaph), and grandson of Sir Thomas McKenny, Bart., who took a prominent part in promoting Catholic emancipation in Ireland. His brother is Bishop of Llandaff. On leaving school, he entered Trinity College, Cambridge, where he graduated in 1857, proceeding to the M.A. degree ten years later. When an undergraduate he attended the geological lectures of his predecessor in the Woodwardian chair, Prof. Sedgwick. In 1860 he was appointed secretary to the British Consul at Rome, and during part of that and the following year was left in charge as Acting Consul; but before the year 1861 closed he definitely gave up diplomacy for geology, and joined H.M. Geological Survey. He was a member of the Survey until 1873, when he was elected to the Woodwardian professorship. From that date until his death his time and energy were devoted to the cause of the Cambridge